District of West Vancouver
Development Permit No. 21-056

CURRENT OWNERS: Thomas Richard Edward and Alisa Openysheva

THIS DEVELOPMENT PERMIT APPLIES TO:

CIVIC ADDRESS: 3092 Marine Drive

LEGAL DESCRIPTION: 011-074-698
(LOT 1 OF LOT 3 BLOCK A DISTRICT LOT 556 PLAN 5814)
(the "LANDS")

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1. This Development Permit:

   (a) imposes requirements and conditions for the development of the Lands, which are designated by the Official Community Plan as a Development Permit Area to protect and enhance watercourses within the Existing Neighbourhoods, in accordance with the Guidelines NE13 specified in the Official Community Plan; and

   (b) is issued subject to the Owner's compliance with all of the Bylaws of the District applicable to the Lands, except as specifically varied or supplemented by this Permit.

2. The following requirements and conditions shall apply to the Lands:

   2.1 Zoning Bylaw No. 4332, 2010, as amended, shall be varied to allow the following buildings and structures described in **Schedule A** as follows:

Zoning Bylaw Aspect	Zoning Bylaw Requirement:	Proposed:	Required Variance
Section 203.07 Front yard setback	9.1 m	8.56 m	0.54 m

   2.2 Buildings, structures and driveways shall be sited in accordance with **Schedule A** attached hereto.

   2.3 All existing unpermitted structures must be removed including:
   a) three accessory structures within the CN Railway RoW
   b) the portion of the garage which encroaches onto the District boulevard
   c) the non-conforming stairs located off the south deck

   2.4 Riparian Planting Plan to be installed as per **Schedule B**.

   2.5 Prior to any site clearing, rock removal, grubbing, stripping, shrub or tree removal, re-contouring or construction on the Lands, sediment

and erosion control works shall be submitted at the Building Permit stage and approved on-site by the Environmental Protection Officer.

2.6 The sediment and erosion control works shall be removed only upon written approval by the Environmental Protection Officer.

3. Prior to Building Permit application and as security for the due and proper completion of the measures to preserve, protect, restore or enhance the environment set forth in Section 2 of this Development Permit (the "Environmental Protection Measures"), the Owner shall:

(a) provide security in the amount of $5,000.00 to the District in the form of cash or an unconditional, irrevocable auto-renewing letter of credit issued by a Canadian chartered bank or credit union; and

(b) maintain the security for a minimum of one year after completion of the Environmental Protection Measures, and not prior to the date on which the District Environmental Protection Officer authorizes in writing the release of the security.

4. This Development Permit lapses if the work authorized herein is not commenced within 12 months of the date this permit is approved.

THE REQUIREMENTS AND CONDITIONS UPON WHICH THIS PERMIT IS ISSUED ARE ACKNOWLEDGED AND AGREED TO BY THE CURRENT OWNER. IT IS UNDERSTOOD:

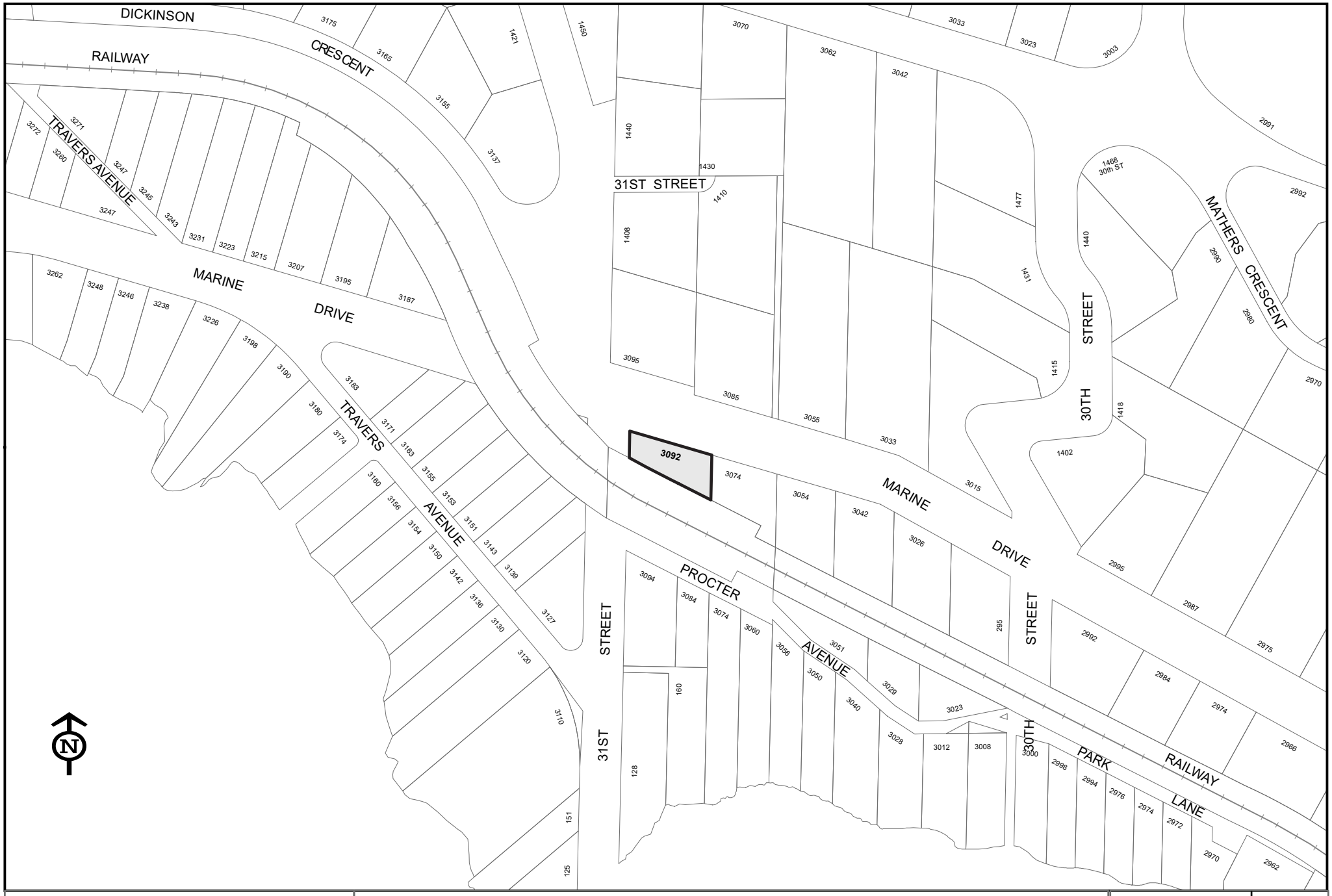
- THAT OTHER PERMITS / APPROVALS MAY BE REQUIRED INCLUDING PERMITS / APPROVALS FOR BUILDING CONSTRUCTION, SOIL AND ROCK REMOVAL OR DEPOSIT, BOULEVARD WORKS, AND SUBDIVISION; AND
- THE DEVELOPMENT MUST ATTAIN REQUIREMENTS OF THE BC BUILDING CODE AND ANY VARIANCES TO THE ZONING BYLAW ARE THE RESPONSIBILITY OF THE OWNER AND MUST BE RECTIFED AT THE BUILDING PERMIT STAGE.

THE DIRECTOR OF PLANNING & DEVELOPMENT SERVICES APPROVED THIS PERMIT ON November 30, 2021

DIRECTOR OF PLANNING & DEVELOPMENT SERVICES

Schedules:

A - Architectural Drawing Package prepared by Synthesis Design dated 2021-11-08
B - Environmental Development Permit Application Report including Riparian Planting Plan, prepared by Sartori Environmental Inc. date stamped 2021-04-09



CONTEXT PLAN

TITLE: 3092 Marine Drive

DATE: Oct.26/21

REV: 0

FILE: SK-1

SCHEDULE A

Average Natural Grade Calculation - District of West Vancouver

segment	elev. (a)		elev. (b)	segment total		average elevation	segment length (m)	total
A-B	83.3	+	82.5	165.8	0.5	**82.9**	**2.43**	**201.447**
B-C	82.5	+	82.4	164.9	0.5	**82.45**	**1.52**	**125.324**
C-D	82.4	+	83.5	165.9	0.5	**82.95**	**3.9**	**323.505**
D-E	83.5	+	83.5	167	0.5	**83.5**	**1.52**	**126.92**
E-F	83.5	+	83.5	167	0.5	**83.5**	**1.03**	**86.005**
F-G	83.5	+	83.5	167	0.5	**83.5**	**0.73**	**60.955**
G-H	83.5	+	84.2	167.7	0.5	**83.85**	**2.01**	**168.5385**
H-I	84.2	+	84.2	168.4	0.5	**84.2**	**0.73**	**61.466**
I-J	84.2	+	84.4	168.6	0.5	**84.3**	**3.2**	**269.76**
J-K	84.4	+	85.4	169.8	0.5	**84.9**	**8.59**	**729.291**
K-L	85.4	+	84.3	169.7	0.5	**84.85**	**5.36**	**454.796**
L-M	84.3	+	84.1	168.4	0.5	**84.2**	**5.02**	**422.684**
M-N	84.1	+	81.9	166	0.5	**83**	**7.22**	**599.26**
N-A	81.9	+	83.3	165.2	0.5	**82.6**	**13.65**	**1127.49**
								0
								0
								0
								0
								0
								0
								0
								0
								0
								0
								0
								0
						total	56.91	4757.4415
						average grade =		83.60

Average Finished Grade Calculation - District of West Vancouver

segment	elev. (a)		elev. (b)	segment total		average elevation	segment length (m)	total
A-B	83.3	+	82.5	165.8	0.5	**82.9**	**2.43**	**201.447**
B-C	82.5	+	82.4	164.9	0.5	**82.45**	**1.52**	**125.324**
C-D	82.4	+	83.5	165.9	0.5	**82.95**	**3.9**	**323.505**
D-E	83.5	+	83.5	167	0.5	**83.5**	**1.52**	**126.92**
E-F	83.5	+	83.5	167	0.5	**83.5**	**1.03**	**86.005**
F-G	83.5	+	83.5	167	0.5	**83.5**	**0.73**	**60.955**
G-H	83.5	+	84.2	167.7	0.5	**83.85**	**2.01**	**168.5385**
H-I	84.2	+	84.2	168.4	0.5	**84.2**	**0.73**	**61.466**
I-J	84.2	+	84.4	168.6	0.5	**84.3**	**3.2**	**269.76**
J-K	84.4	+	85.4	169.8	0.5	**84.9**	**8.59**	**729.291**
K-L	85.4	+	84.3	169.7	0.5	**84.85**	**5.36**	**454.796**
L-M	84.3	+	84.1	168.4	0.5	**84.2**	**5.02**	**422.684**
M-N	84.1	+	81.9	166	0.5	**83**	**7.22**	**599.26**
N-A	81.9	+	83.3	165.2	0.5	**82.6**	**13.65**	**1127.49**
								0
								0
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								0
								0
								0
								0
								0
								0
						total	56.91	4757.4415
						average grade =		83.60

NO GRADE CHANGES TO EXISTING CONDITIONS PROPOSED

LEGAL DESCRIPTION:

TOPOGRAPHIC SURVEY PLAN OF LOT 1 OF LOT 3, BLOCK 'A', DISTRICT LOT 556, PLAN 5814

CIVIC ADDRESS:
3092 MARINE DRIVE, WEST VANCOUVER, B.C.
P.I.D. 011-074-698

FOR ADDITIONAL SITING INFORMATION REFER TO SURVEY PRODUCED BY:

HOBBS, WINTER & MacDONALD
B.C. LAND SURVEYORS
113-828 HARBOURSIDE DRIVE,
NORTH VANCOUVER, B.C.,V7P 3R9
TEL 604-986-1311 FAX 604-986-5204

JOB DIRECTORY:
FB.2692 p.100 - 102
FB.2692 p.134 - 147 M 3367-22 DWV

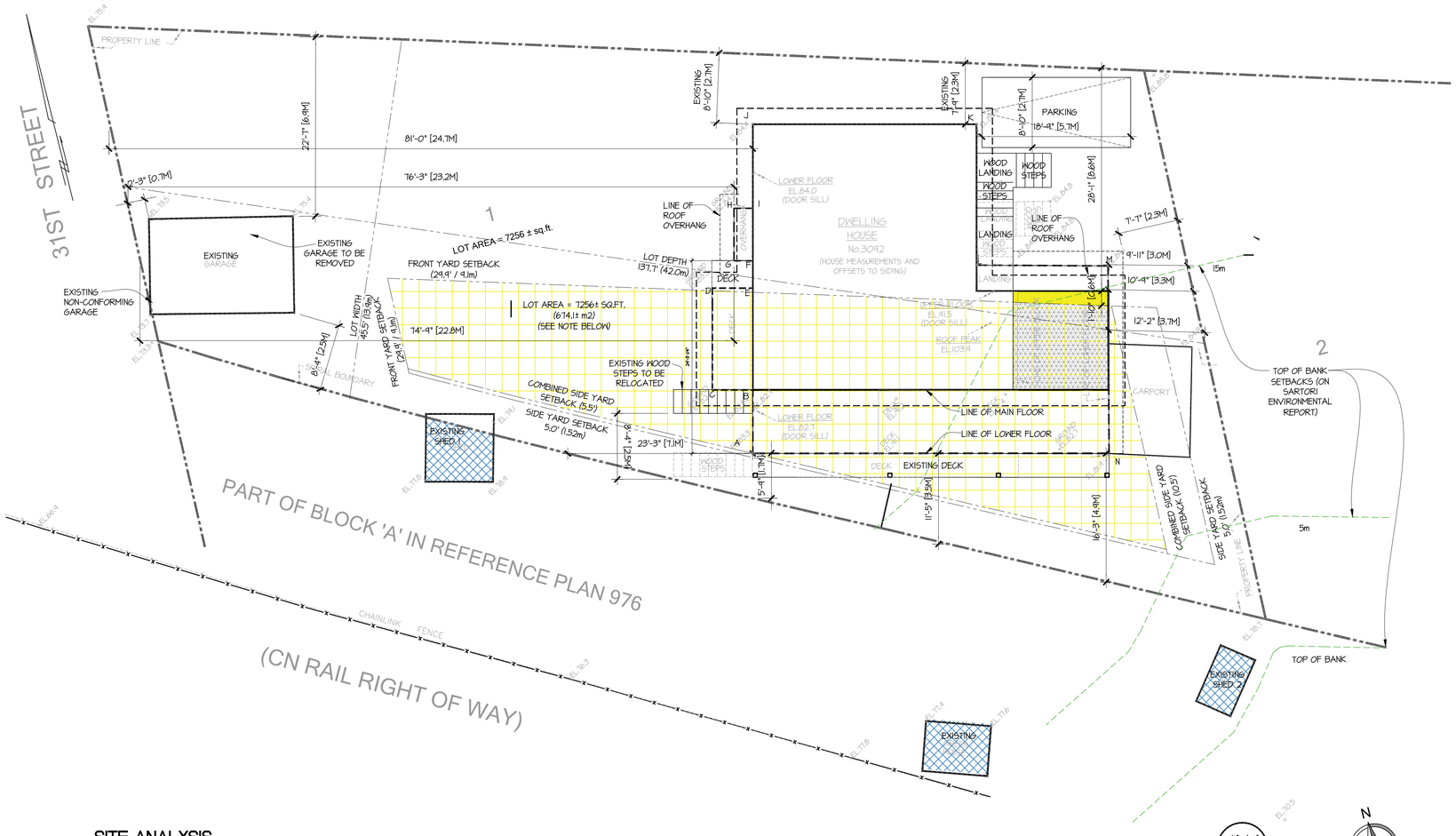
EXISTING STRUCTURE OUTSIDE OF PROPERTY LINES

BUILDABLE AREA

AREA OF ADDITION / VARIANCE REQUIRED

AREA OF ADDITION

NOTE:
LOT SIZE AND ALLOWABLE FSR MAY CHANGE IF A REFERENCE PLAN IS COMPLETED IN THE FUTURE.



SITE ANALYSIS

1/8"=1'-0"

SHAPING AND SITING ANALYSIS – RS-3 ZONING

LOT ADDRESS: 3092 Marine Drive

	ALLOWED	EXISTING	PROPOSED	CONFORMS
Minimum Lot Area	12,001.8 (1,115m²)	7256 (674.1m²)		EXIST
Minimum Lot Width	80' (24.4m)	45.5' (13.9m)		ENC
Minimum Flanking Lot Width	95' (29m)	45.5' (13.9m)		ENC
Lot depth shall not exceed 4x site width	182.0' (55.4m)	137.7' (42.0m)		EXIST
SITE COVERAGE				
Lot Area Dictates Site Coverage				
Lot Area ≥ 9,526.1sq ft. (885m²)	2176			N/A
Lot Area between: 7,147.2sq ft. (664m²) & 9,526.1sq ft. (885m²)	2,863.2sq ft. (266m²)	2199sq.ft. (204.3m²)	2118.7 sq.ft (196.83m²)	Y
Lot Area ≤ 7,147.2sq ft. (664m²)	Lot Area x 0.40			N/A
PRINCIPAL BUILDING SETBACK				
Front Yard	29.9' (9.1m)	73.1' (22.3m)	7.8' (Existing) 28.1' (8.6m) Addition	EXIST/N
Rear Yard	29.9' (9.1m)	9.8' (2.99m)	N/A	N/A
Left Side Yard**	5' (1.52m)	7.6' (2.32m)	5.7' (1.7m)	EXIST
Right Side Yard**	5' (1.52m)	5.5' (1.68m)	9.7' (3m)	EXIST
Combined Side Yard**	16' (4.9m)	13.1' (4.0m)	9.7 (3m exist) (10.5'/3.2m new Addition)	ENC/Y
HEIGHT OF BUILDING				
Principal Building: 2 Storey (plus basement) or 25' (7.62m)	25' (7.62m)	19.06' (4.9m)	17.1' (5.21m Addition)	EXIST / Y
ACCESSORY BUILDING SETBACK				
Rear Yard	4' (1.2m)	108.7' (33.1m)		
From Principal Dwelling**	4' (1.2m)	0' (0m)		ENC
Left Side Yard**		22.8'		EXIST
Right Side Yard**		3.3'		
Combined Side Yard**				
ACCESSORY BUILDING HEIGHT				
Accessory Building (should not exceed the height of one storey)	12' (3.7m)	12' Max.		EXIST
OFF STREET PARKING				
Minimum car parking space	1	2		EXIST
HIGHEST BUILDING FACE ENVELOPE**	22' (6.7m)	22' (6.7m)		EXIST
FLOOR AREA RATIO				
Lot Area ≥ 7287.17sq ft. (677m²) 0.35 x site	2551sq.ft. (237m²)			N/A
Lot Area between: 5,102.1sq ft. (474m²) & 7,179.53sq ft. (677m²)	2,551sq ft. (237m²)	2544 sq.ft. (236.3m2)		Y
Lot Area ≤ 5102.1sq ft. (474m²)	Lot Area x 0.50			N/A
Basement	1559 (144.8 sqm)			
Main Floor	956 (88.8 sqm)			
Basement Exemption	-104 sq.ft (9.66 sqm)			
Parking Structure	219 (20.34 sqm)			
Accessory Building	Shed 1 (partial): 13 sq.ft. (1.2 sqm) on property			
Other - accessory buildings off property	Shed 1 (partial): 60 (5.57 sq.m) Green house: 52 (4.83 sq.m) Shed 2: 36 (3.34sq.m)			

VARIANCE OF 1'-10" (0.6M) REQUESTED

* Notwithstanding, the Site Coverage need not be less than 2,856 sq. ft. or 40% of the Lot Area, whichever is less.

** (1) One storey or two storey with or without basement, in which the upper storey is less than 2/3 the minimum width of main storey: no side yard shall be less than 5' (1.52m); and the sum of both side yards shall not be less than 16' or 20% of lot width, but need not exceed 39.7'.
(2) All other dwellings, no side yard shall be less than 5' (1.52m) (if site width is less than 50 ft (15.2m) OR 10% of lot width, to a maximum of 9.8ft (3m) in width. The sum of both side yards shall be 25% of site width, but not be less than 16'(4.9m) or more than 60' (18.3m).
Notwithstanding above, where an entrance is provided from a side street, a 14.8' (4.5m) min. side yard shall be provided at the entrance side yard only. Notwithstanding above, where an entrance is provided from a side street, a 14.8' (4.5m) min. side yard shall be provided at the entrance side yard only. A building on a corner flanking site shall maintain the front yard requirements of both streets.

***An accessory building shall not exceed a height of 12.1' (3.7m). All setback requirements are the same as the principal dwelling for an accessory building. The accessory building may be connected to the principal dwelling with a covered or uncovered walkway, less than 6' (1.8m) in width, if it is fully enclosed and heated it shall be part of the principal building. If the accessory building is separated from the dwelling by more than 14.8' (4.5m), then the combined side yard setback shall be the combined minimum distances from the building line measured for each individual building or structure to the side site lines. An accessory building or structure that is located within the building envelope may abut the house, but if not, a 4' (1.2m) separation is required. If the accessory building is located wholly or partially within the rear yard setback area, a min. separation of 14.8' (4.5m) from the principal dwelling is required. An accessory building shall be located at least 4' (1.2m) from the rear site line.

**** No portion of the building may project beyond the envelope, except eaves, decks, decorative features and the pitch roof portion of either gable ends or dormers.

REVISIONS	BY
⚠	

All dimensions shall be verified on site prior to commencement of work.

SYNTHESIS DESIGN
synthesis design inc.
258 east 1st street
north vancouver, bc,
canada V7L 1B3
tel. (604) 980-2087
www.synthesisdesign.ca

STRINGHAM SITE ANALYSIS
3092 Marine Drive
West Vancouver, BC

Drawing Title
SITE ANALYSIS

Date 03.26.2021
Scale 1/8" = 1'-0"
Drawn JPAS/BI
Job No. 20067
Sheet A-1
Of 09 Sheets

OUTLINE SPECIFICATIONS

Div. 0 Contract Documents

Contract Documents

The Contract Documents refer to:

–The Contract between the Owner and General Contractor.
–Construction Documents (all drawings, specifications and surveys).
–Consultant's Drawings and Reports.
–SYNTHESIS DESIGN, INC. will not be responsible for any costs incurred to Owner or Contractor through errors or omissions in the Contract Documents after building permit is issued.
–SYNTHESIS DESIGN, INC. will not be responsible for any alterations or changes during the construction process that are not documented in the Contract Documents.
–All Contract Documents assume existing structures are built to current Municipal and British Columbia Building Code (BCBC) standards, unless otherwise noted. Any existing deficiencies or deteriorated areas are not the responsibility of SYNTHESIS DESIGN, INC., but will be addressed upon their discovery, at the Owners expense.

Div. 1 General Requirements

Summary of Work

–The General Contractor, herein referred to as the Contractor, shall provide all labour, products, plants, equipment and materials required to complete the project as described in the Contract Documents.
–The Contractor is to be responsible for all taxes, licenses, bonds, insurance for fire and liability, WCB coverage and all municipal and engineering inspections.
–The building permit shall be posted in a prominent location and the municipally approved drawings protected from the elements and on site at all times.
–The Owner retains the right of access and occupancy during construction and / or prior to final completion but will maintain the Contractor's ability to execute the prescribed work.
–Care must be taken to ensure safety of the public and adjoining properties at all times.

Coordination and Supervision

–HOBBS WINTER MACDONALD (604–986–1371) will be retained as the Surveyors, PEBETON ENGINEERING, LTD. (780) 885–6643) will be retained as the Structural Engineers
–All construction, materials and workmanship shall conform to current WCB & BCBC Standards.
–The Contractor shall take adequate and reasonable precautions to protect the public from hazards and dangers arising from all operations.
–The Contractor will ensure that all trades observe all local construction and noise regulations; ensure also that all preceding or adjacent work enables continuation or subsequent trade work can be undertaken properly.
–The Contractor shall distribute al Consultants' reports, drawings, schedules, etc. upon receipt.
–The Contractor shall ensure fulfillment of all requirements within the Consultants' reports, drawings, schedules, etc., and arrange appropriate municipal inspections.

Field Engineering

–The Contractor will verify all grades and property lines as established by the Owner and report any errors or inconsistencies to SYNTHESIS DESIGN, INC. before commencing work.
–The Contractor is to check and verify all dimensions and conditions on the drawings and job site prior to construction and report any discrepancies to SYNTHESIS DESIGN, INC. – written dimensions have precedence over scaled dimensions.

Quality Control

–The Contractor shall arrange all inspections, municipal and provincial, obtain form work and foundation surveys, and advise the Engineers of construction progress, specifically enabling them to view form work 24 hours before pouring concrete.
–The Contractor shall coordinate all storm, sanitary and water main work with the Municipal Works Department, as required by the Municipal Engineering Department.
–The Contractor shall issue a one–year warranty against defective materials and workmanship plus an additional five years against major structural defects.
–The Contractor is required to be licensed by the Homeowner Protection Office and arrange for third–party home warranty insurance on proposed new homes. Coverage includes 2 years on labour and materials (some limits apply), 5 years on the building envelope and 10 years on the structure of the home.
–All materials, species, grades, colours, and finishes are to be approved by SYNTHESIS DESIGN, INC. and / or Owner, with samples to be provided on request, prior to ordering.

Construction Facilities & Temporary Controls

–The Contractor shall provide municipal water and sewer connections as required by the Municipality, as well as temporary water, power, light, heat, telephone, sanitary facilities and first aid as may be required during construction.

Material and Equipment

–The Contractor shall protect all materials, executed work and the site from damage by the elements, the public or any other source and shall repair or replace an item or work so damaged.

Contract Close–Out Procedures

–The Contractor shall maintain a continuously clean work site and provide a final professional clean up of glass, painted surfaces, floors and fixtures. All stains are to be removed and scratched or broken glass replaced.
–All ducts, furnaces and air exchange systems to be professionally cleaned.
–Deficiencies and defects are to be corrected within 30 days of Substantial Performance. Those items incomplete will be undertaken by the Owner with costs deducted from the final payment.
–All bid and construction sets of contract documents are to be returned to SYNTHESIS DESIGN, INC. at completion of work.

Div. 2 Sitework

Subsurface Investigation

–Standard penetration tests such as drilling and subsurface investigations are the responsibility of the Contractor and are to be carried out by trades experienced in such work.

Demolition

–The Contractor shall remove and dispose of existing carport
–The Contractor shall ensure that the alteration or removal of existing structures and services will not alter or endanger those to remain which may require shoring, underpinning and / or bracing.
–The job site must be clean and any debris left on site must be placed in locations (as approved by the Owner) to maintain safe conditions for the Owners, Contractor, and Sub Trades.

Site Preparation

–Site preparation, tree cutting, excavation, rock removal, trenching for services, backfill and rough grading are the responsibility of the Contractor and are to be carried out by trades experienced in such work and performed in a manner that avoids unnecessary loss, damage, or disturbance to the site proper.
–Materials shall be handled and stored according to local regulations.

Dewatering (if applicable)

–The Contractor will provide trenches, piping and holding ponds necessary to control site drainage during construction.
–The Contractor shall provide concrete sump(s) as required by the Municipal Engineering Department and / or Geotechnical Engineer to deal with existing and added perimeter drainage and rain water run off.

Earthwork

–Contractor to follow municipal regulations for dealing with sediment and erosion (refer to sediment and erosion plan where applicable).
–Excavation for footings is to be at least 18" below grade to solid bearing and remain so until the concrete is in place.
–Unexpected soil conditions are to be reported to the Engineer before start of form work.
–Excavate to required levels for footings and finish grades as required, making allowance for perimeter drains, required form work, wall coatings and thickness of base and surfacing material specified.
–Footing base shall be firm, clean and free of mud and water; rock bases to be washed and dirt free with grouted pins as per Engineer and / or BCBC.
–Excavate to required dimension and pitch of any trenches and pits for all mechanical, plumbing, sewage, electrical, communication and gas services.
–No backfilling shall be done until all form work has been removed, walls coated, and drain lines viewed by the Engineer, and approved by the Municipal Inspector.
–Backfill against cast–in–place concrete only after 14 days with joists in place and coatings dry.
–Backfill material shall be frost free and contain no discarded building or organic material which might deteriorate.
–Provide and place any additional subsoil, fill or gravel required to bring existing grades to finish grades indicated:
such material shall be of acceptable low moisture content, applied in 1" (300 mm) layers, and consolidated.
–Provide continuous positive slope around the entire building.

Paving and Surfacing

–Sub grade under paved areas are to be well drained and compacted to 95% standard proctor density.
–Sand base courses to be clean and free of deleterious material, and compacted.

Landscaping

–Finished landscaping – including screened top soil, sod, and plants – are not included in contract.
–All finished landscape work to be coordinated by the Owner following the completion of the job and final grading.
–Existing plants and topsoil are to be stripped from the construction area, stored in an Owner approved protected area.
–All trees and shrubs outside the essential excavation shall be preserved and protected against damage.

Div. 3 Concrete

Form work

–Form work shall be constructed to dimension and profiles shown, properly braced to maintain position and shape during and after pour to prevent leakage of concrete.
–Allow through wall blocking for electric wiring, drainage, piping, vents, grilles and beam pockets.
–Forms shall be moistened just prior to concrete pour.
–Maximum deflection permitted: 12 mm (1/2") for foundation 6 mm (1/4") for columns, or as per Engineer.

Concrete Reinforcement

–Reinforcing steel shall comply with CSA specifications for intermediate grade (40) bars. All bars shall be deformed according to ASTM A305.
–All reinforcing steel shall be firmly positioned and secured against displacement, by chairs, spacers and hangers.

Cast–in–place Concrete

–Standard concrete shall be machine mixed from clean and properly graded aggregates, clean water and Portland Cement, and shall have a strength at 28 days of 21 MPa (3000 psi) min. for reinforced concrete, or as per Engineer.
–Concrete shall be deposited, vibrated and compacted so as to prevent honeycombing or segregation.
–Plain and reinforced cast in place concrete for foundations and building structure shall conform to CAN3–A23.1 & A23.3.
–Top of sills to be true and level surface; grouting as required.
–Pad footings are required as per Structural Engineer.
–Provide concrete spread footings under all load bearing walls, as per the Structural Engineer.
–Coordinate work of other trades in placing of sleeves and services in slabs or foundations.
–Notice shall be given prior to the pouring of slabs to allow trades to position their work.
–Lay concrete slabs, reinforced as shown, with necessary expansion and control joints, screed to level surface.
–Thoroughly float before final set, steel trowel to a hard, smooth finish. (Do not dust with cement before troweling).

Concrete Accessories (as per Structural Engineer)

–Embed 1/2" anchor bolts for sills at 1.2M, 4'–0" o.c., unless noted, minimum two bolts per straight plate length.
–Anchor posts to footings to resist uplift, as per the Structural Engineer.
–Other concrete reinforcing, dowels, shoes and connections for columns etc. shall be supplied and installed as detailed.

Concrete Curing

–Ensure that weather conditions will not alter concrete mixture or curing.
–All concrete shall be left in forms for three days and kept moist for seven days.

Div.4 Masonry

–N/A

Masonry Removals

–Existing Chimney to be removed

Masonry Flues & Chimneys (IF APPPLICABLE)

–Chimney height must conform to BCBC #9.21.4.4 – A chimney flue shall extend not less than 3'–0" above the highest point at which the chimney comes in contact with the roof, and not less than 2'–0" above the highest roof surface or structure within 10'–0" of the chimney.
–Provide a minimum of 2" clearance between chimney and combustible framing. Refer to BCBC 9.21.5.
–Provide a minimum of 4" clearance between fireplace and combustible framing. Refer to BCBC 9.22.9.
–Provide a minimum of 6" clearance to clean out.
–Fireplaces shall have a non–combustible hearth extending not less than 1'–4" in front of the fireplace opening and not less than 8" beyond each side of the fireplace opening except: where the hearth floor is elevated more than 6" above the hearth extension, the width of the hearth extension shall be increased by 2" for gn elevation above 6" and not more than 12" and an additional 1" for every 2" in elevation above 1'–0".
–The walls of any chimney or flue pipe shall be constructed to be smoke tight and flame tight.

Div. 5 Metals

Structural Steel

–All nails, spikes, screws, bolts, plates, fasteners, and brackets to be in accordance with BCBC.
–All hangers and saddles to be sized to suit the intended load.
–Shop drawings are to be submitted for all metal work and other specified work upon request of SYNTHESIS DESIGN, INC.
–Structural hardware to be shop primed or hot dipped if in contact with water.
–All paint metal work to be coated with rust proof paint or powder coating.
–See Structural Drawings for steel beam sizes and details, if necessary.

Fabricated Metal & Aluminium Rails

–Supply and install 42" high aluminium guardrails c/w tempered glass panels (see drawings for locations).
–Exterior guard rails to be minimum 42" – maximum 4" opening in all stair, deck and balcony guards (except space between bottom rail and stair tread), or equivalent. Refer to BCBC 9.8.8.3.

Div. 6 Woods & Plastics

Rough Carpentry

–The Contractor shall provide lumber, plywood, fasteners etc. for framing and coordination of work of other trades.
–Techniques, fastening, blocking, fire stops, bracing and sheathing to BCBC Residential Standards.
–All lumber to be SPF and all sheathing shall be plywood – grades shall conform to BCBC and local codes.
–Supporting wood posts to be 6x6 minimum as per Structural Engineer.
–All subfloor sheathing to be 3/4" tongue and groove plywood, glued and screwed to joists.
–Twisted, misaligned or structurally inadequate framing members to be replaced prior to finish as per Engineer.
–Provide cross bridging at maximum of 7'–0" o.c. for roof and floor joists.
–Provide blocking, backing and bracing for doors, stairs, railings, cabinets, pedestal sinks, wall fittings and attachments.
–Stair handrails to be located between 34" & 38" above the nosing of each tread.

Glue–Laminated Structural Units

–Provide as per Structural Drawings.

Manufactured Wood Trusses

–Provide as per Truss Manufacturer's drawings (c/w raised heel to match existing) confirm slope and heel depth on site.
–Contractor to note placement of new bulkheads, and peaks prior to ordering trusses.
–Truss layout to be confirmed by SYNTHESIS DESIGN, INC. and Owner prior to ordering.

Finish Carpentry

–All added door and window frames are to be within 1/16" of finish wall to accept casings.
–Installed moldings to be caulked with appropriate coloured, paintable latex caulk and receive two finish coats of semi–gloss latex paint.

Millwork

–Provide kitchen cabinets, built in units, washroom vanities as indicated on drawings.
–All cabinets to be approved by Owner and installed in a professional manner.
–Do not deliver, store, or install finish cabinets or trim until building is fully enclosed, heated, and lockable.
–Coordinate work of kitchen, bathroom and storage cabinets / organizers with related trade.

Counter Tops

–All counter tops and backsplashes to be approved by Owner and installed in a professional manner.

Wood Treatment

–Any lumber likely to come into contact with water shall be pressure treated with approved preservative and bear on rolled foam gasket.
–Protect exposed beams and structural elements from water damage; clean or replace as per Engineer.
–Provide treated studs – c/w 0.5" air space – when furring out concrete walls in Basement.
–Provide treated sleepers when adding sub floor systems in Basements.

Railings and Guards

–Semi–frameless glass railings to be supplied and installed as per manufacturer specifications.
–Provide railings / guards for exterior decks – see drawings for details.
–Guard rails to be minimum 42" exterior (where the walking surface served by the guard is more than 6 feet above the finished ground level) & 36" interior – maximum 4" opening in all stair, deck and balcony guards (except space between bottom rail and stair tread). Refer to BCBC 9.8.8.3.

Div. 7 Thermal & Moisture Protection

Waterproofing

–All decking material to match existing unless noted.
–Minimum slope of decks over living spaces is to be 1/4":12".

–Provide overflow drain below door level on sun decks.
–Ensure that concrete patios, walkways and driveways have positive slopes of 1/8":12".
–Ceramic / slate tile or equivalent required to bathroom floors.

Damp Proofing

–Apply two coats of bituminous damp proofing and dimpled membrane (Delta MS or equivalent, as per manufacturer's specifications) to perimeter foundation to line established on site; not to exceed height of final ground level; ensure all holes are plugged, patched and cured prior to application of coatings; coat top of footings and apply to manufacturer's specifications; remove excess and smears.
–Provide rolled fiberglass between wood sill plates and concrete sills.
–Provide 4" diameter PVC drain tile around perimeter of concrete strip footings (c/w 6" drain rock above) to tie into existing perimeter drain tile system.

Insulation

–Thermal insulation located and sized as per drawings; use mineral wool batts for roof, walls and floors as per local municipal codes; rigid polystyrene rated at 5R/inch for foundation, slab and roof deck applications (ensure foamed plastic insulation receives protection).
–Provide continuous fully caulked 6 mil U.V. poly vapour barrier around entire building envelope, including below all concrete slabs as per BCBC #9.25.4
–Provide minimum 1" clearance between top of roof joist and insulation BCBC #9.19.1.2.
–Provide minimum 2.5" clearance between roof sheathing and insulation BCBC #9.19.1.3.
–Spray applied polyurethane insulation shall be installed in accordance with CAN/ULC–S705.2, "Thermal Insulation – Spray–Applied Rigid Polyurethane Foam, Medium Density, Installers Responsibilities – Specification as per BCBC # 9.25.2.5. See drawings for locations.

1. Vaulted Ceiling:

–Uniformly distribute roof ventilation to 1/150 of ceiling area with minimum 50% at top of roof and minimum 50% in soffit vents.
–Roof assemblies without attic space (cathedral ceilings, decks over living spaces) are to receive Rockwool ComfortBatt® spray–applied polyurethan foam up to R–32 insulation.
–Provide 2x2 or 2x4 cross purlins to roof assemblies without attic space (cathedral ceilings, decks over living spaces) to conform to BCBC #9.19.1.3.

2. Attic Space:

–Uniformly distribute roof ventilation to 1/300 of insulated ceiling area with minimum 50% at top of roof and minimum 50% in soffit vents.
–Attic or roof spaces to receive R–50 insulation.

3. Crawlspace:

–N/A

4. New Exterior Walls:

–All exterior 2x4 to receive R–14 (Furred out basement walls) and 2x6 wood framed walls to receive R–22 insulation.

5. Suspended Floors:

–N/A

6. Renovation of Existing Walls:

–If drywall is removed from an existing exterior wall, the wall assembly and insulation may be required to be brought to current building code requirements. Report to SYNTHESIS DESIGN, INC. and / or Owner prior to commencement of the work.

7. Acoustic Insulation:

–N/A

Shingles and Roofing

–Supply and install architectural series fibreglass laminate shingles on roof to match existing– Owner to approve final style and colour.
–Existing roofing material to be to remain where possible and all new overhangs to match existing conditions, c/w soffits and venting as required to match existing – unless otherwise noted.
–All added roofing to be installed over approved roofing underlay, in a professional manner, by an established, licensed, bonded, and insured (including WCB) roofing Contractor.
–Contractor to ensure that roofing contractor will provide Owner with copies of all warranties, including: 1) Manufacturer's Material; 2) Roofing Contractor's Labour, and; 3) Third Party Association Guarantee.

Membrane Roofing

–All membrane roofing to be installed over approved roofing underlay, in a professional manner, by an established, licensed, bonded, and insured (including WCB) roofing contractor.
–Contractor to ensure that roofing contractor will provide Owner with copies of all warranties, including: 1) Manufacturer's Material; 2) Roofing Contractor's Labour, and; 3) Third Party Association Guarantee.
–Flat roofs to have a minimum positive slope of 1: 50 or to manufacturer's specifications.
–Flat roofs to be 20 year, black, TORCH–ON installed with positive slope and to manufacturer's specifications.

Soffits

–Provide vented, open, 1x4 t&g v–groove painted pine, raked soffits to match existing conditions, as per drawings.
–Provide vinyl soffits strips to run parallel to exterior walls
–Soffits to have two coats of exterior paint.

Cladding and Siding

–Provide 3/4", tight knot bevelled cedar cladding c/w exposure to match existing, as required. See drawings for locations.
–All wood cladding to be pre–primed (4 sides) with one coat primer and installed over 2 layers of approved 30–minute building wrap.
–Be sure to stagger the joints of all added cladding that abut existing cladding and cut all joints @ 45 degrees.
–Caulk unprotected seams and openings with appropriate coloured latex or silicone.
–Provide second coat exterior paint to cladding following installation and caulking.
–Provide 8" clearance between grade and siding.

Rain Screen

–Provide approved rain screen assembly for all new cladding applications (see drawings for details). Confirm assemblies with municipal regulations.

Exterior Trim

–Provide pre–primed (4 sides) corned faced spruce 2x4's @ corners; 1x6's @ facias; 1x8's @ barge board to match existing
–Provide pre–painted (4 sides) S4S cedar: 2x 3.5" @ door and window trims c/w canted 2x 2.5"sill and aprons to match existing.
–Pre–primed exterior trim to have one finish coat of enamel.

Flashing and Sheet Metal

–Provide continuous flashing: at all edges for wind and watertight installation; over all exterior windows and doors and at all horizontal intersections of differing cladding materials.
–All roof flashings, caps and fittings to match colour of roofing as close as possible.

Roof Specialties and Accessories

–All new gutters are to match existing c/w screened rain water leaders, unless noted. Locations to be confirmed by Owner.
–Ensure that tempered glass displays manufacturer's authentication markings.

Div. 8 Doors, Windows, Glazing & Mirrors

Wood and Vinyl Doors

–Before the door order is placed, the Contractor is to measure on site to confirm whether or not any existing or proposed openings require a custom sized door.
–Ensure that every door has 2.5" minimum of framing material around the entire door jamb.
–All exterior doors to have solid blocking (vertical and horizontal), for two stud spaces, both sides at locking height so that the jambs will resist spreading by force.
–All exterior wood doors to be paint grade solid core c/w weather stripping.
–All interior doors to be paint grade, solid core. Owner to approve style.
–Contractor to install Owner supplied hardware (including astragals and hinges) for all exterior and interior doors, including: dead bolts with a cylinder not having less than 5 pins and a bolt throw not less than 25 mm operable from the interior without the use of keys; strike plates fastened to wood frames with wood screws providing a minimum 25 mm penetration into wood studs on all exterior swinging doors, and locking passage sets on interior bathroom doors.
–Door viewer required on solid front doors with a viewing angle not less than 160 degrees.
–Glazing in all added doors to be tempered and double glazed (exterior doors only), as per municipal codes, in all sliding, glass paneled and French style doors – ensure that tempered glass displays manufacturer's authenticitations.
–Furnace/Utility room doors to be 2'–8" minimum as per BCBC #9.5.5.1.
–Attic access doors / panels to be minimum 20" x 28" c/w weather stripping.
–All new exterior doors to achieve and / or exceed performance grade 30 and Water Penetration Resistance Test Pressure of 290 Pa as per BCBC #9.7.4.3. (1).
–See 'Door Schedule' on drawings

Windows

–Contractor is not to order windows until all rough openings are approved by Owner.
–Final style, colour and material of windows are to be approved by Owner.
–All vinyl windows shall be double glazed with double thermal break or as per municipal codes unless noted.
–All windows to be supplied with exterior sills to match existing and pre–painted on both sides with one colour.

–Glazing to be float in windows, with oversized windows to conform to BCBC #9.7.3.2. – provide manufacturer's specifications.
–Glass side lights, windows within 3'–0" of an exterior door lock and windows less than 8" from the floor shall be tempered.
–The bottom of an operable window in a bedroom is not to exceed 4'–11" above the floor, and have a minimum opening dimension 15" with an area of 3.75 s.f. (supplier to ensure that windows meet BCBC egress requirements).
–Windows in walls enclosing shower and tub must be tempered and waterproofed if located at or below the waterproof wall finish height (71" above the floor in shower stalls), as per BCBC 9.29.2.1.
–All new windows to achieve and / or exceed performance grade 30 and Water Penetration Resistance Test Pressure of 290 Pa as per BCBC #9.7.4.3. (1).
–See 'Window Schedule' on drawings

Glazing & Mirrors

–All mirrors to be approved by Owner and to be installed by a qualified glazier.
–Glass doors and partitions around showers are to be tempered glass.

Div. 9 Finishes

Gypsum Board

–GWB to walls to be 1/2" (screwed to walls) and installed in a professional manner with a minimum of 3 coats of mud.
–All ceilings to be smooth painted finish, unless otherwise noted.
–5/8" or C.D. 1/2" drywall required to ceiling members at 24" o.c.
–Install 5/8" or (2) layers of 1/2" GWB to create a 45–minute fire separation between principal house and secondary suite.

Tile

–All ceramic/slate tiles to be approved by Owner and installed in a professional manner.
–Ceramic/slate tile flooring to be set on minimum 1.25" (3/4"+1/2") t&g plywood subfloor c/w thin set base, unless noted.
–Ceramic tile tub and shower surrounds to be mounted on 1/2" Dens Shield Tile Backer, or equivalent.

Wood Flooring

–Supply and install engineered hardwood flooring (as per owner).

Painting

–All interior paint to be approved by Owner and applied in a professional manner.
–All interior walls to have one primer coat and two finish coats of egg shell latex – provide water–based enamel in Kitchens, Bathrooms and Laundry Rooms.
–All pre–primed interior trims and doors to have two finish coats of semi gloss latex.

Div. 10 Specialties

Fireplaces and Stoves

–Supply and install gas fireplace c/w thermostat and trim – Unit as per owner
–Manufactured gas fireplace and flue to conform to #9.22.8 of NBC and to be installed in accordance with manufacturer's installation instructions and CAN / ULC S 610 standard for factory–built fireplaces.
–Mantel height and width to conform with fire place unit's installation instructions.
–Maintain minimum 2" clearance between metal flue and combustible framing.
–Provide 1/2" fibre cement board as protection under non–combustible hearth finish.

Storage Shelving

–All shelving as per closet organizer supplier.

Wardrobe and Closet Specialties

–All shelving as per closet organizer supplier.

Div. 11 Equipment

Appliances

–Allow for Owner supplied kitchen appliances.
–Provide required ducting for range hood vents and dryers where necessary.

Div. 12 Furnishings

Book Shelves

–Refer to Interior Design specifications.

Div. 14 Plumbing

Water Supply & Drainage Waste

–Supply and install copper piping / PEX tubing for water supply as required.
collector. Routes and location to be determined by mechanical contractor and to be approved by Owner.
–Supply and install copper water supply piping to Owner supplied Refrigerator in Kitchen.
–Supply and install plastic drainage waste and vent piping as required – note: provide cast iron over and through Main Floor living spaces.
–Where cast iron plumbing is used ensure all elbows are cast iron to the main trunk
–Install plumbing drops and venting within the walls, ceilings, and designated bulkheads if applicable. If additional bulkheads or dropped ceilings are required for the drops and venting that are not shown on the drawings, please report to SYNTHESIS DESIGN, INC. prior to installation.

Plumbing Fixtures

–Supply and install fixtures (to be confirmed with Owner). See drawings for locations.

Toilet and Bath Accessories

–Install Owner supplied bathroom accessories including toilet paper holders, soap dish and grab bars, towel rails (minimum 1 per room).

Pump Systems (if Applicable)

–Supply and install under slab sewage pump system, as/if specified by Engineer.
–Supply and install exterior sump and sump pump system, as/if specified by Engineer.

Hot Water Heaters

–Supply and install tankless combination unit water heater. Mechanical contractor to verify adequacy for entire house.

Natural Gas Service

–Provide natural gas hook up for outdoor BBQ as per Owner.

Fire Sprinkler System

–Supply and install fire sprinkler system as required by the District of West Vancouver (in new suite), shall conform to current BCBC standards.

Div. 15 Mechanical (as per Mechanical Contractor)

HVAC

–Supply and install multi unit heat/ac– as per mechanical contractor– Verify the adequacy of the heating system to accommodate the proposed residence.
–The Contractor shall ensure that all heating systems are functioning, adjusted, and balanced with the operation, maintenance, and warranty documents provided to the Owner. A list of trades, suppliers and material order numbers will be included wherever possible (if applicable)
–Supply and install grilles, registers and diffusers, as required.
–Install HVAC ducting and venting within the designated bulkheads if applicable. If additional bulkheads or dropped ceilings are required for the ducting / venting that are not shown on the drawings, please report to Owner prior to installation.

In floor Radiant Hot Water

–Supply and install multi zone in floor radiant hot water heating system in basement.
–To be supplied by combi unit on demand system.
–The Contractor shall ensure that in floor radiant hot water heating system is functioning, adjusted, and balanced with the operation, maintenance, and warrantee documents provided to the Owner. A list of trades, suppliers and material order numbers is to be provided.

Air to Air Heat Exchanger

–Provide air to air heat exchanger c/w grilles, registers and diffusers as required.
–Ensure that air to air heat exchanger is located so as to minimize noise in living spaces.
–Provide bathroom exhaust fans, c/w ducting as required, to be vented to air to air heat exchanger.
Dryers, hood vents, gas fire places, boiler, etc. to be vented through air to air heat exchanger.
–Install air to air heat exchanger ducting and venting within the designated bulkheads if applicable. If additional bulkheads or dropped ceilings are required for the ducting / venting that are not shown on the drawings, please report to Owner prior to installation.

Air Distribution

–Provide continuous or intermittent exhaust fans in all bathrooms and Kitchens as per #9.32.3.3 c/w ducting as required, to be vented directly outside – all washrooms are to be fitted with "silent" NU–TONE QT130 fans (or equivalent) sized to suit.
–Allow for Owner supplied hood vent c/w ducting as required, to be vented directly outside.
–Ensure HVAC system, gas fire places, washroom exhaust fans, kitchen hood vents, etc. are all balanced and sized to enable the proper exhausting of carbon monoxide and other toxic gases.

REVISIONS	#	BY

All dimensions shall be verified on site prior to commencement of work.

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STRINGHAM ADDITION / RENOVATION
3092 Marine Drive
West Vancouver, BC

Drawing Title
SPECIFICATIONS

Date 03.26.2021
Scale
Drawn JPAS/BKI
Job No. 20067
Sheet A-2
Of 09 Sheets

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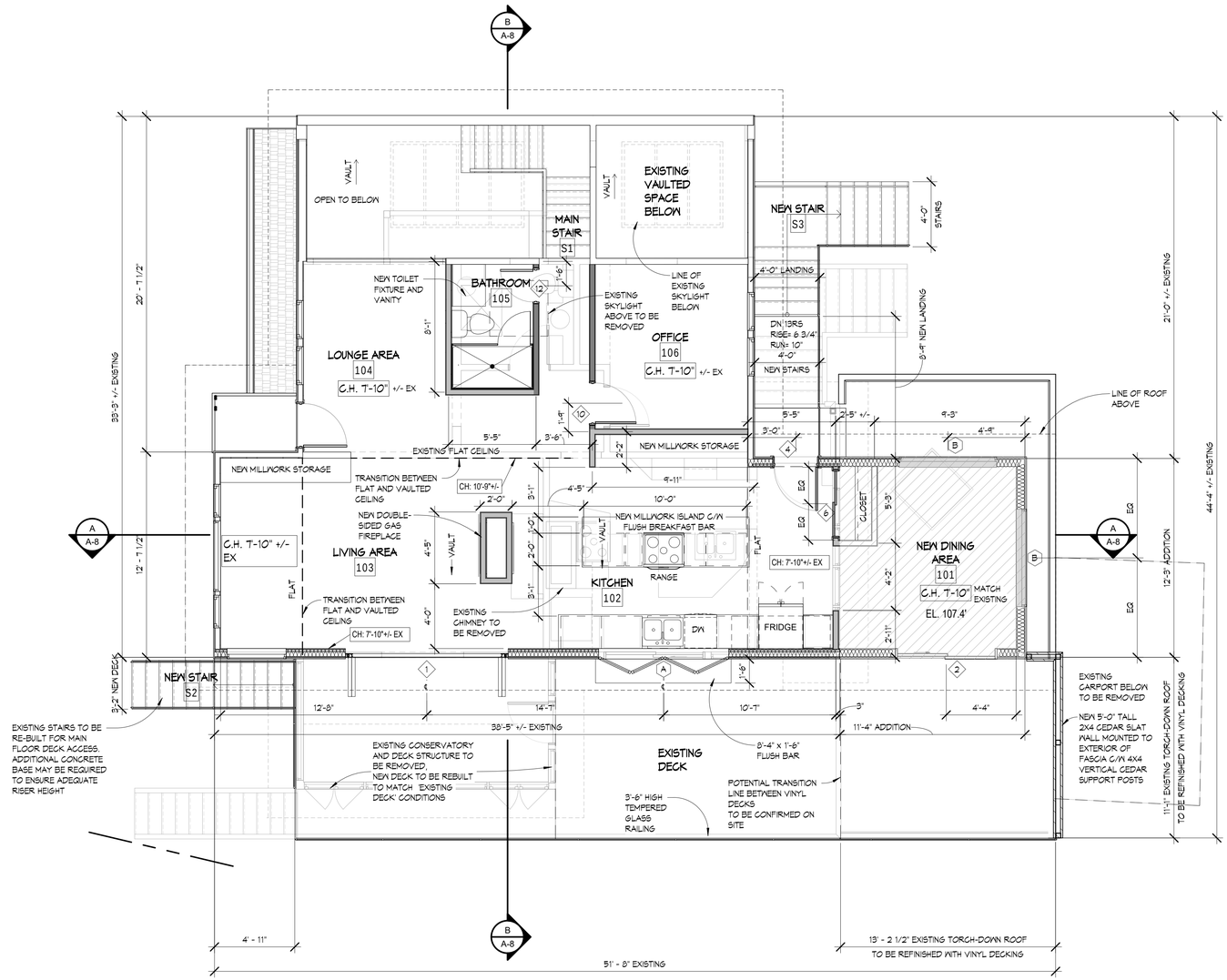

MAIN FLOOR

1/4" = 1'-0"

LEGEND

- EXISTING WALL
- EXISTING WALL OR STRUCTURE TO BE REMOVED
- NEW INTERIOR WALL
- EXISTING 2x4 (TO BE CONFIMED ON SITE) FURRED OUT AND UPGRADED WITH 2-22 INSULATION
- EXISTING DOOR TO BE REMOVED
- NEW DOOR
- EXISTING WINDOW
- EXISTING WINDOW TO BE REMOVED
- NEW WINDOW
- AREA OF ADDITION

NOTES:

- ALL DOOR & WINDOW HEADER HEIGHTS ON MAIN FLOOR TO BE 6'-8" TO MATCH EXISTING CONDITIONS WHERE APPLICABLE.
- IF ADDITIONAL BULKHEADS OR DROPPED CEILINGS ARE REQUIRED FOR PLUMBING DROPS, DUCTING, OR VENTING WHICH ARE NOT SHOWN ON THE DRAWINGS, PLEASE REPORT TO OWNER PRIOR TO INSTALLATION.
- IF DRYWALL IS REMOVED FROM AN EXISTING EXTERIOR WALL, THE WALL ASSEMBLY AND INSULATION MAY BE REQUIRED TO BE BROUGHT TO CURRENT CODE STANDARDS. PLEASE REPORT TO SYNTHESIS DESIGN PRIOR TO THE COMMENCEMENT OF WORK.
- PROVIDE INTERCONNECTED SMOKE ALARM IN BOTH PRINCIPAL DWELLING AND SECONDARY SUITE.

REVISIONS	#	BY

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STRINGHAM ADDITION / RENOVATION
3092 Marine Drive
West Vancouver, BC

Drawing Title
MAIN FLOOR PLAN

Date 03.26.2021
Scale 1/4" = 1'-0"
Drawn JPAS/BKI
Job No. 20067
Sheet A-3
Of 09 Sheets

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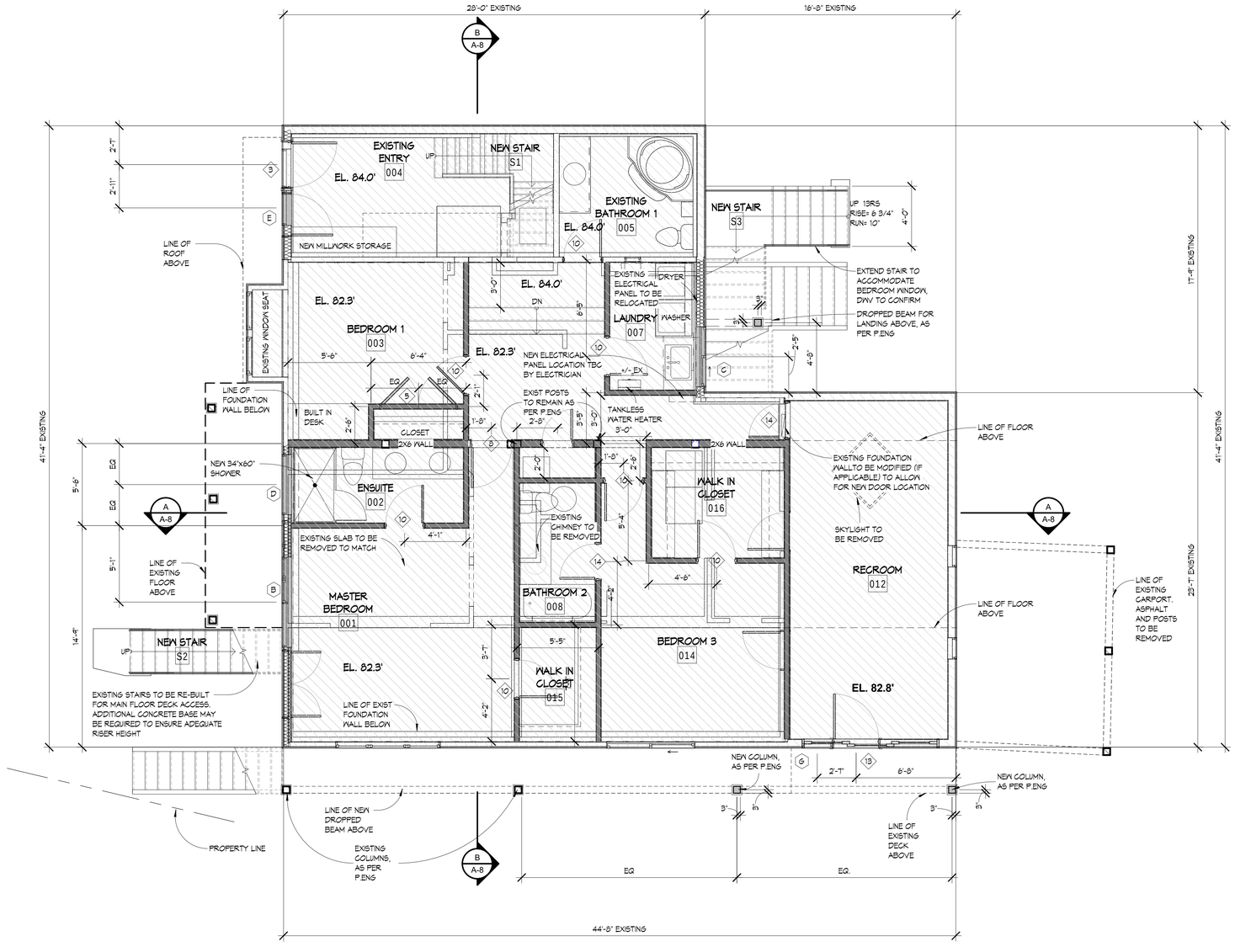

LOWER FLOOR

1/4" = 1'-0"

LEGEND

- EXISTING WALL
- EXISTING WALL OR STRUCTURE TO BE REMOVED
- NEW INTERIOR WALL
- NEW INSULATED EXTERIOR WALL
- WALL BETWEEN PRINCIPAL DWELLING AND SECONDARY SUITE ENSURE 30-MINUTE FIRE RATED SEPARATION , C/W 43 STC RATING (15/30 MIN. PRESCRIPTIVE ASSEMBLY IN TABLE 1.1.1.1.(6))
- EXISTING DOOR TO REMAIN
- EXISTING DOOR TO BE REMOVED
- RELOCATED OR NEW DOOR
- EXISTING WINDOW
- EXISTING WINDOW TO BE REMOVED
- NEW WINDOW
- EXISTING POST
- NEW POST
- AREA OF SECONDARY SUITE
- AREA OF LOWERED FOUNDATION SLAB

NOTES:

- ALL DOOR & WINDOW HEADER HEIGHTS ON BASEMENT FLOOR TO BE 8'-8" TO MATCH EXISTING CONDITIONS WHERE APPLICABLE.
- IF ADDITIONAL BULKHEADS OR DROPPED CEILINGS ARE REQUIRED FOR PLUMBING DROPS, DUCTING, OR VENTING WHICH ARE NOT SHOWN ON THE DRAWINGS, PLEASE REPORT TO SYNTHESIS DESIGN PRIOR TO INSTALLATION.
- IF DRYWALL IS REMOVED FROM AN EXISTING EXTERIOR WALL, THE WALL ASSEMBLY AND INSULATION MAY BE REQUIRED TO BE BROUGHT TO CURRENT CODE STANDARDS. PLEASE REPORT TO SYNTHESIS DESIGN PRIOR TO THE COMMENCEMENT OF WORK.

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STRINGHAM ADDITION / RENOVATION
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Drawing Title
LOWER FLOOR PLAN

Date	03.26.2021
Scale	1/4" = 1'-0"
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Job No.	20067
Sheet	A-4
Of	09 Sheets

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FRONT SPATIAL SEPARATION

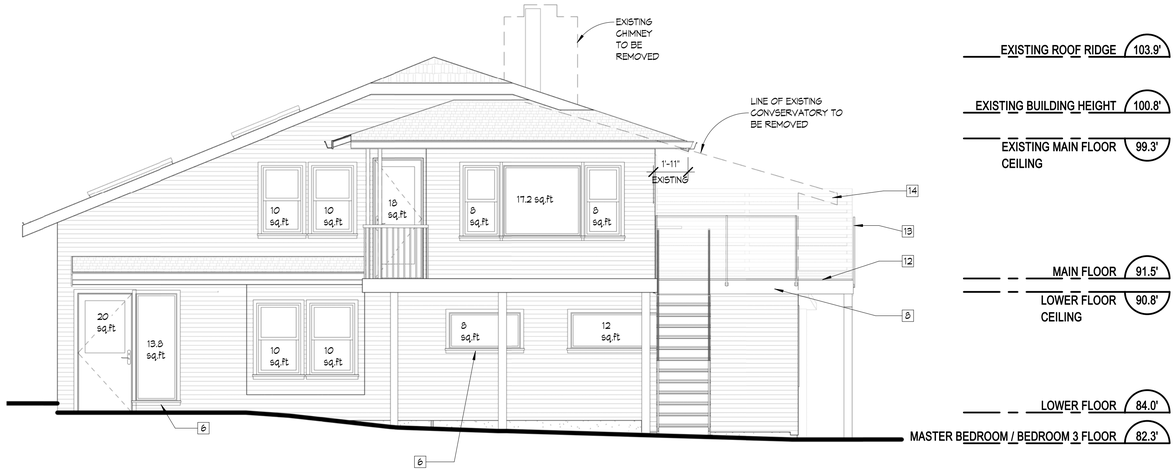
AREA OF FACE
580 sq.ft. (53.9 m2)

LIMITING DISTANCE
23.75 ft. (7.2 m)

ALLOWABLE OPENINGS
57% x 580 ft.sq. = 330.6 sq.ft.

AREA OF OPENING
163 sq.ft.

CONFORMS
YES

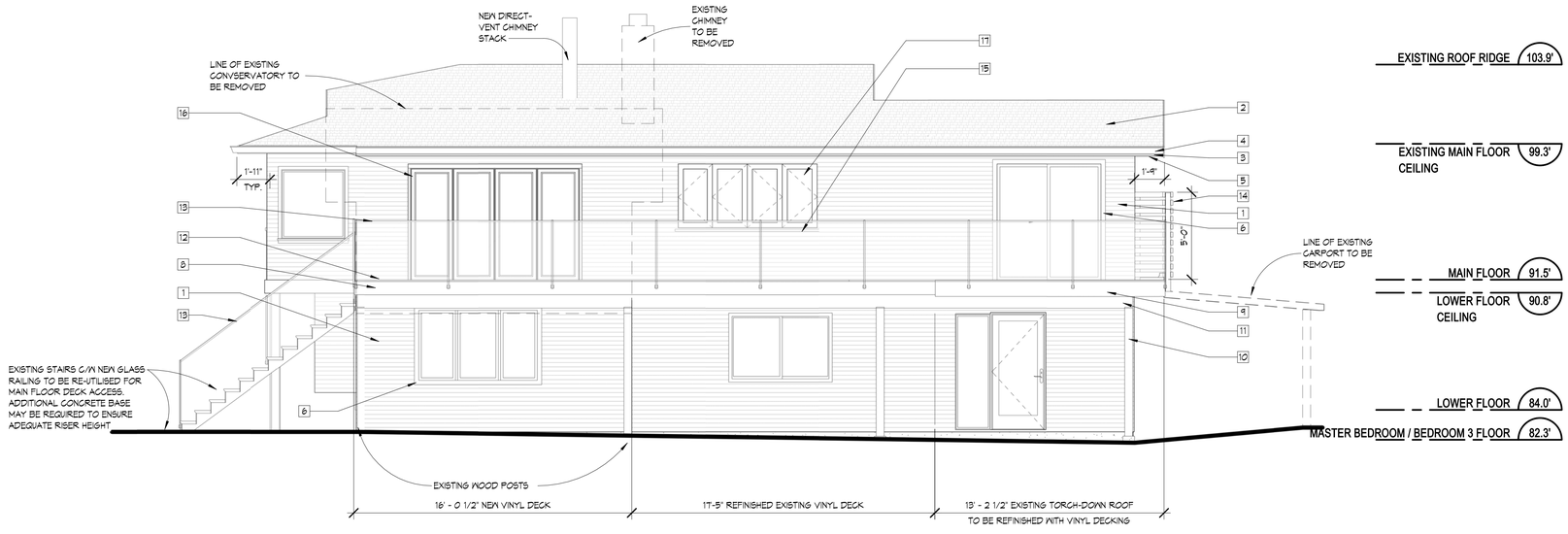


FRONT ELEVATION

1/4" = 1'-0"

MATERIAL LEGEND

1	NEW HORIZONTAL BEVELLED CEDAR SIDING C/W EXPOSURE AND CORNER BOARDS (MATCH EXISTING)
2	NEW FIBREGLASS LAMINATE SHINGLES (MATCH EXISTING) (AS PER OWNER)
3	NEW 2x6 COMB FACED SPRUCE FASCIA (MATCH EXISTING) (AS PER OWNER)
4	NEW 4" ALUMINUM GUTTERS (MATCH EXISTING) (AS PER OWNER)
5	NEW 1x4 PAINT GRADE PINE T&G V-GROOVE PAINTED SOFFIT THROUGHOUT (MATCH EXISTING OPEN AND RAKED SOFFIT) (AS PER OWNER)
6	NEW 2x4 S4S CEDAR TRIM AROUND ALL NEW OPENINGS C/W 2x4 SILL & 2x4 S4S APRON UNDER ALL NEW WINDOWS (MATCH EXISTING) (AS PER OWNER)
7	NEW 2x8 COMB FACED SPRUCE BARGE BOARD (MATCH EXISTING) (AS PER OWNER)
8	NEW 2x10 COMB FACED SPRUCE FASCIA BOARD (MATCH EXISTING) (AS PER OWNER)
9	NEW 2x12 COMB FACED SPRUCE FASCIA BOARD (TO REPLACE EXISTING TORCH-DOWN ROOF CURB) (AS PER OWNER)
10	NEW 6X6 STRUCTURAL COLUMN (CONFIRM WITH STRUCTURAL ENGINEER)
11	NEW 6X10 DROPPED STRUCTURAL BEAM (CONFIRM WITH STRUCTURAL ENGINEER)(AS PER OWNER)
12	SUN DECK C/W NEW VINYL DECKING
13	NEW TEMPERED GLASS RAILING C/W METAL TOP RAIL (STYLE AS PER OWNER)
14	NEW 60" HIGH CEDAR PRIVACY SCREEN C/W 4x4 POSTS TO BE MOUNTED TO EXTERIOR OF EXISTING FASCIA (EXISTING STRUCTURAL CONDITIONS TO BE CONFIRMED ON SITE), 2x4 SCREEN (3/4" GAP MAX.)
15	NEW 8'-4" x 1'-6" FLUSH SERVICE BAR SUPPORTED BY KNEE BRACES (STYLE AS PER OWNER)
16	NEW ACCORDION STYLE FOLDING DOOR (BEAM AS PER P.ENG)
17	NEW ACCORDION STYLE FOLDING WINDOW (BEAM AS PER P.ENG)
18	NEW WOOD STAIR C/W 3" THICK STAIN GRADE CEDAR TREADS, 2x12 CEDAR STRINGERS & OPEN RISERS



RIGHT ELEVATION

1/4" = 1'-0"

NOTE: ALL RAIN SCREEN DETAILS TO BE CONFIRMED ON SITE WITH BUILDING INSPECTOR

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All dimensions shall be verified on site prior to commencement of work.

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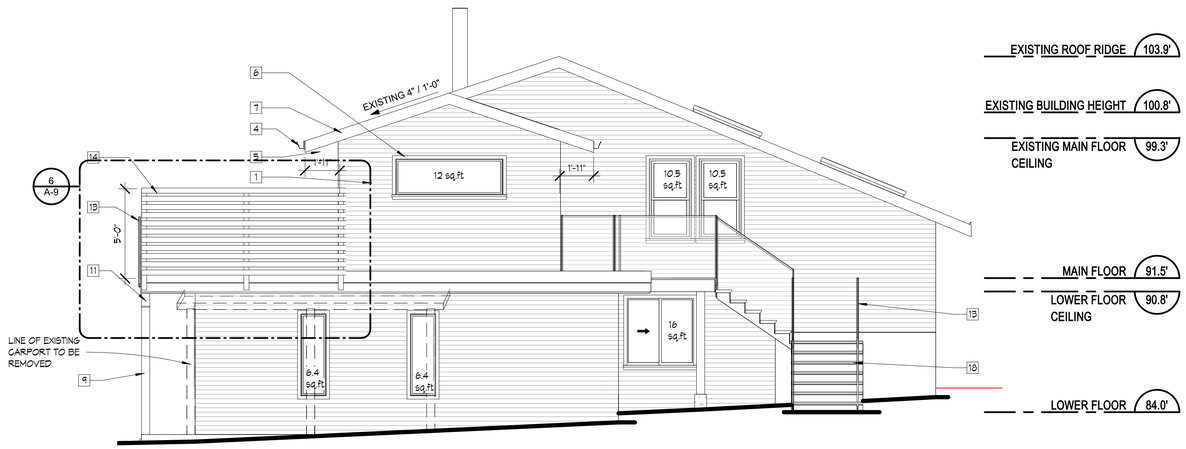
STRINGHAM ADDITION / RENOVATION
3092 Marine Drive
West Vancouver, BC

Drawing Title
ELEVATIONS

Date 03.26.2021
Scale 1/4" = 1'-0"
Drawn JPAS/BKI
Job No. 20067
Sheet A-5
Of 09 Sheets



REAR ELEVATION

1/4" = 1'-0"

REAR SPATIAL SEPARATION

AREA OF FACE
557 sq.ft. (51.7 m2)

LIMITING DISTANCE
9.7 ft. (3 m)

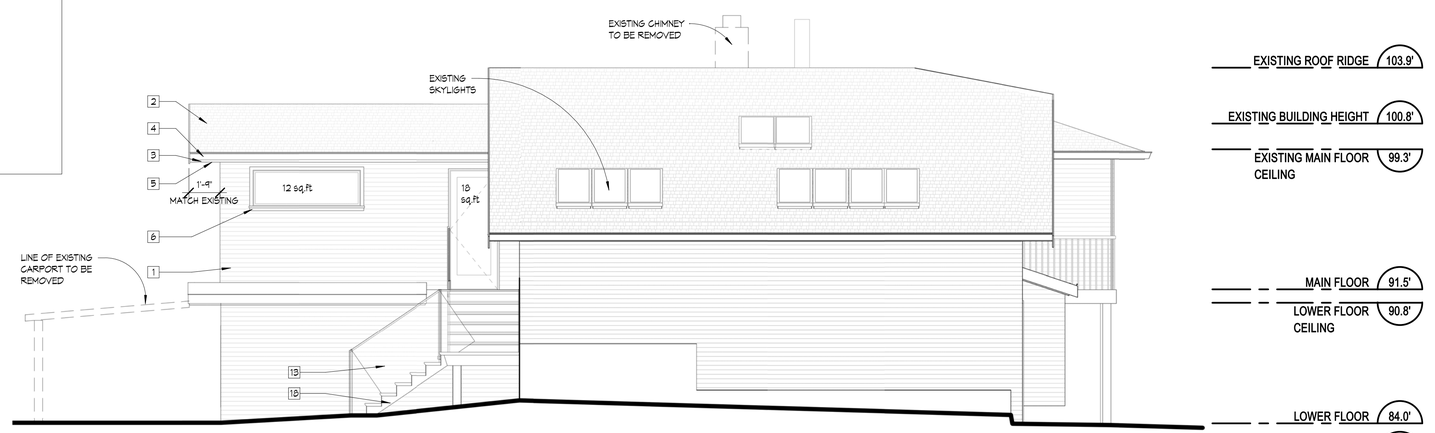
ALLOWABLE OPENINGS
19% x 557 ft.sq. = 105.8 sq.ft.

AREA OF OPENING
61.8 sq.ft.

CONFORMS
YES

MATERIAL LEGEND

1	NEW HORIZONTAL BEVELLED CEDAR SIDING C/W EXPOSURE AND CORNER BOARDS (MATCH EXISTING)
2	NEW FIBREGLASS LAMINATE SHINGLES (MATCH EXISTING) (AS PER OWNER)
3	NEW 2x6 COMB FACED SPRUCE FASCIA (MATCH EXISTING) (AS PER OWNER)
4	NEW 4" ALUMINUM GUTTERS (MATCH EXISTING) (AS PER OWNER)
5	NEW 1X4 PAINT GRADE PINE T&G V-GROOVE PAINTED SOFFIT THROUGHOUT (MATCH EXISTING OPEN AND RAKED SOFFIT) (AS PER OWNER)
6	NEW 2X4 S4S CEDAR TRIM AROUND ALL NEW OPENINGS C/W 2X4 SILL & 2X4 S4S APRON UNDER ALL NEW WINDOWS (MATCH EXISTING) (AS PER OWNER)
7	NEW 2x6 COMB FACED SPRUCE BARGE BOARD (MATCH EXISTING) (AS PER OWNER)
8	NEW 2x10 COMB FACED SPRUCE FASCIA BOARD (MATCH EXISTING) (AS PER OWNER)
9	NEW 2x12 COMB FACED SPRUCE FASCIA BOARD (TO REPLACE EXISTING TORCH-DOWN ROOF CURB) (AS PER OWNER)
10	NEW 6X6 STRUCTURAL COLUMN (CONFIRM WITH STRUCTURAL ENGINEER)
11	NEW 6X10 DROPPED STRUCTURAL BEAM (CONFIRM WITH STRUCTURAL ENGINEER)(AS PER OWNER)
12	SUN DECK C/W NEW VINYL DECKING
13	NEW TEMPERED GLASS RAILING C/W METAL TOP RAIL (STYLE AS PER OWNER)
14	NEW 60" HIGH CEDAR PRIVACY SCREEN C/W 4x4 POSTS TO BE MOUNTED TO EXTERIOR OF EXISTING FASCIA (EXISTING STRUCTURAL CONDITIONS TO BE CONFIRMED ON SITE), 2x4 SCREEN (3/4" GAP MAX.)
15	NEW 3'-4" x 1'-6" FLUSH SERVICE BAR SUPPORTED BY KNEE BRACES (STYLE AS PER OWNER)
16	NEW ACCORDION STYLE FOLDING DOOR (BEAM AS PER P.ENG)
17	NEW ACCORDION STYLE FOLDING WINDOW (BEAM AS PER P.ENG)
18	NEW WOOD STAIR C/W 3" THICK STAIN GRADE CEDAR TREADS, 2x12 CEDAR STRINGERS & OPEN RISERS



LEFT SPATIAL SEPARATION

AREA OF FACE
657 sq.ft. (61 m2)

LIMITING DISTANCE
7.75 ft. (2.4 m)

ALLOWABLE OPENINGS
10% x 657 ft.sq. = 65.7 sq.ft.

AREA OF OPENING
30 sq.ft.

CONFORMS
YES

LEFT ELEVATION

1/4" = 1'-0"

NOTE: ALL RAIN SCREEN DETAILS TO BE CONFIRMED ON SITE WITH BUILDING INSPECTOR

Effective Insulation Requirements (Minimum)	
Windows and Doors	**1.8***
* Confirm with Manufacturer Specifications	
Exterior Walls	**Effective Thermal Resistance**
NEW 2X6 EXTERIOR WALL W/ RAIN SCREEN & HORIZONTAL BEVELLED CEDAR SIDING - BATT INSULATION	
Exterior Air	0.03
1/2" Bevelled Cedar Siding	0.14
1/2 Air Cavity	0.16
2 Layers of Building Paper	0
1/2 Plywood	0.109
2x6 Studs @ 16 o/c	3.87
R-22 Insulation	
6 Mil Poly Vapour	0
1/2 GWB	0.08
Interior Air	0.12
Total	4.505
Minimum Required	2.78
Conforms	Yes

Exterior Walls	Effective Thermal Resistance
Sub Grade Foundation Wall c/w Interior 2x4 Wall	
2 Coats of Water Proofing and Membrane	0
Waterproofing Membrane	0
Concrete Foundation Wall (8" Min)	0.08
1/2 Air Space	0.16
2x4 Studs @ 16 o/c	1.81
R-14 Insulation	
6 Mil Poly Vapour	0
1/2 GWB	0.08
Interior Air	0.12
Total	**2.25**
Minimum Required	**1.99**
Conforms	**Yes**

Exterior Walls	Effective Thermal Resistance
Below Grade Foundation Wall c/w 3" Poly Iso Interior	
Dimpled Membrane	0
4" Poly Iso Insulation	3.692
2 Coats of Water Proofing and Membrane	0
Concrete Foundation Wall (8" Min)	0.08
PT Blocking At Required	0
1" Poly Iso Insulation	0.97
6 Mil Poly Vapour	0
1/2 GWB	0.08
Interior Air	0.12
Total	**4.92**
Minimum Required	**1.99**
Conforms	**Yes**

Flooring	Effective Thermal Resistance
Insulated Concrete Slab C/W In-Floor Radiant Heat	
Interior Air	0.16
Floor Finish (Engineered Hardwood)	0.12
1 1/2" Lightweight Concrete Topping	0.17
In-Floor Radiant Heating Tubes	0
Concrete Slab (4" Min)	0.04
Continuous Wire Mesh	0
6 Mil Vapour Barrier	0
R-12 Rigid Insulation	2.11
2" Sand	0
6" Compacted Gravel	0
Total	**2.60**
Minimum Required	**2.32**
Conforms	**Yes**

Roofing	Effective Thermal Resistance
FIBREGLASS SHINGLES W/ VAULTED CEILING - HAND FRAMED	
Exterior Air	0.03
Fibreglass Shingles	0.08
1/2 Plywood	0.109
2x6 Purlins	0.17
1.5" Air Gap	
2x10 Rafters	5.46
R-32 High Density Insulation	
6 Mil Poly Vapour	
1/2 GWB	0.07
Interior Air	0.12
Total	6.039
Minimum Required	4.67
Conforms	Yes
FIBREGLASS SHINGLES W/ ATTIC - HAND-FRAMED	
Exterior Air	0.03
Fibreglass Shingles	
1/2 Plywood	
2x6 Purlins	
1.5" Air Gap	
Rafters c/w Insulation in between	1.46
R-50 Insulation	6.56
Back Framing as Required	
6 Mil Poly Vapour	
1/2 GWB	0.1
Interior Air	0.12
Total	8.27
Minimum Required	6.91
Conforms	Yes

Roofing	Effective Thermal Resistance
Torch Down c/w Batt Insulation	
Exterior Air	0.03
Torch Down Roofing	0
3/4" T&G Plywood	0
2x6 Purlins	0
1 1/2" Air Space	0
Floor Joists (Assumed 2x10)	4.56
R-32 Fibreglass Batt Insulation	
1/2" GWB	0.08
Interior Air	0.11
Total	**4.78**
Minimum Required	**4.67**
Conforms	**Yes**

Flooring	Effective Thermal Resistance
Insulated Concrete Slab	
Interior Air	0.16
Floor Finish (Hardwood)	0.12
Underlay	0.14
Concrete Slab (4" Min)	0.04
Continuous Wire Mesh	0
6 Mil Vapour Barrier	0
R-12 Rigid Insulation	2.11
2" Sand	0
6" Compacted Gravel	0
Total	**2.57**
Minimum Required	**2.32**
Conforms	**Yes**

2021-11-08
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All dimensions shall be verified on site prior to commencement of work.

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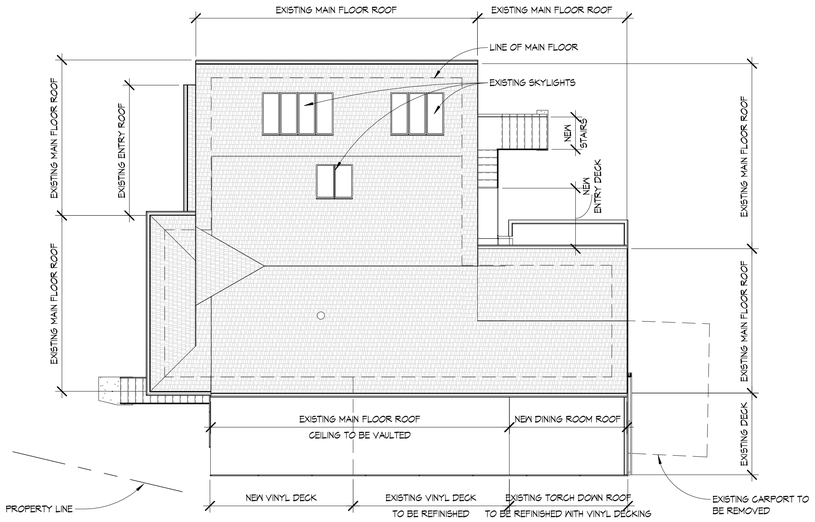
STRINGHAM ADDITION / RENOVATION
3092 Marine Drive
West Vancouver, BC

Drawing Title
ELEVATIONS

Date 03.26.2021
Scale 1/4" = 1'-0"
Drawn JPAS/BKI
Job No. 20067
Sheet A-6
Of 09 Sheets



ROOF PLAN

1/8" = 1'-0"

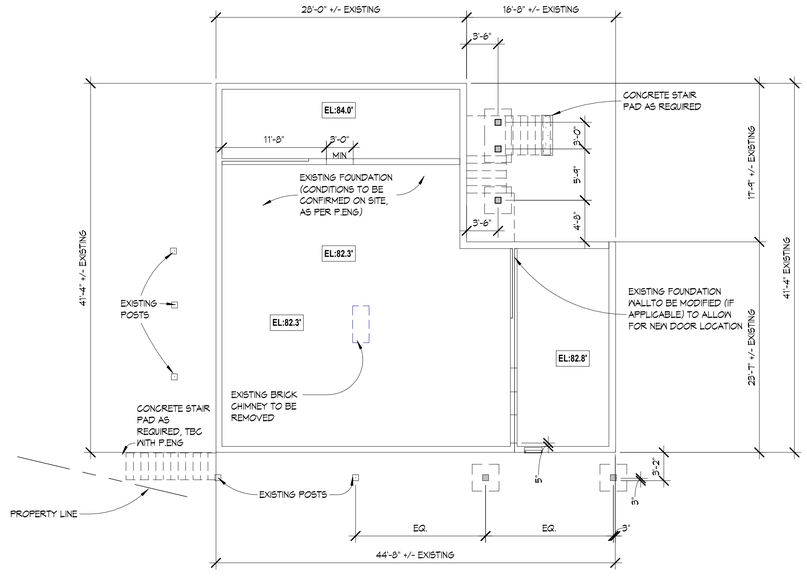
LEGEND

- FOUNDATION WALL C/W RIGID INSULATION
- NEW POST
- FOOTING

FOUNDATION NOTES:

1. FOUNDATION PLAN FOR LOCATION ONLY. FOR ALL TECHNICAL INFORMATION REFER TO STRUCTURAL ENGINEER DRAWINGS.

2. ALL SLAB ON GRADE ELEVATIONS TO BE MEASURED TO THE TOP OF CONCRETE.



FOUNDATION PLAN

1/8" = 1'-0"

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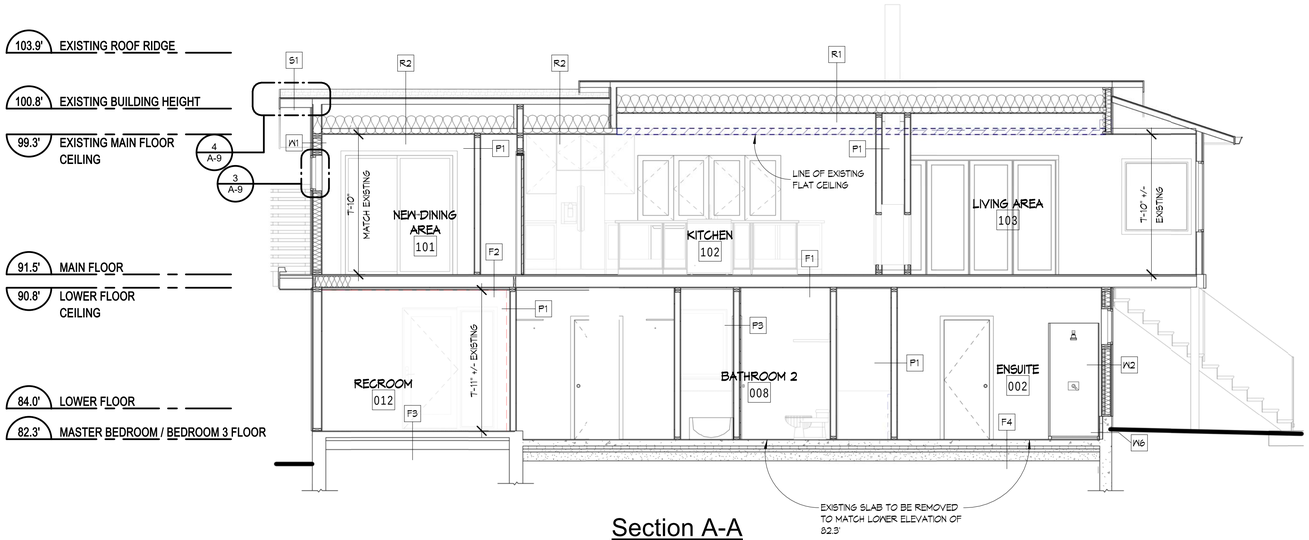
STRINGHAM ADDITION / RENOVATION
3092 Marine Drive
West Vancouver, BC

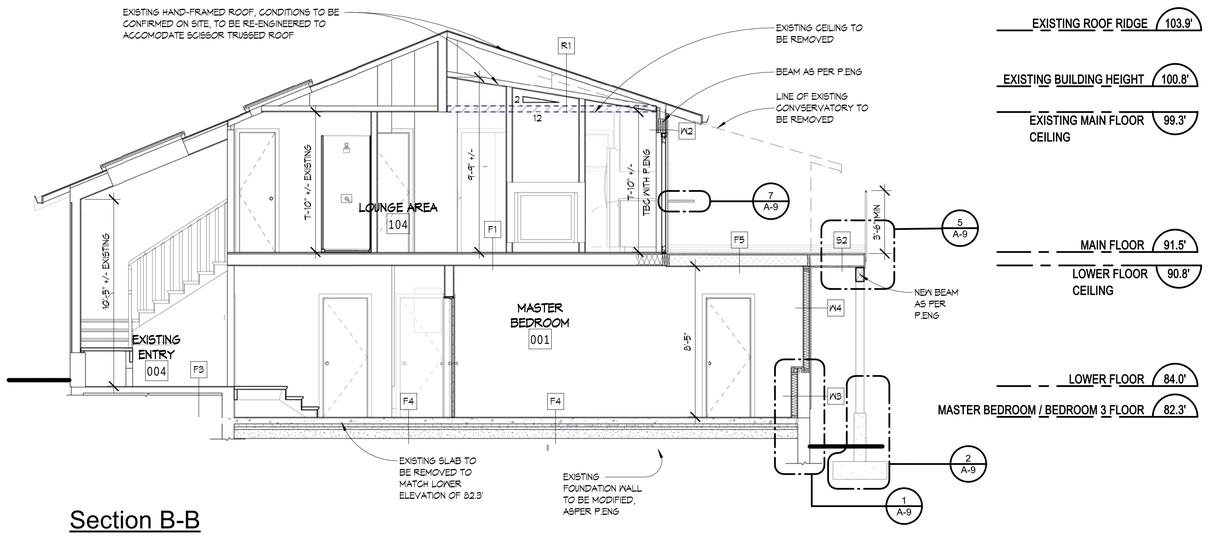
Drawing Title
FOUNDATION & ROOF PLAN

Date 03.26.2021
Scale 1/8" = 1'-0"
Drawn JPAS/BKI
Job No. 20067
Sheet A-7
Of 09 Sheets



Section A-A

1/4" = 1'-0"



Section B-B

1/4" = 1'-0"

NOTE:

- ALL BUILDING AND RAIN SCREEN ASSEMBLIES TO BE CONFIRMED WITH BUILDING INSPECTOR ON SITE

WALL ASSEMBLIES

Exterior		
	W1	- NEW BEVELLED CEDAR SIDING (TO MATCH EXISTING) - VERTICAL 1 ½" x ½" TREATED PLYWOOD VERTICAL FURRING STRIPS @ 12" O/C - 2 LAYERS 30 MIN. BUILDING PAPER, LAP SEAMS - ½" PLYWOOD SHEATHING - 2X6 STUDS @ 16" O/C, R-22 BATT INSULATION - 6MIL. CONTINUOUSLY CAULKED POLY VAPOUR BARRIER - ½" GWB
	W2	- NEW BEVELLED CEDAR SIDING (EXISTING CONDITIONS TO BE CONFIRMED ON SITE) - NEW VERTICAL 1 ½" x ½" TREATED PLYWOOD VERTICAL FURRING STRIPS @ 12" O/C - NEW 2 LAYERS 30 MIN. BUILDING PAPER, LAP SEAMS - EXISTING SHEATHING TO REMAIN, CONDITIONS TO BE CONFIRMED ON SITE - EXISTING STUDS TO REMAIN, CONDITIONS TO BE CONFIRMED ON SITE - NEW 2" FURRINGS IF REQUIRED TO ACCEPT NEW INSULATION - NEW R-22 BATT INSULATION - NEW 6 MIL. CONTINUOUSLY CAULKED POLY VAPOUR BARRIER - NEW ½" GWB
	W3	- EXISTING FOUNDATION WALL (CONDITIONS TO BE CONFIRMED ON SITE) TO UPGRADED WITH R-14 INSULATION - ½" AIR SPACE - 2X4 STUDS @ 16" O/C W/ PRESSURE TREATED BOTTOM PLATE - R-14 BATT INSULATION - 6 MIL. CONTINUOUSLY CAULKED POLY VAPOUR BARRIER - ½" GWB
	W4	- EXISTING BEVELLED CEDAR SIDING - EXISTING 2X4 WALL STRUCTURE (CONDITIONS TO BE CONFIRMED ON SITE), REARE AS REQUIRED - NEW R-14 INSULATION (TO BE CONFIRMED WITH THE BUILDING INSPECTOR) - 6MIL. CONTINUOUSLY CAULKED POLY VAPOUR BARRIER - ½" GWB
Foundation		
	W6	- EXISTING FOUNDATION WALL TO BE MODIFIED TO ACCEPT 2" ISOBOARD INSULATION - 2" ISOBOARD - 1/2 GWB
Interior		
	P1	- ½" GWB - 2X4 STUDS @ 16" O/C - ½" GWB
	P2	- ½" GWB - 2X6 STUDS @ 16" O/C - ½" GWB
	P3	- TILE (STYLE AS PER OWNER) - SCHLUTER KERDI MAT - ½" DENSSHIELD OR EQUIVALENT - 2X4 STUDS @ 16" O/C - ½" GWB

FLOOR ASSEMBLIES

	F1	- NEW FLOOR FINISH (STYLE AS PER OWNER) - EXISTING SHEATHING AND EXISTING FLOOR STRUCTURE (CONDITIONS TO BE CONFIRMED ON SITE, REARE IF APPLICABLE) - 1/2" GWB
	F2	SEPARATION BETWEEN PRINCIPAL DWELLING AND SECONDARY SUITE - FLOOR FINISH (STYLE AS PER OWNER) - EXISTING FLOOR SHEATHING TO REMAIN (EXISTING CONDITIONS TO BE CONFIRMED ON SITE BY P.ENG.) - EXISTING FLOOR JOISTS (EXISTING CONDITIONS TO BE CONFIRMED ON SITE BY P.ENG.) - EXISTING 1/2" GWB (EXISTING CONDITIONS TO BE CONFIRMED ON SITE) - RESILIENT METAL CHANNELS @ 16" OR 24" O/C (TBC WITH BUILDING INSPECTOR) - 1/2" GWB
	F3	- NEW FLOOR FINISH (STYLE AS PER OWNER) - EXISTING CONCRETE SLAB (CONDITIONS TO BE CONFIRMED ON SITE, REARE IF APPLICALBE)
	F4	- NEW FLOOR FINISH (STYLE AS PER OWNER) - 4" CONCRETE SLAB - CONTINUOUS WIRE MESH - 6 MIL. CONTINUOUSLY CAULKED POLY VAPOUR BARRIER - R-12 RIGID INSULATION - 2" SAND - 6" COMPACTED GRAVEL
	F5	- NEW 60 MIL. HEAVY DUTY VINYL DECKING - NEW 3/4" EXTERIOR GRADE PLYWOOD SLOPED TO DRAIN AT 1/4" PER 12" - NEW FLOOR JOISTS PER STRUCTURAL - NEW EXTRUDED FOAM INSULATION TO R-32 MIN. - NEW 1/2" GWB
	F6	NOT SHOWN ON SECTION - NEW 60MIL HEAVY DUTY VINYL FINISH (AS PER OWNER) - EXISTING ROOF STRUCTURE (CONDITIONS TO BE CONFIRMED ON SITE) - REARE EXISTING POLY VAPOUR BARRIER (ENSURE 6MIL MINIMUM) - NEW 1/2" GWB

ROOF ASSEMBLIES

Roof		
	R1	- EXISTING ROOF ASSEMBLY (CONDITIONS TO BE CONFIRMED ON SITE) - RESTRUCTURE UNDERSIDE OF EXISTING ASSEMBLY AS PER STRUCTURAL DRAWINGS - RAFTERS AS PER STRUCTURE ENGINEER (TO CREATE SCISSOR TRUSS) - R-32 HIGH-DENSITY INSULATION - 6 MIL CONTINUOUSLY CAULKED POLY VAPOUR BARRIER - 5/8" GWB OR 1/2" C.D. BOARD
	R2	- NEW FIBREGLASS LAMINATE SHINGLES (MATCH EXISTING) - APPROVED ROOFING UNDERLAY - ½" PLYWOOD SHEATHING C/W "H" CLIPS - MANUFACTURED TRUSSES - R-50 BATT INSULATION - 6 MIL. CONTINUOUSLY CAULKED POLY VAPOUR BARRIER - ¾" GWB OR ½" C.D. BOARD
	R3	EXISTING TORCHDOWN ROOF TO BE REFINISHED WITH VINYL DECKING (NOT SHOWN ON SECTION) - NEW 60 MIL. VINYL DECKING (AS PER OWNER) - EXISTING TORCH DOWN ROOFING TO BE REMOVED - EXISTING ROOF STRUCTURE (CONDITIONS TO BE CONFIRMED WITH STRUCTURAL ENGINEER), ADDITIONAL STRENGTHENING PER STRUCTURE ENGINEER IF REQUIRED - EXTRUDED FOAM INSULATION TO R-32 MIN. - 1/2" GWB
Skirt Roof/Overhang		
	S1	- FIBREGLASS LAMINATE SHINGLES (TO MATCH EXISTING) - APPROVED ROOFING UNDERLAY - ½" PLYWOOD SHEATHING C/W "H" CLIPS - RAFTERS PER STRUCTURAL ENGINEER - NEW 1x4 PAINT GRADE SOFFIT TO MATCH EXISTING (PROVIDE VENTING)
	S2	- NEW 60 MIL. VINYL DECKING (AS PER OWNER) - NEW 3/4" EXTERIOR GRADE PLYWOOD - PURLINS TO PROVIDE SLOPE TO DRAIN AT 1/8" PER 1'-0" (CONFIRM EXISITNG VINYL DECK CONDITIONS) - NEW FLOOR JOISTS PER STRUCTURAL (IF NO PURLNS IN EXISTING CONDITIONS, TAPER JOISTS AS REQUIRED) - NEW 1x4 PAINT GRADE SOFFIT TO MATCH EXISTING (PROVIDE VENTING)
	S3	EXISTING TORCH DOWN ROOF TO BE REFINISHED WITH VINYL DECK (NOT SHOWN IN SECTION) - NEW 60 MIL. VINYL DECKING (AS PER OWNER) - EXISTING TORCH-DOWN ROOF TO BE REMOVED - EXISTING ROOF STRUCTURE (CONDITIONS TO BE CONFIRMED ON SITE) - EXISTING WOOD SOFFIT

NOTE: ALL RAIN SCREEN DETAILS TO BE CONFIRMED ON SITE WITH BUILDING INSPECTOR

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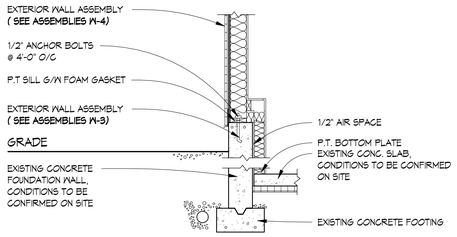
STRINGHAM ADDITION / RENOVATION
3092 Marine Drive
West Vancouver, BC

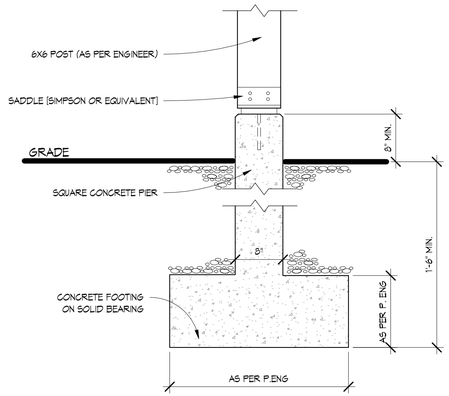
Drawing Title
SECTIONS

Date 03.26.2021
Scale 1/4" = 1'-0"
Drawn JPAS/BKI
Job No. 20067
Sheet A-8
Of 09 Sheets



1 / A-8 Insulated Existing Foundation Wall

1/2" = 1'-0"



2 / A-8 Pier Footing

1" = 1'-0"

DOOR SCHEDULE

ID	COUNT	WIDTH	HEIGHT	FAMILY	MATERIAL	ASSEMBLY	NOTES
1	1	10'-0"	6'-8"	Exterior, Nana Wall	WOOD, TEMPERED GLASS	Aluminum-Clad Over Wood Folding System	WEATHER STRIPPING, NPR HINGES, TEMPERED GLASS
2	1	6'-0"	6'-8"	Exterior, Sliding, Full Lite	WOOD PAINT GRADE, TEMPERED GLASS	SOLID CORE	WEATHER STRIPPING, TEMPERED GLASS
3	1	3'-0"	6'-8"	Exterior, Swing, Single, 1 Lite, Half Flat Top	WOOD PAINT GRADE, TEMPERED GLASS	SOLID CORE	WEATHER STRIPPING, TEMPERED GLASS
4	1	2'-8"	6'-8"	Exterior, Swing, Single, Full Lite	WOOD PAINT GRADE, TEMPERED GLASS	SOLID CORE	STYLE AS PER OWNER
5	1	5'-0"	6'-8"	Interior, Swing, Double, Flush Panel	WOOD PAINT GRADE	SOLID CORE	STYLE AS PER OWNER
6	1	4'-0"	6'-8"	Interior, Sliding, Double, Flush Panel	WOOD PAINT GRADE	SOLID CORE	STYLE AS PER OWNER
8	5	2'-8"	6'-8"	Interior, Swing, Single, Flush Panel		SOLID CORE	STYLE AS PER OWNER
10	9	2'-6"	6'-8"	Interior, Swing, Single, Flush Panel		SOLID CORE	STYLE AS PER OWNER
12	2	2'-0"	6'-8"	Interior, Swing, Single, Flush Panel		SOLID CORE	STYLE AS PER OWNER
13	1	3'-0"	6'-8"	Exterior, Swing, Single, Full Lite	WOOD PAINT GRADE, TEMPERED GLASS	SOLID CORE	WEATHER STRIPPING, NPR HINGES, TEMPERED GLASS
14	2	2'-4"	6'-8"	Interior, Swing, Single, Flush Panel			

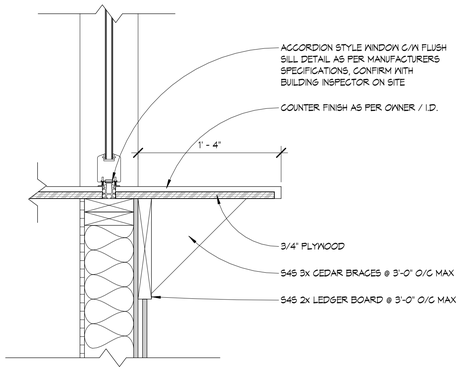
TOTAL: 25

WINDOW SCHEDULE

ID	COUNT	WIDTH	HEIGHT	FAMILY	MATERIAL	NOTES
A	1	8'-0"	3'-8"	Accordion, Four Panel	VINYL	STYLE TO MATCH EXISTING
B	3	6'-0"	2'-0"	Fixed	VINYL, TEMPERED GLASS	STYLE TO MATCH EXISTING
C	1	4'-0"	4'-0"	Sliding, Double	VINYL	ENSURE EGRESS, STYLE TO MATCH EXISTING
D	1	4'-0"	2'-0"	Fixed	VINYL	STYLE TO MATCH EXISTING
E	1	2'-4"	6'-0"	Fixed	VINYL, TEMPERED GLASS	STYLE TO MATCH EXISTING
F	2	2'-0"	4'-0"	Skylight, Flat	ALUMINUM, TEMPERED GLASS	STYLE TO MATCH EXISTING
G	1	2'-0"	6'-8"	Fixed	VINYL	STYLE TO MATCH EXISTING

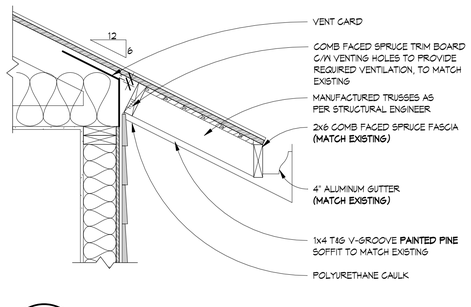
TOTAL: 10

NOTE: ALL RAIN SCREEN DETAILS TO BE CONFIRMED ON SITE WITH BUILDING INSPECTOR



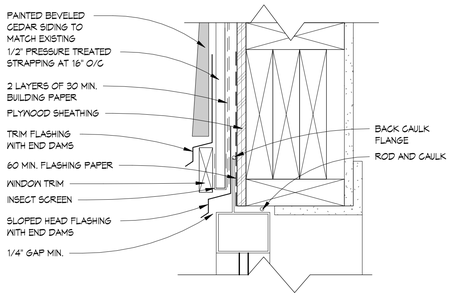
7 / A-8 Servery Window

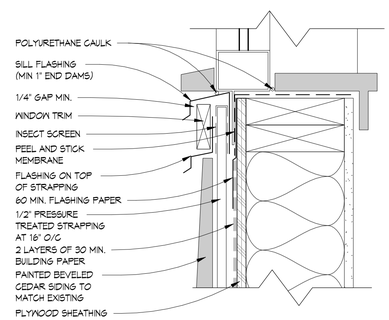
1 1/2" = 1'-0"



4 / A-8 New Trussed Roof Venting

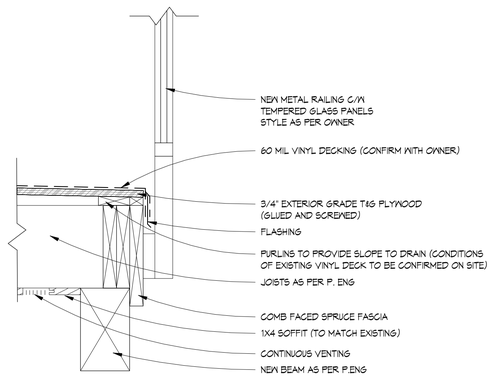
1" = 1'-0"





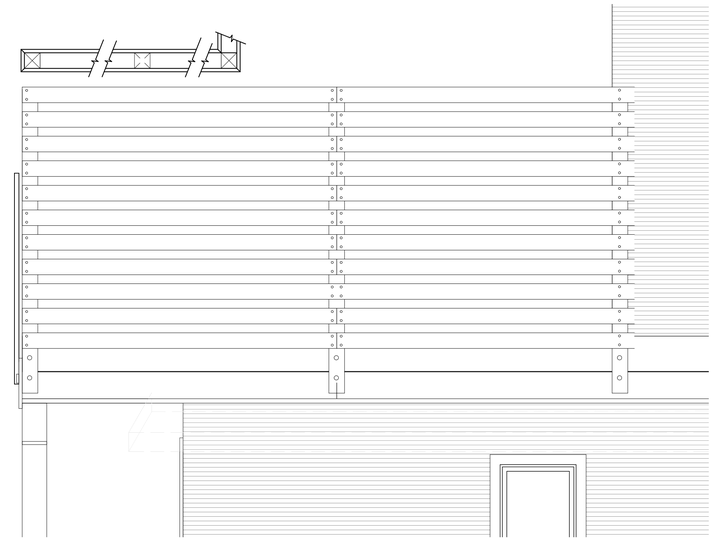
3 / A-8 New Walls with Rainscreen

3" = 1'-0"



5 / A-8 Vinyl Deck Roof Venting

1 1/2" = 1'-0"



6 / A-6 Slat Wall Detail

3/4" = 1'-0"

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All dimensions shall be verified on site prior to commencement of work.

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STRINGHAM ADDITION / RENOVATION
3092 Marine Drive
West Vancouver, BC

Drawing Title
DETAILS & SCHEDULES

Date 03.26.2021
Scale As indicated
Drawn JPAS/BKI
Job No. 20067
Sheet A-9
Of 09 Sheets

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SCHEDULE B

Environmental Development Permit Application

April 9, 2021

Heather Keith
Environmental Protection Officer
District of West Vancouver
750 – 17th St.
West Vancouver, B.C.
V7V 3T3

Re: Proposed Renovation at 3092 Marine Drive, West Vancouver

Introduction

Sartori Environmental Inc. (SEI) has been retained by the owners of 3092 Marine Drive, West Vancouver (the Subject Property), to assess the environmental implications of renovating a dwelling and removing several of its associated structures located within the environmental setbacks of Pipe Creek. The proposed renovation will remain within the footprint of the existing dwelling; however, it will require a zoning variance to accommodate. This report and attached drawings form part of the District of West Vancouver's (DWV) Environmental Development Permit (EDP) application, which is required for development within 15 m of a watercourse according to DWV *Watercourse Protection (2015)* guidelines. The DWV *Watercourse Protection (2015)* guidelines restrict development between 0 m and 5 m, and 5 m and 15 m from Top of Bank (ToB) of a watercourse; herein called the 5-m and 15-m Setbacks, respectively.

Existing Conditions

Subject Property

SEI visited the Subject Property on March 25, 2021. The Subject Property is 673 m^2 in size and contains a single-family dwelling, which includes a car port, an asphalt driveway, a paver walkway, a deck, a garage, a shed (Shed-1), and a landscaped area containing garden space, wooden retaining walls and rock pathways (Landscaped Area). Adjacent to the south boundary of the Subject Property is a BC Railway Right of Way (RoW). Existing structures found off property, within the RoW, include a greenhouse, part of Shed-1 and an additional shed (Shed-2).

The existing dwelling occupies the east half of the Subject Property and is overlapped by the 15-m Setback of Pipe Creek, which is located to the southeast. Other structures and hard surfaces on the Subject Property within the 15-m Setback include the carport, driveway, paver walkway, deck, and Landscaped Area. In the RoW, the greenhouse is within the 15-m Setback and Shed-2 is within the 5-m Setback.

The driveway is connected to Marine Drive in the northeast corner of the Subject Property and also provides access to 3074 Marine Drive, the residential property abutting the east property line. Bordering the Subject Property is 31st Street on the west, Marine Drive on the north, 3074 Marine Drive on the east and the RoW on the south.

A 100 m eagle nest buffer zone is located approximately 25 m away from the Subject Property at its closest point.

Aquatic/Instream Conditions

Pipe Creek flows northeast to southwest through 3074 Marine Drive, passing under the driveway and garage of the property, then emerges as an open channel through the RoW before entering a culvert under the railway. Pipe Creek then flows mainly as an enclosed channel for 150 m and enters Burrard Inlet. The section of Pipe Creek with Setbacks overlapping the Subject Property is channelized by concrete retaining walls along both banks, has an average wetted width of 1.5 m and an average channel gradient of 9%. The substrate consists of boulder, rock and cobble and is characterized by a step-pool morphology.

Fish presence surveys were not conducted as part of this report to confirm fish presence or absence and a review of the *Fish Inventory Data Queries* and *Habitat Wizard*[1] databases did not reveal any information for Pipe Creek; however, Pipe Creek contributes flows and nutrients to downstream fish-bearing habitat.

The closest existing hard surface to Pipe Creek is the concrete retaining wall along the wetted perimeter. The closest existing structure associated with the Subject Property is Shed-2 located 0.5 m from the Top of Bank.

Riparian Conditions

Riparian vegetation within the Subjects Property's 5-m and 15-m setbacks consists mainly of lawn, invasive, and non-native, naturalized garden species mixed with native shrub species. Native shrub species within the 5 and 15-m Setback consists of sword fern (*Polystichum munitum*). Within the riparian area of the RoW, species composition is similar to the Subject Property with the addition of native coniferous species such as western red cedar (*Thuja plicata*).

The riparian understory within the Subject Property contains patches of invasive and non-native plants within the 5-m Setback. Plants listed as unregulated invasive species of concern by the Invasive Species Council of BC that were observed within the Subject Property and RoW include but are not limited to: periwinkle (*Vinca minor*), yellow archangel (*Lamium galeobdolon)* Himalayan blackberry (*Rubus armeniacus*), and English ivy (*Hedera helix*).

Proposed Development

The proposed development includes renovations to the main dwelling while maintaining the same building footprint, removal of the carport and associated section of driveway, and removal of Shed-

[1] https://maps.gov.bc.ca/ess/hm/habwiz/ (accessed March 31, 2021)

2.

The renovation consists of creating an additional room on the second floor, which requires converting an existing section of the first-floor roof into floor space for the second floor. The extension of the second storey floor space will be completely contained with the existing first storey footprint. A portion of the house is unconforming and, therefore, the renovation requires a zoning variance but this renovation will not increase the footprint of the dwelling within the Setbacks of Pipe Creek.

Within the Subject Property, the carport and the section of asphalt driveway directly under the roof of the carport are proposed for removal and will be replaced with permeable, vegetated area. The existing area of asphalt driveway not located directly under the carport is proposed to remain in place. Off the Subject Property, Shed-2 is proposed for removal and will be replaced with riparian planting. Additionally, riparian planting is proposed within the 5-m Setback on property.

Timing of proposed work may potentially coincide with the nesting window for eagles. Considering that the Subject Property is 25 m away from the furthest extent of the eagle nest buffer, the area surrounding the nest contains consistent car traffic and human disturbance, and no blasting or removal of trees will take place, SEI opines that no mitigation is needed in relation to the eagle nest buffer zone.

Habitat Balance

Habitat gains and impacts between ToB and 15 m from Pipe Creek resulting from the renovation and removal of structures were calculated using AutoCAD and are presented in Table 1 below and attached in Figure 1: Habitat Balance.

Table 1: Habitat Balance calulation.

Habitat Impacts:	
Top of Bank →15-m Setback:	0 m^2
No increase in footprint resulting from development	
Habitat Gains:	
On Property	
5-m → 15-m Setback	
Carport and Driveway removal	+ 13 m^2
Off Property	
0-m → 5-m Setback	
Shed-2 Removal	+4 m^2
Net Habitat Gain:	**+ 17 m^2**

Riparian Restoration

The Riparian Restoration Area planting polygon is proposed in the southeast corner of the Subject Property and covers all the area of the Subject Property within the 5-m Setback. Off property, the Riparian Restoration Area will cover the footprint of Shed-2. Non-native plant species in these areas will be removed and replanted with suitable native riparian plant species within the planting polygon for a minimum total Riparian Restoration Area of 13 m^2 (see attached Figure 2: Riparian Restoration Plan). The replanted vegetative buffer will help increase delineation of the riparian area, help prevent encroachment, provide additional habitat for local flora and fauna, and provide higher quality food and nutrients to downstream reaches.

Additionally, all areas within the 15-m Setback devoid of hard surfaces proposed within this EDP, including where the existing carport and driveway is proposed for removal, will be restored to contain riparian suitable vegetation, lawn, or approved landscape species for 43 m^2 of vegetated Riparian Area. The landscape plan in the Riparian Area must be approved by SEI or the DWV Environmental Department prior to implementation.

Invasive species identified within the Invasive Species Management Area polygon (see Figure 1: Habitat Balance & Invasive Species Management Area), specifically Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*), are proposed to be removed and disposed of according to best management practices prior to riparian planting. Material import and export activities to and from the Subject Property will implement invasive species best management practices to prevent the spread and proliferation of invasive species.

Construction Environmental Mitigation Measures

Tree Protection

As per DWV *Tree Bylaw* No. 4892, 2016, tree protection fencing, and signage must be installed as specified below and maintained to prevent damage to trees or their root systems during construction activities. Fencing must be constructed around all protected trees in the Subject Property and, if practicable, located beyond the Critical Root Zones (CRZs) of trees. CRZs, or Protection Zones, as per Schedule A – Tree Protection Specifications of DWV's Tree Bylaw, indicates a minimum fence distance from the tree of six times DBH.

General Environmental Mitigation Measures

At a minimum the following general environmental mitigation measures shall be implemented during demolition and construction:

- If off-site removal of invasive species is required, material should be placed within a sealed container or bag or covered securely during transport to an appropriate disposal site;
- street cleaning will be conducted if any sediment is tracked out on to paved surfaces;
- imported material will be clean and/or free of contamination;
- a spill kit will be kept on site throughout the duration of the works;
- machinery will be inspected daily to identify any leaks and wearing parts before they fail;
- leaking equipment or wearing parts will be repaired/replaced before continuing service; and

- refuelling of machinery and equipment will occur as far away from catch basins and watercourses, as practical.

Conclusions

In the opinion of SEI, the proposed renovation of the Subject Property addresses the following DWV *Watercourse Protection* (2015) guidelines, as follows:

- *Locate development on portions of the site that are least environmentally sensitive* – The renovation is occurring entirely inside the existing footprint of the dwelling and further away from Pipe Creek than other existing hard surfaces.
- *Avoid net loss of riparian habitat within 15 m of the top of the watercourse bank or edge of the wetland* – The habitat balance for the proposed development demonstrates a net gain of 13 m^2 on property and 4 m^2 off property.
- *Within 15 m of the top of the watercourse bank or edge of wetland, locate new buildings, structures and impervious/semi-impervious surfaces at least as far from the watercourse or wetland as any existing development* – Currently, the closest existing structure to Pipe Creek, the concrete retaining wall, is below the Top of Bank. The closest existing structure after the retaining wall is Shed-2, 0.5m away from the Top of Bank. Shed-2 is proposed for removal and no structures are proposed closer to the Top of Bank than Shed-2.
- *Keep free of new buildings, structures, and impervious/semi-impervious surfaces the area within 5 m of the top of the watercourse bank or edge of the wetland* – No new buildings, structures, or impervious/ semi-impervious surfaces are proposed within the 5-m Setback.
- *Enhance, and where feasible, restore watercourses in already developed areas to improve watercourse quality from uplands to inlets* – The implementation of the Riparian Restoration Plan will serve to increase the buffering capacity between the Subject Property development and Pipe Creek, provide additional habitat for local flora and fauna suited to native riparian conditions, and provide higher quality food and nutrients to downstream reaches.

Please contact the undersigned if you require any additional information or clarification of the above.

Sartori Environmental Inc.

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Reviewed and Endorsed by:

The undersigned certifies the work described herein fulfills standards acceptable of a Professional Biologist.

Stephen Sims, R.P.Bio.
Biologist
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(2) Attachments

- Figure 1: Habitat Balance & Invasive Species Management (2021-04-01; Rev00)
- Figure 2: Riparian Restoration Plan (2021-04-01; Rev00)
- Figure 3: Riparian Planting & Invasive Species Management Details (2021-04-01; Rev00)

Photographic Documentation

Photo 1. South view of the dwelling, driveway and carport (pictured left); second floor addition proposed over the roof of the first floor space centered in the photo.

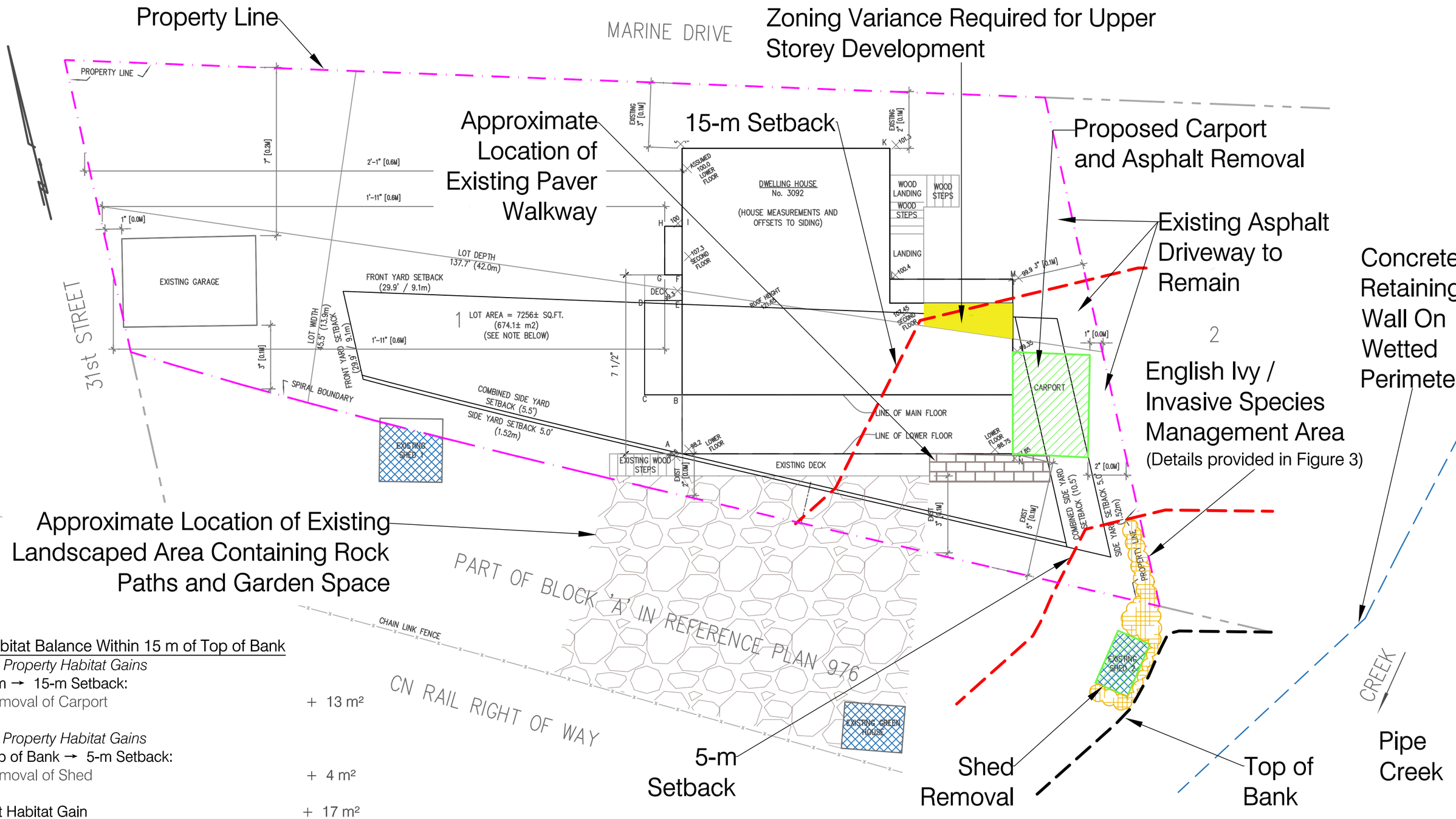
Photo 2. North view of the dwelling and carport; foreground contains the 5-m Setback within the Subject property.

Photo 3. View facing the southeast corner of the property depicting the Landscaped Area and deck.

Photo 4. View of Shed-2 proposed for removal.

Photo 5. Perpindicular view of Pipe Creek, facing east, within the RoW.

Photo 6. View of English ivy within the Invasive Species Management Area.



Habitat Balance Within 15 m of Top of Bank

On Property Habitat Gains

5-m → 15-m Setback:

Removal of Carport + 13 m²

Off Property Habitat Gains

Top of Bank → 5-m Setback:

Removal of Shed + 4 m²

Net Habitat Gain + 17 m²

ToB Setbacks — Top of Bank — Habitat Gain — 7 m² - Invasive Species Management Area

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3092 Marine Drive, DWV
Habitat Balance Plan
Environmental Development Permit Figures

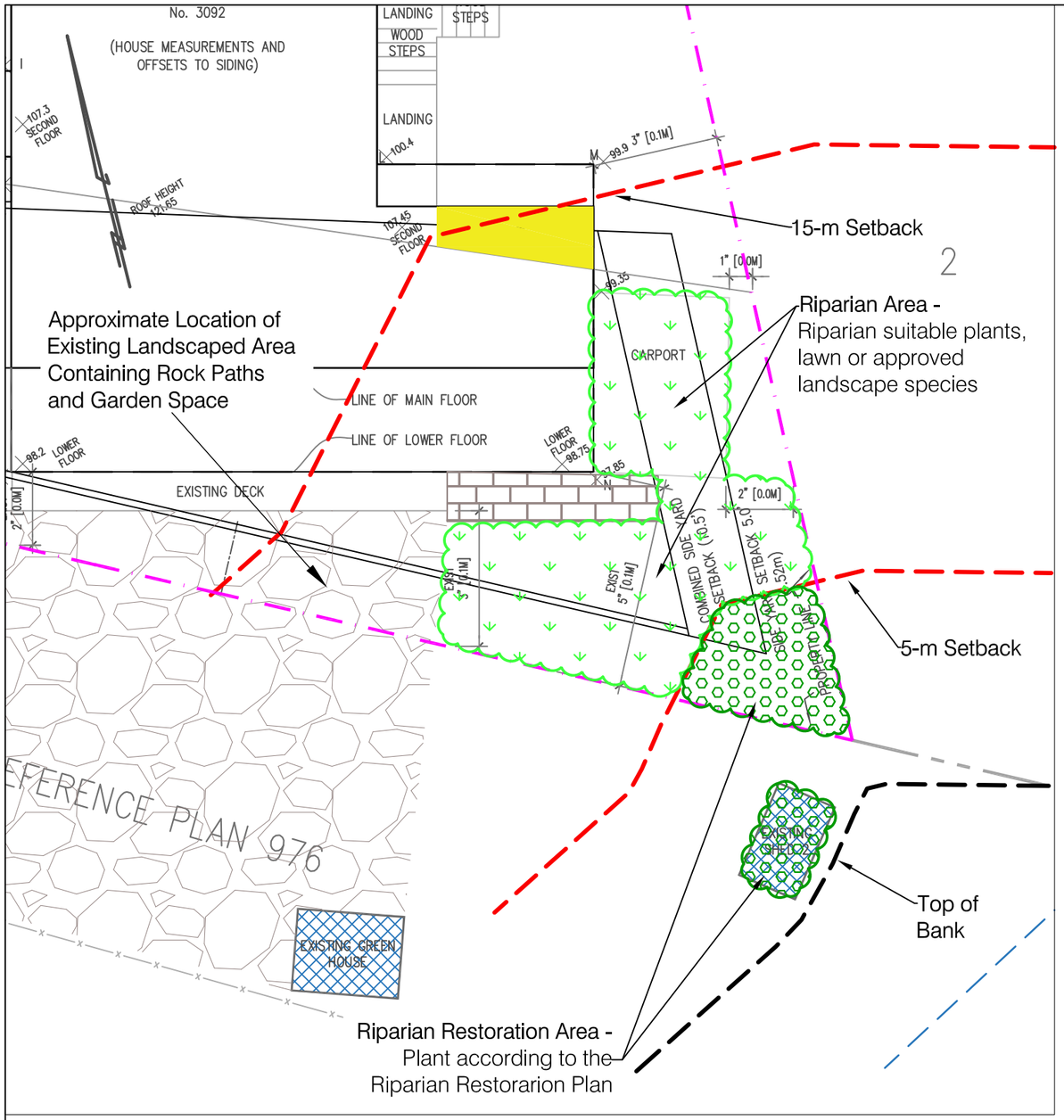
DATE : 2021-04-01

Figure 1: Habitat Balance & Invasive Species Management Area

REV 00

DRAWN BY J.C.

SCALE 1:150



43 m²

Riparian Area - Must be planted with riparian suitable plants, lawn or approved landscape species.
No new hard surfaces permitted.

9 m² (on property)
4 m² (off property)

Riparian Restoration Area
- All invasive and non-native plants within the polygon must be removed prior to planting

Riparian Restoration Plan

Approximately 13 m² of planting is proposed at an average density of 1 plant per 1.5 m² within the identified Riparian Restoration Area to accommodate for calculated habitat gains and increase the overall biological productivity of the watercourses riparian zone. All invasive and non-native plants within the Riparian Restoration Area must be removed prior to planting. Plant species should be selected with consideration to plant community, competitive nature, shade tolerance, growth rates and rate of spread. No more than 25% of one species may be selected from the plant list. Efforts will be taken to retain existing native vegetation in place or may be carefully removed, stored and transplanted to another area on the Subject Property. Existing riparian suitable plants that are retained in the Riparian Restoration Area may count toward the total number of plants needed to satisfy the total numbers listed below.The following planting list is recommended; if plant species substitutions are desired due to reasons of aesthetics or plant stock availability, Sartori Environmental Inc should be contacted at 604.987.5588 to review and comment.

Coniferous Trees

(3.0 - 5.0 m Spacing from other coniferous trees, and purchased at a minimum height of 2.0 m, unless otherwise specified)

Western red cedar (*Thuja plicata*
Doulgas fir (*Pseudotsuga menziesii*)
Shore pine *(Pinus Contorta)*

*TOTAL - 1**

** coniferous trees must be purchased at a height of at least 2.0 m*

Deciduous Trees

(1.5 - 3.0 m spacing from other deciduous and coniferous trees, and purchased at a minimum height of 1.2 m, unless otherwise specified)

Red alder (*Alnus rubra)*
Pacific willow (*Salix lucidia ssp. lasiandra)*
Bitter cherry (*Prunus emarginata)*
Vine maple (*Acer circinatum*)
Cascara (*Rhamnus purshiana*)
Mountain Ash (*Sorbus scopulina*)

*TOTAL - 2***
*** deciduous trees must be purchased at a height of at least 1.2 m.*

Shrubs

(0.25 - 1.0 m spacing from other vegetation and purchased in minimum #1 or one gallon containers)

Salmonberry (*Rubus spectabilis*)
Red huckleberry (*Vaccinium parviflolium*)
Red-osier dogwood (*Cornus stolonifera*)
Western swordfern (*Polystichum munitum)*
Salal (*Gaultheria shallon)*
Oregon grape *(Mahonia aquifolium)*
Nootka rose (*Rosa nutkana*)
Pacific ninebark *(Physocarpus capitatus)*
Deer fern *(Blechnum spicant)*
Elderberry (*Sambucus racemosa)*

*TOTAL - 6****
****No more than 25% of one species may be selected from the plant list.*

Landscape Riparian Planting Checklist

- ☐ Ensure the entire area is planted in the location identified in the adjacent figure depicting the Riparian Restoration Area
- ☐ Ensure a planting density of 1 plant per 1.5 m² (9 plants minimum in 14 m²)
- ☐ Ensure the Riparian Restoration Area contains the minimum number of plants of each type as shown in the list provided
- ☐ Ensure species planted are from the list provided or have been approved by Sartori or DNV
- ☐ Ensure all invasive and non-native plants are removed from the Riparian Restoration Area and Riparian Area
- ☐ Ensure riparian suitable plants, lawn, or approved landscape species are planted within the Riparian Area
- ☐ Ensure no new hard surface are present within either the Riparian Restoration Area or the Riparian Area

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3092 Marine Drive, DWV
Riparian Restoration Plan
Environmental Development Permit Figures

DATE : 2021–04–01 | Figure 2: Riparian Restoration Plan | REV 00

DRAWN BY J.C. | SCALE 1:125

Invasive Species Management

All invasive plant species should be removed (with their root structures) within from the Invasive Species Management Area polygon delineated in Figure 1. Invasive plant species within the polygon located along fence lines, stairs, retaining walls, deck edges or steep slopes where machine access is restricted, or where vegetation may be integral to existing structural components or slope stability, should be removed by hand. Invasive species located in riparian areas where machine access is available may be managed through other mechanical means (*e.g.*, use of a small-rubber tracked machine). Extensive species-specific best management practices information exists regarding the removal and control of invasive species, and if requested, Sartori Environmental Inc. can provide further direction during the landscaping/vegetation maintenance phase of the proposed works to ensure adequate removal and disposal. All root structures and topsoil should be disposed of in an appropriate manner.

During the site assessment, the following occurrences of invasive species were observed within or adjacent to the 15-m riparian setback:

Himalayan blackberry (*Rubus discolor*)

English ivy (*Hedera helix)*

Purchasing, Site Preparation and Planting

Botanical names should be referenced when purchasing to ensure accuracy and all specimens should be of guaranteed nursery stock. Purchased stock should be tagged with species name, and tags should be left on after planting for the purpose of planting confirmation. Nursery stock should be a minimum of two years old at purchase to ensure developed root systems and increase the likelihood of survival. Once plant stock is received onsite, specimens should be stored in a cool, shady location and watered regularly. Planting should be undertaken during the fall (Sep - Oct) or spring (Mar - Apr) for maximized probability of survival. Prior to planting, it should be ensured that adequate soil structure and nutrient content exist through appropriate storage of existing onsite material or import of organic growing medium. If growing medium is to be retained from onsite, consideration should be given to organic stockpile depth (no greater than 1.0m) and length of storage time (ideally less than 1 month) to maintain nutrient cycling, microbial activity and viability of native seed stock. Once placed, factors affecting soil compaction (*i.e.* traffic, machine movement, material storage) should also be considered. If material import is required for growing medium, it should be inert and certified free of invasive or noxious weed species. Holes should be dug 2-3 times larger than the size of the roots and soil should be non-compacted. Root ball untangling, pruning, splitting and burlap sack removal should be done in a means suitable to allowing the newly planted roots to spread and avoid root girdling. If in doubt, supplier planting prescriptions should be consulted. Regular watering and/or fertilizer application may also be required to ensure adequate recruitment.

The following plant spacings are included as a guideline, and clustering of plants around preferred microsites (*e.g., woody debris, large trees, wetted depressions on dry sites, drier mounds on wet sites, etc.)* is preferred to a standard grid formation. Course woody debris (CWD), if locally available, should be placed within the panting area to promote nutrient cycling and wildlife habitat, and to serve as native seedbanks. Coniferous Trees should be 2.0 m (Min) height and planted 3.0 - 5.0 m away from other coniferous trees. Deciduous Trees should be 1.2 m (Min) height and planted 1.5 - 2.0 m away from other coniferous and deciduous trees, unless planted in a cluster. Shrubs should be purchased in minimum 1 gallon pots and planted 0.25 - 1.0 m away from other vegetation. Plant species locations should be selected in consultation with an experienced landscaper to determine shade and growing tolerances.

All acquired plant materials shall be healthy, with well developed root systems and top growth, and shall be free of disease, insect infestation and the following defects at all times: broken tops, torn roots and abrasions of bark on trunk and branches; dried out root systems; prematurely opened or damaged buds; dry, loose or broken ball of earth; evidence of heating, moulding, or freezing damage; thin, poor root or top systems, and abnormal leaf colour.

NOTE TO CLIENT: It is integral that prescriptions provided within this Riparian Restoration Plan (the "Plan") are adhered to, and if questions or concerns arise during Plan implementation, Sartori Environmental Inc. or the District of West Vancouver (DWV) should be contacted to resolve potential issues with compliance. As release of municipal environmental security deposits are subject to DWV inspections, facilitating easy auditing by DWV is likely to save time and money, and result in full deposit return. Therefore, Sartori recommends the owner should (1) retain a reputable landscape company to implement the Plan and provide "as-planted" figures, (2) consolidate and retain all documentation including plant purchase, landscaping and invasive plant removal receipts, and (3) Ensure all planted specimens are flagged (with species), or nursery tagged, and those tags remain in place until all conditions of the Development Permit are satisfied.

sartori environmental	3092 Marine Drive, DWV Details Environmental Development Permit Figures	
Date: 2021-04-01	Figure 3: Riparian Planting & Invasive Species Management Details	REV 00