welcome to the developer information meeting for **firehall no. 4**

this project is a combined development featuring a Fire Hall, Fire Department training facility, Neighbourhood Park, and an abundance of naturalized park dedicated to protecting the environment.

"Your City, Your Albion, Your Livability, Your Fire Department"

N

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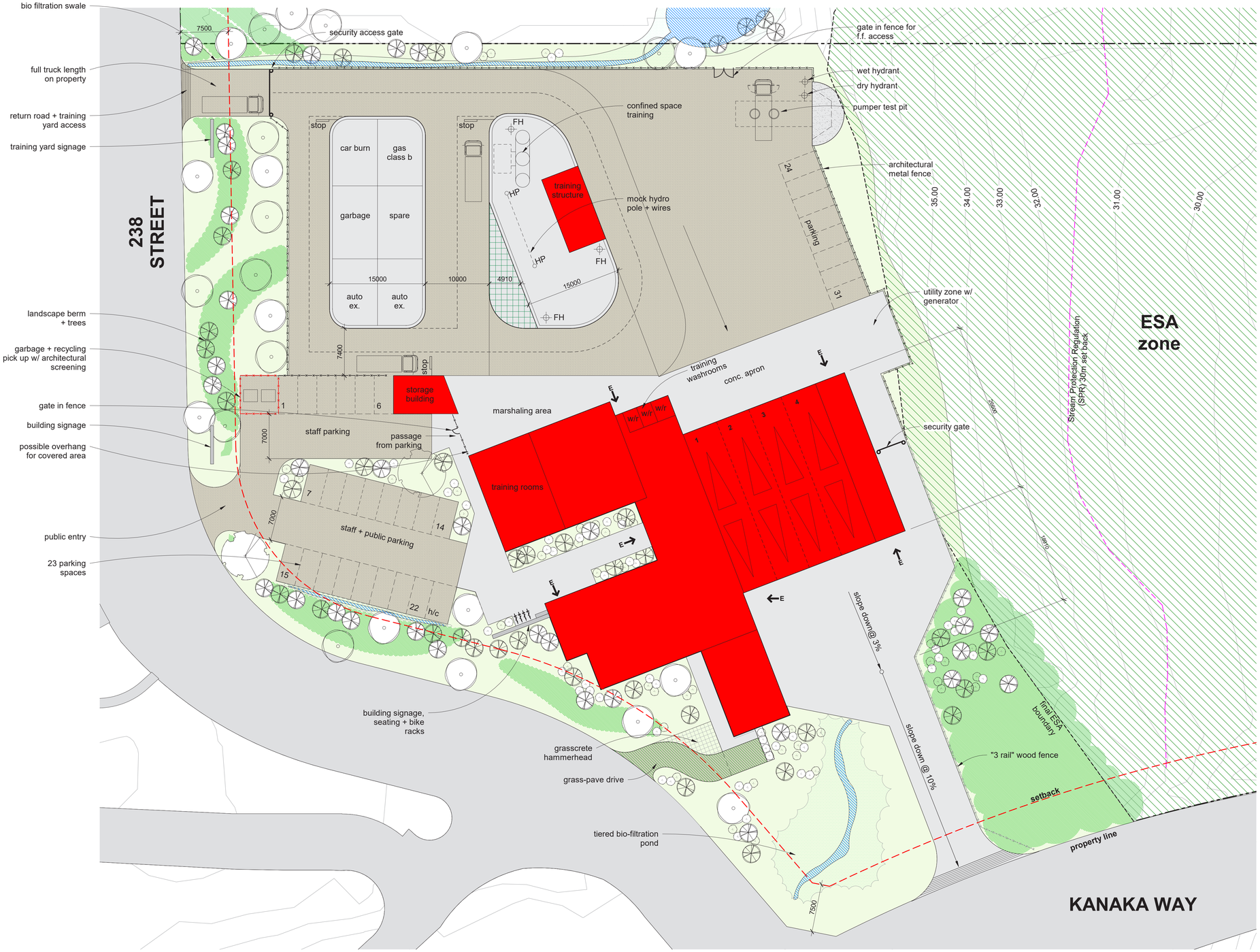
firehall site plan

proposed park site



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MAPLE RIDGE British Columbia

development information meeting: july 25, 2018

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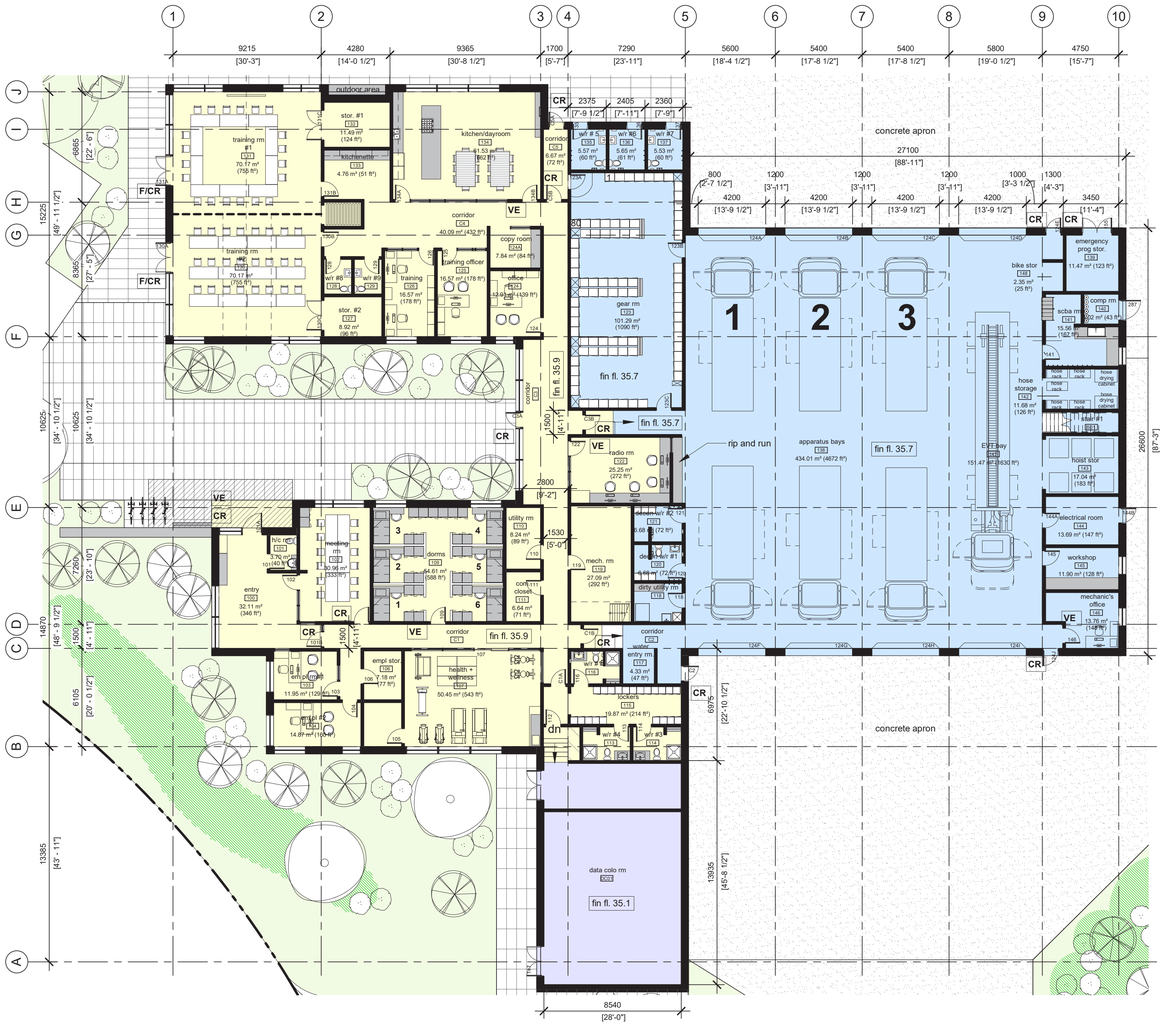
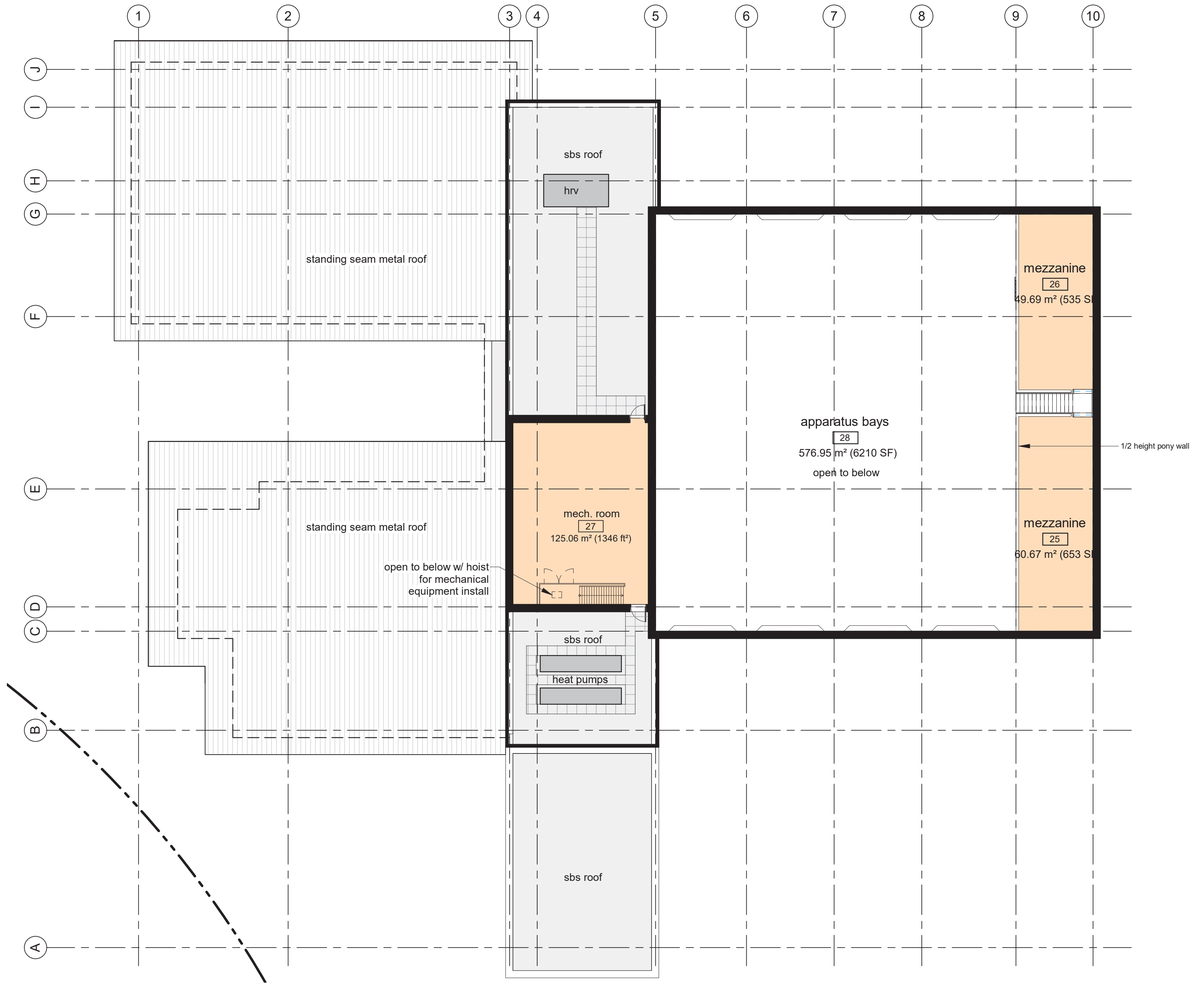
maple ridge firehall #4

floor plans





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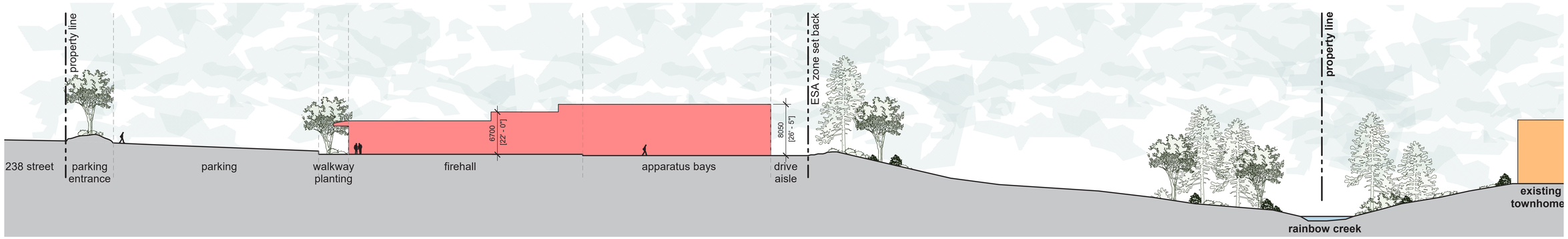
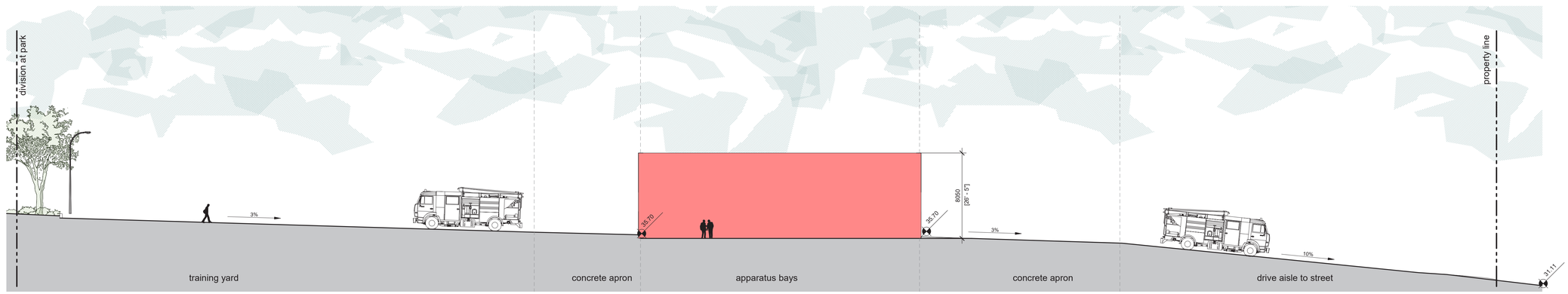
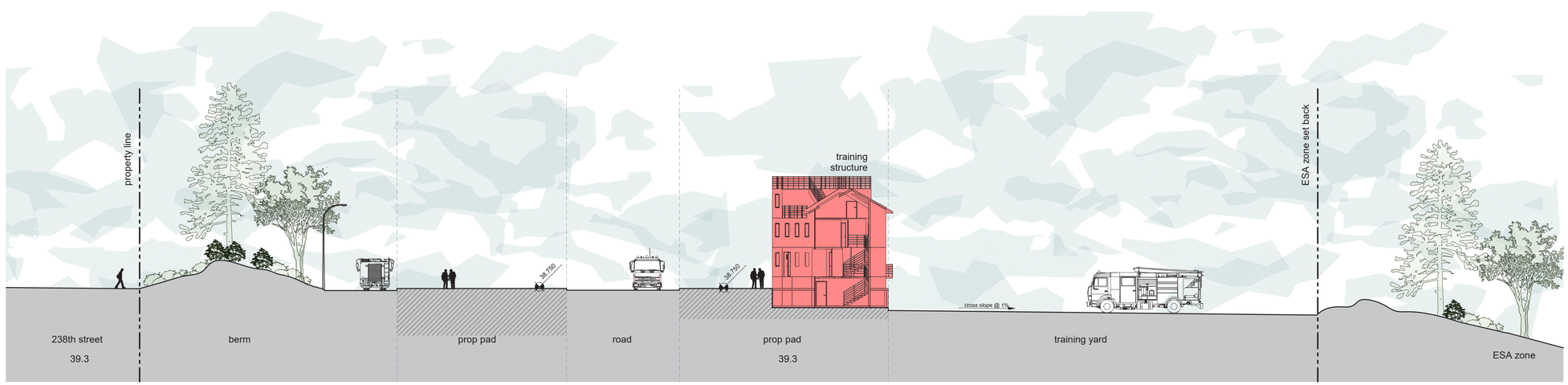
site sections



1: east-west site section through parking + firehall



2: north-south site section through concrete apron



3: east-west site section through training yard

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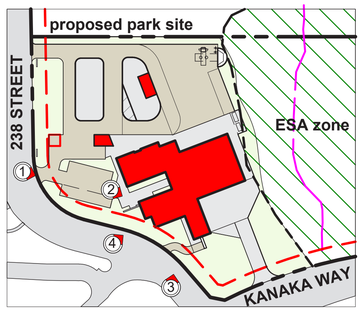
maple ridge firehall #4

renderings

1: view from 238th street entrance

2: view of front entrance from parking area



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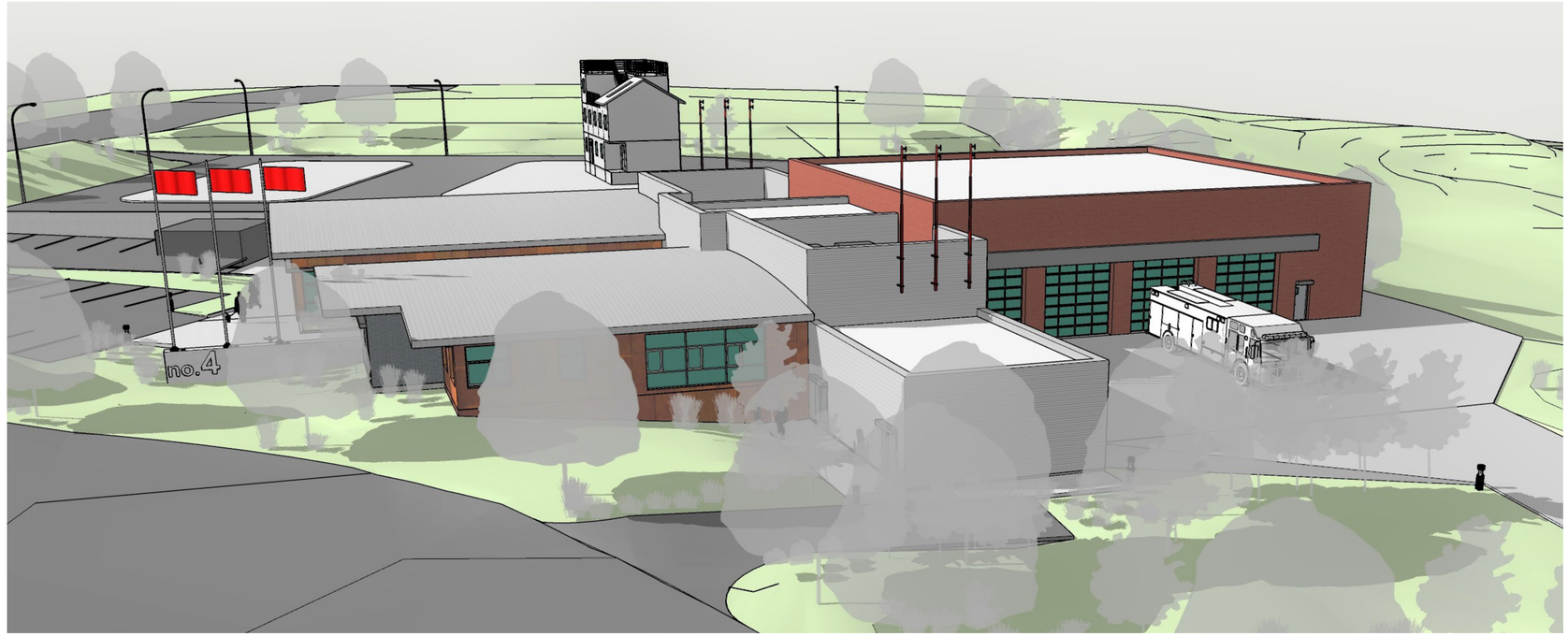
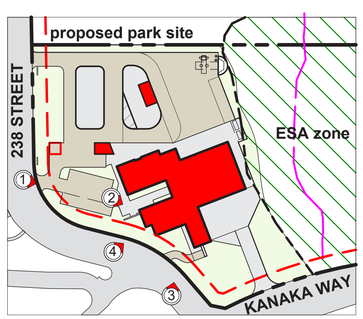
maple ridge firehall #4

renderings



3: view from 238th + kanaka way looking north east

4: bird's eye view looking east from 238th street



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maple ridge firehall #4

materials

standing seam metal roof (weather zinc colour)

brick masonry

corrugated metal siding (silver)

fully glazed overhead doors

sbs membrane roof

precast concrete eyebrows

metal antenna masts

stamped concrete walkway

concrete signage / seating at entrance

corrugated metal siding

new landscaping

standing seam metal roof

corten steel cladding

double glazed aluminum windows

sbs roofing

patterned stamped concrete walkway

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maple ridge firehall #4

sustainable project goals



energy

- Building will be designed to a minimum 40% more energy efficiency than the standard requirements by Code which will result in annual operational savings.

strategies

- High performance mechanical system and building envelope.
- Energy efficient lighting and building control systems.
- Using waste heat from the equipment in the Data Co-location Centre to heat part of the building and provide preheating for domestic hot water.
- Radiant heating for the apparatus bays in order to maintain a low but consistent temperature in the operational areas. This will also use the mass of the concrete slab as a heat sink and provide heating option which help with the maintenance of the trucks by removing snow and moisture from the under carriage.



materials

- Select materials that are harvested and manufactured regionally such as wood which is a locally sourced and milled product, installed by local labour.

strategies

- Exposing the building's structure as the final interior finish saves money by not having to install finishes over finishes and can also be aesthetically pleasing such as the wood glulams shown
- Using regional materials will support local businesses and communities while at the same time help reduce air pollution created by the vehicles used to transport them. in the photos to the left.
- The goal for this project is to have 90% of the above grade structure to be built out of wood. This will increase the energy efficiency of the envelope and is a big achievement for post disaster buildings.

WHY?

Buildings are responsible for 40% of the annual consumption of the world's energy and materials contributing massively to global warming.

&

Buildings are the single largest contributor of greenhouse gases.
48% of greenhouse gas emissions can be directly attributed to building, maintaining and operating buildings.





water

- To reduce the amount of potable water usage of a standard building, this means approximately 80,000 litres of water could be saved annually.

strategies

- Low-flow fixtures with no urinals
- running storm water through the pumper test pit so when used for training reclaimed water is the focus.
- Drought-tolerant landscaping.

fire smart durability

- To extend the service life of a building, minimize material use and construction waste over a building's life, by selecting materials that are both durable and fire smart.

strategies

- Design and construct building components and assemblies so that they can be easily repaired or readily replaced.
- design the building's exterior materials to be durable and non combustible.
- Ensure that

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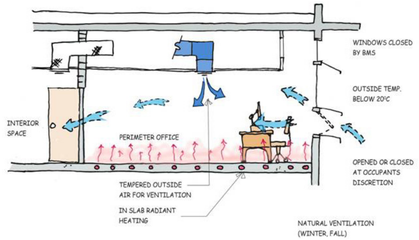
maple ridge firehall #4

building systems

mechanical systems

Mechanically the building will combine the use of air to water heat pumps with radiant heating and an air displacement system to provide improvements to the occupant comfort and energy efficiency.

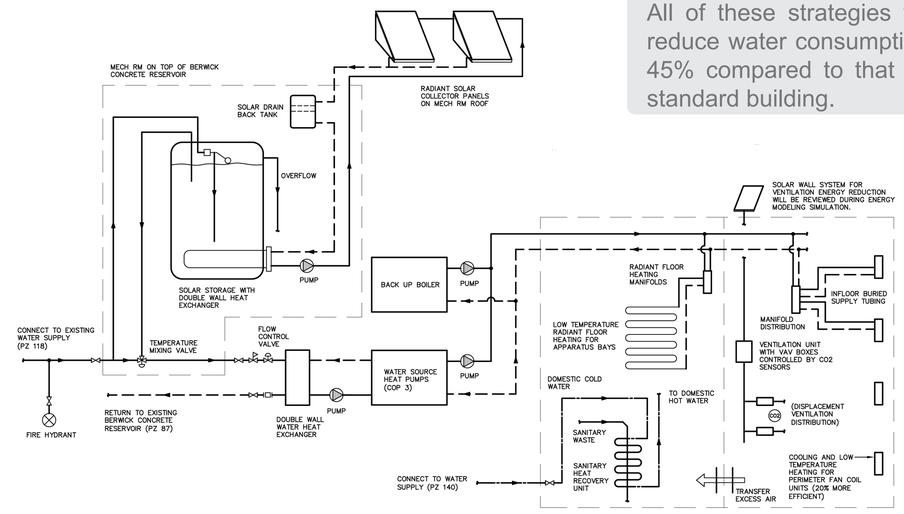


plumbing fixtures

Reduce water consumption by installing:

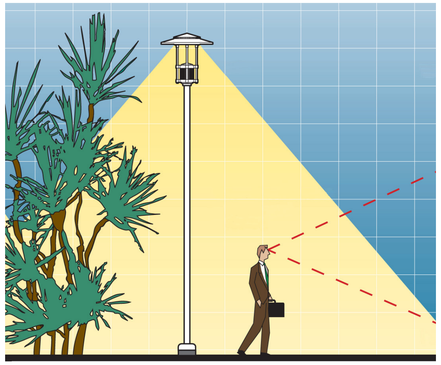
- high efficiency toilets
- low flow urinals
- eco power flush valve - powered by an internal hydro powered turbine. No power is required.
- infrared (hands-free) faucets in select locations.

All of these strategies will aim to reduce water consumption by over 45% compared to that used by a standard building.



lighting + safety

a major concern for the site to ensure that we meet ability to conform to "night sky" requirements. the diagram below outlines the light trespass from he training yard and building, outlining the extent of the impact.



night sky

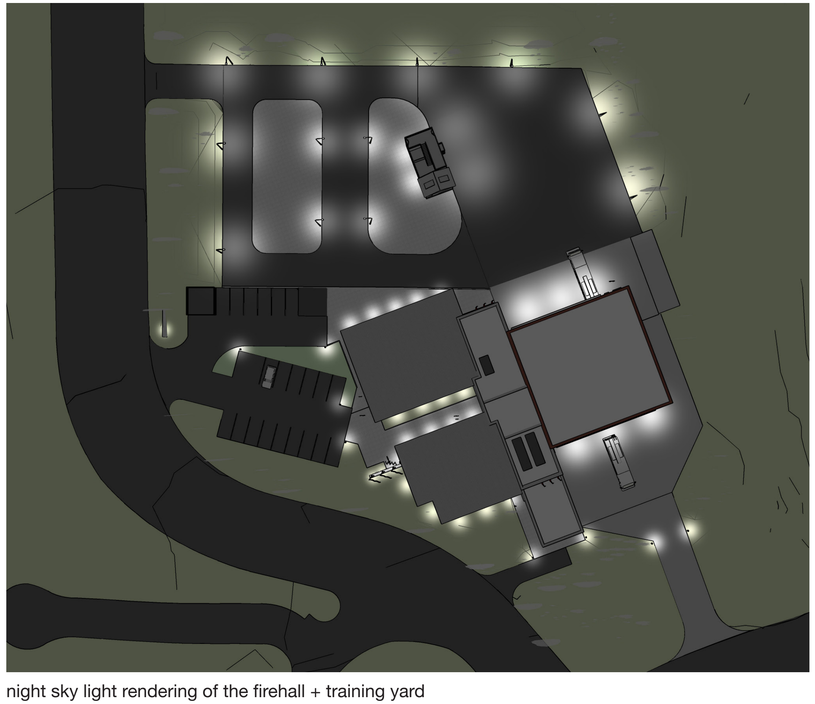
night sky

Light pollution is waste light from buildings that produces glare, is directed upward to the night sky, or is directed off the site. Goals to improve the night sky include:

- minimize light trespass from the building and site
- reduce sky-glow to increase night sky access
- improve nighttime visibility through glare reduction
- reduce development impact from lighting on nocturnal environments

emergency generator

The project will include an emergency genset large enough to power the entire building in the case of an emergency for 72 hours



night sky light rendering of the firehall + training yard

on site energy generation

investigation of possible low cost renewable energy - solar thermal (water) + solar photovoltaics (power)

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maple ridge firehall #4

structural

1.5 times

post-disaster

Firehalls are essential to their communities and in times of trouble are relied upon to provide life-saving services. In order to provide these essential services, firehalls are designed and constructed to post-disaster requirements of the BC Building Code, which translates to the building being able to withstand 1.5 times the seismic force a regular building can endure during an earthquake. This way the building will be operational during a catastrophic event and continue to provide service to their community during all types of emergencies.

cast in place concrete hose tower

post disaster framing

energy efficiency & local product

Use of wood in a variety of forms creates a building structure with positively contributes to the energy efficiency of the building envelope. Wood is 15 time more insulating than concrete + 300 times more insulating than steel as a structural product. In addition, this ensures that the structural components are locally sourced + wood-frame construction is intended to be built with local trades helping local and provincial economies.

wood design

B.C. wood is a natural, renewable, recyclable, regional and responsibly harvested product which is an optimum building material for public buildings. British Columbia's 'Wood First Initiative' aims to promote the use of BC wood products to support forest-dependent communities and assist in meeting climate change goals. BC is the largest producer of soft wood lumber + the largest exporter in the world representing in 16 jobs in BC tied to the forest industry.

glulam beams

Glulam beams (glued-laminated timber) is a structural timber product manufactured by gluing together individual pieces of dimension lumber under controlled conditions. Glulam is a structural product used for headers, beams, girders, columns, and for heavy trusses. It is often used where the structure of a building is left exposed as an architectural feature.

exposed glulam beams at exterior

glulam beams in apparatus bays

exposed glulam beams and wood ceiling in training room

exposed structure

A key sustainable design principle is to expose the building's structure as the final interior finish. This practice negates the need for secondary and redundant finishes which reduces costs, additional labour and resourcing raw materials. Polished structural concrete slab floors are highly durable, low maintenance and long lasting. Also, the natural beauty of structural wood ceiling systems become focal points with their warm colour and rhythmic patterning.

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MAPLE RIDGE British Columbia

MAPLE RIDGE FIRE EST. 1946

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maple ridge firehall #4

MAPLE RIDGE FIRE HALL

MAPLE RIDGE, BRITISH COLUMBIA

van der Zalm + associates

0 10M 50M

PARK AND FIREHALL SITE PLAN

DP2017-65 — JUNE 2018

MAPLE RIDGE FIRE HALL

MAPLE RIDGE, BRITISH COLUMBIA

van der Zalm + associates

DESIGN INTENT

The design intent of the Maple Ridge Fire Hall is to create a soft aesthetic complimenting the strong geometry of the Firehall architecture. This landscape also has a dual purpose with an emphasis on storm water managment through the use of naturalized plantings in wetlands and bioswales. By redirecting rainfall runoff into these bioswales and eventually flowing in to newly constructed wetlands this allows for a natural filtration of rainfall runoff as well as contribute to groundwater recharge.

DESIGN RATIONALE

Landscape will be a native-blend of drought tolerant species that will work jointly with the civil design to provide for infiltration and treatment of storm water run-off. Buffer planting has been provided along 238 Street to provide separation between the fire hall and the adjacent residents. The entrance to the fire hall will incorporate seating and nodes for gathering for residents and fire fighters. The landscape has been developed in conjunction with the adjacent park to allow for views into the fire hall by park users.

The overall landscape will add to the community through an attractive blend of materials and vegetation that accentuate this new public facility.

LEGEND

1. BIOSWALE
2. SPLIT RAIL FENCE
3. BIOFILTRATION POND/WETLAND
4. PERMEABLE PAVERS
5. OMEGA ARCHITECTURAL FENCE
6. BENCH LOCATIONS
7. OMEGA FENCE GATE
8. GRASS-PAVE
9. BOULDER BARRIER
10. PLANTED BERMS
11. FLAGPOLE FEATURE
12. BOARDWALK AMONG BIOFILTRATION POND

0 10M 50M

SITE PLAN

DP2017-65 — JUNE 2018

MAPLE RIDGE FIRE HALL

MAPLE RIDGE, BRITISH COLUMBIA

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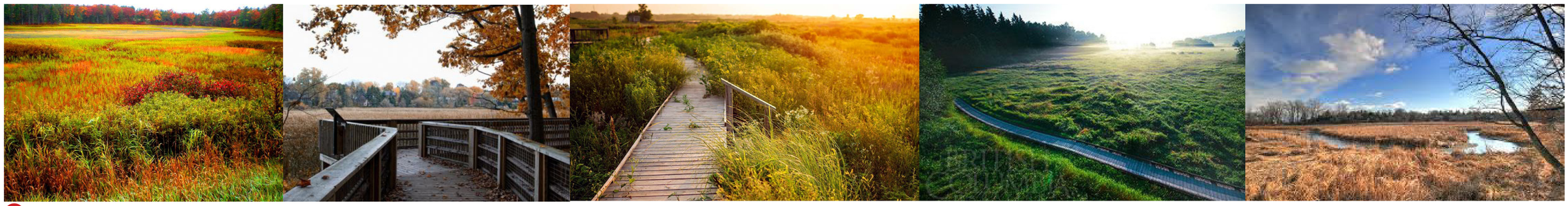
1 BIOSWALE

2 SPLIT RAIL FENCE



3 WETLAND WITH BOARDWALK TRAILS

4 PERMEABLE PAVERS

5 OMEGA SECURITY FENCE

6 BOARDWALK & FIREHALL BENCHES

7 FIREFIGHTER POND TRAINING OPPORTUNITIES

PRECEDENT IMAGES

DP2017-65 — JUNE 2018

MAPLE RIDGE FIRE HALL

MAPLE RIDGE, BRITISH COLUMBIA

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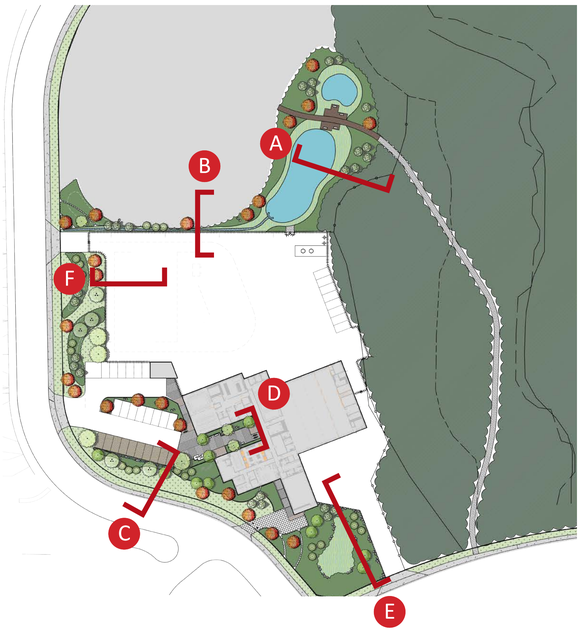
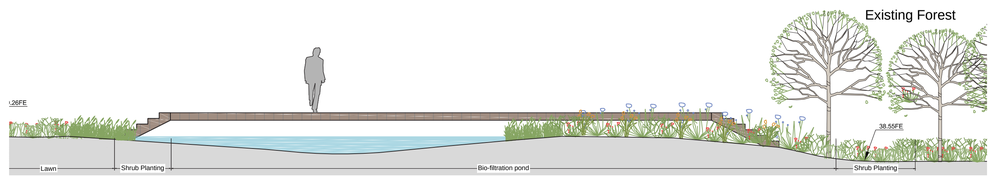
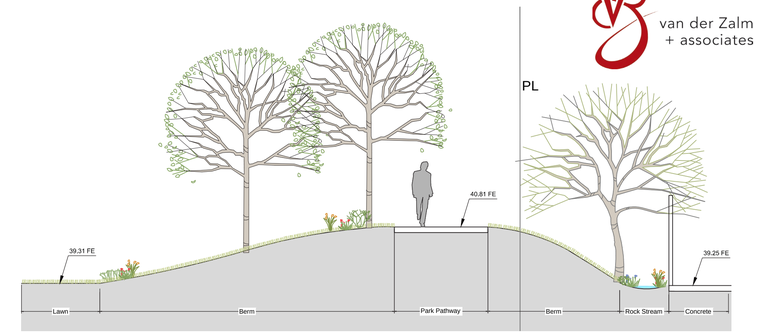
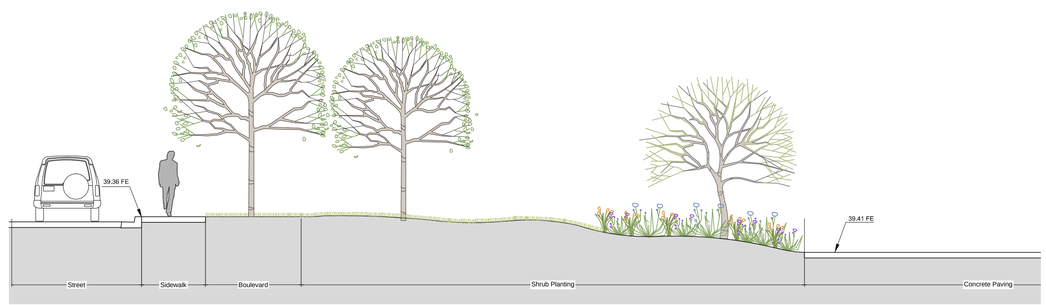


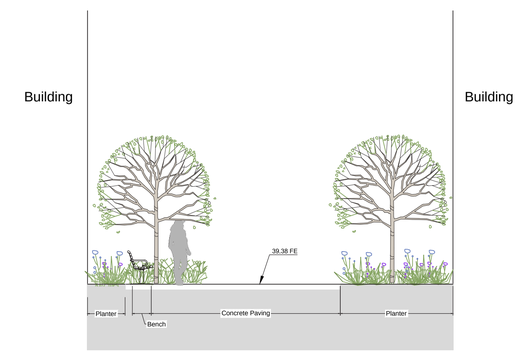


SECTION A



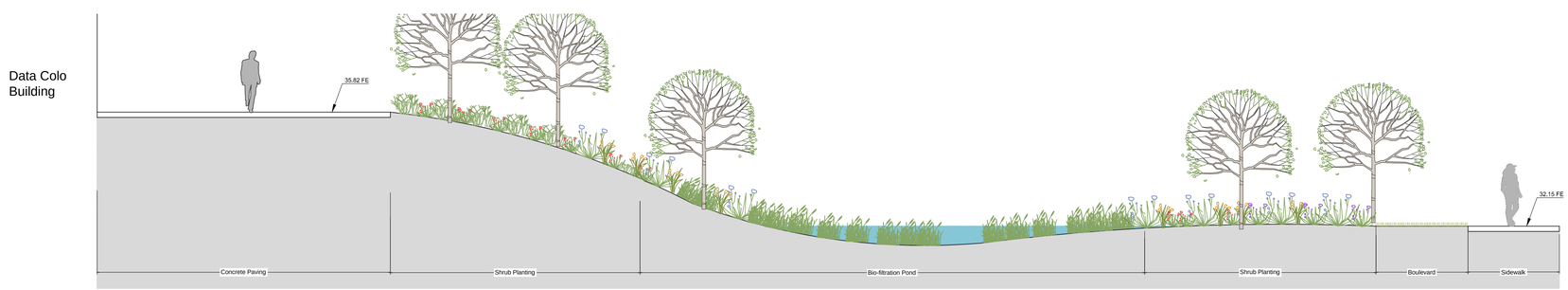
SECTION B





SECTION C

SECTION D



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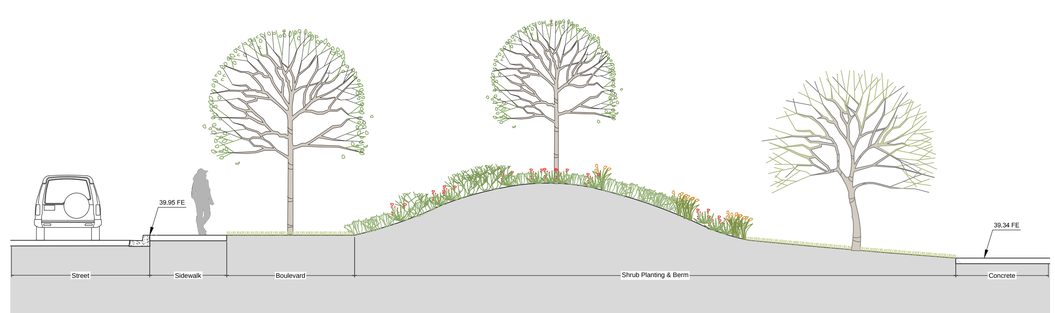

SECTION F

0 1M 5M

SECTIONS

DP2017-65 — JUNE 2018

MAPLE RIDGE FIRE HALL

MAPLE RIDGE, BRITISH COLUMBIA

van der Zalm + associates

SEASONAL INTEREST CALENDAR

	BOTANICAL NAME/ COMMON NAME	early spring	spring	late spring	early summer	summer	late summer	early autumn
TREES								
	Acer rubrum 'Red Rocket' / Red Maple							
	Aesculus x carnea 'Briotii' / Briotii Horsechestnut							
	Cornus florida 'Cloud Nine' / cloud Nine Eastern Dogwood							
	Prunus x 'Snow Fountains' / Weeping Higan Cherry							
SHRUBS								
	Arctostaphylos uva-ursi / Kinnikinnick							
	Erica x darleyensis 'Kramer's Red' / Kramer's Red Heather							
	Hydrangea paniculata 'Limelight' / Limelight Hydrangea							
	Prunus lusitanica / Portugal Laurel							
	Sarcococca hookeriana humilis / Sweet Box							
PERENNIALS/GROUNDCOVERS/GRASSES								
	Helictotrichon sempervirens / Blue Oat Grass							
	Lavandula angustifolia 'Hidcote' / Hidcote Lavender							
	Liriope muscari / Lily Turf							
	Lysimachia nummularia / Creeping Jenny							
	Miscanthus sinensis 'Adagio' / Adagio Eulalia Grass							
	Panicum virgatum ' Heavy metal' / Blue Switch Grass							
	Pennisetum alopecuroides 'Hameln' / Hameln Dwarf Fountain Grass							
	Sedum x 'Autumn Joy' / Autumn Joy Sedum							

SHRUBS


Arctostaphylos uva-ursi /
Kinnikinnick


Erica x darleyensis 'Kramer's Red' /
Kramer's Red Heather


Hydrangea paniculata 'Limelight' /
Limelight Hydrangea


Prunus lusitanica /
Portugal Laurel


Sarcococca hookeriana humilis /
Sweet Box

TREES


Acer rubrum 'Red Rocket' /
Red Maple


Aesculus x carnea 'Briotii' /
Briotii Horsechestnut


Cornus florida 'Cloud Nine' /
Cloud Nine Eastern Dogwood


Picea omorika /
Serbian Spruce


Pinus nigra 'Select Green' /
Select Green Pine


Prunus x 'Snow Fountains' /
Weeping Higan Cherry


Thuja plicata 'Green Giant' /
Western Red Cedar

PERENNIALS/GROUNDCOVERS/GRASSES


Helictotrichon sempervirens /
Blue Oat Grass


Lavandula angustifolia 'Hidcote' /
Hidcote Lavender


Liriope muscari /
Lily Turf


Lysimachia nummularia /
Creeping Jenny


Miscanthus sinensis 'Adagio' /
Adagio Eulalia Grass


Panicum virgatum ' Heavy metal' /
Blue Switch Grass


Pennisetum alopecuroides 'Hameln' /
Hameln Dwarf Fountain Grass


Sedum x 'Autumn Joy' /
Autumn Joy Sedum