AGENDA
Community Planning Advisory Committee

Wednesday, March 15, 2023 at 7:00 p.m.
City Hall Council Chambers, 410 Esplanade

***Mandate**: The mandate of the committee is to provide feedback to applicants and advice to Council on land use applications, policies, regulations and initiatives referred either directly by Council or through the Development Approval Procedures Bylaw.*

1. **CALL TO ORDER AND ACKNOWLEDGEMENT (7:00pm)**
   The Town of Ladysmith acknowledges with gratitude that this meeting takes place on the traditional, unceded territory of the Stz'uminus First Nation.

1.1 **INFORMATION ON HOW TO VIEW/ATTEND THE MEETING**

Residents are welcome to attend in person at City Hall Chambers at 410 Esplanade or "electronically" attend the meeting using the meeting link below:
https://us06web.zoom.us/j/6814540178?pwd=R3Q3VlNwTThRbDliNzNVSm92dVhFUT09

2. **AGENDA APPROVAL (7:05pm)**

3. **ADOPTION OF DECEMBER 7, 2022 MINUTES* (7:05pm)**

4. **NEW BUSINESS**
   None.

5. **COUNCIL REFERRALS**
   a. **Official Community Plan & Zoning Bylaw Amendment Application 3360-22-07 - West Lot A Holland Creek***
   (30 minutes)

   b. **Façade Development Permit Application 3060-23-03 – 32 High Street ***
   (30 minutes)

6. **MONTHLY BRIEFING (8:05 pm)**
   File Updates (10 minutes)

7. **NEXT MEETING – TBD**

8. **ADJOURNMENT (8:15 pm)**

***Attachments**

MINUTES
Community Planning Advisory Committee
Wednesday, December 7, 2022 at 7:00 p.m.
City Hall Council Chambers, 410 Espanade

PRESENT: Chair - Jason Harrison; Members – Abbas Farahbakhsh, Tamara Hutchinson, Jason Robertson; Council Liaison – Marsh Stevens; Director of Development Services – Jake Belobaba; Planner – Andrew Wilson; Senior Planner/Recorder – Christina Hovey

ABSENT: Members – Brian Childs, Steve Frankel, Jennifer Sibbald

GUESTS: Applicants - Colin Blake and Andrea Blake (File No. 3060-22-05), Nigel Gray and Cara MacDonald (File No. 3060-22-02)

Jason Harrison called the meeting to order at 7:04 PM, acknowledging with gratitude that Ladysmith is located on the traditional unceded territories of the Stz'uminus First Nation.

1. AGENDA APPROVAL

It was moved, seconded and carried that the Agenda of December 7, 2022 Community Planning Advisory Committee meeting be approved.

2. ADOPTION OF MINUTES

It was moved, seconded and carried that the Minutes of November 2, 2022 Community Planning Advisory Committee meeting be approved.

3. NEW BUSINESS

None.

4. COUNCIL REFERRALS

a. Zoning Bylaw Amendment 3360-22-05 – 1141 Cloke Road

Planner Andrew Wilson provided an overview of the proposal for a coach house. Committee members asked about whether the neighbours were aware of the proposal. The applicant has spoken to the neighbours and doesn't believe the proposal will impact privacy due to the siting and existing vegetation. The applicant confirmed that the main storey would not be used as a second rental unit and that there is no creek on the property. Committee members noted that the proposal would add a new residential rental unit and that the neighbourhood is relatively low density.

It was moved, seconded and carried that the Community Planning Advisory Committee recommends that Council approve Zoning Bylaw Amendment 3360-22-05 (1141 Cloke Road) as presented.

b. Zoning Bylaw Amendment 3360-22-02 – 1132-1142 Rocky Creek Road

The applicant provided a brief overview of the proposal to construct a gas station, cardlock and convenience store (Co-op). The applicant confirmed that the lots would be consolidated and that there could not be access from the highway due to the grade. The applicant did not know the plans for the existing Co-op cardlock on Ludlow Road and gas station at the Coronation Mall but will look into it before the file is presented to Council.

The applicant noted that members of the public (such as people who fish) can apply to use the cardlock which is open 24 hours a day.

Committee members noted that a convenience store would be useful for the new residential community planned for Rocky Creek Road. Committee members noted that the view from the highway is important for people entering and leaving Town and that trees have been removed as these properties have developed. The applicant noted that the existing trees on the property are not suitable for retention and slope retention is required. The applicant is planning to submit a Development Permit (DP) application following consideration by Council of 1st and 2nd reading for the requested bylaw amendment. The DP application will include site, building, and landscape designs.

It was moved, seconded and carried that the Community Planning Advisory Committee recommends that Council approve Zoning Bylaw Amendment 3360-22-02 (1131-1142 Rocky Creek Road) to allow a retail convenience store, and recommends that Council consider the following:

- **A plan for remediation and reuse of the existing Co-op cardlock site.**
- **The views of the property from the highway and require landscape screening.**
- **Referring the Development Permit application for this proposal back to CPAC.**

5. MONTHLY BRIEFING

The following files, that the Committee previously reviewed, have been to Council since the last meeting:

- Lot B Russell Road (3360-21-03)

6. NEXT MEETING – TBD

No meeting will be scheduled for January 4, 2023.

7. ADJOURNMENT

It was moved, seconded and carried that the meeting be adjourned at 7:55 PM.

_____
Chair (J. Harrison)

RECEIVED:

_____
Corporate Officer (M. O'Halloran)

REFERRAL REPORT

Report Prepared By: Jake Belobaba, RPP, MCIP
Meeting Date: March 1, 2023
File No: 3360-22-07
Re: Zoning/OCP Amendment Application for Lot A Holland Creek

INTRODUCTION/BACKGROUND:

The Town has received an application to amend the zoning bylaw to allow a "density transfer" for a large undeveloped property in the Holland Creek Development. Currently the site is zoned for low-density residential. The applicant is proposing to reduce the footprint of the development to cluster the allowable units in two multi-family sites. A larger multi-family complex will be located east of Heart Creek (the "Central Parcel") and a smaller multifamily development will be located west of Heart Creek (the "Western Parcel"). Remaining portions of the property (a large area on Arbutus Hump and a smaller portion abutting Colonia Drive) would be dedicated as parkland. Figure 1 shows the subject property and figure 2 shows the current and proposed zoning.

Figure 1: Subject property and existing zoning

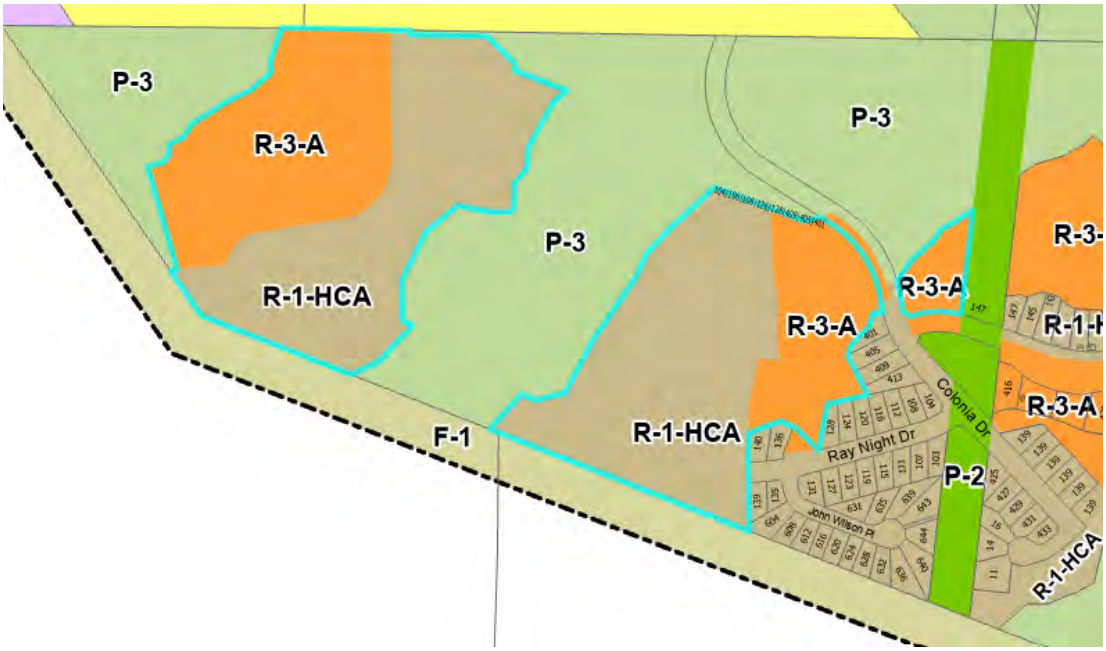
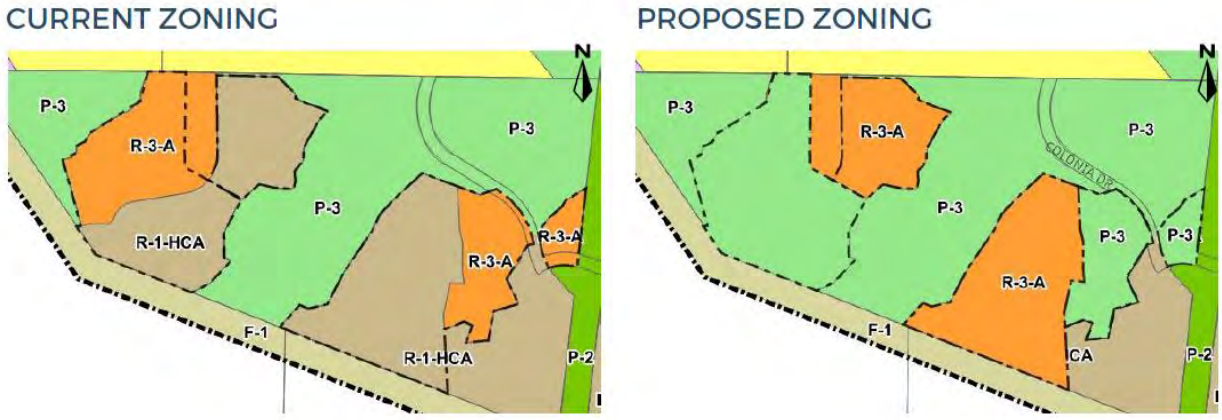


Figure 2: Current vs Proposed Zoning



The applicant's concept for the Central Parcel includes a 5 hectare (approximate) parcel with six 4-5 storey apartment buildings totaling approximately 400 units. The concept (see Attachment B) includes a ring-road around along the parcel's perimeter with a centralized amenity space with direct access for each building. The central amenity space will include sports and recreational amenities (e.g. pickle ball). Walking path connections will be provided to forested areas. One of these accesses will connect the northeastern corner of the parcel to Colonia Drive and double as an emergency access/egress for vehicles.

The applicant's concept for the Western Parcel is to create a 2 hectare (approximate) parcel hosting a multi-family development consisting of 100 multi-family units. This parcel will be accessed from a road along the northern property line that runs from a future extension of Colonia Drive. Like the Central Parcel the proposed Western Parcel will have a ring road and parking surrounding the residential development and central amenity space. The applicant is proposing one 50-unit apartment building a three-level, 24-unit walk up building and six fourplexes.

Approximately 7 hectares of the subject property will be zoned and dedicated as park. A 1.3 parking space/unit parking ratio is proposed for both the Western Parcel and Central Parcel.

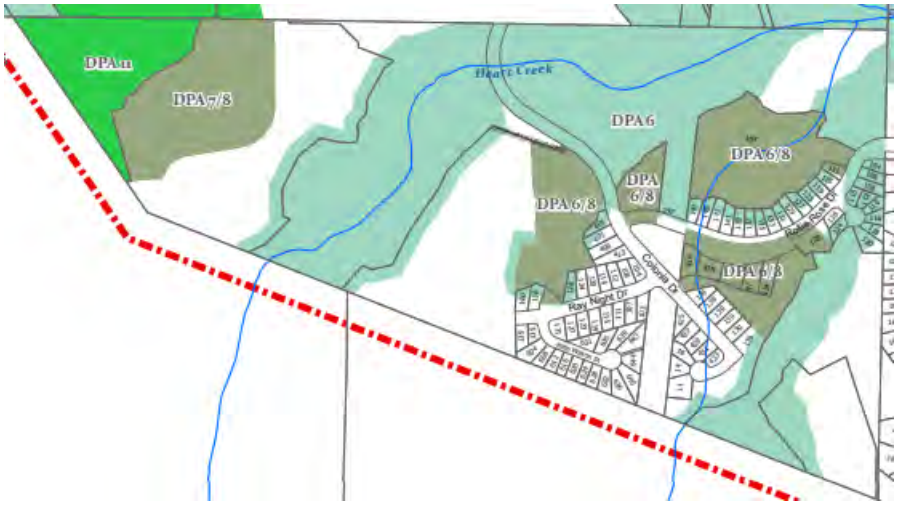
<u>Official Community Plan (OCP):</u>

The site is designated as 'Holland Creek Local Area Plan' under the current OCP. Under the Proposed OCP the subject property is designated 'Neighborhood Residential'. The Holland Creek Area Plan has been incorporated into the proposed OCP and therefore the policies of the Holland Creek Local Area Plan will still apply under the new OCP.

Development Permit Areas (DPAs):

Portions of the subject fall within Development Permit Areas 6 (Riparian), 7 (Hazard Lands) and 8 (Multi-family ESA) as shown in figure 3 below.

With the proposed changes to land use, the DPA designations will be changed to remove DPA 8 from areas that will no longer be developed (i.e. proposed parkland) and apply DPA 8 to the multi-family sites in the Central and Western parcels.



<u>Zoning Bylaw No. 1860:</u>
The subject property is zoned a combination of Low-Density Residential (R-3-A), Single Dwelling Residential- Holland Creek Area (R-1-HCA) and Nature Park (P3) as shown in figure 1. Under the proposed zoning, R-1-HCA zoning would be removed from the subject property, different areas would be zoned R-3-A and a larger portion of the subject property would be zoned P-3 (as shown in figure 2)

Under the existing zoning approximately 400-500 units would be allowed[1]. Under the proposed zoning the number of permitted units would be similar. Subsequently, the main changes are the types of units, their location, and a reduction in the development's footprint.

Community Amenity Contribution Policy:
The Town's Community Amenity Contribution Policy suggests a range of examples of contributions that may be appropriate. The dedication of parkland will meet the requirements of the Community Amenity Contribution Policy.

<u>NEXT STEPS:</u>
Following referrals, and CPAC comments the application will proceed to Council for consideration.

[1] The current zoning allows approximately 220 multifamily units on the R-3-A zone portion of the property. On the R-1-HCA portions of the property, the current zoning would allow approximately 200-300 units in the form of 460m^2 single-family lots, 668 m^2 single-family lots allowing suites, or combinations thereof.

ATTACHMENTS:

A. Applicant cover letter and rationale
B. Development Concepts
C. FireSmart Assessment
D. View Corridor Analysis/Renderings
E. TIA Update
F. Habitat Assessment
G. Water Study
H. Storm/Sanitary Study

Attachment A:
Applicant Cover Letter and Rationale

T 604.322.5762 200-8809 Heather Street
Vancouver BC V6P 3T1
districtgroup.ca

VIA EMAIL

June 1, 2022

Town of Ladysmith
410 Esplanade, PO Box 220
Ladysmith, BC V9G 1A2

Attn: Jake Belobaba, Director of Development Services

Dear Mr. Belobaba,

RE: HOLLAND CREEK – CENTRAL & WESTERN PARCELS - REZONING & AMENDMENT TO LOCAL AREA PLAN

District Group is please to provide you with an application for rezoning and amendment to the Holland Creek Local Area Plan for the two parcels indicated in red on the accompanying map. For the purpose of this application these parcels will be referred to as the Central and Western parcels of the Holland Creek Area.

Please find enclosed the following:

- Completed Application form;
- Development Application Checklist;
- Appointment of Agent form;
- Certificate of Title;
- Site Disclosure Statement;
- Conceptual Site plans provided by Michael von Hausen;
- Applicable fees via courier;

Documents that are being progressed at this time and will be submitted as they are completed:

- Updated conceptual site plans based on commentary from May 25, 2022 meeting;
- Fire Smart Assessment;
- View corridor analysis and renderings;
- Traffic Impact Assessment update;
- Ecosystem and Habitat Assessment;
- Sewer, Stormwater and Water Servicing Study;
- Emergency Access and Egress Design;

The purpose of this application is to rezone the Central parcel and the Western parcel and amend the local area plan to accommodate multi-family residential developments.

The concept for the Central Parcel node, approximately 12.50 acres and currently zoned R-1-HCA, is comprised of six 4-5 storey apartment buildings that total approximately 400 units with a proposed parking ratio of 1.3 stalls per unit. The parcel has been designed with a ring-road around the outside of the buildings to allow each building direct access to the extensive central green amenity space. The outer ring road includes thoughtfully designed and landscaped parking nodes to service each building.

The intent of the central green amenity space is to maintain the forested feel of the surrounding landscape by retaining as many existing trees as possible with nature trails intertwined through

out. There will also be a programmed amenity space in the south west corner of the site with a proposed pickle ball/sport court. The parcel itself is surrounded by a greenbelt with connections to the existing tree and trail network, truly creating a "village in the forest".

The Western most parcel of the Holland Creek area is zoned R-1-HCA is approximately 12.45 acres, however our concept is to create a smaller parcel, approximately 5 acres, for multi-family development while retaining the remaining 7.45 acres, as well as the 9.48 acres in the adjacent R-3-A site, for a total of 16.93 acres, be dedicated to provide ecological and environmental area expansion. There will be a total of 100 multi family units in this development with a proposed 1.3 parking ratio.

The 5 acres of development will be focused at the north western portion of the site to utilize the proposed access road along the northern property line. Similarly, to the Central Parcel the development will have a ring road with parking nodes surrounding the residential development and central amenity space. In this current concept, there is more variety in the type of housing provided. One apartment building with approximately 50 units and one three-level walk up building with 24 units sit further back on the site to maximize the views to the water. While six lower density 4-plex buildings are situated on the northern portion of the site. The variety in housing types in this parcel creates a compact and intimate neighbourhood feel with an abundance of green space, direct access to the Arbutus Hump and exceptional views.

We anticipate that as we get deeper into the design development and refined site planning of the parcels that there may be changes to the overall product type and suite mixes but the general intent will remain the same.

With the anticipated continued population growth, a near zero vacancy rate and limited housing stock, like many other locations on Vancouver Island, Ladysmith is in need of quality, well designed multi-family residential developments. Our proposal for Holland Creek is a rare opportunity to create a true neighbourhood that provides that much needed multi family housing with an abundance of green space and a respect for the environmental sensitivities of the area.

If there is any further information you require at this time, please do not hesitate to contact myself directly at 778-834-9418 or tempesta@districtgroup.ca or Michael Nygren at 604-306-0613 or nygren@districtgroup.ca. District Group looks forward to working with the Town of Ladysmith to advance this application.

Regards,

DISTRICT DEVELOPMENTS CORP.

Per: Jessica Tempesta, Director of Development

Cc: Michael Nygren, President & CEO, District
Brandon Crema, Executive Vice President & COO, District
Kyle Stewart, Principal, Empowered Developments Ltd

DISTRICT
T 604.322.5762 200-8809 Heather Street
Vancouver BC V6P 3T1
districtgroup.ca

REM 5
PLAN 75559

REM A
PLAN 75849

D L 110

PARK
PLAN 75435

PART REM 1
PLAN EPP67741
(TOWN OF LADYSMITH)

Road N

Western
Multi-Family Site

PART REM A
PLAN EPP63594

P-3

R-3-A
3.84 ha

Dedicated Land

Dedicated Land

PART REM 1
PLAN EPP67741
(TOWN OF LADYSMITH)

BK 192

DL 103

Central
Multi-Family Site

PART REM 1
PLAN EPP67741
(TOWN OF LADYSMITH)

R-3-A
0.482 ha

Dedicated Land

Dedicated Land

13

REM BLOCK 192

Rem DL 103

PART REM A
PLAN EPP63594

COLONIA DR.

ROLLIE ROSE DR.

RAY KNIGHT DR.

JOHN WILSON PL.

LAVANDUSKY PL.

STAGE 5

STAGE 6

STAGE 5

STAGE 6

STAGE 7

R-1-HCA
2.23 ha

PART REM 1
PLAN EPP67741
(TOWN OF LADYSMITH)

N

SCALE 1:2500

50 0 50 100

ALL DISTANCES ARE IN METRES AND DECIMALS THEREOF.

SKETCH PLAN SHOWING EXISTING LOT LAYOUT AND ZONING IN PART OF LOT A, BLOCK 192, DISTRICT LOT 103, OYSTER DISTRICT, PLAN EPP63594, EXCEPT PLAN EPP67741, EPP75579 AND EPP80490.

HOLLAND CREEK

TOWN OF LADYSMITH

CLIENT: HOLLAND CREEK PARTNERSHIP

PROPERTY:

PROPERTY BOUNDARIES SHOWN ARE DERIVED FROM: FIELD SURVEY AND LAND TITLES RECORDS.

ZONING INFORMATION

R-1-HCA SINGLE FAMILY
R-3-A MULTI FAMILY
P-3 GREEN BELT

TOTAL SINGLE FAMILY UNITS = 143
TOTAL MULTI FAMILY UNITS = 230

AREAS:

R-1-HCA SINGLE FAMILY TOTAL AREA = 12.33ha
R-3-A MULTI FAMILY TOTAL AREA = 6.22ha

NOTE:

STAGE 5 AND 6 NOT INCLUDED IN ABOVE AREA AND UNIT CALCULATIONS
STAGE 5 UNDER CONSTRUCTION

bennett ©
LAND SURVEYING (COASTAL) LTD.
BC LAND SURVEYORS
152 CLIFF STREET
NANAIMO, BC
V9R 5E7
TEL 250-754-5518
www.bennettsurveys.com

DATE:	BY:
2020-04-07	TM
2021-07-27 (ADDED AREAS)	DKV
2021-09-29 (UPDATED STAGES 5,6 AND 7)	DKV
REVISION:	2

Attachment B:
Development Concepts

DESIGN INSPIRATION:

"RESORT VILLAGE" w/ Parking Courts

HOLLAND CREEK VILLAGE

Master Plan (Parcel 1)

N 50m

District Development / MYH July '22

NATURAL GREENBELT bordering Site

Entrance

Access Road

HPT. (+)

PARKING NODES

CENTRAL NATURAL AMENITY w/ PARKING ON OUTSIDE EDGE

4 4 4 4 4 4 4 4 2 24 50

District Dev.

HOLLAND CREEK Master Plan (Parcel 2)

0 100' 200'

July 22 MVH

Attachment C:
FireSmart Assessment

FireSmart Assessment

Holland Creek Western & Central Parcels

Prepared for: DISTRICT
Attn: Jessica Tempesta, Director of Development tempesta@districtgroup.ca

Prepared by: **Strathcona Forestry Consulting**
PO Box 387 Stn Mn
Duncan BC V9L 3X5
strathcona.fc@shaw.ca

20 June 2022

EXECUTIVE SUMMARY

In accordance with the Town of Ladysmith's guidelines for FireSmart development, DISTRICT retained Strathcona Forestry Consulting to prepare a wildland urban interface (WUI) wildfire hazard assessment in conjunction with a preliminary rezoning application of two parcels proposed for multi-family development on the western flanks of Ladysmith.

The WUI is the area where houses and wildland vegetation meet or intermingle, and where wildfire problems are most pronounced. When development occurs close to forest and other types of natural vegetation, two issues arise. First, there may be more wildfires due to human ignitions. Secondly, wildfires that do occur will pose a greater risk to lives and homes; they will also be more challenging to fight.

Assessment determined that the wildfire threat at the subject parcels is currently HIGH. The elevated rating currently reflects: extent and continuity of fuel loading (including invasive, combustible broom) at the sites; lack of completely developed infrastructure (e.g., hydrants, roads); intermix >1 structure/ha: elevated HeadFire Intensity; and sloping topography. Under the provincial Wildfire Threat Rating system, ratings must be moderate or less to be considered acceptable.

Developing in fire-prone ecosystems involves taking the necessary steps to protect homes, property, and ecosystems from wildfire. Development standards play a significant role in reducing the potential impact a wildfire will have on a community. FireSmart principles for wildfire prevention and preparedness have proven effective at reducing risk related losses to wildfire (FireSmartCanada.ca; FireSmartBC.ca).

In my professional opinion, if the wildfire risk reductions recommendations contained in this report are followed throughout construction – and continue after buildout, the risk of wildfire (and windthrow) can be reduced to a level acceptable to ensure the safety of the intended development at both parcels.

Fire prevention and protection in the interface zone are ongoing processes. Long-term implementation of FireSmart mitigation is essential to enhance resiliency of life, property, and ecological processes in Ladysmith's wildland interface.

Introduction

In accordance with the Town of Ladysmith's guidelines for FireSmart development, DISTRICT retained Strathcona Forestry Consulting to conduct a Wildfire Hazard Assessment in conjunction with a preliminary rezoning application of two parcels proposed for multi-family development in the Holland Creek area.

A Wildfire Hazard Assessment evaluates the susceptibility of the subject lands to wildfire from conditions both on and off-site, including neighbouring lands that may present a wildfire hazard.

The interface (wildland urban interface/wildland residential interface) describes any area where combustible wildland fuels are found adjacent to homes or other buildings. Under Section 919.1(1) (a) of the Local Government Act, development permits may be designated where protection of Natural Hazard Lands is justified. Natural hazards, including wildfires, may put life and property, and local biodiversity, at risk if development is inappropriately situated and not well planned. The objective is to properly manage the risks associated with the hazard (interface wildfires).

Assessment

This assessment reflects site conditions prior to the proposed disturbance, including any previous site disturbance, and the anticipated site conditions post-development. The assessment considers existing off-site developments and the impact these developments may have on the subject property. The assessment report describes the vegetation, terrain, and infrastructure on and around the subject property.

Assessment criteria are based on Rating Interface Wildfire Threats in British Columbia (https://www2.gov.bc.ca/), FireSmart (FireSmart, Protecting Your Community From Wildfire (Second Edition. Partners in Protection, 2003 (https://www.firesmartcanada.ca/), and the Home Owners FireSmart Manual (BC Edition (https://www2.gov.bc.ca/assets/gov/public-safety-and.../homeowner-firesmart.pdf). Fire behavior modeling is standardized after the Canadian Forest Fire Danger Rating System (CFFDRS).

The assessment utilizes supported assessment methodology of the BC Ministry of Forests, Lands and Natural Resource Operations. Wildfire threat assessment was conducted through an analysis of fuel threats in and adjacent to the proposed development, as described in the 2020 Wildfire Threat Assessment Guide and

Worksheets (MFLNRO, 2020). This process, used by qualified environmental professionals, employs physical and biophysical factors, combined with fuel hazards, to determine the wildfire threat (low, moderate, high, or extreme). Fire risk is based on four classes: low, moderate, high, and extreme. Fuel Types listed in this assessment are customized from the CFFDRS Fuel Type list for applicability on BC's south coast. Recommendations in this report conform to BC Building Code standards and fire hazard planning authorized by Section 3(2) of the BC Fire Services Act.

The assessment includes consideration of a range of factors including but not limited to: fuel hazards, history of wildfire occurrence, and existing and proposed structures. The assessment evaluates the subject property for wildfire susceptibility as it pertains to the proposed land use and not just the current land use. The assessment includes evaluation of conditions both on and off-site including neighbouring lands that may present a wildfire hazard to the subject property. The assessment specifies how the proposal incorporates defensible space and building materials to form an appropriate buffer zone or protection buffer. The assessment includes fire hazard mitigation recommendations regarding site modification requirements and any other requirements for subdivision or new construction that may reduce the susceptibility of the subject property to wildfire. Where green remainders abut the subject lands, this wildfire hazard assessment includes methods for reducing wildfire hazard along the property line to a level of "moderate" or less, and also addresses management of the interface.

Recommendations in this report conform to BC Building Code standards and fire hazard planning authorized by Section 3(2) of the BC Fire Services Act.

Review of Existing Information

The following information was reviewed:

- *'Community Vision Report' (A Community Vision for a Sustainable West Coast Town)*
- Official Community Plan Bylaw 2003, No. 1488
- Overall Holland Creek plan (DISTRICT)
- Conceptual plans of both parcels by Michael von Hausen
- Imap BC https://maps.gov.bc.ca/

Field Inspection

Fieldwork was conducted in June 2022. Field investigation entailed an analysis of the interface fire hazard that the parcels are exposed to, from the perspective of the general area, local site, and proposed and existing structures in the general vicinity, up to 100+ m (to 2+ km) from property boundaries, where feasible.

Hazard Assessment

Methods used in this assessment are repeatable and based on scientific standards appropriate to the scope of the proposed development and the landscape being assessed. Methods contributing to the results, interpretations and recommendations contained in this assessment are identified in the assessment, mapping, and/or included in appendices.

Wildfire threat assessment employed collection of detailed data on key forest stand attributes. Priority setting scoring examined topography, site level and previous mitigation activities within the area of interest. Site level fuel assessment examined the ground fuel, surface fuel, ladder fuel, and crown or aerial fuel. The wildfire threat assessment process is consistent with wildfire behavior principles from the Canadian Forest Fire Danger Rating System (CFFDRS).

The focus of assessment is stand attribute data in order to document the ability of a unique area of forestland to support a wildfire. Analysis of forest structure and fuel types contributes to determination of the threat rating.

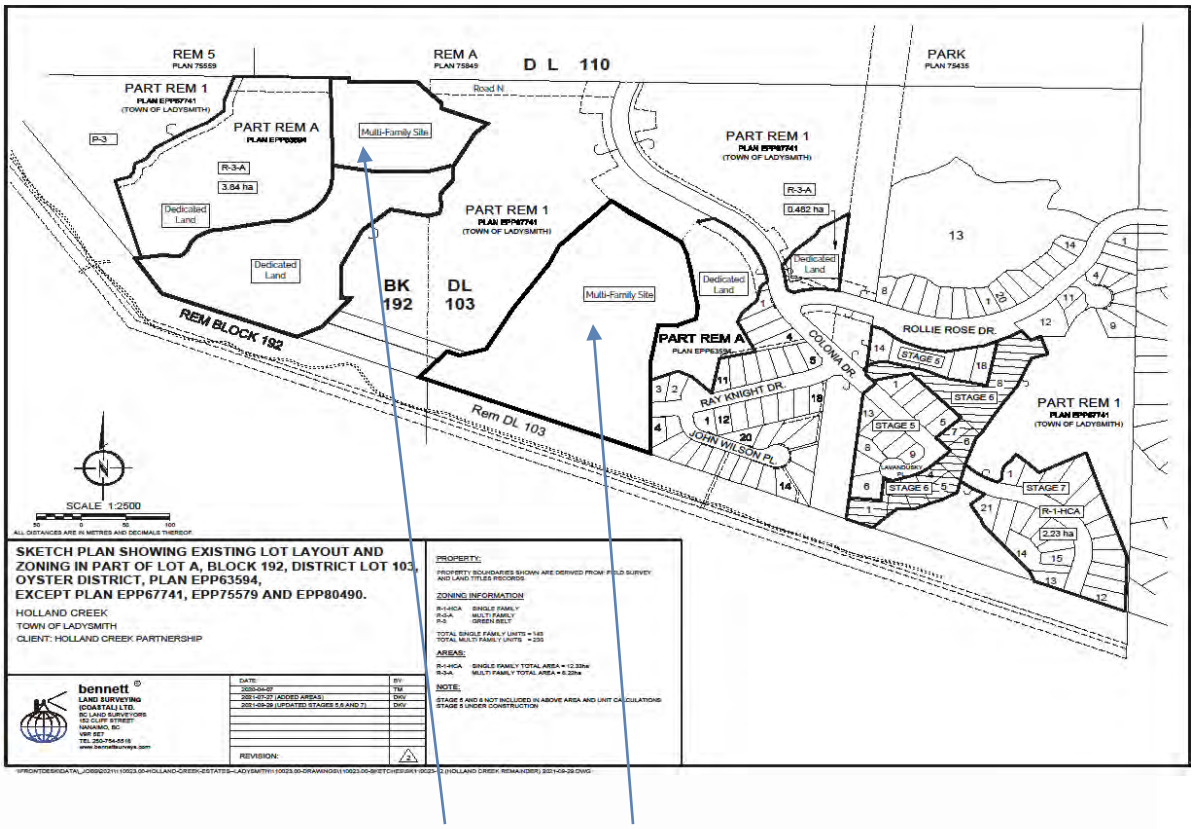
Methodology involved a detailed walk through and ocular approaches consistent with stated survey objectives. A combination of coarse and fine filters was employed for fuel typing, and included a combination of aerial imagery and field work. Site level assessment identified areas of the subject property in need of hazard mitigation.

Location and Description of Parcels

The two parcels are located on the western flanks of Ladysmith (see maps and photos following pgs.). The Central parcel is approximately 12.5 acres with two accesses: the primary access is from Ray Knight Drive; a secondary emergency access will be designed at the northern end of the site connecting to Colonia Drive.

The Western parcel is 12.45 acres; only approximately 5 acres will be developed; the remaining 7.45 acres will be retained as green space. The 5-acre parcel will be accessed by a proposed new road connection along the northern property line. The forested Holland Creek trail corridor borders the parcel to the north. Lands to the south and west are dedicated for development.

Second-growth forest stands were logged within recent years from both parcels. Third growth coniferous forest stands and significant areas of brush occupy much of the sites.



Site Plan: Western and Central parcels (Bennett Land Surveying)

Google Earth map (ca 2016) showing general location of subject parcels

Access from the south is restricted by gates.

Central parcel: Future access will be from Ray Knight Drive (seen in background at left).

Central Parcel: Broom encroachment.

Left: Western parcel. Right: Holland Creek forested trail buffer borders Western parcel.

Wildfire Hazard and Risk

Wildfire hazard is a process, a phenomenon or a human activity that may cause loss of life, injury, or other health impacts, property damage, social and economic disruption or environmental degradation. Wildfire hazard can be described qualitatively as a fire environment—fuel, weather, topography, and ignitions.

Risk assessment for wildfire and its impacts to communities considers both the likelihood of a wildfire and the potential consequence associated with that likelihood. For example, if the fuel (i.e. the hazard) ignites and the fire spreads towards the community (probability), the wildfire can become a threat to life and property (consequence) with an associated risk of loss.

As outlined in the Methodology section, determination of the wildfire hazard and risk involves a detailed assessment of potential fire behaviour, field reviewed fuel characteristics, proximity of fuel to the community, local fire spread patterns, topographical considerations and local factors.

Fire Behaviour. Fire behaviour has three components: weather, topography, and fuel. Fire behavior predicts how forest and wildland vegetation (fuel) will burn under different conditions. Weather and topography cannot be changed; alteration of fuels across the landscape is the only way to lower fire intensity and change fire behaviour. Various factors influence fuel, weather, and topography (see chart below).

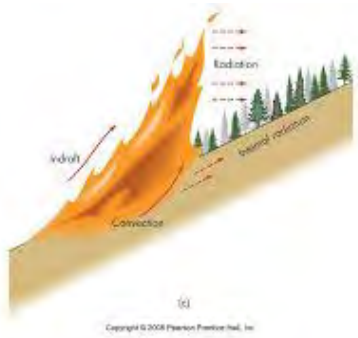
FIRE BEHAVIOUR

Fire Behaviour Components / Influencing Factors	**FUEL**	**WEATHER**	**TOPOGRAPHY**
	*Moisture*	*Wind*	*Slope*
	Size	*Precipitation*	*Aspect*
	Spacing	*Relative Humidity*	*Terrain*
	Continuity	*Temperature*	*Elevation*
	Fuel Loading		

Biogeoclimatic Classification. The subject parcels are located in the moist maritime Coastal Douglas-fir (CDFmm) biogeoclimatic subzone. Summers are warm and dry, while winters are moist and mild. Growing seasons are long, and often feature pronounced water deficits on zonal (average) and drier sites. Fire Danger Ratings (i.e., the risk of a fire starting) often reach High and Extreme in summer.

Due to the historical human activities over the last century (e.g., forestry, agriculture, housing), expanding population density and relatively benign topography, urban development is common and widespread in the CDFmm. Recreational activities are also becoming increasingly popular as development spreads into the interface zone.

Topography. Physical site characteristics impact fire behavior by affecting ignition potential and the rate of fire spread. The Central parcel occupies a mid slope moderate gradient with a northeasterly (cooler) aspect. Wildfire behavior tends to be of greater concern on steeper, upper slopes with warmer aspects. The Western parcel occupies a mid-slope with moderate gradient and southeasterly aspect (warmer exposure).



During extended periods of warm, dry, windy summer weather, all interface areas can be vulnerable to wildfire.

Wildfires typically burn uphill. Warmer aspects tend to burn "hotter."

Vegetation. Fire behavior predicts how forest and wildland fuels (vegetation) will burn under different conditions. Fuel hazard means the potential fire behaviour, without regard to the state of weather or topography, based on the physical fuel characteristics, including fuel arrangement, fuel load, condition of herbaceous vegetation and the presence of ladder fuels.

Benchmark vegetative fuel types developed by the Canadian Forest Fire Danger Rating System Fire Behavior System (CFFDRS) are used to forecast how a wildfire will react (cwfis.cfs.nrcan.gc.ca ›) (refer to Appendix 2). A Fuel Type is defined as "an identifiable association of fuel elements of distinctive species, form, size, arrangement, and continuity that will exhibit characteristic fire behavior under defined burning conditions" (Canadian Interagency Forest Fire Centre, 2003).

Major Fuel Types at Subject Parcels:

Fuel Types	Description	Forest Floor & Surface Fuels	Ladder Fuels	Wildfire Behaviour (why and how a fire spreads)
C-2/C-3 Continuous brush/low trees	Shrub cover and discontinuous to continuous immature tree cover occupies significant portion of sites	Surface fuels comprised of a mix of native and invasive shrubs, low trees.	Ladder fuel loading moderate to high; low crowns generally to ground, often continuous	Fire start during warm dry weather could have relatively rapid rate of spread through brush and low tree cover.
C-5 Coniferous forest (with mixed leaf component	Coniferous immature 3rd-growth forest – with scattered mature second growth trees - variable density.	Discontinuous needle litter. Discontinuous to continuous understorey shrubs and tree branches. High fuel loading.	Moderate to High ladder fuel loading.	Fire start during warm, dry windy weather would see rapid rate of spread, especially during windy conditions.

A hazard tree assessment prior to commencement of work is recommended to identify potentially dangerous trees, and to retain wildlife trees where possible. The subject areas provide known habitat for several cavity nesting birds (e.g., owls, chestnut backed chickadees) (imapBC). Efforts should be made to retain safe wildlife trees along the edges of the parcels.

Widespread infestation of invasive weed plants has occurred at the parcels since the parcels were logged several years ago. Broom, Himalayan blackberry, daphne, holly, English ivy, and knotweed have encroached onto wide areas. Concerted efforts to eliminate these invasive weed species must include prompt rehabilitation of disturbed soils (e.g., seeding of disturbed sites with certified organic seed mix and/or native wildflowers) and FireSmart landscaping.

Left: Knotweed, Himalayan blackberry, and broom at Central parcel. Right: broom spread at Central parcel.

Risk of Ignition. Risk of ignition represents the potential for fire starts. Risk of ignition could come from recreational use (e.g., hiking, ATV'ing) in the area, property owners in the vicinity, and construction activities in the general vicinity. The risk of lightning is relatively low on the coast.

Historical logging roads and multiple trails in the area provide access to the parcels. During field assessment, ATV users were observed driving through the area. Risk of ignition is currently rated MODERATE (to HIGH).

Fire Spread and Intensity. Head fire intensity is a numerical ranking of difficulty of control for specific fuel types. Flame length is a main visual manifestation. Head fire intensity is a major determinant of certain fire effects and difficulty of control. Numerically, it is equal to the product of the net heat of combustion, quantity of fuel consumed in the flaming front, and the linear rate of spread. Under warm, dry conditions, there is currently sufficient continuity of surface and ladder fuels to enable a fire to spread quickly. Dry, windy conditions would increase rate of spread.

HeadFire Intensity is currently rated High. The goal of Wildfire Risk Reduction (WRR) is to reduce/ and or maintain HeadFire Intensity at less than 2000 kW/m (< 3, HFI column Moderate).

Fire Weather Indices

Hazard Rating	FFMC Fine Fuel Moisture Code	DMC Duff Moisture Code	DC Drought Code	ISI Initial Spread Index	BUI Build Up Index	FWI Fire Weather Index	HFI Head Fire Intensity
Low	0-76	0-21	0-79	0-1.5	0-24	0-4.5	1-2
Moderate	77-84	22-27	80-189	2-4	25-40	4.5-10.5	3 (Goal is 3 or less)
High	85-88	28-40	190-299	5-8	41-60	10.5-18.5	4
Very High	89-91	41-60	300-424	9-15	61-89	18.5-29.5	5
Extreme	92+	61+	425+	16+	90+	29.5+	6

Spotting Potential. Spotting is a fire behavior characteristic in which sparks or embers are carried up by the wind and/or convective column and fall into other downwind fuels to ignite additional fires beyond the zone of direct ignition by the main fire (Firewise.org). Fire spotting is one of the major ways that fires spread and homes are ignited and destroyed in wildland/urban interface fires. Firebrands can come down on and ignite combustible roofs, combustible items stored adjacent to homes, and other nearby combustible fuels. The resulting spot fires may go unnoticed and thus unsuppressed when an area has been evacuated of residents, when firefighters are spread too thin, or when spot fires are too numerous.

The maximum spotting distance in a particular fire varies according to several factors, including overall fire intensity, wind speed, fuel type, initial size of the ember when lofted up, and how rapidly it is burning (Firewise.org). If a fire start occurred during very warm/hot dry weather (High/Extreme Fire Danger Ratings) within a wide range of the subject proposal, there is a high possibility of spotting. Likewise, if a fire started at the subject parcels, spotting is highly likely. Wind-borne embers are known to travel up to several kilometres.

Fire Protection. The subject site is located within the service area of Ladysmith Fire Rescue (LFR), a volunteer fire department that provides protection to the Town of Ladysmith. The firehall is at 330 6 Avenue.

Response time can be delayed, depending on the time of day.

Mutual Aid. Fire Departments within the CVRD operate under a mutual aid agreement with other fire departments within (and outside) the region. In the case of a serious fire, mutual aid from adjoining fire departments can benefit fire suppression by pooling manpower and resources (water supply, water tenders, etc.,). Mutual aid, however, may not always available.

Wildfires. Ladysmith Fire Rescue automatically responds to structure fires and small, easily accessible bush fires inside the fire service protection area (FPA). The Wildfire Management Branch generally responds to forested areas outside a FPA.

Water Supply. The subject parcels will be fully serviced. The developer, DISTRICT, will be working with the Town and Koers Engineering on water demand and supply.

Access. Safe access increases safety for both residents and firefighters, and also facilitates quick response by firefighters.

As noted, the Central parcel will be accessed from Ray Knight Drive, with a secondary emergency access at the northern end of the site connecting to Colonia Drive.

The portion of the Western parcel to be developed will be accessed by a proposed new road connection along the northern property line.

Wildfire Hazard Assessment Results

Scoring from the wildfire hazard assessment and fire behavior analyses determined the subject parcels currently have a HIGH Fuel Assessment rating (see chart next page), contributing to a HIGH Local Wildfire Threat Rating (below). Factors contributing to the elevated rating include: continuity and extent of fuel loading (including high infestation of broom); sloping topography; warmer aspect (Western parcel); lack of completely developed infrastructure (e.g., roads and water connections); HeadFire Intensity; and intermix >1 structure/ha.
Ratings must be low/moderate to ensure an area and/or structure(s) are safe. Post-development, the Threat rating is projected to be moderate (or possibly lower, depending on degree of Wildfire Risk Reduction employed).

LOCAL WILDFIRE THREAT SUMMARY: Western and Central parcels, Holland Creek

System:	Subcomponents	CURRENT ratings	Projected Ratings post-development*
MFLNRO Wildfire Threat Assessment	**Fire Behaviour:** **Fuel,** **Weather,** **Topography**	**Fuel Assessment Class:** **High** **(see chart next pg.)**	**Moderate**
	Structural (incl vicinity)	**Mod**	**Moderate**
Overall Rating:		**High**	**Low to Moderate**
HIRV Model	**Hazard** **Impact** **Risk** **Vulnerability**	**Mod-High** **High** **Mod** **Mod-High**	**Moderate** **Moderate** **Moderate** **Moderate**
Wildfire Risk	Likelihood Intensity Susceptibility	**Mod to High**	**Moderate (to Low)**

*Projected ratings conditional upon compliance with recommendations contained in this report.

Wildfire risk triangle. (Scott et al. 2013).

Risk rating is currently **Moderate** - **High** (considers several factors, including current usage of the area and current lack of on-site infrastructure).

Generalized Descriptions of the "Fuel Assessment Rating" classes:

Low	Fires may start and spread slowly. There will be minimal involvement of deeper fuel layers or larger fuels.
Moderate	Forest fuels are drier and there is an increased risk of surface fires starting. There will be involvement of the organic layer but larger dead material will not readily combust.
High	Forest fuels are very dry, new fires may start easily, burn vigorously; aerial fuel will be engaged in the flaming front. Most fuel in the organic layer will be consumed and larger dead fuel will be consumed in the smoldering combustion.
Extreme	Extremely dry forest fuel, new fires will start easily, burn vigorously; all aerial fuel will be engaged in the flaming front. Most fuel in the organic layer will be consumed and larger dead fuel will be consumed in the smoldering combustion.

FMC (Fuel Moisture Content) 95% value based on 90th percentile drought conditions.

Fuel reduction targets should be sufficient to be effective to meet treatment objectives of reduced fire behaviour under 90th Percentile Fire Weather Index (FWI) Conditions (FFMC, ISI, BUI) from the BCWS weather network.

Summary

Expanding development at Ladysmith is pushing the wildfire interface zone along the western flanks of the Town into the wildland-urban interface (WUI), an area where homes and other development and wildland vegetation (e.g., forests) meet or intermingle. It is here where wildfire problems are most pronounced.

When development occurs close to forests and other types of natural vegetation, two problems can arise. First, there will be more wildfires due to human ignitions. Secondly, wildfires that do occur will pose a greater risk to lives and homes. These fires will be more challenging to fight. The opportunity to let natural fires burn will also become impossible.

More hopefully, to the extent that WUI growth reflects an affinity for nature, the consequences and costs of growth could prompt discussions on how to sustain those highly valued ecosystems in which so many people are choosing to live (Radeloff, Volker; David Helmers; H. Anu Kramer; and Susan Stewart; Biological Sciences, March 12, 2018, University of California).

FireSmart strategies for wildfire risk reduction are integral to safe development of the Western and Central parcels at Holland Creek.

FireSmart Recommendations

Wildfire risk reduction recommendations outlined in this report are based on FireSmart principles and best practices (wildfire prevention, mitigation, and preparedness) to manage wildfire risk and impact (FireSmartCanada.ca; FireSmartBC.ca). FireSmart techniques include minimizing the risk of home ignition by carefully landscaping around residential structures (e.g.,thinning trees and brush and choosing fire-resistant plants), selecting ignition-resistant building materials and positioning of structures.

New neighbourhoods in the area are encouraged to engage in FireSmart Canada's Neighbourhood Recognition Program. Neighborhoods in Canada that have earned the special distinction of being recognized under the FireSmart Program follow a systematic approach to organizing and implementing a FireSmart mitigation plan. FireSmart actions at a community level will reduce the risk of wildfire and enhance resiliency of a community.

Application of the following recommendations will reduce the risk of wildfire during and post-development.

Vegetation Management

General Precautions During Land Clearing and Construction

- Ensure any land clearing activities are conducted in compliance with BC's Wildfire Act local bylaws.
- As per the BC Wildfire Act, if a high risk activity (i.e., land clearing) is taking place between 1 April and 31 October, the operator must keep at the activity site fire fighting hand tools, in a combination and type to properly equip each person who works at the site with a minimum of one fire fighting hand tool, and an adequate fire suppression system (onsite portable water tanker and fire fighting tools – shovels, pulaskis, portable water backpacks). In addition, efforts must be made to maintain an adequate fire break between any high risk activity and areas of continuous forest to ensure a fire originating at the site does not escape the site.
- During landclearing, develop an Emergency Plan of Action, listing key contact information in case of fire and/or other emergency at the site.
- Hazard abatement (removal of slash/disposal of debris piles) must take place in compliance with Town of Ladysmith bylaws.
- Ensure construction workers are made aware of the risk of fire in the interface zone, especially during dry summer weather.

Hazard Tree Management

- *As per WorkSafe regulations, prior to commencement of work at the site, potentially hazardous trees require assessment from a certified Danger Tree Assessor. Trees identified as Danger Trees will require treatment (removal / possible modification) from a certified tree service.*
  Where safely practical, modified treatment can provide useful wildlife habitat.

FireSmart Zones – (see Appendix 1)

- **Priority Zone 1a: 0-1.5 m**

A noncombustible surface should extend for 1.5 m around structures, homes, and accessory structures, and any attachments, such as decks. Avoid storing flammable outdoor items, such as wicker or wooden patio furniture, cushions, doormats, window boxes and planters, garbage cans without lids and BBQ propane tanks, which are all places where embers can land and start a fire, in this critical area adjacent to the home.

- Landscape with noncombustible landscaping materials, such as gravel, brick, or concrete
- Avoid woody shrubs, trees, or tree branches in this zone
- Create a noncombustible zone underneath and for 1.5 m around any RVs/vehicles
- Mitigate any auxiliary structures to same standards as those of home

- **FireSmart Priority Zone 1: 0-10 m**

Establish and maintain an environment around structures that will not support fire. Focus on fuel removal, conversion, and reduction.

- Plan on landscaping with a low density of fire resistant plants and shrubs. Avoid the use of cedar hedging.
- Maintain landscapes with regular irrigation, mowing, pruning, raking, weeding and dead plant removal.
- Create non-flammable hardscapes, such as rock, gravel, and water features, which, function as firebreaks by breaking up areas of fuel. Rock can provide a natural looking, low-maintenance and water-efficient mulch and as well as a fire-resistant buffer zone.
- Group fire resistant plant materials in islands. Group plants in islands surrounded by nonflammable materials, such as rock; employ landscape elements together to create breaks between fuels.
- Limb (prune) trees 1.5 to 2m from the ground. Create space between trees and shrubs – a general rule is twice the height of what the plant will be at maturity. Remove tree limbs closer than 15-feet from power lines and any touching the house or other structures.
- Avoid using woody debris, including bark mulch, as it provides potential places for fires to start
- Store items such as firewood piles, construction materials, patio furniture, tools and decorative pieces at least 10 m from the homes and any structures

- **FireSmart Priority Zone 2: 10-30 m**

When and where feasible, extend the fuel modified area 10-30 m around structures. Conduct FireSmart thinning, pruning, and fuel reduction strategies in this zone to reduce fuel loading.

- Thin and prune evergreen trees to reduce hazard in this area

- Within 30 m of homes and any other structures, selectively remove evergreen trees to create at least 3 m of horizontal space between the single or grouped tree crowns, and remove all branches to a height of at least 2.5 m from the ground on the remaining evergreen trees. (For smaller evergreen trees; general rule of thumb is prune branches up to a third the height of the tree)
- Regularly clean up accumulations of fallen branches, dry grass, dried arbutus leaves, and conifer needles from the ground to eliminate potential surface fires

- **FireSmart Priority Zone 3: 30-100 m**

Where fuel modification in PZ1 and PZ2 is insufficient to protect structures and/or property, and where property boundaries permit, thin and prune trees in order to create an environment that will not support high-intensity crown fires.

- Look for opportunities to create a fire break by creating spaces between trees and other potentially flammable vegetation
- If possible, prune the trees located up to 100 m from homes
- Thin and prune overgrown trees to reduce hazard
- Regularly clean up accumulations of fallen branches, dry grass, and needles from the ground to eliminate potential surface fires

FireSmart Landscaping

- Incorporate FireSmart landscaping by using fire-resistive, widely spaced trees, native shrubs and groundcover in combination with stone and/or water features and/or maintained lawn areas. See FireSmart Guide to Landscaping. *https://www.firesmartcanada.ca/resources-library/firesmart-guide-to-landscaping*
- Promptly re-vegetate any areas of soil disturbed during clearing and construction with approved landscaping materials and/or native plant species to prevent encroachment from invasive plant species (i.e., broom, gorse, daphne, Himalayan blackberry).
  A moderate infestation of broom is currently encroaching on the site.
- Powerlines should be clear of branches and other vegetation.

Construction

The roof is the most vulnerable component of a structure. Sparks and burning embers from a wildfire can travel long distances and quickly ignite flammable roofing material.
Siding material is also vulnerable to wildfire. Combustible debris can accumulate at the vents and openings on your home and be ignited by embers during a wildfire.

- Use fire-retardant roof covering assemblies rated Class A, B, or C (i.e., metal, tile, ULC-rated asphalt) and feature non-combustible siding materials (i.e., stucco, metal siding, brick, cement shingles or cementitious materials, poured concrete, or ULC-rated wood siding) on new structures. Metal, clay tile, and rated asphalt shingles are the most fire resistant roofing materials. Siding materials such as stucco, metal, brick and concrete offer superior fire resistance to wildfire. Logs and heavy timbers are less effective, while wood and vinyl siding offer very little protection.
- Follow FireSmart guidelines for design, construction, and maintenance of window and door glazing, eaves and vents, and decking. Install noncombustible material for all vents

(should be 3 mm screening or ASTM fire rated vents). Metal products are recommended for vents and vent flashing. https://www.firesmartcanada.ca/

- Ensure structures are equipped with working smoke alarm(s).
- Sheath in the base of decks, balconies and homes with fire-resistant material to reduce the risk of sparks and embers igniting the home. Use metal railings or tempered glass for decks and balconies. Select noncombustible patio furniture and decorations.
- If a wood fence is installed, ensure at least a 1.5 m noncombustible break between the fence and a structure (i.e., a metal gate with a stone wall to break up combustible fence).

Maintenance

- Regularly inspect siding for locations where embers could accumulate and lodge.
- Maintain and remove combustible debris near exterior walls to reduce a building's vulnerability to ignition during a wildfire.
- Regularly remove debris from gutters – sparks and easily ignite these dry materials.
- Inspect vents and openings regularly to ensure vents are in good repair, and remove any accumulated combustible debris.

Water Supply / Fire Protection

- Ensure water main, fire hydrant capabilities and servicing meet Town of Ladysmith Engineering specifications.

Access

- Ensure roads and driveways meet BC Building Code and municipal Engineering requirements.
- Ensure address signage is clearly evident during the construction phase and at build-out. Letters, numbers, and symbols should be at least 10 cm high, with a 12 mm stroke, contrast with the background colour of the sign, and be reflective.
- Ensure new structures are mapped on fire department "pre-org" (fire planning) maps.

FireSmart Program

- Promote neighbourhood resiliency by encouraging residents of the new development and surrounding existing development to liaise with the Ladysmith Fire Rescue and enroll in the FireSmart Canada Neighbourhood Recognition Program. FireSmart Canada developed the FCNRP to encourage and officially recognize neighbourhoods that have taken critical steps to reduce their vulnerabilities to wildfire. FireSmart is most effective when neighbours band together.
- See https://firesmartbc.ca/firesmart-canada-neighbourhood-recognition-program-fcnrp/

Regulatory Provisions

- Conduct follow-up assessment (at building permit) to ensure appropriate mitigation measures have been implemented.

- The Town of Ladysmith to consider entering into Section 219 Covenants with property owners to regulate regarding the use of land or the construction of structures or buildings, as part of the development approval process. This is to ensure the protection, preservation, conservation, maintenance and or restoration of land and/or other specified features within the municipality.
  A Section 219 Covenant is a charge secured against the title to a property in favour of the municipality to impose a positive or negative obligation on the property owner, as per the provisions of Section 219 of the Land Title Act.

Appendix 1. FireSmart Interface Priority Zones

In interface areas, FireSmart advocates the establishment and maintenance of Fuel Management Zones* extending outward from structures and along access routes:
Zone 1 a (0-1.5m)
Zone 1 (0-10 m).
Zone 2 (10-30 m).
Zone 3 (30-100 m).
(FireSmart, 2003; updated 2018)

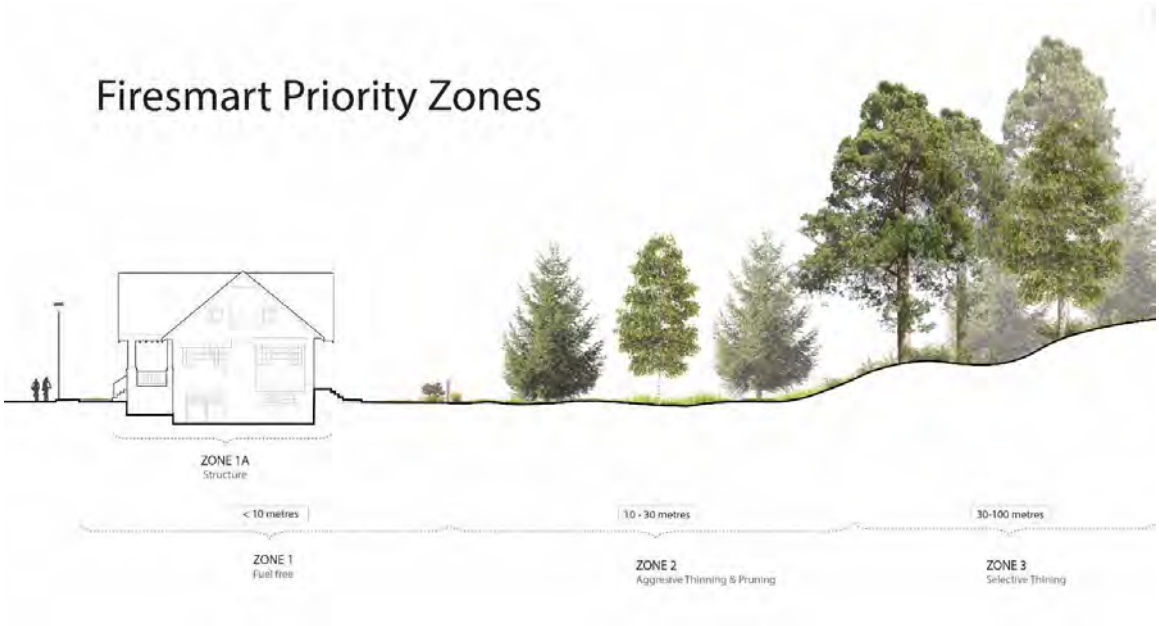
Zone 1a (0-1.5 m): This is the noncombustible zone, where it is very important not to have any combustibles next to buildings.

Zone 1 (0-10 m): The main objective of vegetation management is to create an environment that will not support fire. Vegetation management focuses on fuel removal, conversion, and reduction.

Zone 2 (10-30 m): Where treatment in PZ 1 is not sufficient to significantly reduce the fire hazard due to fuel loading, extend the fuel modified area with a variety of thinning and pruning actions.

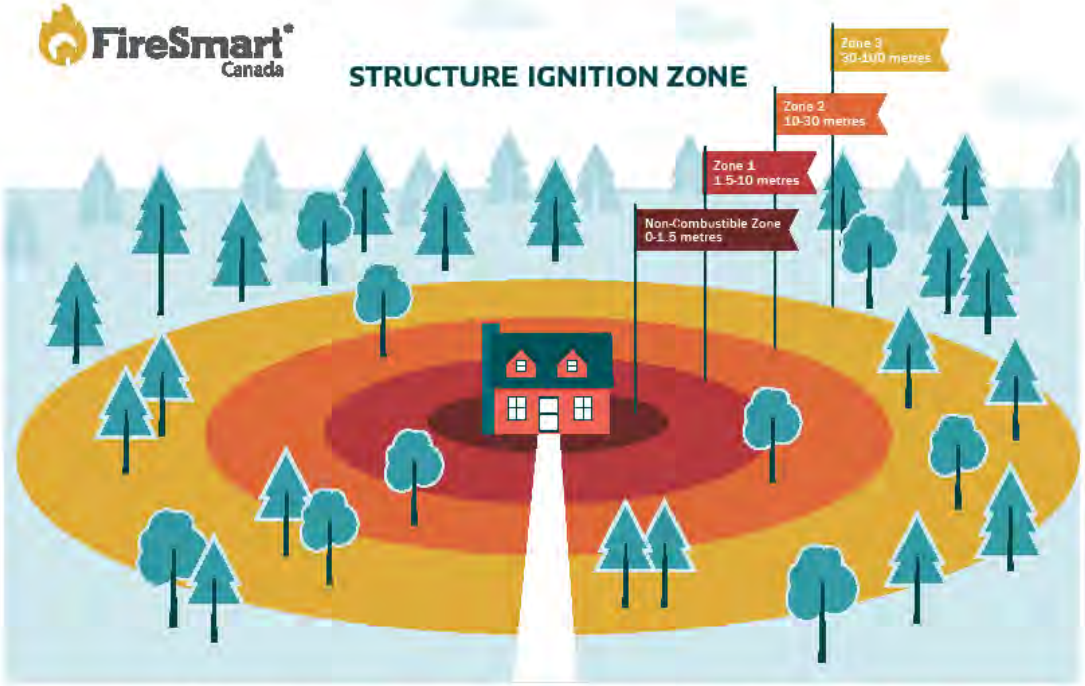
Zone 3 (30-100 m): Where fuel modification in PZ1 and PZ2 is insufficient to protect structures and/or property, FireSmart advocates treatment in Priority Zone 3 with a variety of thinning and pruning actions in order to create an environment that will not support high-intensity crown fires.

*Setback Zone distances may be extended depending on aspect, slope, fuel loading, etc.



FireSmart Canada

STRUCTURE IGNITION ZONE



Work with your neighbours in any overlapping priority zones!

Non-combustible Zone (0-1.5 metres)	Reduce the chance of wind-blown embers igniting materials near your home. A non-combustible surface should extend around the entire home and any attachments, such as decks. Creating a non-combustible surface can be as easy clearing vegetation and combustible material down to mineral soil. To add to your landscape design, use non-combustible materials such as gravel, brick, or concrete in this critical area adjacent to your home. Woody shrubs, trees or tree branches should be avoided in this zone, any that are present should be properly mitigated.
Zone 1 (1.5-10 metres)	Create a landscape that will not easily transmit fire to the home. A FireSmart yard includes making smart choices for your plants, shrubs, grass and mulch. Selecting fire-resistant plants and materials can increase the likelihood of your home surviving a wildfire. Plant a low density of fire-resistant plants and shrubs. Avoid having any woody debris, including mulch, as it provides potential places for fires to start. Storing items such as firewood piles, construction materials, patio furniture, tools and decorative pieces against or near a house is a major fire hazard. Move firewood piles, trailers/ recreational vehicles, storage sheds and other combustible structures out of this zone and into Zone 2. If unable to move, store firewood inside your mitigated garage, shed or other ember resistant structures, create a non-combustible zone underneath and for 1.5 metres around trailers/ vehicles and mitigate sheds and other structures to the same standards as those of your home.
Zone 2 (10-30 metres)	If your property extends out to this zone, thin and prune evergreen trees to reduce hazard in this area. Within 30 metres of your home, selectively remove evergreen trees to create at least 3 metres of horizontal space between the single or grouped tree crowns and remove all branches to a height of 2 metres from the ground on the remaining evergreen trees. If possible, pruning trees up to 100 metres from your home (Zone 3) is recommended. Regularly clean up accumulations of fallen branches, dry grass and needles from on the ground to eliminate potential surface fuels. Consider seeking the guidance of a forest professional with wildland fire knowledge on appropriate management options for this zone.
Zone 3 (30-100 metres)	Taking FireSmart actions in Zone 3 on your property will influence how a wildfire approaches your home. You can change the dynamics of wildfire behaviour by managing vegetation within this zone. Look for opportunities to create a fire break by creating space between trees and other potentially flammable vegetation. Thinning and pruning is effective here as well. These actions will help reduce the intensity of a wildfire. Consider seeking the guidance of a forest professional with wildland fire knowledge on appropriate management options for this zone.

BRITISH COLUMBIA FireSmart

Begins at Home

Appendix 2. Generic Fuel Types (adopted from CFFDRS).

Fuel Type	Description	Wildfire Behaviour Under High Wildfire Danger
Coniferous:		
C1	**Terrestrial herbaceous ecosystem: mossy rock outcroppings**	High potential for surface fire, especially if high moss/lichen
C2	**Dense regeneration to pole-sapling (immature) forest with crowns almost to ground**	High potential for crown fires; low to very high fire intensity and rate of spread
C3	**Fully stocked, mature forest, crowns separated from ground; sparse understorey**	Surface and crown fire, low to very high fire intensity and rate of spread
C4	**Dense, pole-sapling (immature) forest, heavy standing dead and down, dead woody fuel; continuous needle litter; continuous vertical crown fuel continuity**	High potential for crown fires, high to very high fire intensity and rate of spread
C5	**Moderately well-stocked, mature forest, moderate dense understorey crowns well separated from ground; continuous needle litter**	Low to moderately fast-spreading, low to moderate intensity surface fire
C6	**Fully stocked conifer plantation; absent understorey; tree crowns separated from ground; continuous needle litter**	Surface fire may spread rapidly to become high intensity fire with high rate of spread
C7	**Open, mature coniferous stand; uneven-aged; discontinuous understorey; tree crowns mostly separated from ground**	Surface, torching, rarely crowning (except on steeper slopes), moderate to high intensity and rate of spread
D (Deciduous)	**Moderately well-stocked deciduous stands; moderate medium to tall shrubs and herb layers** **D-1 Leafless** **D-2 In leaf**	Typically a surface fire; low to moderate rate of spread and fire intensity
M (Mixed Forest)	**Moderately well-stocked mixed stand of conifers and deciduous tree species; moderate shrub understorey; conifer crowns extend nearly to ground** **M-1 Leafless** **M-2 in Leaf**	Surface, torching and crowning; moderate to very high intensity and spread rate (varies with slope and % vegetation cover) Fine fuel % and cedar foliage retention will result in faster ignition and spread
S (Slash)	**Slash from logging and land clearing**	Rapid spreading, moderate to high intensity surface fire
01-Long	**Continuous standing grass – fuel loading is 0.3 kg/m2; scattered trees** **01-a Matted** **01-b Tall**	The taller, and more cured the grass, the more rapid spread; low to moderate intensity surface fire
01-Short	**Continuous human modified short grass**	Typically low rate and spread and low fire intensity.

Appendix 3. Fire Risk Classes.

RELATIVE WILDFIRE RISK
Low
Moderate
High
Extreme

Fire Risk Classes

Low (Green): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns, and known local wildfire threat factors make it a lower potential for threatening a community. These stands will support surface fires, single tree or small groups of conifer trees could torch/ candle in extreme fire weather conditions. Fuel type spot potential is very low, low risk to any values at risk.

Moderate (Yellow): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns and known local wildfire threat factors make it possible that a wildfire in this area would threaten the community. Areas of matted grass, slash, conifer plantations, mature conifer stands with very high crown base height, and deciduous stands with 26 to 49% conifers. These stands will support surface fires, single tree or small groups of conifer trees could torch/ candle. Rates of spread would average between 2-5 meters/ minute. Forest stands would have potential to impact values in extreme weather conditions. Fuel type spot potential is unlikely to impact values at a long distance (<400m).

High (Orange): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns, and known local wildfire threat factors make it likely that a wildfire in this area would threaten the community. This includes stands with continuous surface/ crown fuel that will support regular torching/ candling, intermittent crown and/or continuous crown fires. Rates of spread would average 6 -10 meters/ minute. Fuel type spot potential is likely to impact values at a long distance (400 -1 000m).

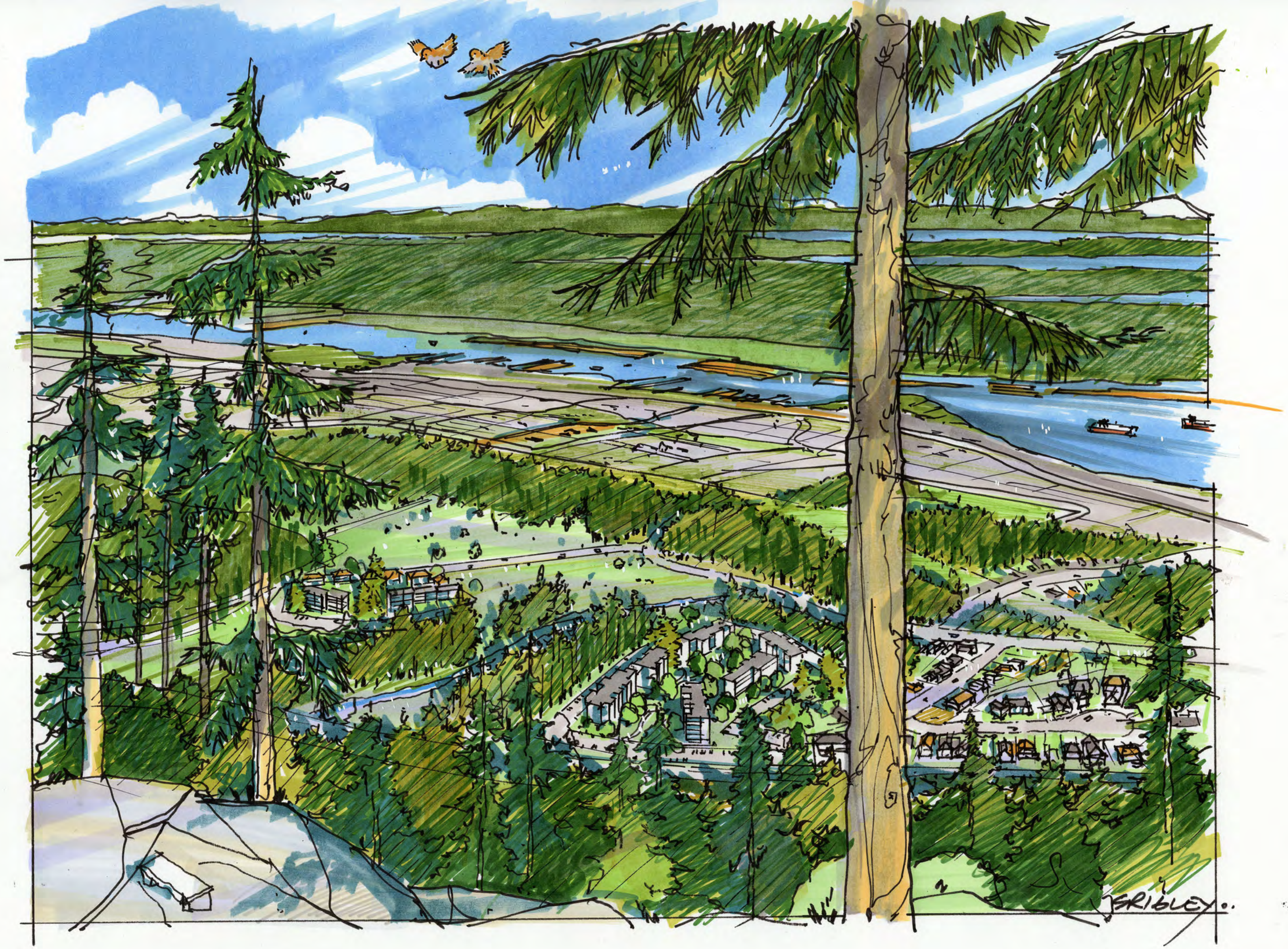
Extreme (Red): The combination of the local fuel hazard, weather influences, topography, proximity to the community, fuel position in relation to fire spread patterns, and known local wildfire threat factors make it very likely that a wildfire in this area would threaten the community. Stands with continuous surface/ crown fuel and fuel characteristics that tend to support the development of intermittent or continuous crown fires. Rates of spread would average >10 meters/ minute. Fuel type spot potential is probable to impact values at a long distance (400 -1 000m or greater).These forest stands have the greater potential to produce extreme fire behaviour (long range spotting, fire whirls and other fire behaviour phenomena.

Limitations

This report provides an assessment of site conditions. Evaluation is based on professional judgment. The investigation involved field observation. Recommended treatment pertains only to the particular site as disclosed at the time of inspection. The report was prepared considering site-specific circumstances and conditions. It is intended only for use by the client for the purpose for which it was commissioned and for use by local government regulating the activities to which it pertains.

Attachment D:
View Corridor Analysis/Renderings


SRIGLEY


ERIGLEY

Attachment E:
TIA Update

#302-740 Hillside Avenue
Victoria, BC V8T 1Z4
T 250.388.9877
E. ckopeck@wattconsultinggroup.com
wattconsultinggroup.com

MEMORANDUM

To: District Group
From: Caytlin Kopeck, EIT
Our File #: 3238.B01
Project: Holland Creek Development
Date: July 11th, 2022
RE: Traffic Memo – Heart Creek Crossings

1.0 INTRODUCTION

Watt Consulting Group was retained by District Group to review the transportation requirements for the phased development in the Holland Creek neighbourhood in the Town of Ladysmith. This memo will discuss two issues. For the first issue this memo will analyse and determine whether the pre-determined access / bridge crossing requirements should be necessary for the safety of the site and will use complimentary information from the 2015 Holland Creek Ladysmith Traffic Impact Study (TIA) undertaken in 2015 by Watt Consulting Group (previously known as Boulevard Transportation Group). Currently, the site requires, by covenant, two crossings of Heart Creek (bridge or culvert) internal to the development which are estimated at between $5 to $7 million each (client's information). The second issue will determine if a change in density on the site will require any further mitigations than what was determined in the Holland Creek Ladysmith Traffic Impact Study (TIA).

See **Figure 1** showing the proposed road network and access for the development site.

2.0 ISSUE 1

2.1 BACKGROUND & ACCESSES

The 2015 development proposal included three access options. The three options for accessing the site were reviewed with a maximum of two access points planned. A connection for Malone Road or Thetis Road was deemed a requirement at 600 units. Currently, the development proposes seven accesses to the site, including an internal road network which would require two crossings over Heart Creek. Heart Creek is located in a steep valley and would require a structure which extends

over 100m to cross it. The two structure crossings of Heart Creek occur on Colonia Road (Road B) and on Ray Knight Drive (Road G).

Of the seven accesses required, two are emergency accesses. One emergency access is to the existing Hydro ROW which extends from Road G, while the other is an extension of Road I connecting to Colonia Road (Road B). The five, non-emergency, accesses are Colonia Road (Road B) to Malone Road, Rollie Rose Drive (Road A) to Dogwood Drive, Colonia Road (Road B) to Thetis Road, and Road K north to Colonia Road (Road B), and Road N east to Colonia Road. It should be noted that the K Road extension to Colonia Road is to be built when triggered (600 units) at an unknown future date based on the existing covenant and that the Road N connection to Colonia Road will be provided by the developers of Road K.

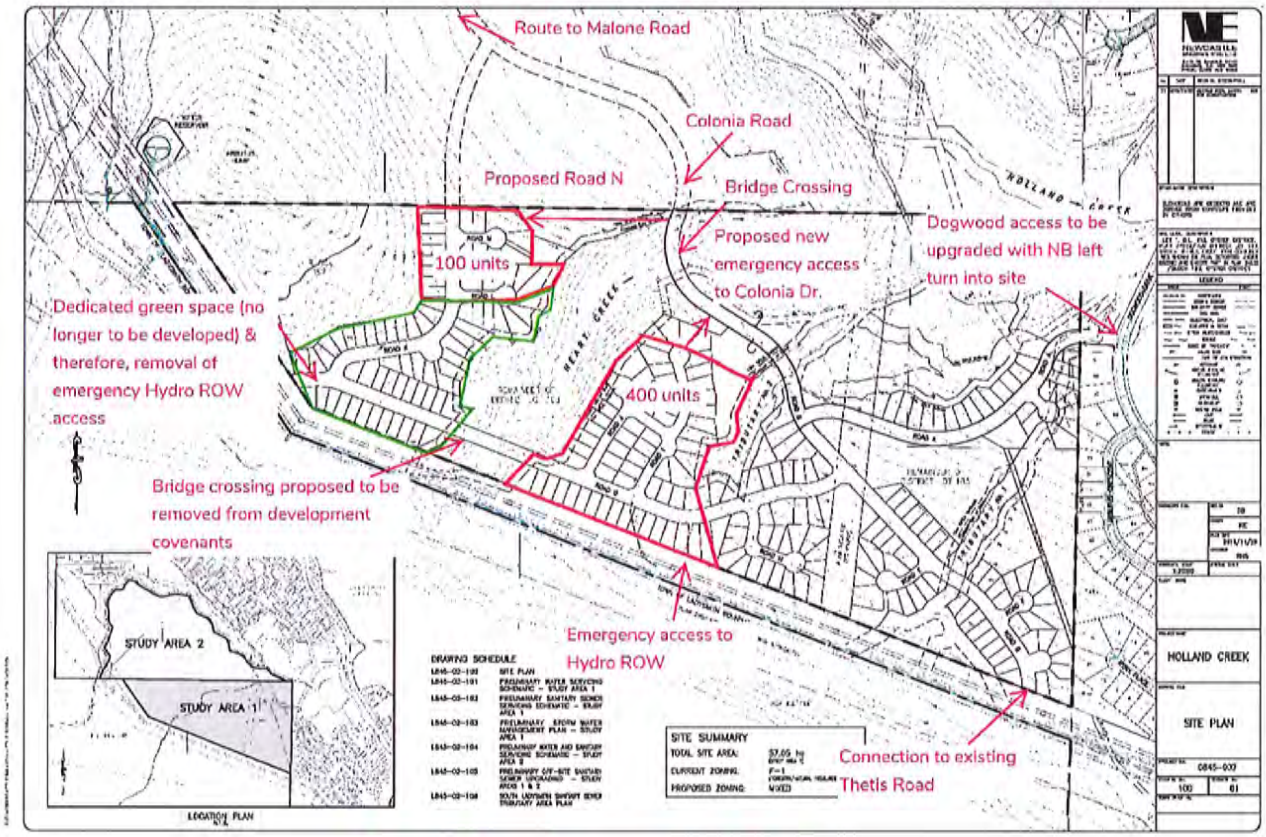


Figure 1: Development Road Network

2.2 FIRE REGULATIONS

NFPA 1141 standards for fire protection infrastructure for land development in suburban and rural areas (US Fire codes) indicate the following:

- 100 units need one access
- Up to 600 units need 2 accesses
- Greater than 600 units need 3 accesses

The west side of Heart Creek using Road K is 100 units therefore, according to the NFPA one access is required however, two are provided without the Road G connection (public Road K connecting to Colonia Road and Road N connecting to Colonia Road). If Road K becomes blocked this could cause issues, however, the accesses provided meet the fire requirements and once traffic is on Colonia Road there are two exit options, which is more than what is required.

The 400 unit site has three accesses including Road G to Colonia Road (Road B) which allows access to Thetis Road or Dogwood Drive, Road G to the emergency access to the Hydro ROW, and Road I to Colonia Drive which connects to Malone Road and Dogwood Drive. This exceeds the access requirements based on the fire code.

2.3 SAFETY CONSIDERATIONS

While there are no definitive measures to ensure an incident does not happen, the concern of all the Road K accesses being blocked by incidents is very unlikely. Based on ICBC collision data for roads in Ladysmith there have not been any record of collisons at Malone Road and Colonia Road and there has been one collision at Malone Road and Dunsmuir Road in the past 5 years. We can expect that collision at K Road and Colonia Road would be similar frequency.

There is also an argument based on a cost-benefit analysis to not provide the crossing at Road G, however, this would take much more study using a multiple accounts evaluation to determine the overall benefit of the structure as the benefits of providing the structure from a transportation perspective are not obvious.

3.0 ISSUE 2

3.1 BACKGROUND

Traffic counts were taken by Watt in 2015 for the Holland Creek Ladysmith TIA and were utilized as a comparison metric when determining if previous mitigations are still applicable for the proposed development. The 2015 TIA found that if the development were to be built with a density of 700 single family houses and 300 multi-family units a left turn on Dogwood Drive for the site access would be required along with the addition of turn lanes on all approaches at Dogwood Drive / Davis Road. The TIA analysed both the south and north sites (the south being former lot 1), while this development only includes the south site. The previous development had a total trip generation of 511 trips inbound and 300 trips outbound.

3.2 TRIP GENERATION & ASSIGNMENT

The proposed development is to have up to 570 multi-family units (currently the client is proposing 500) and 113 single family houses. Based on the 11th edition ITE Trip Generation Manual this will generate 249 trips inbound and 147 trips outbound during the PM peak hour. On the site there is an existing 104 multi-family units which were included within the trip generation due to the previous counts being taken prior to the 104 units being built out. These units will generate 33 trips inbound and 20 trips outbound during the PM peak hour. Finally, to directly compare to the 2015 TIA, trip generation was completed for the north site (Lamont) based on the civil engineering servicing study which was approved for rezoning by the Town of Ladysmith. This rezoning had a density of 401 single family homes. The total trip generation including the proposed development, Lamont, and existing multi-family homes is 520 trips inbound and 304 trips outbound.

The updated densities for the entire site generate trips similar to the 2015 trips with the 2022 plans expected to generate 18 more trips per peak hour than in 2015. Overall, there is minimal difference in the trip generation. Trips were assigned to the network based on the Holland Creek Ladysmith TIA trip assignment.

TABLE 1: TRIP GENERATION COMPARISON

Density	SF Lots	MF Lots	In	Out	Total
2015 (Lot 1 & North Lot)	700	300	511	300	811
2022 (Lot 1 & North Lot)	113	570	520	304	825

3.3 TRAFFIC ANALYSIS

The comparison analysis found that there was no change in LOS or queuing as a result of the change in density. Therefore, no further mitigations are required than the ones previously outlined in the 2015 TIA.

There are 100 multi-family lots on the northwest corner of the development off of Road K, which will use the Colonia Road to Malone Road access when built, the Road N to Colonia Rd, or the Road G access to the south if the crossing at Holland Creek is built. This would generate approximately 60 trips in the PM peak hour. It is assumed that 40% will be traveling south using Road G and 60% using Road K or Road N to Colonia Road to Malone Rd. Therefore, 24 veh / peak hour will be using the Road G bridge as there are no other vehicles expected to travel through the area by this route. This is a very small amount of traffic for a significant structure given the available capacity on Colonia Road for these vehicles. If the Road G crossing is not built these 24 vehicles would be rerouted to Colonia Road through the Road K or Road N accesses. The neighbourhood at Road K would have two public accesses which connect to Colonia Road in the north from Road K and Road N. There are no traffic capacity issues if the improvements to Dogwood Drive and Rollie Rose Drive, and at Dogwood Drive and Davis Road are completed as described above.

In the remaining development area east of Heart Creek there are 104 units built. The previous TIA and updated traffic analysis indicates that traffic capacity is available at the Dogwood Drive intersection, if the recommended laning improvements are constructed. If the Road G bridge is not implemented the added southbound left turn lane at Dogwood Drive and Davis Road which was recommended will be needed when the east side of Heart Creek development reaches 300 units (inclusive of the existing 104 developed units), while the Dogwood Drive northbound left turn lane

onto Rollie Rose Drive will be needed by 250 units. Further, when the development on the east side of Heart Creek reaches 600 units a connection to Thetis Road will be required.

4.0 CONCLUSION AND RECOMMENDATIONS

To conclude, there is no evidence that a bridge over Heart Creek at Road G is of benefit to the driving public either from a traffic capacity perspective or a traffic safety perspective. The projected traffic volume on Road G is 24 vehicles per peak hour at full build out. The alternative for these vehicles is using the Road K connection to Colonia Road or the Road N connection to Colonia Road. The proposed number of accesses in the development exceed those of the guidance of the NFPA standards without the Road G crossing. Therefore, regarding issue 1, all proposed accesses / emergency routes are adequate and a bridge over Heart Creek at Road G is not required.

Regarding issue 2, the additional density did not change any LOS or result in queuing issues therefore, no additional mitigations will be necessary, other than what was stated in the 2015 TIA.

Sincerely,
Watt Consulting Group

Caytlin Kopeck, EIT
Transportation Engineer-in-Training

Michael Skene, P.L.Eng.
Principal, Technical Lead

PERMIT TO PRACTICE
WATT CONSULTING GROUP LTD.
SIGNATURE Melanie Kong
DATE 2022-07-11
PERMIT NUMBER 1001432
ENGINEERS & GEOSCIENTISTS
BRITISH COLUMBIA

Association of Professional Engineers and Geoscientists of the Province of British Columbia
M. B. SKENE
PROFESSIONAL LICENSEE ENGINEERING
Licence 13871
2022-07-11

Attachment F:
Habitat Assessment

ENVIRONMENTAL DYNAMICS INC.

208A – 2520 Bowen Road
Nanaimo, BC V9T 3L3
P: (250) 751-9070

November 18, 2022

EDI Project No: 21N0582

Ladysmith (Hillside Development) Limited Partnership
200 - 8809 Heather Street
Vancouver, B.C. V6P 3T1

Attention: Jessica Tempesta

RE: Environmental Review for Holland Creek Properties, Ladysmith

INTRODUCTION

EDI Environmental Dynamics Inc. (EDI) has prepared this letter report for Ladysmith (Hillside Development) LP (the Proponent) to summarize key environmental considerations for proposed rezoning of a portion of the Holland Creek Properties in Ladysmith, BC. Our review summarized herein is generally limited to the identified areas that are proposed to be rezoned to R-3-A (the Properties) by the Proponent. Figure 1 provides a sketch of the two areas proposed for rezoning to R-3-A, referred to herein as the Central Parcel and the Western Parcel. As previous consultant reports included a detailed bio-inventory completed by Toth & Associates Environmental Services in 2013, a detailed watercourse assessments completed by D.R. Clough Consulting, and Corvidae Environmental Consulting Inc 2022 for an adjacent property, our review did not attempt to redo the previous environmental assessments completed. Instead, our review builds on this previous information through recent field and desktop reviews we completed for the Proponent within these and other areas within the Holland Creek Properties. The review included the following primary tasks:

- Background information review to determine if any significant environmental sensitivities were known to occur.
- Review of previous consultant reports provided to EDI.
- Review of watercourses and riparian areas within and near the Properties.
- Field reviews within the Properties.

Throughout this summary, the Riparian Areas Regulation (RAR) is mentioned, and it is important to note that this regulation was replaced by the Riparian Areas Protection Regulation (RAPR) in 2019. While the name has changed, most of the key requirements, methodologies, and terms are the same.

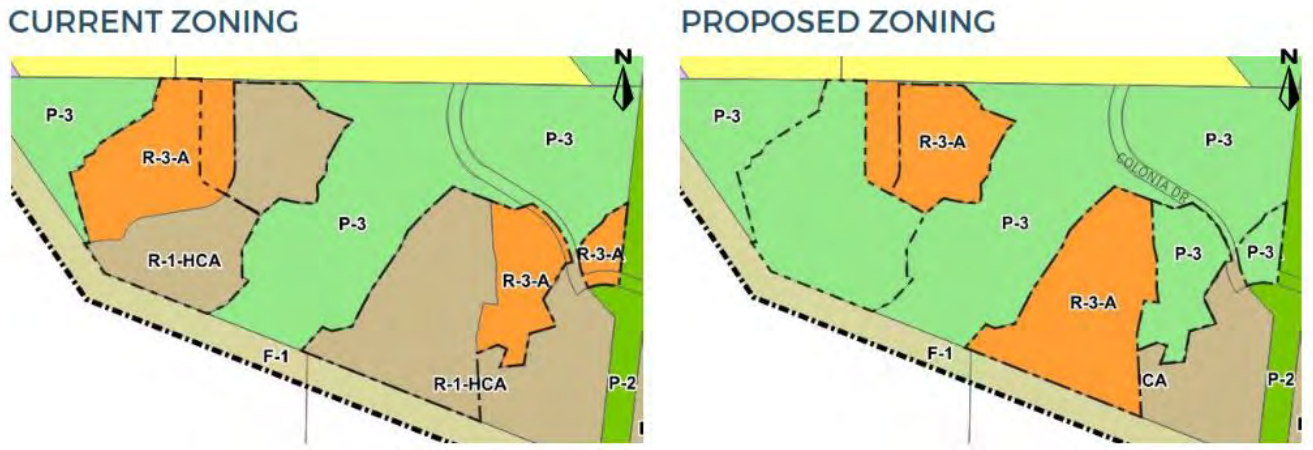


Figure 1. Sketch of areas proposed for R-3-A zoning (Central Parcel on the right and Western Parcel on the left).

BACKGROUND INFORMATION REVIEW

Table 1 provides a summary of the background information review completed prior to conducting the field reviews.

Table 1 Summary of Background Information Review

Information Source	Type of Information	Results of Search
Habitat Wizard	Known occurrences of provincially and federally listed species Sensitive Ecosystem Inventory Mapping Fish observations and stream reports for mapped watercourses	No mapped occurrences of species at risk occur within or near the Properties. The Grand Fir / Dull Oregon-grape ecological community overlaps with the Properties (Figure 2). This is a red-listed (rare) ecosystem; however, all portions of these polygons that are within the Properties have been previously logged so are no longer considered to be sensitive. Heart Creek Ravine is a Sensitive Ecosystem Inventory (SEI) polygon (riparian ecosystem). Shows Heart Creek but provides no fish presence/absence information. Indicates that Heart Lake is known to contain rainbow trout and cutthroat trout.
Ladysmith OCP Map 2	Development Permit Areas	Several DPAs occur on the Properties (Figure 3): • DPA 6 (Riparian) • DPA 7 (Hazard Lands) • DPA 8 (Multi-Unit Residential ESA) • DPA 11 (Arbutus Hump ESA)
Wildlife Tree Stewardship Atlas & Great Blue Heron Atlas	Raptor and Heron nest trees and other significant wildlife trees	No known wildlife trees within or near the Properties.

Figure 2. Grand Fir / Dull Oregon-grape ecosystem shown in blue (screen clip from Habitat Wizard).

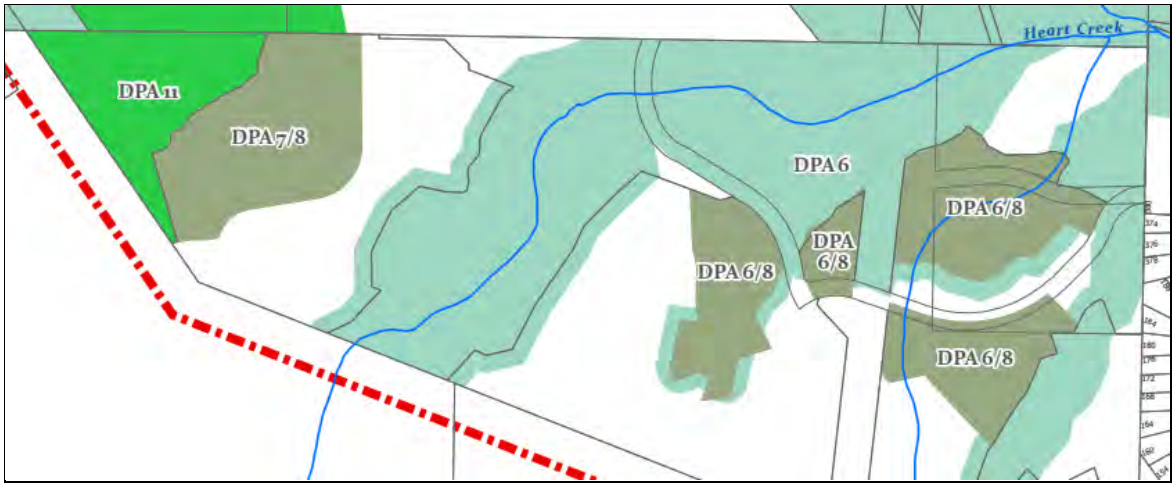


Figure 3. DPAs within the area (screen clip of OCP Map 2).

In addition to reviewing online sources of information, various consultant reports provided by the Proponent were reviewed. Table 2 provides a summary of key information that pertains to the subject Properties.

Table 2 Summary of Previous Consultant Reports

Information Source	Key Information Pertaining to within Proposed Areas to be Rezoned
Toth 2013[1] (Attachment 1)	No rare plants identified. No ecologically sensitive polygons within the proposed areas to be rezoned. No stick nests identified within proposed areas to be rezoned.

[1] Toth & Associates Environmental Services. 2013. Bio-inventory of Northern Portions of District Lot 103E&N and Block 192, Oyster District, Ladysmith. Prepared for Glencar Consultants Inc.

Clough 2013[2]	Identified and characterized streams within and near the Properties. Determined extents of fish distribution. Heart Creek is fish bearing, all other streams within the Properties were identified as non-fish bearing due to downstream barriers and lack of perennial flow.
Clough 2014[3]	Identified and characterized streams throughout the Properties. Discussed extents of fish distribution. Provided information regarding riparian setbacks for most stream and ditches.
Corvidae 2022[4]	Provided mapping extent of ecological community overlapping DPA 11.

FIELD REVIEW

The field reviews were conducted on November 26, 2021, January 14, 2022, and September 8, 2022. The focus of the reviews was to verify watercourse locations and characteristics, review riparian areas, and determine if any changes or new features were present since the previous consultant reports were prepared. The following sections summarize key findings from our field reviews.

Watercourses

The following table summarizes watercourse observations and considerations resulting from field reviews. Watercourse names are as per the Site Plan contained in the Clough 2014 report (see Attachment 2).

Table 1. Summary of Watercourse Observations and Considerations

Watercourse	Comments
Heart Cr. (Reach 2)	• Heart Creek and its riparian area located between the Central Parcel and Western Parcel appeared to be as described by previous consultant reports. • The Heart Creek ravine located between the Central Parcel and Western Parcel is greater than 60 m wide. As per Figure 1-2 of the Riparian Areas Protection Regulation (RAPR) Technical Assessment Manual the Riparian Assessment Area (RAA) is 10 m from top of ravine bank for a ravine wider than 60 m.
T2	• T2 flows within a narrow, forested ravine along the east side of the Central Parcel and appeared to be as described by previous consultant reports. • The T2 ravine is less than 60 m wide. As per Figure 1-2 of the RAPR Technical Assessment Manual the RAA is 30 m from top of ravine bank for a ravine less than 60 m wide.
T2B	• The 2014 RAR report mentions a T2B in Section 1 but does not further describe it. It is assumed to be the stream that flows into T2A, just north of Ray Knight Drive. • There are multiple ditches upstream that flow into and near the short ravine in which T2B flows, and the area upstream of the ravine has been recently cleared, grubbed, stripped, and ditched. It is not possible to discern the natural drainage pattern that occurred here prior to recent earthworks and historic developments upslope (hydro line, logging roads).

[2] D.R. Clough Consulting. 2013. Holland Creek Watershed, Ladysmith B.C. Environmental Assessment. Prepared for 0885538BC Ltd. and Stzuminus First Nation.

[3] D.R. Clough Consulting. 2014. Riparian Areas Regulation Assessment Report. Prepared for Province of BC.

[4] Corvidae Environmental Consulting Inc. 2022. Environmental Assessment for Proposed Holland Heights Neighbourhood DPA 11 Attachment E. Prepared for Lamont Land

	• All upstream ditches that currently flow directly into T2B were investigated. None of the ditches were found to be fed by a watercourse that is upstream of the hydro line and logging roads. • Flow from small, ephemeral streams, within the forested area upstream of the hydro lines drain towards T2B but have been ditched by hydro and logging roads, and these sources of flow have recently been ditched such that they disperse into the cutblock west of the T2B ravine. • The T2B ravine is less than 60 m wide. As per Figure 1-2 of the RAPR Technical Assessment Manual the RAA is 30 m from top of ravine bank for a ravine less than 60 m wide.

Terrestrial Environments

In general, the terrestrial environments with the Properties appeared to be as described by the 2013 bio-inventory prepared by Toth and Associates Environmental Services. No new environmentally sensitive areas or important habitat features were observed.

The Central Parcel occurs largely within an area that has been recently logged (2012). Most of this harvested area was clearcut but a portion in which the Central Parcel occurs was selectively logged. As such, there remains a patch of sparse forest with several older trees with a less disturbed understory. This area is visible on airphotos and in Figure 2 of the 2013 bio-inventory, but is not depicted as a separate polygon. While this small area has some mature forest attributes, it has been fragmented and disturbed by selective logging and there were no significantly large trees or other features of note.

As shown in Figure 2 of the 2013 bio-inventory, the Western Parcel consists mostly of pole-sapling forest that was harvested in 2005/2006. A smaller component of this area consists of young forest. No older forest, large trees or other features of note were observed.

Adjacent to the Western Parcel is an area that is proposed as park. This proposed park area is overlapped with DPA 11 and DPA 7/8. Toth describes the area as Douglas-fir /arbutus – salal Young forest ecosystem (Figure 2 Polygon 2) and a cutblock harvested in 2012. This area also overlaps with the Corvidae mapping of the Douglas-fir/arbutus ecosystem which is mapped as extending east and south of the DPA 11 (into a portion of DPA7/8) and bordered by extensive Scotch broom (see attachment). Additional ecosystem mapping for the area is provided in Madrone 2008[5] which also maps the Douglas-fir/arbutus ecosystem at a Young forest stage overlapping this area but also including components of Douglas-fir / dull Oregon-grape ecosystem. Mapping by Madrone precedes the recent forest harvesting. In the detailed TEM mapping provided by Madrone the biogeoclimatic boundary of the CDFmm and CWHxm1 were adjusted (which often occurs in detailed ecosystem mapping projects as the zone boundaries are initially mapped at a coarse scale and refined based on ground conditions and ecosystems present). The adjusted boundary places the DPA 11 Arbutus

[5] Madrone Environmental Services Ltd. June 2008. Terrestrial Ecosystem Mapping of the Coastal Douglas-Fir Biogeoclimatic Zone. For Mr Bill Zinovch Integrated Land Management Bureau Planning Officer.

Hump ESA and surrounding area within the CDFmm despite being slightly higher (190 masl) than the generally accepted cut off of 150 m masl for the CDFmm BEC zone.

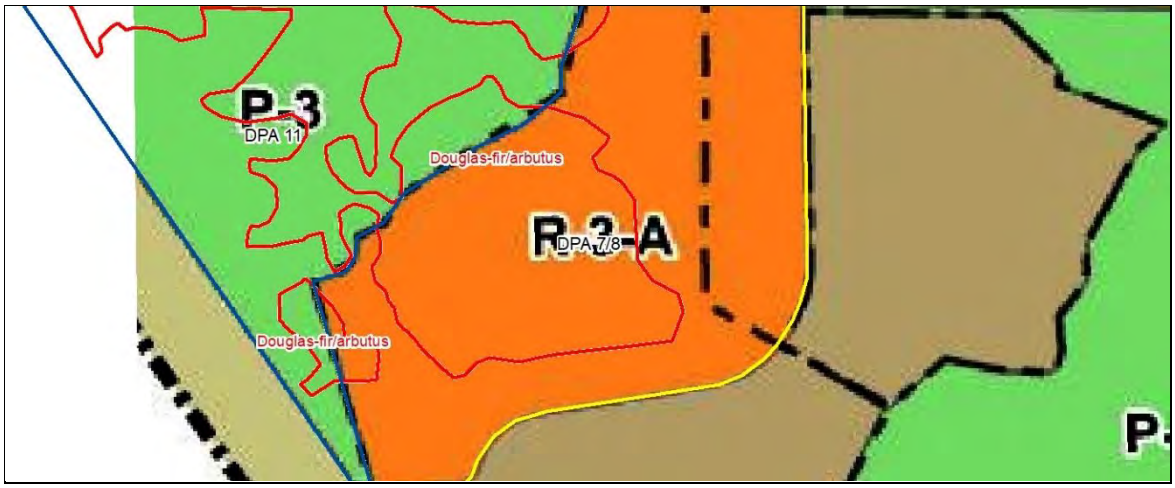


Figure 4. DPA 11(blue), DPA 7/8 (yellow) and current zoning (orange), with park designation (green) and the extent of the Toth mapping of Douglas-fir/arbutus ecosystem (red).

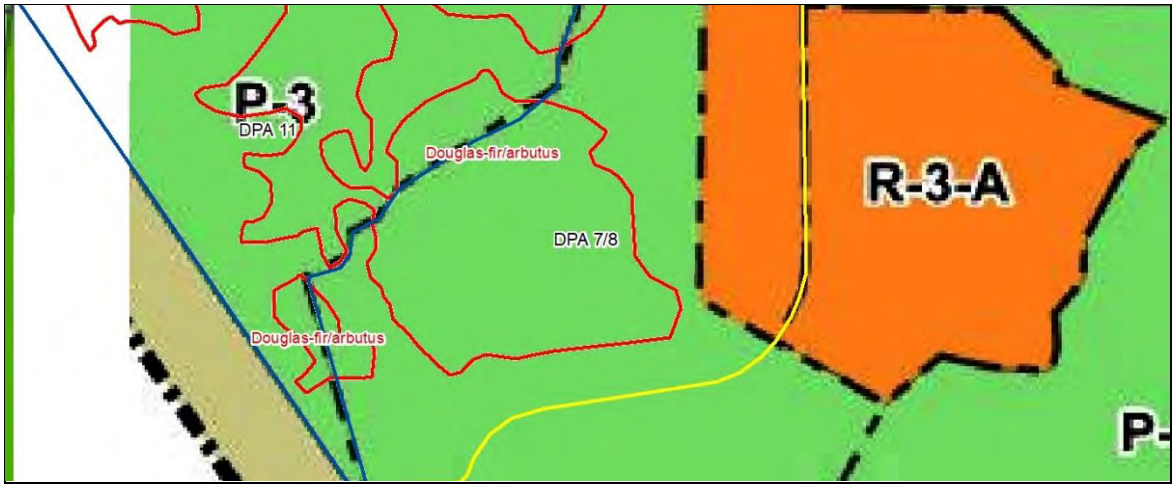


Figure 5. DPA 11(blue), DPA 7/8 (yellow) and proposed Western Parcel zoning (orange), with proposed park designation (green) and the extent of the Toth mapping of Douglas-fir/arbutus ecosystem (red).

DISCUSSION

Other than the previously undescribed drainage features observed upstream and adjacent to T2B, there were no new sensitivities uncovered during our background review and field assessments. Below is a summary of key environmental considerations associated with future development

- As per DPA 6 requirements any future development within the RAAs of Heart Creek, T2 and T2B, including subdivision, will require submission of a new RAPR report (the previous RAR report cannot be used to approve future development). Each detailed RAPR assessment (needed to allow for the minimum riparian setback) would require the following to be addressed, some of which may require additional areas to be protected beyond the minimum setbacks identified:
    - Danger trees
    - Windthrow
    - Slope stability
    - Protection of trees
    - Encroachment
    - Sediment and erosion control
    - Stormwater management
    - Floodplain concerns
- If construction of a road across Heart Creek or any other watercourses is required as part of future development, environmental permits for in-stream works will be needed including:
    - Water Sustainability Act Section 11 Notification or Change Approval. Depending on crossing design details bridges and culverts may only require a Notification; however, due to the width of the Heart Creek ravine, it's more likely that Notification criteria can't be met and that a Change Approval would be needed.
    - Submission of a Request for Review to DFO. Depending on crossing design details and potential impacts to fish and fish habitat, DFO review would result in either a Letter of Advice to allow the work to proceed, or a letter indicating that an application for Authorization would be required.
- Drainage features observed upstream and adjacent to T2B will need to be addressed as part of the Central Parcel's detailed development designs. Drainage solutions will be needed to address both stormwater management aspects as well as environmental considerations. Given that at least a portion of the seasonal drainage here is from a natural source of water (small streams, rather than just stormwater runoff), components of the works are anticipated to require a Water Sustainability Act Section 11 Notification or Change Approval. Works requiring such approval would include stream relocation, stream crossings, and stormwater outfalls. Future drainage patterns here will

also need to consider riparian setbacks and mitigation measures associated with the RAPR (which applies to all watercourses, that eventually drain into fish habitat, including ditches).

- Pre-clearing surveys should be completed prior to future development and as part of future planning processes. There are some trees within and adjacent to the Properties that could provide suitable nesting habitats for raptors and other protected nests such as herons and Pileated Woodpeckers that are protected year-round by the Wildlife Act and/or the Migratory Birds Convention Act. While no such nests are known to occur at or immediately near the Properties at this time, nests could be constructed in the future.
- Songbird nest surveys should be conducted prior to planned clearing of any vegetation within the Properties between March 1 and August 31 of a given year (standard nesting season that better captures most early and late nesting songbirds on Vancouver Island). Active songbird nests are protected by the provincial Wildlife Act and the federal Migratory Birds Convention Act.
- DPA 11 Arbutus Hump ESA was developed to protect the Arbutus Hump, an important landmark of the Holland Creek area (Schedule A.1 of the Town of Ladysmith OCP). The attributes of the forest cover for which DPA 11 is designated (young arbutus forest with a sparse sub-canopy of pole-sapling Douglas-fir, open canopy with specific understory composition) extends beyond the DPA 11 area to the south and east as mapped by Toth, Corvidae and Madrone and verified by EDI. The current zoning for the area immediately abuts DPA 11 and wholly overlaps the young Douglas-fir arbutus forest.
- Forested ecosystems are generally considered at risk when in their climax state which occurs when forests are mature or old growth. Refer to *Coastal Douglas-fir Ecosystems, 1999* brochure for a detailed description of the criteria for ecosystems at risk within the CDFmm. There are ecological benefits to preserving this area as park despite not fully meeting the criteria for the Red-listed ecosystem, the area provides:

    - Ecosystem recruitment opportunities as the forest matures,
    - preservation of biodiversity and,
    - reduction of fragmentation
    - protection from further encroachment of invasive species into the core areas of DPA 11.

- The proposed Western does not overlap with the mapped ecosystem community. The planned development of the Western parcel is not expected to adversely impact the mapped Douglas-fir/arbutus ecosystem. The current zoning wholly overlaps this area and abuts the existing DPA 11 area and would likely have more adverse effects then the proposed rezoning.

CONCLUSIONS

Other than the additional drainage features observed upstream and adjacent to T2B, there were no new sensitivities uncovered during our background review and field assessments. As there are no known sensitive ecosystems, rare plants or animals, or protected nests, environmental sensitivities, constraints, and permitting

requirements associated with the Properties are largely associated with watercourses and riparian areas. Conceptual plans for the Central and Western Parcels largely avoid watercourses and riparian areas with the exception of the small, ephemeral drainage features upstream and beside T2B, which have been disturbed by historic and recent developments and would need to be addressed for any development that would require the extension of Ray Knight Drive further west of its existing terminus.

Overall, the proposed rezoning is considered to be ecologically appropriate in that there are significant ecological benefits to clustering development in previously impacted areas and preserving large contiguous areas as nature park space. Generally, all things being equal, the conservation of large, contiguous areas is more effective in conserving biodiversity and many wildlife habitat values than setting aside numerous, fragmented areas of the same total size. By concentrating development within specific, sensible and topographically realistic locations, the Properties could provide numerous benefits economically (less infrastructure and maintenance needed to service smaller areas), socially (greater opportunities for social interactions, amenities and services), and environmentally (less fragmentation and more contiguous natural spaces within areas that are less affected by past disturbance). The proposed park area that is adjacent to DPA 11 includes many of the ecological attributes for which DPA 11 was designated. The current zoning completely overlaps this ecosystem while the proposed zoning avoids it. Protecting this area as park will provide benefits including recruitment, reducing fragmentation, preserving biodiversity and buffering against invasive species encroachment into core areas of DPA 11.

STATEMENT OF LIMITATIONS

This report was prepared exclusively for Ladysmith (Hillside Development) Limited Partnership by EDI Environmental Dynamics Inc. The quality of information, conclusions and estimates contained therein are consistent with the level of effort expended and is based on: i) information available at the time of preparation; ii) data collected by EDI Environmental Dynamics Inc. and/or supplied by outside sources; and iii) the assumptions, conditions and qualifications set forth in the report. The report is intended to be used by Ladysmith (Hillside Development) Limited Partnership for the intended purpose as outlined by this report (rezoning application). Any other use or reliance on this report by any third party is at that party's sole risk.

Yours truly,

EDI Environmental Dynamics Inc.

DISTRIBUTED VIA EMAIL

Adam Compton, R.P.Bio.
Senior Biologist/Project Manager

Attachments: 2013 Bio-inventory Report
RAR Site Plan (Clough 2014)
Douglas-fir/Arbutus Figure 5(Corvidae 2022)

Bio-inventory of Northern Portions of District Lot 103E&N and Block 192, Oyster District, Ladysmith

Toth and Associates
Environmental Services

Bio-inventory of Northern Portions of District Lot 103E&N and Block 192, Oyster District, Ladysmith

Prepared for:
Glencar Consultants Inc.,
6774 Dickinson Road,
Lantzville, B.C.
V9V 1A2

Prepared by:
S.P. Toth, AScT, R.P.Bio.
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December 15, 2013

Toth and Associates
Environmental Services

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1.0 Introduction

Toth and Associates Environmental Services (Toth and Associates) were retained by Glencar Consultants Inc. to conduct a bio-inventory of the approximate 143 acre undeveloped portion of District Lot 103E&N and Block 192, Oyster District in Ladysmith lying northerly of the BCTC Transmission Right-of-Way as shown on Figure 1. The bio-inventory included a background review of available information, a field assessment of the properties including identified Environmentally Sensitive Areas, and preparation of this bio-inventory report. Map No. 2 of the Town of Ladysmith Holland Creek Local Area Plan indicates that the property is Crown owned Community Forest within the Forest Land Reserve. The objectives of the bio-inventory were to:

- Inventory and classify wildlife habitats, significant features and plant communities on the property;
- Produce a report and study area map detailing the results of the study;
- Outline any environmental constraints with potential to impact development of the subject properties; and,
- Provide recommendations for retention, mitigation and compensation of significant features, for consideration in future development.

1.1 Study Area

The subject property consists of an approximately 143 acre undeveloped forested parcel. The south side of the subject property is accessed by a gated gravel BCTC transmission line access road and an undeveloped dedicated road accesses the property of the east side from Dogwood Drive. Heart Creek and a tributary to Heart Creek flow within incised ravines through the property. Overall aspect is northeast. The majority of the property is within the Coastal Western Hemlock Very Dry Maritime (CWHxm1) biogeoclimatic zone, with the lower southeast corner extending into the Coastal Douglas-fir moist-maritime (CDFmm) zone.

2.0 Methods

Field Survey methods included those outlined in *Environmental Objectives, Best Management Practices and Requirements for Land Developments* (MELP 2001), *Environmental Best Management Practices for Urban and Rural Land Development in British Columbia* (MOE March 2006), and the *Field Manual for Describing Terrestrial Ecosystems* (LMH #25 MELP, MOF 1998). A pre-field background review was conducted which included a review of provincial and Cowichan Valley Regional District (CVRD) datasets and orthophotos. Forest cover on the property was delineated into polygons based on air photo interpretation and background information review.

Habitat values were assessed throughout the property by establishing sample plots within relatively homogenous plant community types delineated during the air photo review. Plot establishment involved delineating a 400 square metre plot in an area representative of the surrounding polygon. Physiographic feature descriptions included estimates of:

- slope gradient (clinometer), aspect (compass), slope position, slope shape (visual estimate), microtopography (visual estimate); and exposure.

Species of vascular plants and byrophytes occurring within each plot were recorded and cover classes based on visual estimates were assigned to each species. Total cover for each stratum, as described in Land Management Handbook No. 25 (1998), were recorded (A - Trees; B - Shrubs; C - Herbs; D - Mosses/Seedlings). In addition to species occurring within sample plots, the immediate area was searched to identify uncommon or rare species outside of plot boundaries.

Additional features described for each site included: wind damage; evidence of fire and historic logging; susceptibility to fire/wind damage; geologic features; surface water features; and drainage patterns.

Forest community composition and structure was qualitatively assessed to determine the suitability in providing habitat features of value to known or potential wildlife species. Habitat features identified during the inventory included: wildlife trees, veteran trees (A_0 layer), horizontal and vertical structure, coarse woody debris, forage abundance and availability; and special features (nest sites, etc.).

The surveyor recorded all wildlife utilization evidence including direct observations, vocalizations, tracks, game trails, scat, browsed and grazed vegetation, bones, feathers, nests, nest cavities and woodpecker holes. Utilization of forest types and special habitat features by wildlife was deduced from an analysis of habitat features, and observations and evidence of utilization.

3.0 Results

3.1 Background Review

There are no known rare species or ecological communities identified on, or adjacent to the subject properties by the BC Conservation Data Centre. A search of the Conservation Data Centre's (CDC) BC Ecosystem Explorer database (November 2013) provided a list of potentially occurring rare ecological communities, plant and animal species for the property. The search was limited to include only the Ladysmith area within the Cowichan Valley Regional District of the South Island Forest District. The search provided tables of 72 potential ecological community occurrences, 71 plant species, and 101 animal species. The tables were further refined to exclude those ecological communities, plant and animal species with nil potential, or known not to occur on the property based on the available habitat types, field surveys and distribution data (e.g. marine and sub-alpine species). The refined list indicated 17 rare ecological communities (Table 1), 7 rare plant species (Table 2) and 21 rare animal species with *potential* to occur on the property (Table 3).

The Town of Ladysmith has identified Environmentally Sensitive Areas (Development Permit Area 6) on the subject property including a dry rock outcrop area in the northwest corner of the property, the Heart Creek ravine and an area on the east side of the property that does not

appear to be associated with any identifiable feature, but could possibly represent steep slopes. The Sensitive Ecosystem Inventory (SEI, 1997) identified a riparian polygon (poly #V0303) associated with the Holland Creek ravine in the northwest corner of the property. The Wildlife Tree Stewardship Atlas did not identify any raptor or heron nests on, or adjacent to the property.

Watercourses on the property were assessed by D.R. Clough Consulting as part of the *Riparian Areas Regulation* (RAR) Assessment conducted on the property.

Table 1. Potential Rare Ecological Communities

Scientific Name	English Name	BC List	Biogeoclimatic Units
Abies grandis / Mahonia nervosa	grand fir / dull Oregon-grape	Red	CDFmm/04
Abies grandis / Tiarella trifoliata	grand fir / three-leaved foamflower	Red	CDFmm/06
Arbutus menziesii / Arctostaphylos columbiana	arbutus / hairy Manzanita	Red	CDFmm/00;CWHxm1/00
Picea sitchensis / Rubus spectabilis Very Dry Maritime	Sitka spruce / salmonberry Very Dry Maritime	Red	CWHxm1/08
Pseudotsuga menziesii - Arbutus menziesii	Douglas-fir – arbutus	Red	CDFmm/02
Pseudotsuga menziesii - Pinus contorta / Racomitrium canescens	Douglas-fir - lodgepole pine / grey rock-moss	Red	CWHxm1/02
Pseudotsuga menziesii - Tsuga heterophylla / Gaultheria shallon Dry Maritime	Douglas-fir - western hemlock / salal Dry Maritime	Blue	CWHxm1/03
Pseudotsuga menziesii / Mahonia nervosa	Douglas-fir / dull Oregon-grape	Red	CDFmm/01;CWHxm1
Pseudotsuga menziesii / Polystichum munitum	Douglas-fir / sword fern	Blue	CWHxm1/04
Thuja plicata - Pseudotsuga menziesii / Eurhynchium oreganum	western redcedar - Douglas-fir / Oregon beaked-moss	Red	CDFmm/05
Thuja plicata / Achlys triphylla	western redcedar / vanilla-leaf	Red	CDFmm/12
Thuja plicata / Polystichum munitum Very Dry Maritime	western redcedar / sword fern Very Dry Maritime	Blue	CWHxm1/05
Thuja plicata / Rubus spectabilis	western redcedar / salmonberry	Red	CWHxm1/13
Thuja plicata / Symphoricarpos albus	western redcedar / common snowberry	Red	CDFmm/07
Thuja plicata / Tiarella trifoliata Very Dry Maritime	western redcedar / three-leaved foamflower Very Dry Maritime	Blue	CWHxm1/07
Tsuga heterophylla - Pseudotsuga menziesii / Eurhynchium oreganum	western hemlock - Douglas-fir / Oregon beaked-moss	Red	CWHxm1/01
Tsuga heterophylla - Thuja plicata / Blechnum spicant	western hemlock - western redcedar / deer fern	Red	CWHxm1/06

Table 2. Potential Rare Plant Species

Scientific Name	English Name	BC List
Allium amplectens	slimleaf onion	Blue
Claytonia washingtoniana	Washington springbeauty	Red

Heterocodon rariflorum	heterocodon	Blue
Mitella caulescens	leafy mitrewort	Blue
Rupertia physodes	California-tea	Blue
Toxicodendron diversilobum	poison oak	Blue
Viola howellii	Howell's violet	Blue

Table 3. Potential Rare Animal Species

Scientific Name	English Name	BC List	Potential
Accipiter gentilis laingi	Northern Goshawk, *laingi* subspecies	Red	Low
Anaxyrus boreas	Western Toad	Blue	Low
Aneides vagrans	Wandering Salamander	Blue	Moderate
Brachyramphus marmoratus	Marbled Murrelet	Blue	Low
Carychium occidentale	Western Thorn	Blue	Moderate
Cervus elaphus roosevelti	Roosevelt Elk	Blue	Moderate
Chordeiles minor	Common Nighthawk	Yellow	Low
Contopus cooperi	Olive-sided Flycatcher	Blue	Moderate
Dendragapus fuliginosus	Sooty Grouse	Blue	Moderate
Glaucidium gnoma swarthi	Northern Pygmy-Owl, *swarthi* subspecies	Blue	Moderate
Hemphillia glandulosa	Warty Jumping-slug	Blue	Moderate
Megascops kennicottii kennicottii	Western Screech-Owl, *kennicottii* subspecies	Blue	Moderate
Monadenia fidelis	Pacific Sideband	Blue	High
Mustela erminea anguinae	Ermine, *anguinae* subspecies	Blue	Low
Myotis keenii	Keen's Myotis	Blue	Low
Nearctula sp. 1	Threaded Vertigo	Red	Moderate
Patagioenas fasciata	Band-tailed Pigeon	Blue	High
Pristiloma johnsoni	Broadwhorl Tightcoil	Blue	Moderate
Rana aurora	Northern Red-legged Frog	Blue	High
Sorex palustris brooksi	American Water Shrew, *brooksi* subspecies	Red	Low
Vertigo andrusiana	Pacific Vertigo	Red	Moderate

Madrone Environmental Services Ltd. conducted Terrestrial Ecosystem Mapping (TEM) of the Coastal Douglas-Fir biogeoclimatic zone (Madrone, 2008), including the subject property. TEM polygons for the subject property are shown on Figure 2 and described below

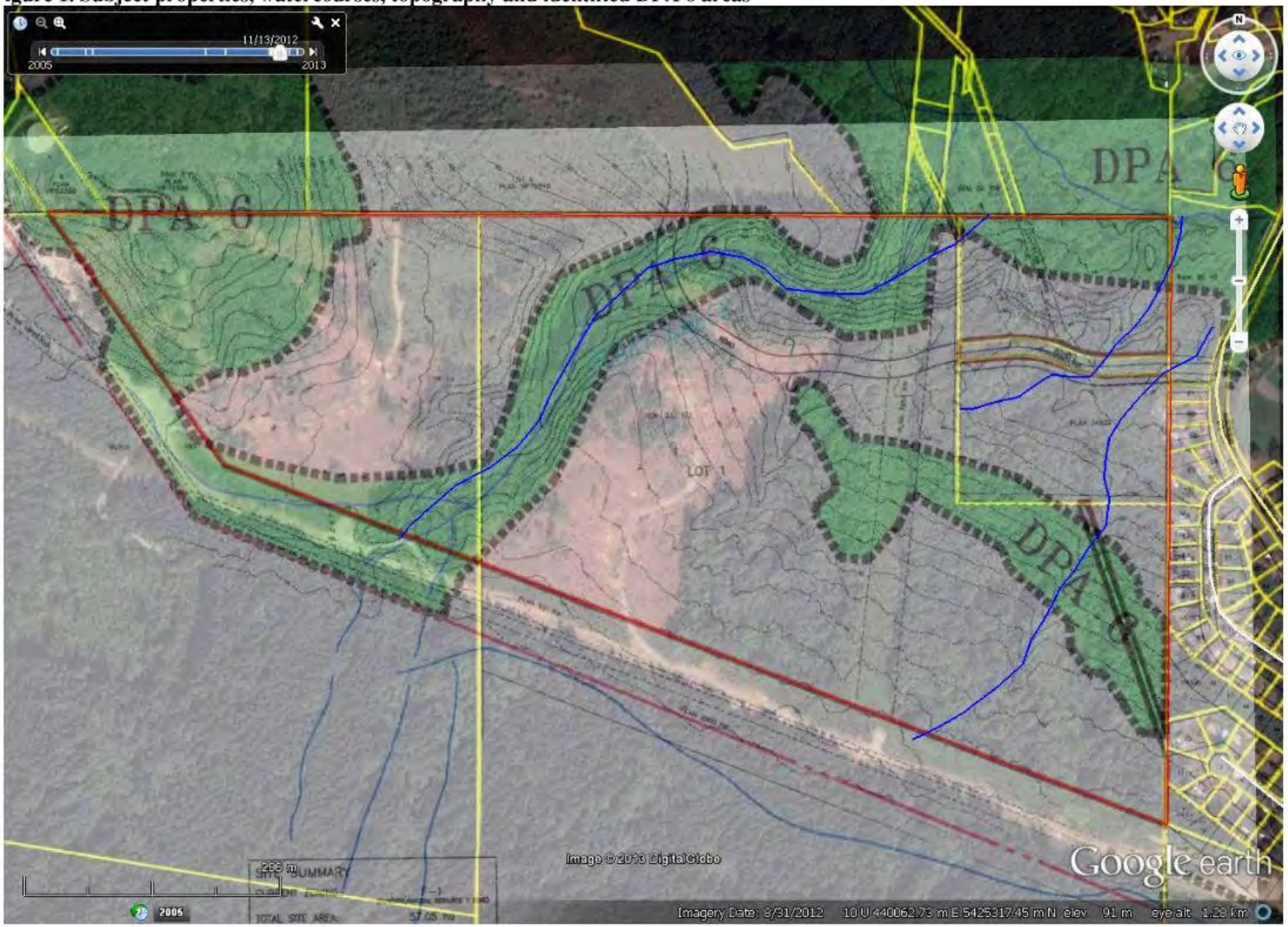
TEM Polygon # 13817

Sixty percent of this polygon is described as CDFmm/02 Site Series comprised of Young Forest (40-80 years) Douglas-fir / Lodgepole pine - arbutus on warm aspects with moderately steep slopes and very shallow soils. The remaining 40% of the polygon is described as Young Forest stage Douglas-fir / salal (CDFmm/01) Site Series on warm aspect moderately steep slopes and shallow soils.

TEM Polygon # 13811

Seventy percent of this polygon is described as Young Forest stage Douglas-fir / salal (CDFmm/01) Site Series with the remaining 30% of the polygon as Young Forest stage Douglas-fir / salal (CDFmm/01) Site Series on shallow soils and warm aspects and steep slopes.

Figure 1. Subject properties, watercourses, topography and identified DPA 6 areas



TEM Polygon # 13829
Seventy percent of this polygon is described as Young Forest stage Douglas-fir / grand-fir – Oregon grape (CDFmm/04) with the remainder comprised of Young Forest stage Western redcedar / grand-fir – foamflower (CDFmm/06).

TEM Polygon # 13824
This polygon is described as Young Forest stage Douglas-fir / salal (CDFmm/01) Site Series.

TEM Polygon # 13831
This polygon is described as Young Forest stage Douglas-fir / grand-fir – Oregon grape (CDFmm/04).

TEM Polygon # 13833
This polygon is described as Shrub stage Douglas-fir / grand-fir – Oregon grape (CDFmm/04).

TEM Polygon # 13834
Fifty percent of this polygon is described as Shrub stage Douglas-fir / grand-fir – Oregon grape (CDFmm/04) with the remainder described as Young Forest stage Douglas-fir / grand-fir – Oregon grape (CDFmm/04).

TEM Polygon # 13823
Sixty percent of this polygon is described as urban / suburban with the remainder comprised of Young Forest stage Western redcedar / grand-fir – foamflower (CDFmm/06).

TEM Polygon # 13818
This polygon is described as Mature Forest stage (80-250 years) Western redcedar / grand-fir – foamflower.

TEM Polygon # 13814
This polygon is described as Young Forest stage Western redcedar / grand-fir – foamflower.

3.2 Field Assessment

Field surveys were conducted on November 26 + 27, and December 17, 2013. Sample site locations and all features within the study area were identified using a Garmin Map60CSx Global Positioning System (GPS). The Sum Routes Feature in OziExplorer indicated a total survey effort of 10.49km.

3.3 Forest Cover

Forest cover polygons identified during the background review were refined based on the results of the field surveys.

Forest cover polygons on the property are indicated on Figure 2. The forested sections of the property consisted of six general ecotypes including:

1. Recently harvested areas
2. Douglas-fir / arbutus – salal Young Forest on Rock Outcrops
3. Douglas-fir – salal Young Forest
4. Douglas-fir / Bigleaf maple – sword fern Young Forest
5. BCTC Right-of-ways
6. Douglas-fir, western redcedar – sword fern Mature Forest

Recently harvested areas (Polygons 1, 4 + 7)

Logging of the flatter areas of the property occurred in 2005/2006 (Polygon 4) and 2012 (Polygon 1). The logging conducted in 2012 extended into the Environmentally Sensitive Area (DPA 6) associated with the arbutus / rock outcrop ecological community at the west end of the property (Photograph 1). Two other small areas on the property have been logged within the past 15 years (Polygon 7) and have been restocked with Douglas-fir, grand-fir and western redcedar.

Douglas-fir / arbutus – salal Young Forest on Rock (Polygon 2)

This highly fragmented forest polygon is limited to the knoll at the northwest end of the property. Forest cover contains a high component of Young Forest stage arbutus (Photograph 2) with a sparse sub-canopy of pole-sapling stage Douglas-fir. The canopy is relatively open and the understory is comprised of ocean spray, salal, baldhip rose, red huckleberry, dull Oregon-grape and sword fern. Moss covered rock outcrops are prevalent.

Douglas-fir – salal Young Forest (Polygon 3)

This plant community is limited to a few small tree patches left following forest harvesting in the northwest portion of the property. The forest cover consists of an almost pure stand of early Young Forest stage Douglas-fir with a well developed understory of salal.

Douglas-fir / Bigleaf maple / Western redcedar – sword fern Young Forest (Polygon 5)

As the heading suggests, this forest cover polygon consisted of a variable "mixed bag" of Young Forest stage Douglas-fir, western redcedar, bigleaf maple, red alder and western hemlock up to 50cm diameter-at-breast-height (DBH), interspersed with occasional larger diameter mature trees up to 100cm DBH. This plant community represents the majority of the forest cover on the property and is prevalent within ravine areas (Photographs 3+4). The shrub layer was comprised of a patchy distribution of salmonberry, salal, red huckleberry and ocean spray. The herb layer was dominated by sword fern, with bracken fern, trailing blackberry, and vanilla leaf. The polygon in the southeast corner of the property is comprised predominantly of Young Forest stage bigleaf maple with a sub-canopy of western redcedar.

BCTC Right-of-ways (Polygon 6)

The deciduous dominated polygons associated with the maintained hydro transmission corridors consists of a shrub stage component directly under the transmission lines comprised of dense thimbleberry, salmonberry, Pacific ninebark, scotch broom and Himalayan blackberry (Photograph 5) as well as a fringe of infrequently maintained late pole-sapling stage bigleaf maple, bitter cherry and red alder along both sides of the corridor (Photograph 6).

Western redcedar / Douglas-fir / bigleaf maple – sword fern Mature Forest (Polygon 8)

This polygon is situated in the northwest corner of the property and consists of large diameter well spaced western redcedar, bigleaf maple, and Douglas-fir with occasional western hemlock, grand-fir and black cottonwood. The shrub layer is sparse, with devil's club, salmonberry, red huckleberry and salal. The herb layer consists of almost continuous coverage of sword fern (Photographs 7+8).

3.4 Site Series

The site series best fitting the ecological communities on the property included the red-listed CDFmm/02 (Douglas-fir / arbutus) in the southwest corner of the property (Polygon 2), the red-listed Douglas-fir / salal (CDFmm/01) in those areas that have been recently harvested (Polygons 1, 3 + 4), and blue-listed Douglas-fir / sword fern (CWHxm1/04) in Polygons 5 + 7. The mature forest associated with Polygon 8 appears to best fit the description of the blue-listed Western redcedar / sword fern (CWHxm1/05) site series. It was not possible to accurately define a site series associated with Polygon 6 due to the disturbance history (i.e. maintained BCTC RoW). All of these ecological communities are considered threatened (blue-listed) or endangered (red-listed). However, it should be noted that due to the limited geographical distribution of the CDFmm and CWHxm1 zones and the historic and present development pressures upon these zones, the province considers all of the ecological communities within the CDFmm and CWHxm1 zones to be threatened or endangered.

3.5 Wildlife

Wildlife species documented during the survey are indicated in Table 4. No rare species were observed on the property. Due to the timing of the survey it was not possible to assess migratory breeding bird or herptile (amphibian and reptile) use on the property. Overall evidence of wildlife use of the property was moderately low when compared to other similar sized undeveloped properties we have assessed on the east coast of Vancouver Island. We would attribute the lack of wildlife diversity to a combination of factors including the relatively open homogeneous forest cover and lack of wetland habitats.

Table 4. Wildlife documented on the property

Species	Scientific Name
Mammals	
Black-tailed deer	*Odocoileus hemionus columbianus*
Douglas' squirrel	*Tamias douglasii*
Eastern Grey squirrel	*Sciurus carolinensis*
Raccoon	*Procyon lotor*
Eastern cottontail	*Sylvilagus floridanus*
Black bear	*Ursus americanus*
Birds	
Brown creeper	*Certhia familiaris*
Northern flicker	*Colaptes nauratus*
Pileated woodpecker	*Dryocopus pileatus*
Dark-eyed junco	*Junco hyemalis*
Chestnut-backed chickadee	*Parus rufescens*
Spotted towhee	*Pipilo erythropthalmus*

Species	Scientific Name
Golden-crowned kinglet	*Regulus satrapa*
Red-breasted nuthatch	*Sitta canadensis*
Red-breasted sapsucker	*Sphyrapicus ruber*
Winter wren	*Troglodytes troglodytes*
Robin	*Turdus migratorius*
Varied thrush	*Ixoreus naevius*
Sharp-shinned hawk	*Accipiter striatus*
Northwestern crow	*Corvus caurinus*
Steller's jay	*Cyanocitta stelleri*
Anna's hummingbird	*Calypte anna*
Common raven	*Corvus corax*
Barred owl	*Strix varia*
Downy woodpecker	*Picoides pubescens*

Use of the property by black-tail deer was common to abundant with evidence of use indicating more pronounced activity in the Douglas-fir / arbutus polygon in the northwest corner of the property. Some evidence of use by black bear was found on the property, but no den sites were documented during the surveys. No evidence of cougar or wolf presence was noted during the surveys.

Birds noted during the surveys included low numbers of common resident forest songbirds. A sharp-shinned hawk was observed hunting songbirds in the Douglas-fir / arbutus polygon and a barred-owl was observed roosting in the mature western redcedar / sword fern polygon (Photograph 9). Small raptor nests were documented at waypoints 023 (UTM 10 U 439916 m E, 5425374 m N), 028 (UTM 10 U 440380 m E, 5425108 m N), and 060 (UTM 10 U 440271 m E, 5425385 m N) and were possibly those of sharp-shinned hawk, based on size, structure and location. The nest at waypoint 023 was located approximately 18m up a 1m+ DBH western redcedar, while the older nest at waypoint 028 was located approximately 10m up a 1m+ Douglas-fir adjacent to the BCTC transmission corridor. The nest at waypoint 060 was located approximately 15m up a 40 cm DBH western hemlock. Sharp-shinned hawks typically build a new nest every year.

3.5.1 Potential use by Rare Species

Those wildlife species indicated in Table 3 as having either a Moderate or High potential for occurrence on the property are discussed below.

Wandering Salamander

The wandering salamander (formerly clouded salamander) is an entirely terrestrial salamander inhabiting low-elevation coastal Douglas-fir and Western Hemlock forests of various ages, but generally mature or old growth forests with abundant coarse woody debris. They are agile climbers and can be found high up in trees.

Western Thorn, Broad-whorl Tightcoil, Pacific Vertigo and Threaded Vertigo

These are all rare, small (2.0 – 2.8mm) forest snails. The very limited available habitat information indicates that these species live in leaf litter in rich, relatively undisturbed low

elevation forests that contain abundant coarse woody debris and are usually dominated by bigleaf maple. As some areas (e.g. Polygons 5+ 8) on the subject property appear to have suitable habitat, these species have some potential to occur on the property.

Roosevelt Elk

No evidence of past or present use of the property by elk was found during the surveys. However, elk herds are known in relatively close proximity to the area and therefore occasional use of the property by elk is possible.

Olive-sided flycatcher

Olive-sided flycatchers breed in various forest and woodland habitats: taiga, subalpine coniferous forest, mixed coniferous-deciduous forest, burned-over forest, spruce or tamarack bogs and other forested wetlands, and along the forested edges of lakes, ponds, and streams. Most nesting sites contain dead standing trees, which are used as singing and feeding perches. Nests are placed most often in conifers, on horizontal limbs 2-15 meters from the ground. Based on our experience with this species the forests bordering the BCTC Right-of-ways and cut-blocks would appear to represent good habitat for this species.

Sooty Grouse

Formerly known as Blue Grouse (*Dendragapus obscurus*). In 2006 it was split into two species, *Dendragapus fuliginosus* (Sooty Grouse - coastal) and *Dendragapus obscurus* (Dusky Grouse - interior). This game bird species was at one time very abundant on Vancouver Island and the current numbers of sooty grouse on Vancouver Island appear to be at a historic low. In the past approximately 6 years of conducting field work we have only documented this species twice, with both occurrences in close proximity to remnant patches of mid-elevation south facing old growth forests. Given the current low population numbers it is unlikely to utilize the property currently however sufficient habitats exist on the property to support this species.

Northern Pygmy-Owl, swarthi subspecies

The Northern Pygmy-Owl is a very small owl (~17 cm in length). It has no ear tufts and has a relatively long tail. A pair of black "false eye" patches on the nape is a distinguishing feature. It is considered one of a number of species that require mature and old growth forest habitats for their critical life history functions. However, we have documented this species frequently in stands of various ages. The Northern Pygmy-Owl is an obligate secondary cavity nester, dependent upon woodpecker holes or natural cavities as nest sites. In British Columbia, all of the nests reported were found in old woodpecker cavities in coniferous trees. The northern pygmy-owl is one of few owl species that calls regularly during daylight hours. Its call consists of 2-3 regularly spaced whistled notes, followed by 4-5 closely spaced notes.

Warty Jumping-slug

In Canada, *H. glandulosa* is known from the southern portion of Vancouver Island; there are no records north of the Nanaimo River or from the mainland. This species occupies moist forested habitats and riparian sites from low to middle elevations. Moist conditions, rather than forest age, appear to be a deciding factor for its occurrence at a site. The slugs live around logs and woody debris, on and in leaf litter, and under sword ferns. They are often associated with coarse woody debris, the presence of which appears to be very important. As the property is within the

range described and contains apparent suitable habitats there is some potential for this species to be present.

Western Screech-Owl, kennicottii subspecies

The coastal subspecies, *Otus k. kennicottii* seems to be found in a relatively wide variety of forest types. Campbell *et al.* (1990) state that it prefers mixed deciduous/coniferous forests, often along lakeshores and streams, but that it is found in all woodland habitats. Nests are in natural tree cavities or pileated woodpecker holes, with no nesting material used. The subject property contains all life requisites to support this species.

Pacific Sideband

The Pacific Sideband is a large (up to 3.7cm) purplish-brown forest snail inhabiting deciduous, coniferous or mixed forests and open woods and grassy areas west of the Coast and Cascade mountains. Most people that have spent a reasonable amount of time in the forests on Vancouver Island have likely observed this snail, as it is relatively common. Major threats include habitat loss and fragmentation due to human development, forestry and agricultural practices on the west coast and in the lower mainland.

Band-tailed Pigeon

The band-tailed pigeon breeds from southern Vancouver Island and the south mainland coast, north to Alta and west to Tofino. It frequents natural and man-associated habitats including edges and openings in mature coniferous, mixed, and deciduous forests, city yards and parks, wooded groves, open bushland and golf courses (Campbell *et al.*, 1990). Nests are generally poorly constructed twig platforms located near the end of coniferous branches between 3 and 10 m high. Band-tailed pigeons feed heavily on the berries of red elderberry, *Vaccinium* spp., cascara, European and Sitka mountain ash, arbutus and acorns of the Garry oak. As this species is relatively common in this area there is reasonable potential for it to occur on the property.

Northern Red-legged Frog

Red-legged frogs are found from Vancouver Island and the adjacent mainland/Fraser Valley to northern Baja California (Green and Campbell 1998). Red-legged frogs on Vancouver Island are a forest-dwelling frog and are usually found along small streams, ponds or swamps within a moist forest. Based on the habitats documented on the property it is highly likely that this species is present.

3.6 Plants

No designated rare plants were documented during the field surveys. The Douglas-fir / arbutus knoll (Polygon 2) is the area on the property with greatest potential to support rare plant species however survey timing precluded the identification of most herbaceous species, as these species had already died-back.

Snowbrush (*Ceanothus velutinus*) was documented on the property. While snowbrush is not a rare species in B.C., it is rare on Vancouver Island with distribution generally limited to south of Duncan. In over 20 years of field assessments on Vancouver Island we have only documented this species a few times north of Duncan, with the northernmost occurrence documented on the south side of Horne Lake. This shiny, spicy-scented and sticky evergreen shrub has formed a

small colony of approximately 6-7 plants adjacent to the logging road at the south end of the cut-block harvested in 2005 / 2006 (Polygon 4, Figure 2). This is an important winter browse species for deer and in the B.C. interior it is often referred to as "buckbrush".

3.7 Watercourses

Watercourses on the property were assessed by D.R. Clough Consulting as part of the *Riparian Areas Regulation* (RAR) Assessment conducted on the property. Most of the watercourses on the property were contained within defined ravines and with the exception of Heart Creek appeared to carry seasonal flows.

3.8 Assessment of Prior Use

There were no areas identified on the property during the field survey as potential areas of concern (i.e. dumping areas, waste disposal, imported fill sites). Old road grades on the property appear to have been constructed using native materials.

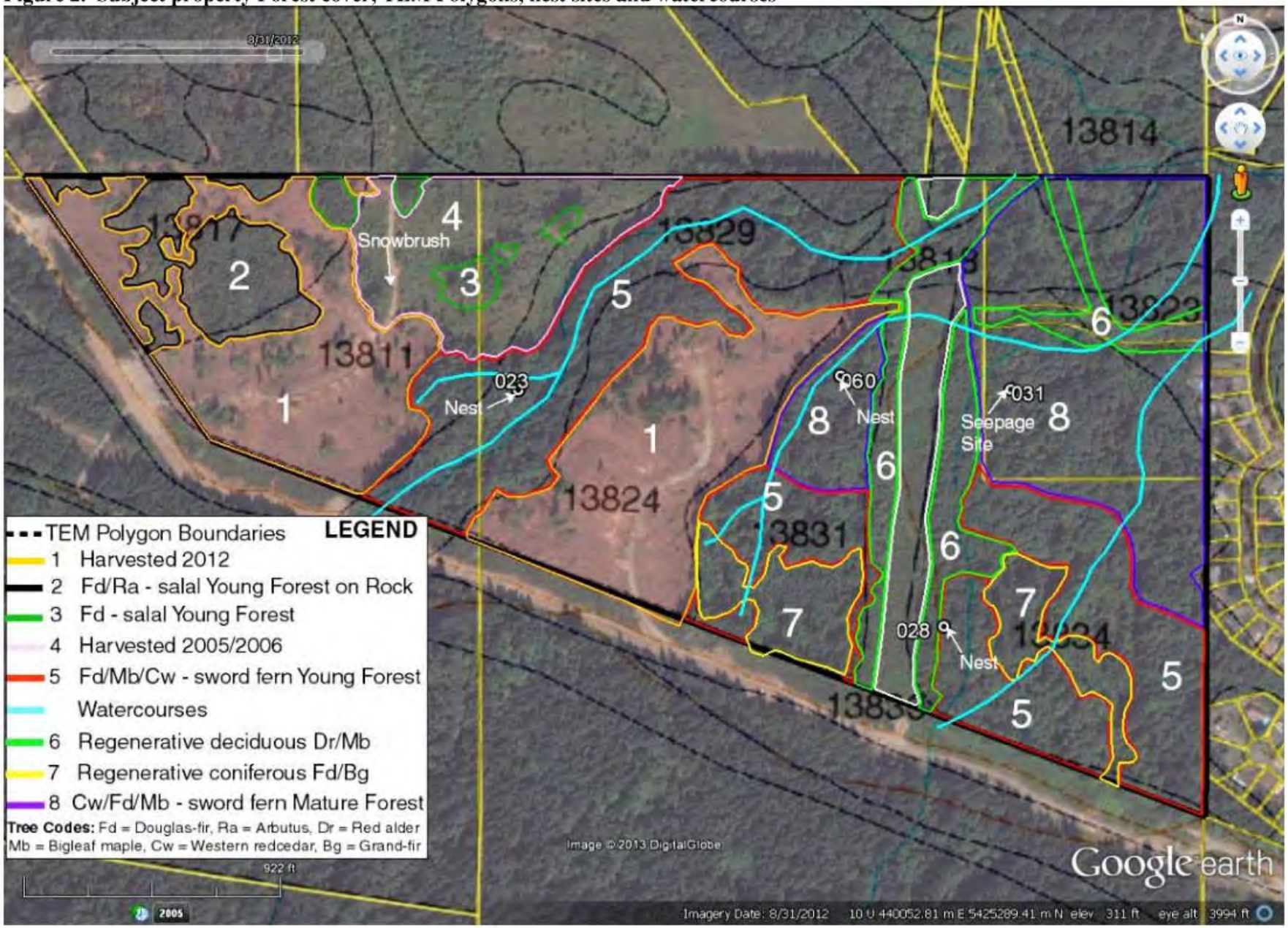
3.9 Potential Constraints to Development

Sites on the subject property that could be considered sensitive to land development include those sites that may pose a geotechnical hazard (i.e. watercourses, steep ravine side-slopes, mid-slope seepage sites) and those sites which represent high value habitat or identified special sites (i.e. wildlife trees).

Based on the field surveys it appears that D.R. Clough Consulting conducted a very thorough survey of the watercourses on the property. Flagging noted in the field indicated that both the stream centerlines / high water marks and top of ravine banks had been flagged. Very little sign of ravine slope instability was noted during the field surveys, except in those areas where recent logging had occurred to the top of, or below the top of ravine bank. Windthrow resulting from inadequate leave strips in some areas has resulted in ravine slope slumping and erosion. Future development of the subject property should be directed by a geotechnical assessment defining minimum safe building setbacks from top of ravine banks.

One mid-slope seepage site was documented during the field surveys at waypoint 031 (Figure 2) and consisted of an area approximately 30m L x 30m W on approximately a 10% slope. The site is characterized by the prevalence of lady fern, salmonberry and scouring rush with little tree cover (Photograph 10). Traversing the site revealed approximately 30cm of saturated mucky soils.

Figure 2. Subject property Forest cover, TEM Polygons, nest sites and watercourses



4.0 Discussion

The majority of natural features on the property that could be considered ecologically sensitive to development are associated with the Douglas-fir / arbutus covered knoll (Polygon 2) in the northwest corner of the property, the Mature Western redcedar / sword fern ecological community (Polygon 8) in the northeast area of the property and steep ravine side slopes associated with watercourses on the property. The Douglas-fir / arbutus ecological community provides important wildlife habitat (e.g. possible black-tail deer winter range) and has potential to support rare plant species. The Mature western redcedar / sword fern ecological community contains many large diameter trees that could provide habitat for wildlife species that are dependent upon large trees for critical life functions (e.g. cavity dependent species). While the steep ravine side slopes also provide important features for wildlife (e.g. thermal and escape cover) they are primarily a geotechnical and water quality consideration (e.g. slope failures and slumping).

While the forested ecotypes on the property potentially represent rare ecological communities there is currently no legislative requirement for their protection on private property. All undeveloped lands below 140m elevation on the east coast of Vancouver Island from approximately Victoria to Bowser occur within a rare ecological community (i.e. the CDFmm).

There is some potential that future development could result in increased windthrow risk of trees on, and adjacent to the subject property. Preservation of a feathered strip of vegetation around the perimeter of the property and along the top of ravine bank areas would provide a buffer to reduce windthrow risk, provide privacy for the proposed development and serve as wildlife habitat. However, the leave strip is unlikely to achieve these buffering effects unless the width of the leave strip is significant (i.e. >10m).

5.0 Recommendations

We recommend preservation of a feathered leave strip of vegetation with a minimum width of 10m along the top of ravine bank areas.

We recommend retaining mature trees where possible on the property and where no hazard is deemed by a certified hazard tree assessor / arborist. The large diameter mature trees and surrounding vegetation in our opinion could represent a significant amenity to the property. All trees retained should include an area for preservation at the base of the tree equal to the drip line of the tree.

Any trail networks will need to be designed and located such that they do not create slope instability, erosion or undue stress or disturbance to wildlife. Trails should avoid areas of dense bush to allow use of these areas by wildlife for security, thermal, or nesting cover.

We recommend that a geo-technical evaluation be conducted of the steep slopes and any areas where the proposed development intrudes within the setback areas, including any Stormwater Management Area discharge sites or road crossings of streams.

A Stormwater Management Plan and Construction Environmental Management Plan should be developed prior to any physical development of the property.

Land clearing activities undertaken during the period of April 15 to August 1 should be preceded by a bird nest site survey. Active nest sites should be identified and flagged so that nest sites can be left undisturbed until the young birds have fledged and left the nest. Section 34(c) of the *Wildlife Act* prohibits the disturbance of a bird, egg, or nest while the nest is occupied.

We recommend fencing for the back lot boundaries in order to separate the leave strip / ravine slope areas from the residential backyards to reduce human / wildlife conflicts, increased risk of erosion and to discourage dumping of refuse, vegetation removal or other abuse of the leave strip lands.

6.0 References

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Photograph 1. View of logged area within arbutus / rock outcrop ESA.

Photograph 2. View of dry Douglas-fir / arbutus – salal forest in the northwest corner of the property.

Photograph 3. View of forest cover in ravine bottom on a tributary to Heart Creek.

Photograph 4. View of forest cover within the Heart Creek ravine.

Photograph 5. View of dense shrub stage vegetation on BCTC Right-of-way.

Photograph 6. View of bigleaf maple / red alder on edge of BCTC Right-of-way.

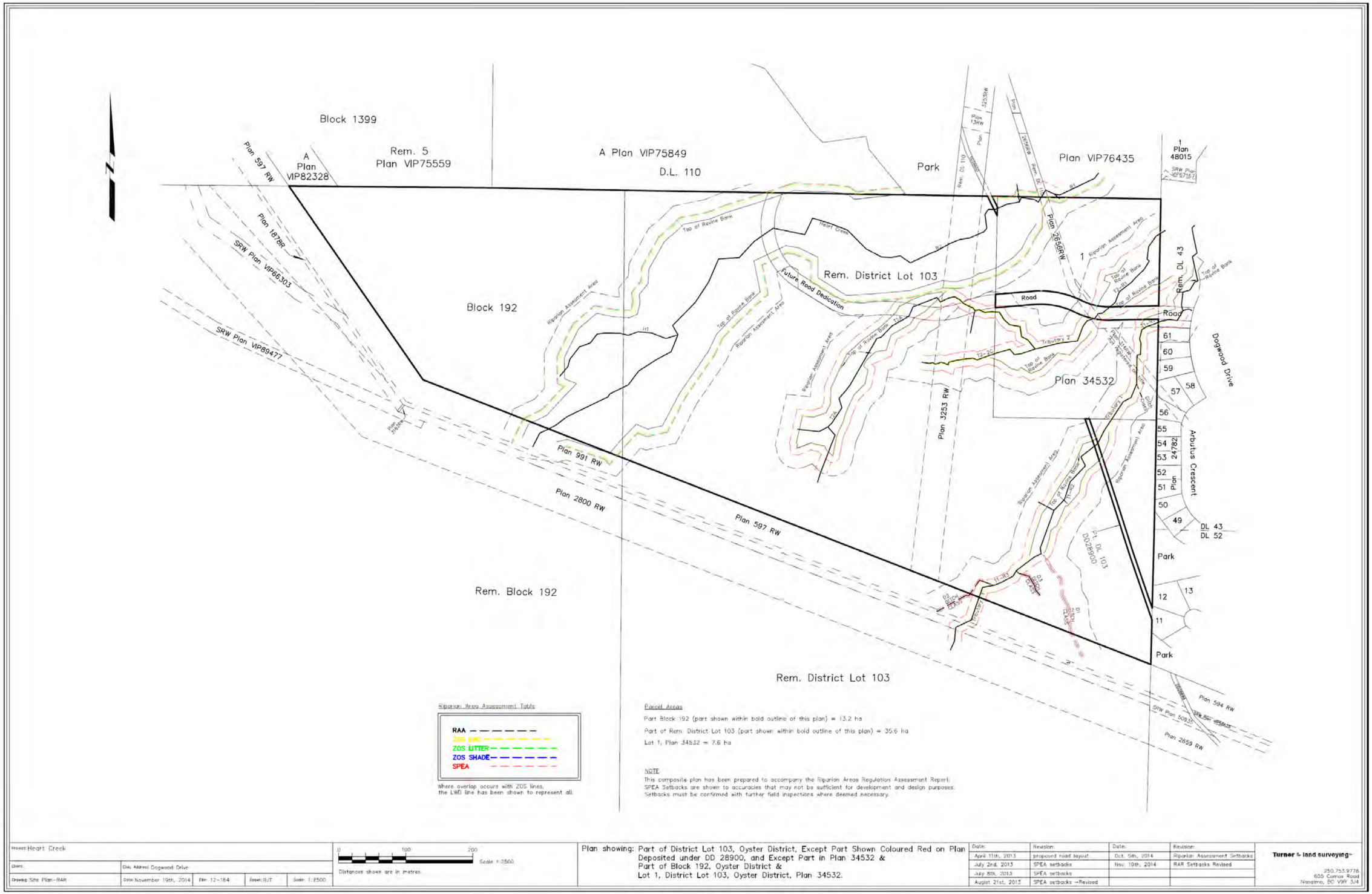
Photograph 7. View of Mature 1m+ DBH western redcedar on sword fern.

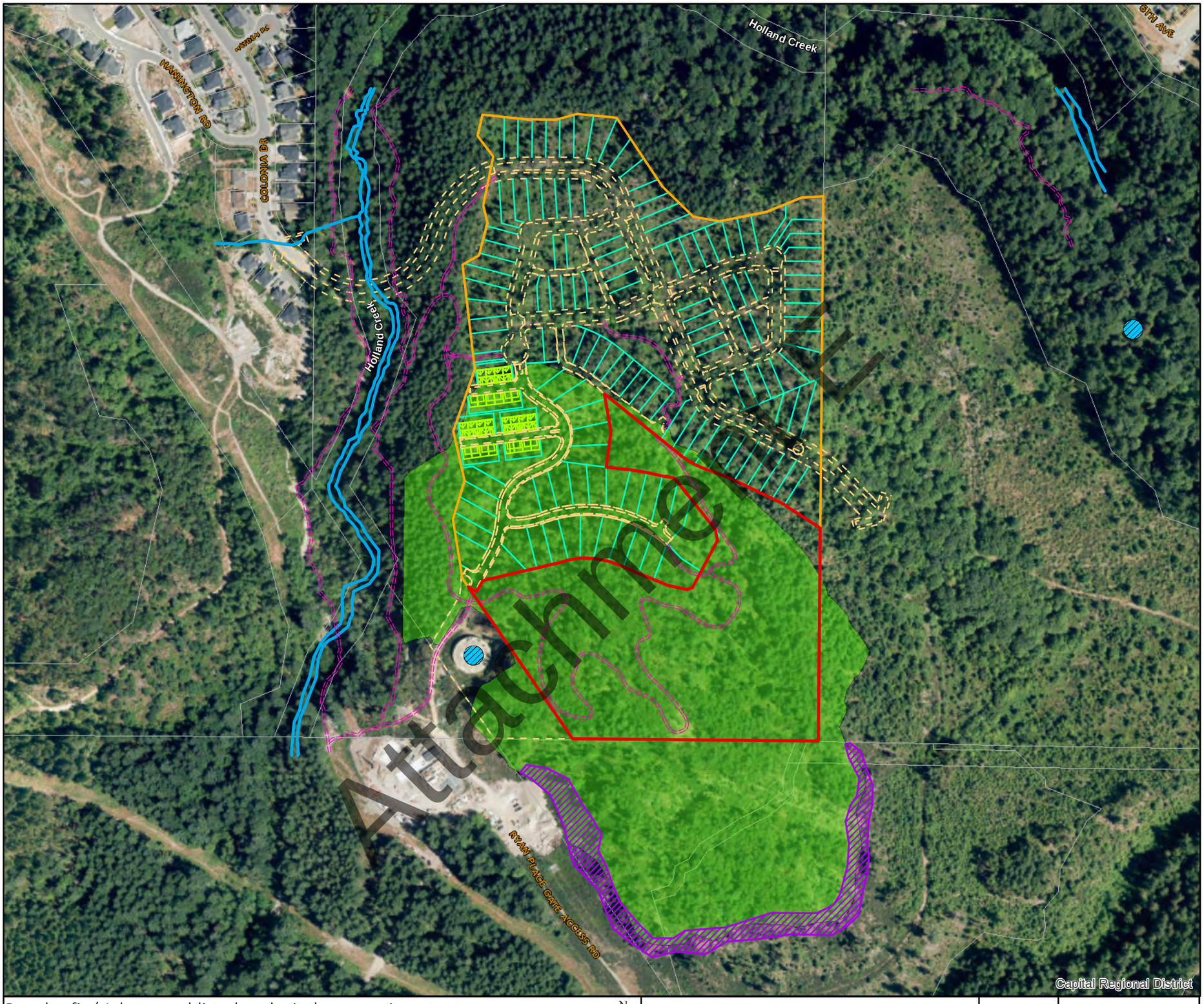
Photograph 8. View of Mature forest cover along the centre east side of the property.

Photograph 9. Barred-owl observed in mature western redcedar / sword fern polygon.

Photograph 10. View of mid-slope seepage site at waypoint 031

Section 3. Site Plan.





Douglas-fir / Arbutus red-listed ecological community extent

Reservoir
New building to be constructed
Site Boundary
Trail
Creek
Strata Lot
New roads to be constructed
DPA11
Area of exretmely dense scoth broom
Listed doug fir - arbutus ecosystem polygon

N

0 50 100 200 300 Meters

Project: Arbutus Hump DPA | Sources: Capital Regional District, DataBC

CORVIDAE ENVIRONMENTAL CONSULTING INC

Rev. #	Date
0	June 22, 2021
1	January 4, 2022

Corvidae Project No.
COR-2020-064

Figure 5

Attachment G:
Water Study

KOERS
& ASSOCIATES
ENGINEERING LTD.
Consulting Engineers

PO BOX 790
194 MEMORIAL AVENUE
PARKSVILLE, BC V9P 2G8
Phone: (250) 248-3151
Fax: (250) 248-5362
www.koers-eng.com

September 12, 2022
File No.: 2248-01

Town of Ladysmith
410 Esplanade, PO Box 220
Ladysmith, British Columbia V9G 1A2

Attention: **Mr. Ryan Bouma, P.Eng.**
Director of Infrastructure Services

Re: Water Model Analysis for the Holland Creek Multi Family Developments

As requested, we have conducted a water model analysis for the proposed multi family development locations shown on the enclosed Figure 2248-01. The water review will evaluate the existing water system and identify the system improvements that are needed to provide the required fire flows for each development location.

Based on the information provided by the Town and the developer, Empowered Development Ltd., the proposed developments under review include the following:

1) Central Development – Consisting of 6 buildings with a total of 416 units.
2) Western Development – Consisting of 2 buildings and townhouses with a total of 104 units

Water System Demands

Demands for the development are based on information provided by the Empowered Developments, and the Master Municipal Construction Documents (MMCD) design guidelines. A summary of the design demands is listed below.

Scenario	Demand	
	Central Development	Western Development
Maximum Day Demand	9.5 lps	2.4 lps
Peak Hour Demand	14.3 lps	3.6 lps
Original Design Fire Flow	250 lps	167 lps
Revised Fire Flow	235 lps	167 lps

Design Criteria

The design criteria for this review will be based on the MMCD Design Guidelines and will be as follows:

Town of Ladysmith
Mr. Ryan Bouma

Criteria	Analysis Scenario	Parameter Value
Minimum Residual Pressure	PHD	300 kPa (44 psi)
Minimum Residual Pressure (hydrant)	MDD+FF	150 kPa (22 psi)
Minimum Residual Pressure (system)	MDD+FF	35 kPa (5 psi)

Water Servicing Options

The following water service options have been evaluated for the proposed developments:

1) Central Development
    a. Option A - Extension of the existing 250 mm dia. watermain on Ray Knight Drive to the site.
    b. Option B – Option A and the installation of a 250 mm dia. watermain loop through the site to Colonia Drive
    c. Option C – Option A and the installation of a new 250 mm dia. connection to the 350 mm dia. interconnection main.

2) Western Development
    a. Option D – Extension of the existing 250 mm dia. watermain on Colonia Drive to the development.

Results:

The two multi family developments will be serviced from Pressure Zone 163. The water model was evaluated under existing conditions to determine the residual peak hour pressures and available fire flows at the proposed developments.

Central Development

Peak Hour

Location	Elevation (m)	Residual Pressure (psi)		
		Option A	Option B	Option C
Proposed Development Connection	109	75	75	76

As shown in the above table the peak hour pressure is above the required 44 psi under the existing piping conditions that exist within this part of Pressure Zone 163.

Fire Flow

Location	Elevation (m)	Available Fire Flow (lps)		
		Option A	Option B	Option C
Proposed Development Connection	109	200	215	235

Town of Ladysmith
Mr. Ryan Bouma

As shown in the table above the available fire flow is below the required fire flow for the proposed Central Development under improvement Options A and B. In order to provide the required fire flow (235 lps) Option C is required. It should be noted that the available fire flow in the area is limited by the headloss in the existing 350 mm dia. interconnection main and the elevations of the existing distribution system in the south end of the system.

Western Development

Peak Hour

Location	Elevation (m)	Residual Pressure (psi) Option D
Proposed Development Connection	97	92

As shown in the above table the peak hour pressure is above the required 44 psi under the existing piping conditions.

Fire Flow

Location	Elevation (m)	Available Fire Flow (lps) Option D
Proposed Development Connection	97	166

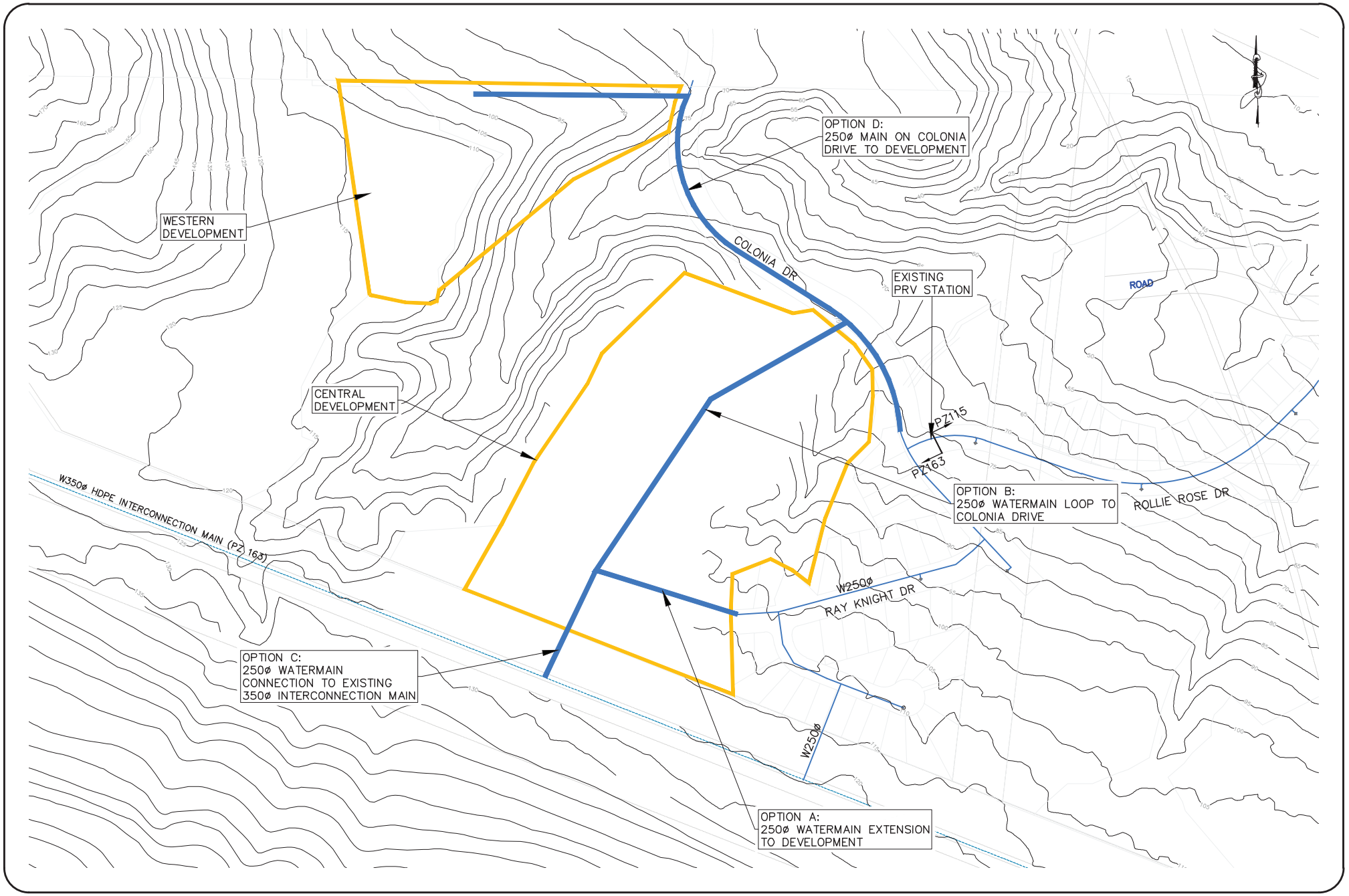
It should be noted that the Wester Development has been evaluated independent of the improvements noted for the Central Development. If Option C is constructed for the Central Development, the available fire flows at the Western Development will be 180 lps.

We trust this is the information you require. Please call if you have any questions.

Yours truly,

KOERS & ASSOCIATES ENGINEERING LTD.

Mitchell Brook, P.Eng
Project Engineer
Permit to Practice No. 1001658
Enclosures



KOERS
& ASSOCIATES
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P.O. Box 790, 194 Memorial Ave.
Parksville, BC V9P 2G8
www.koers-eng.com
Ph: 250-248-3151
Fax: 250-248-5362

CLIENT: TOWN OF LADYSMITH

PROJECT: WATER MODELLING
HOLLAND CREEK MULTI FAMILY DEVELOPMENTS

TITLE: TOWN OF LADYSMITH WATER NETWORK
PROPOSED IMPROVEMENT OPTIONS

APPROVED	MP	SCALE	NTS
DATE	SEPT 2022	DWG No.	2248–01
PROJECT No.	2248		

Attachment H:
Storm/Sanitary Study

APLIN MARTIN
ENGINEERING ARCHITECTURE PLANNING SURVEYING

August 8, 2022

Our File: 22-119

Town of Ladysmith
Engineering Department
410 Esplanade, PO Box 220
Ladysmith, BC V9G 1A2

Attention: Town of Ladysmith – Engineering Department

Dear Sir:

Re: Offsite Storm & Sanitary Servicing Review for the Proposed Multi-Family Development Located within Holland Creek, Ladysmith, BC

1.0 BACKGROUND

As a part of the above noted project, we understand that the Developer is proposing to construct two multi-family sites within the Holland Creek plan area currently designated as single-family land-use.

The first parcel is located within the central region and would generate approximately 400 units, the second parcel is located within the western corner and would generate approximately 100 units; 500 units total. It should also be noted the Developer is proposing to dedicate 4 parcels currently zoned as either single-family or multi-family as park and open space. The proposed site plan sketch can be found in Appendix A of this memo.

The original drainage and sanitary model prepared as part of the Servicing Report by Newcastle Engineering is based on the Holland Creek Local Area Plan (LAP) land use and the Township of Ladysmith Engineering Standards and Specifications. It is understood construction of the downstream infrastructure network up to the site entrance on Dogwood Drive is currently underway, and in some areas already complete.

Aplin Martin has completed an updated frontage and downstream infrastructure analysis in support of the updated land use, please refer to the associated sections below.

2.0 DRAINAGE

We have conducted a review of the drainage for subject multi-family sites. While there will be an increase in runoff coefficient from Single-Family Residential to Multi-Family zoning, a combination of facilities ranging from rain garden, bio-swales, constructed wetlands and detention facilities will be implemented to mimic as closely as possible the predevelopment functionality of the watershed. As such, surface flows to downstream storm sewers and watercourses will be maintained at the predevelopment rates.

Based on our analysis, we can confirm that the surrounding downstream storm system previously designed has capacity to service the proposed central and western sites as multi-family designation.

3.0 SANITARY

We have conducted a sanitary analysis for the SA-1 area based on the Holland Creek LAP land usage as well as the updated land usage proposed by the Developer. The results reveal the peak wet weather flow has decreased from 21.53 L/s to 11.11 L/s as a result of the proposed land use changes, largely due to the dedicated park space no longer contributing to inflow and infiltration as a part of peak wet weather flow considerations .The updated sanitary calculations can be found in Appendix B & C of this memo.

Based on our analysis, we can confirm that the surrounding downstream sanitary system previously designed has capacity to service the central and western sites as multi-family designation.

4.0 CLOSING

In summary, the downstream infrastructure designed and constructed under previous stages of the Holland Creek SA-1 area are sized adequately to support multi-family land usage.

Please do not hesitate to contact the undersigned with any questions or concerns.

Yours truly,

APLIN & MARTIN CONSULTANTS LTD.

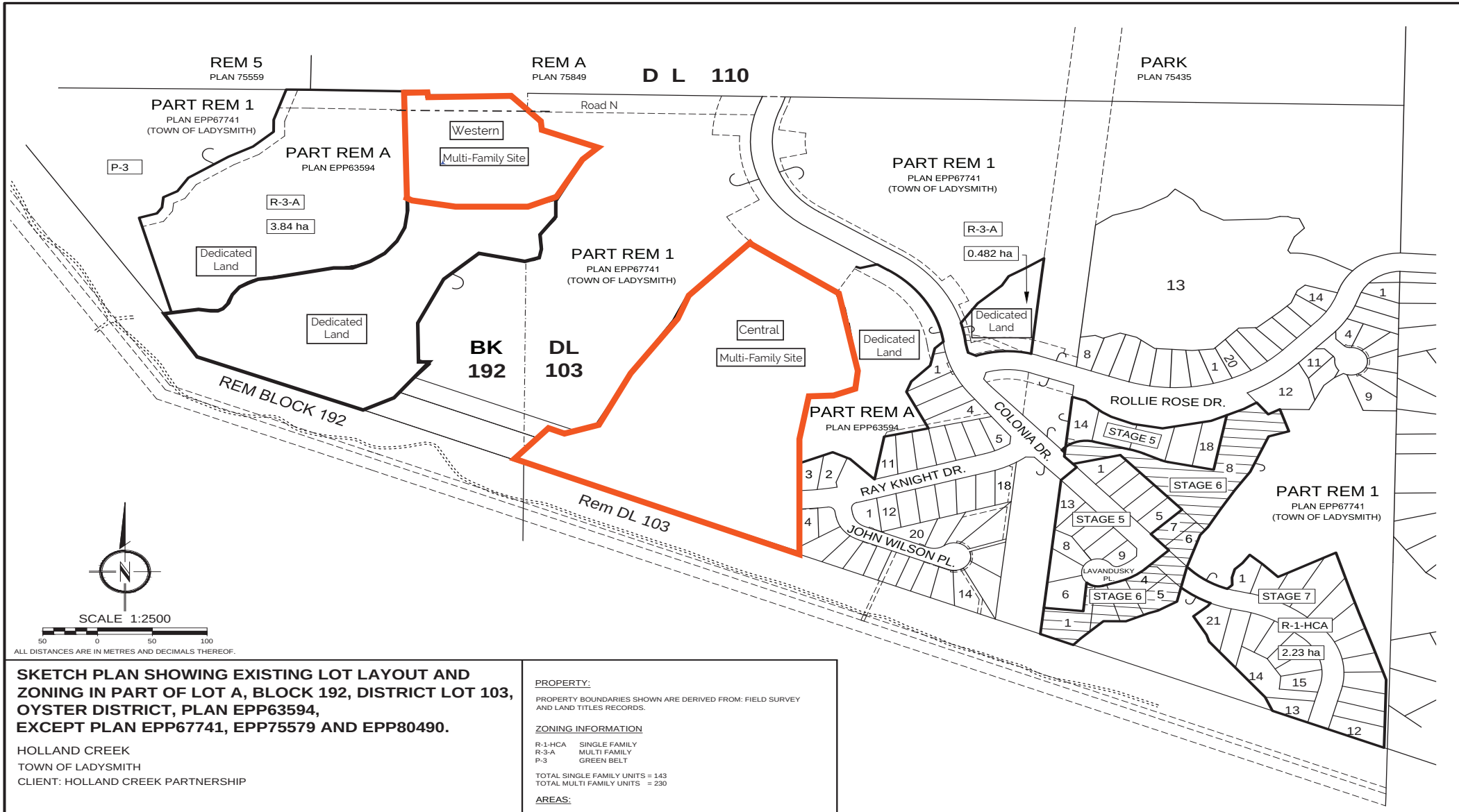
Steven Dindo, P.Eng., B.Sc.
Design Engineer

DB:SD
22-119 - Offsite Servicing Tech Memo

cc: District Properties

APPENDIX A

Site Plan Sketch



SKETCH PLAN SHOWING EXISTING LOT LAYOUT AND ZONING IN PART OF LOT A, BLOCK 192, DISTRICT LOT 103, OYSTER DISTRICT, PLAN EPP63594, EXCEPT PLAN EPP67741, EPP75579 AND EPP80490.

HOLLAND CREEK
TOWN OF LADYSMITH
CLIENT: HOLLAND CREEK PARTNERSHIP

PROPERTY:

PROPERTY BOUNDARIES SHOWN ARE DERIVED FROM: FIELD SURVEY AND LAND TITLES RECORDS.

ZONING INFORMATION

R-1-HCA	SINGLE FAMILY
R-3-A	MULTI FAMILY
P-3	GREEN BELT

TOTAL SINGLE FAMILY UNITS = 143
TOTAL MULTI FAMILY UNITS = 230

AREAS:

R-1-HCA	SINGLE FAMILY TOTAL AREA = 12.33ha
R-3-A	MULTI FAMILY TOTAL AREA = 6.22ha

NOTE:

STAGE 5 AND 6 NOT INCLUDED IN ABOVE AREA AND UNIT CALCULATIONS
STAGE 5 UNDER CONSTRUCTION

bennett ©
LAND SURVEYING (COASTAL) LTD.
BC LAND SURVEYORS
152 CLIFF STREET
NANAIMO, BC
V9R 5E7
TEL 250-754-5518
www.bennettsurveys.com

DATE:	BY:
2020-04-07	TM
2021-07-27 (ADDED AREAS)	DKV
2021-09-29 (UPDATED STAGES 5,6 AND 7)	DKV
REVISION:	2

\\FRONTDESK\DATA_JOBS\2021\110023.00-HOLLAND-CREEK-ESTATES--LADYSMITH\110023.00-DRAWINGS\110023.00-SKETCHES\SK110023-12 (HOLLAND CREEK REMAINDER) 2021-09-29.DWG

APPENDIX B

SANITARY CALCULATIONS (HOLLAND CREEK LAP LAND USE)

SANITARY SYSTEM DESIGN - CALCULATION SHEET

Municipal Proj # TBD
Project Title: Holland Creek Residential Development
Project Location: Holland Creek, Lady Smith, BC

Developer: District

AVERAGE DAILY FLOW
Residential= 350 L/cap/day
MANNINGS "n" 0.013
Inflow & Infiltration 11,200 L/hectare/day

Peaking Factor = Harmon Equation

MAXIMUM DEPTH OF FLOW
50% for Prop. Local Sewers
70% for Prop. Trunk Sewers

Consultant: APLIN MARTIN

APLIN MARTIN
ENGINEERING ARCHITECTURE PLANNING SURVEYING

A&M Proj # 22-119
Page: 1 of 1

Designed by: SD
Checked by: DB
Date: 8/8/2022

Locations			Sub-Catchments										Flow Calculations					Pipe Parameters					Results			
Street	Manhole		Sub-Catchment No.	Area	Cum Area	Land Usage	Pop Density	Density	Pop Rate	Population	Cum. Pop	Usage Level	Avg Flow	Peaking Factor	Peak Flow	Inflow & Infiltration	Design Flow	Sewer Design					Flow Ratio	Partial Velocity	Velocity Check	Depth of Flow
	From	To		A (ha)	(ha)		(cap/ha)	(units/ha)	(cap/unit)			L/cap/day	ADWF (L/s)	P_f	PDWF (L/s)	I&I (L/s)	Q (L/s)	S %	DIA mm	L m	V_{cap} m/s	Q_{cap} (L/s)	Q/Q_{cap} %	V_{act} (m/s)	$V_{act} \geq 0.60$ (m/s)	d/D %
John Wilson Place	EX CO11	EX S10	A	1.21	1.21	SF		14	2.3	32	32	350	0.13	4.35	0.57	0.16	0.72	1.10	150	106.40	0.90	15.97	5%	0.46	<.60 m/s	14%
John Wilson Place	EX S10	EX S8	B	0.43	1.64	SF		4	2.3	9	41	350	0.17	4.33	0.73	0.21	0.94	3.10	200	33.70	1.84	57.75	2%	0.68	OK	9%
Ray Knight Drive	EX CO9	EX S8	C	7.60	7.60	SF / MF	36 / 48			304	304	351	1.23	4.08	5.03	0.98	6.02	3.90	200	35.20	2.06	64.77	9%	1.29	OK	21%
Ray Knight Drive	EX S8	EX S7	D	0.25	7.85	SF		2	2.3	5	308	350	1.25	4.07	5.09	1.02	6.11	9.60	200	58.40	3.23	101.62	6%	1.78	OK	17%
Ray Knight Drive	EX S7	EX S6	E	0.65	10.13	SF		6	2.3	14	364	350	1.47	4.04	5.95	1.31	7.27	12.00	200	110.90	3.62	113.62	6%	2.03	OK	17%
Ray Knight Drive	EX S6	EX S4	F	0.10	10.23						364	350	1.47	4.04	5.95	1.33	7.28	2.70	200	17.50	1.72	53.89	14%	1.20	OK	25%
Lavandusky Place	EX CO2	EX S2	G	0.71	0.71	SF		6	2.3	14	14	350	0.06	4.40	0.25	0.09	0.34	9.30	150	63.40	2.63	46.44	1%	0.77	OK	6%
Colonia Drive	EX CO1	EX S2	H	2.63	2.63	SF		25	2.3	58	58	350	0.23	4.30	1.00	0.34	1.34	1.20	200	94.40	1.14	35.93	4%	0.55	<.60 m/s	13%
Colonia Drive	EX S2	EX S1	I	0.28	3.62	SF		3	2.3	7	78	350	0.32	4.27	1.35	0.47	1.82	6.00	200	67.00	2.56	80.34	2%	1.05	OK	10%
Colonia Drive	EX S1	EX CO5	J	0.24	3.86	SF		2	2.3	5	83	350	0.34	4.27	1.43	0.50	1.93	8.50	200	46.80	3.04	95.62	2%	1.21	OK	10%
Colonia Drive	EX CO5	EX S4	K	0.07	3.93						83	350	0.34	4.27	1.43	0.51	1.94	8.40	200	48.40	3.03	95.06	2%	1.21	OK	10%
Rear Yard SRW	EX CO3	EX $S3_1$	L	0.51	0.51	SF		7	2.3	16	16	350	0.07	4.39	0.29	0.07	0.35	8.50	150	105.20	2.51	44.40	1%	0.75	OK	6%
Rear Yard SRW	EX S3	EX S4			0.51						16	350	0.07	4.39	0.29	0.07	0.35	0.60	200	85.20	0.81	25.41	1%	0.29	<.60 m/s	8%
Colonia Drive	EX S4	EX $S3_2$	M	0.17	14.84						462	350	1.87	3.99	7.48	1.92	9.40	8.50	200	44.30	3.04	95.62	10%	1.94	OK	21%
Colonia Drive	EX $S3_2$	EX $S2_2$	N	1.04	15.88	SF		10	2.3	23	485	350	1.97	3.98	7.83	2.06	9.89	8.80	200	93.40	3.10	97.30	10%	1.99	OK	22%
SRW	S1	S2	O	6.38	6.38	SF	36			230	230	350	0.93	4.13	3.84	0.83	4.67	11.38	200	66.99	3.52	110.64	4%	1.74	OK	14%
SRW	S2	S3	P	0.03	6.41						230	350	0.93	4.13	3.84	0.83	4.67	10.77	200	70.38	3.43	107.64	4%	1.71	OK	14%
SRW	S3	S4	Q	0.05	6.46						230	350	0.93	4.13	3.84	0.84	4.68	6.10	200	108.17	2.58	81.01	6%	1.40	OK	16%
SRW	S4	S5	R	0.03	6.49						230	350	0.93	4.13	3.84	0.84	4.68	11.26	200	60.98	3.50	110.06	4%	1.74	OK	14%
Colonia Drive	S5	S6	S	0.26	6.75						230	350	0.93	4.13	3.84	0.87	4.71	4.03	200	128.61	2.10	65.84	7%	1.21	OK	18%
Colonia Drive	S6	S7	T	0.06	6.80						230	350	0.93	4.13	3.84	0.88	4.72	3.58	200	28.28	1.98	62.06	8%	1.17	OK	19%
Colonia Drive	S7	S8	U	0.08	6.88						230	350	0.93	4.13	3.84	0.89	4.73	3.59	200	40.94	1.98	62.14	8%	1.17	OK	19%
Colonia Drive	S8	S9	V	0.13	7.02						230	350	0.93	4.13	3.84	0.91	4.75	3.58	200	65.86	1.98	62.06	8%	1.17	OK	19%

Locations			Sub-Catchments										Flow Calculations					Pipe Parameters					Results			
Street	Manhole		Sub-Catchment No.	Area	Cum Area	Land Usage	Pop Density	Density	Pop Rate	Population	Cum. Pop	Usage Level	Avg Flow	Peaking Factor	Peak Flow	Inflow & Infiltration	Design Flow	Sewer Design					Flow Ratio	Partial Velocity	Velocity Check	Depth of Flow
	From	To		A (ha)	(ha)		(cap/ha)	(units/ha)	(cap/unit)			L/cap/ day	ADWF (L/s)	P_f	PDWF (L/s)	I&I (L/s)	Q (L/s)	S %	DIA mm	L m	V_{cap} m/s	Q_{cap} (L/s)	Q/Q_{cap} %	V_{act} (m/s)	$V_{act} \geq 0.60$ (m/s)	d/D %
Colonia Drive	S9	S10	W	0.12	7.13						230	350	0.93	4.13	3.84	0.92	4.76	3.72	200	59.90	2.01	63.26	8%	1.18	OK	19%
Rollie Rose Drive	EX $S2_2$	EX $S1_2$	X	2.50	25.51	MF	48			120	835	350	3.38	3.85	13.02	3.31	16.33	0.60	250	95.70	0.94	46.06	35%	0.86	OK	41%
Rollie Rose Drive	EX $S1_2$	EX $S7_2$	Y	0.32	25.83	SF		4	2.3	9	844	350	3.42	3.85	13.15	3.35	16.50	7.70	200	64.50	2.90	91.01	18%	2.20	OK	29%
Rollie Rose Drive	EX $S7_2$	EX $S6_2$	Z	2.04	27.87	SF / MF	38 / 48	8	2.3	62	907	350	3.67	3.83	14.05	3.61	17.67	11.70	200	89.60	3.57	112.19	16%	2.60	OK	27%
Rollie Rose Drive	EX $S6_2$	EX $S5_2$	AA	1.46	29.33	SF		15	2.3	35	941	350	3.81	3.82	14.55	3.80	18.35	11.60	200	117.70	3.56	111.71	16%	2.63	OK	27%
Rollie Rose Drive	EX $S5_2$	EX $S4_2$	BB	2.46	31.79	SF		6	2.3	14	955	350	3.87	3.81	14.75	4.12	18.87	6.80	200	71.80	2.72	85.53	22%	2.19	OK	32%
Rollie Rose Drive	EX $S4_2$	EX $S3_2$	CC	3.04	34.83	MF	48			146	1101	350	4.46	3.77	16.82	4.51	21.34	0.60	250	83.10	0.94	46.06	46%	0.92	OK	48%
Dogwood Drive SRW	EX $S3_2$	EX $S2_2$	DD	1.00	35.83						1101	350	4.46	3.77	16.82	4.64	21.47	0.50	250	117.40	0.86	42.05	51%	0.86	OK	51%
SRW	EX $S2_2$	EX $S1_2$	EE	0.50	36.33						1101	350	4.46	3.77	16.82	4.71	21.53	0.50	250	51.20	0.86	42.05	51%	0.86	OK	51%
SRW	EX $S1_2$	EX BEND			36.33						1101	350	4.46	3.77	16.82	4.71	21.53	0.50	250	8.60	0.86	42.05	51%	0.86	OK	51%

APPENDIX C

SANITARY CALCULATIONS (UPDATED LAND USE)

SANITARY SYSTEM DESIGN - CALCULATION SHEET

Municipal Proj # TBD
Project Title: Holland Creek Residential Development
Project Location: Holland Creek, Lady Smith, BC

Developer: District

AVERAGE DAILY FLOW
Residential= 350 L/cap/day
MANNINGS "n" 0.013
Inflow & Infiltration 11,200 L/hectare/day

Peaking Factor = Harmon Equation

MAXIMUM DEPTH OF FLOW
50% for Prop. Local Sewers
70% for Prop. Trunk Sewers

Consultant: APLIN MARTIN

APLIN MARTIN
ENGINEERING ARCHITECTURE PLANNING SURVEYING

A&M Proj # 22-119
Page: 1 of 1

Designed by: SD
Checked by: DB
Date: 8/8/2022

Locations			Sub-Catchments										Flow Calculations					Pipe Parameters						Results			
Street	Manhole		Sub-Catchment No.	Area	Cum Area	Land Usage	Pop Density	Density	Pop Rate	Population	Cum. Pop	Usage Level	Avg Flow	Peaking Factor	Peak Flow	Inflow & Infiltration	Design Flow	Sewer Design						Flow Ratio	Partial Velocity	Velocity Check	Depth of Flow
	From	To		A (ha)	(ha)		(cap/ha)	(units/ha)	(cap/unit)			L/cap/day	ADWF (L/s)	P_f	PDWF (L/s)	I&I (L/s)	Q (L/s)	S %	DIA mm	L m	V_{cap} m/s	Q_{cap} (L/s)	Q/Q_{cap} %	V_{act} (m/s)	$V_{act} \geq 0.60$ (m/s)	d/D %
John Wilson Place	EX CO11	EX S10	A	1.21	1.21	SF		14	2.3	32	32	350	0.13	4.35	0.57	0.16	0.72	1.10	150	106.40	0.90	15.97	5%	0.46	<.60 m/s	14%
John Wilson Place	EX S10	EX S8	B	0.43	1.64	SF		4	2.3	9	41	350	0.17	4.33	0.73	0.21	0.94	3.10	200	33.70	1.84	57.75	2%	0.68	OK	9%
Ray Knight Drive	EX CO9	EX S8	C	5.07	5.07	MF		400				351		4.50		0.66	0.66	3.90	200	35.20	2.06	64.77	1%	0.66	OK	7%
Ray Knight Drive	EX S8	EX S7	D	0.25	5.32	SF		2	2.3	5	5	350	0.02	4.44	0.08	0.69	0.77	9.60	200	58.40	3.23	101.62	1%	0.96	OK	6%
Ray Knight Drive	EX S7	EX S6	E	0.65	7.60	SF		6	2.3	14	60	350	0.24	4.30	1.04	0.99	2.03	12.00	200	110.90	3.62	113.62	2%	1.38	OK	9%
Ray Knight Drive	EX S6	EX S4	F	0.10	7.70						60	350	0.24	4.30	1.04	1.00	2.04	2.70	200	17.50	1.72	53.89	4%	0.82	OK	13%
Lavandusky Place	EX CO2	EX S2	G	0.71	0.71	SF		6	2.3	14	14	350	0.06	4.40	0.25	0.09	0.34	9.30	150	63.40	2.63	46.44	1%	0.77	OK	6%
Colonia Drive	EX CO1	EX S2	H	2.63	2.63	SF		25	2.3	58	58	350	0.23	4.30	1.00	0.34	1.34	1.20	200	94.40	1.14	35.93	4%	0.55	<.60 m/s	13%
Colonia Drive	EX S2	EX S1	I	0.28	3.62	SF		3	2.3	7	78	350	0.32	4.27	1.35	0.47	1.82	6.00	200	67.00	2.56	80.34	2%	1.05	OK	10%
Colonia Drive	EX S1	EX CO5	J	0.24	3.86	SF		2	2.3	5	83	350	0.34	4.27	1.43	0.50	1.93	8.50	200	46.80	3.04	95.62	2%	1.21	OK	10%
Colonia Drive	EX CO5	EX S4	K	0.07	3.93						83	350	0.34	4.27	1.43	0.51	1.94	8.40	200	48.40	3.03	95.06	2%	1.21	OK	10%
Rear Yard SRW	EX CO3	EX $S3_1$	L	0.51	0.51	SF		7	2.3	16	16	350	0.07	4.39	0.29	0.07	0.35	8.50	150	105.20	2.51	44.40	1%	0.75	OK	6%
Rear Yard SRW	EX S3	EX S4			0.51						16	350	0.07	4.39	0.29	0.07	0.35	0.60	200	85.20	0.81	25.41	1%	0.29	<.60 m/s	8%
Colonia Drive	EX S4	EX $S3_2$	M	0.17	12.31						159	350	0.64	4.18	2.69	1.60	4.29	8.50	200	44.30	3.04	95.62	4%	1.54	OK	14%
Colonia Drive	EX $S3_2$	EX $S2_2$	N	1.04	13.35	SF		10	2.3	23	182	350	0.74	4.16	3.06	1.73	4.79	8.80	200	93.40	3.10	97.30	5%	1.61	OK	15%
SRW	S1	S2	O	2.40	2.40	MF		100				350		4.50		0.31	0.31	11.38	200	66.99	3.52	110.64	0%	0.77	OK	4%
SRW	S2	S3	P	0.03	2.43							350		4.50		0.32	0.32	10.77	200	70.38	3.43	107.64	0%	0.76	OK	4%
SRW	S3	S4	Q	0.05	2.48							350		4.50		0.32	0.32	6.10	200	108.17	2.58	81.01	0%	0.62	OK	5%
SRW	S4	S5	R	0.03	2.51							350		4.50		0.33	0.33	11.26	200	60.98	3.50	110.06	0%	0.78	OK	4%
Colonia Drive	S5	S6	S	0.26	2.77							350		4.50		0.36	0.36	4.03	200	128.61	2.10	65.84	1%	0.56	<.60 m/s	5%
Colonia Drive	S6	S7	T	0.06	2.82							350		4.50		0.37	0.37	3.58	200	28.28	1.98	62.06	1%	0.54	<.60 m/s	6%
Colonia Drive	S7	S8	U	0.08	2.90							350		4.50		0.38	0.38	3.59	200	40.94	1.98	62.14	1%	0.55	<.60 m/s	6%
Colonia Drive	S8	S9	V	0.13	3.04							350		4.50		0.39	0.39	3.58	200	65.86	1.98	62.06	1%	0.55	<.60 m/s	6%

Locations			Sub-Catchments										Flow Calculations					Pipe Parameters					Results			
Street	Manhole		Sub-Catchment No.	Area	Cum Area	Land Usage	Pop Density	Density	Pop Rate	Population	Cum. Pop	Usage Level	Avg Flow	Peaking Factor	Peak Flow	Inflow & Infiltration	Design Flow	Sewer Design					Flow Ratio	Partial Velocity	Velocity Check	Depth of Flow
	From	To		A (ha)	(ha)		(cap/ha)	(units/ha)	(cap/unit)			L/cap/ day	ADWF (L/s)	P_f	PDWF (L/s)	I&I (L/s)	Q (L/s)	S %	DIA mm	L m	V_{cap} m/s	Q_{cap} (L/s)	Q/Q_{cap} %	V_{act} (m/s)	$V_{act} \geq$ 0.60 (m/s)	d/D %
Colonia Drive	S9	S10	W	0.12	3.15							350		4.50		0.41	0.41	3.72	200	59.90	2.01	63.26	1%	0.57	<.60 m/s	6%
Rollie Rose Drive	EX $S2_2$	EX $S1_2$	X	2.50	19.00						182	350	0.74	4.16	3.06	2.46	5.53	0.60	250	95.70	0.94	46.06	12%	0.63	OK	23%
Rollie Rose Drive	EX $S1_2$	EX $S7_2$	Y	0.32	19.32	SF		4	2.3	9	191	350	0.77	4.16	3.21	2.50	5.72	7.70	200	64.50	2.90	91.01	6%	1.62	OK	17%
Rollie Rose Drive	EX $S7_2$	EX $S6_2$	Z	2.04	21.36	SF / MF	38 / 48	8	2.3	62	253	350	1.03	4.11	4.21	2.77	6.98	11.70	200	89.60	3.57	112.19	6%	1.99	OK	17%
Rollie Rose Drive	EX $S6_2$	EX $S5_2$	AA	1.46	22.82	SF		15	2.3	35	288	350	1.17	4.09	4.76	2.96	7.72	11.60	200	117.70	3.56	111.71	7%	2.04	OK	18%
Rollie Rose Drive	EX $S5_2$	EX $S4_2$	BB	2.46	25.28	SF		6	2.3	14	302	350	1.22	4.08	4.98	3.28	8.26	6.80	200	71.80	2.72	85.53	10%	1.72	OK	21%
Rollie Rose Drive	EX $S4_2$	EX $S3_2$	CC	3.04	28.32	MF	48			146	447	350	1.81	4.00	7.25	3.67	10.92	0.60	250	83.10	0.94	46.06	24%	0.77	OK	33%
Dogwood Drive SRW	EX $S3_2$	EX $S2_2$	DD	1.00	29.32						447	350	1.81	4.00	7.25	3.80	11.05	0.50	250	117.40	0.86	42.05	26%	0.72	OK	35%
SRW	EX $S2_2$	EX $S1_2$	EE	0.50	29.82						447	350	1.81	4.00	7.25	3.87	11.11	0.50	250	51.20	0.86	42.05	26%	0.72	OK	35%
SRW	EX $S1_2$	EX BEND			29.82						447	350	1.81	4.00	7.25	3.87	11.11	0.50	250	8.60	0.86	42.05	26%	0.72	OK	35%

CPAC REFERRAL

Report Prepared By: Julie Thompson, Senior Planner
Meeting Date: March 1, 2023
File No: **DP 3060-23-03**
Re: **Façade DP – 32 High Street (Temperance Hotel)**

Introduction/Background

32 High Street is a two-storey wood-framed building at the corner of 1st Avenye and High Street. The building has commercial units on the main storey with residential units above, and was constructed in 1900. The building is listed on the Town's Community Heritage Register.

DP 3060-21-13 was issued in 2021 for replacement of windows and doors, changes to the window and door placement, and for a new colour palette. The applicant has since applied for a building permit and has submitted new architectural drawings with further changes including:

- Larger awnings along the High Street frontage.
- Metal Juliet style balconies on the 1st Avenue frontage.
- Remodeling/reconfiguring the existing staircases on the northeast and northwest elevations. Stair material proposed to consist of a mix of wood and metal (metal risers and railings)

The architectural drawings and supporting information from the applicant are attached.

Development Permit Area 2 – Downtown

32 High Street is within Development Permit Area 2 – Downtown (DPA 2) therefore a DP (DP) must be issued for the proposed changes. The objective of DPA 2 is to strengthen the historic downtown as the Town's primary commercial area. New development in the downtown (including façade improvements) should make a positive contribution to revitalization of the area and to the greater whole of the Ladysmith experience. Where

buildings have been altered, the guidelines support restoring historic/character defining elements.

According to the Community Heritage Register, the Temperance Hotel's character defining elements include:

- All elements of an early commercial building as expressed in the simple form and massing, modest scale, wood construction and cladding and overall lack of ornamentation;
- The building's location in the commercial core within a larger group of heritage buildings; and
- The signage that indicates the building's association with the Temperance Movement.

The following DPA 2 guidelines are relevant to this new proposal:

- Signs, Canopies & Lighting (guideline 6, page 16)
- Materials & Colours (guideline 8, page 16)
- Preservation, Rehabilitation & Restoration of Heritage Buildings (guideline 20, page 21)

CPAC Referral

In accordance with CPAC's Terms of Reference, the committee is asked to provide feedback on any development or redevelopment of lands, buildings and structures that are on the Community Heritage Register. Since 32 High Street is on the Community Heritage Register, the application has been referred to CPAC for comment.

CPAC is asked to review the proposed façade changes in the context of the DPA 2 guidelines and the description of the building on the Community Heritage Register.

It is noted that CPAC reviewed proposed changes to the windows and doors and colour palette on August 4, 2021, and these changes are still proposed, but are not part of this application (DP 23-03) since they were already approved under DP 21-13. The CPAC minutes from the August 4, 2021, CPAC meeting are attached for reference.

ATTACHMENT:

A. Architectural drawings
B. Additional applicant submission
C. August 4, 2021 CPAC minutes

TEMPERANCE HOTEL RENOVATION
ISSUED FOR BUILDING PERMIT

ATTACHMENT A

32 HIGH STREET
LADYSMITH, BC

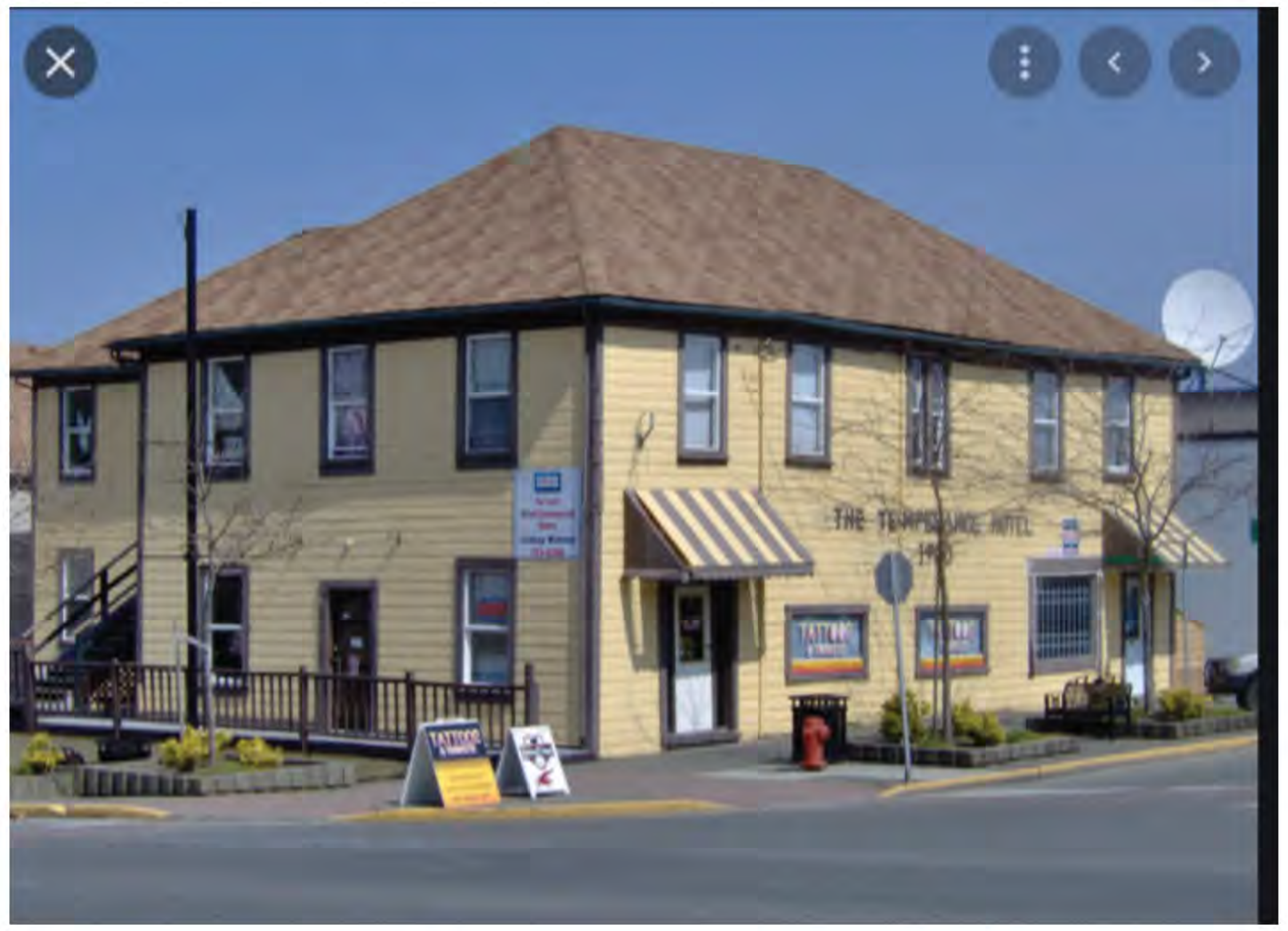
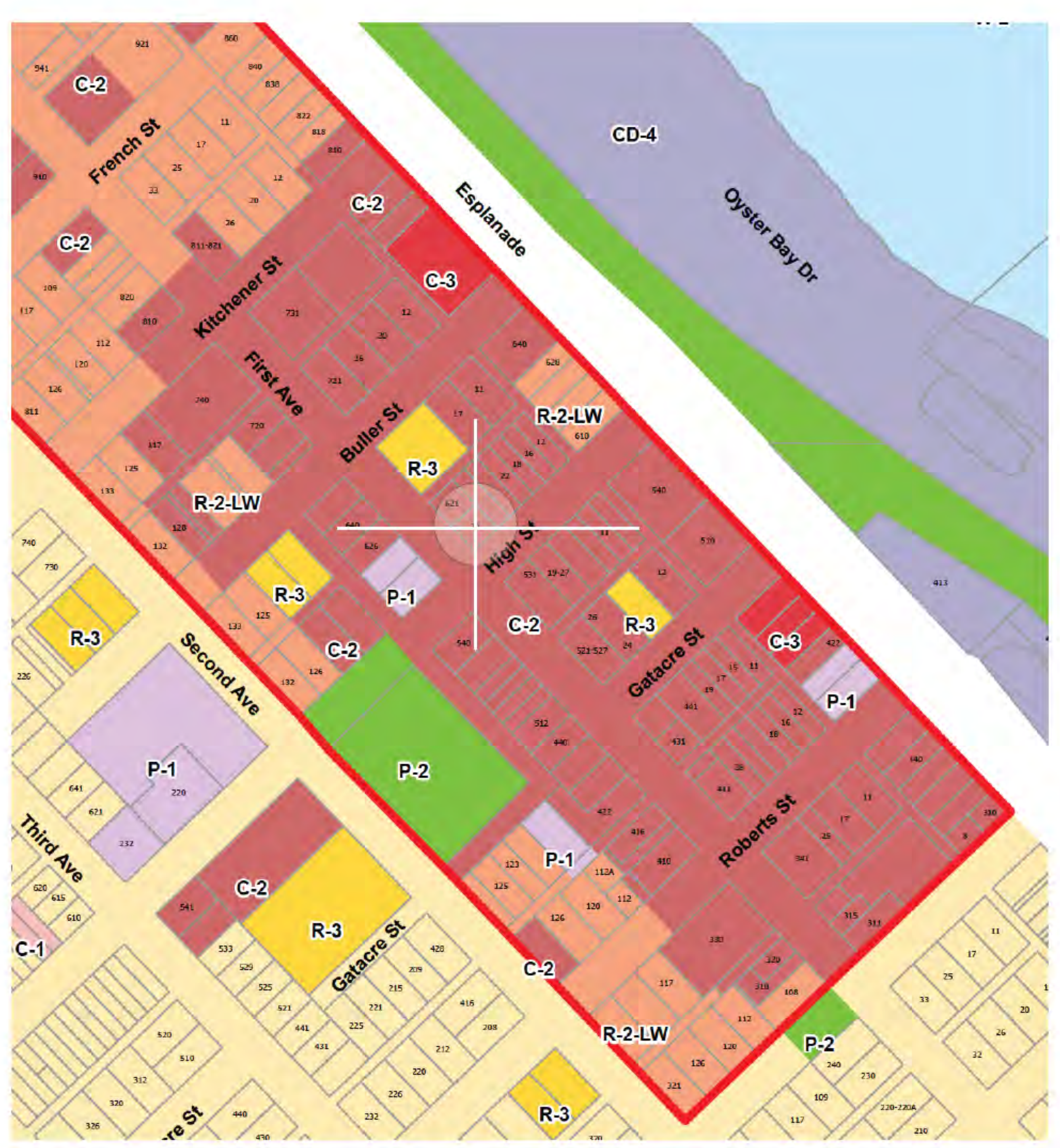


Photo of Subject Property - Before



Zoning Map of Ladysmith - NTS

GENERAL NOTES

IMPORTANT - GENERAL CONTRACTOR TO READ BEFORE TENDERING AND CONSTRUCTION.

1. GENERAL CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS, WHICH SHALL NOT BE CHANGED OR MODIFIED WITHOUT ARCHITECT'S WRITTEN PERMISSION. CONTRACTOR SHOULD EXERCISE EVERY POSSIBLE PRECAUTION TO VERIFY THE FIGURES SHOWN ON DRAWINGS AND TO OBTAIN FROM THE ARCHITECT ANY ADDITIONAL DIMENSIONS OR INFORMATION BEFORE LAYING OUT WORK.
2. NEITHER THE ARCHITECT, NOR ENGINEERS, NOR THE OWNER SHALL BE RESPONSIBLE FOR: CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF THE GENERAL CONTRACTOR OR SUBTRADES. THE ARCHITECT SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF CONTRACTOR, OR THE FAILURE OF CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. SOIL BEARING CAPACITY TO BE REVIEWED BY A CERTIFIED GEOTECHNICAL ENGINEER. GENERAL CONTRACTOR SHALL REFER, COMPLY AND FOLLOW TO ALL RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT INCLUDED IN THESE CONTRACT DOCUMENTS. THE ARCHITECT ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF THE FINDINGS NOR THE FINAL RECOMMENDATIONS OF THE REPORT. GENERAL CONTRACTOR SHOULD NOTIFY GEOTECHNICAL ENGINEER FOR INSTRUCTIONS PRIOR TO CONTINUATION OF WORK SHOULD ANY UNUSUAL CONDITIONS BECOME APPARENT DURING CONSTRUCTION.
4. GENERAL CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR SAFETY ON AND AROUND THE CONSTRUCTION SITE IN ACCORDANCE WITH APPLICABLE LAWS, SAFETY CODES AND CURRENT EDITION OF ALBERTA BUILDING CODE.
5. GENERAL CONTRACTOR SHALL REPORT TO THE ARCHITECT ANY ERRORS, INCONSISTENCIES, OR OMISSIONS HE MAY DISCOVER. THE IF ADDITIONAL DETAILS OR CLARIFICATIONS REQUIRED GENERAL CONTRACTOR SHOULD REQUEST IT FORM THE ARCHITECT, BUILDING ENVELOPE CONSULTANT OR THE ENGINEERS IN WRITING. CONTRACTOR IS RESPONSIBLE FOR CORRECTING ANY ERROR AFTER THE START OF CONSTRUCTION WHICH HAS NOT BEEN BROUGHT TO THE ATTENTION OF THE ARCHITECT. THE MEANS OF CORRECTING ANY ERROR SHALL BE FIRST APPROVED BY THE ARCHITECT AND THE OWNER.
6. ESTABLISH ALL PROPERTY LINES, LEVELS, SETBACKS, EASEMENTS, LOCATION AND LAYOUT, ETC. BY SURVEYOR BEFORE COMMENCING CONSTRUCTION.
7. ALL WATER AND / OR ICE SHALL BE REMOVED FROM EXCAVATIONS PRIOR TO PLACING CONCRETE.
8. ALL MATERIALS SHALL BE INSTALLED AND / OR APPLIED ACCORDING TO MANUFACTURER'S SPECS & INSTRUCTIONS.
9. GENERAL CONTRACTOR SHALL LOCATE ALL ABOVE OR BELOW GRADE SERVICES OR OBSTACLES ON OR ADJACENT TO SITE AND SHALL REPORT SUCH OBSTRUCTIONS IN WRITING TO THE ARCHITECT BEFORE COMMENCING CONSTRUCTION.
10. GENERAL CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT VAPOUR, AIR & FIRE BARRIER CONTINUITY IS MAINTAINED.
11. GENERAL CONTRACTOR SHALL RETAIN (AT OWNER'S EXPENSE) AN INDEPENDENT ROOFING INSPECTOR TO OVERSEE THE INSTALLATION OF THE ROOFING SYSTEM IN ADDITION TO THE MANUFACTURER'S INSPECTOR.
12. ROOFING CONTRACTOR SHALL PROVIDE AN A.R.C.A. GUARANTEE CERTIFICATE.
13. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THE ARCHITECT SHALL BE INFORMED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWING. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECTS FOR APPROVAL BEFORE PROCEEDING WITH FABRICATION.
14. FOR ACCEPTANCE OF PRODUCTS OTHER THAN THOSE SPECIFIED, SUBMIT A REQUEST IN WRITING. CLEARLY DEFINE AND DESCRIBE THE PRODUCT FOR WHICH ACCEPTANCE IS REQUESTED. ACCOMPANY REQUESTS WITH MANUFACTURERS LITERATURE, SPECS, DRAWINGS, CUTS, PERFORMANCE DATA OR OTHER INFORMATION NECESSARY TO COMPLETELY DESCRIBE THE ITEM.
15. GENERATOR CONTRACTOR SHOULD EMPLOY EXPERIENCED WORKERS OR PROFESSIONAL CLEANERS FOR FINAL CLEANING.
16. PRIOR TO FINAL REVIEW, DEMONSTRATE OPERATION OF EACH SYSTEM TO THE OWNER. INSTRUCT THE OWNER IN OPERATION, ADJUSTMENT AND MAINTENANCE OF EQUIPMENT AND SYSTEMS. TWO (2) COPIES OF BROCHURES AND OPERATING & MAINTENANCE MANUALS OF ELECTRICAL AND MECHANICAL EQUIPMENT SHALL BE SUBMITTED TO THE OWNER UPON COMPLETION OF CONSTRUCTION.

ABBREVIATIONS:

BOT. = BOTTOM
CLT = CROSS LAMINATED TIMBER
CONC. = CONCRETE
C.H. = Ceiling Height
C.L. = CENTER LINE
CONT. = CONTINUOUS
c/w = COMPLETE WITH
E.F. = EACH FACE
EQ. = EQUAL
E.W. = EACH WAY
GALV. = GALVANIZED
HORZ. = HORIZONTAL
LG. = LONG
o.c. = ON CENTER
PL. = STEEL PLATE
RE = RAMMED EARTH
REINF. = REINFORCING
SAM = SELF ADHERED MEMBRANE
SIP = STRUCTURAL INSULATED PANEL
SGU = SEALED GLASS UNIT
STAG. = STAGGERED
THK. = THICK
TYP. = TYPICAL
T/O = TOP OF
U/S = UNDER SIDE
U.N.O. = UNLESS OTHERWISE NOTED
VERT. = VERTICAL
w/ = WITH
W.H. = Wall Height

NOTES ABOUT THE RENOVATION

Priorities (in order of priority)

1) Life Safety: High Priority
- Structural Safety - Gravity, Wind, Seismic; Steve Hoel P.Eng has been retained for the Structural portion of work
- Egress and Exiting in Event of Fire.

2) Fire Safety: High Priority
1) Fire ratings between suites
2) Exiting
3) Exposure Issues

3) Building Repair: As required. Some elements of the building are delipidated and need replacing.
1) Foundation; Cracked and in need of serious repair
2) Repair of Rotten portions of the building.
3) Envelope; Minimal intervention; repair as required.

4) Building Performance: Life safety and Repair of broken or non-functional items. Building performance () is the Lowest priority and will not be performed this renovation.
1) Physical Repair; The building shall be repaired to not leak. However, it is not possible given the scope of work proposed to repair the ENVELOPE to current codes.
2) Where the envelope is removed, it shall be brought up to current building codes, but because the envelope is a holistic item, it is outside the scope of this renovation to repair the envelope to current code standards.
3) Energy; There are many violations of the Energy Code. We are not able to achieve the energy targets of the Code given the composition of the envelope and requirements of the Historical Status.

It must be noted that this upgrade is NOT proposing a UNIFORM, BUILDING WIDE UPGRADE OF ALL CODE VIOLATIONS. The existing building is deficient in a number of respects which are not possible given the budget to address them all, but the approach to the renovation is: items and parts of the building will be upgraded to the current building code if they are being improved. There are a few ITEMS which shall be noted herein, that are violations of the existing building code, but shall be proposed to be "grandfathered" in an "EXISTING NON-CONFORMING" situation.

Consultants:

Architectural: KILO Architecture Inc.
Structural: JSH Engineering
Mechanical: Avalon Mechanical
Survey: Turner and Associates

KILO ARCHITECTURE
1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kiloarchitecture.com

Project Title
Temperance Hotel
32 High St. Ladysmith, BC

Architect
KILO Architecture Inc.

Consultant

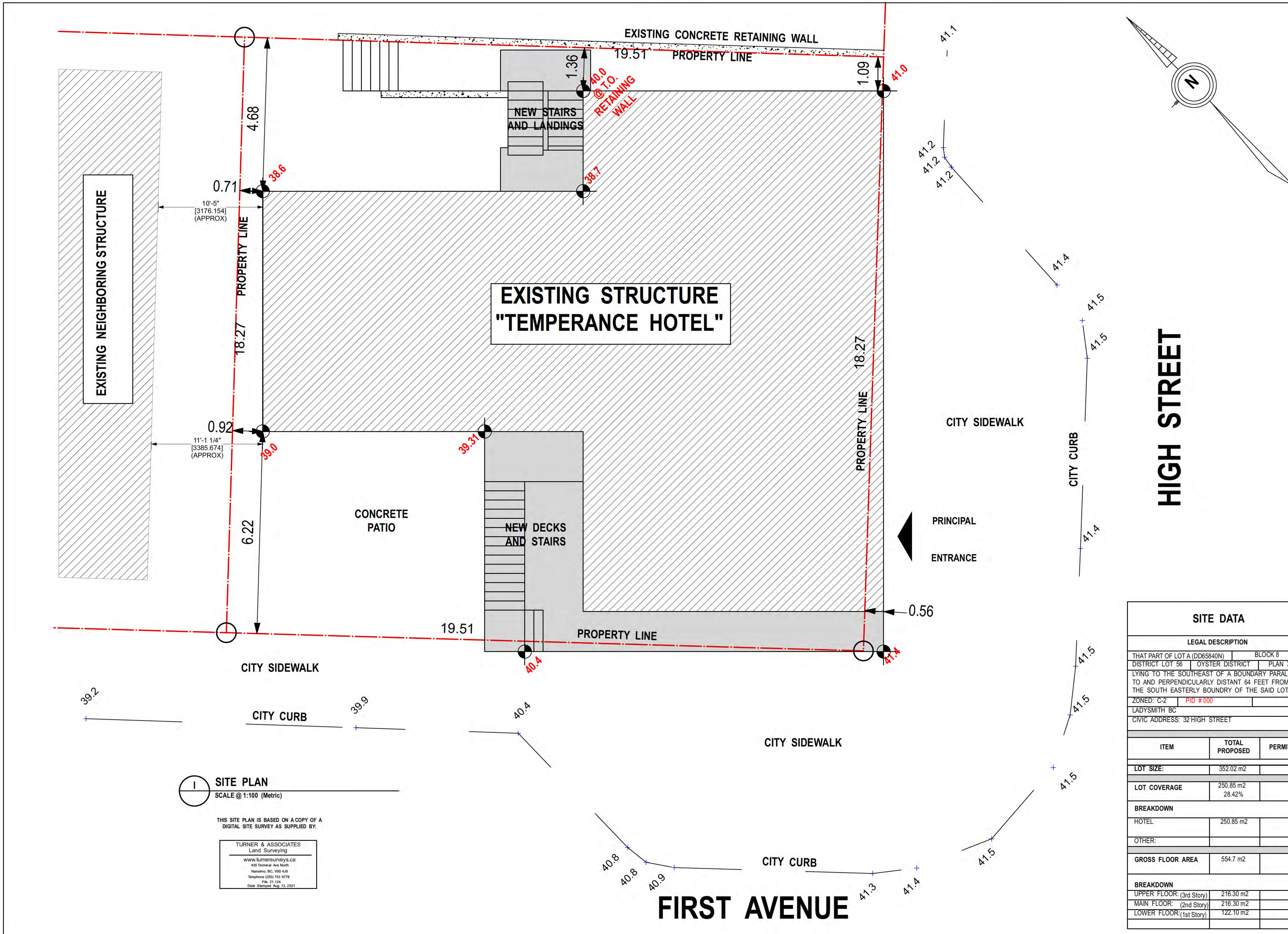
REV.	DATE	DESCRIPTION

NO.	DATE	ISSUE NOTE
1	2023-01-23	ISSUED FOR BP

Project Manager: KAT	Drawn By: AJB
Date: Oct 13 2022	Reviewed By: KAT
Project ID: 2222	

Sheet Title
TITLE PAGE

Sheet No
A.000



SITE DATA

LEGAL DESCRIPTION

THAT PART OF LOT A (DD65840N)	BLOCK 8	
DISTRICT LOT 56	OYSTER DISTRICT	PLAN 703
LYING TO THE SOUTHEAST OF A BOUNDARY PARALLEL TO AND PERPENDICULARLY DISTANT 64 FEET FROM THE SOUTH EASTERLY BOUNDRY OF THE SAID LOT		
ZONED: C-2	PID # 000	
LADYSMITH BC		
CIVIC ADDRESS: 32 HIGH STREET		

ITEM	TOTAL PROPOSED	PERMITTED
LOT SIZE:	352.02 m2	
LOT COVERAGE	250.85 m2 28.42%	
BREAKDOWN		
HOTEL	250.85 m2	
OTHER:		
GROSS FLOOR AREA	554.7 m2	
BREAKDOWN		
UPPER FLOOR: (3rd Story)	216.30 m2	
MAIN FLOOR: (2nd Story)	216.30 m2	
LOWER FLOOR: (1st Story)	122.10 m2	

KILO ARCHITECTURE
1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kiloarchitecture.com

Project Title
Temperance Hotel
32 High St. Ladysmith, BC

REGISTERED ARCHITECT ALEXANDRU TELLOW BRITISH COLUMBIA

Architect
KILO Architecture Inc.

Consultant

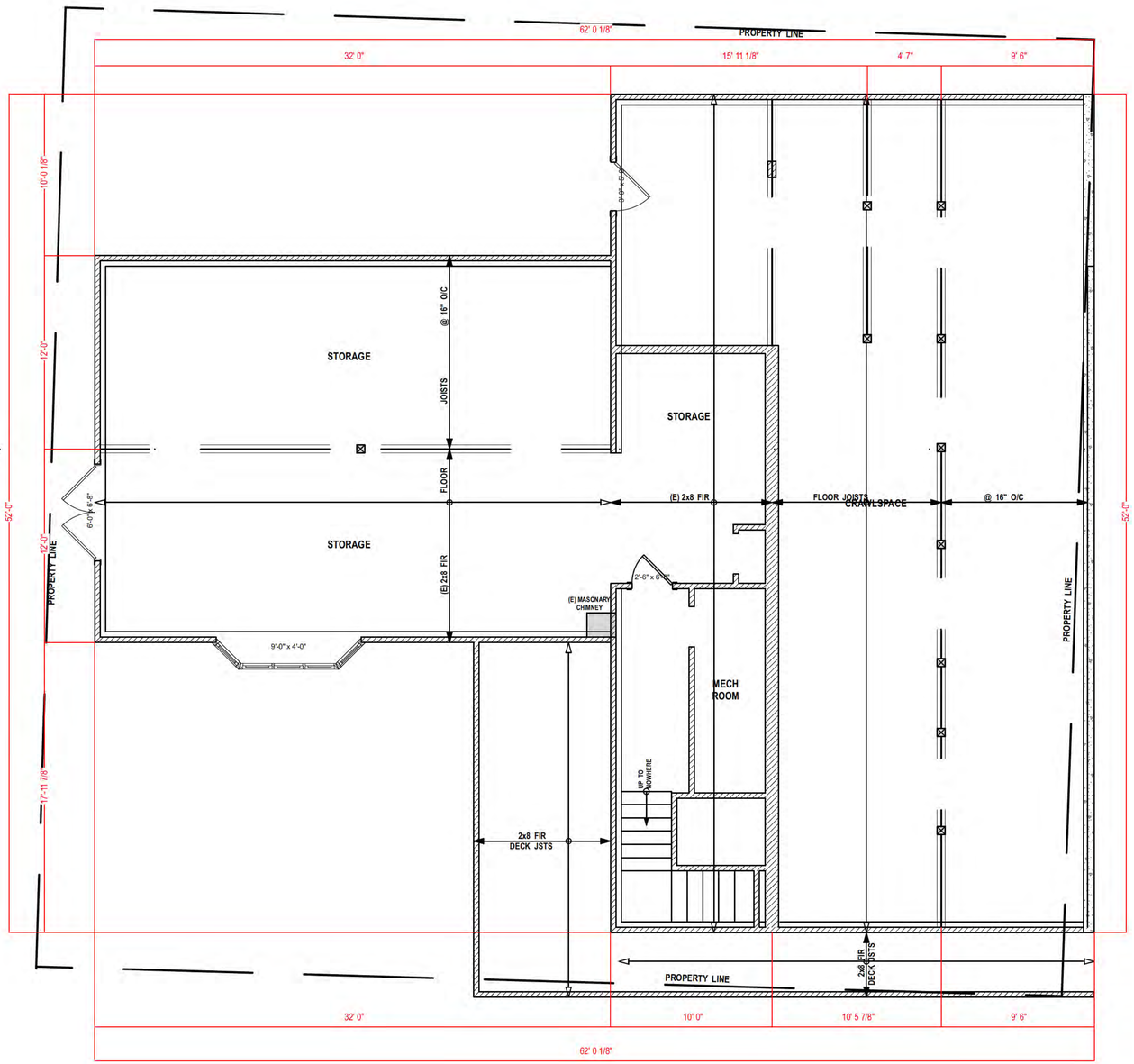
REV.	DATE	DESCRIPTION

NO.	DATE	ISSUE NOTE
1	2023-01-23	ISSUED FOR BP

Project Manager: KAT	Drawn By: AJB
Date: Oct 13 2022	Reviewed By: KAT
Project ID: 2222	

Sheet Title
SITE PLAN

Sheet No
A.100

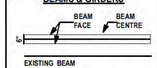


LEGEND

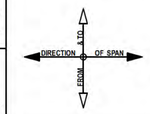
(N) = NEW ITEM
(E) = EXISTING ITEM

- POST-NEW
- POST-EXISTING
- BEARING POINT OF LOAD FROM ABOVE
- FAN — CEILING EXHAUST FAN
- CO & S ALARM — CARBON MONOXIDE & SMOKE ALARM(S) ALL INTERCONNECTED
- FOS — FRAME ON SITE

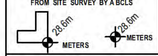
BEAMS & GIRDERS



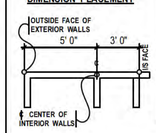
FLOOR JOISTS & ROOF TRUSS NOTATION



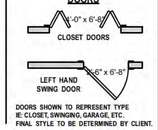
GEODETIC DATUM
FROM SITE SURVEY BY A BCLS



DIMENSION PLACEMENT



DOORS



DOORS SHOWN TO REPRESENT TYPE IE: CLOSET, SWINGING, GARAGE, ETC. FINAL STYLE TO BE DETERMINED BY CLIENT.

- (E) = EXISTING ITEMS
- (N) = NEW ITEMS
- (E) = EXISTING & FIRE CODE
- (N) = NEW & FIRE CODE

WALLS TYPES

WALL TO BE REMOVED	OUTSIDE FACE EXISTING: 2x4 EXTERIOR WALL EXISTING: CONC FOUNDATION NEW: 2x4 INTERIOR WALL
4" EXISTING WALL	
6" EXISTING WALL	OUTSIDE FACE
4" NEW WALL	NEW: 2x6 EXTERIOR WALL NEW: CONC FOUNDATION NEW: 2x4 INTERIOR WALL
6" NEW WALL	
OUTSIDE FACE NEW 2" STRAPPING on EXISTING EXTERIOR 4" STUD WALL	EXISTING CONCRETE FOUNDATION FOOTINGS UNKNOWN
EXISTING-UPGRADED TO: 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS	NEW CONCRETE FND WITH CONT. CONCRETE FOOTINGS
NEW- 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS	NEW CORBELLED CONCRETE FND WITH CONT. CONCRETE FOOTINGS

1 EXISTING BASEMENT FLOOR PLAN

SCALE @ 1/4" = 1'

LIVING SPACE: TOTAL EXISTING
@ 216.3 m2 (22328.5 sq/ft)

NOTE: LIVING SPACE CALCULATED FROM:
OUTSIDE FACE OF EXTERIOR WALL

BEFORE ANY RENOVATIONS
AS PER LASERTECH DRAWINGS
DATED: MAY 2021

KILO ARCHITECTURE
1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kiloarchitecture.com

Temperance Hotel

32 High St. Ladysmith, BC

Project Title

REGISTERED ARCHITECT
PROVINCE OF BRITISH COLUMBIA

Architect
KILO Architecture Inc.

Consultant

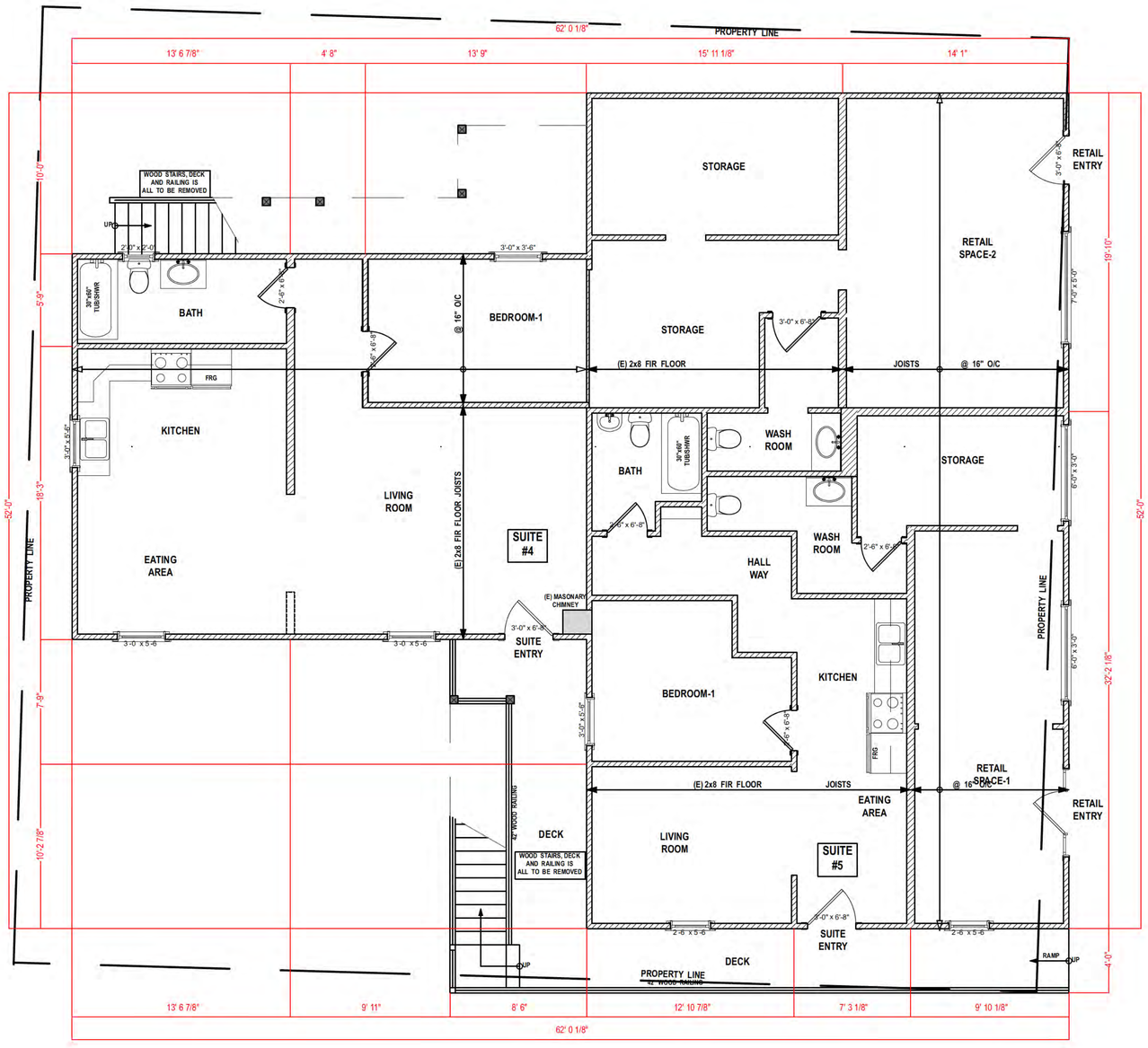
REV.	DATE	DESCRIPTION
1	2023-01-23	ISSUED FOR BP

NO.	DATE	ISSUE NOTE

Project Manager	Drawn By
KAT	AJB
Date: Jan. 01/23	Reviewed By: KAT
Project ID: 2222	Temperance Hotel 32 High St.; Ladysmith BC

Sheet Title
EXISTING BASEMENT FLOOR PLAN

Sheet No
A.101



1 EXISTING 1st FLOOR PLAN

SCALE @ 1/4" = 1'

LIVING SPACE: TOTAL EXISTING @ 216.3 m2 (22328.5 sq/ft)
NOTE: LIVING SPACE CALCULATED FROM: OUTSIDE FACE OF EXTERIOR WALL

BEFORE ANY RENOVATIONS AS PER LASERTECH DRAWINGS DATED: MAY 2021

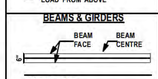
LEGEND

(N) = NEW ITEM
(E) = EXISTING ITEM

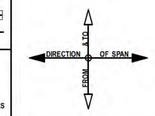
POST-NEW
POST-EXISTING
BEARING POINT OF LOAD FROM ABOVE

FAN — CEILING EXHAUST FAN
CO & S ALARM — CARBON MONOXIDE & SMOKE ALARM(S) ALL INTERCONNECTED
FOS — FRAME ON SITE

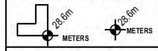
BEAMS & GIRDERS



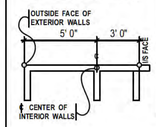
FLOOR JOISTS & ROOF TRUSS NOTATION



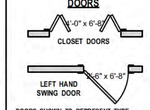
GEODETIC DATUM
FROM SITE SURVEY BY A BCLS



DIMENSION PLACEMENT



DOORS



DOORS SHOWN TO REPRESENT TYPE IE: CLOSET, SWINGING, GARAGE, ETC. FINAL STYLE TO BE DETERMINED BY CLIENT.

(E) = EXISTING ITEMS
(N) = NEW ITEMS
(E) = EXISTING & FIRE CODE
(N) = NEW & FIRE CODE

WALLS TYPES

WALL TO BE REMOVED
4" EXISTING WALL
6" EXISTING WALL
4" NEW WALL
6" NEW WALL
OUTSIDE FACE
NEW 2" STRAPPING on EXISTING EXTERIOR 4" STUD WALL
EXISTING–UPGRADED TO: 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
NEW– 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS

OUTSIDE FACE
EXISTING: 2x4 EXTERIOR WALL
EXISTING: CONC FOUNDATION
NEW: 2x4 INTERIOR WALL
OUTSIDE FACE
NEW: 2x6 EXTERIOR WALL
NEW: CONC FOUNDATION
NEW: 2x4 INTERIOR WALL
EXISTING CONCRETE FOUNDATION FOOTINGS UNKNOWN
NEW CONCRETE FND WITH CONT. CONCRETE FOOTINGS
NEW CORBELLED CONCRETE FND WITH CONT. CONCRETE FOOTINGS

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Temperance Hotel

32 High St. Ladysmith, BC

Project Title

REGISTERED ARCHITECT — KILO ARCHITECTURE — PROVINCE OF BRITISH COLUMBIA

Architect
KILO Architecture Inc.

Consultant

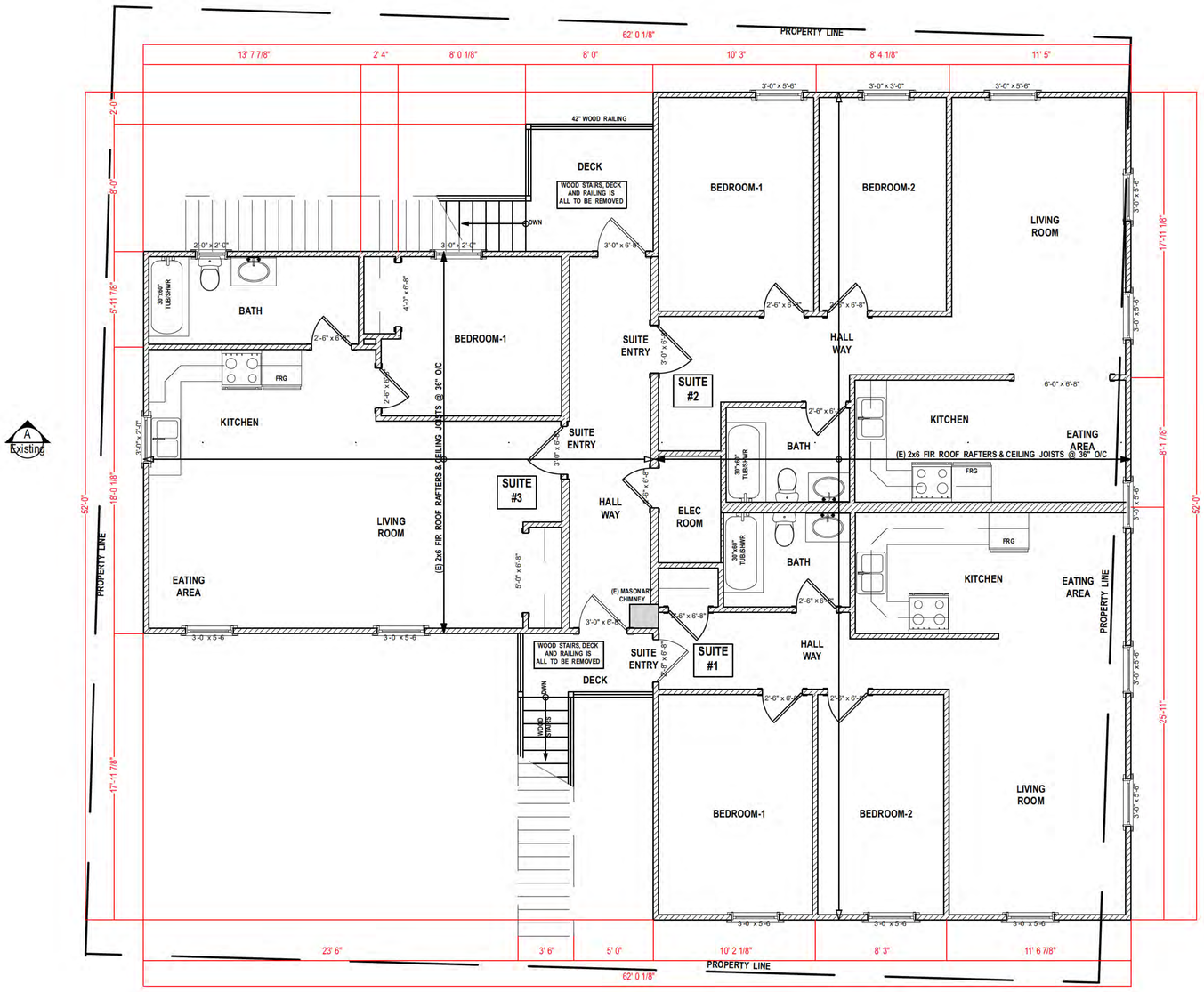
REV	DATE	DESCRIPTION
1	2023-01-23	ISSUED FOR BP

NO	DATE	ISSUE NOTE

Project Manager: KAT	Drawn By: AJB
Date: Jan. 01/23	Reviewed By: KAT
Project ID: 2222	Temperance Hotel 32 High St.; Ladysmith BC

Sheet Title
EXISTING 1ST FLOOR PLAN

Sheet No
A.102



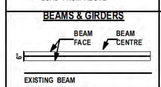
A Existing

A Existing

LEGEND

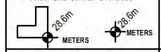
(N) = NEW ITEM (E) = EXISTING ITEM	FAN — CEILING EXHAUST FAN
POST-NEW	CO & S ALARM — CARBON MONOXIDE & SMOKE ALARM(S) ALL INTERCONNECTED
POST-EXISTING	FOS — FRAME ON SITE
BEARING POINT OF LOAD FROM ABOVE	

BEAMS & GIRDERS

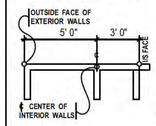


FLOOR JOISTS & ROOF TRUSS NOTATION

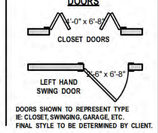
GEODETIC DATUM
FROM SITE SURVEY BY A BCLS



DIMENSION PLACEMENT



DOORS



DOORS SHOWN TO REPRESENT TYPE IE: CLOSET, SWINGING, GARAGE, ETC. FINAL STYLE TO BE DETERMINED BY CLIENT.

- (E) = EXISTING ITEMS
- (N) = NEW ITEMS
- (E) = EXISTING & FIRE CODE
- (N) = NEW & FIRE CODE

WALLS TYPES

- WALL TO BE REMOVED
- 4" EXISTING WALL
- 6" EXISTING WALL
- 4" NEW WALL
- 6" NEW WALL
- OUTSIDE FACE — NEW 2" STRAPPING on EXISTING EXTERIOR 4" STUD WALL
- EXISTING-UPGRADED TO: 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
- NEW– 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS

OUTSIDE FACE
EXISTING: 2x4 EXTERIOR WALL
EXISTING: CONC FOUNDATION
NEW: 2x4 INTERIOR WALL

OUTSIDE FACE
NEW: 2x6 EXTERIOR WALL
NEW: CONC FOUNDATION
NEW: 2x4 INTERIOR WALL

- EXISTING CONCRETE FOUNDATION FOOTINGS UNKNOWN
- NEW CONCRETE FND WITH CONT. CONCRETE FOOTINGS
- NEW CORBELLED CONCRETE FND WITH CONT. CONCRETE FOOTINGS

1 EXISTING 2nd FLOOR PLAN

SCALE @ 1/4" = 1'

LIVING SPACE: TOTAL EXISTING @ 216.3 m2 (22328.5 sq/ft)
NOTE: LIVING SPACE CALCULATED FROM: OUTSIDE FACE OF EXTERIOR WALL

BEFORE ANY RENOVATIONS AS PER LASERTECH DRAWINGS DATED: MAY 2021

KILO ARCHITECTURE
1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kiloarchitecture.com

Project Title
Temperance Hotel
32 High St. Ladysmith, BC

REGISTERED ARCHITECT — PROFESSIONAL DESIGNATION — BRITISH COLUMBIA

Architect
KILO Architecture Inc.

Consultant

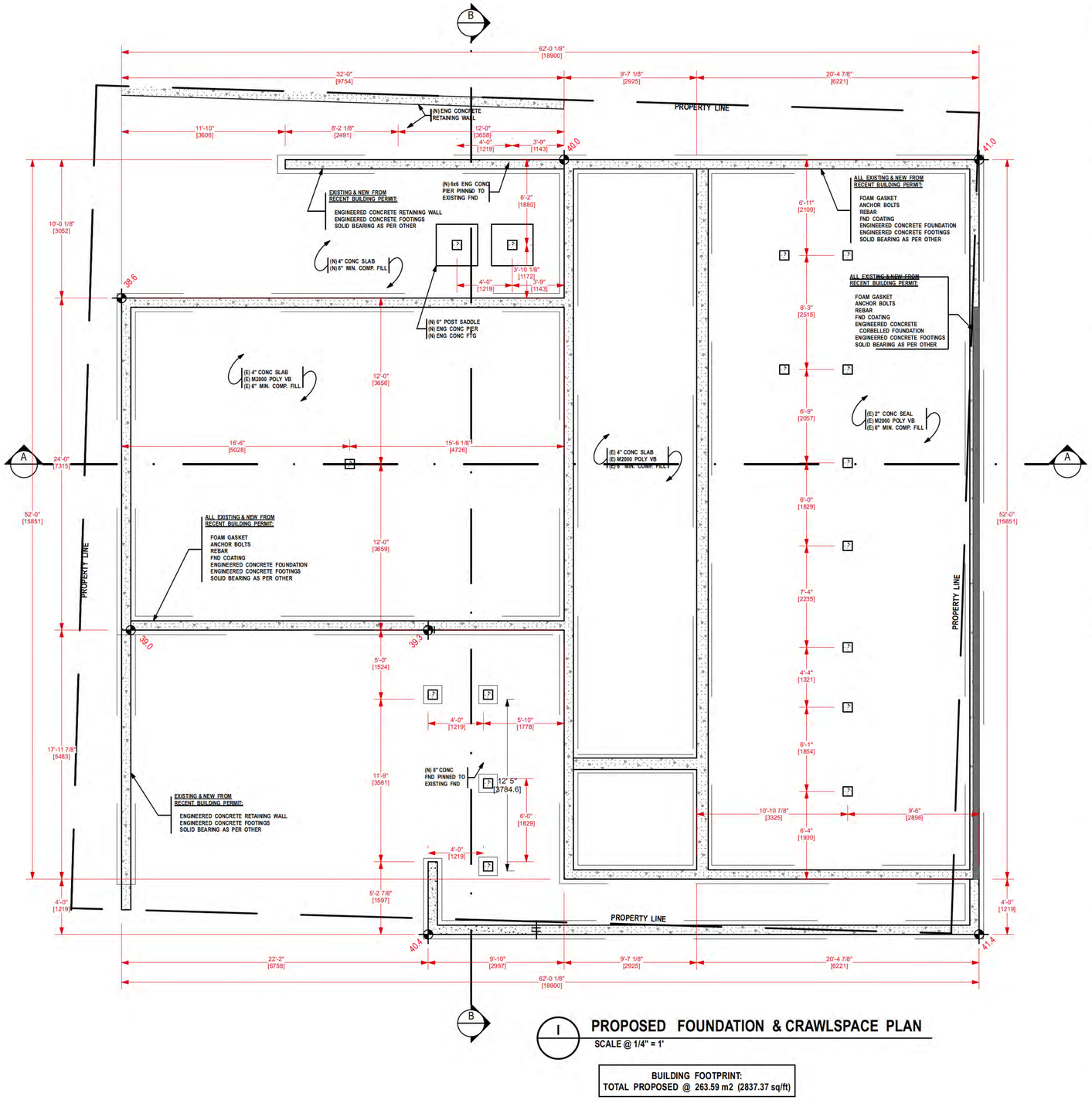
REV	DATE	DESCRIPTION
1	2023-01-23	ISSUED FOR BP

NO	DATE	ISSUE NOTE

Project Manager: KAT	Drawn By: AJB
Date: Jan. 01/23	Reviewed By: KAT
Project ID: 2222	Temperance Hotel 32 High St.; Ladysmith BC

Sheet Title
EXISTING 2ND FLOOR PLAN

Sheet No
A.103



PROPOSED FOUNDATION & CRAWLSPACE PLAN

SCALE @ 1/4" = 1'

BUILDING FOOTPRINT:
TOTAL PROPOSED @ 263.59 m2 (2837.37 sq/ft)

ASSEMBLIES

1 ROOF:
(E) FIBERGLASS ROOFING SHINGLES
(E) BUILDING PAPER
(E) 3/8" PLY SHEETING over
(E) 3/4" SHEETING
(E) 2x6 FIR ROOF RAFTERS & CEILING JSTS @ 36" O/C
(N) 1:300 VENTILATION
(N) R-40 FIBERGLASS INSULATION
(N) M2000 UVI POLY VB (CAN/CGSB-51.34-M86)
(N) 2-5/8" TYPE X DRYWALL

2 SOFFIT/FACIA/GUTTER:
(N) SOLID SOFFIT TYPICAL: 1/2" PLY
(N) 5" ALUMI GUTTER
(N) 1x6 FACIA

3 EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(N) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

3A EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0) - EXISTING NON-CONFORMING (UNRATED FROM EXTERIOR)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

3B NEW EXTERIOR WALL
1 hr FIRE RATING
(N) 8" CEDAR CHANNEL HORZ SIDING
(N) PT PLY VERTICAL RAINSCREEN
(N) "TYVEC" (AIR BARRIER)
(N) 1/2" PLYWOOD SHEETING
(N) 2x6 SPF STUDS @ 16" O/C
(N) 6" (R22) Rockwool INSULATION
(N) M2000 POLY VB
(N) 5/8" TYPE X DRYWALL: 1hr FIRE RATING (SEE ATTACHED)

4 INTERIOR WALLS: TYP INSIDE SUITES: NO RATING
(E) 2x4 FIR STUDS @ 16" O/C
(N) 1/2" REG DRYWALL-BOTH SIDES

4A EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) SUITES: STC 52
2HR FIRE RESISTANCE RATING (1 HR FRR REQUIRED)
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES ONE SIDE WITH RESBAR BETWEEN STUDS AND THE (2) LAYERS (SEE ATTACHED)

4B EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) AND MERCANTILE (E)
2 HR FIRE RESISTANCE RATING - W/ UNRATED STC
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES

5 EXISTING UPGRADED FLOOR & CEILING SYSTEM
2hr FIRE RATING (ULC L505)
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) 2x8 FLOOR JOISTS (AS PER PLAN)
(N) 3.5" MINERAL WOOL INSULATION (OPTIONAL)
(N) MATERIAL FOR 2 hr FIRE RATING (SEE ATTACHED)

5A EXISTING UPGRADED FLOOR/ CEILING SYSTEM
1hr FIRE RATING BETWEEN RESIDENTIAL SUITES
FLOOR TYPE F9c FROM Table 9.10.3.1.-B OF BCBC 2018
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) EXISTING FLOOR JOISTS (AS PER PLAN)
(N) 3.5" Rockwool INSULATION
(N) MATERIAL FOR 1 hr FIRE RATING (SEE ATTACHED)

5B FLOOR SYSTEM: (CRAWLSPACE BELOW (E) OCCUPANCY: UNRATED
(E) FLOOR COVERING
(E) 3/4" SHEETING
(E) 2x8 FIR FLOOR JOISTS @ 16" O/C
(E) X BRIDGING @ 7' O/C

6 FOUNDATION AND FOOTINGS: (EXISTING)
(ALL NEW FROM PREVIOUS BUILDING PERMIT)
(E) ENG 8" CONC FND WALLS
(E) ENG CONC FOOTINGS
(E) 3" & 4" DRAIN PIPE
(E) GRAVEL FILL
SOLID BEARING

6B FOUNDATION AND FOOTINGS: (NEW)
(N) ENG 8" CONC FND WALLS
(N) ENG CONC FOOTINGS
(N) 3" & 4" DRAIN PIPE
(N) GRAVEL FILL
SOLID BEARING

7 CONCRETE FLOOR:
(E) 4" CONCRETE SLAB
(E) COMPACT FILL

7B CONCRETE FLOOR:
(N) 4" CONCRETE SLAB (25 mpa-minimum)
(N) M2000 UVI POLY VAPOUR BARRIER
(N) 6" MIN COMPACT FILL

8 CRAWLSPACE:
(E) 2" CONCRETE SEAL
(E) COMPACT FILL

LEGEND

(N) = NEW ITEM
(E) = EXISTING ITEM
POST-NEW
POST-EXISTING
BEARING POINT OF LOAD FROM ABOVE
FAN — CEILING EXHAUST FAN
CO & S ALARM — CARBON MONOXIDE & SMOKE ALARM(S) ALL INTERCONNECTED
FOM — FRAME ON SITE

BEAMS & GIRDERS
BEAM FACE
BEAM CENTRE
EXISTING BEAM

FLOOR JOISTS & ROOF TRUSS NOTATION
DIRECTION OF SPAN
FROM & TO

GEODETIC DATUM
FROM SITE SURVEY BY A BCLS
28.6m METERS
28.6m METERS

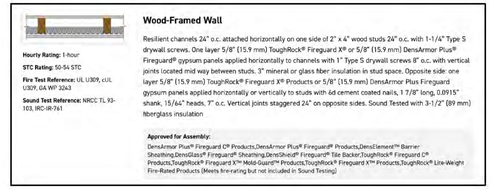
DIMENSION PLACEMENT
OUTSIDE FACE OF EXTERIOR WALLS
5' 0"
3' 0"
CENTER OF INTERIOR WALLS

DOORS
2'-0" x 6'-8"
CLOSET DOORS
2'-8" x 6'-8"
LEFT HAND SWING DOOR
DOORS SHOWN TO REPRESENT TYPE IE: CLOSET, SWINGING, GARAGE, ETC. FINAL STYLE TO BE DETERMINED BY CLIENT.

(E) = EXISTING ITEMS
(N) = NEW ITEMS
(E) = EXISTING & FIRE CODE
(N) = NEW & FIRE CODE

WALLS TYPES
WALL TO BE REMOVED
4" EXISTING WALL
6" EXISTING WALL
4 NEW WALL
6" NEW WALL
OUTSIDE FACE
NEW 2" STRAPPING on EXISTING EXTERIOR 4" STUD WALL
EXISTING-UPGRADED TO: 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
NEW-- 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
OUTSIDE FACE
EXISTING: 2x4 EXTERIOR WALL
EXISTING: CONC FOUNDATION
NEW: 2x4 INTERIOR WALL
OUTSIDE FACE
NEW: 2x6 EXTERIOR WALL
NEW: CONC FOUNDATION
NEW: 2x4 INTERIOR WALL
EXISTING CONCRETE FOUNDATION FOOTINGS UNKNOWN
NEW CONCRETE FND WITH CONT. CONCRETE FOOTINGS
NEW CORBELLED CONCRETE FND WITH CONT. CONCRETE FOOTINGS

4A STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)



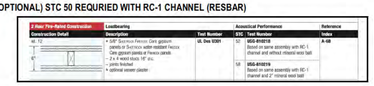
Wood-Framed Wall

Hourly Rating: 1-hour
STC Rating: 50-54 STC
Fire Test Reference: UL U309, cUL U309, GA WP 3243
Sound Test Reference: NRC TL 93-103, IRC-IR-761

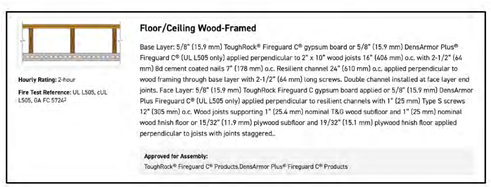
Resilient channels 24" o.c. attached horizontally on one side of 2" x 4" wood studs 24" o.c. with 1-1/4" Type S drywall screws. One layer 5/8" (15.9 mm) ToughRock® Fireguard X® or 5/8" (15.9 mm) DensArmor Plus® Fireguard® gypsum panels applied horizontally to channels with 1" Type S drywall screws 8" o.c. with vertical joints located mid way between studs. 3" mineral or glass fiber insulation in stud space. Opposite side: one layer 5/8" (15.9 mm) ToughRock® Fireguard X® Products or 5/8" (15.9 mm) DensArmor Plus Fireguard gypsum panels applied horizontally or vertically to studs with 4d cement coated nails, 1 7/8" long, 0.0915" shank, 15/64" heads, 7" o.c. Vertical joints staggered 24" on opposite sides. Sound Tested with 3-1/2" (89 mm) fiberglass insulation

Approved for Assembly:
DensArmor Plus® Fireguard C® Products,DensArmor Plus® Fireguard® Products,DensElement™ Barrier Sheathing,DensGlass® Fireguard® Sheathing,DensShield® Fireguard® Tile Backer,ToughRock® Fireguard C® Products,ToughRock® Fireguard X™ Mold-Guard™ Products,ToughRock® Fireguard X™ Products,ToughRock® Lite-Weight Fire-Rated Products (Meets fire-rating but not included in Sound Testing)

4A 4B (OPTIONAL) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)



5 Floor/Ceiling Wood-Framed

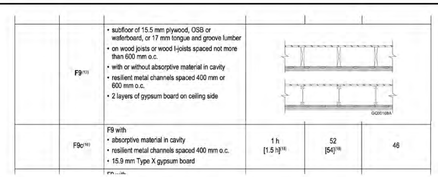


Hourly Rating: 2-hour
Fire Test Reference: UL L505, cUL L505, GA FC 5724.7

Base Layer: 5/8" (15.9 mm) ToughRock® Fireguard C® gypsum board or 5/8" (15.9 mm) DensArmor Plus® Fireguard C® (UL L505 only) applied perpendicular to 2" x 10" wood joists 16" (406 mm) o.c. with 2-1/2" (64 mm) 8d cement coated nails 7" (178 mm) o.c. Resilient channel 24" (610 mm) o.c. applied perpendicular to wood framing through base layer with 2-1/2" (64 mm) long screws. Double channel installed at face layer end joints. Face Layer: 5/8" (15.9 mm) ToughRock Fireguard C gypsum board applied or 5/8" (15.9 mm) DensArmor Plus Fireguard C® (UL L505 only) applied perpendicular to resilient channels with 1" (25 mm) Type S screws 12" (305 mm) o.c. Wood joists supporting 1" (25.4 mm) nominal T&G wood subfloor and 1" (25 mm) nominal wood finish floor or 15/32" (11.9 mm) plywood subfloor and 19/32" (15.1 mm) plywood finish floor applied perpendicular to joists with joints staggered..

Approved for Assembly:
ToughRock® Fireguard C® Products,DensArmor Plus® Fireguard C® Products

5A



KILO ARCHITECTURE
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250 896 9678 info@kiloarchitecture.com

Temperance Hotel

32 High St. Ladysmith, BC

Project Title

REGISTERED ARCHITECT — MICHAEL DE FEYTER — BRITISH COLUMBIA

Architect
KILO Architecture Inc.

Consultant

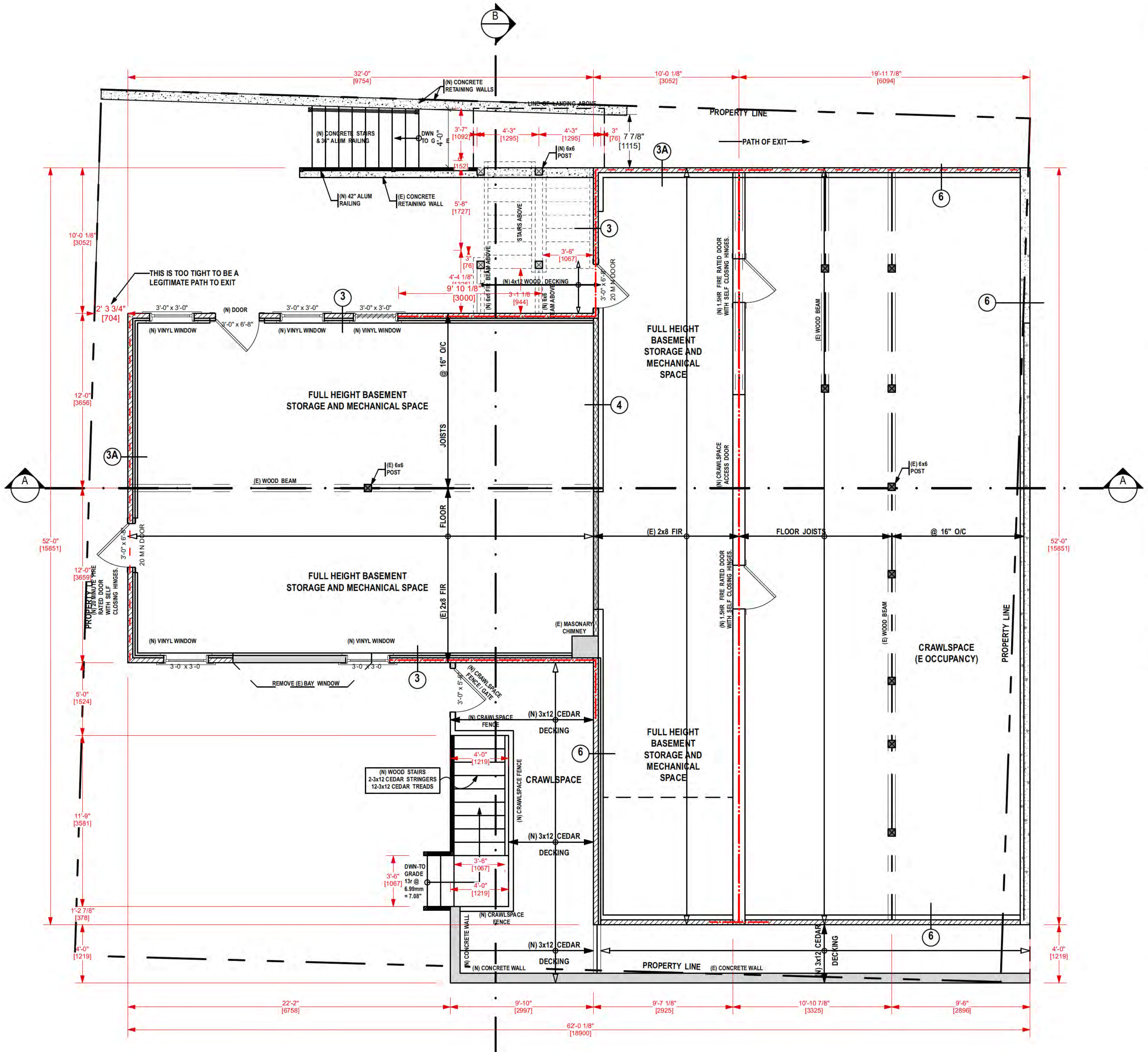
REV.	DATE	DESCRIPTION
1	2023-01-23	ISSUED FOR BP

NO.	DATE	ISSUE NOTE

Project Manager	Drawn By
KAT	AJB
Date	**Reviewed By**
Jan. 01/23	KAT
Project ID	**Temperance Hotel**
2222	32 High St.; Ladysmith BC

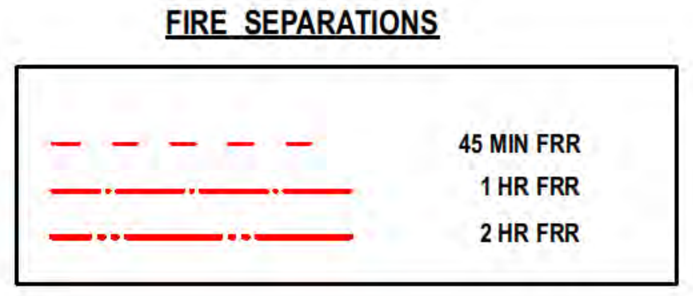
Sheet Title
PROPOSED FOUNDATION AND CRAWLSPACE FLOOR PLAN

Sheet No
A.109



PROPOSED BASEMENT FLOOR PLAN

SCALE @ 1/4" = 1'



LIVING SPACE: TOTAL EXISTING
@ 216.3 m2 (22328.5 sq/ft)

NOTE: LIVING SPACE CALCULATED FROM: OUTSIDE FACE OF EXTERIOR WALL

ASSEMBLIES

(1) ROOF:
(E) FIBERGLASS ROOFING SHINGLES
(E) BUILDING PAPER
(E) 3/8" PLY SHEETING over
(E) 3/4" SHEETING
(E) 2x6 FIR ROOF RAFTERS & CEILING JSTS @ 36" O/C
(N) 1:300 VENTILATION
(N) R40 FIBERGLASS INSULATION
(N) M2000 UVI POLY V/B (CAN/CGSB-51.34-M86)
(N) 2-5/8" TYPE X DRYWALL

(2) SOFFIT/FACIA/GUTTER:
(N) SOLID SOFFIT TYPICAL; 1/2" PLY
(N) 5" ALUM GUTTER
(N) 1x6 FACIA

(3) EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

(3A) EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0) - EXISTING NON-CONFORMING (UNRATED FROM EXTERIOR)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

(3B) NEW EXTERIOR WALL
1 hr FIRE RATING
(N) 8" CEDAR CHANNEL HORZ SIDING
(N) PT PLY VERTICAL RAINSCREEN
(N) "TYVEC" (AIR BARRIER)
(N) 1/2" PLYWOOD SHEETING
(N) 2x6 SPF STUDS @ 16" O/C
(N) 6" (R22) Rockwool INSULATION
(N) M2000 POLY VB
(N) 5/8" TYPE X DRYWALL: 1hr FIRE RATING (SEE ATTACHED)

(4) INTERIOR WALLS: TYP INSIDE SUITES: NO RATING
(E) 2x4 FIR STUDS @ 16" O/C
(N) 1/2" REG DRYWALL-BOTH SIDES

(4A) EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) SUITES: STC 52
2HR FIRE RESISTANCE RATING (1 HR FRR REQUIRED)
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES
ONE SIDE WITH RESBAR BETWEEN STUDS AND THE (2) LAYERS
(SEE ATTACHED)

(4B) EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) AND MERCANTILE (E)
2 HR FIRE RESISTANCE RATING - W/ UNRATED STC
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES

(5) EXISTING UPGRADED FLOOR & CEILING SYSTEM
2hr FIRE RATING (ULC L505)
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) 2x8 FLOOR JOISTS (AS PER PLAN)
(N) 3.5" MINERAL WOOL INSULATION (OPTIONAL)
(N) MATERIAL FOR 2 hr FIRE RATING (SEE ATTACHED)

(5A) EXISTING UPGRADED FLOOR/ CEILING SYSTEM
1hr FIRE RATING BETWEEN RESIDENTIAL SUITES
FLOOR TYPE F9c FROM Table 9.10.3.1.-B OF BCBC 2018
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) EXISTING FLOOR JOISTS (AS PER PLAN)
(N) 3.5" Rockwool INSULATION
(N) MATERIAL FOR 1 hr FIRE RATING (SEE ATTACHED)

(5B) FLOOR SYSTEM: (CRAWLSPACE BELOW (E) OCCUPANCY: UNRATED
(E) FLOOR COVERING
(E) 3/4" SHEETING
(E) 2x8 FIR FLOOR JOISTS @ 16" O/C
(E) X BRIDGING @ 7' O/C

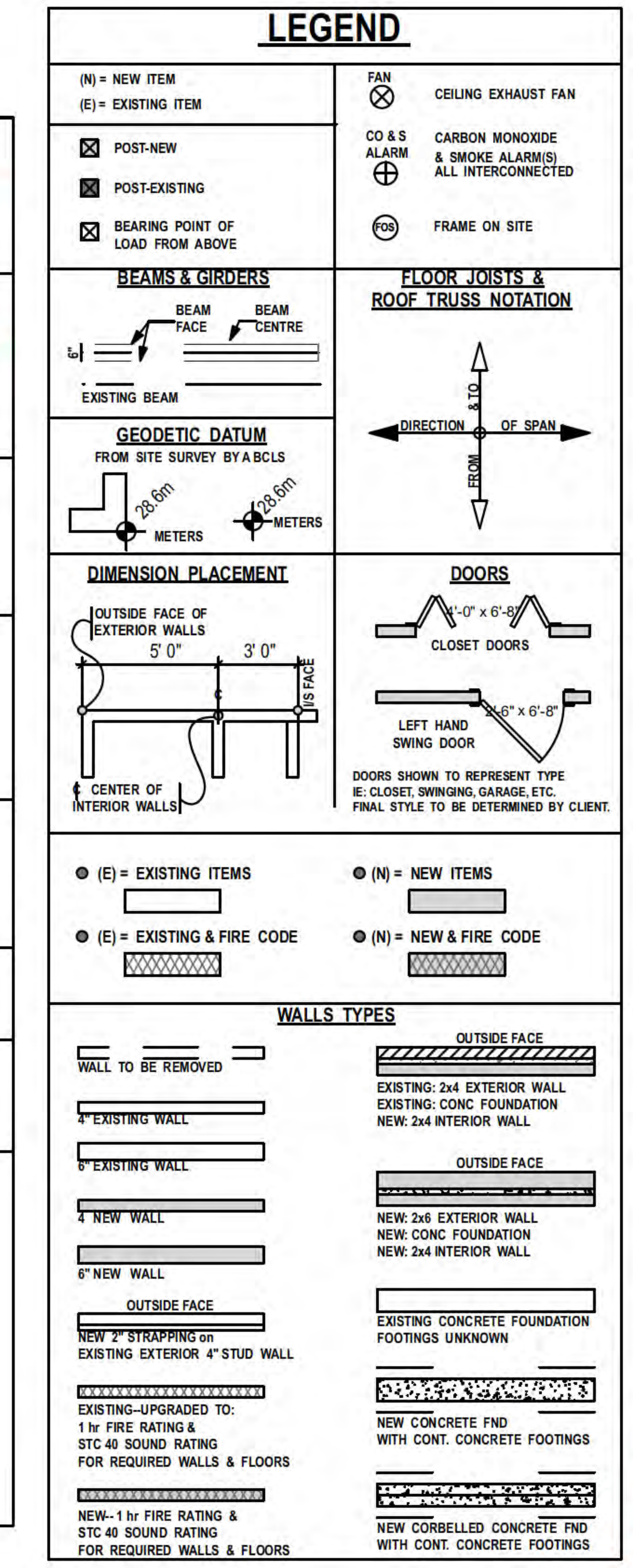
(6) FOUNDATION AND FOOTINGS: (EXISTING)
(ALL NEW FROM PREVIOUS BUILDING PERMIT)
(E) ENG 8" CONC FND WALLS
(E) ENG CONC FOOTINGS
(E) 3" & 4" DRAIN PIPE
(E) GRAVEL FILL
SOLID BEARING

(6B) FOUNDATION AND FOOTINGS: (NEW)
(N) ENG 8" CONC FND WALLS
(N) ENG CONC FOOTINGS
(N) 3" & 4" DRAIN PIPE
(N) GRAVEL FILL
SOLID BEARING

(7) CONCRETE FLOOR:
(E) 4" CONCRETE SLAB
(E) COMPACT FILL

(7B) CONCRETE FLOOR:
(N) 4" CONCRETE SLAB (25 mpa-minimum)
(N) M2000 UVI POLY VAPOUR BARRIER
(N) 6" MIN COMPACT FILL

(8) CRAWLSPACE:
(E) 2" CONCRETE SEAL
(E) COMPACT FILL



(4A) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)

Wood-Framed Wall

Hourly Rating: 1-hour

STC Rating: 50-54 STC

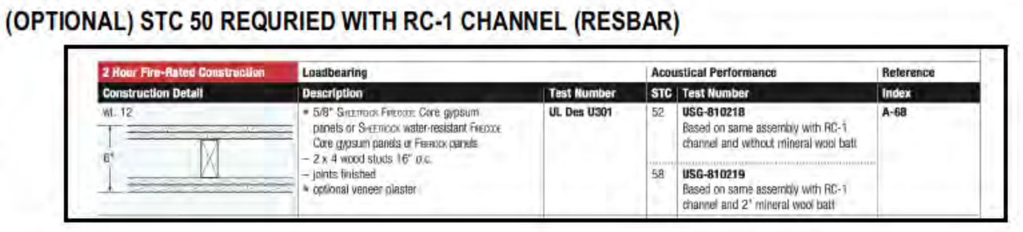
Fire Test Reference: UL U309, cUL U309, GA WP 3243

Sound Test Reference: NRCC TL 93-103, IRC-IR-761

Resilient channels 24" o.c. attached horizontally on one side of 2" x 4" wood studs 24" o.c. with 1-1/4" Type S drywall screws. One layer 5/8" (15.9 mm) ToughRock® Fireguard X® or 5/8" (15.9 mm) DensArmor Plus® Fireguard® gypsum panels applied horizontally to channels with 1" Type S drywall screws 8" o.c. with vertical joints located mid way between studs. 3" mineral or glass fiber insulation in stud space. Opposite side: one layer 5/8" (15.9 mm) ToughRock® Fireguard X® Products or 5/8" (15.9 mm) DensArmor Plus Fireguard gypsum panels applied horizontally or vertically to studs with 6d cement coated nails, 1 7/8" long, 0.0915" shank, 15/64" heads, 7" o.c. Vertical joints staggered 24" on opposite sides. Sound Tested with 3-1/2" (89 mm) fiberglass insulation

Approved for Assembly:
DensArmor Plus® Fireguard C® Products,DensArmor Plus® Fireguard® Products,DensElement™ Barrier Sheathing,DensGlass® Fireguard® Sheathing,DensShield® Fireguard® Tile Backer,ToughRock® Fireguard C® Products,ToughRock® Fireguard X™ Mold-Guard™ Products,ToughRock® Fireguard X™ Products,ToughRock® Lite-Weight Fire-Rated Products (Meets fire-rating but not included in Sound Testing)

(4A) (4B) (OPTIONAL) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)



(5)

Floor/Ceiling Wood-Framed

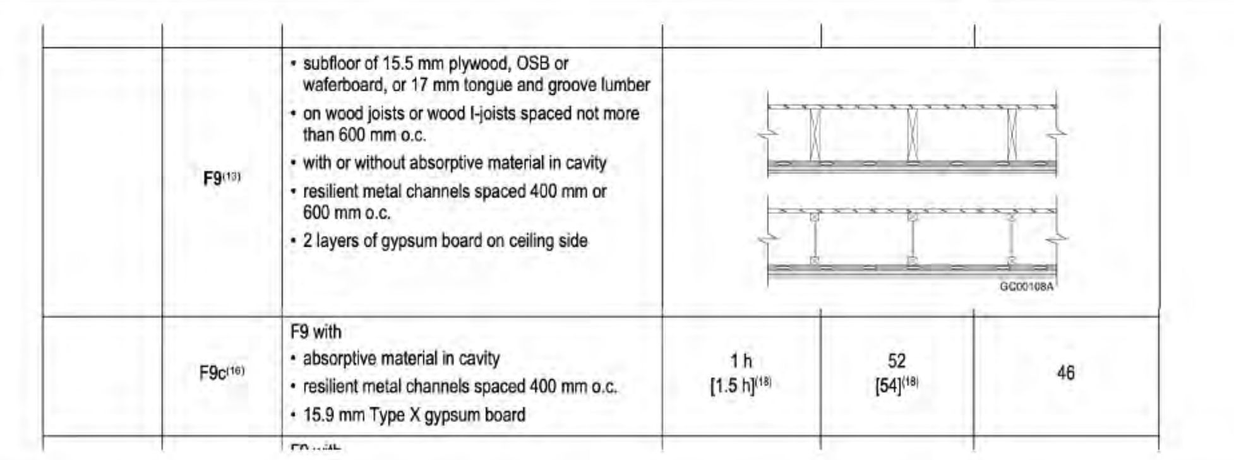
Hourly Rating: 2-hour

Fire Test Reference: UL L505, cUL L505, GA FC 5724?

Base Layer: 5/8" (15.9 mm) ToughRock® Fireguard C® gypsum board or 5/8" (15.9 mm) DensArmor Plus® Fireguard C® (UL L505 only) applied perpendicular to 2" x 10" wood joists 16" (406 mm) o.c. with 2-1/2" (64 mm) 8d cement coated nails 7" (178 mm) o.c. Resilient channel 24" (610 mm) o.c. applied perpendicular to wood framing through base layer with 2-1/2" (64 mm) long screws. Double channel installed at face layer end joints. Face Layer: 5/8" (15.9 mm) ToughRock Fireguard C gypsum board applied or 5/8" (15.9 mm) DensArmor Plus Fireguard C® (UL L505 only) applied perpendicular to resilient channels with 1" (25 mm) Type S screws 12" (305 mm) o.c. Wood joists supporting 1" (25.4 mm) nominal T&G wood subfloor and 1" (25 mm) nominal wood finish floor or 15/32" (11.9 mm) plywood subfloor and 19/32" (15.1 mm) plywood finish floor applied perpendicular to joists with joints staggered.

Approved for Assembly:
ToughRock® Fireguard C® Products,DensArmor Plus® Fireguard C® Products

(5A)



KILO ARCHITECTURE

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250 896 9678 info@kiloarchitecture.com

Project Title
Temperance Hotel
32 High St. Ladysmith, BC

Architect
KILO Architecture Inc.

Consultant

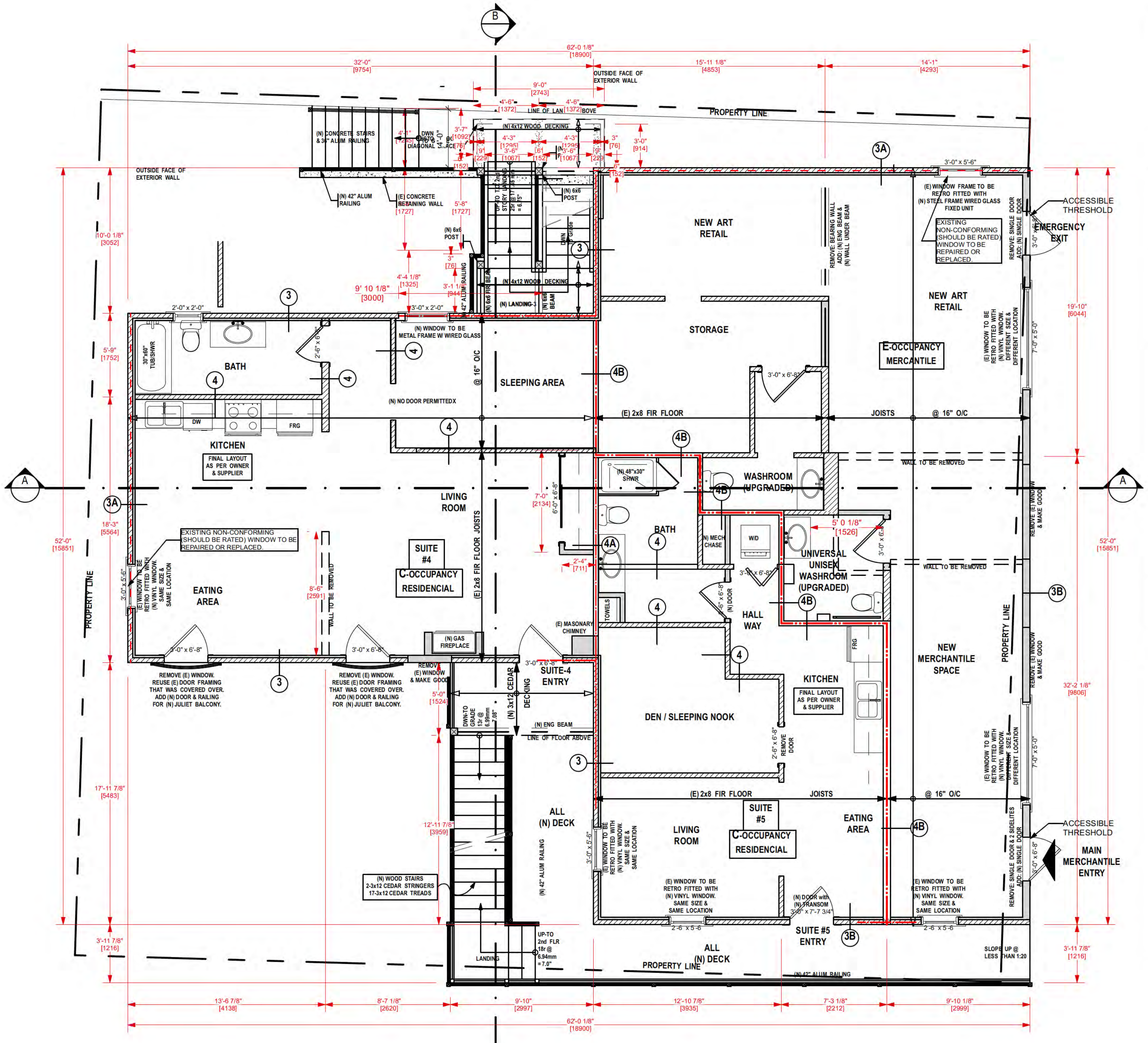
REV	DATE	DESCRIPTION

NO	DATE	ISSUE NOTE
1	2023-01-23	ISSUED FOR BP

Project Manager: KAT
Drawn By: AJB
Date: Jan. 01/23
Reviewed By: KAT
Project ID: 2222 Temperance Hotel 32 High St.; Ladysmith BC

Sheet Title
PROPOSED BASEMENT FLOOR PLAN

Sheet No
A.110



PROPOSED 1st FLOOR PLAN

SCALE @ 1/4" = 1'

LIVING SPACE: TOTAL EXISTING
@ 216.3 m2 (22328.5 sq/ft)

NOTE: LIVING SPACE CALCULATED FROM:
OUTSIDE FACE OF EXTERIOR WALL

FIRE SEPARATIONS

45 MIN FRR
1 HR FRR
2 HR FRR

ASSEMBLIES

1 ROOF:
(E) FIBERGLASS ROOFING SHINGLES
(E) BUILDING PAPER
(E) 3/8" PLY SHEETING over
(E) 3/4" SHEETING
(E) 2x6 FIR ROOF RAFTERS & CEILING JSTS @ 36" O/C
(N) 1:300 VENTILATION
(N) R40 FIBERGLASS INSULATION
(N) M2000 UVI POLY V/B (CAN/CGSB-51.34-M86)
(N) 2-5/8" TYPE X DRYWALL

2 SOFFIT/FACIA/GUTTER:
(N) SOLID SOFFIT TYPICAL; 1/2" PLY
(N) 5" ALUM GUTTER
(N) 1x6 FACIA

3 EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

3A EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0) - EXISTING NON-CONFORMING (UNRATED FROM EXTERIOR)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

3B NEW EXTERIOR WALL
1 hr FIRE RATING
(N) 8" CEDAR CHANNEL HORZ SIDING
(N) PT PLY VERTICAL RAINSCREEN
(N) "TYVEC" (AIR BARRIER)
(N) 1/2" PLYWOOD SHEETING
(N) 2x6 SPF STUDS @ 16" O/C
(N) 6" (R22) Rockwool INSULATION
(N) M2000 POLY VB
(N) 5/8" TYPE X DRYWALL: 1hr FIRE RATING (SEE ATTACHED)

4 INTERIOR WALLS: TYP INSIDE SUITES: NO RATING
(E) 2x4 FIR STUDS @ 16" O/C
(N) 1/2" REG DRYWALL-BOTH SIDES

4A EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) SUITES: STC 52
2HR FIRE RESISTANCE RATING (1 HR FRR REQUIRED)
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES
ONE SIDE WITH RESBAR BETWEEN STUDS AND THE (2) LAYERS
(SEE ATTACHED)

4B EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) AND MERCANTILE (E)
2 HR FIRE RESISTANCE RATING - W/ UNRATED STC
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES

5 EXISTING UPGRADED FLOOR & CEILING SYSTEM
2hr FIRE RATING (ULC L505)
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) 2x8 FLOOR JOISTS (AS PER PLAN)
(N) 3.5" MINERAL WOOL INSULATION (OPTIONAL)
(N) MATERIAL FOR 2 hr FIRE RATING (SEE ATTACHED)

5A EXISTING UPGRADED FLOOR/ CEILING SYSTEM
1hr FIRE RATING BETWEEN RESIDENTIAL SUITES
FLOOR TYPE F9c FROM Table 9.10.3.1.-B OF BCBC 2018
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) EXISTING FLOOR JOISTS (AS PER PLAN)
(N) 3.5" Rockwool INSULATION
(N) MATERIAL FOR 1 hr FIRE RATING (SEE ATTACHED)

5B FLOOR SYSTEM: (CRAWLSPACE BELOW (E) OCCUPANCY: UNRATED
(E) FLOOR COVERING
(E) 3/4" SHEETING
(E) 2x8 FIR FLOOR JOISTS @ 16" O/C
(E) X BRIDGING @ 7' O/C

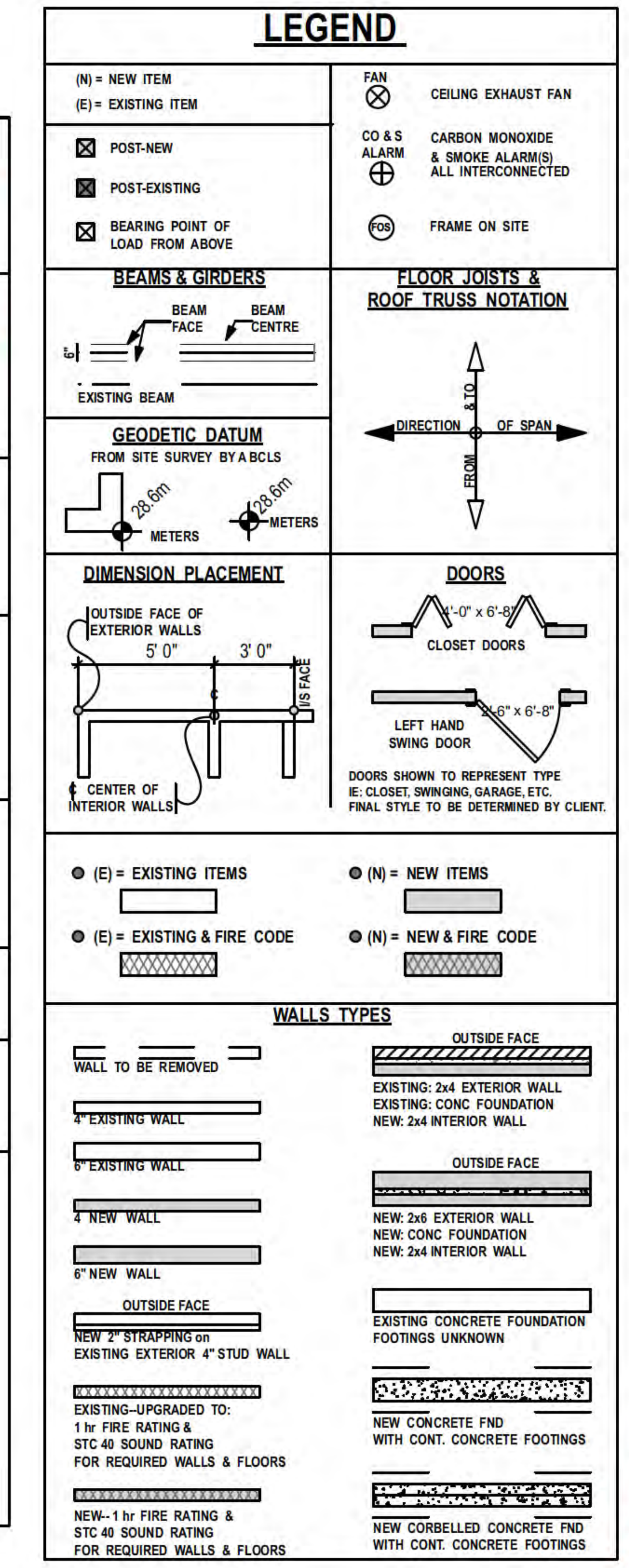
6 FOUNDATION AND FOOTINGS: (EXISTING)
(ALL NEW FROM PREVIOUS BUILDING PERMIT)
(E) ENG 8" CONC FND WALLS
(E) ENG CONC FOOTINGS
(E) 3" & 4" DRAIN PIPE
(E) GRAVEL FILL
SOLID BEARING

6B FOUNDATION AND FOOTINGS: (NEW)
(N) ENG 8" CONC FND WALLS
(N) ENG CONC FOOTINGS
(N) 3" & 4" DRAIN PIPE
(N) GRAVEL FILL
SOLID BEARING

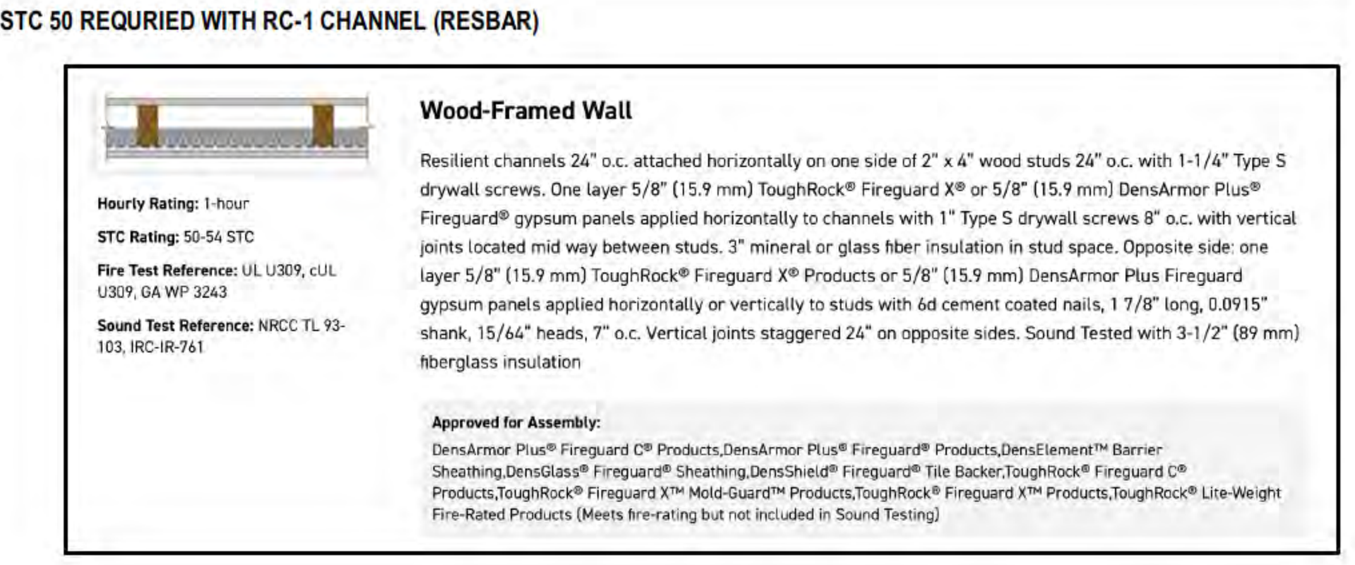
7 CONCRETE FLOOR:
(E) 4" CONCRETE SLAB
(E) COMPACT FILL

7B CONCRETE FLOOR:
(N) 4" CONCRETE SLAB (25 mpa-minimum)
(N) M2000 UVI POLY VAPOUR BARRIER
(N) 6" MIN COMPACT FILL

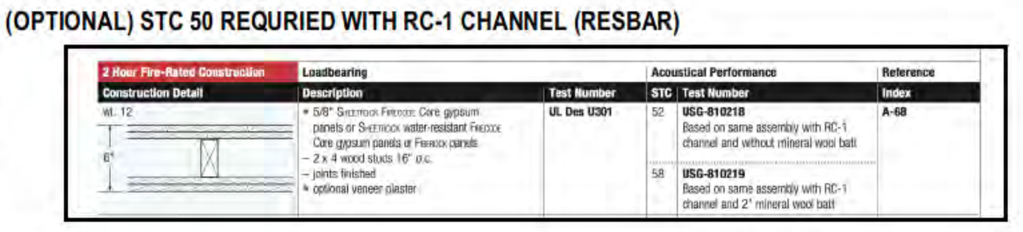
8 CRAWLSPACE:
(E) 2" CONCRETE SEAL
(E) COMPACT FILL



4A STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)



4A / 4B (OPTIONAL) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)



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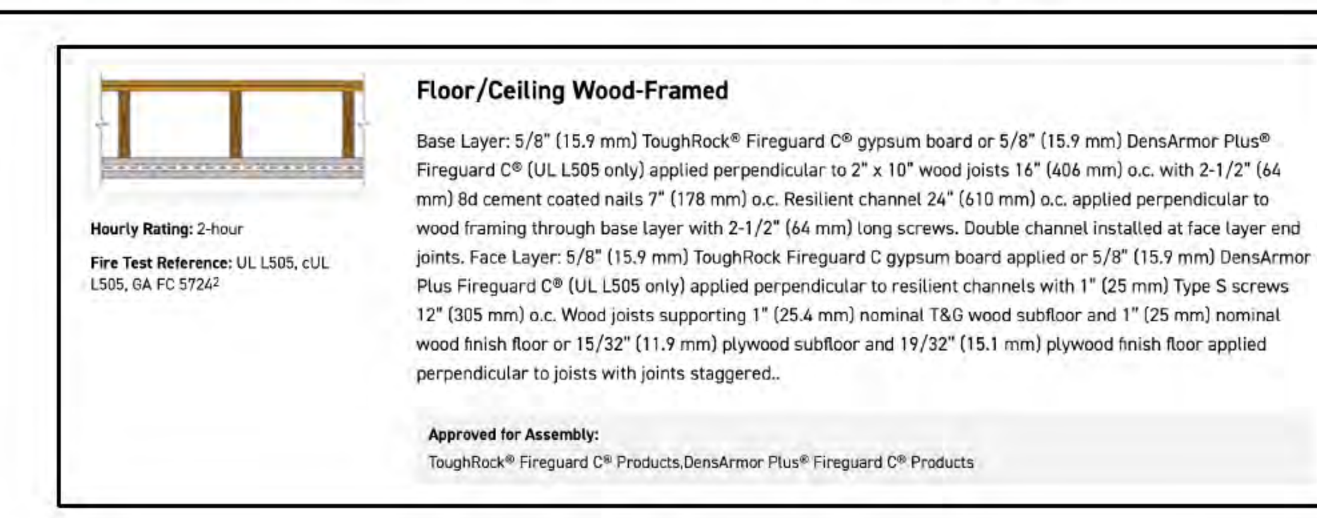
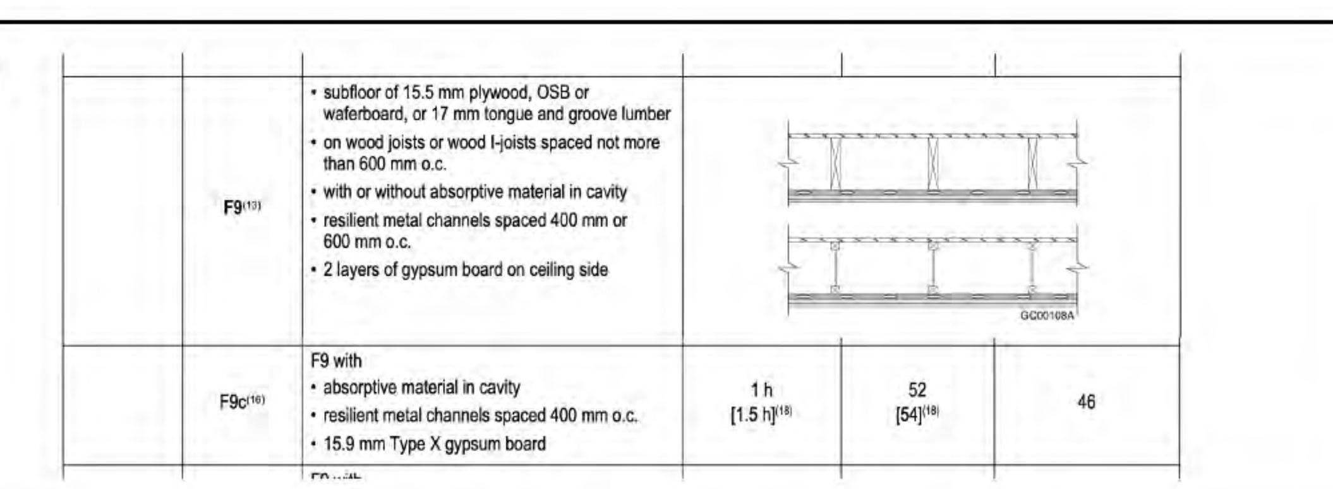


5A



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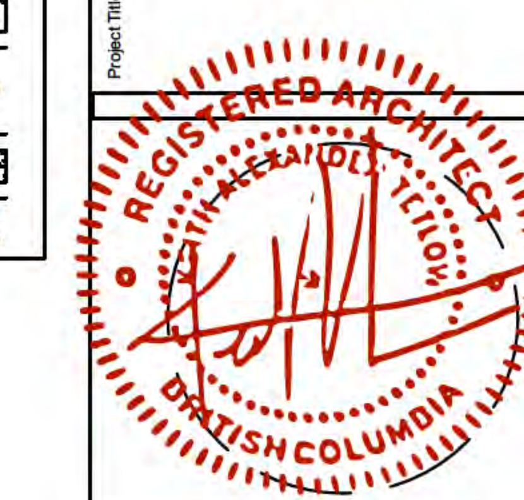
Project Title
Temperance Hotel
32 High St. Ladysmith, BC



Architect
KILO Architecture Inc.

Consultant

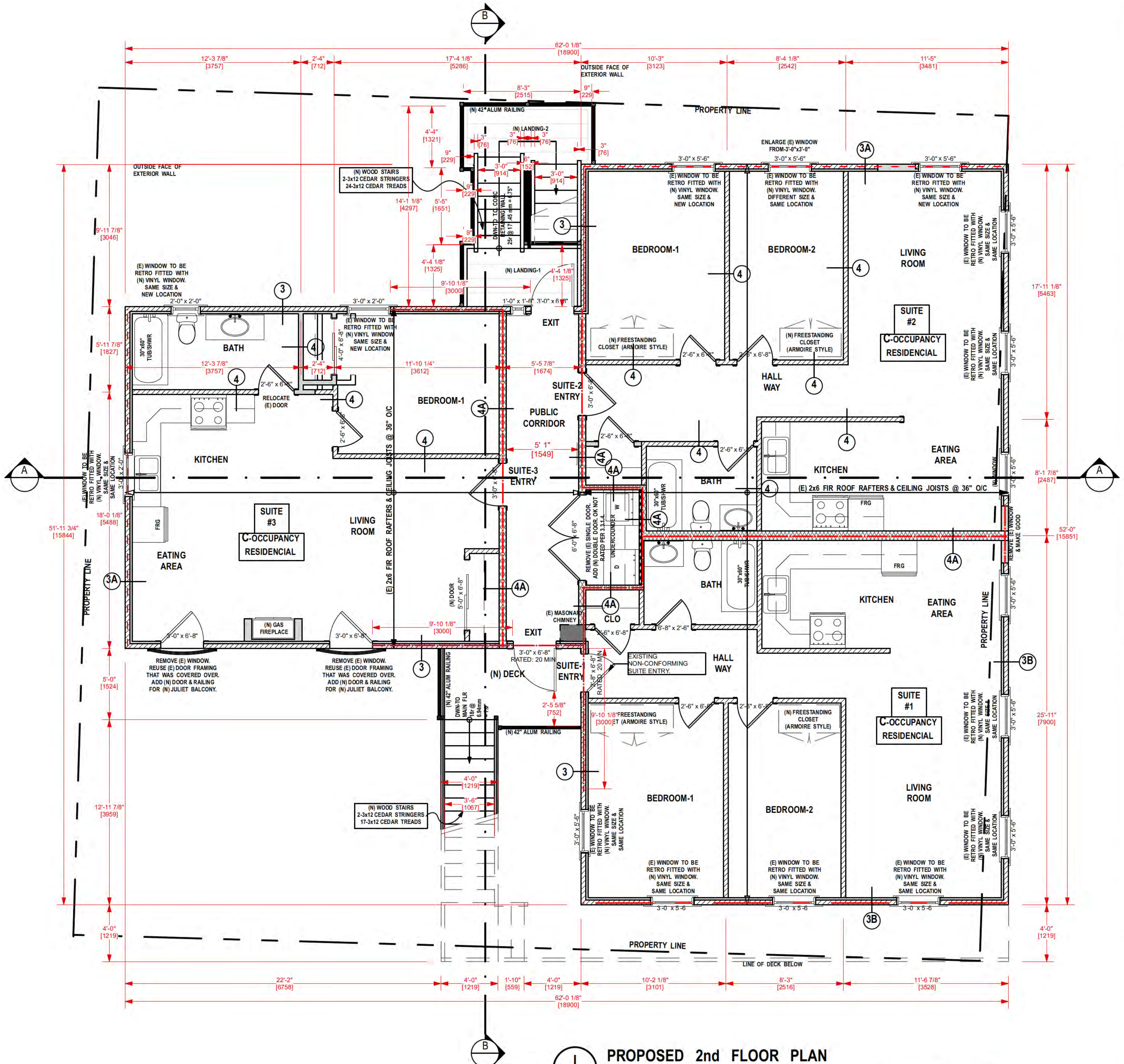
REV.	DATE	DESCRIPTION

NO.	DATE	ISSUE NOTE
1	2023-01-23	ISSUED FOR BP

Project Manager: KAT
Drawn By: AJB
Date: Jan. 01/23
Reviewed By: KAT
Project ID: 2222 — Temperance Hotel, 32 High St.; Ladysmith BC

Sheet Title
PROPOSED 1ST FLOOR PLAN

Sheet No
A.111



PROPOSED 2nd FLOOR PLAN

SCALE @ 1/4" = 1'

FIRE SEPARATIONS

- - - - -	45 MIN FRR
— - - —	1 HR FRR
—·—·—	2 HR FRR

LIVING SPACE: TOTAL EXISTING
@ 216.3 m2 (22328.5 sq/ft)

NOTE: LIVING SPACE CALCULATED FROM:
OUTSIDE FACE OF EXTERIOR WALL

FIRE SEPARATIONS

- - - - -	45 MIN FRR
— - - —	1 HR FRR
—·—·—	2 HR FRR

ASSEMBLIES

1 — ROOF:
(E) FIBERGLASS ROOFING SHINGLES
(E) BUILDING PAPER
(E) 3/8" PLY SHEETING over
(E) 3/4" SHEETING
(E) 2x6 FIR ROOF RAFTERS & CEILING JSTS @ 36" O/C
(N) 1:300 VENTILATION
(N) R40 FIBERGLASS INSULATION
(N) M2000 UVI POLY V/B (CAN/CGSB-51.34-M86)
(N) 2-5/8" TYPE X DRYWALL

2 — SOFFIT/FACIA/GUTTER:
(N) SOLID SOFFIT TYPICAL; 1/2" PLY
(N) 5" ALUM GUTTER
(N) 1x6 FACIA

3 — EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

3A — EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0) - EXISTING NON-CONFORMING (UNRATED FROM EXTERIOR)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

3B — NEW EXTERIOR WALL
1 hr FIRE RATING
(N) 8" CEDAR CHANNEL HORZ SIDING
(N) PT PLY VERTICAL RAINSCREEN
(N) "TYVEC" (AIR BARRIER)
(N) 1/2" PLYWOOD SHEETING
(N) 2x6 SPF STUDS @ 16" O/C
(N) 6" (R22) Rockwool INSULATION
(N) M2000 POLY VB
(N) 5/8" TYPE X DRYWALL: 1hr FIRE RATING (SEE ATTACHED)

4 — INTERIOR WALLS: TYP INSIDE SUITES: NO RATING
(E) 2x4 FIR STUDS @ 16" O/C
(N) 1/2" REG DRYWALL-BOTH SIDES

4A — EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) SUITES: STC 52
2HR FIRE RESISTANCE RATING (1 HR FRR REQUIRED)
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES
ONE SIDE WITH RESBAR BETWEEN STUDS AND THE (2) LAYERS
(SEE ATTACHED)

4B — EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) AND MERCANTILE (E)
2 HR FIRE RESISTANCE RATING - W/ UNRATED STC
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES

5 — EXISTING UPGRADED FLOOR & CEILING SYSTEM
2hr FIRE RATING (ULC L505)
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) 2x8 FLOOR JOISTS (AS PER PLAN)
(N) 3.5" MINERAL WOOL INSULATION (OPTIONAL)
(N) MATERIAL FOR 2 hr FIRE RATING (SEE ATTACHED)

5A — EXISTING UPGRADED FLOOR/ CEILING SYSTEM
1hr FIRE RATING BETWEEN RESIDENTIAL SUITES
FLOOR TYPE F9c FROM Table 9.10.3.1.-B OF BCBC 2018
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) EXISTING FLOOR JOISTS (AS PER PLAN)
(N) 3.5" Rockwool INSULATION
(N) MATERIAL FOR 1 hr FIRE RATING (SEE ATTACHED)

5B — FLOOR SYSTEM: (CRAWLSPACE BELOW (E) OCCUPANCY: UNRATED
(E) FLOOR COVERING
(E) 3/4" SHEETING
(E) 2x8 FIR FLOOR JOISTS @ 16" O/C
(E) X BRIDGING @ 7' O/C

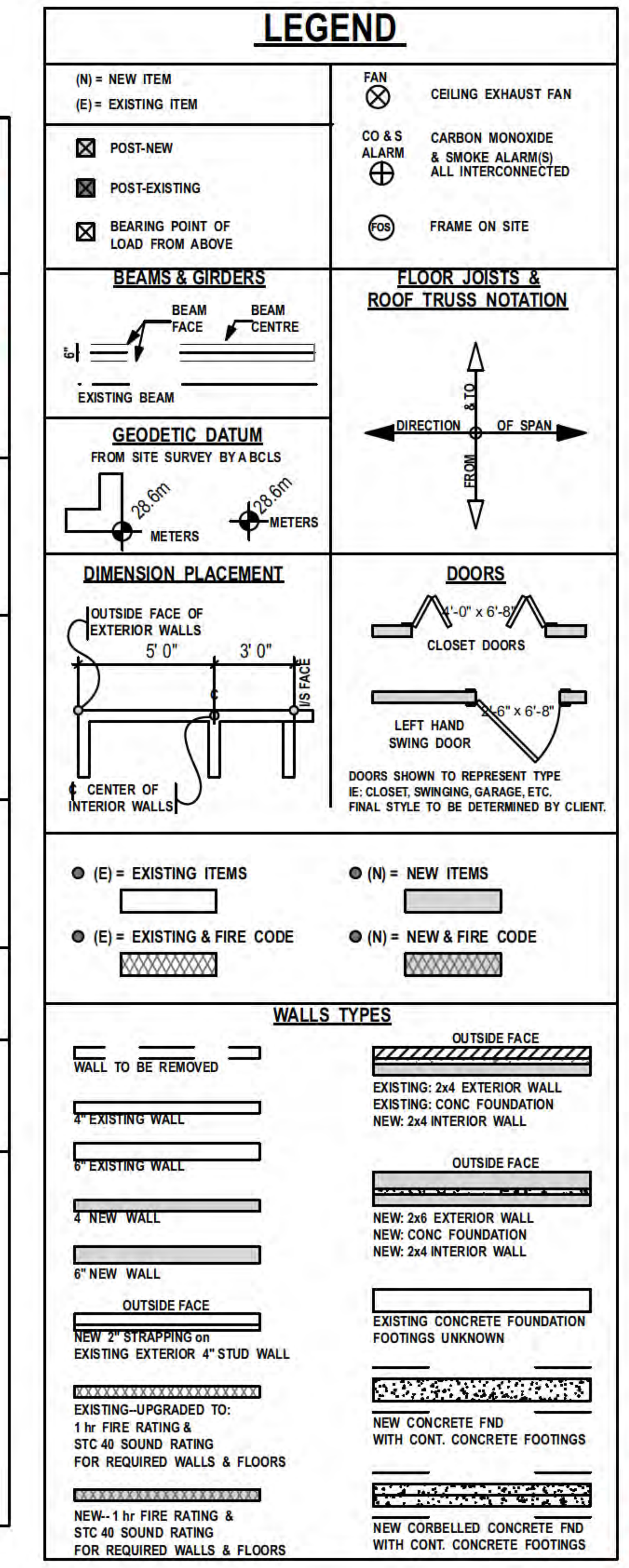
6 — FOUNDATION AND FOOTINGS: (EXISTING)
(ALL NEW FROM PREVIOUS BUILDING PERMIT)
(E) ENG 8" CONC FND WALLS
(E) ENG CONC FOOTINGS
(E) 3" & 4" DRAIN PIPE
(E) GRAVEL FILL
SOLID BEARING

6B — FOUNDATION AND FOOTINGS: (NEW)
(N) ENG 8" CONC FND WALLS
(N) ENG CONC FOOTINGS
(N) 3" & 4" DRAIN PIPE
(N) GRAVEL FILL
SOLID BEARING

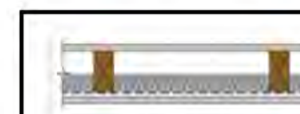
7 — CONCRETE FLOOR:
(E) 4" CONCRETE SLAB
(E) COMPACT FILL

7B — CONCRETE FLOOR:
(N) 4" CONCRETE SLAB (25 mpa-minimum)
(N) M2000 UVI POLY VAPOUR BARRIER
(N) 6" MIN COMPACT FILL

8 — CRAWLSPACE:
(E) 2" CONCRETE SEAL
(E) COMPACT FILL



4A STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)



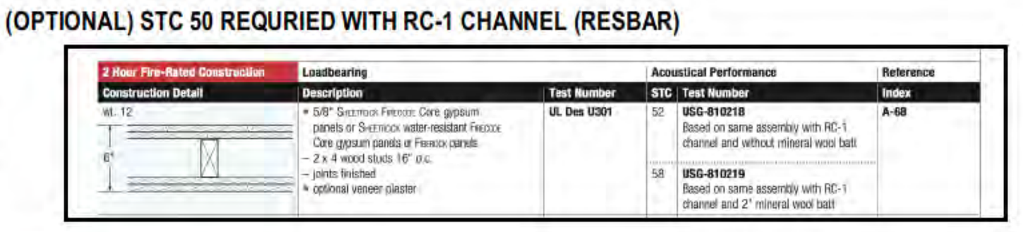
Wood-Framed Wall

Hourly Rating: 1-hour
STC Rating: 50-54 STC
Fire Test Reference: UL U309, cUL U309, GA WP 3243
Sound Test Reference: NRCC TL 93-103, IRC-IR-761

Resilient channels 24" o.c. attached horizontally on one side of 2" x 4" wood studs 24" o.c. with 1-1/4" Type S drywall screws. One layer 5/8" (15.9 mm) ToughRock® Fireguard X® or 5/8" (15.9 mm) DensArmor Plus® Fireguard® gypsum panels applied horizontally to channels with 1" Type S drywall screws 8" o.c. with vertical joints located mid way between studs. 3" mineral or glass fiber insulation in stud space. Opposite side: one layer 5/8" (15.9 mm) ToughRock® Fireguard X® Products or 5/8" (15.9 mm) DensArmor Plus Fireguard gypsum panels applied horizontally or vertically to studs with 6d cement coated nails, 1 7/8" long, 0.0915" shank, 15/64" heads, 7" o.c. Vertical joints staggered 24" on opposite sides. Sound Tested with 3-1/2" (89 mm) fiberglass insulation

Approved for Assembly:
DensArmor Plus® Fireguard C® Products,DensArmor Plus® Fireguard® Products,DensElement™ Barrier Sheathing,DensGlass® Fireguard® Sheathing,DensShield® Fireguard® Tile Backer,ToughRock® Fireguard C® Products,ToughRock® Fireguard X™ Mold-Guard™ Products,ToughRock® Fireguard X™ Products,ToughRock® Lite-Weight Fire-Rated Products (Meets fire-rating but not included in Sound Testing)

4A / 4B (OPTIONAL) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)



5

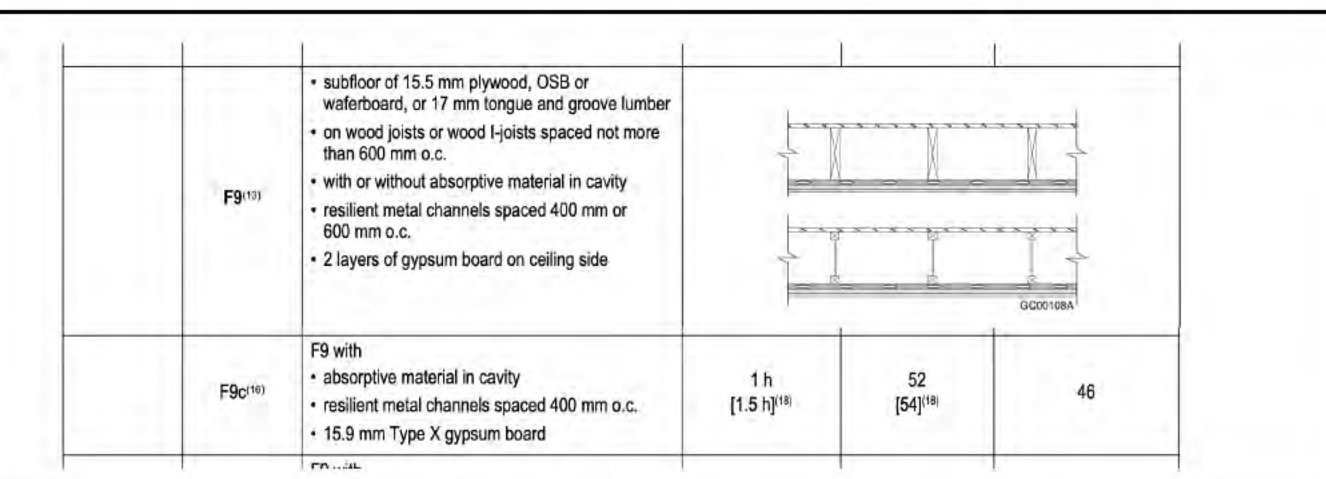
Floor/Ceiling Wood-Framed

Hourly Rating: 2-hour
Fire Test Reference: UL L505, cUL L505, GA FC 5724?

Base Layer: 5/8" (15.9 mm) ToughRock® Fireguard C® gypsum board or 5/8" (15.9 mm) DensArmor Plus® Fireguard C® (UL L505 only) applied perpendicular to 2" x 10" wood joists 16" (406 mm) o.c. with 2-1/2" (64 mm) 8d cement coated nails 7" (178 mm) o.c. Resilient channel 24" (610 mm) o.c. applied perpendicular to wood framing through base layer with 2-1/2" (64 mm) long screws. Double channel installed at face layer end joints. Face Layer: 5/8" (15.9 mm) ToughRock Fireguard C gypsum board applied or 5/8" (15.9 mm) DensArmor Plus Fireguard C® (UL L505 only) applied perpendicular to resilient channels with 1" (25 mm) Type S screws 12" (305 mm) o.c. Wood joists supporting 1" (25.4 mm) nominal T&G wood subfloor and 1" (25 mm) nominal wood finish floor or 15/32" (11.9 mm) plywood subfloor and 19/32" (15.1 mm) plywood finish floor applied perpendicular to joists with joints staggered.

Approved for Assembly:
ToughRock® Fireguard C® Products,DensArmor Plus® Fireguard C® Products

5A



KILO ARCHITECTURE
1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kiloarchitecture.com

Project Title
Temperance Hotel
32 High St. Ladysmith, BC

Architect
KILO Architecture Inc.

Consultant

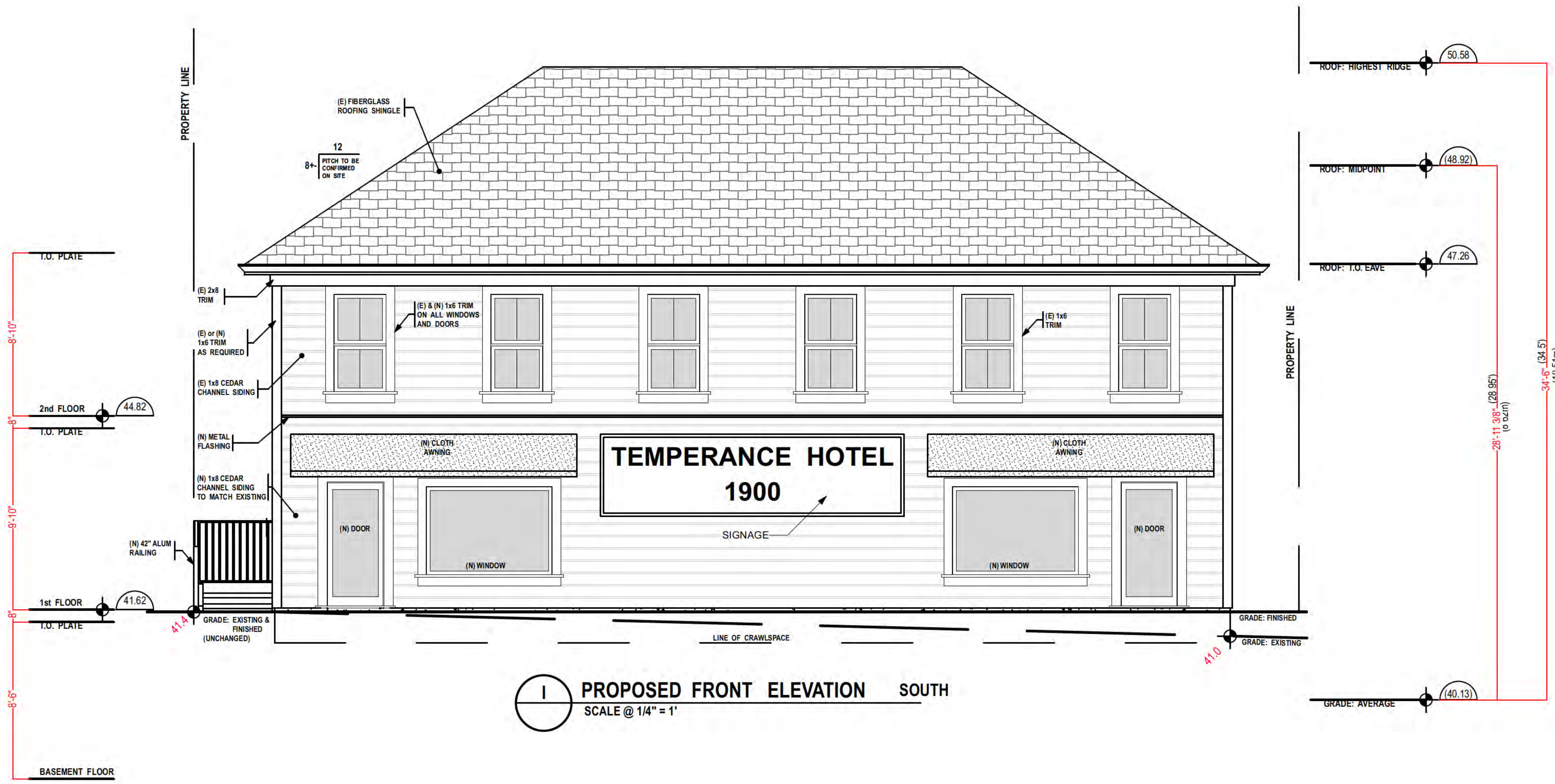
REV	DATE	DESCRIPTION

NO	DATE	ISSUE NOTE
1	2023-01-23	ISSUED FOR BP

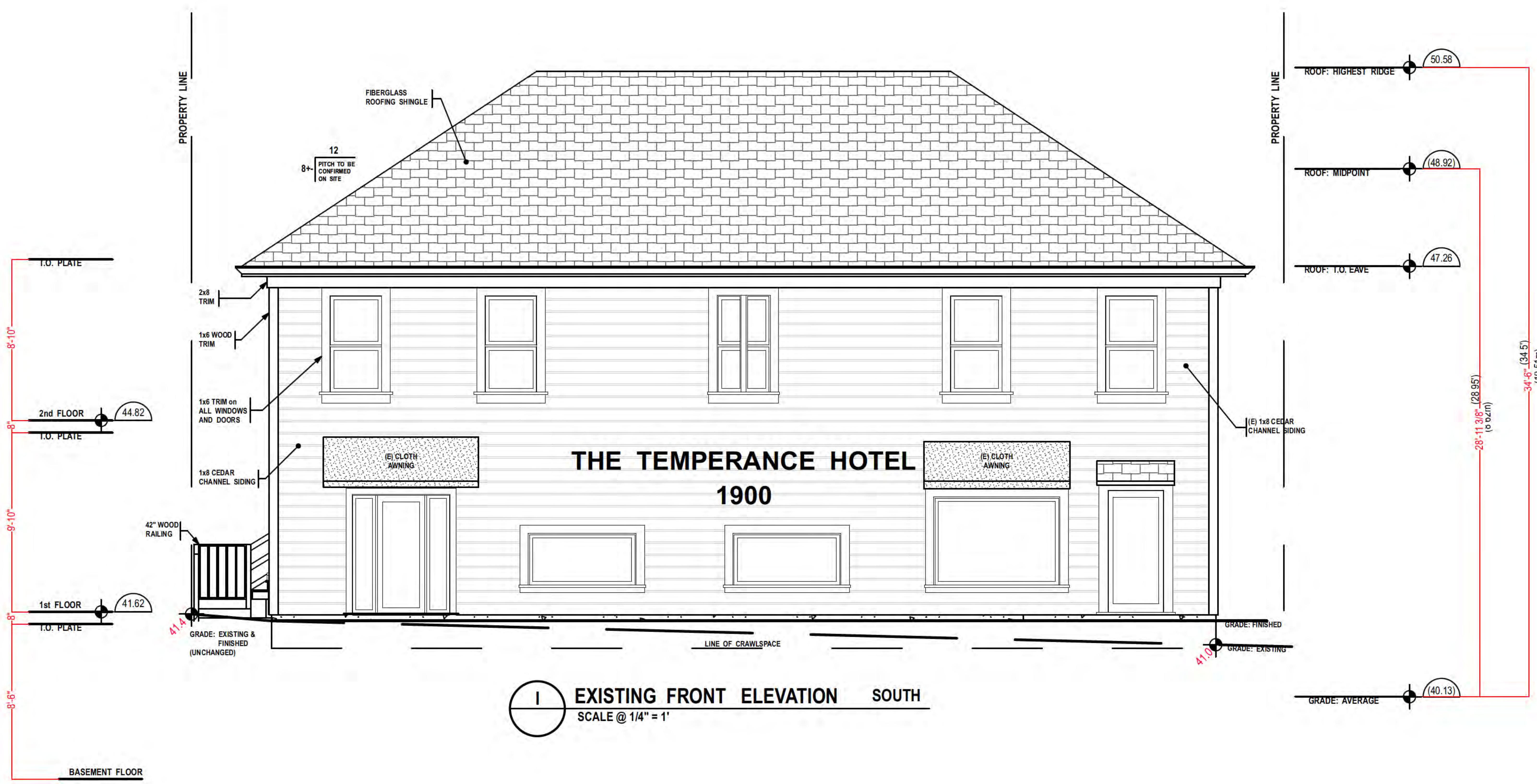
Project Manager: KAT	Drawn By: AJB
Date: Jan. 01/23	Reviewed By: KAT
Project ID: 2222	Temperance Hotel 32 High St.; Ladysmith BC

Sheet Title
PROPOSED 2ND FLOOR PLAN

Sheet No
A.112



PROPOSED FRONT ELEVATION SOUTH
SCALE @ 1/4" = 1'



EXISTING FRONT ELEVATION SOUTH
SCALE @ 1/4" = 1'

WINDOWS

- ALL EXISTING WINDOWS ARE TO BE RETRO.
- ALL BEDROOM WINDOWS ARE TO MEET EGRESS REQUIREMENTS.
- ALL NEW WINDOWS ARE MAKED AS (N) WINDOW
- TYPICAL: ALL NEW WINDOWS TO BE PG 40 WIND & RAIN RATED. AS PER BCBC 9.23.13
- TYPICAL: ALL NEW WINDOWS & SLIDING DOORS ARE TO HAVE AN ENERGY EFFICIENCY MAXIMUM U-value @ 1.61
- TYPICAL: FLASHING REQUIRED OVER ALL EXPOSED OPENINGS. ALL END DAMS @ 2.5mm (1") AS PER DETAILS.
- TYPICAL: CONFIRM WITH MUNICIPALITY IF NEW FLASHING IS REQUIRED OVER RETRO FITED EXISTING UNPROTECTED OPENINGS.

NOTE:
- ALL BUILDING HEIGHTS DETERMINED BY GEODETIC DATUM, IN METERS.
- AS PER SITE SURVEY SUPPLIED BY A REGISTERED "BCLS".
- FINAL HEIGHT TO BE CONFIRMED BY A REGISTERED "BCLS". 000.00
- GEODETIC DATUM FROM "BCLS" IS SHOWN AS: (000.00)

GEODETIC DATUM BY AJB HOME DESIGN IS SHOWN AS:

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1412-450 SIMCOE ST VICTORIA BC
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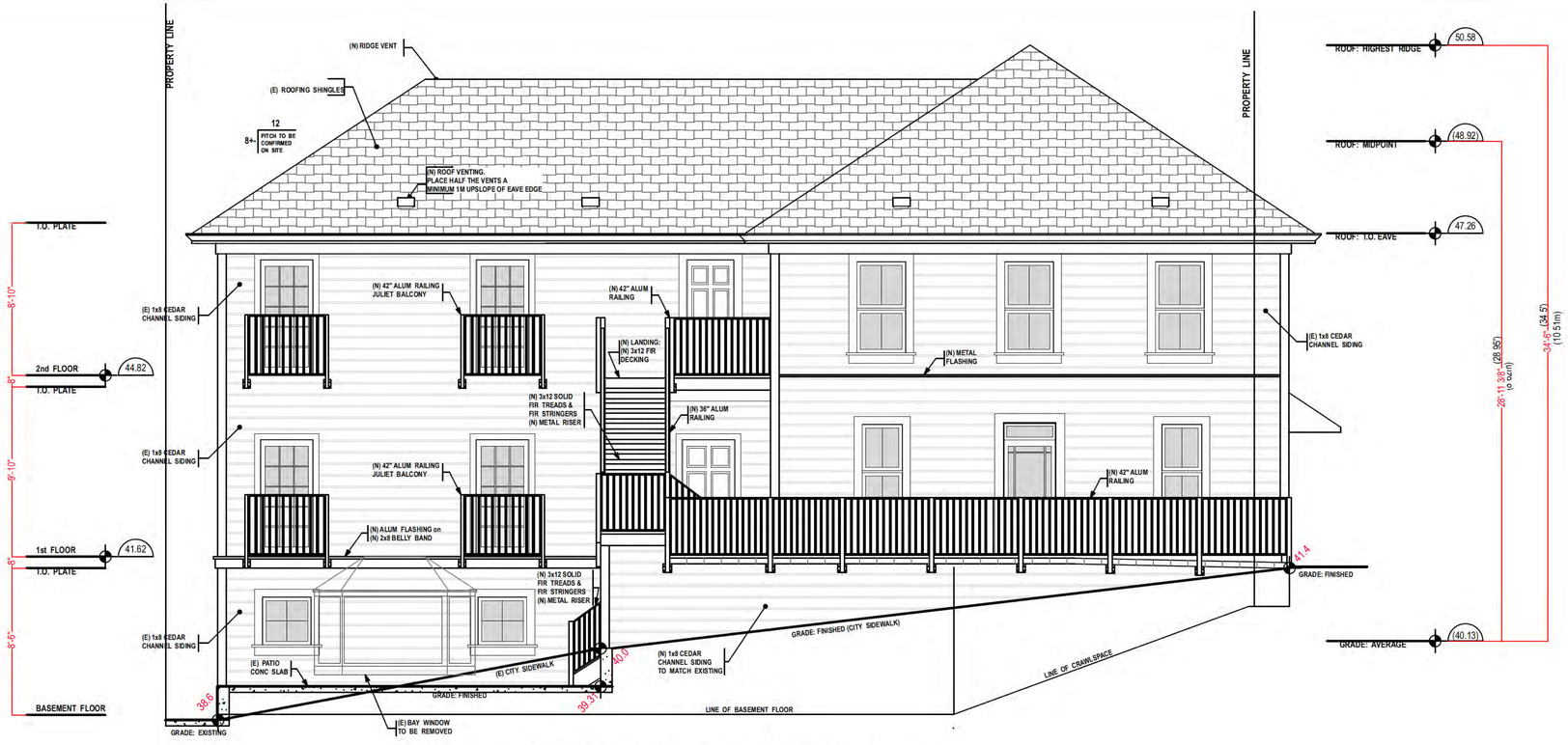
Sheet Title
ELEVATIONS

Sheet No
A.300



1 **PROPOSED LEFT SIDE ELEVATION** WEST
SCALE @ 1/4" = 1'

1 **EXISTING LEFT SIDE ELEVATION** WEST
SCALE @ 1/4" = 1'

WINDOWS

- ALL EXISTING WINDOWS ARE TO BE RETRO.
- ALL BEDROOM WINDOWS ARE TO MEET EGRESS REQUIREMENTS.
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- TYPICAL: ALL NEW WINDOWS TO BE PG 40 WIND & RAIN RATED. AS PER BCBC 9.23.13
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NOTE:

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- AS PER SITE SURVEY SUPPLIED BY A REGISTERED "BCLS".

FINAL HEIGHT TO BE CONFIRMED BY A REGISTERED "BCLS". (000.00)

GEODETIC DATUM FROM "BCLS" IS SHOWN AS: (000.00)

GEODETIC DATUM BY AJB HOME DESIGN IS SHOWN AS:

KILO ARCHITECTURE
1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kilоarchitecture.com

Temperance Hotel

32 High St. Ladysmith, BC

Project Title

REGISTERED ARCHITECT KATHLEEN TILLOTSON BRITISH COLUMBIA

Architect
KILO Architecture Inc.

Consultant

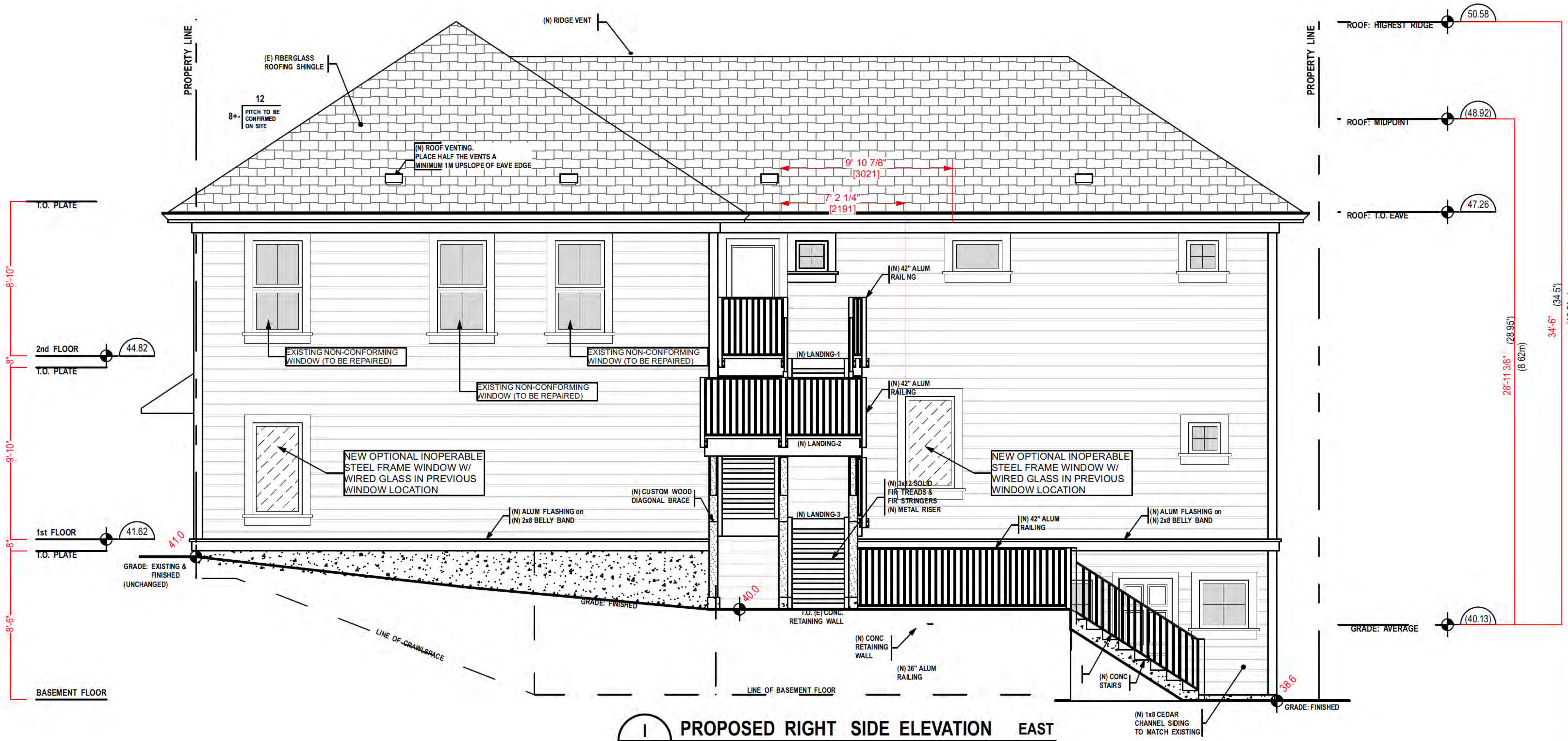
REV	DATE	DESCRIPTION
1	2023-01-23	ISSUED FOR BP

NO	DATE	ISSUE NOTE

Project Manager	Drawn By
KAT	AJB
Date	**Reviewed By**
Jan. 01/23	KAT
Project ID	Temperance Hotel
2222	32 High St.; Ladysmith BC

Sheet Title
ELEVATIONS

Sheet No
A.301



1 PROPOSED RIGHT SIDE ELEVATION EAST
SCALE @ 1/4" = 1'

WINDOWS

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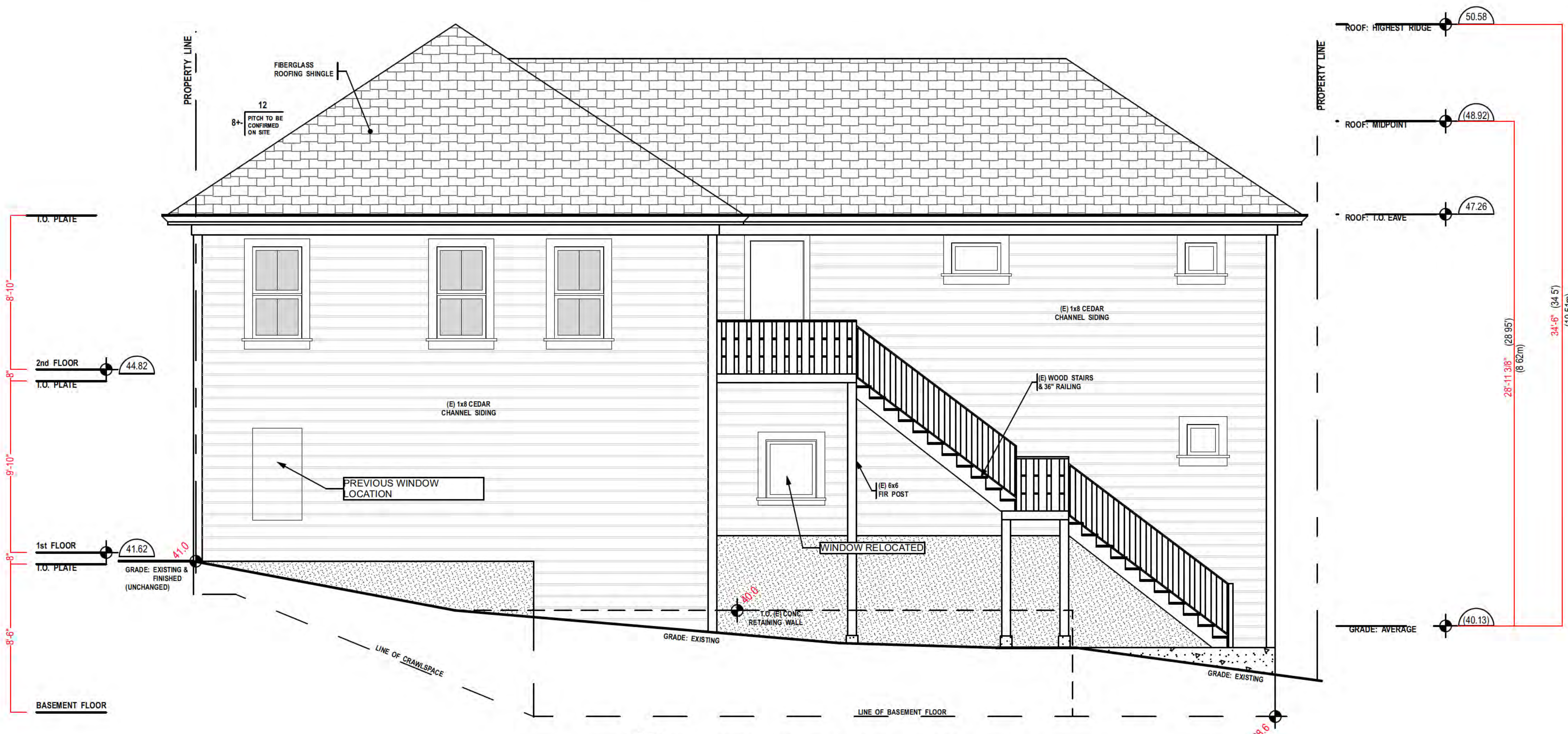

1 EXISTING RIGHT SIDE ELEVATION EAST
SCALE @ 1/4" = 1'

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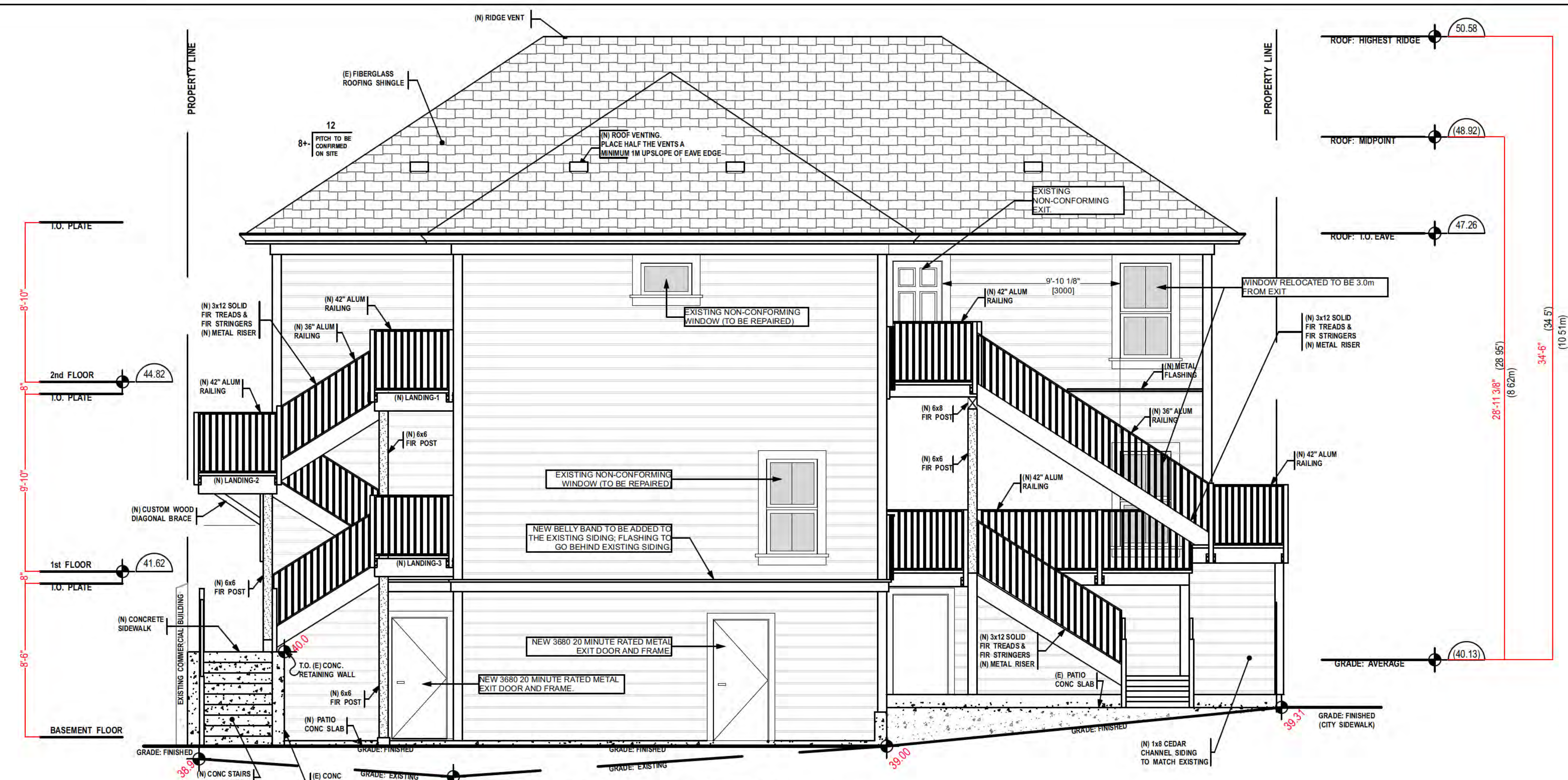
Sheet Title
ELEVATIONS

Sheet No
A.302



PROPOSED REAR ELEVATION — NORTH

SCALE @ 1/4" = 1'

EXISTING REAR ELEVATION — NORTH

SCALE @ 1/4" = 1'

WINDOWS

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Project Title
Temperance Hotel
32 High St. Ladysmith, BC

Architect
KILO Architecture Inc.

Consultant

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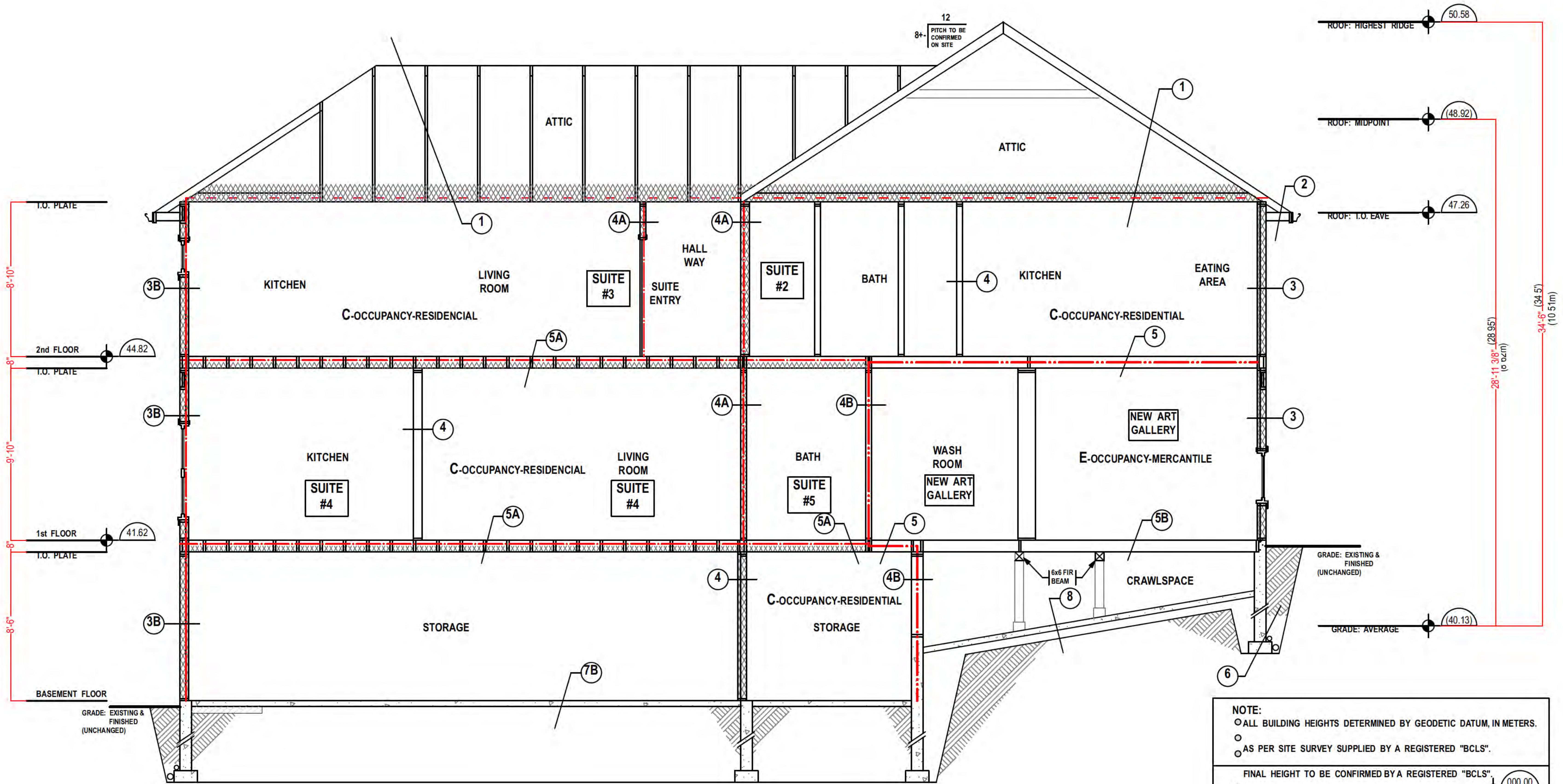
Project ID: 2222	Temperance Hotel, 32 High St.; Ladysmith BC

Sheet Title
ELEVATIONS

Sheet No
A.303



PROPOSED CROSS SECTION AA

1

SCALE @ 1/4" = 1'

NOTE:
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- GEODETIC DATUM FROM "BCLS" IS SHOWN AS: (000.00)

GEODETIC DATUM BY AJB HOME DESIGN IS SHOWN AS:

LEGEND

(N) = NEW ITEM
(E) = EXISTING ITEM

POST-NEW
POST-EXISTING
BEARING POINT OF LOAD FROM ABOVE

FAN — CEILING EXHAUST FAN
CO & S ALARM — CARBON MONOXIDE & SMOKE ALARM(S) ALL INTERCONNECTED
FOS — FRAME ON SITE

BEAMS & GIRDERS
BEAM FACE, BEAM CENTRE, 6"
EXISTING BEAM

FLOOR JOISTS & ROOF TRUSS NOTATION
DIRECTION OF SPAN, FROM & TO

GEODETIC DATUM
FROM SITE SURVEY BY A BCLS IN METERS
125.66 METERS — ON FLOOR PLANS
125.66 METERS — ON ELEVATIONS & XSECTIONS

DIMENSION PLACEMENT
OUTSIDE FACE OF EXTERIOR WALLS
5' 0" 3' 0"
I/S FACE
CENTER OF INTERIOR WALLS

DOORS
4'-0" x 6'-8" CLOSET DOORS
2'-6" x 6'-8" LEFT HAND SWING DOOR
DOORS SHOWN TO REPRESENT TYPE
IE: CLOSET, SWINGING, GARAGE, ETC.
FINAL STYLE TO BE DETERMINED BY CLIENT.

WALLS TYPES
WALL TO BE REMOVED
4" EXISTING WALL
6" EXISTING WALL
4" NEW WALL
6" NEW WALL
OUTSIDE FACE — NEW 2" STRAPPING on EXISTING EXTERIOR 4" STUD WALL
EXISTING--UPGRADED TO: 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
NEW-- 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
OUTSIDE FACE — EXISTING: 2x4 EXTERIOR WALL / EXISTING: CONC FOUNDATION / NEW: 2x4 INTERIOR WALL
OUTSIDE FACE — NEW: 2x6 EXTERIOR WALL / NEW: CONC FOUNDATION / NEW: 2x4 INTERIOR WALL
EXISTING CONCRETE FOUNDATION FOOTINGS UNKNOWN
NEW CONCRETE FND WITH CONT. CONCRETE FOOTINGS
NEW CORBELLED CONCRETE FND WITH CONT. CONCRETE FOOTINGS

CROSS SECTION NOTES

- ALL MATERIALS, USED ON THIS JOB, ARE TO MEET APPLICABLE BC BUILDING CODE STANDARDS, MANUFACTURES SPECIFICATIONS AND HAVE APPROPRIATE DOCUMENT NUMBERS AS PER SECTIONS 5.10 & 5.11.
- ANY MATERIAL SUBSTITUTIONS MUST BE APPROVED BY THE BUILDING INSPECTION DEPARTMENT OF THE APPLICABLE MUNICIPALITY. ANY REQUIRED ADDITIONAL DOCUMENTATION IS TO BE SUPPLIED BY OTHER.
- RAIN SCREENING IS TO BE AS PER THE REQUIREMENTS OF THE MUNICIPALITY AND THE BC BUILDING CODE.

- (E) = EXISTING ITEMS
- (N) = NEW ITEMS
- (E) = EXISTING & FIRE CODE
- (N) = NEW & FIRE CODE

FIRE SEPARATIONS

45 MIN FRR
1 HR FRR
2 HR FRR

ASSEMBLIES

(1) **ROOF: 45 MIN.**
(E) FIBERGLASS ROOFING SHINGLES
(E) BUILDING PAPER
(E) 3/8" PLY SHEETING over
(E) 3/4" SHEETING
(E) 2x6 FIR ROOF RAFTERS & CEILING JSTS @ 36" O/C
(N) 1:300 VENTILATION
(N) R40 FIBERGLASS INSULATION
(N) M2000 UVI POLY V/B (CAN/CGSB-51.34-M86)
(N) 5/8" TYPE X DRYWALL

(2) **SOFFIT/FACIA/GUTTER:**
(N) SOLID SOFFIT TYPICAL; 1/2" PLYWOOD (SEE PLAN FOR LOCATION)
(N) 5" ALUM GUTTER
(N) 1x6 FACIA

(3) **EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0)**
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X OR 1/2" FURRED OUT 1/8"

(3A) **EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0) - EXISTING NON-CONFORMING (UNRATED FROM EXTERIOR)**
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

(3B) **NEW EXTERIOR WALL W/ OR W.O. 1 HR. FIRE RATING**
(N) 8" CEDAR CHANNEL HORZ SIDING
(N) PT PLY VERTICAL RAINSCREEN
(N) "TYVEC" (AIR BARRIER)
(N) 1/2" PLYWOOD SHEETING
(N) 2x6 SPF STUDS @ 16" O/C
(N) 6" (R22) Rockwool INSULATION
(N) M2000 POLY VB
(N) 5/8" TYPE X DRYWALL: 1hr FIRE RATING (SEE PLAN FOR LOCATION)

(4) **INTERIOR WALLS:** TYP INSIDE SUITES: NO RATING
(E) 2x4 FIR STUDS @ 16" O/C
(N) 1/2" REG DRYWALL-BOTH SIDES

(4A) **EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) SUITES: STC 52**
2HR FIRE RESISTANCE RATING (1 HR FRR REQUIRED)
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES
ONE SIDE WITH RESBAR BETWEEN STUDS AND THE (2) LAYERS
(SEE ATTACHED)

(4B) **EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) AND MERCANTILE (E)**
2 HR FIRE RESISTANCE RATING - W/ UNRATED STC
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES

(5) **EXISTING UPGRADED FLOOR & CEILING SYSTEM**
2hr FIRE RATING (ULC L505)
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) 2x8 FLOOR JOISTS (AS PER PLAN)
(N) 3.5" MINERAL WOOL INSULATION (OPTIONAL)
(N) MATERIAL FOR 2 hr FIRE RATING (SEE ATTACHED)

(5A) **EXISTING UPGRADED FLOOR & CEILING SYSTEM**
1hr FIRE RATING BETWEEN RESIDENTIAL SUITES
FLOOR TYPE F9c FROM Table 9.10.3.1.-B OF BCBC 2018
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) EXISTING FLOOR JOISTS (AS PER PLAN)
(N) 3.5" Rockwool INSULATION
(N) MATERIAL FOR 1 hr FIRE RATING (SEE ATTACHED)

(5B) **FLOOR SYSTEM:** (CRAWLSPACE BELOW (E) OCCUPANCY: UNRATED
(E) FLOOR COVERING
(E) 3/4" SHEETING
(E) 2x8 FIR FLOOR JOISTS @ 16" O/C
(E) X BRIDGING @ 7' O/C

(6) **FOUNDATION AND FOOTINGS:** (EXISTING)
(ALL NEW FROM PREVIOUS BUILDING PERMIT)
(E) ENG 8" CONC FND WALLS
(E) ENG CONC FOOTINGS
(E) 3" & 4" DRAIN PIPE
(E) GRAVEL FILL
SOLID BEARING

(6b) **FOUNDATION AND FOOTINGS:** (NEW)
(N) ENG 8" CONC FND WALLS
(N) ENG CONC FOOTINGS
(N) 3" & 4" DRAIN PIPE
(N) GRAVEL FILL
SOLID BEARING

(7) **CONCRETE SLAB:**
(E) 4" CONCRETE SLAB
(E) COMPACT FILL

(7B) **CONCRETE FLOOR:**
(N) 4" CONCRETE SLAB (25 mpa-minimum)
(N) 4" INSULATION @ PERIMETER 4' MIN.
(N) M2000 UVI POLY VAPOUR BARRIER
(N) 6" MIN COMPACT FILL

(8) **CRAWLSPACE:**
(E) 2" CONCRETE SEAL
(E) COMPACT FILL

(4A) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)

Wood-Framed Wall

Hourly Rating: 1-hour

STC Rating: 50-54 STC

Fire Test Reference: UL U309, cUL U309, GA WP 3243

Sound Test Reference: NRCC TL 93-103, IRC-IR-761

Resilient channels 24" o.c. attached horizontally on one side of 2" x 4" wood studs 24" o.c. with 1-1/4" Type S drywall screws. One layer 5/8" (15.9 mm) ToughRock® Fireguard X® or 5/8" (15.9 mm) DensArmor Plus® Fireguard® gypsum panels applied horizontally to channels with 1" Type S drywall screws 8" o.c. with vertical joints located mid way between studs. 3" mineral or glass fiber insulation in stud space. Opposite side: one layer 5/8" (15.9 mm) ToughRock® Fireguard X® Products or 5/8" (15.9 mm) DensArmor Plus Fireguard gypsum panels applied horizontally or vertically to studs with 6d cement coated nails, 1 7/8" long, 0.0915" shank, 15/64" heads, 7" o.c. Vertical joints staggered 24" on opposite sides. Sound Tested with 3-1/2" (89 mm) fiberglass insulation

Approved for Assembly:
DensArmor Plus® Fireguard C® Products,DensArmor Plus® Fireguard® Products,DensElement™ Barrier Sheathing,DensGlass® Fireguard® Sheathing,DensShield® Fireguard® Tile Backer,ToughRock® Fireguard C® Products,ToughRock® Fireguard X™ Mold-Guard™ Products,ToughRock® Fireguard X™ Products,ToughRock® Lite-Weight Fire-Rated Products (Meets fire-rating but not included in Sound Testing)

(4A) (4B) (OPTIONAL) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)

2 Hour Fire-Rated Construction	Loadbearing		Acoustical Performance		Reference
Construction Detail	Description	Test Number	STC	Test Number	Index
wt. 12, 6"	• 5/8" SHEETROCK FIRECODE Core gypsum panels or SHEETROCK water-resistant FIRECODE Core gypsum panels or FIBEROCK panels – 2 x 4 wood studs 16" o.c. – joints finished • optional veneer plaster	UL Des U301	52	USG-810218 Based on same assembly with RC-1 channel and without mineral wool batt	A-68
			58	USG-810219 Based on same assembly with RC-1 channel and 2" mineral wool batt	

(5)

Floor/Ceiling Wood-Framed

Hourly Rating: 2-hour

Fire Test Reference: UL L505, cUL L505, GA FC 5724[2]

Base Layer: 5/8" (15.9 mm) ToughRock® Fireguard C® gypsum board or 5/8" (15.9 mm) DensArmor Plus® Fireguard C® (UL L505 only) applied perpendicular to 2" x 10" wood joists 16" (406 mm) o.c. with 2-1/2" (64 mm) 8d cement coated nails 7" (178 mm) o.c. Resilient channel 24" (610 mm) o.c. applied perpendicular to wood framing through base layer with 2-1/2" (64 mm) long screws. Double channel installed at face layer end joints. Face Layer: 5/8" (15.9 mm) ToughRock Fireguard C gypsum board applied or 5/8" (15.9 mm) DensArmor Plus Fireguard C® (UL L505 only) applied perpendicular to resilient channels with 1" (25 mm) Type S screws 12" (305 mm) o.c. Wood joists supporting 1" (25.4 mm) nominal T&G wood subfloor and 1" (25 mm) nominal wood finish floor or 15/32" (11.9 mm) plywood subfloor and 19/32" (15.1 mm) plywood finish floor applied perpendicular to joists with joints staggered..

Approved for Assembly:
ToughRock® Fireguard C® Products,DensArmor Plus® Fireguard C® Products

(5a)

F9[13]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 600 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 400 mm or 600 mm o.c. • 2 layers of gypsum board on ceiling side	GC00108A			
F9c[16]	F9 with • absorptive material in cavity • resilient metal channels spaced 400 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][18]	52 [54][18]	46	

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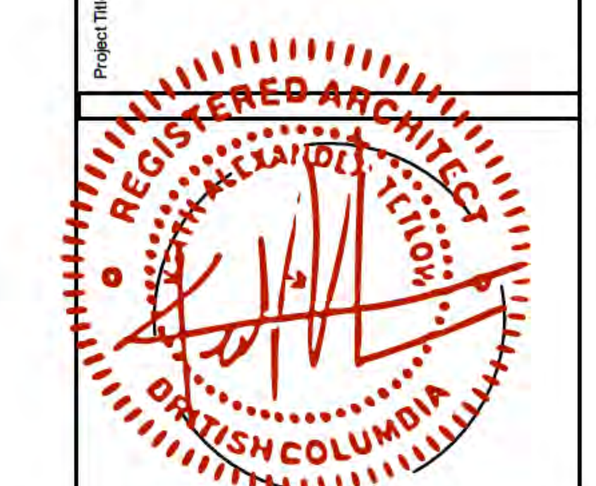

Architect
KILO Architecture Inc.

Consultant

REV	DATE	DESCRIPTION

NO	DATE	ISSUE NOTE
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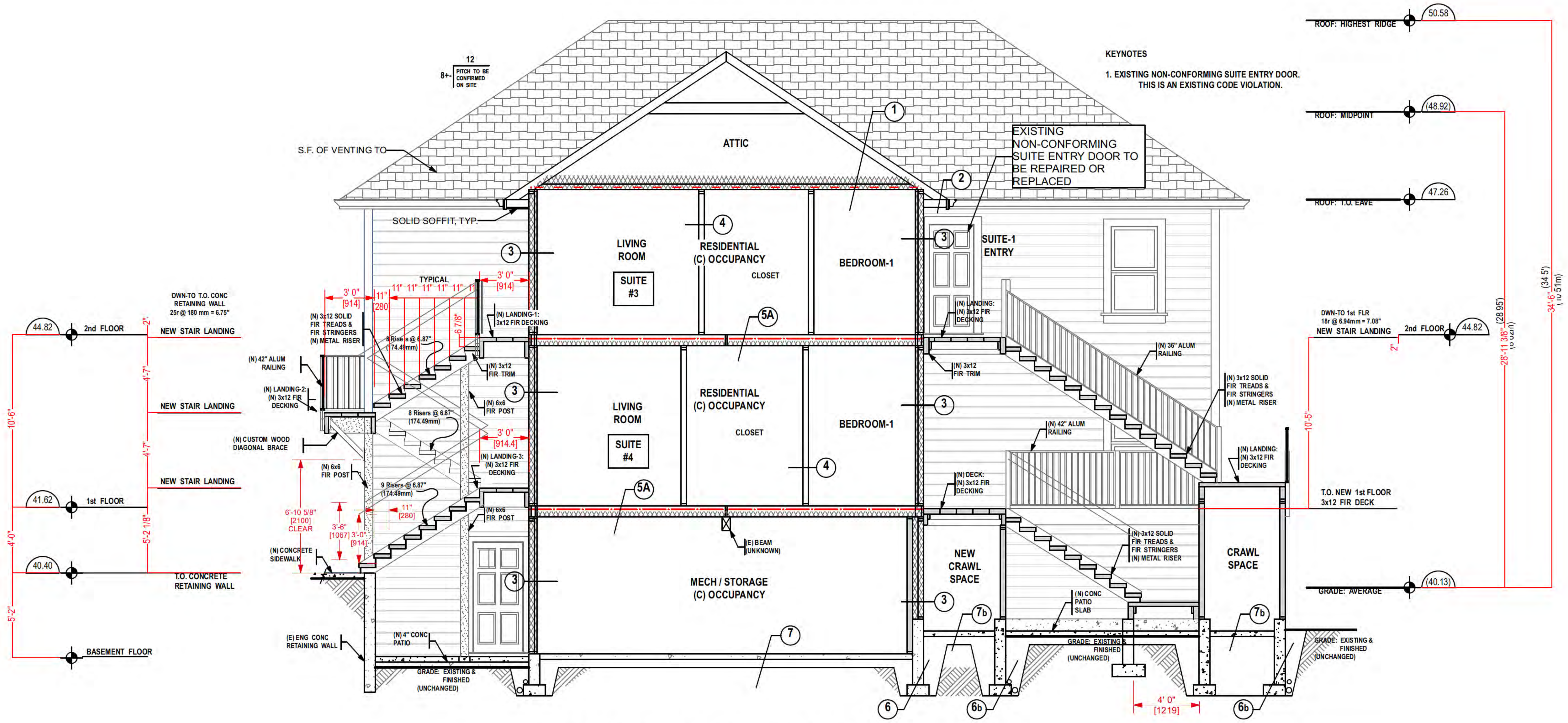
Project Manager: KAT	Drawn By: AJB
Date: Dec 2022 / Jan 2023	Reviewed By: KAT
Project ID: 2222	Temperance Hotel, 32 High St.; Ladysmith BC

Sheet Title
BUILDING SECTIONS

Sheet No
A.400

KEYNOTES

1. EXISTING NON-CONFORMING SUITE ENTRY DOOR. THIS IS AN EXISTING CODE VIOLATION.



PROPOSED CROSS SECTION BB

SCALE @ 1/4" = 1'

NOTE:

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- GEODETIC DATUM FROM "BCLS" IS SHOWN AS: ((000.00))

GEODETIC DATUM BY AJB HOME DESIGN IS SHOWN AS:

LEGEND

(N) = NEW ITEM
(E) = EXISTING ITEM

- POST-NEW
- POST-EXISTING
- BEARING POINT OF LOAD FROM ABOVE

FAN — CEILING EXHAUST FAN
CO & S ALARM — CARBON MONOXIDE & SMOKE ALARM(S) ALL INTERCONNECTED
FOS — FRAME ON SITE

BEAMS & GIRDERS: BEAM FACE; BEAM CENTRE; 6"; EXISTING BEAM

FLOOR JOISTS & ROOF TRUSS NOTATION: DIRECTION OF SPAN; FROM & TO

GEODETIC DATUM FROM SITE SURVEY BY A BCLS IN METERS: 125.66 METERS ON FLOOR PLANS; 125.66 METERS ON ELEVATIONS & XSECTIONS

DIMENSION PLACEMENT: OUTSIDE FACE OF EXTERIOR WALLS; 5' 0"; 3' 0"; I/S FACE; CENTER OF INTERIOR WALLS

DOORS: 4'-0" x 6'-8" CLOSET DOORS; 2'-6" x 6'-8" LEFT HAND SWING DOOR. DOORS SHOWN TO REPRESENT TYPE IE: CLOSET, SWINGING, GARAGE, ETC. FINAL STYLE TO BE DETERMINED BY CLIENT.

WALLS TYPES

- WALL TO BE REMOVED
- 4" EXISTING WALL
- 6" EXISTING WALL
- 4" NEW WALL
- 6" NEW WALL
- OUTSIDE FACE — NEW 2" STRAPPING on EXISTING EXTERIOR 4" STUD WALL
- EXISTING--UPGRADED TO: 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
- NEW-- 1 hr FIRE RATING & STC 40 SOUND RATING FOR REQUIRED WALLS & FLOORS
- OUTSIDE FACE — EXISTING: 2x4 EXTERIOR WALL; EXISTING: CONC FOUNDATION; NEW: 2x4 INTERIOR WALL
- OUTSIDE FACE — NEW: 2x6 EXTERIOR WALL; NEW: CONC FOUNDATION; NEW: 2x4 INTERIOR WALL
- EXISTING CONCRETE FOUNDATION FOOTINGS UNKNOWN
- NEW CONCRETE FND WITH CONT. CONCRETE FOOTINGS
- NEW CORBELLED CONCRETE FND WITH CONT. CONCRETE FOOTINGS

CROSS SECTION NOTES

- ALL MATERIALS, USED ON THIS JOB, ARE TO MEET APPLICABLE BC BUILDING CODE STANDARDS, MANUFACTURES SPECIFICATIONS AND HAVE APPROPRIATE DOCUMENT NUMBERS AS PER SECTIONS 5.10 & 5.11.
- ANY MATERIAL SUBSTITUTIONS MUST BE APPROVED BY THE BUILDING INSPECTION DEPARTMENT OF THE APPLICABLE MUNICIPALITY. ANY REQUIRED ADDITIONAL DOCUMENTATION IS TO BE SUPPLIED BY OTHER.
- RAIN SCREENING IS TO BE AS PER THE REQUIREMENTS OF THE MUNICIPALITY AND THE BC BUILDING CODE.
- (E) = EXISTING ITEMS
- (N) = NEW ITEMS
- (E) = EXISTING & FIRE CODE
- (N) = NEW & FIRE CODE

FIRE SEPARATIONS

- 45 MIN FRR
- 1 HR FRR
- 2 HR FRR

ASSEMBLIES

(1) ROOF: 45 MIN.
(E) FIBERGLASS ROOFING SHINGLES
(E) BUILDING PAPER
(E) 3/8" PLY SHEETING over
(E) 3/4" SHEETING
(E) 2x6 FIR ROOF RAFTERS & CEILING JSTS @ 36" O/C
(N) 1:300 VENTILATION
(N) R40 FIBERGLASS INSULATION
(N) M2000 UVI POLY V/B (CAN/CGSB-51.34-M86)
(N) 5/8" TYPE X DRYWALL

ASSEMBLIES

(2) SOFFIT/FACIA/GUTTER:
(N) SOLID SOFFIT TYPICAL; 1/2" PLYWOOD (SEE PLAN FOR LOCATION)
(N) 5" ALUM GUTTER
(N) 1x6 FACIA

(3) EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X OR 1/2" FURRED OUT 1/8"

(3A) EXISTING EXTERIOR (W/ INSULATION UPGRADE Reff = 17.0) - EXISTING NON-CONFORMING (UNRATED FROM EXTERIOR)
(E) 8" CEDAR CHANNEL HORZ SIDING
(N) SPRAYFOAM INSULATION BETWEEN STUDS
(E) 2x4 FIR STUDS @ 16" O/C
(N) 2" STRAPPING @ 16" O/C
(N) M2000 POLY VB
(N) 5/8" TYPE X

(3B) NEW EXTERIOR WALL W/ OR W.O. 1 HR. FIRE RATING
(N) 8" CEDAR CHANNEL HORZ SIDING
(N) PT PLY VERTICAL RAINSCREEN
(N) "TYVEC" (AIR BARRIER)
(N) 1/2" PLYWOOD SHEETING
(N) 2x6 SPF STUDS @ 16" O/C
(N) 6" (R22) Rockwool INSULATION
(N) M2000 POLY VB
(N) 5/8" TYPE X DRYWALL: 1hr FIRE RATING (SEE PLAN FOR LOCATION)

(4) INTERIOR WALLS: TYP INSIDE SUITES: NO RATING
(E) 2x4 FIR STUDS @ 16" O/C
(N) 1/2" REG DRYWALL-BOTH SIDES

(4A) EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) SUITES: STC 52 2HR FIRE RESISTANCE RATING (1 HR FRR REQUIRED)
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES ONE SIDE WITH RESBAR BETWEEN STUDS AND THE (2) LAYERS (SEE ATTACHED)

(4B) EXISTING INTERIOR COMMON BETWEEN RESIDENTIAL (C) AND MERCANTILE (E) 2 HR FIRE RESISTANCE RATING - W/ UNRATED STC
(E) 2x4 FIR STUDS @ 16" O/C
(N) (2) LAYERS 5/8" TYPE X DRYWALL BOTH SIDES

(5) EXISTING UPGRADED FLOOR & CEILING SYSTEM 2hr FIRE RATING (ULC L505)
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) 2x8 FLOOR JOISTS (AS PER PLAN)
(N) 3.5" MINERAL WOOL INSULATION (OPTIONAL)
(N) MATERIAL FOR 2 hr FIRE RATING (SEE ATTACHED)

(5A) EXISTING UPGRADED FLOOR & CEILING SYSTEM 1hr FIRE RATING BETWEEN RESIDENTIAL SUITES FLOOR TYPE F9c FROM Table 9.10.3.1.-B OF BCBC 2018
(N) FLOOR COVERING
(E) 3/4" WOOD SHEETING
(E) EXISTING FLOOR JOISTS (AS PER PLAN)
(N) 3.5" Rockwool INSULATION
(N) MATERIAL FOR 1 hr FIRE RATING (SEE ATTACHED)

(5B) FLOOR SYSTEM: (CRAWLSPACE BELOW (E) OCCUPANCY: UNRATED
(E) FLOOR COVERING
(E) 3/4" SHEETING
(E) 2x8 FIR FLOOR JOISTS @ 16" O/C
(E) X BRIDGING @ 7' O/C

(6) FOUNDATION AND FOOTINGS: (EXISTING) (ALL NEW FROM PREVIOUS BUILDING PERMIT)
(E) ENG 8" CONC FND WALLS
(E) ENG CONC FOOTINGS
(E) 3" & 4" DRAIN PIPE
(E) GRAVEL FILL
SOLID BEARING

(6b) FOUNDATION AND FOOTINGS: (NEW)
(N) ENG 8" CONC FND WALLS
(N) ENG CONC FOOTINGS
(N) 3" & 4" DRAIN PIPE
(N) GRAVEL FILL
SOLID BEARING

(7) CONCRETE SLAB:
(E) 4" CONCRETE SLAB
(E) COMPACT FILL

CONCRETE FLOOR:

(7B)
(N) 4" CONCRETE SLAB (25 mpa-minimum)
(N) 4" INSULATION @ PERIMETER 4' MIN.
(N) M2000 UVI POLY VAPOUR BARRIER
(N) 6" MIN COMPACT FILL

(8) CRAWLSPACE:
(E) 2" CONCRETE SEAL
(E) COMPACT FILL

(4A) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)

Wood-Framed Wall

Hourly Rating: 1-hour

STC Rating: 50-54 STC

Fire Test Reference: UL U309, cUL U309, GA WP 3243

Sound Test Reference: NRCC TL 93-103, IRC-IR-761

Resilient channels 24" o.c. attached horizontally on one side of 2" x 4" wood studs 24" o.c. with 1-1/4" Type S drywall screws. One layer 5/8" (15.9 mm) ToughRock® Fireguard X® or 5/8" (15.9 mm) DensArmor Plus® Fireguard® gypsum panels applied horizontally to channels with 1" Type S drywall screws 8" o.c. with vertical joints located mid way between studs. 3" mineral or glass fiber insulation in stud space. Opposite side: one layer 5/8" (15.9 mm) ToughRock® Fireguard X® Products or 5/8" (15.9 mm) DensArmor Plus Fireguard gypsum panels applied horizontally or vertically to studs with 6d cement coated nails, 1 7/8" long, 0.0915" shank, 15/64" heads, 7" o.c. Vertical joints staggered 24" on opposite sides. Sound Tested with 3-1/2" (89 mm) fiberglass insulation

Approved for Assembly:
DensArmor Plus® Fireguard C® Products,DensArmor Plus® Fireguard® Products,DensElement™ Barrier Sheathing,DensGlass® Fireguard® Sheathing,DensShield® Fireguard® Tile Backer,ToughRock® Fireguard C® Products,ToughRock® Fireguard X™ Mold-Guard™ Products,ToughRock® Fireguard X™ Products,ToughRock® Lite-Weight Fire-Rated Products (Meets fire-rating but not included in Sound Testing)

(4A) (4B) (OPTIONAL) STC 50 REQURIED WITH RC-1 CHANNEL (RESBAR)

2 Hour Fire-Rated Construction	Loadbearing		Acoustical Performance		Reference
Construction Detail	Description	Test Number	STC	Test Number	Index
wt. 12; 6"	• 5/8" SHEETROCK FIRECODE Core gypsum panels or SHEETROCK water-resistant FIRECODE Core gypsum panels or FIBEROCK panels – 2 x 4 wood studs 16" o.c. – joints finished • optional veneer plaster	UL Des U301	52	USG-810218 Based on same assembly with RC-1 channel and without mineral wool batt	A-68
			58	USG-810219 Based on same assembly with RC-1 channel and 2" mineral wool batt	

(5)

Floor/Ceiling Wood-Framed

Hourly Rating: 2-hour

Fire Test Reference: UL L505, cUL L505, GA FC 5724[2]

Base Layer: 5/8" (15.9 mm) ToughRock® Fireguard C® gypsum board or 5/8" (15.9 mm) DensArmor Plus® Fireguard C® (UL L505 only) applied perpendicular to 2" x 10" wood joists 16" (406 mm) o.c. with 2-1/2" (64 mm) 8d cement coated nails 7" (178 mm) o.c. Resilient channel 24" (610 mm) o.c. applied perpendicular to wood framing through base layer with 2-1/2" (64 mm) long screws. Double channel installed at face layer end joints. Face Layer: 5/8" (15.9 mm) ToughRock Fireguard C gypsum board applied or 5/8" (15.9 mm) DensArmor Plus Fireguard C® (UL L505 only) applied perpendicular to resilient channels with 1" (25 mm) Type S screws 12" (305 mm) o.c. Wood joists supporting 1" (25.4 mm) nominal T&G wood subfloor and 1" (25 mm) nominal wood finish floor or 15/32" (11.9 mm) plywood subfloor and 19/32" (15.1 mm) plywood finish floor applied perpendicular to joists with joints staggered..

Approved for Assembly:
ToughRock® Fireguard C® Products,DensArmor Plus® Fireguard C® Products

(5a)

	F9[13]	• subfloor of 15.5 mm plywood, OSB or waferboard, or 17 mm tongue and groove lumber • on wood joists or wood I-joists spaced not more than 600 mm o.c. • with or without absorptive material in cavity • resilient metal channels spaced 400 mm or 600 mm o.c. • 2 layers of gypsum board on ceiling side	GC00108A		
	F9c[16]	F9 with • absorptive material in cavity • resilient metal channels spaced 400 mm o.c. • 15.9 mm Type X gypsum board	1 h [1.5 h][18]	52 [54][18]	46
		F9 with			

KILO ARCHITECTURE

1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kiloarchitecture.com

Project Title: Temperance Hotel
32 High St. Ladysmith, BC

Architect: KILO Architecture Inc.

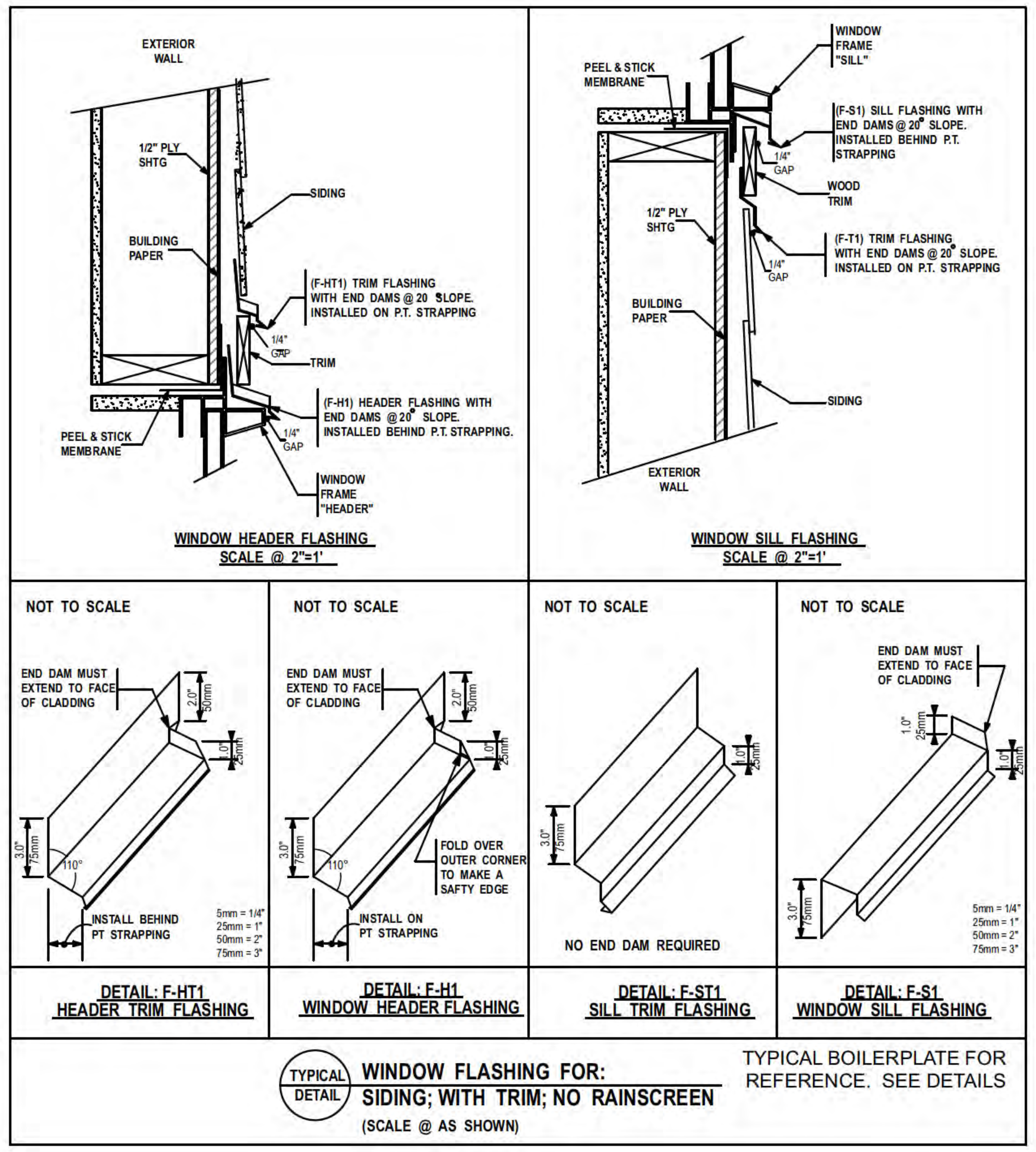
Consultant

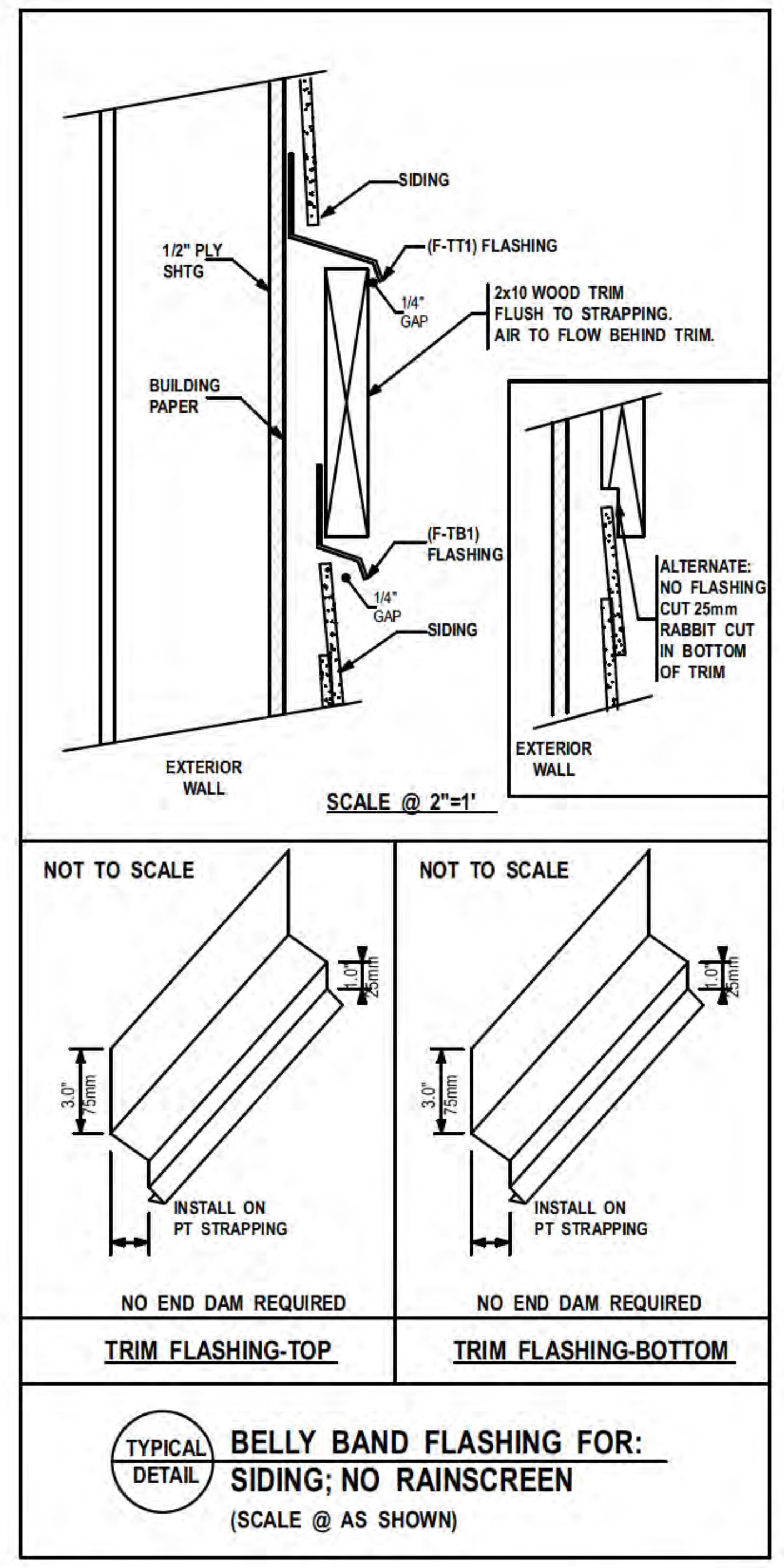
REV	DATE	DESCRIPTION
1	2023-01-23	ISSUED FOR BP
NO	DATE	ISSUE NOTE

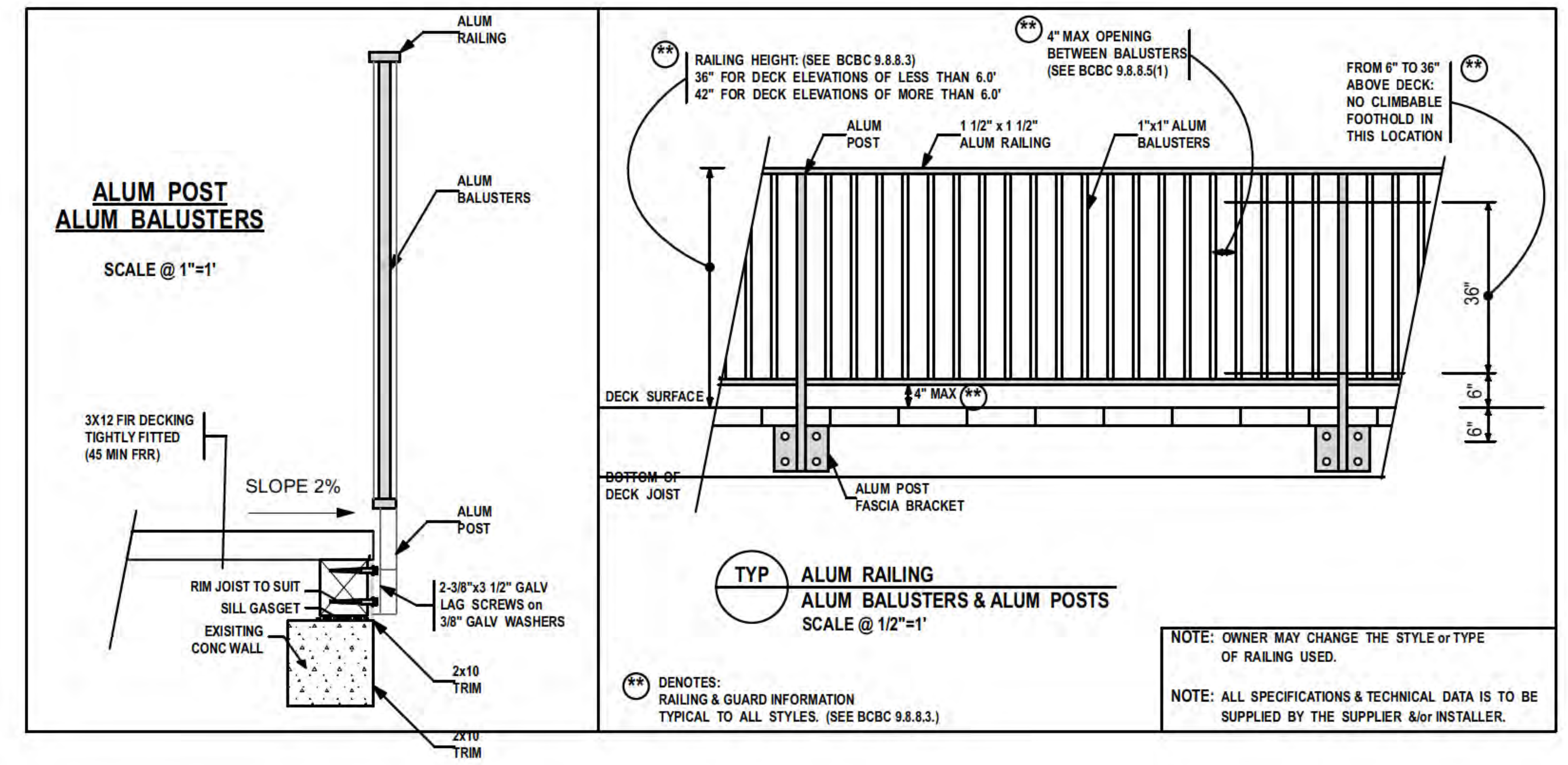
Project Manager: KAT	Drawn By: AJB
Date: Jan. 01/23	Reviewed By: KAT
Project ID: 2222	Temperance Hotel 32 High St.; Ladysmith BC

Sheet Title: BUILDING SECTIONS

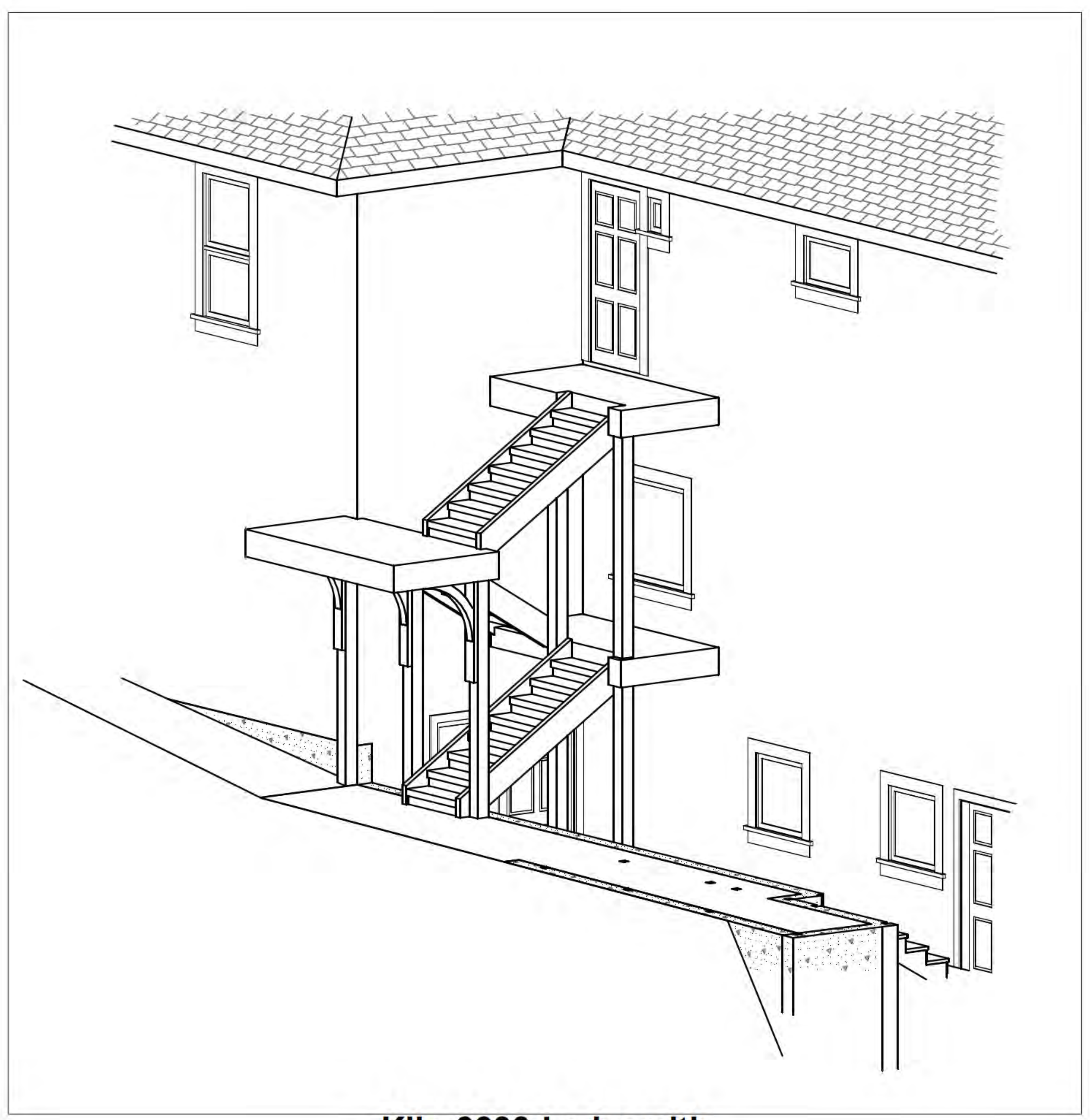
Sheet No: A.401



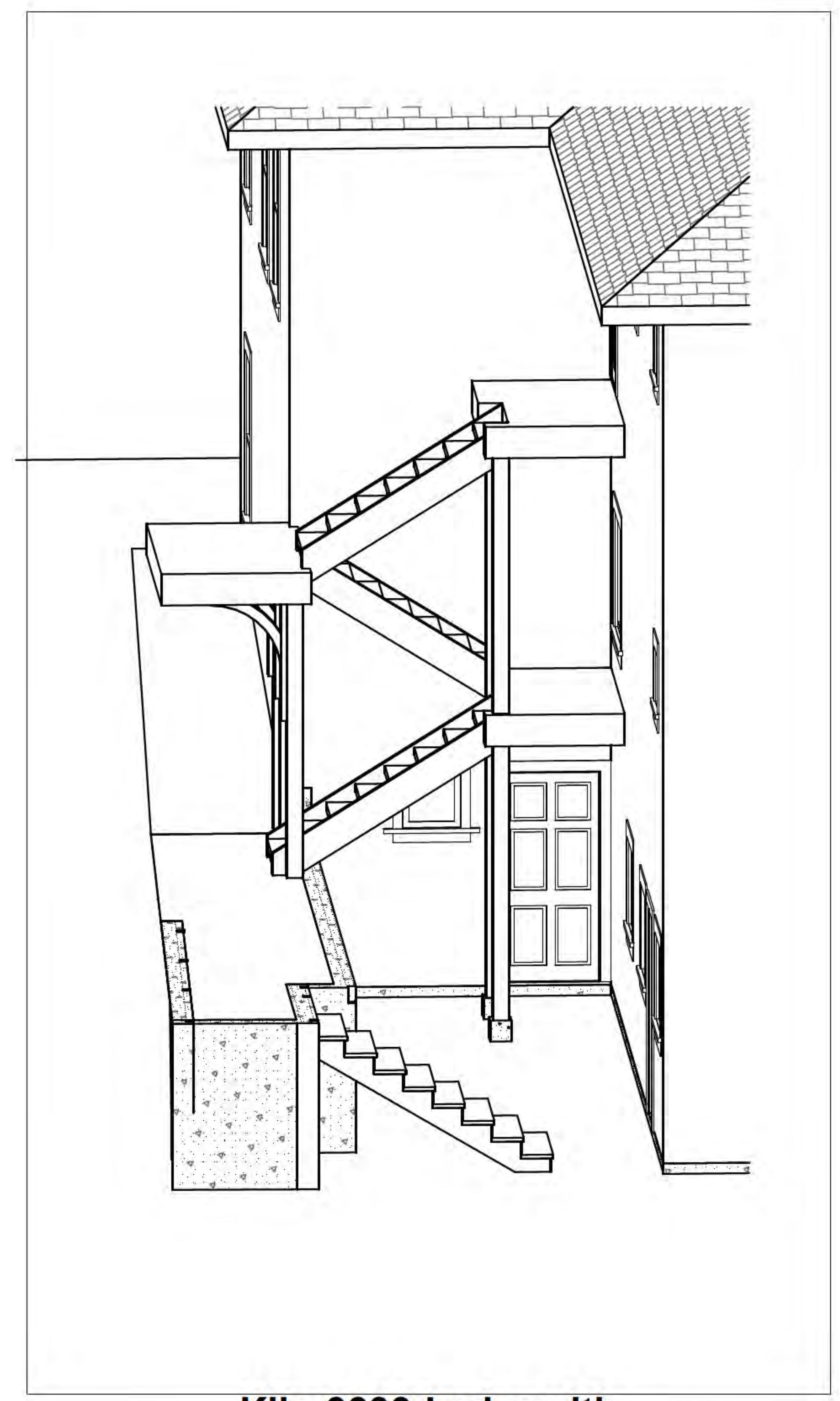




1 SECTION THROUGH DECK
Scale: 1/4" = 1'-0"



Kilo-2222-Ladysmith
Stair 3D-North Side-Revised 2
Dec 15/22



Kilo-2222-Ladysmith
Stair 3D-North Side-Revised 2
Dec 15/22

KILO ARCHITECTURE
1412-450 SIMCOE ST VICTORIA BC
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Project Title
Temperance Hotel
32 High St. Ladysmith, BC

Architect
KILO Architecture Inc.

Consultant

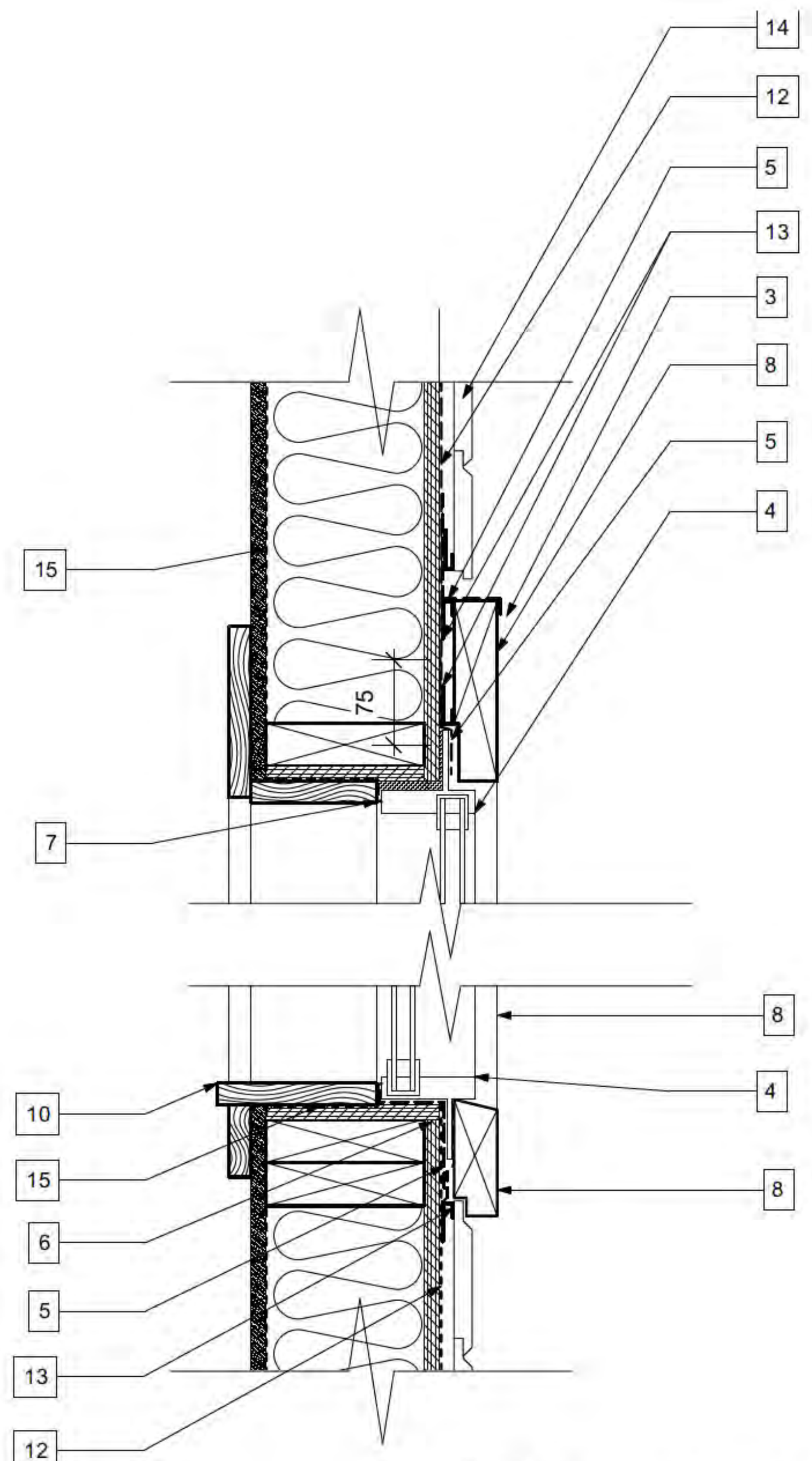
REV	DATE	DESCRIPTION

NO	DATE	ISSUE NOTE
1	2023-01-23	ISSUED FOR BP

Project Manager KAT	Drawn By AJB
Date Jan. 01/23	Reviewed By KAT
Project ID 2222	Temperance Hotel 32 High St.; Ladysmith BC

Sheet Title
DETAILS

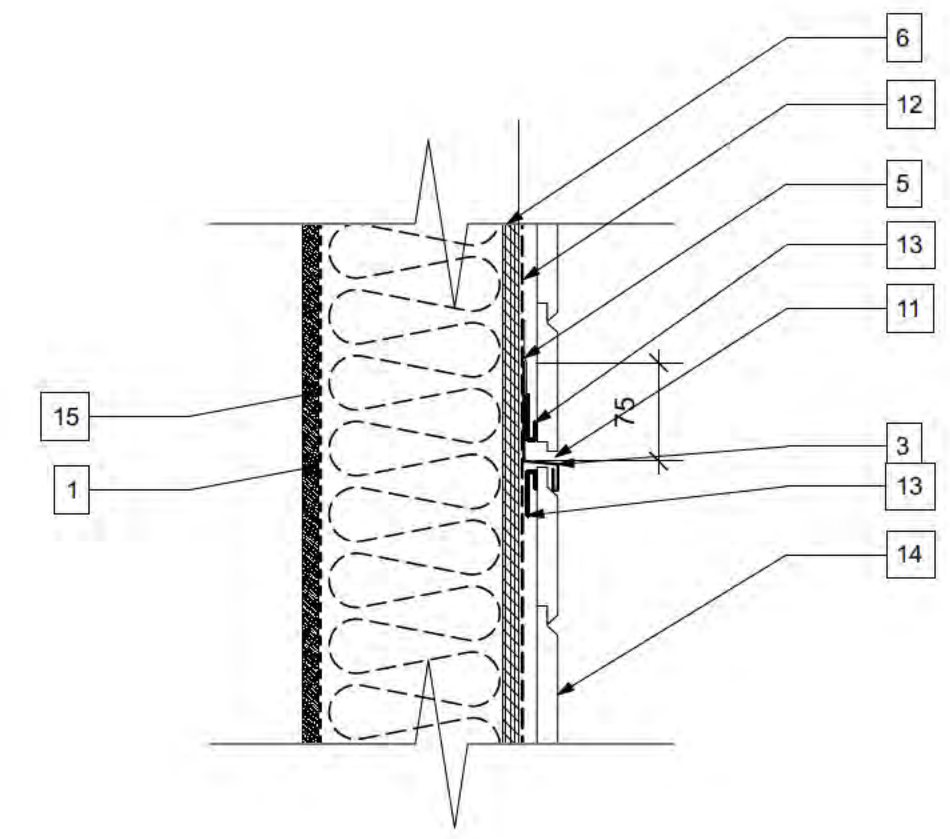
Sheet No
A.600



KEYNOTES

1. NOT USED
2. NOT USED
3. FLASHING; 24 GA. KYNAR FINISH; BLACK 3/4" SAFETY HEMS TOP AND BOTTOM.
4. WINDOW - VINYL. NAIL-ON REBATE
5. SELF ADHERED MEMBRANE (SAM) BLUESKIN OR APPROVED ALT. PROVIDE 3" LAP ONTO SUBLAYER. PRIME AND PRESSURE PER INSTALLATION INSTRUCTIONS.
6. 1/2" SHEATHING.
7. CAULKING; POLYURETHANE UNO
8. TRIM: 2X; CEDAR, PAINTED
9. BACKFILL WITH DRAINROCK AGAINST FOUNDATION
10. INTERIOR WINDOW TRIM; FIR. STAINED.
11. NOT USED
12. TYVEK OR BUILIDNG WRAP.
13. ALUMINUM BUG SCREEN
14. SIDING
15. VAPOUR BARRIER

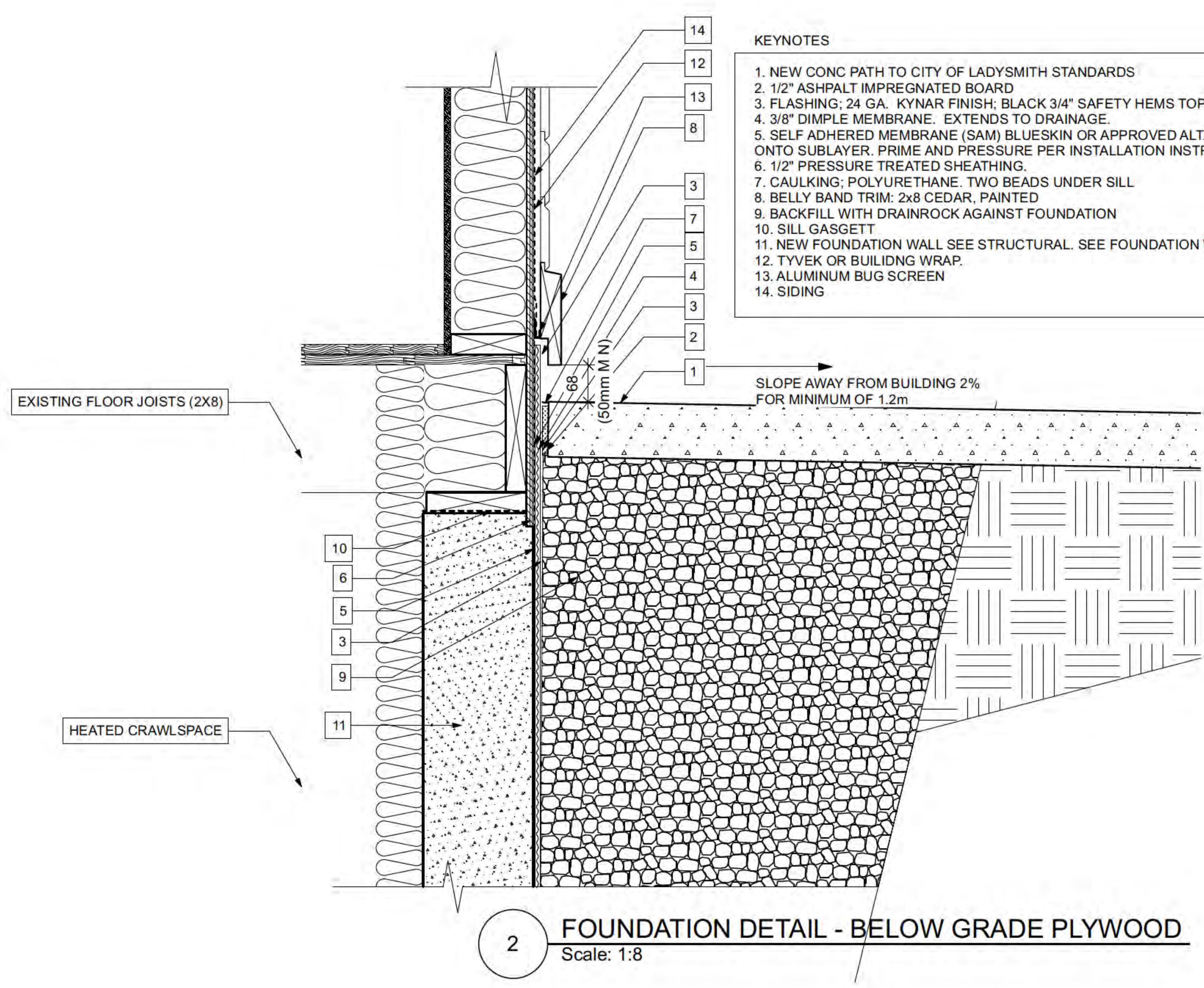
1 WINDOW DETAIL - TYPICAL
Scale: 1:6



KEYNOTES

1. BATT INSULATION
2. NOT USED
3. FLASHING; 24 GA. KYNAR FINISH; BLACK 3/4" SAFETY HEMS TOP AND BOTTOM.
4. WINDOW - VINYL. NAIL-ON REBATE
5. SELF ADHERED MEMBRANE (SAM) BLUESKIN OR APPROVED ALT.
6. 1/2" SHEATHING.
7. NOT USED
8. NOT USED
9. BACKFILL WITH DRAINROCK AGAINST FOUNDATION
10. INTERIOR WINDOW TRIM; FIR. STAINED.
11. 3/8" GAP
12. TYVEK OR BUILIDNG WRAP.
13. ALUMINUM BUG SCREEN
14. SIDING
15. VAPOUR BARRIER

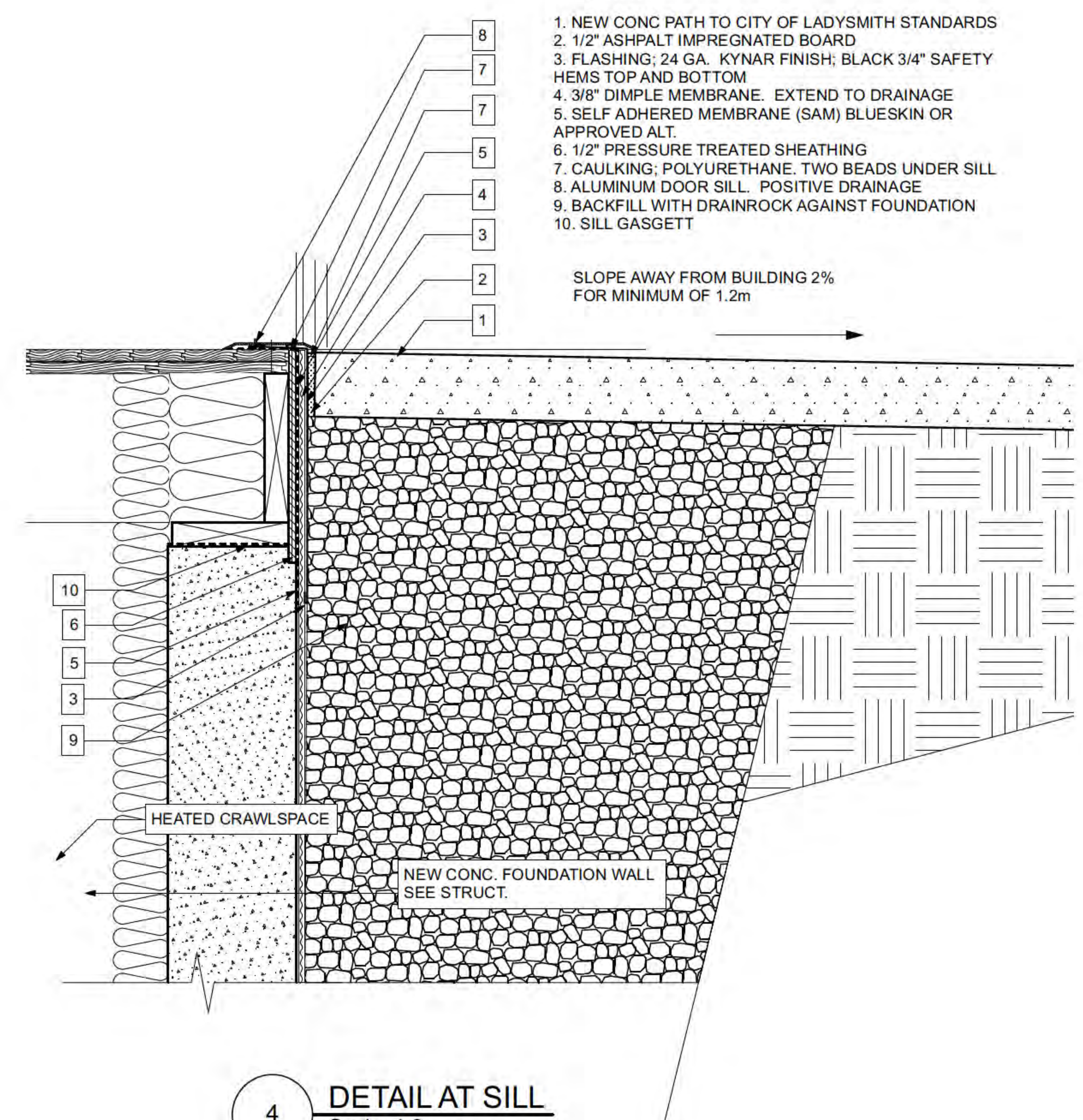
3 TYPICAL FLASHING @ FLOOR
Scale: 1:6



KEYNOTES

1. NEW CONC PATH TO CITY OF LADYSMITH STANDARDS
2. 1/2" ASHPALT IMPREGNATED BOARD
3. FLASHING; 24 GA. KYNAR FINISH; BLACK 3/4" SAFETY HEMS TOP AND BOTTOM.
4. 3/8" DIMPLE MEMBRANE. EXTENDS TO DRAINAGE.
5. SELF ADHERED MEMBRANE (SAM) BLUESKIN OR APPROVED ALT. PROVIDE 3" LAP ONTO SUBLAYER. PRIME AND PRESSURE PER INSTALLATION INSTRUCTIONS.
6. 1/2" PRESSURE TREATED SHEATHING.
7. CAULKING; POLYURETHANE. TWO BEADS UNDER SILL
8. BELLY BAND TRIM: 2x8 CEDAR, PAINTED
9. BACKFILL WITH DRAINROCK AGAINST FOUNDATION
10. SILL GASGETT
11. NEW FOUNDATION WALL SEE STRUCTURAL. SEE FOUNDATION WALL TYPE.
12. TYVEK OR BUILIDNG WRAP.
13. ALUMINUM BUG SCREEN
14. SIDING

2 FOUNDATION DETAIL - BELOW GRADE PLYWOOD
Scale: 1:8



KEYNOTES

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4. 3/8" DIMPLE MEMBRANE. EXTEND TO DRAINAGE
5. SELF ADHERED MEMBRANE (SAM) BLUESKIN OR APPROVED ALT.
6. 1/2" PRESSURE TREATED SHEATHING
7. CAULKING; POLYURETHANE. TWO BEADS UNDER SILL
8. ALUMINUM DOOR SILL. POSITIVE DRAINAGE
9. BACKFILL WITH DRAINROCK AGAINST FOUNDATION
10. SILL GASGETT

4 DETAIL AT SILL
Scale: 1:8

KILO ARCHITECTURE

1412-450 SIMCOE ST VICTORIA BC
250 896 9678 info@kiloarchitecture.com

Project Title

Temperance Hotel

32 High St. Ladysmith, BC

REGISTERED ARCHITECT BRITISH COLUMBIA

Architect

KILO Architecture Inc.

Consultant

REV	DATE	DESCRIPTION

NO	DATE	ISSUE NOTE
1	2023-01-23	ISSUED FOR BP

Project Manager: KAT
Drawn By: AJB
Date: Jan. 01/23
Reviewed By: KAT
Project ID: 2222
Temperance Hotel
32 High St.; Ladysmith BC

Sheet Title

DETAILS

Sheet No

A.601

ATTACHMENT B

From: Stefan and Denise
To: Development Services
Subject: Re: TEMPERANCE HOTEL facade application 3060-23-03 - 32 High St
Date: February 16, 2023 9:06:36 AM
Attachments: HPSCAN_20230203000816698_2023-02-03_000934314.pdf

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> To whom it may concern;
>
> Our project is requiring further involvement from CPAC, as there has been a couple minor revisions since our original facade permit application. Back stairs and Juliette's.

Hopefully you will see the value in our restoration work so far and can get a sense of what is left to make this property beautiful again.

I have attached some pictures for reference from Quinten, from the Heritage society. I would like to highlight the window and door locations. They were are all over the place, and please note the two courtyard decks. Although we are not doing decks, we are adding Juliette's as a nod to these features from the past. Some of our decisions have been made due to sheer walls, and the requirements from our structural engineer.

> We have our first tenant moving in March 1 and wish to expedite this process since this is a secondary request to the one already completed!
>
> Please let us know what you will need from us going forward!
>
> Thank you,
> Denise and Stefan

--
Thank you,
Sincerely Stefan and Denise


New Democrats


Picture Framing
1907
1987

ATTACHMENT C

MINUTES
Community Planning Advisory Committee
Wednesday, August 4, 2021 at 7:00 p.m.
via Zoom

PRESENT: Chair – Jason Harrison; Members – Abbas Farahbakhsh, Jason Robertson, Jennifer Sibbald, Steve Frankel, Tamara Hutchinson; Council Liaison – Tricia McKay; Senior Planner & Recorder – Christina Hovey;

ABSENT: Member – Brian Childs;

GUESTS: Applicants/Owners; Stefan Queitsch and Denise Berquist

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The meeting was called to order at 7:04 p.m., acknowledging with gratitude that Ladysmith is located on the traditional unceded territories of the Stz'uminus People.

It was decided among the CPAC Members to change the order of the agenda so that the Introductions and Role of CPAC (5. a) be done before the Election of Chair (2).

1. INTRODUCTIONS AND ROLE OF CPAC
   - Senior Planner Christina Hovey provided a brief overview of the Community Planning Advisory Committee Terms of Reference (provided in the CPAC binder and available on the Town's website).
   - Council Liaison Councillor Tricia McKay explained the role of CPAC in advising Council, and her personal effort to ensure CPAC has a strong voice at the Council Table. Councillor McKay provided an overview of some the materials available to CPAC to help them review applications including the Council Strategic Plan, Official Community Plan, and Development Permit Area Guidelines (all provided in the CPAC binder and available on the Town's website).
   - Member Introductions (roundtable).

2. ELECTION OF CHAIR
   Jason Harrison was nominated to act as Chair of the Committee.

It was moved, seconded and carried that Jason Harrison be acclaimed as Chair of the Community Planning Advisory Committee.

3. AGENDA APPROVAL
It was moved, seconded and carried that the Agenda of August 4, 2021 be approved as amended.

4. ADOPTION OF MINUTES
It was moved, seconded and carried that the Minutes of June 2, 2021 be approved.

5. NEW BUSINESS
   a. <u>CPAC Binder Review</u>
   Senior Planner Christina Hovey provided a brief overview of the contents of the CPAC member binders. A new section has been added which includes resolution templates and some references for meeting procedures/best practices.

6. COUNCIL REFERRALS

a. <u>Façade Development Permit application 3060-21-13 – 32 High Street</u>

Applicants/Owners; Stefan Queitsch and Denise Berquist provided an overview of their plans for the building including structural upgrades to the foundation and interior renovations as well as the façade upgrade which is the subject of the development permit application. They explained that the paint colour they selected was found on old materials that had been covered through previous construction. They have been working with the historical society to learn about the history of the building and access old photos of the building. The applicants are not sure yet what they will do with the awnings on High Street, but they will come back in for another development permit when they decide.

Committee members spoke positively about the proposal and were supportive of the plans to improve this prominent heritage building. Committee members spoke positively about the paint colours and windows selected. The Committee discussed the door choices and there was some debate about whether it would be possible to find something else that would look more historic, but still match the building. Members noted that contemporary doors and windows would have energy efficiency benefits and that painting the doors and selecting heritage style hardware would positively impact the appearance of the doors.

It was moved, seconded, and carried that CPAC recommend:

- **that DP 3060-21-13 (32 High Street) be approved; and**
- **that the applicant choose heritage style hardware for the doors.**

7. MONTHLY BRIEFING

File Updates:

The following files that CPAC previously reviewed have been to Council since the last meeting:

- 1130 Rocky Creek Road (File No. 3360-20-02);
- 940 Esplanade Avenue (File No. 3360-21-02, and bylaw enforcement file);
- 10864 Westdowne Road (File No. 3360-20-08); and
- 336 Belaire Street (File No. 3360-20-09/3060-21-06).

CPAC members can review the Council Agendas and Minutes or call staff for further information.

8. **NEXT MEETING – September 1, 2021 (via Zoom)**

9. ADJOURNMENT

The meeting was adjourned at 8:12 p.m.

Jason Harrison
Jason Harrison (Sep 3, 2021 10:37 PDT)

Chair (J. Harrison)

RECEIVED:

Corporate Officer (D. Smith)