District of SECHELT

604 885 1986
PO Box 129, 5797 Cowrie St,
2nd Floor
Sechelt, BC V0N 3A0
www.sechelt.ca

DEVELOPMENT PERMIT with VARIANCE No. 2024 – 09

This Development Permit with Variance is issued to:

Yoko Chen
6086 Poise Island Drive
Sechelt, BC
V0N 3A2

1. This Development Permit with Variance is issued subject to compliance with all the applicable Bylaws of the District of Sechelt except as specifically varied or supplemented by this Permit.

2. This permit applies to the lands within the District of Sechelt described below:

   Parcel Identifier: 029-638-364
   Legal Description: Lot A District Lot 1509 Group 1 New Westminster District Plan EPP53374
   Addressed as: 6089 Poise Island Drive

3. The Property is located in a designated Development Permit Area:

   a) Development Permit Area #3 Marine, Foreshore and Shoreline Areas
   b) Development Permit Area #4 Rocky Beach Front/Escarpment, Rockfall and Upland Slope Hazards
   c) Development Permit Area #5 Steep Slopes
   d) Development Permit Area #9 – Commercial Area (Outside Downtown)

4. This Development Permit applies to following works on the Property:

   a) Construction of a Private Access and Driveway between Poise Island Drive and Ripple Way.
   b) Construction of a 12 Cabin rental units.
   c) Construction of a 20 room Hotel in 3 separate buildings.
   d) Construction a Hotel reception building.
   e) Construction of a Convention Centre and Assembly.
   f) Construction of 45 parking spaces.
   g) Construction of pedestrian pathways.
   h) Construction of viewing pavilions, decks, and platforms.
   i) Installation and planting of landscaping throughout the developable site.

5. Bylaws of the District enacted under Section 479 of the *Local Government Act*, as amended from time to time, are varied or supplemented as described below.

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(a) Zoning Bylaw No. 580, 2022 is varied for the property noted above to achieve conformance for the Cabin Rentel Unit shown on Attachment 5.
The variance is as follows:

i. Section 1.13.4 – to vary the front setback from 6.0 m to 3.0 m as indicated on the attached Site Plan (Attachment 1).

CONDITIONS OF PERMIT

6. The Property and the works shall be developed strictly in accordance with the following terms, conditions and provisions of this Development Permit and any plans and specifications attached to this Development Permit shall form part of this Development Permit:

a) Attachment 1, which contains the drawings titled Vanta Pacific Waterfront Report and labelled as sheets (A1.0 to A7.2), prepared by HNPA Architecture & Planning Inc., dated November 05, 2018;

a. All exterior lighting shall be LED, non-glare, full cutoff fixtures
b. No vegetation may be removed or altered within 15 metres of the natural boundary of the ocean except where needed for the construction of the flight of stairs and wharf as shown on the drawings prepared by HNPA Architecture + Planning Inc. dated November 05, 2018;
c. No building or structure shall be placed within 15 metres of the natural boundary of the ocean except the flight of stairs and wharf as shown on the drawings prepared by HNPA Architecture + Planning Inc. dated November 05, 2018;

b) Attachment 2, which contains the landscape plans and drawings for Vanta Pacific Waterfront Resort and labelled (as sheets L- 1 and L-3), prepared by Royal Pacific Landing Ltd., dated December 18, 2024;

a. All species should be drought tolerant and adhere to Fire Smart guidelines.
b. Groundcover cannot be grass, and must be one or more of the following:
    i. Trifolium repens var. Pipolina (Microclover)
    ii. Antennaria rosea (Pussytoes)
    iii. Actostaphylos uva-ursi (Kinnickinnick)
    iv. Lonicera spp. (Honeysuckle)
    v. Sedum spp. (Stonecrop)
    vi. Lavandula Angustifolia (English Lavender)
    vii. Athyrium Filix Fermina (Lady Fern)
    viii. Polystichum Munitem (Western Sword Fern)
    ix. Gaultheria Shallon (Salal)
    x. Lonicera Pileata Privet (Honey Suckle)

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c) Attachment 3, which contains the Environmental Assessment, identified as "Environmentally Sensitive Development Permit Area No. 3 (DPA 3) Assessment Report to support the development of a 20-room waterfront resort in Sechelt, BC.", prepared by *David A. Galvez Alcarez, Ph.D. RPBio. of* Coastal Raintree Consulting Ltd., dated July 10, 2024;

d) Attachment 4, which contains the Geotechnical Assessment, identified as "Proposed Waterfront Resort - 6086 Poise Island Drive, Sechelt, BC, prepared by *Percy Villa, P. Eng of Metro Testing & Engineering* dated July 05, 2024; and

e) Attachment 5, which contains the specific details regarding the variance to the front setback from 6.0 m to 3.0 m to an area being dedicated on the subject property to accommodate a public access to Porpoise Bay dated January 02, 2025.

7. Appropriate erosion and sediment control measures must be installed as per Erosion and Sediment Control best practices, and Field Review Report #1 submitted to the District within four weeks of the date of issuance of this development permit.

8. Sensitive operations involving land alteration/excavation are confined to periods of dry weather with minimal traffic and appropriate equipment that will create the least disturbance.

9. Any retaining systems (regardless of height) that are needed for the proposed development must have a detailed design prepared by a qualified professional engineer and approved by the District based on the EGBC Retaining Wall Design Professional Practice Guidelines (Version 1.1 – February 25, 2020) and must include the signed Retaining Wall Assurance Statement. Retaining Structures that exceed 1.2 m or have a horizontal to vertical setback of less than 2H to 1V with a cumulative height greater than 1.2m require a Building Permit complete with Sealed design and Letters of Assurance from qualified professional engineers with expertise in Geotechnical design and Structural design.

10. Obtaining a heritage inspection permit from the shíshálh nation and from the British Columbia Archaeology Branch prior to development activities (including the removal of trees and vegetation or installation of roadways).

11. Dedicating 5.0 metres a portion of the subject property along Ripple Way to provide public access to Porpoise Bay.

12. Provide a security bond in the amount of $96,702.00 (ninety-six thousand seven hundred & two dollars) in the form of a bank draft or certified cheque. This security bond will be held to ensure that the works have been satisfactorily completed according to the plans and specifications in Attachments 1 – 2, noted in condition 5 above.

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Partial releases of the security bond will be considered upon completion of the works at the following key stages, upon submission of the following reports, approved by the District:

(a) 25% of the security bond may be released after the two following reports have been submitted:
   i. Field review report #1 prepared and signed by the qualified engineering professional confirming that appropriate erosion and sediment control measures are installed. This report is to be submitted; at least four weeks prior to the start of any development activities.

   ii. Field review report #2 prepared and signed by the qualified environmental professional confirming that appropriate tree protection measures are installed. This report is to be submitted; at least four weeks prior to the start of any development activities.

(b) 50% of the security bond may be released after Final Report #1 and #2 have been submitted.
   i. Final Report #1 – Final Review: Prepared and signed by the qualified engineering professional immediately following completion of all land alteration works confirming that all works have been done in accordance with the requirements of this permit.

   ii. Final Report #2 – Final Review: Prepared and signed by the qualified environmental professional immediately following completion of all planting and landscape work confirming that all works have been done in accordance with the requirements of this permit.

(c) The remaining 25% of the security bond will be released upon submission of:
   i. Final report prepared and signed by the qualified environmental professional after 2 years post-installation of the planted materials as approved in the Landscape Plan contained in Attachment 2 and Condition 1(b)(i – x), confirming at least 80% survival rate of the planted materials.

13. If construction for the development permitted by this Permit does not substantially commence within twenty-four months of the date of issuance, this Permit shall lapse.

14. Notice of this permit shall be filed at the BC Land Title and Survey Authority under the authority of Section 503 of the *Local Government Act* and upon such filing, the terms of this permit or any amendment hereto shall be binding on all persons who acquire an interest in the lands affected by this permit.

THIS DEVELOPMENT PERMIT IS NOT A BUILDING PERMIT.

District of SECHELT

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2nd Floor
Sechelt, BC V0N 3A0
www.sechelt.ca

Authorizing Resolution of Council:
Resolution No:
Date of Resolution:
Date of Issue:
Authorizing Signature:

X

Andrew Allen
Director of Planning & Development

- Attachment – 1
- Attachment – 2
- Attachment – 3
- Attachment – 4
- Attachment – 5

ATTACHMENT 1

VANTA PACIFIC WATERFRONT RESORT

POISE ISLAND DRIVE AND RIPPLE WAY LOT 24

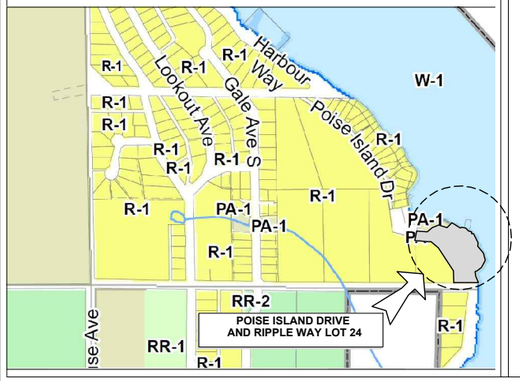
NOVEMBER 1ST, 2018

ISSUED FOR: BUILDING PERMIT #: 25-258

H N P A
ARCHITECTURE+PLANNING INC
2983 W. 41ST AVENUE
VANCOUVER BC CANADA V6N 3C8
EMAIL: office@hnpadesign.com
TEL:606-726-1338
604-559-8566

NOV 5, 2018
ISSUED FOR
DP

CONTEXT PLAN



ZONING ANALYSYS

DEVELOPMENT DATA SUMMARY

ARCHITECTURAL

JUN NAN
H N P A
ARCHITECTURE+PLANNING INC
2983 W. 41ST AVENUE
Vancouver BC, V6N 3C8
Email: office@hnpadesign.com
Tel: 604-726-1338 604-559-8566

STRUCTURAL

NAME:
FIRM- INC
ADDRESS
Vancouver BC, V6N 3C8
Email: .....@.....com
Tel: .....

ELECTRICAL

NAME:
FIRM- INC
ADDRESS
Vancouver BC, V6N 3C8
Email: .....@.....com
Tel: .....

MECHANICAL

NAME:
FIRM- INC
ADDRESS
Vancouver BC, V6N 3C8
Email: .....@.....com
Tel: .....

LANDSCAPE

NAME:
FIRM- INC
ADDRESS
Vancouver BC, V6N 3C8
Email: .....@.....com
Tel: .....

CONSTRUCTION DOCUMENT ABBREVIATION

AFF :	ABOVE FINISHED FLOOR
AL. ALUM	ALUMINUM
BLDG :	BUILDING
CG	CORNER GUARD
CJ	CONTROL JOINT
CLA	CLEAR ANODIZE
CLR	CLEAR FINISH
CMU	CONCRETE MASONRY UNIT
CT	CERAMIC TILE
DG	DOUBLE GLAZE
DWG	DRAWING
DIA	DIAMETER
EA	EACH
EJ	EXPANSION JOINT
ELEC	ELECTRIAL
ELEV	ELEVATION
EQ	EQUAL
EX	EXISTING
EXT	EXTERIOR
FD	FLOOR DRAIN
FIN	FINISH
F.R.R	FIRE RESISTANCE RATING
GA	GAUGE
GR	GRADE
GWB	GYPSUM WALL BOARD
H/D	HANDY CAPPED
HD	HEAVY DUTY
HM	HOLLOW METAL
HP	HIGH POINT
MAX	MAXIMUM
MDF	MEDIUM HIGH DENSITY FIBERBOARD
MECH	MECHANICAL
MIN	MINIMUM
MTL	METAL
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
OC	ON CENTER
OD	OUT SIDE DIAMETER
OH	OVERHEAD
PS	PRESSED STEAL
PNT	PAINTED
AVG :	AVERAGE GRADE
CT :	CERAMIC TILE
DWG :	DRAWING
RD:	DRAIN
EX :	EXTERIOR
T/O :	TOP OF
OC :	ON CENTER
MIN :	MINIMUM

LEGEND

PROJECT DESCRIPTION

ADDRESS : POISE ISLAND DRIVE AND RIPPLE WAY LOT 24
LEGAL DESCRIPTION : EXCEPT PART IN PHASE STRATA PLAN LMS3461, DISTRICT LOT 1509, GROUP 1 NWD, PLAN LMP39421

		Unit
LOT AREA	109,316.00	SF
TOTAL FSR AREA	**26,886.69**	SF
HOTEL COVERAGE	11,761.70	SF
CONVENTION CENTRE COVERAGE	2,794.45	SF
6 NEW CABIN COVERAGE	5,104.32	SF
TOTAL BUILDING COVERAGE	**19,660.47**	SF
PERCENTAGE OF BUILDING LOT COVERAGE	**17.98%**	
HARD SURFACE		
PARKING COVERAGE	10,311.92	SF
DRIVEWAY COVERAGE	9,724.91	SF
TOTAL ADDITIONAL LOT COVERAGE	**20,036.83**	SF
PERCENTAGE OF ADDITIONAL OF LOT COVERAGE	**18.33%**	
TOTAL LOT COVERAGE	**19,660.47**	SF
TOTAL PERCENTAGE OF LOT COVERAGE	**17.98%**	
TOTAL HOTEL GUEST ROOM	20	Room
TOTAL HOTEL BEDS	38	Bed
TOTAL PARKING SPACES	44	Parking lot
LOADING AREA	1	Parking lot

FSR AREA CALCULATION

	UNIT	GROSS AREA	DECK	OTHERS	FOOT PRINT AREA	FSR EXCLUTIONS	FSR AREA
HOTEL MAIN BUILDING	101.50' Plan	3934.3	518.58				3934.3
	90.50' Plan	3648.34	0	1280.14 (pool)	3934.3		3648.34
						Subtotal	7582.64
HOTEL CENTRE WING	78.50' Plan	1813.1	257.072	251.92 (mech.)			1813.1
	66.50' Plan	2228.01	288.19		4670.12		2228.01
						Subtotal	4041.11
HOTEL NORTH WING	90.5' Plan	1305.59					1305.59
	80.50' Plan	1275.85	302.79		1578.64		1275.85
						Subtotal	2581.44
HOTEL SOUTH WING	90.5' Plan	1305.4					1305.4
	80.50' Plan	1275.85	302.79		1578.64		1275.85
						Subtotal	2581.25
CONVENTION CENTRE	91.00' Plan	2060.59	252.41				2060.59
	80.00' Plan	1944.14	850.31		2794.45		1944.14
						Subtotal	4004.73
CABIN	CABIN 1	1015.92	223.41		850.72		1015.92
	CABIN 2	1015.92	223.41		850.72		1015.92
	CABIN 3	1015.92	223.41		850.72		1015.92
	CABIN 4	1015.92	223.41		850.72		1015.92
	CABIN 5	1015.92	223.41		850.72		1015.92
	CABIN 6	1015.92	223.41		850.72		1015.92
				Subtotal	**5104.32**	Subtotal	6095.52
TOTAL							26886.69

EXTERIOR FINISH

1. STANDING SEAM METAL ROOF
2. CEDAR SIDING CLADDING
3. HARDIE PANEL
4. ALUMINUM WINDOW
5. GLASS AND ALUMINUM RAILING
6. WOOD AND COMPOSITE
7. TEMPERED GLASS SKYLIGHT ON WOOD RAFTERS
8. PREFINISHED METAL FLASHING
9. VINYL WINDOWS
10. GALVANIZED METAL GUTTER
11. CONCRETE STAIR
12. GLAZED STEEL DOOR

DRAWING LIST

SUNSHINE COAST PROJECT	
Sheet Number	Sheet Title
A0.1	COVER SHEET
A1.0	SITE PLAN
A1.1	SITE PLAN PART 1
A1.2	SITE PLAN PART 2
A2.0	MAIN HOTEL PLAN, 90.50'
A2.1	MAIN HOTEL PLAN ,101.50'
A2.2	MAIN HOTEL ROOF PLAN
A2.3	MAIN HOTEL NORTH ELEV.
A2.4	MAIN HOTEL SOUTH ELEV.
A2.5	MAIN HOTEL EAST ELEV.
A2.6	MAIN HOTEL WEST ELEV.
A2.7	MAIN HOTEL SECTIONS 1
A2.8	MAIN HOTEL SECTIONS 2
A2.9	MAIN HOTEL SECTIONS 3
A2.10	MAIN HOTEL SECTIONS 4
A3.1	CENTRE WING PLAN , 66.50'
A3.2	CENTRE WING PLAN , 78.50'
A3.3	CENTRE WING ROOF PLAN
A3.4	CENTRE WING NORTH ELEV.
A3.5	CENTRE WING SOUTH ELEV.
A3.6	CENTRE WING EAST ELEV.
A3.7	CENTRE WING WEST ELEV.
A3.8	CENTRE WING SECTION 1
A3.9	CENTRE WING SECTIONS 2
A4.1	NORTH WING PLAN, 80.50'
A4.2	NORTH WING PLAN AT 90.50'
A4.3	NORTH WING ROOF PLAN
A4.4	NORTH WING-W&N ELEV.
A4.5	NORTH WING- S&E ELEV.
A4.6	NORTH WING SECTIONS
A4.7	NORTH WING SECTIONS 2
A5.1	SOUTH WING PLAN, 80.50'
A5.2	SOUTH WING PLAN,90.50'
A5.3	SOUTH WING ROOF PLAN
A5.4	SOUTH WING-N&W ELEV.
A5.5	SOUTH WING -S&E ELEV.
A5.6	SOUTH WING SECTIONS
A5.7	SOUTH WING SECTIONS 2
A6.1	CONVENTION CENTRE PLAN,80.0'
A6.2	CONVENTION CENTRE PLAN,91.0'
A6.3	CONVENTION CENTRE ROOF PLAN
A6.4	CONVENTION CENTRE N& E ELEV.
A6.5	CONVENTION CENTRE S&W ELEV.
A6.6	CONVENTION CENTRE SECTIONS
A7.1	CABIN PLANS AND SECTION
A7.2	CABIN ELEVATIONS

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REVISIONS

PROJECT
VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

JOB NO.

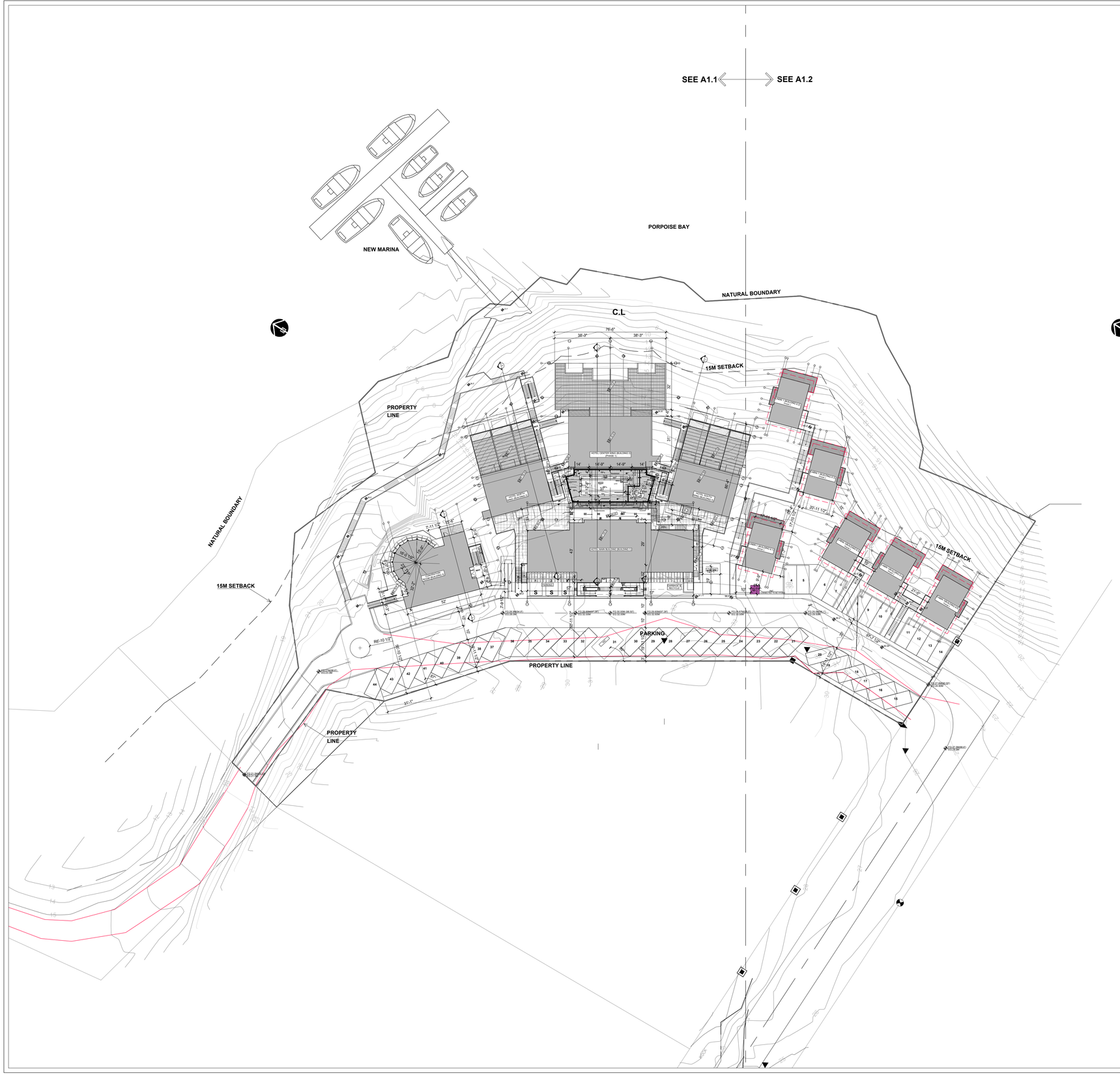
DRAWN: LT

DATE

SCALE

CHECKED: J N

DRAWING NO.



1 A1.0 SITE PLAN
SCALE: 1/32"=1'-0"

H N P A
ARCHITECTURE+PLANNING INC
2983 W. 41ST AVENUE
VANCOUVER BC CANADA V6N 3C8
EMAIL: office@hnpadesign.com
TEL:606-726-1338
604-559-8566

NOV 5, 2018

ISSUED FOR
DP

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SITE PLAN

JOB NO.

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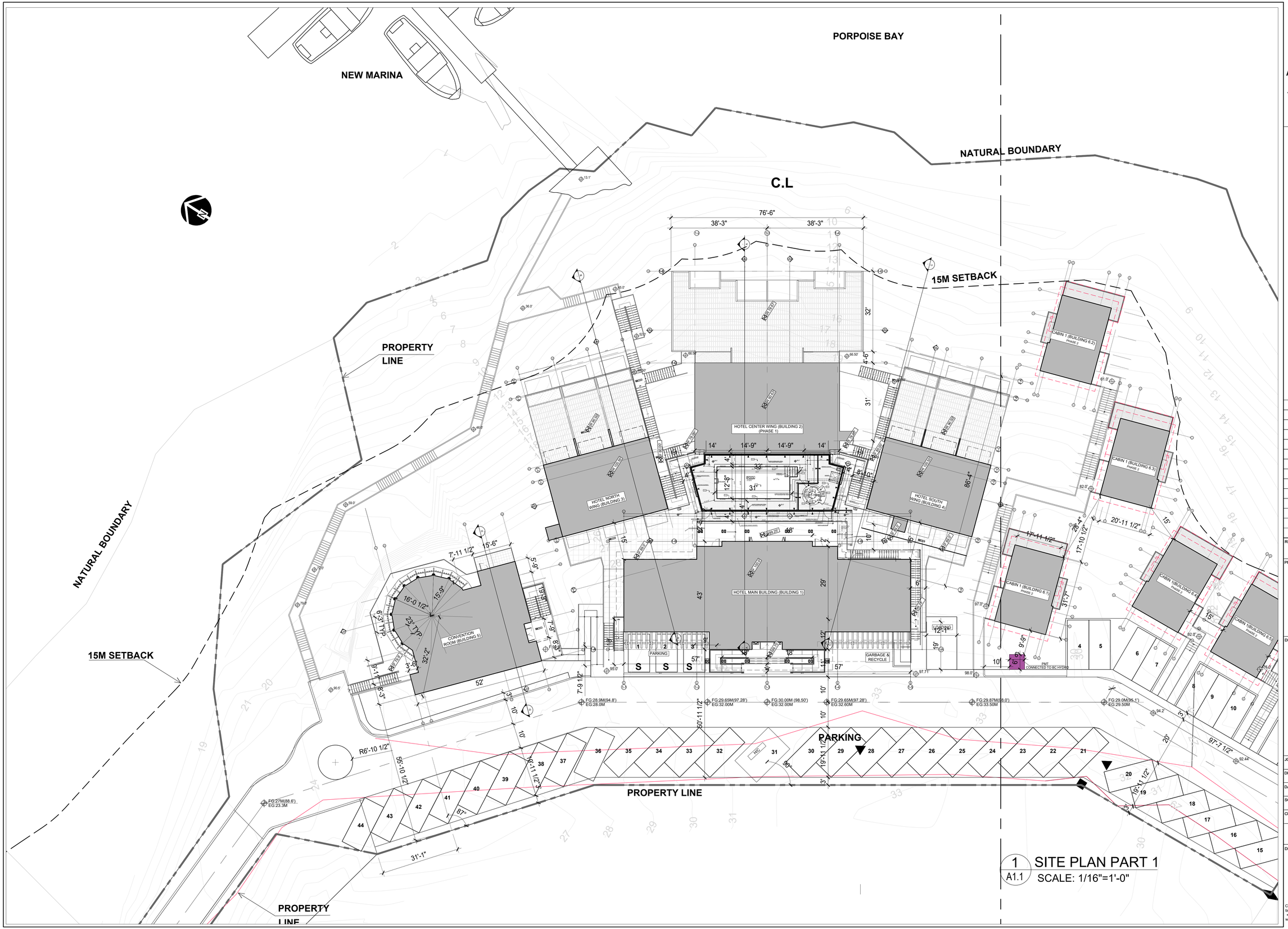
A1.0



1 A1.1 SITE PLAN PART 1
SCALE: 1/16"=1'-0"

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REVISIONS		
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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SITE PLAN PART 1

JOB NO.

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DATE

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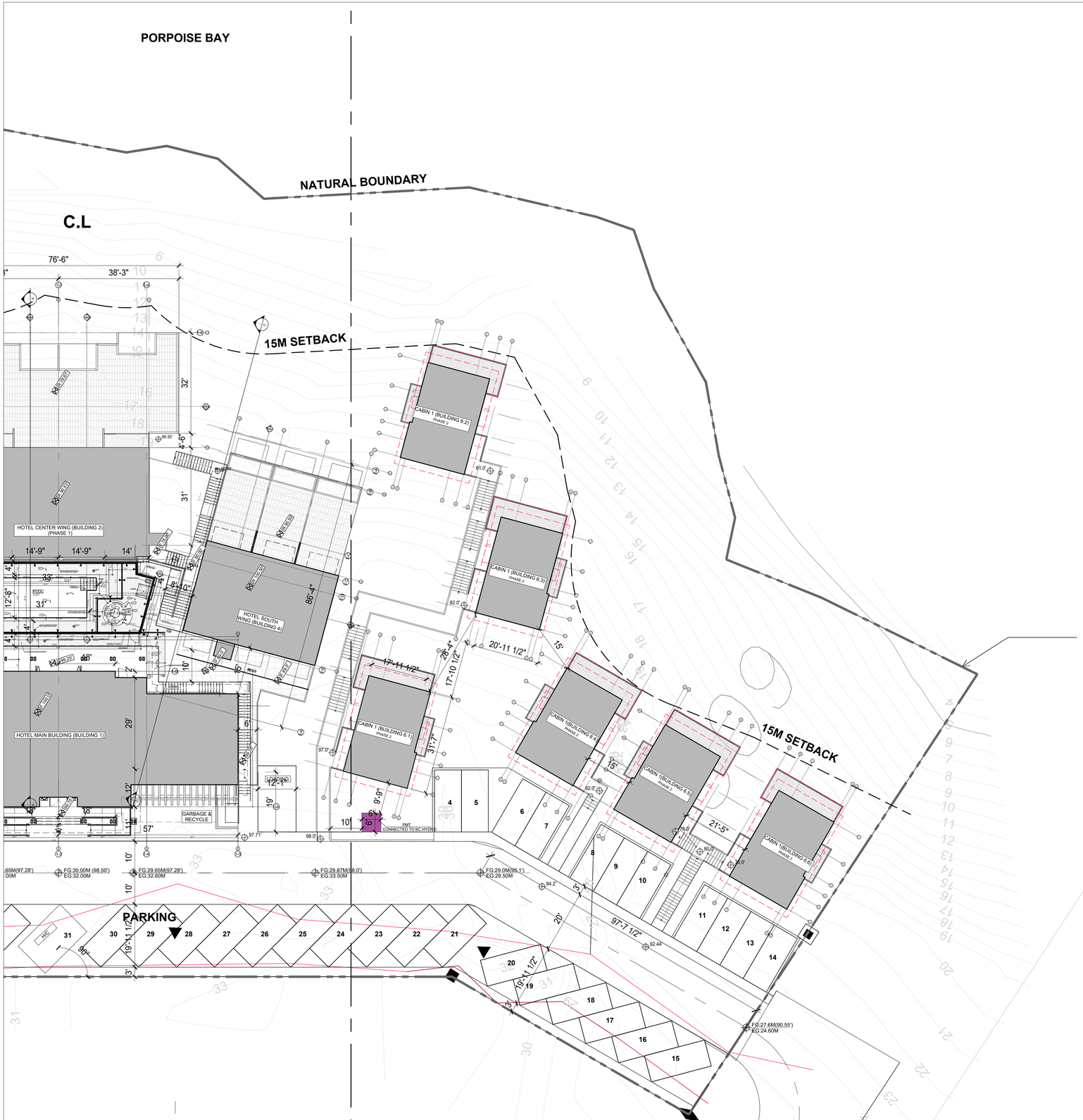
A1.1



1 A1.2 SITE PLAN PART 2
SCALE: 1/16"=1'-0"

H N P A
ARCHITECTURE+PLANNING INC
2983 W. 41ST AVENUE
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NOV 5, 2018

ISSUED FOR
DP

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SITE PLAN PART 2

JOB NO.

DRAWN LT

DATE

SCALE

CHECKED J N

DRAWING NO.

A1.2

H N P A
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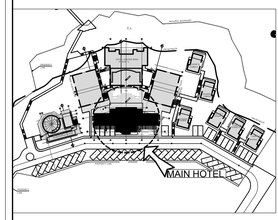
NOV 5, 2018
ISSUED FOR
DP



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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL PLAN, 90.50'

JOB NO.

DRAWN LT

DATE

SCALE

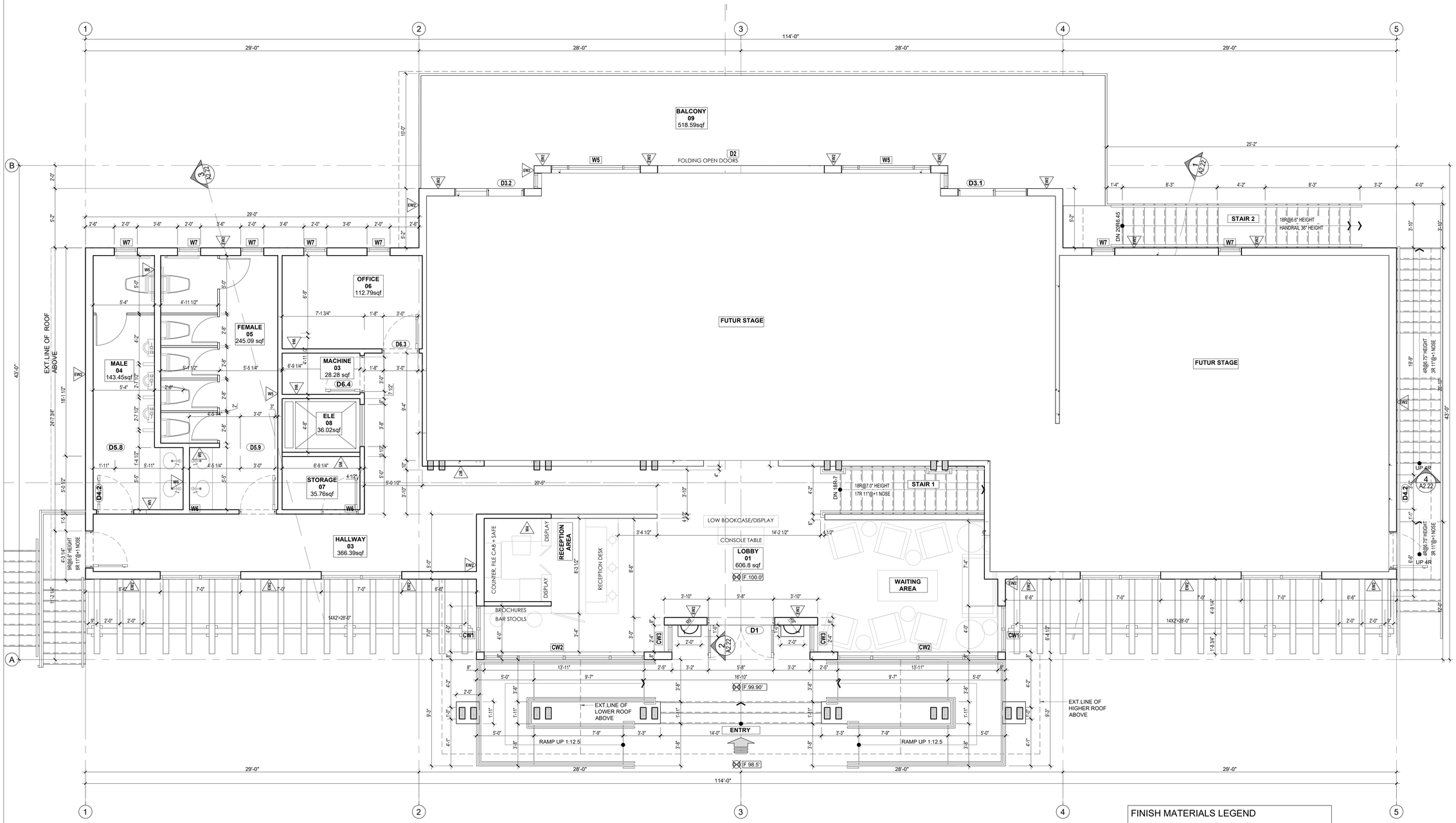
CHECKED J N

DRAWING NO.

A2.0

1 A2.0 HOTEL PLAN AT 90.50' LEVEL
SCALE: 1/4"=1'-0"

FINISH MATERIALS LEGEND	
D1.3	DENOTES ROOM NUMBER
W7	DENOTES WINDOW NUMBER
R.NAME 08 sqf	DENOTES ROOM NAME, NUMBER & AREA
W5	DENOTES WALL TYPE



1 / A2.1 PLAN AT 101.5' LEVEL
SCALE: 1/4"=1'-0"

FINISH MATERIALS LEGEND	
D1	DENOTES DOOR NUMBER
W7	DENOTES WINDOW NUMBER
R.NAME 08 sqf	DENOTES ROOM NAME, NUMBER & AREA
W5	DENOTES WALL TYPE

H N P A
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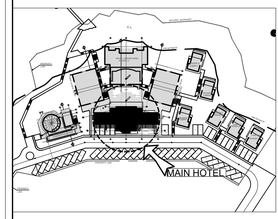

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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL PLAN ,101.50'

JOB NO.

DRAWN LT

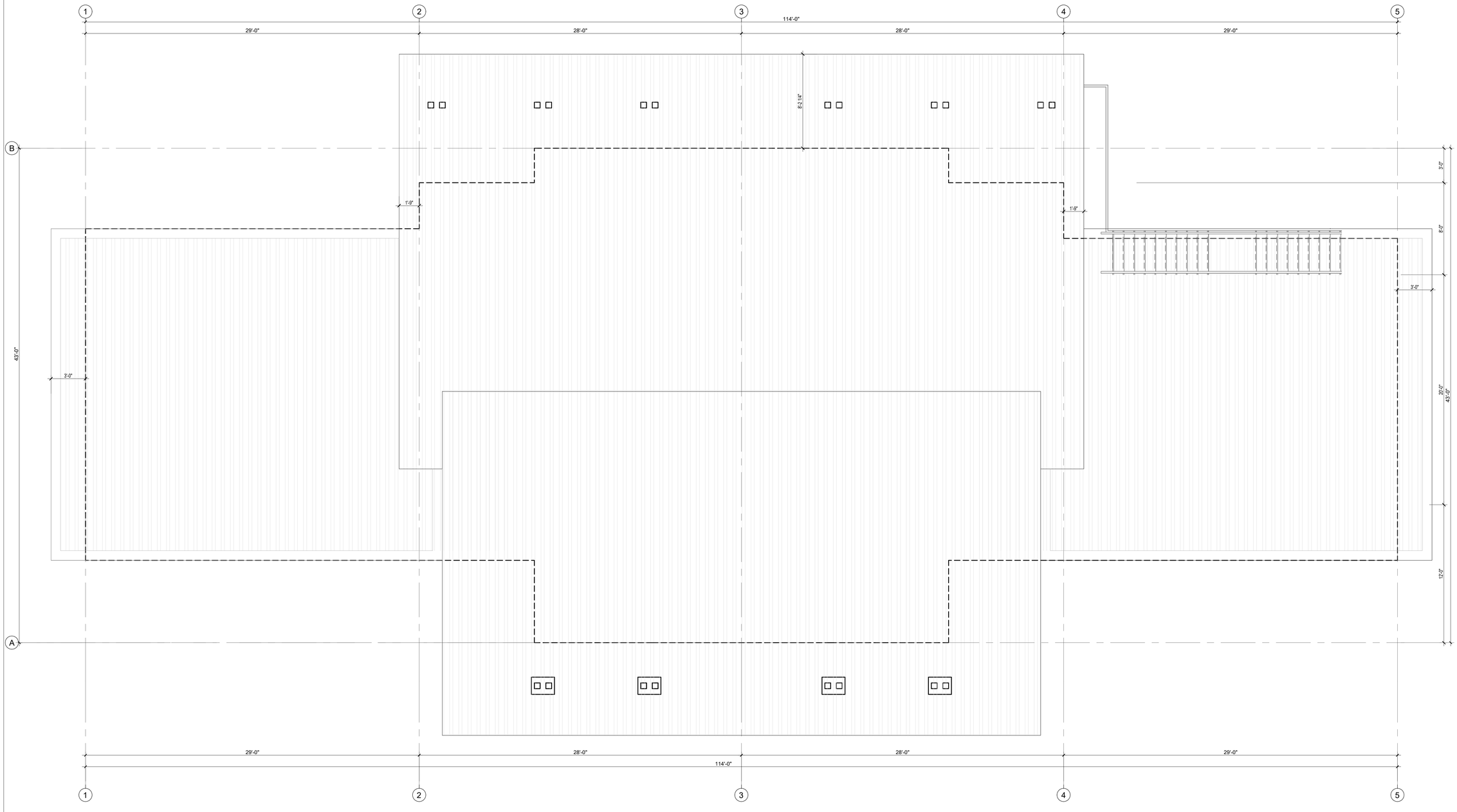
DATE

SCALE

CHECKED J N

DRAWING NO.

A2.1



1 A2.2 HOTEL ROOF PLAN
SCALE: 1/4"=1'-0"

H N P A
ARCHITECTURE+PLANNING INC
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VANCOUVER BC CANADA V6N 3C8
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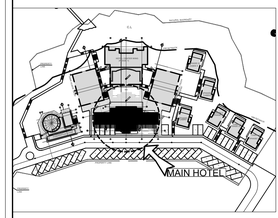

7		
6		
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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL ROOF PLAN

JOB NO.

DRAWN
LT

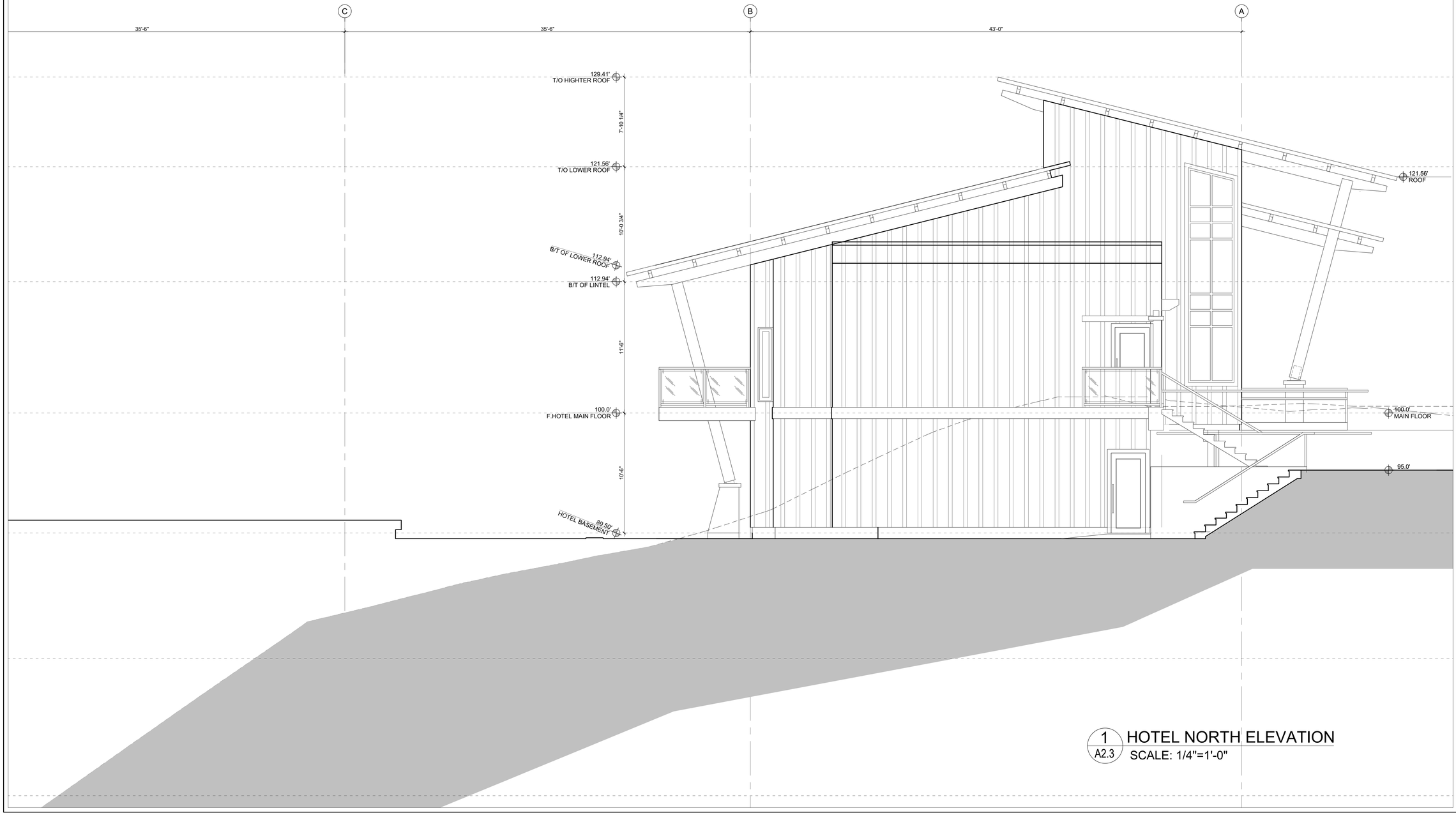
DATE

SCALE

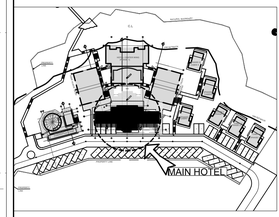
CHECKED
J N

DRAWING NO.

A2.2



1 A2.3 HOTEL NORTH ELEVATION
SCALE: 1/4"=1'-0"



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ISSUED FOR
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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL NORTH ELEV.

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DRAWN LT

DATE

SCALE

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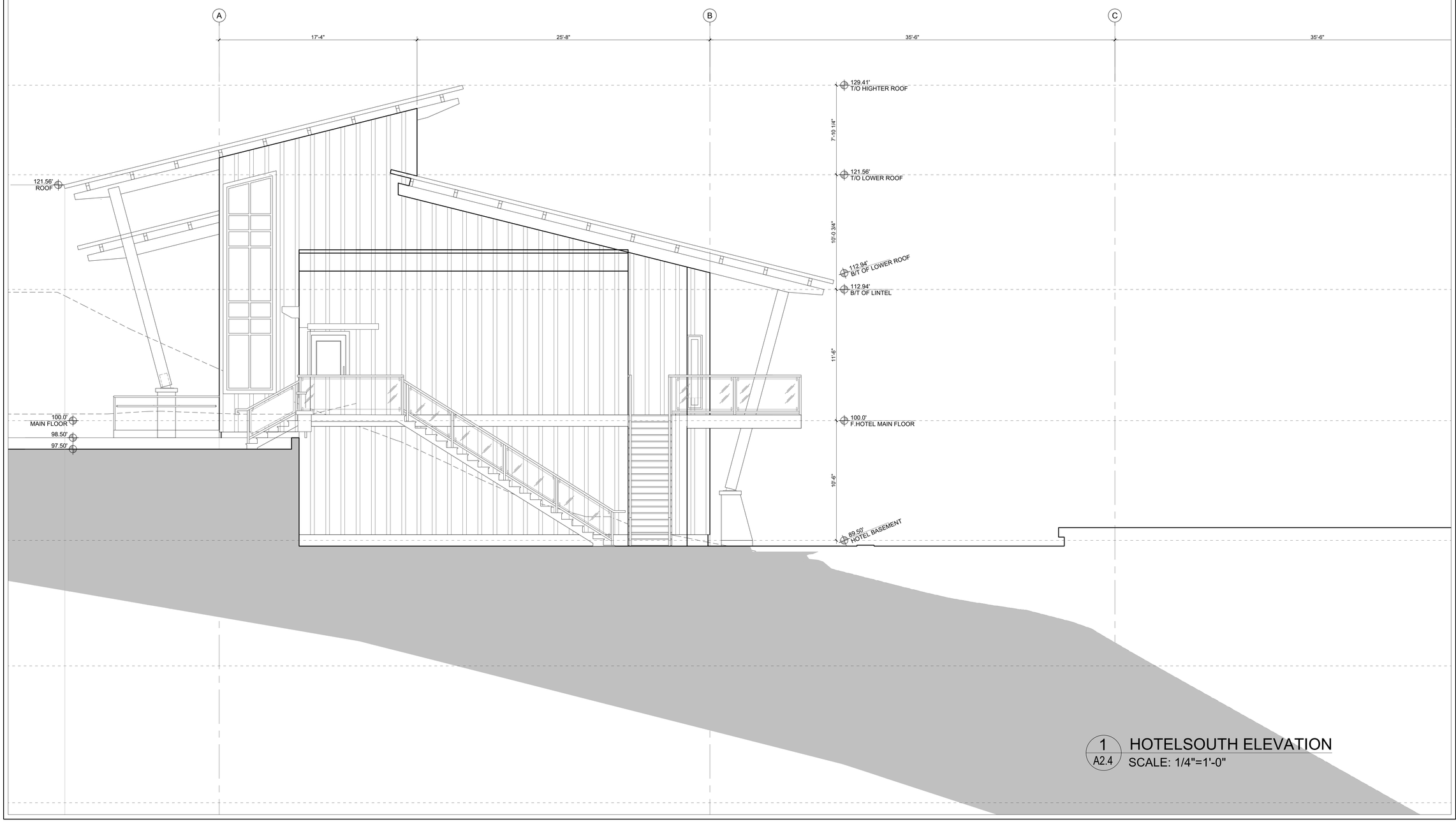
DRAWING NO.

A2.3



1 A2.4 HOTELSOUTH ELEVATION
SCALE: 1/4"=1'-0"

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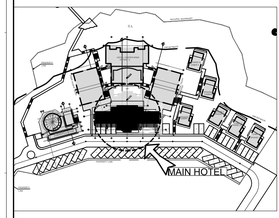

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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL SOUTH ELEV.

JOB NO.

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DATE

SCALE

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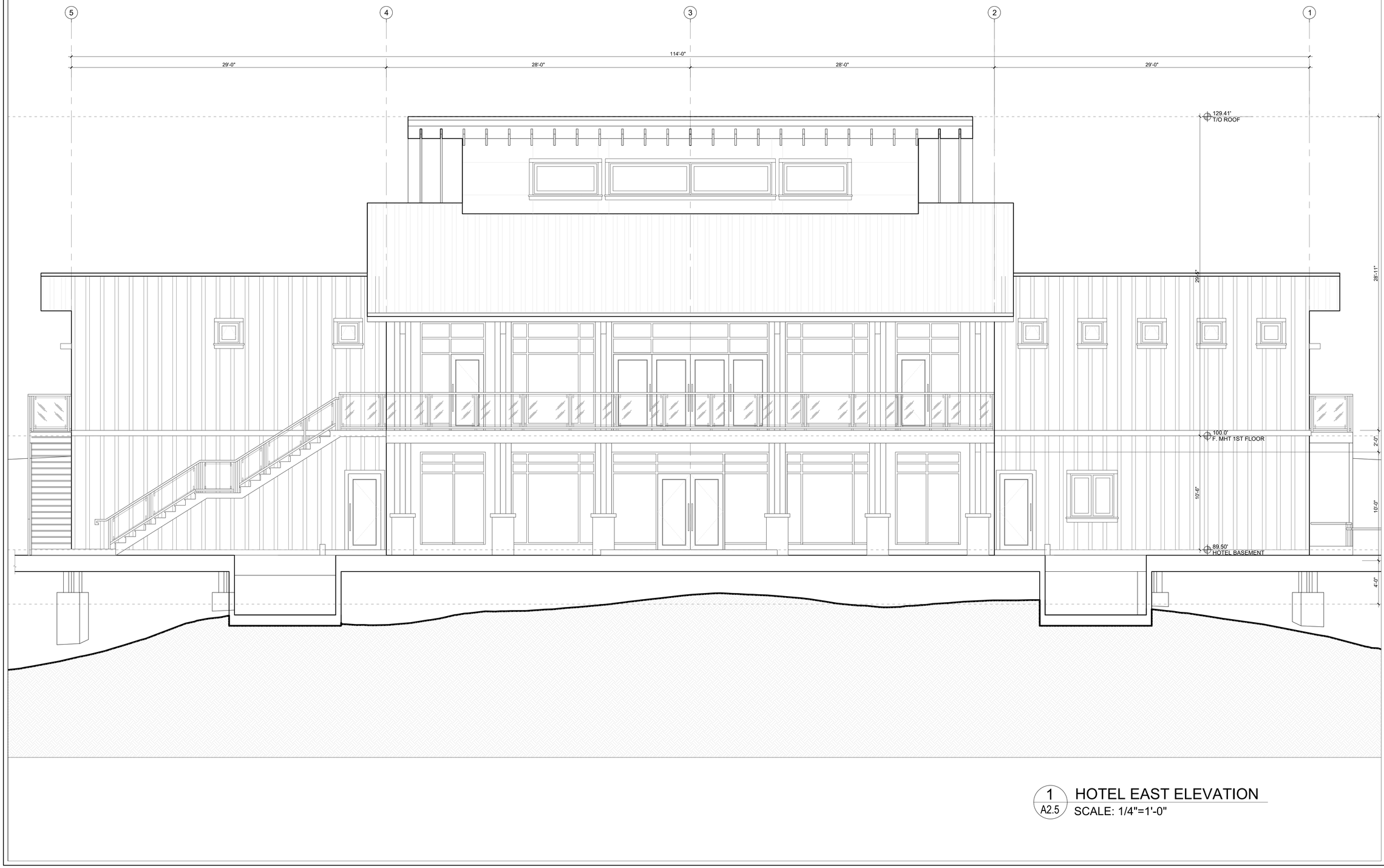
DRAWING NO.

A2.4



1 A2.5 HOTEL EAST ELEVATION

SCALE: 1/4"=1'-0"

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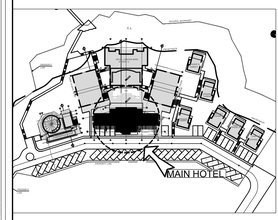

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1	SET 21, 2014	ISSUED FOR BP

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VANTA PACIFIC WATERFRONT RESORT

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SUNSHINE COAST MAIN HOTEL EAST ELEV.

JOB NO.

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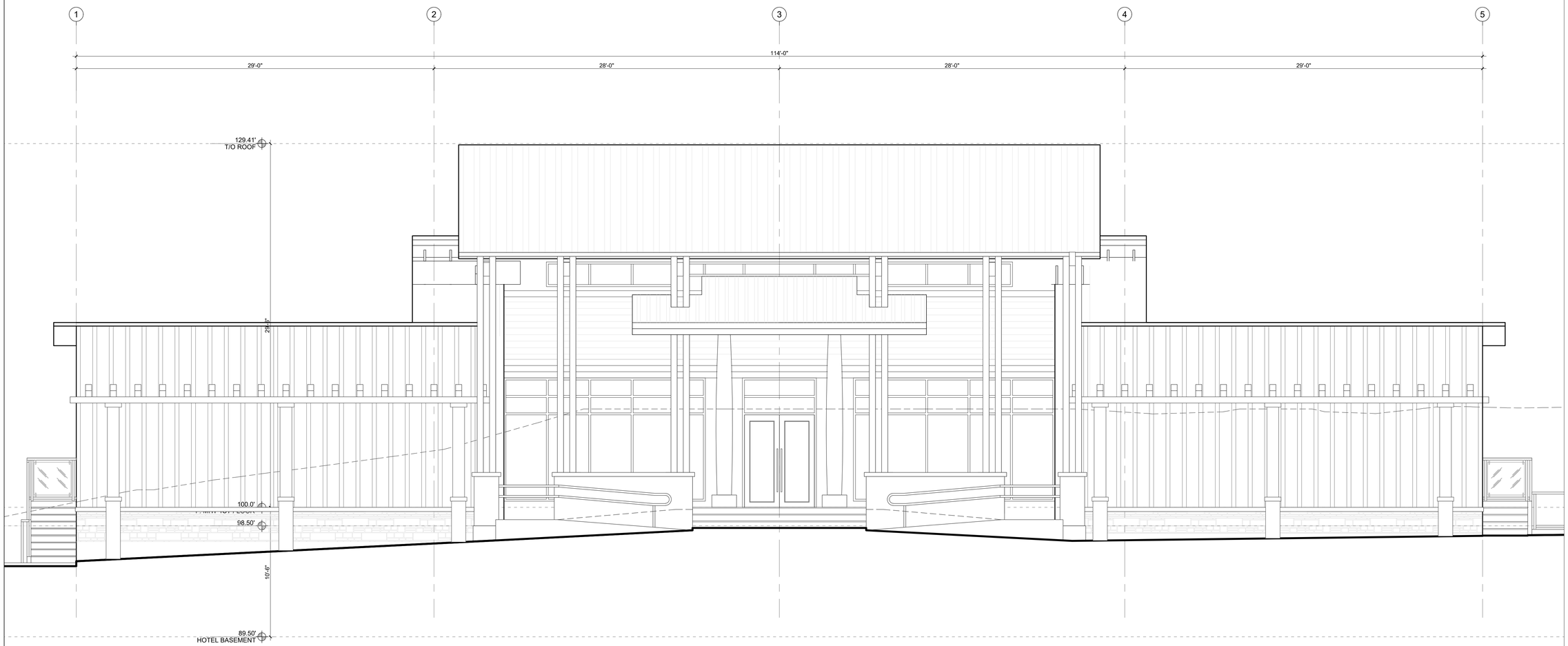
A2.5



1 A2.6 HOTEL WEST ELEVATION
SCALE: 1/4"=1'-0"

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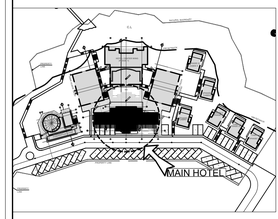

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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
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1	SET 21, 2014	ISSUED FOR BP

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VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL WEST ELEV.

JOB NO.

DRAWN **LT**

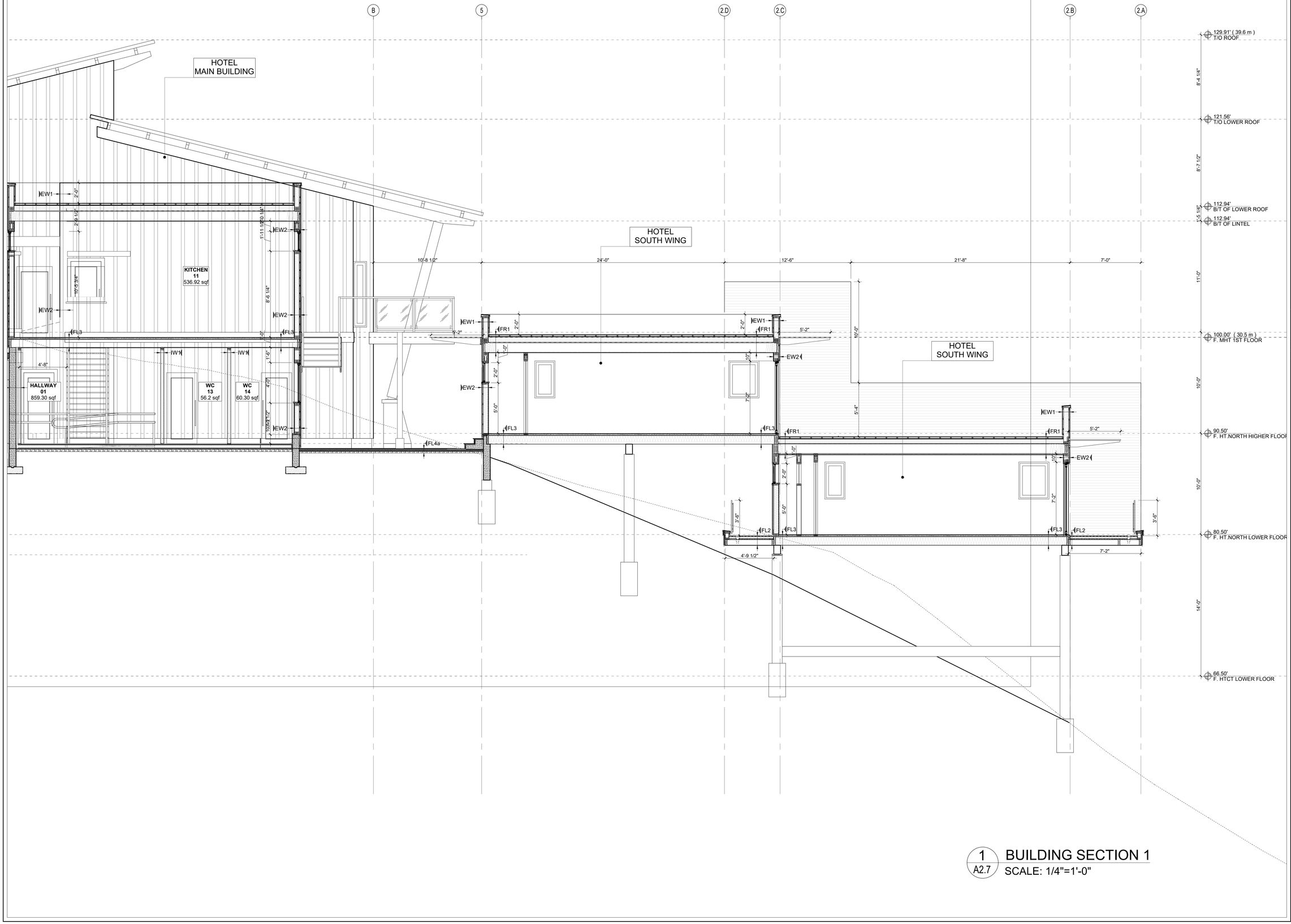
DATE

SCALE

CHECKED **J N**

DRAWING NO.

A2.6



1 / A2.7 BUILDING SECTION 1
SCALE: 1/4"=1'-0"

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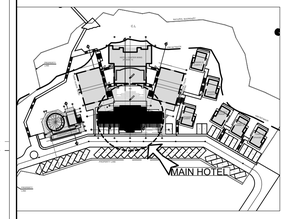

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4	JUN 10, 2018	REISSUED FOR BP
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1	SET 21, 2014	ISSUED FOR BP

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SUNSHINE COAST MAIN HOTEL SECTIONS 1

JOB NO.

DRAWN **LT**

DATE

SCALE

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DRAWING NO.

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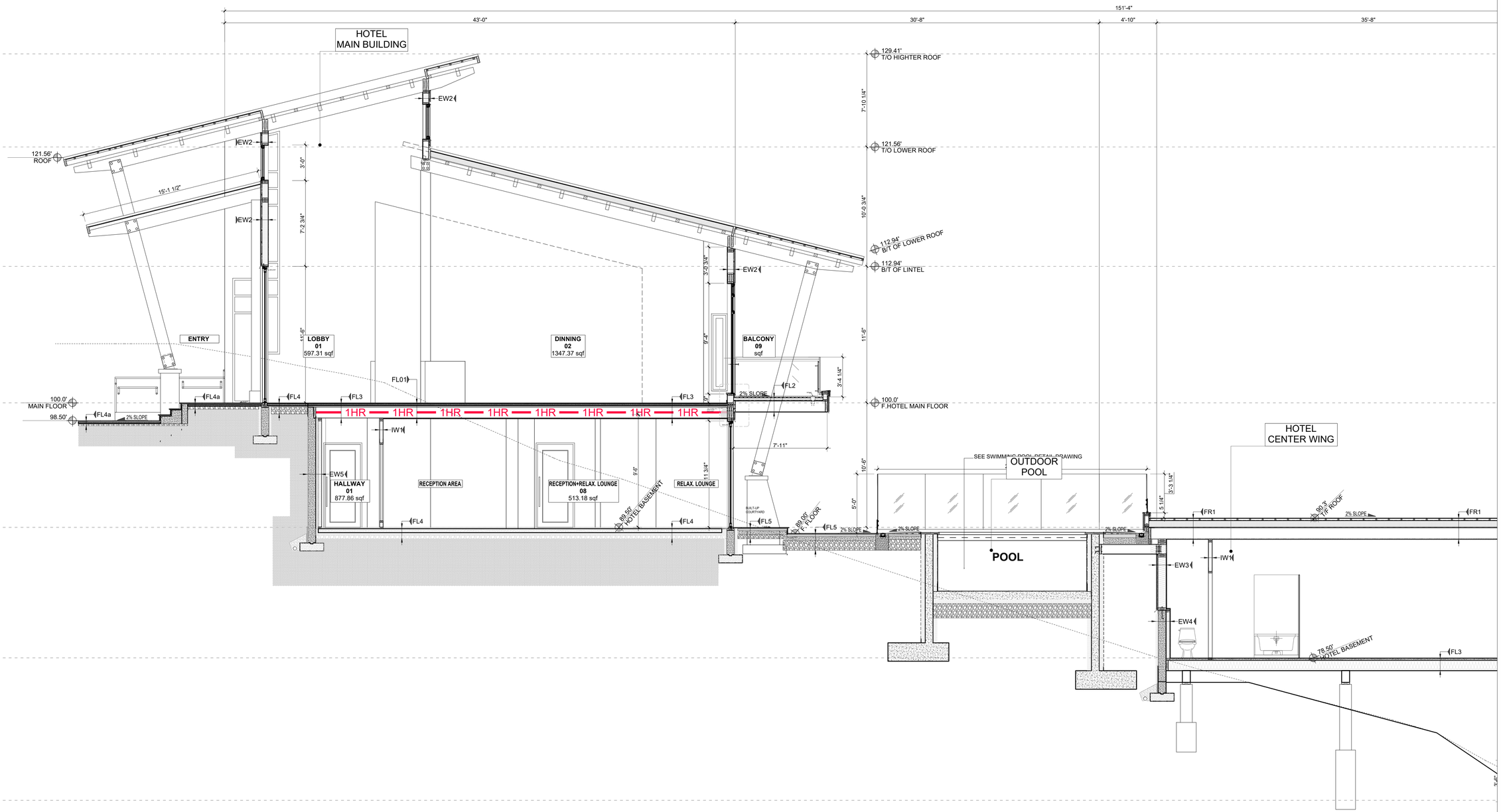

1 / A2.8 BUILDING SECTION 2
SCALE: 1/4"=1'-0"

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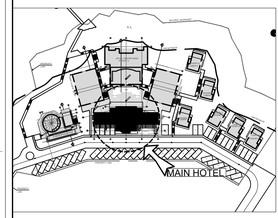

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1	SET 21, 2014	ISSUED FOR BP

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SUNSHINE COAST MAIN HOTEL SECTIONS 2

JOB NO.

DRAWN **LT**

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SCALE

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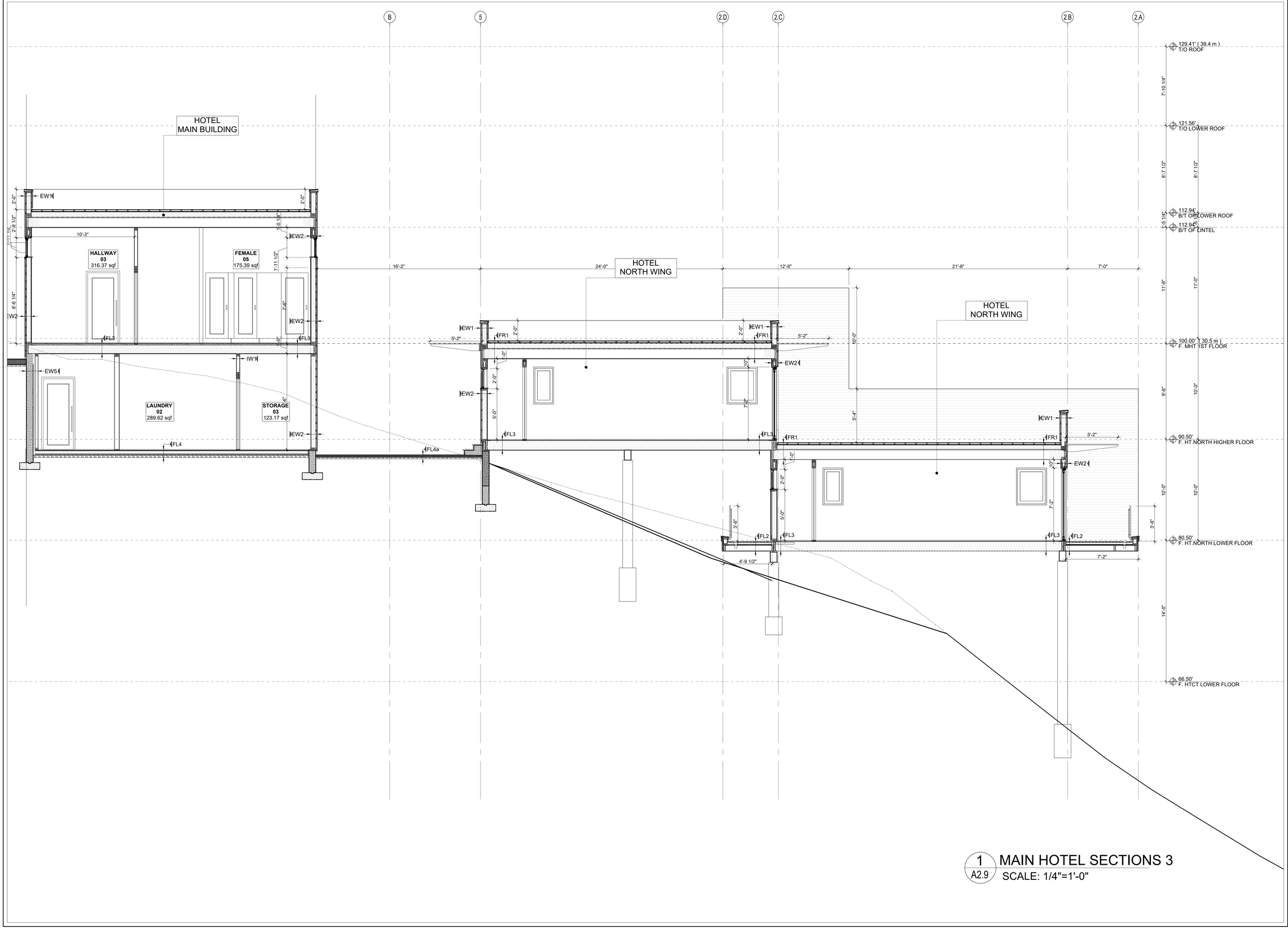
DRAWING NO.
A2.8



1 / A2.9 MAIN HOTEL SECTIONS 3
SCALE: 1/4"=1'-0"

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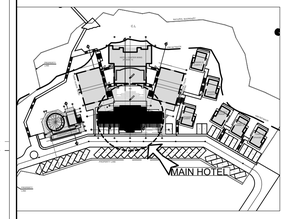

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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL SECTIONS 3

JOB NO.

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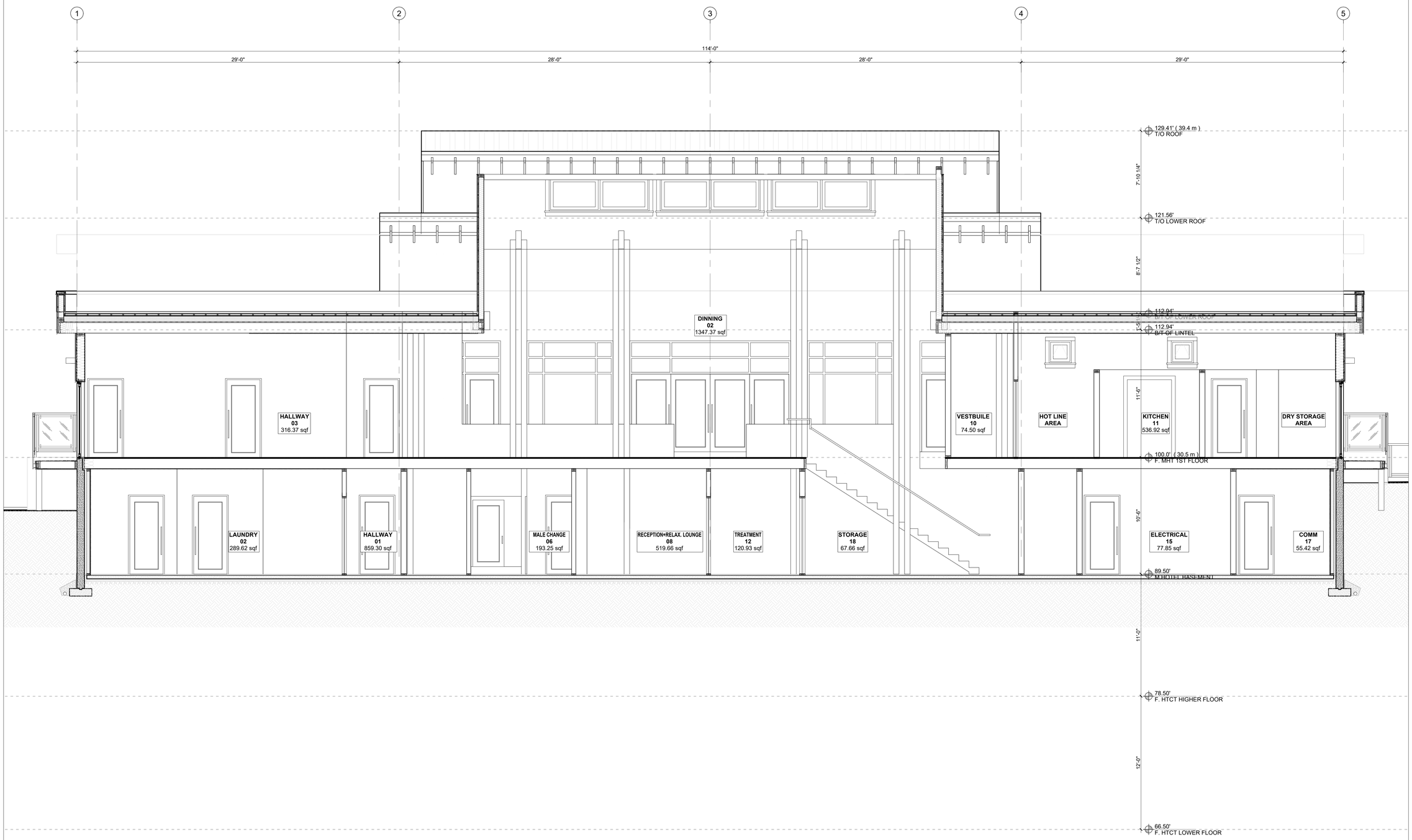
DRAWING NO.

A2.9



1 A2.10 MAIN HOTEL SECTIONS 4
SCALE: 1/4"=1'-0"

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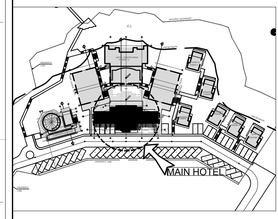

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4	JUN 10, 2018	REISSUED FOR BP
3	APRIL 06, 2016	REISSUED FOR BP
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VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST MAIN HOTEL SECTIONS 4

JOB NO.

DRAWN **LT**

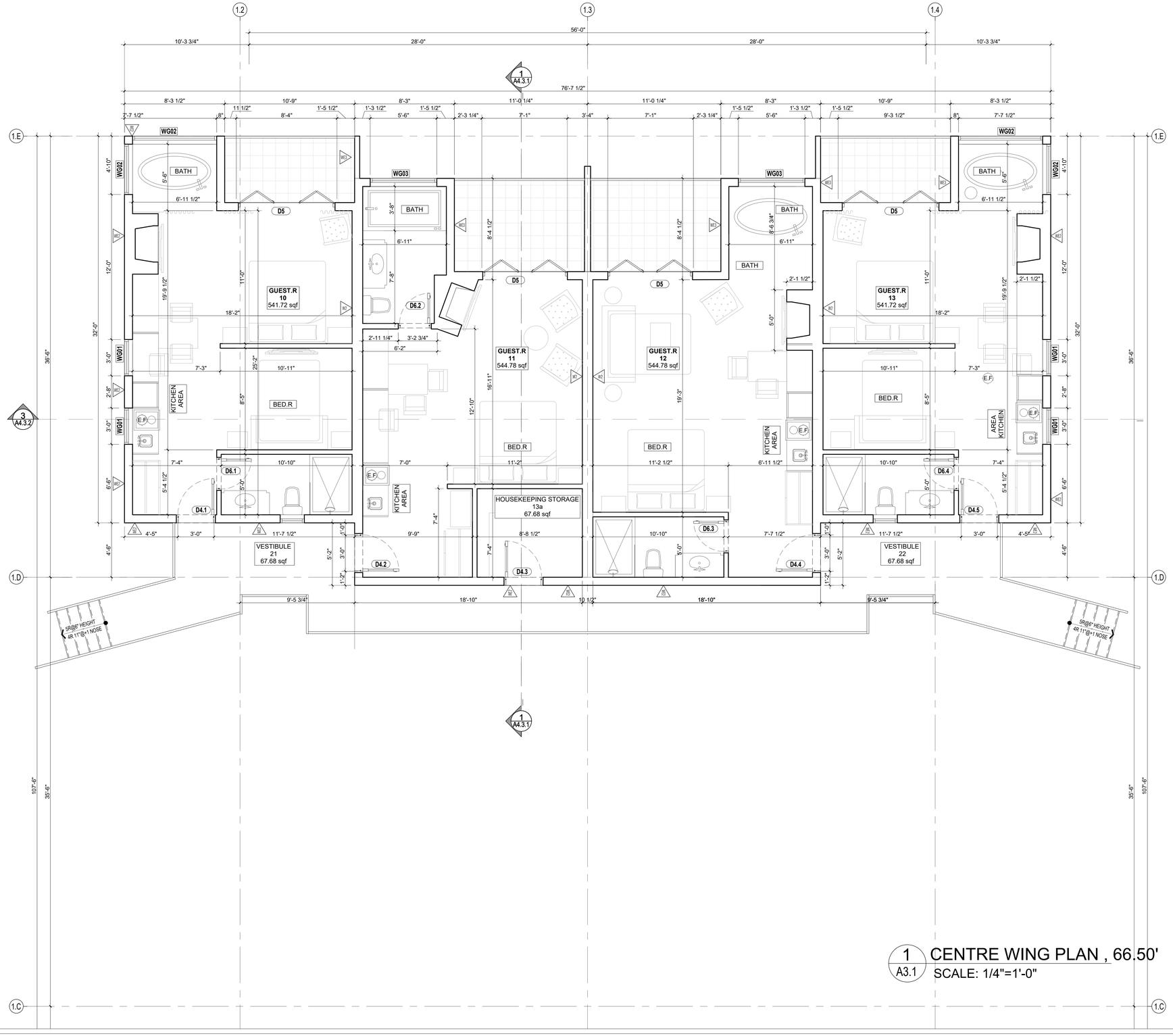
DATE

SCALE

CHECKED **J N**

DRAWING NO.

A2.10



1 CENTRE WING PLAN , 66.50'
A3.1 SCALE: 1/4"=1'-0"

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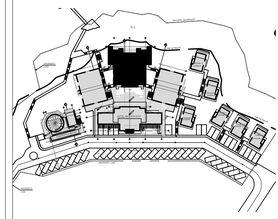

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3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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VANTA PACIFIC WATERFRONT RESORT

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SUNSHINE COAST CENTRE WING PLAN , 66.50'

JOB NO.

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DATE

SCALE

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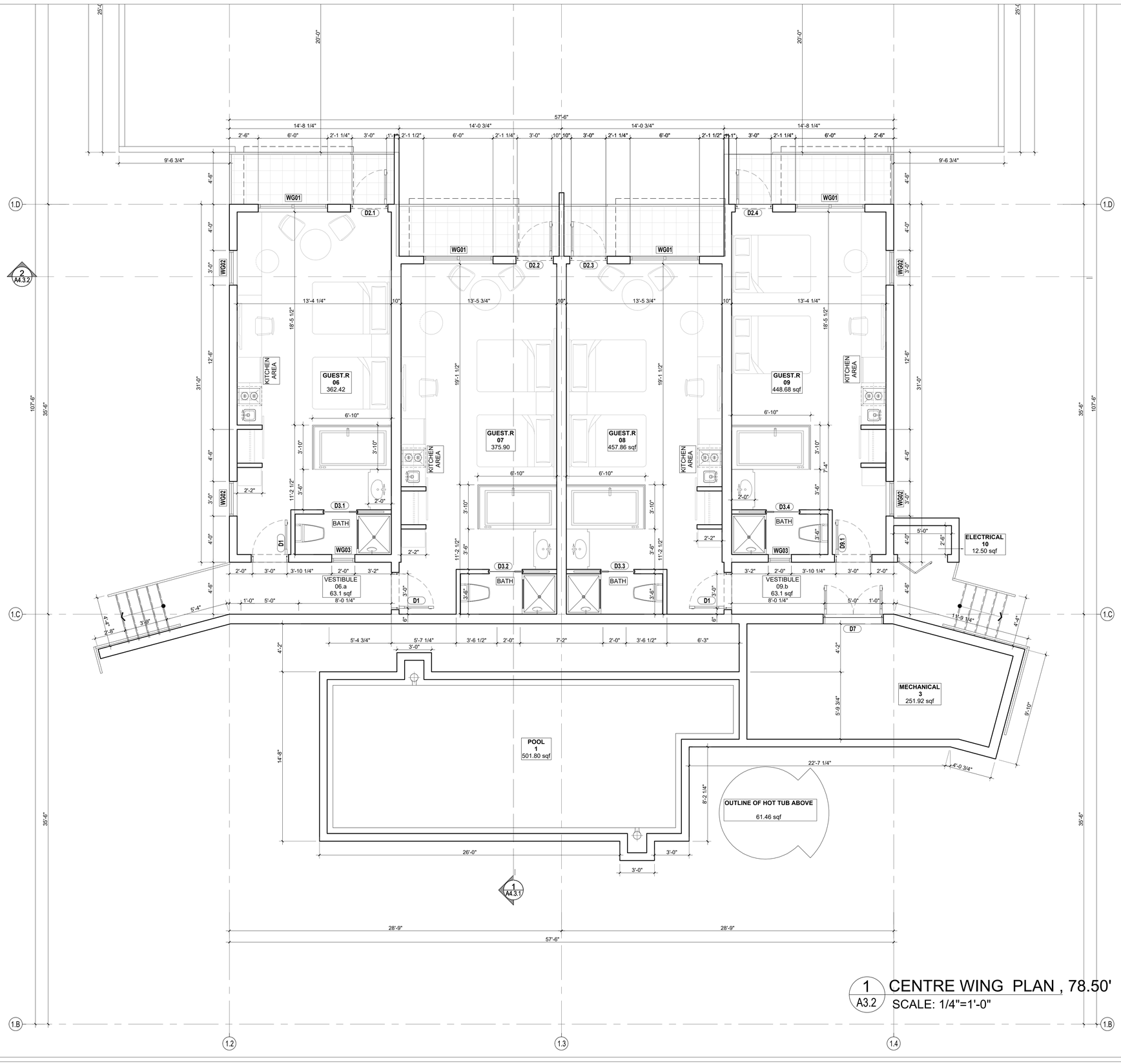
DRAWING NO.

A3.1



1 A3.2 CENTRE WING PLAN , 78.50'

SCALE: 1/4"=1'-0"

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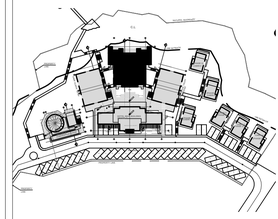

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3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CENTRE WING PLAN , 78.50'

JOB NO.

DRAWN: LEON

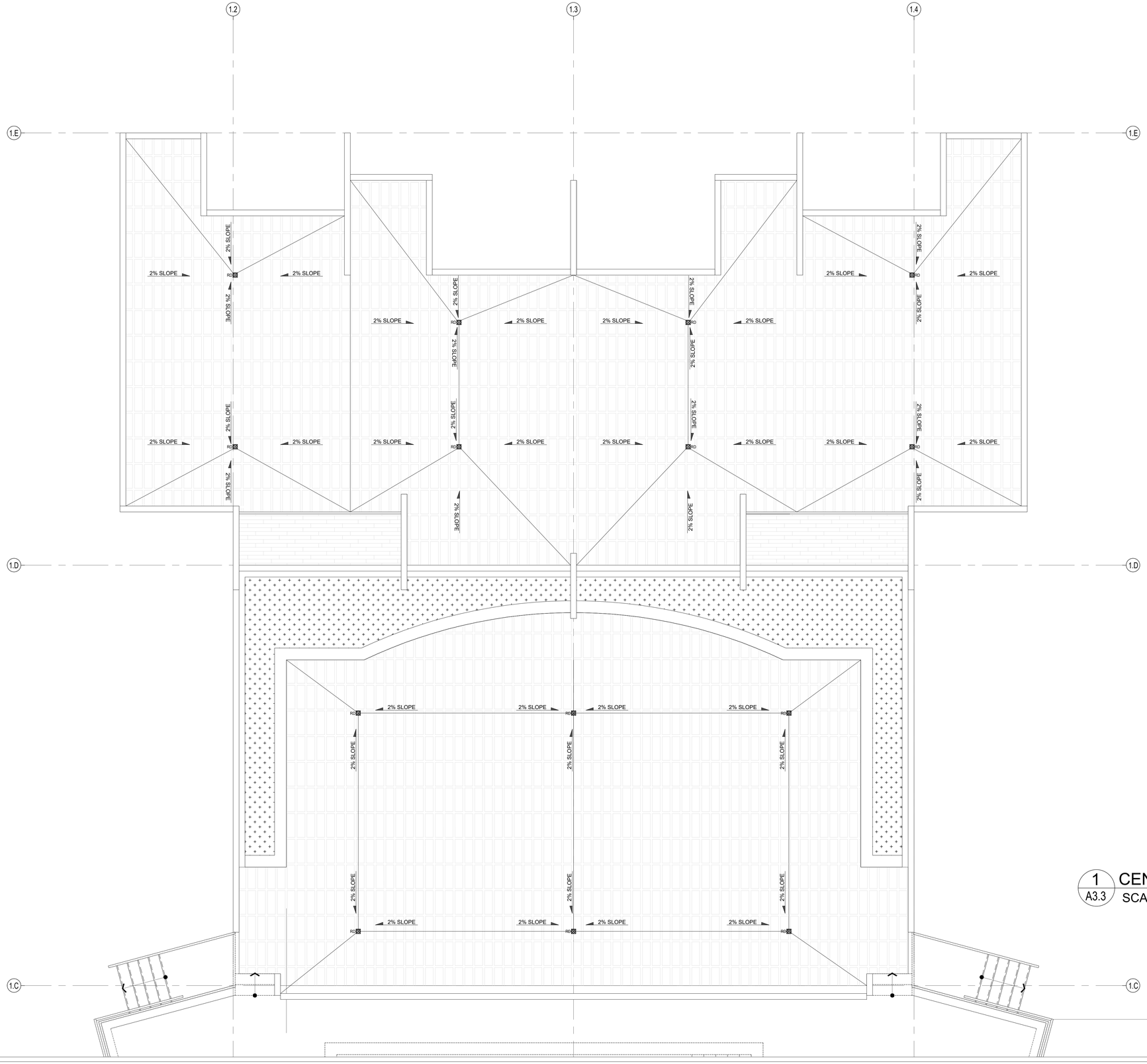
DATE

SCALE

CHECKED: J N

DRAWING NO.

A3.2



1 CENTRE WING ROOF PLAN
A3.3 SCALE: 1/4"=1'-0"

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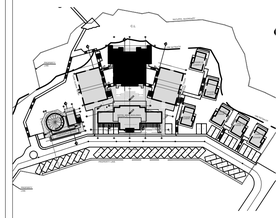

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2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CENTRE WING ROOF PLAN

JOB NO.

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LEON

DATE

SCALE

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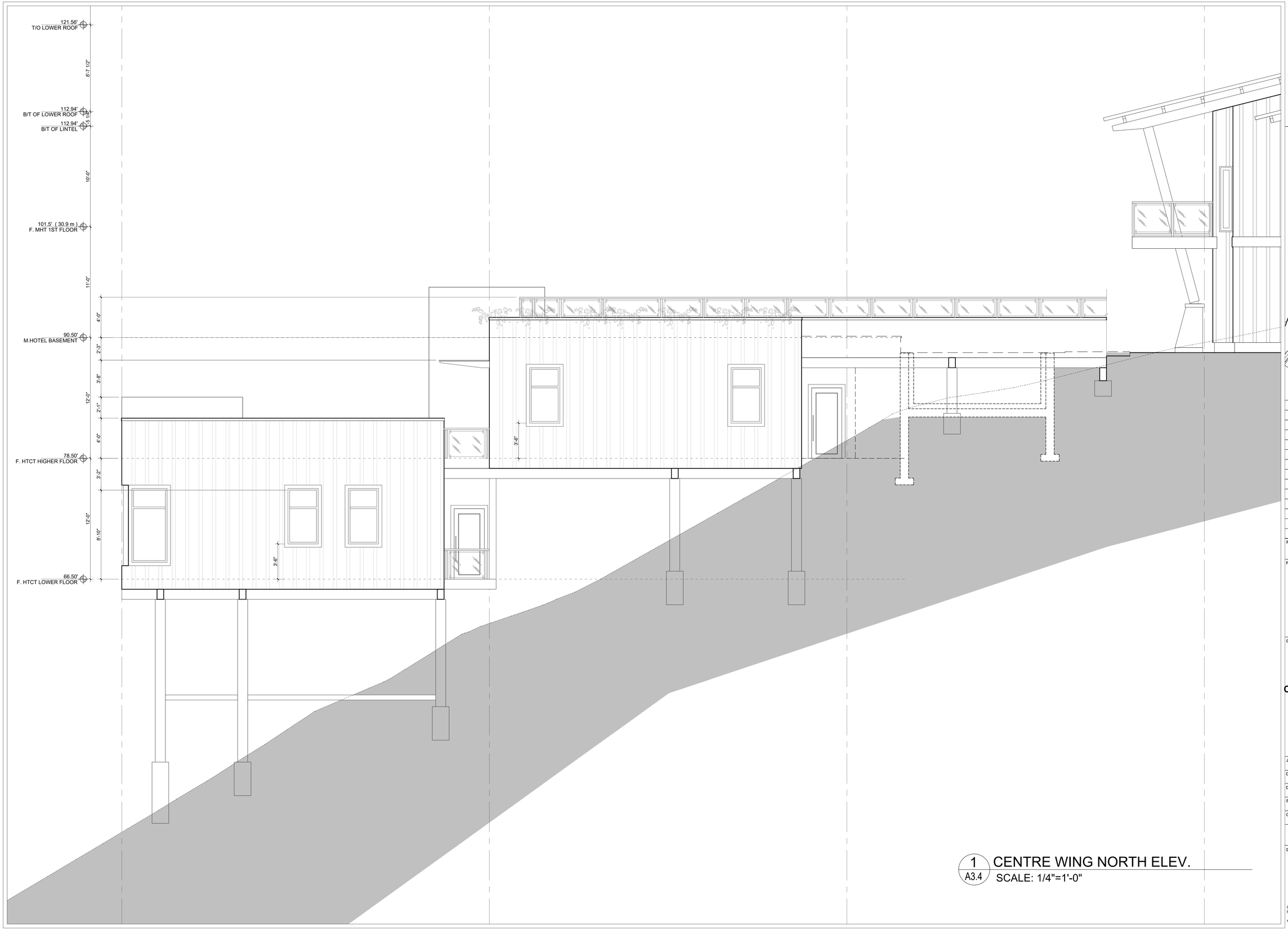
DRAWING NO.

A3.3



1 A3.4 CENTRE WING NORTH ELEV.
SCALE: 1/4"=1'-0"

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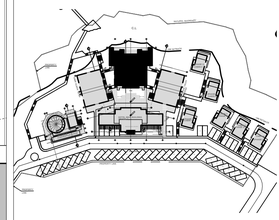

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2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CENTRE WING NORTH ELEV.

JOB NO.

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DATE

SCALE

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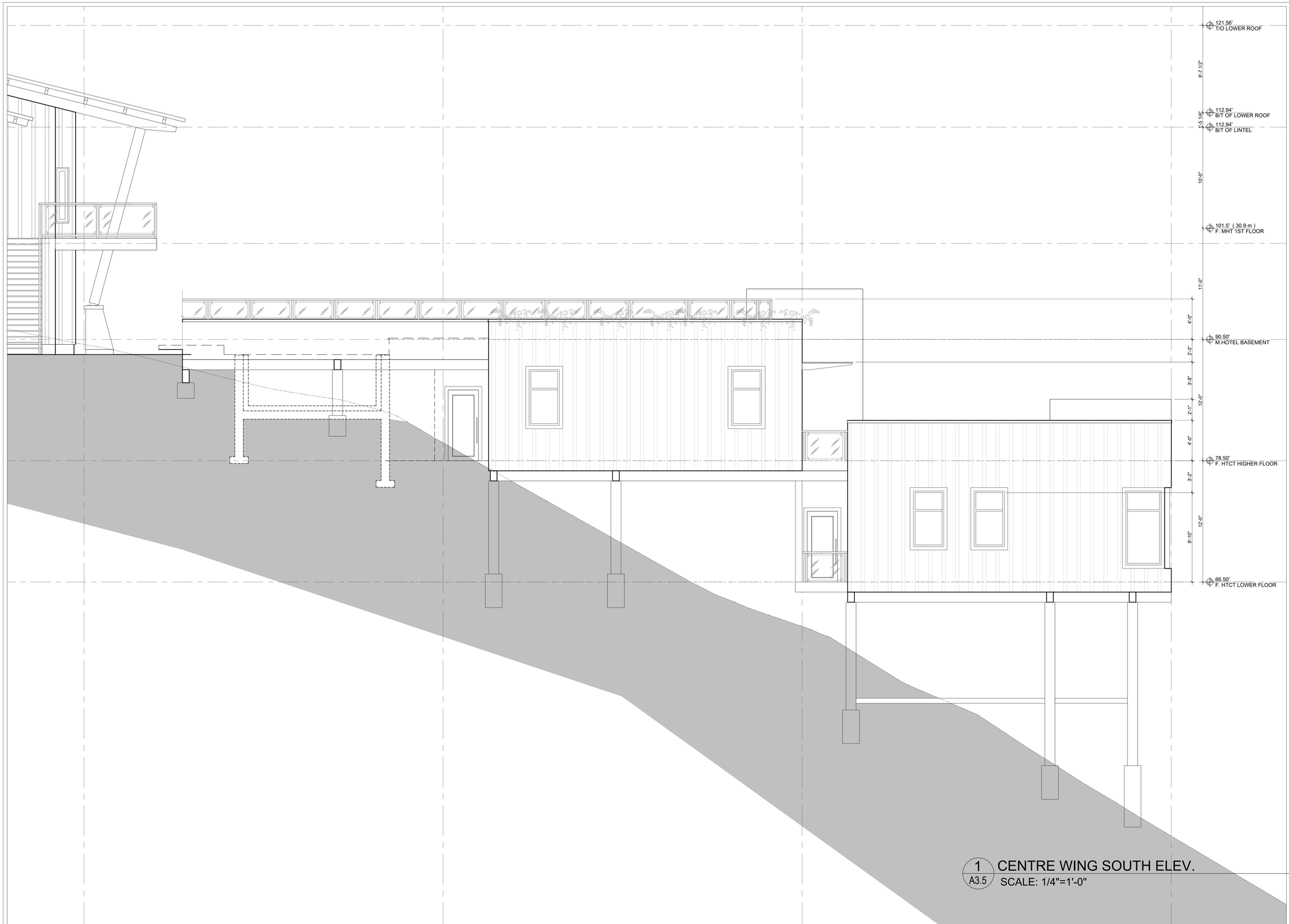
DRAWING NO.

A3.4



1 A3.5 CENTRE WING SOUTH ELEV.
SCALE: 1/4"=1'-0"

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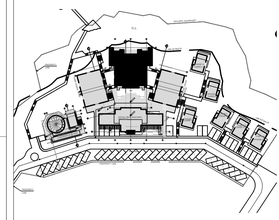

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2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CENTRE WING SOUTH ELEV.

JOB NO.

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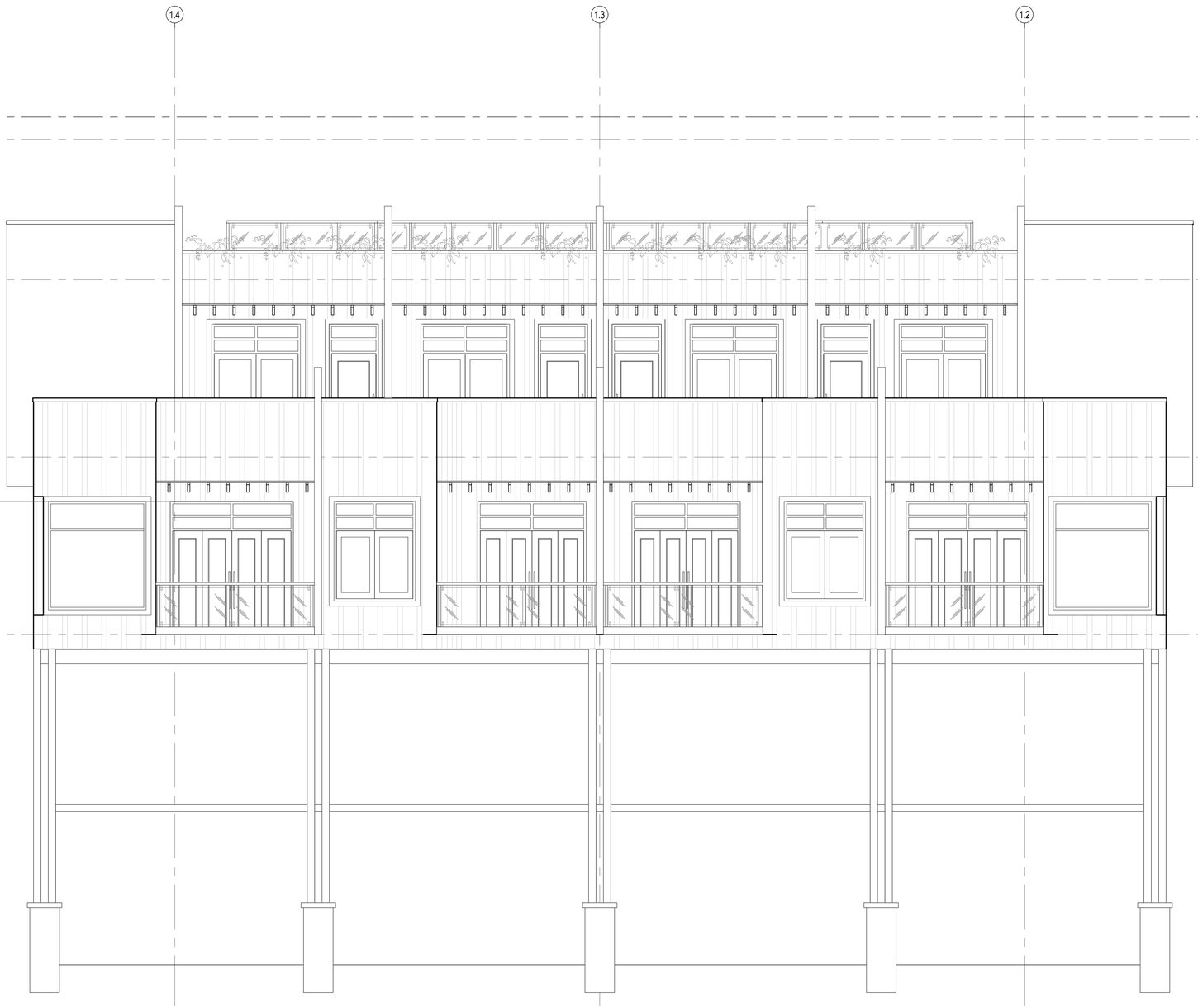
DRAWING NO.

A3.5



1 A3.6 CENTRE WING EAST ELEV.
SCALE: 1/4"=1'-0"

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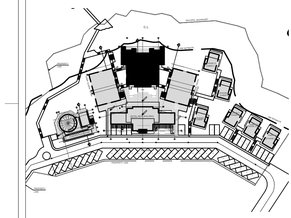

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1	SET 21, 2014	ISSUED FOR BP

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VANTA PACIFIC WATERFRONT RESORT

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SUNSHINE COAST CENTRE WING EAST ELEV.

JOB NO.

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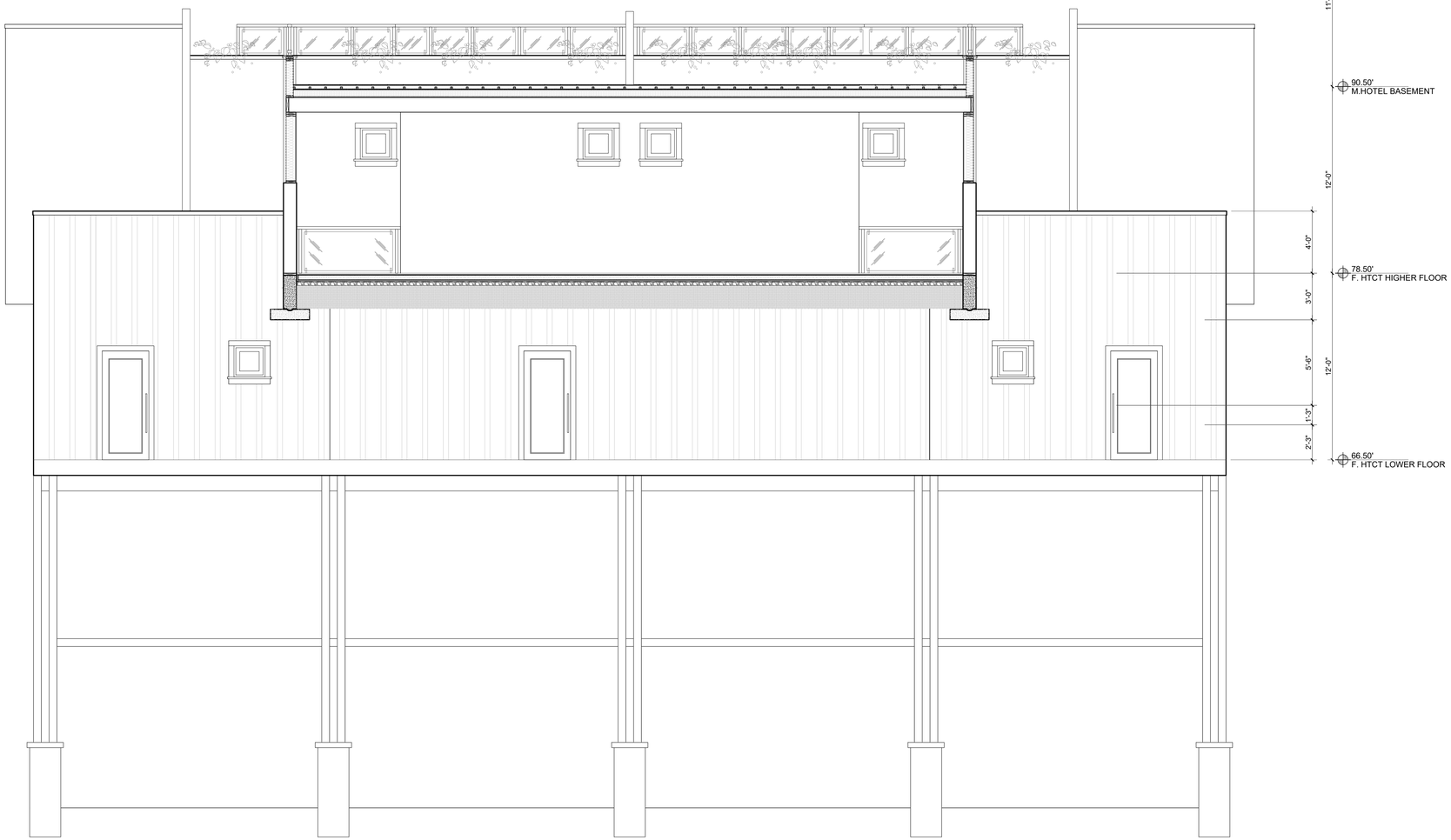
DRAWING NO.

A3.6



1 A3.7 CENTRE WING WEST ELEV.
SCALE: 1/4"=1'-0"

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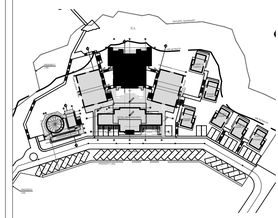

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3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

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VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CENTRE WING WEST ELEV.

JOB NO.

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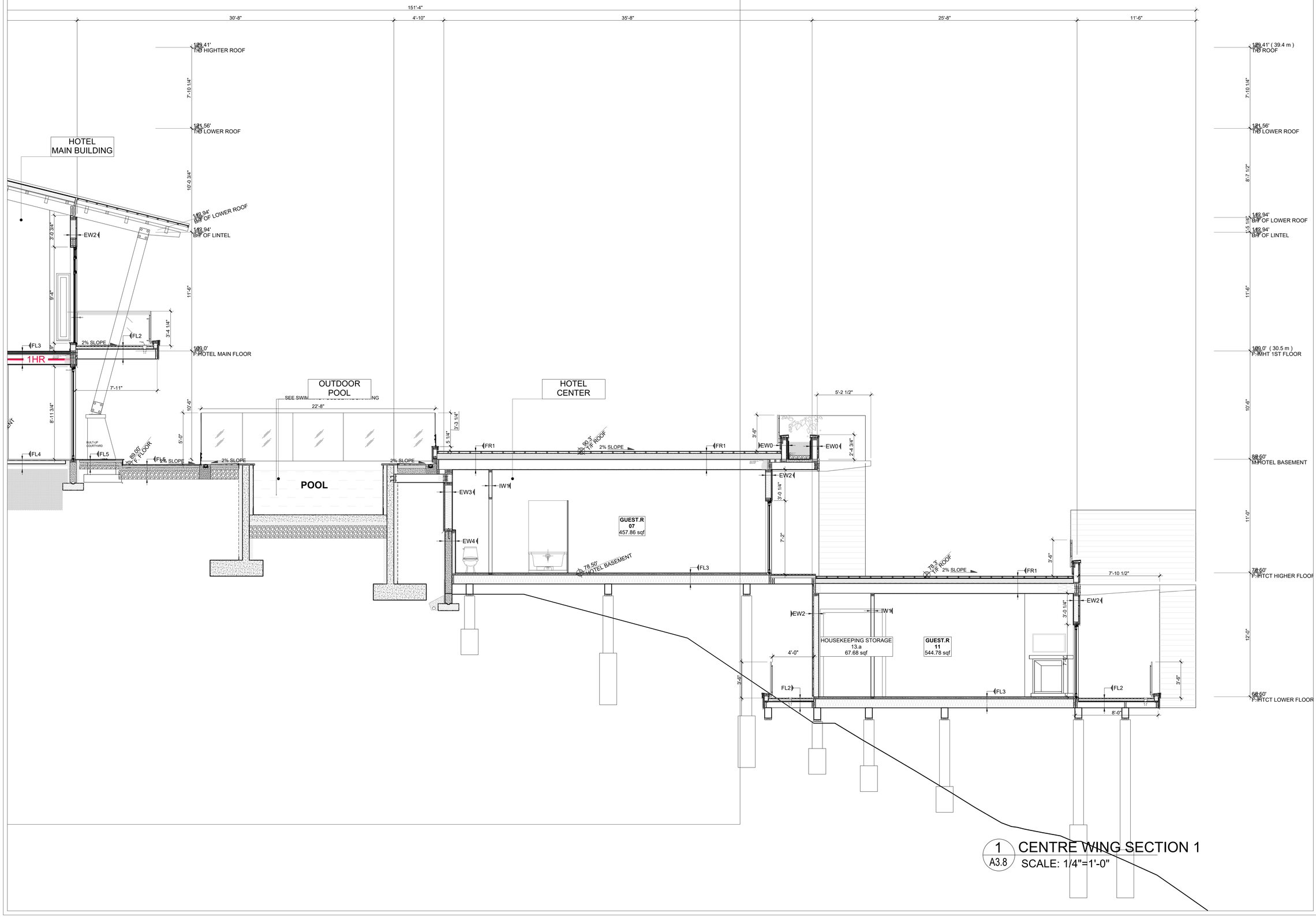
DRAWING NO.

A3.7



1 / A3.8 CENTRE WING SECTION 1
SCALE: 1/4"=1'-0"

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EMAIL: office@hnpadesign.com
TEL:606-726-1338
604-559-8566

ISSUED FOR
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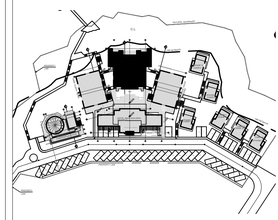

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3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CENTRE WING SECTION 1

JOB NO.

DRAWN
LEON

DATE

SCALE

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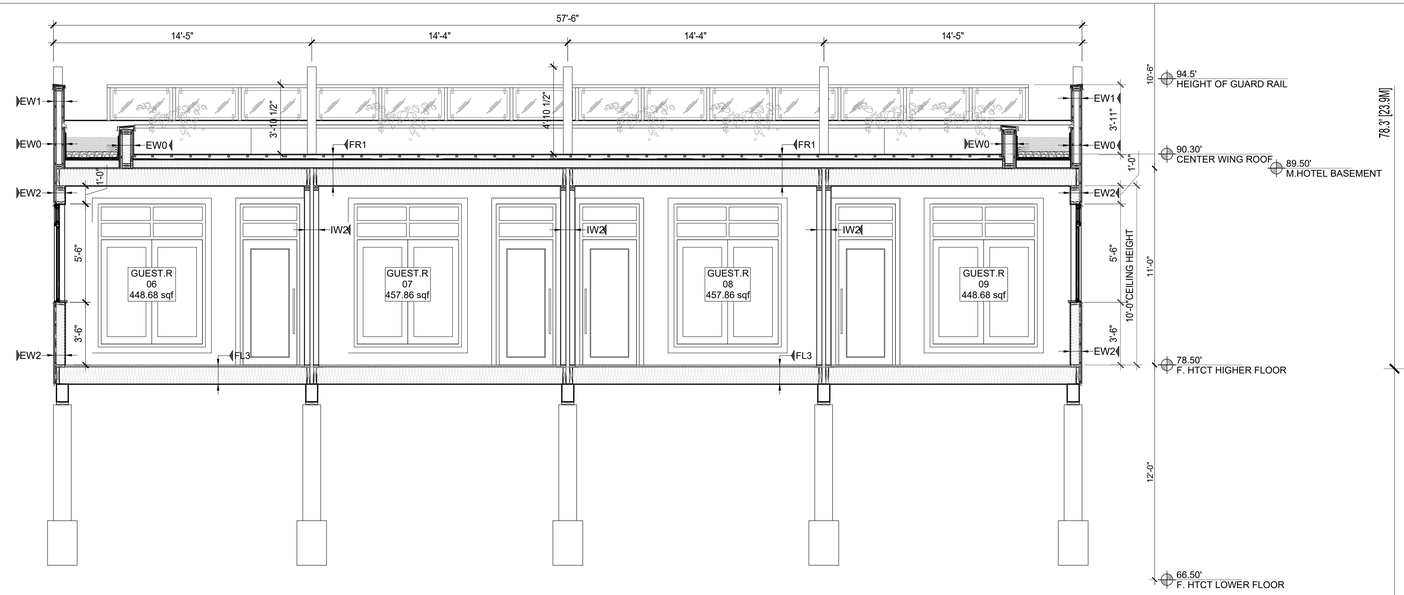
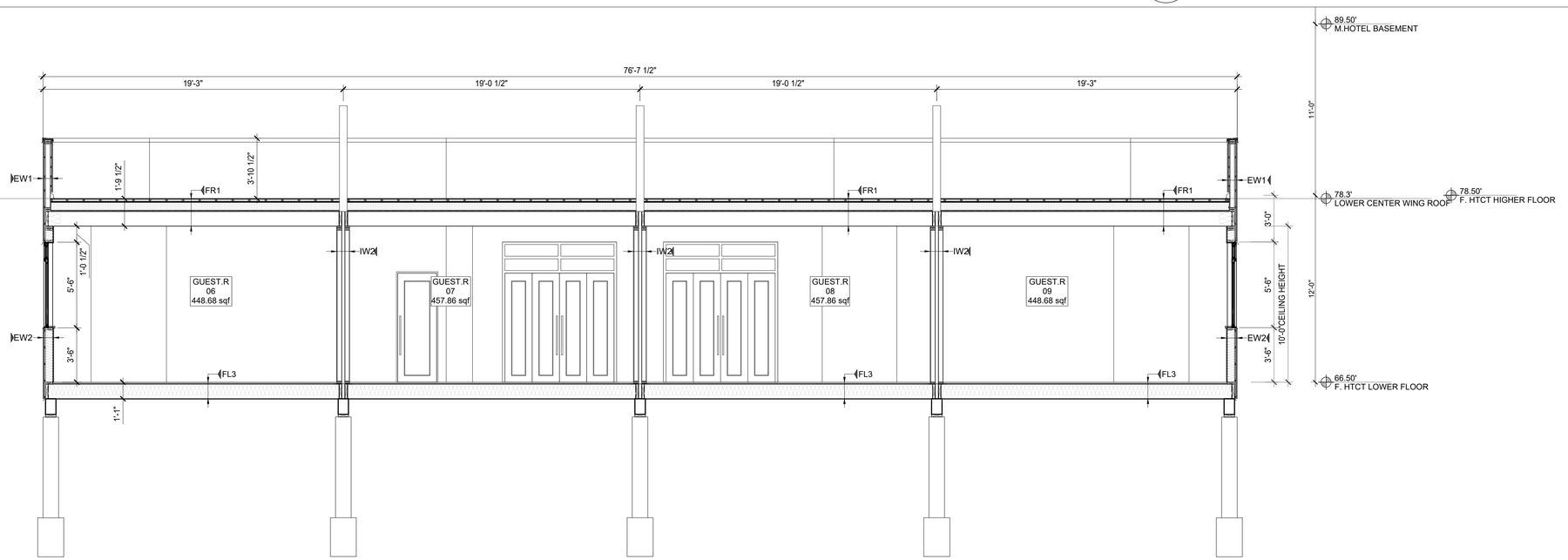
DRAWING NO.

A3.8



1 A3.9 CENTRE WING SECTIONS 2
SCALE: 1/4"=1'-0"



1 A3.9 CENTRE WING SECTIONS 2
SCALE: 1/4"=1'-0"

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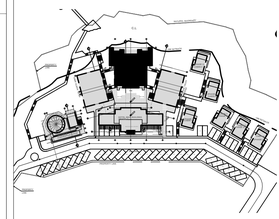

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3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CENTRE WING SECTIONS 2

JOB NO.

DRAWN **LEON**

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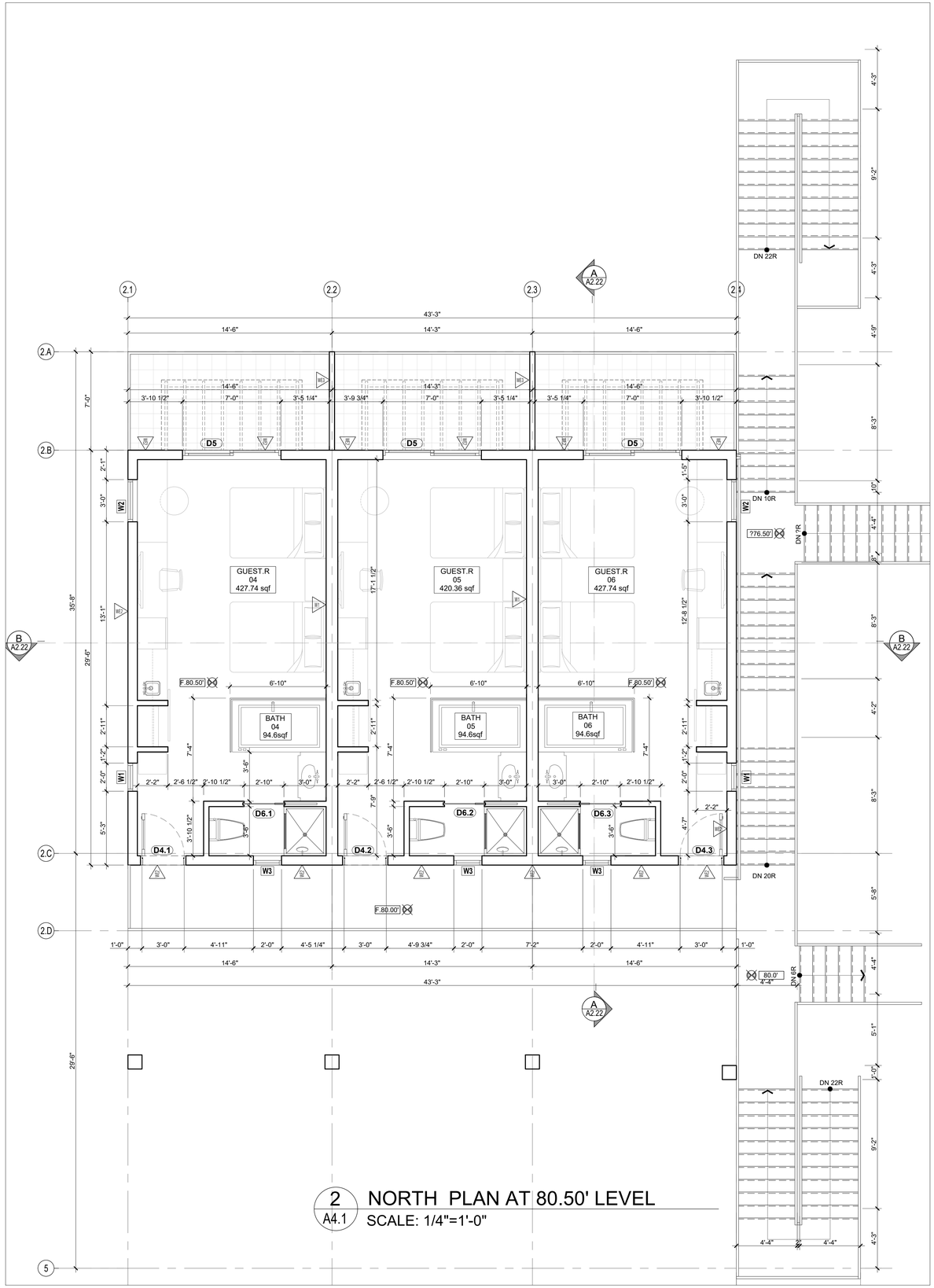
CHECKED **J N**

DRAWING NO.

A3.9



2 A4.1 NORTH PLAN AT 80.50' LEVEL

SCALE: 1/4"=1'-0"

FINISH MATERIALS LEGEND

D1.3	DENOTES ROOM NUMBER
W7	DENOTES WINDOW NUMBER
SPA 08 sqf	DENOTES ROOM NAME, NUMBER & AREA
W1	DENOTES WALL TYPE

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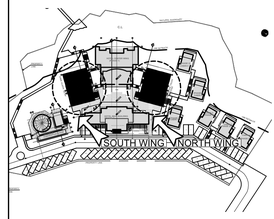

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST NORTH WING PLAN, 80.50'

JOB NO.

DRAWN **LT**

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CHECKED **J N**

DRAWING NO.

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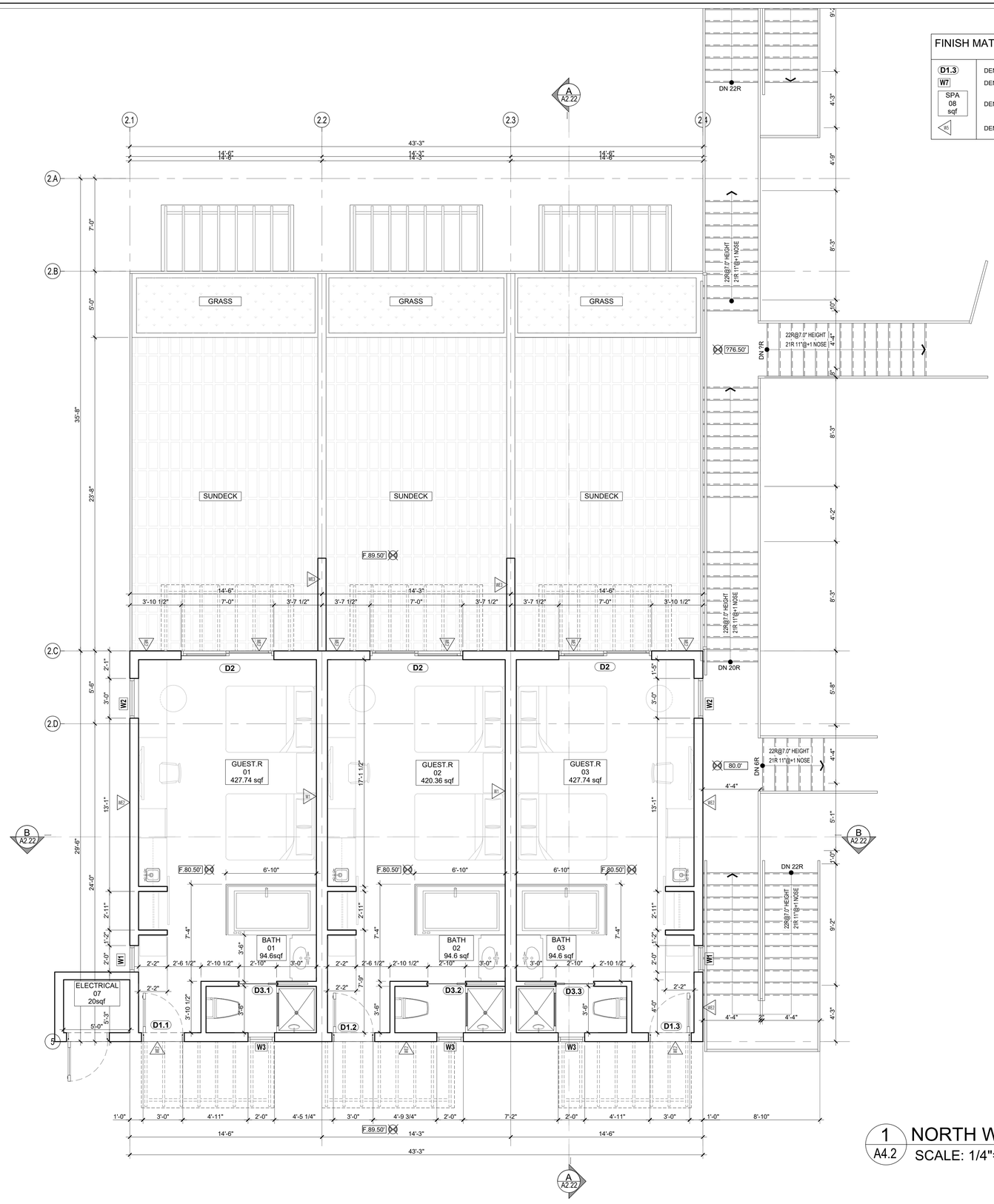

1 A4.2 NORTH WING PLAN AT 90.50'
SCALE: 1/4"=1'-0"

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REVISIONS

PROJECT
VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE
SUNSHINE COAST NORTH WING PLAN AT 90.50'

JOB NO.

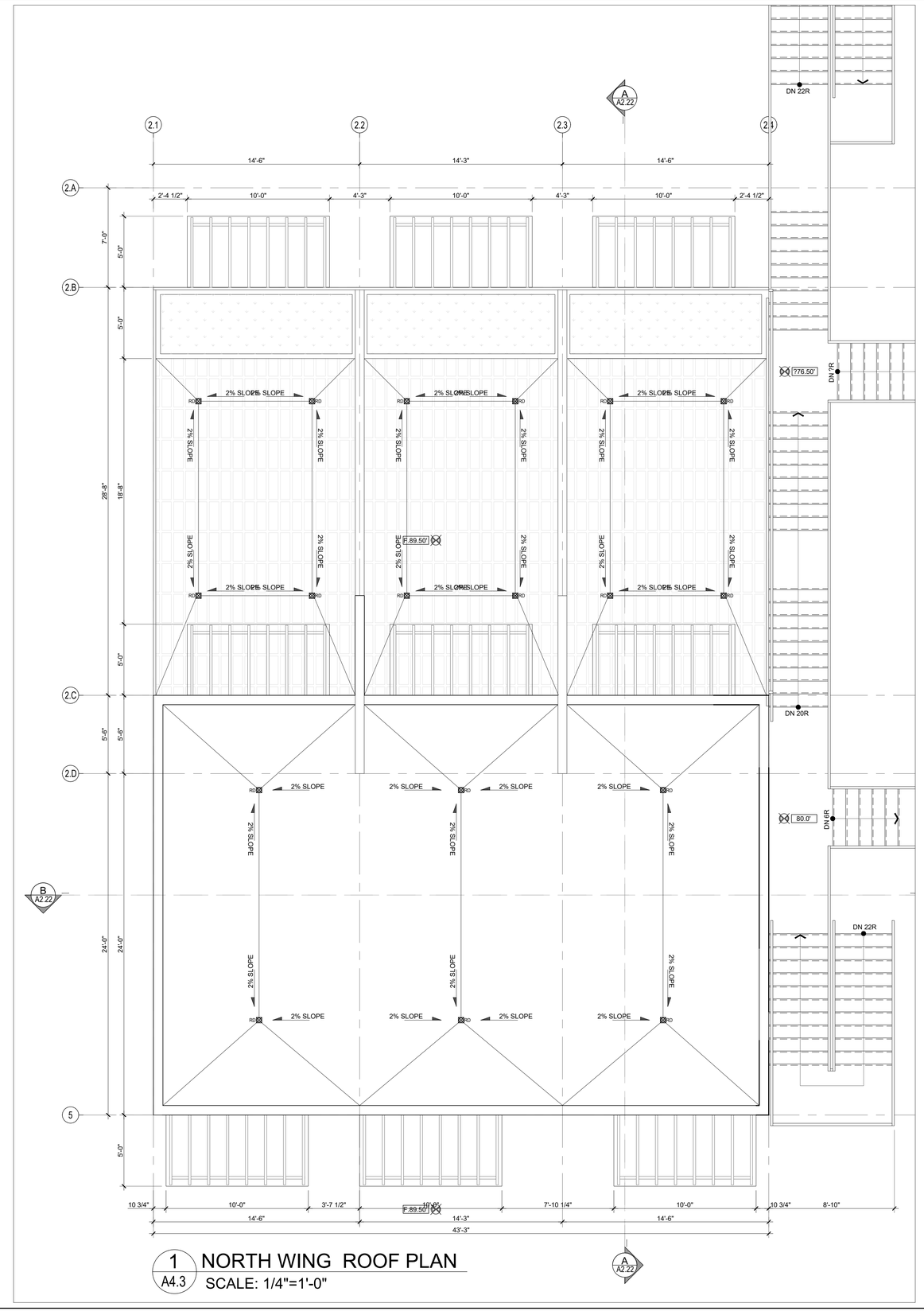
DRAWN LT

DATE

SCALE

CHECKED J N

DRAWING NO.
A4.2



1 NORTH WING ROOF PLAN
A4.3 SCALE: 1/4"=1'-0"

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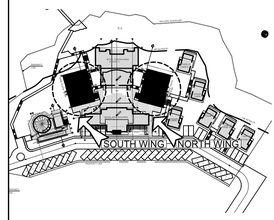

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST NORTH WING ROOF PLAN

JOB NO.

DRAWN **LT**

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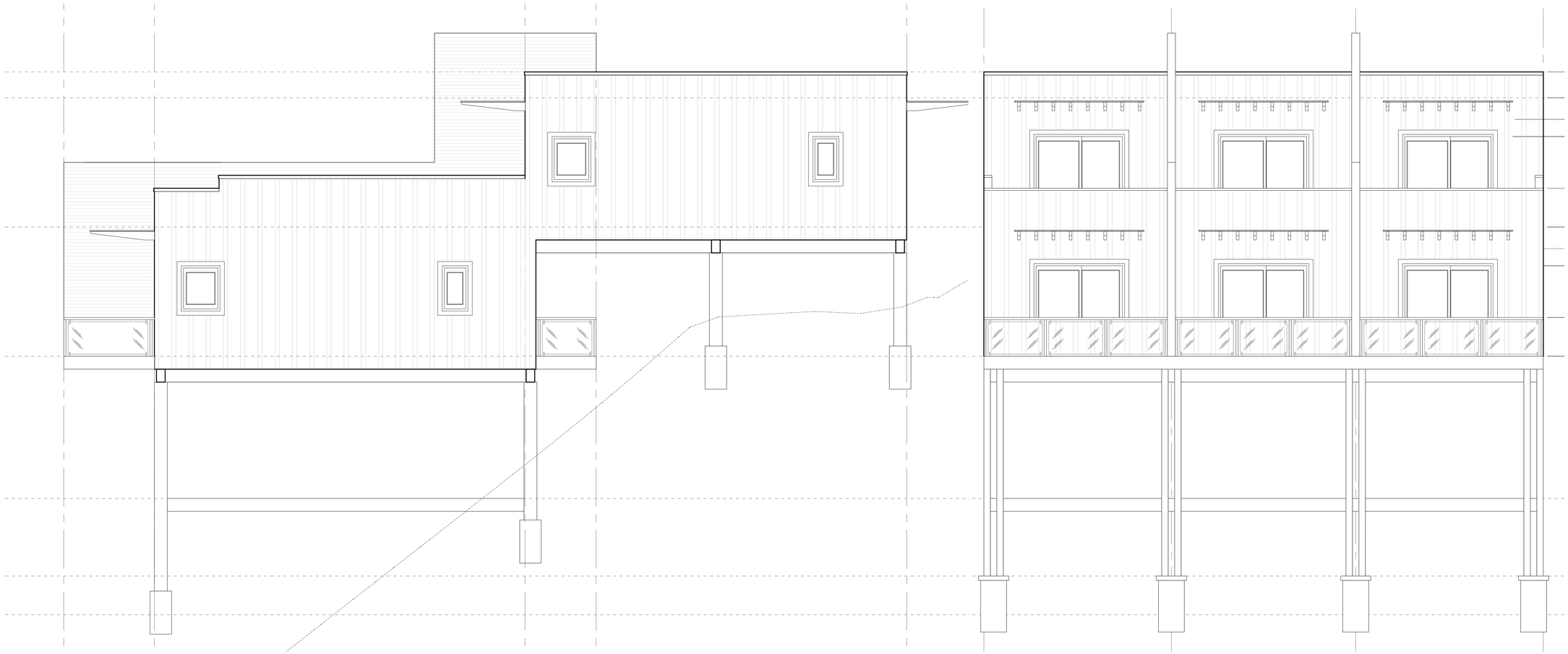
CHECKED **J N**

DRAWING NO.

A4.3



2 A4.4 NORTH WING WEST ELEVATION
SCALE: 1/4"=1'-0"

1 A4.4 NORTH WING NORTH ELEVATION
SCALE: 1/4"=1'-0"

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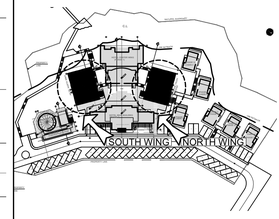

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST NORTH WING-W&N ELEV.

JOB NO.

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DATE

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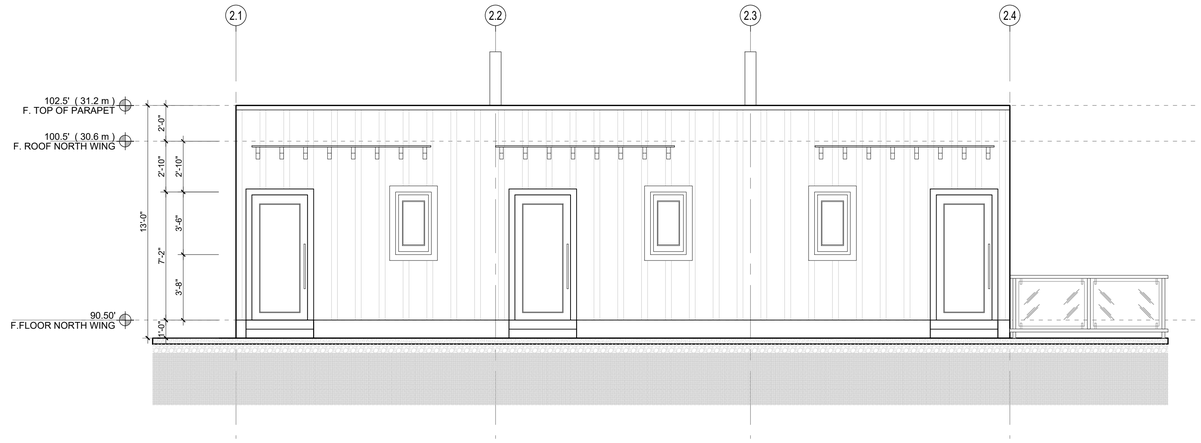
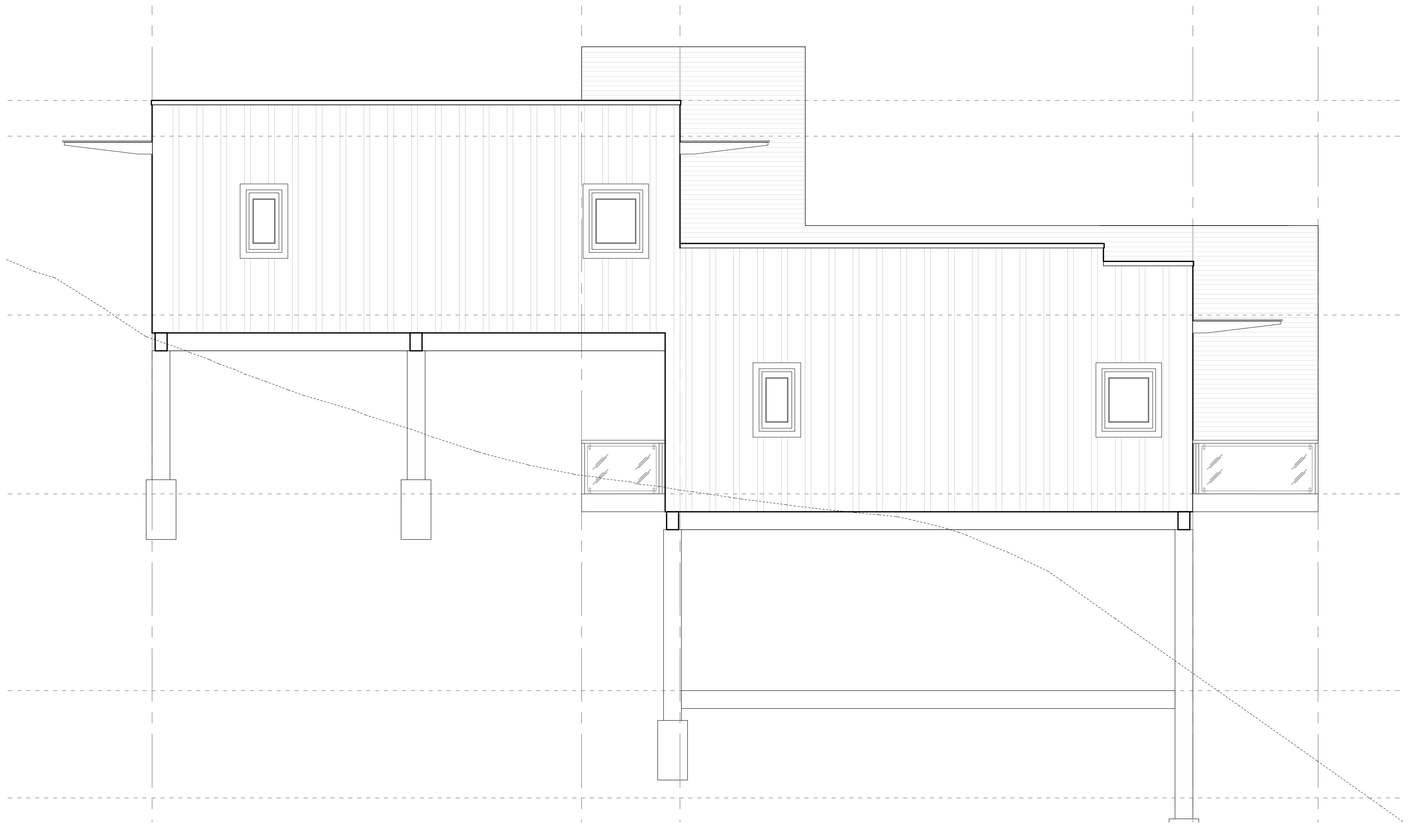
DRAWING NO.

A4.4



2 A4.5 NORTH WING SOUTH ELEVATION

SCALE: 1/4"=1'-0"



1 A4.5 NORTH WING EAST ELEVATION

SCALE: 1/4"=1'-0"

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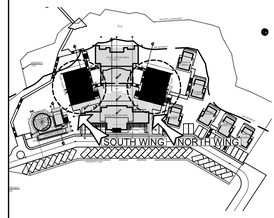

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST NORTH WING- S&E ELEV.

JOB NO.

DRAWN **LT**

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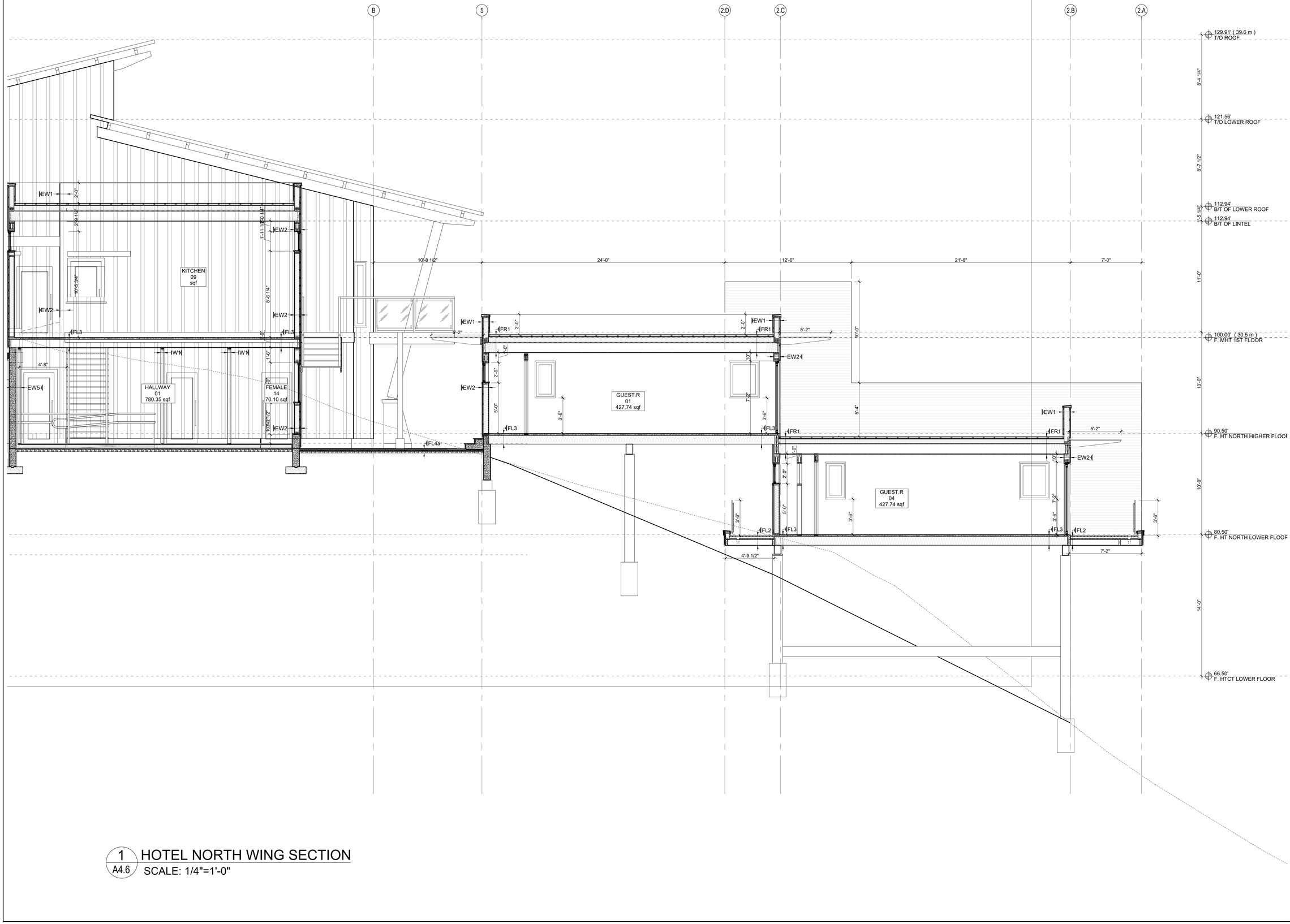
DRAWING NO.

A4.5



1 A4.6 HOTEL NORTH WING SECTION
SCALE: 1/4"=1'-0"

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

NORTH WING SECTIONS

JOB NO.

DRAWN LT

DATE

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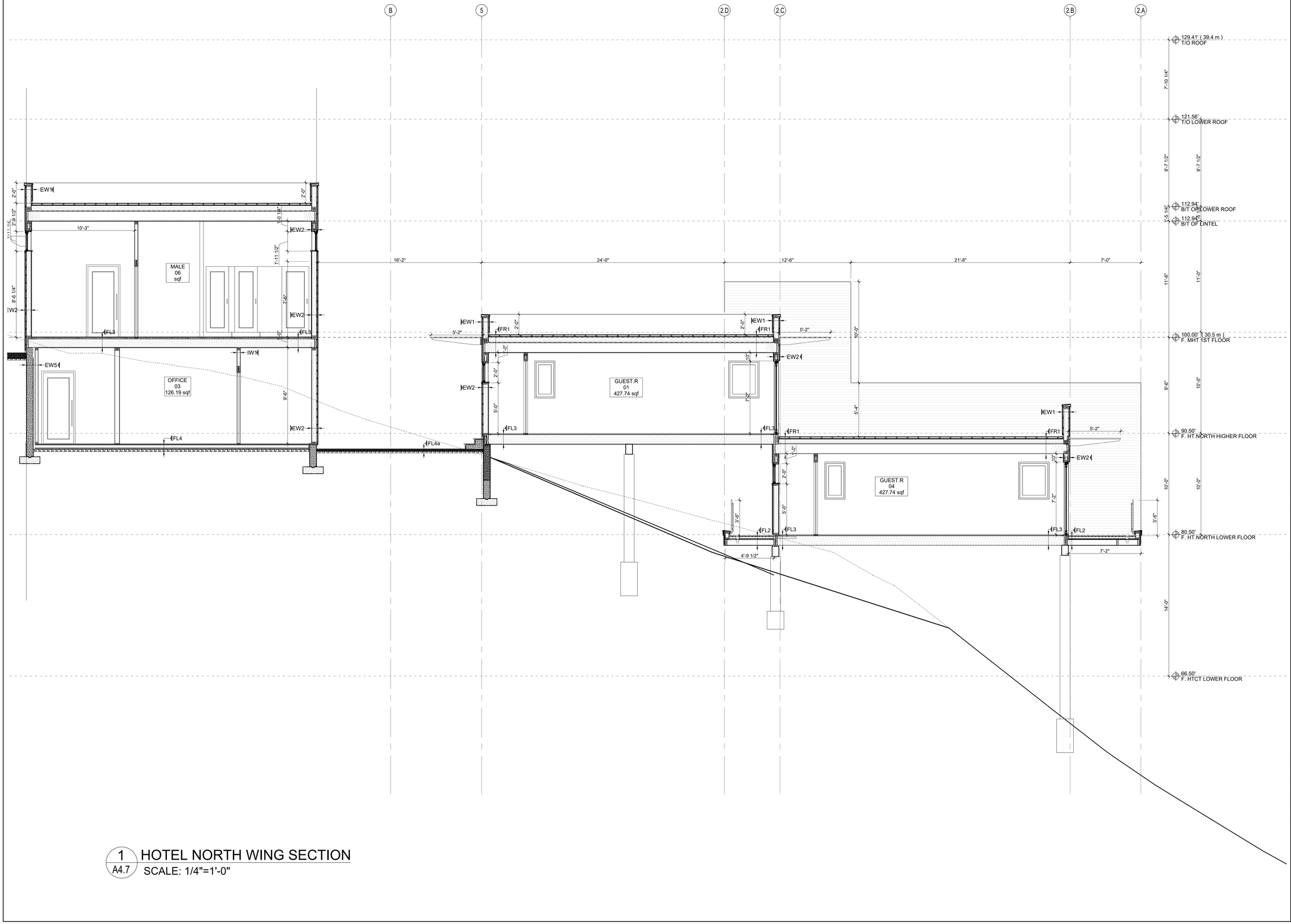
CHECKED J N

DRAWING NO.

A4.6



1 A4.7 HOTEL NORTH WING SECTION

SCALE: 1/4"=1'-0"

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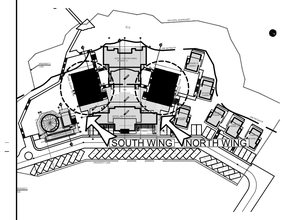

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST NORTH WING SECTIONS 2

JOB NO.

DRAWN LT

DATE

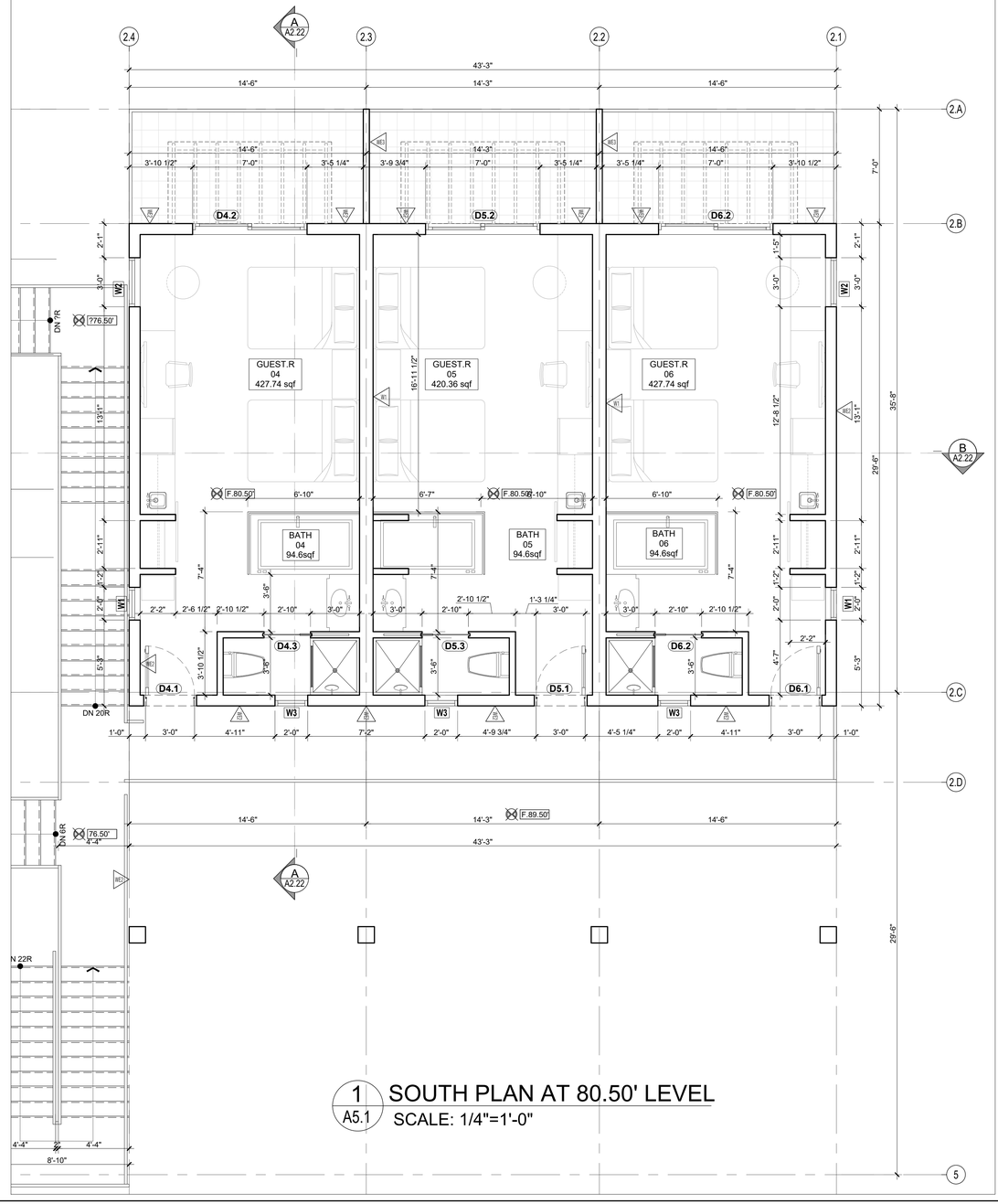
SCALE

CHECKED J N

DRAWING NO.

A4.7

FINISH MATERIALS LEGEND	
D1.3	DENOTES ROOM NUMBER
W7	DENOTES WINDOW NUMBER
SPA 08 sqf	DENOTES ROOM NAME, NUMBER & AREA
B5	DENOTES WALL TYPE



1 A5.1 SOUTH PLAN AT 80.50' LEVEL
SCALE: 1/4"=1'-0"

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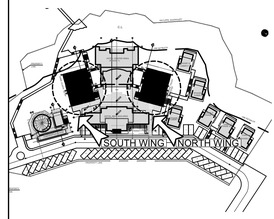

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST SOUTH WING PLAN, 80.50'

JOB NO.

DRAWN **LT**

DATE

SCALE

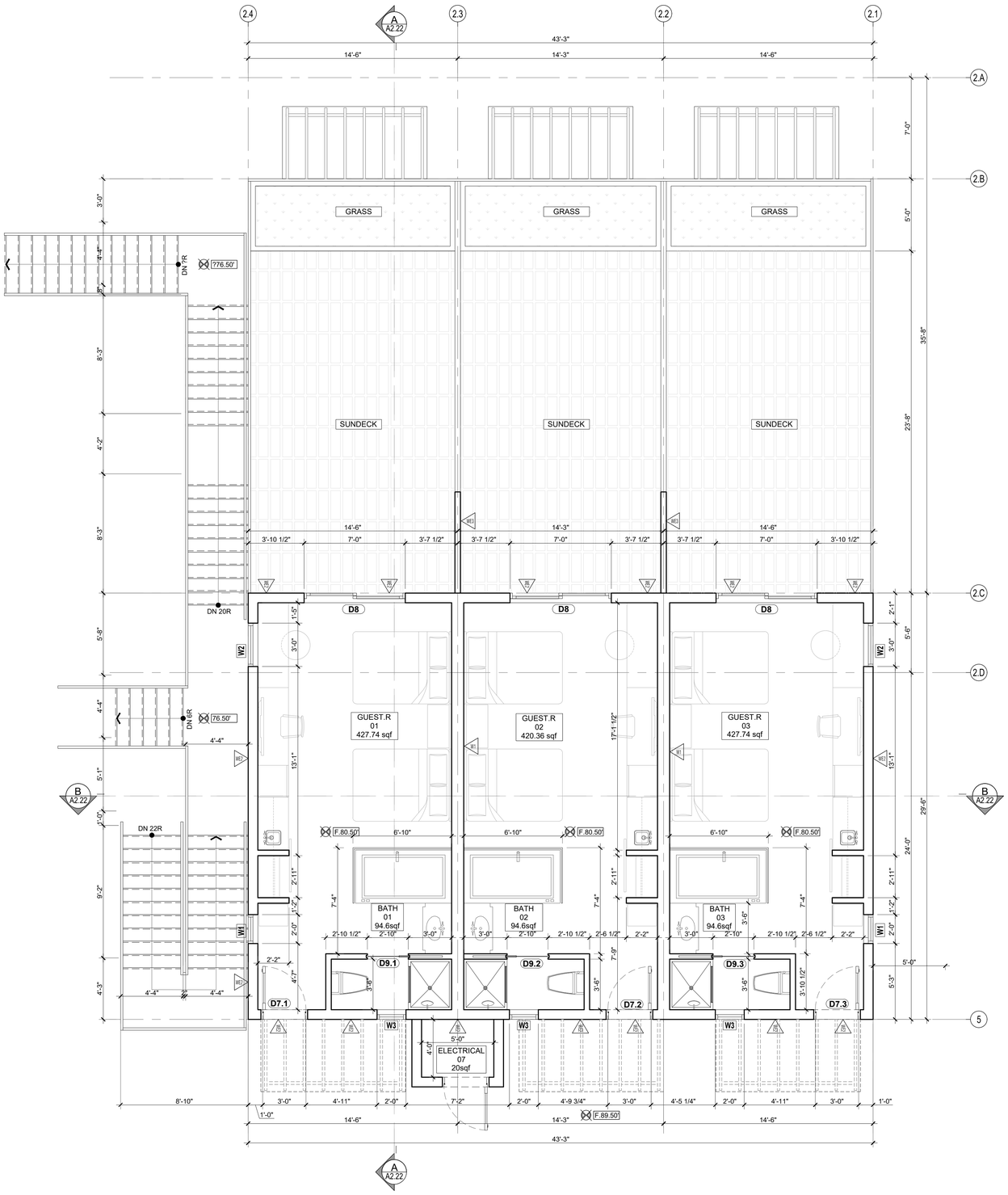
CHECKED **J N**

DRAWING NO.

A5.1

FINISH MATERIALS LEGEND

D1.3	DENOTES ROOM NUMBER
W7	DENOTES WINDOW NUMBER
SPA 08 sqf	DENOTES ROOM NAME, NUMBER & AREA
W1	DENOTES WALL TYPE



1 A5.2 SOUTH WING PLAN,90.50'
SCALE: 1/4"=1'-0"

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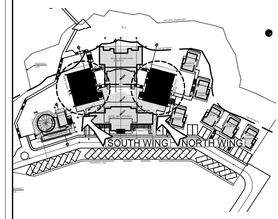
NOV 5, 2018
ISSUED FOR
DP



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REVISIONS

PROJECT
VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE
SUNSHINE COAST SOUTH WING PLAN,90.50'

JOB NO.

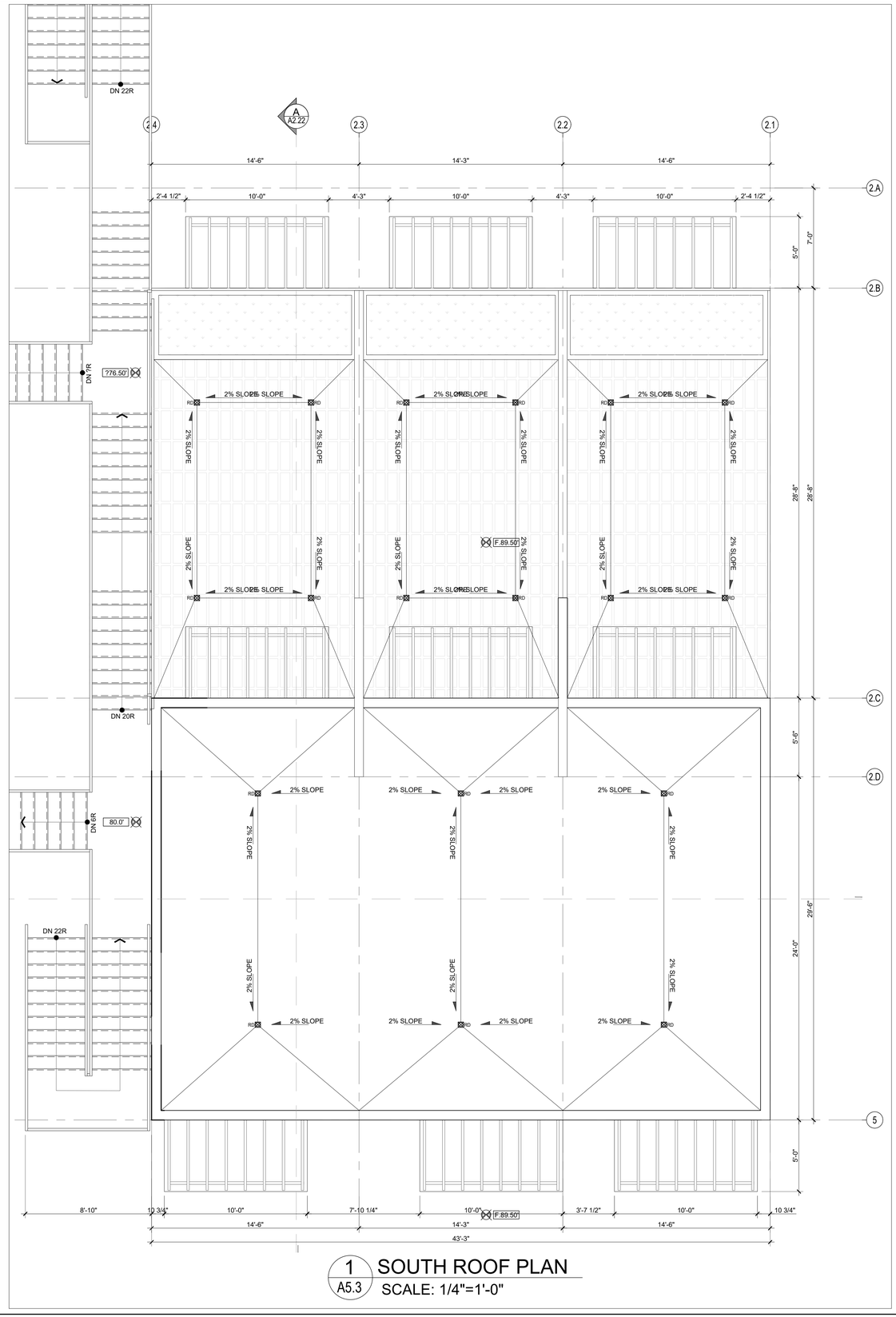
DRAWN LT

DATE

SCALE

CHECKED J N

DRAWING NO.
A5.2



1 A5.3 SOUTH ROOF PLAN
SCALE: 1/4"=1'-0"

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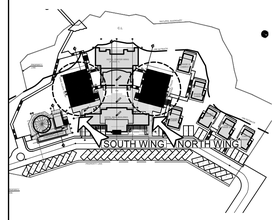

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST SOUTH WING ROOF PLAN

JOB NO.

DRAWN **LT**

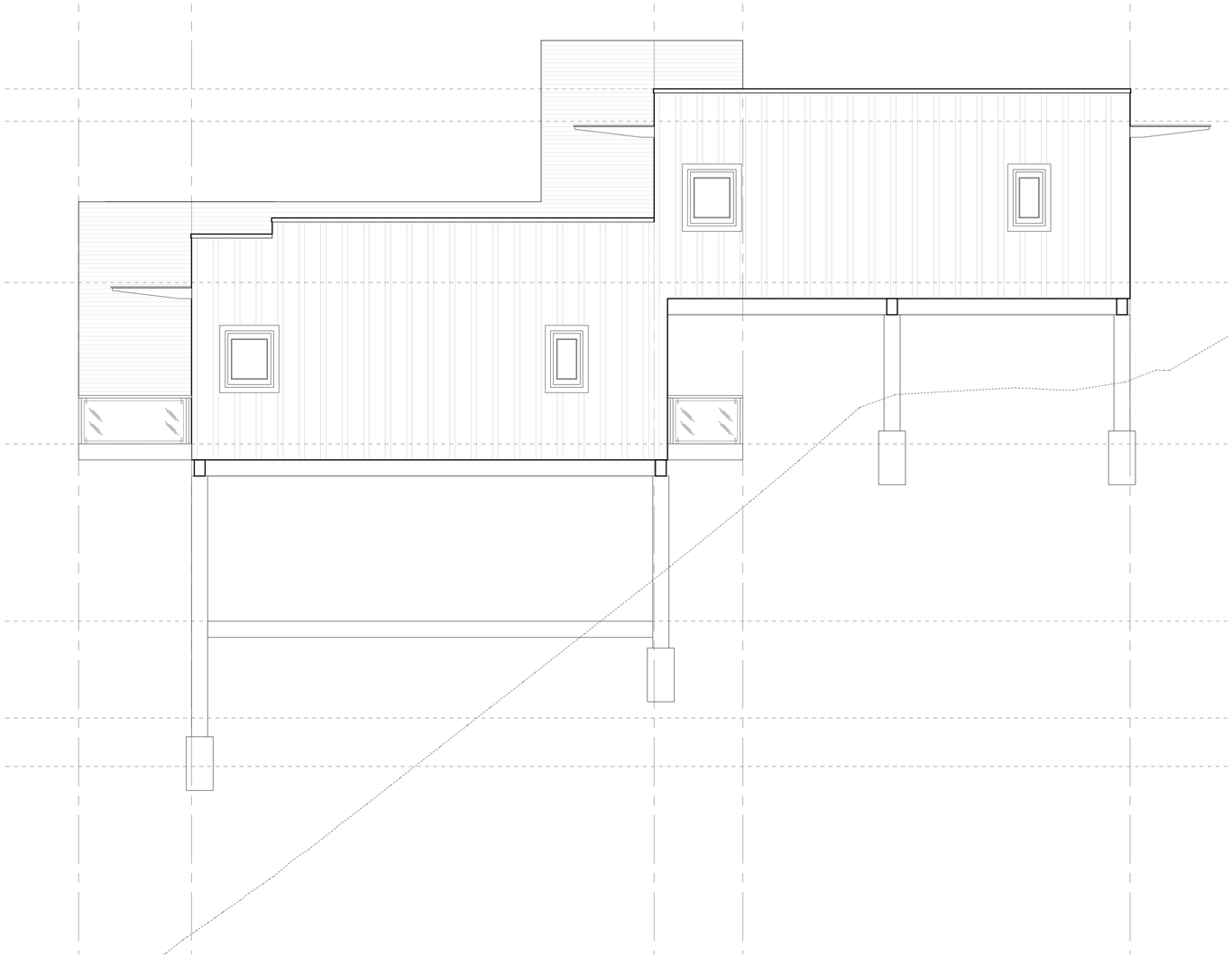
DATE

SCALE

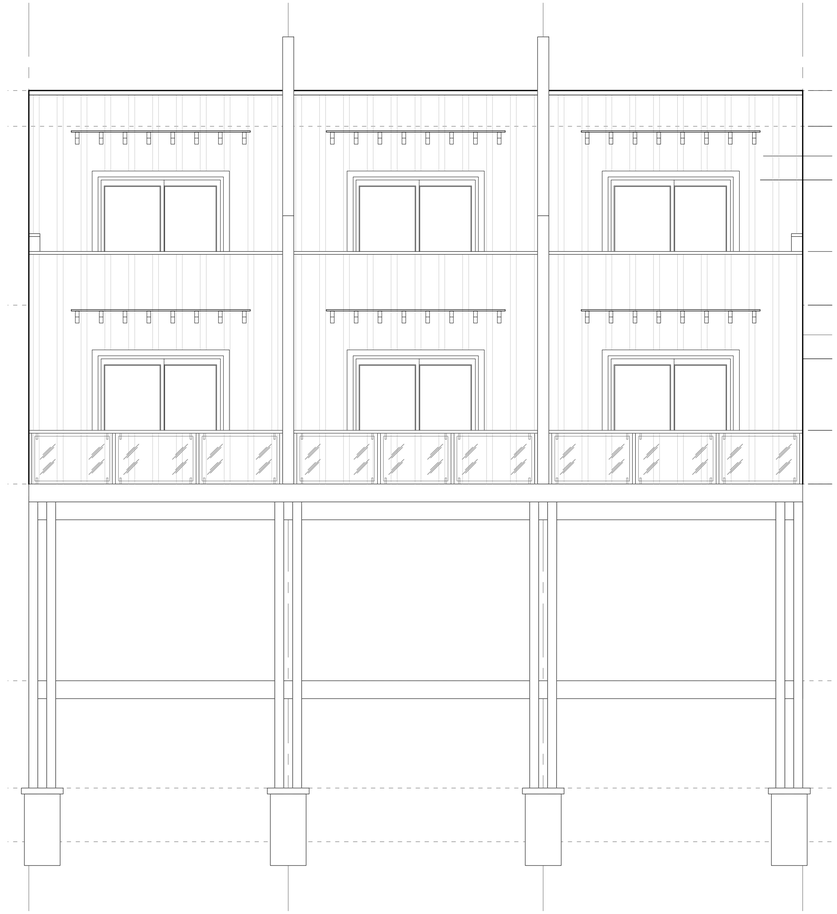
CHECKED **J N**

DRAWING NO.

A5.3



2 A5.4 SOUTH WING WEST ELEVATION
SCALE: 1/4"=1'-0"



1 A5.4 SOUTH WING NORTH ELEVATION
SCALE: 1/4"=1'-0"

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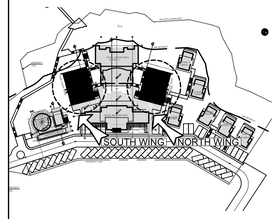

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST SOUTH WING-N&W ELEV.

JOB NO.

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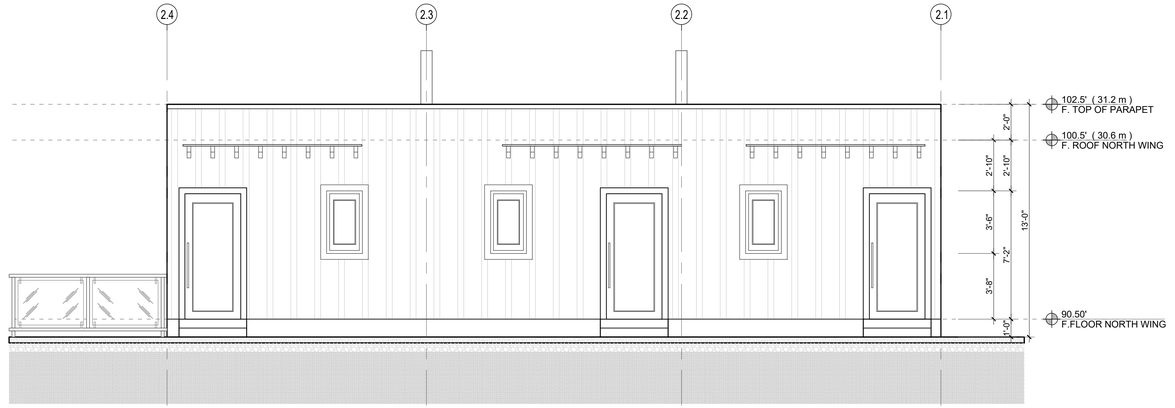
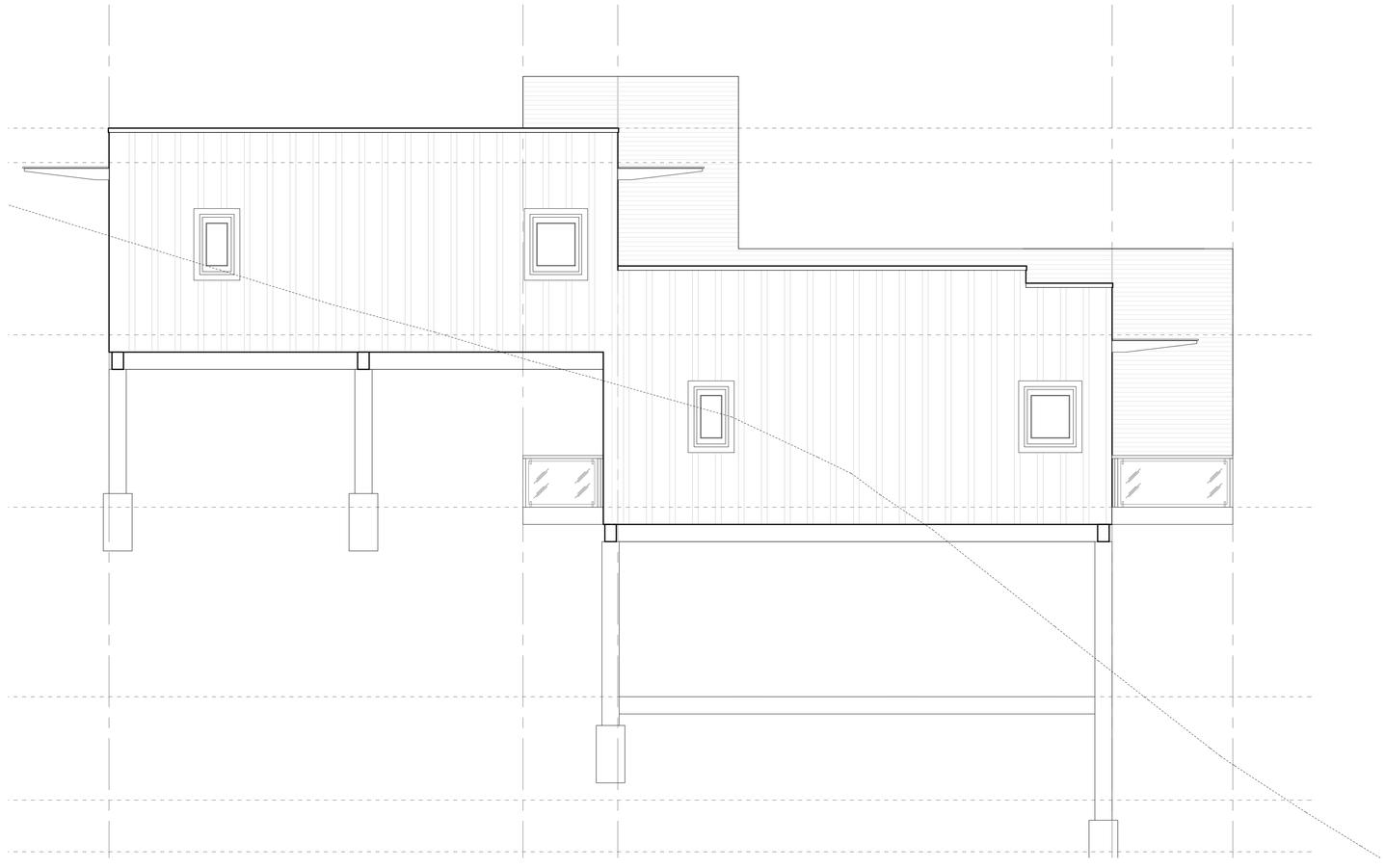


1 A5.5 SOUTH WING SOUTH ELEVATION

SCALE: 1/4"=1'-0"



2 A5.5 SOUTH WING EAST ELEVATION

SCALE: 1/4"=1'-0"

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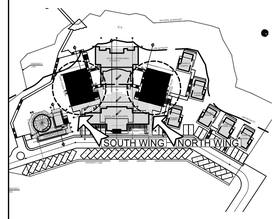

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST SOUTH WING -S&E ELEV.

JOB NO.

DRAWN **LT**

DATE

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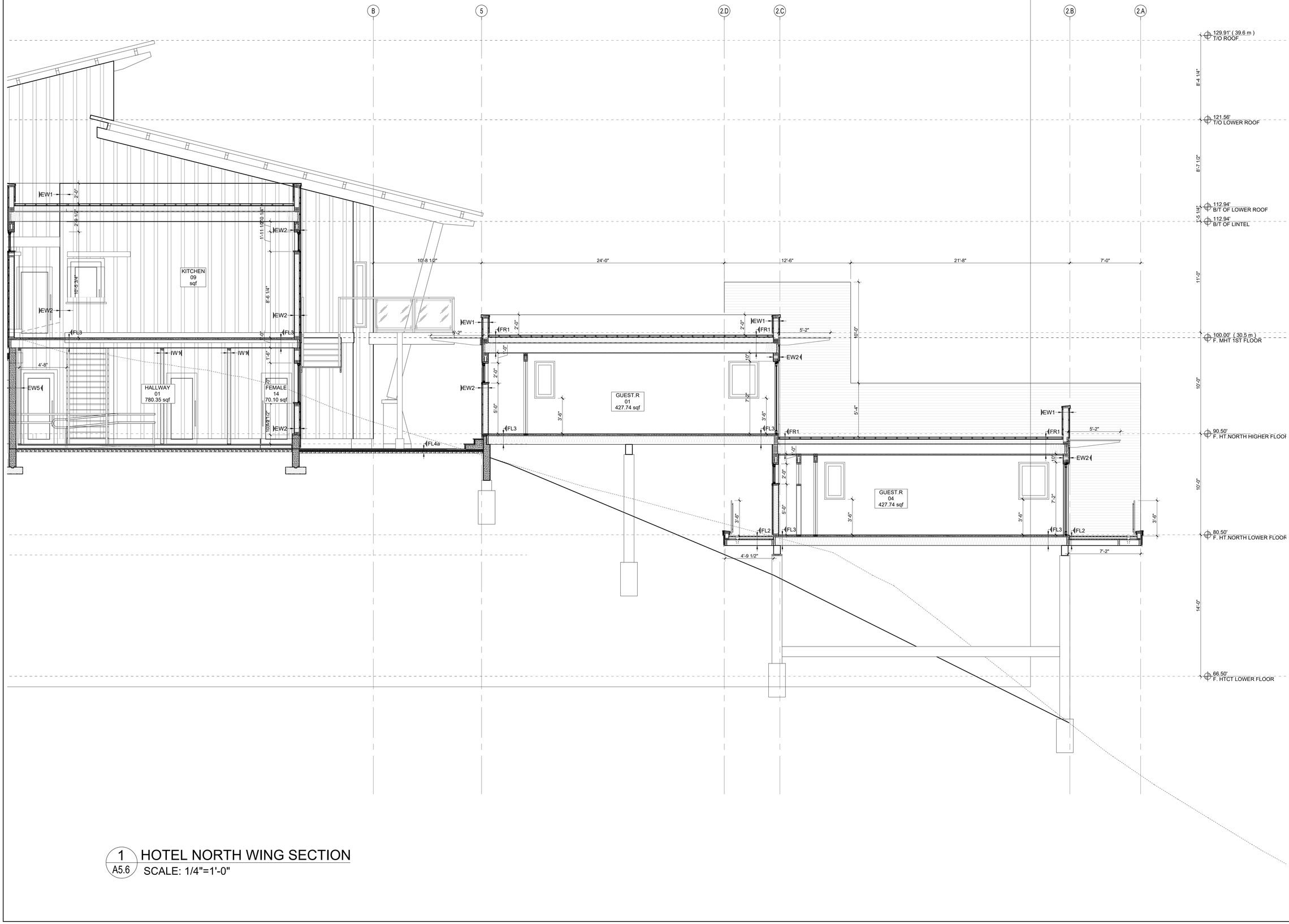
CHECKED **J N**

DRAWING NO.

A5.5



1 A5.6 HOTEL NORTH WING SECTION
SCALE: 1/4"=1'-0"

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ISSUED FOR
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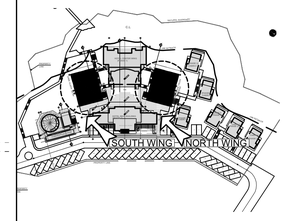

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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST SOUTH WING SECTIONS

JOB NO.

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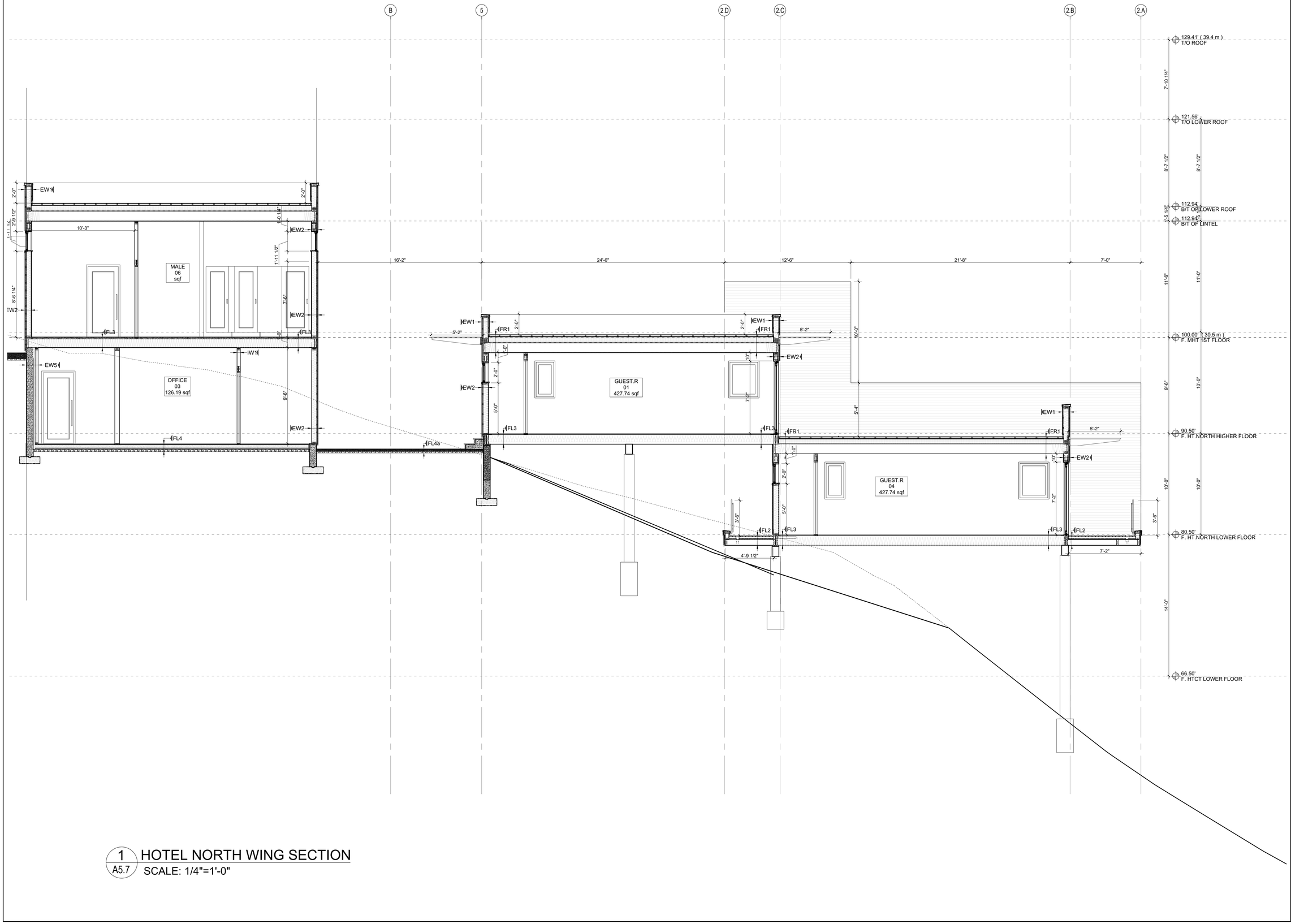

1 A5.7 HOTEL NORTH WING SECTION

SCALE: 1/4"=1'-0"

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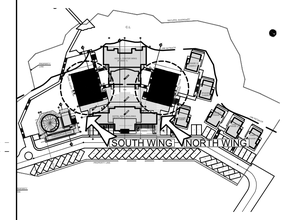

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST SOUTH WING SECTIONS 2

JOB NO.

DRAWN LT

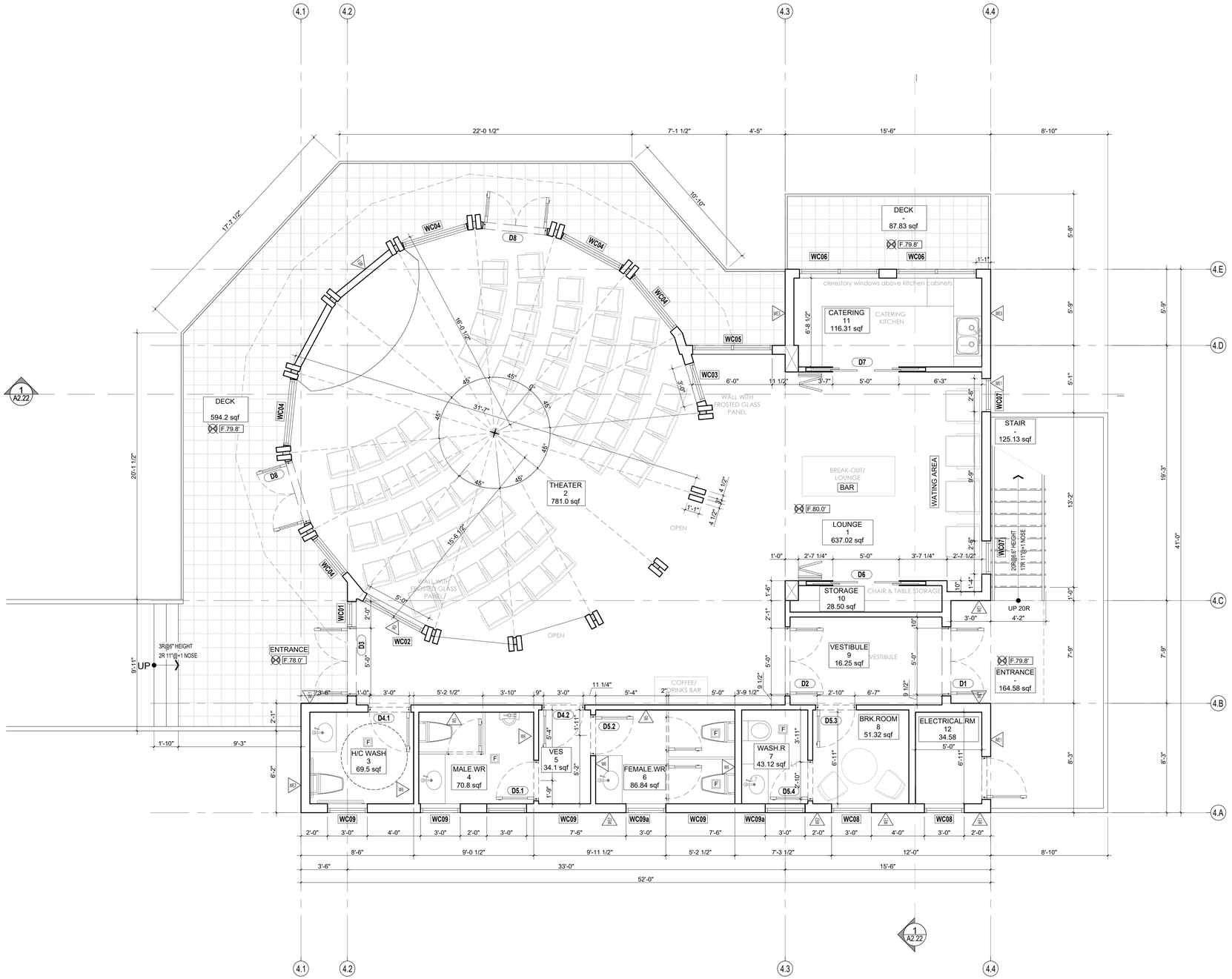
DATE

SCALE

CHECKED J N

DRAWING NO.

A5.7



1 / A6.1 CONVENTION CENTRE PLAN,80.0'

SCALE: 1/4"=1'-0"

NOTE	
HANDRAIL HEIGHT:	= 36"
GUARD HEIGHT:	= 42"

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EMAIL: office@hnpadesign.com
TEL:606-726-1338
604-559-8566

NOV 5, 2018

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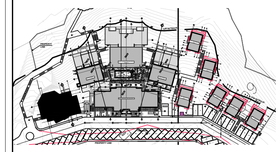

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CONVENTION CENTRE PLAN,80.0'

JOB NO.

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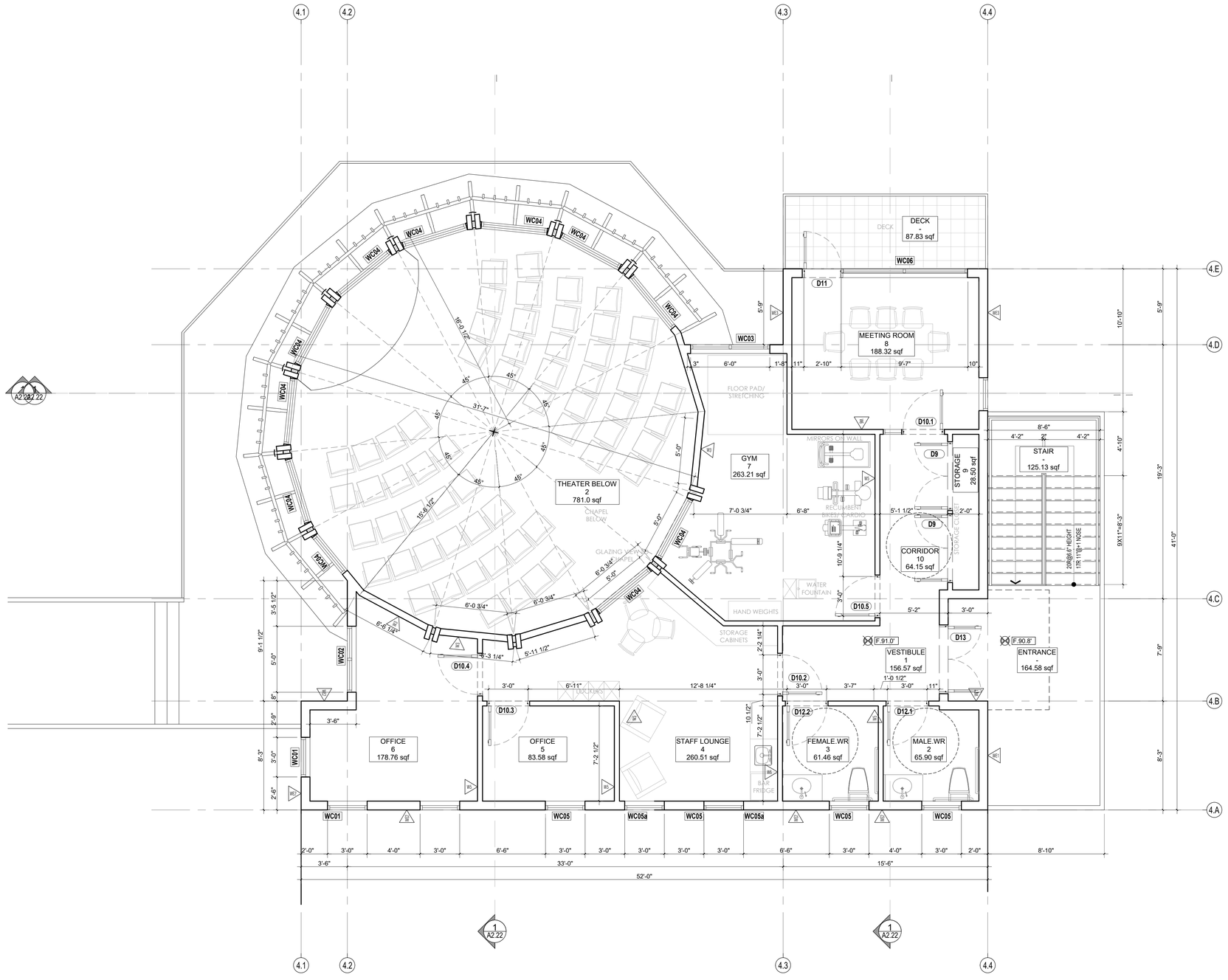

1 / A6.2 CONVENTION CENTRE PLAN,91.0'
SCALE: 1/4"=1'-0"

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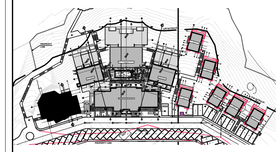

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CONVENTION CENTRE PLAN,91.0'

JOB NO.

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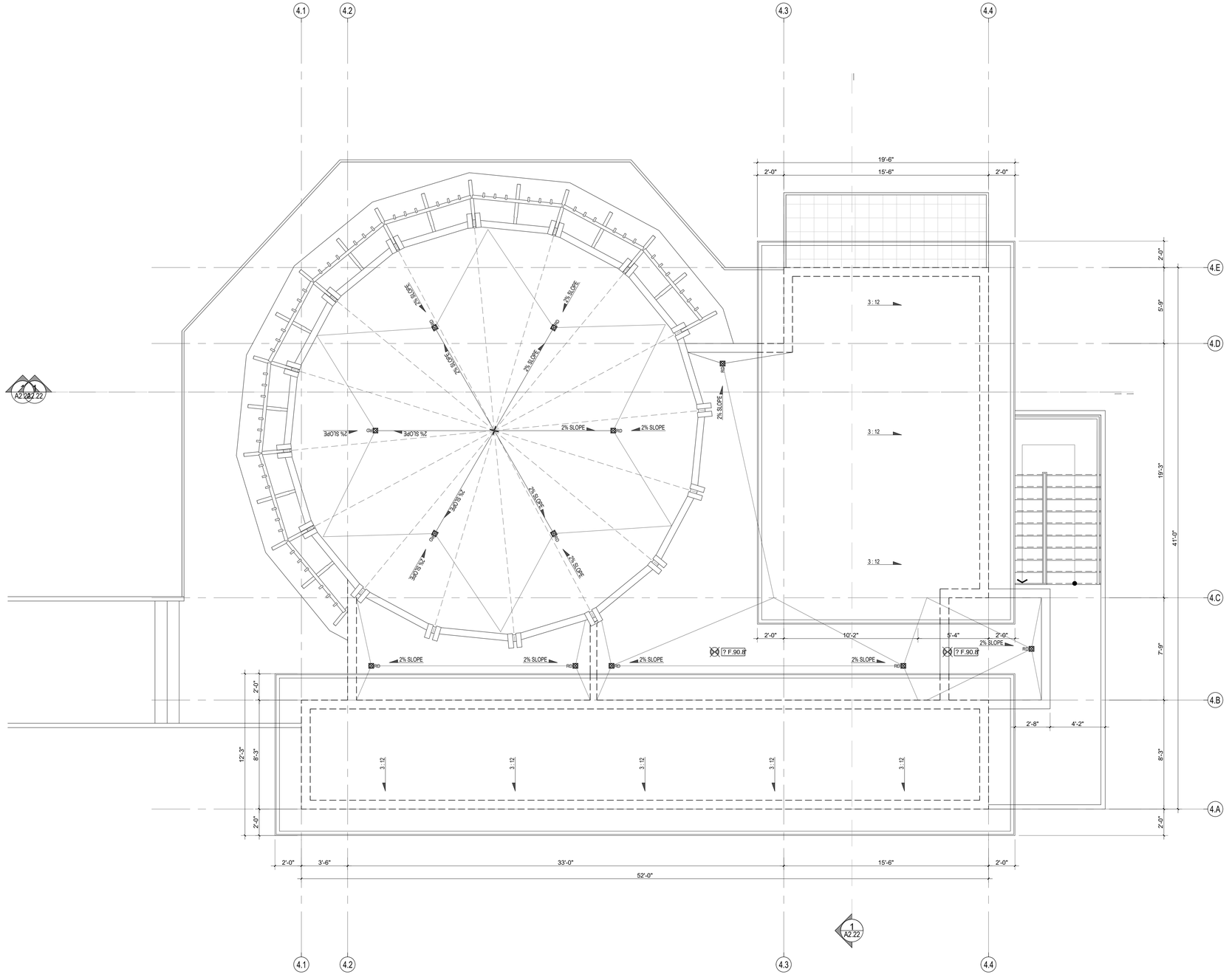

1 A6.3 CONVENTION CENTRE ROOF PLAN
SCALE: 1/4"=1'-0"

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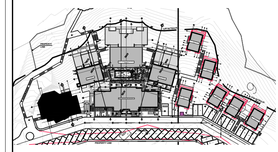

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CONVENTION CENTRE ROOF PLAN

JOB NO.

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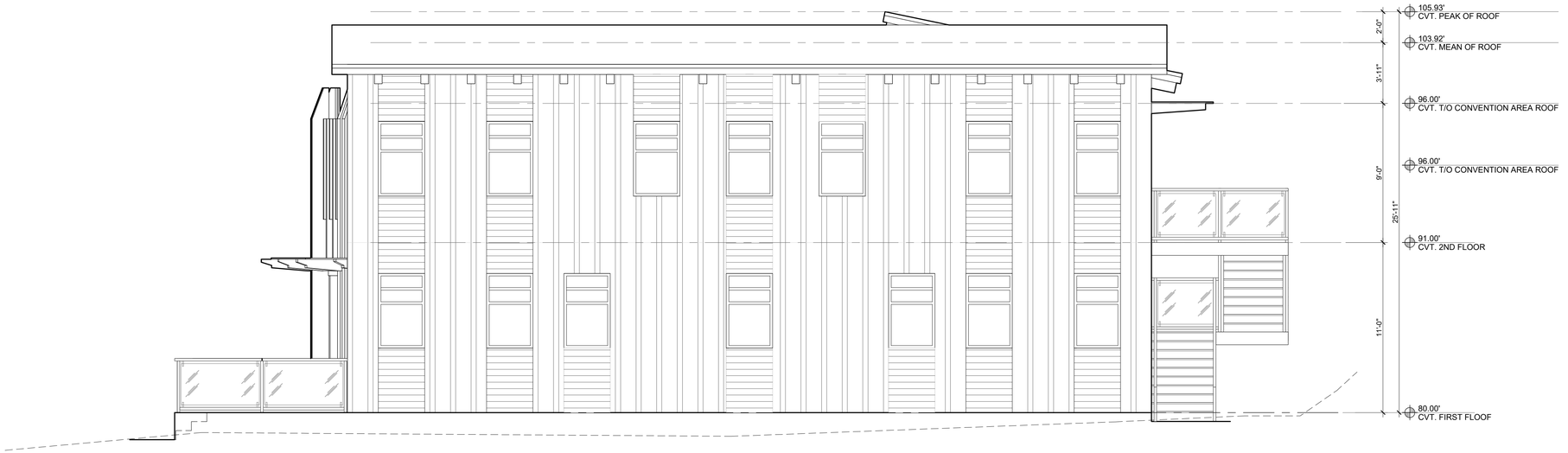
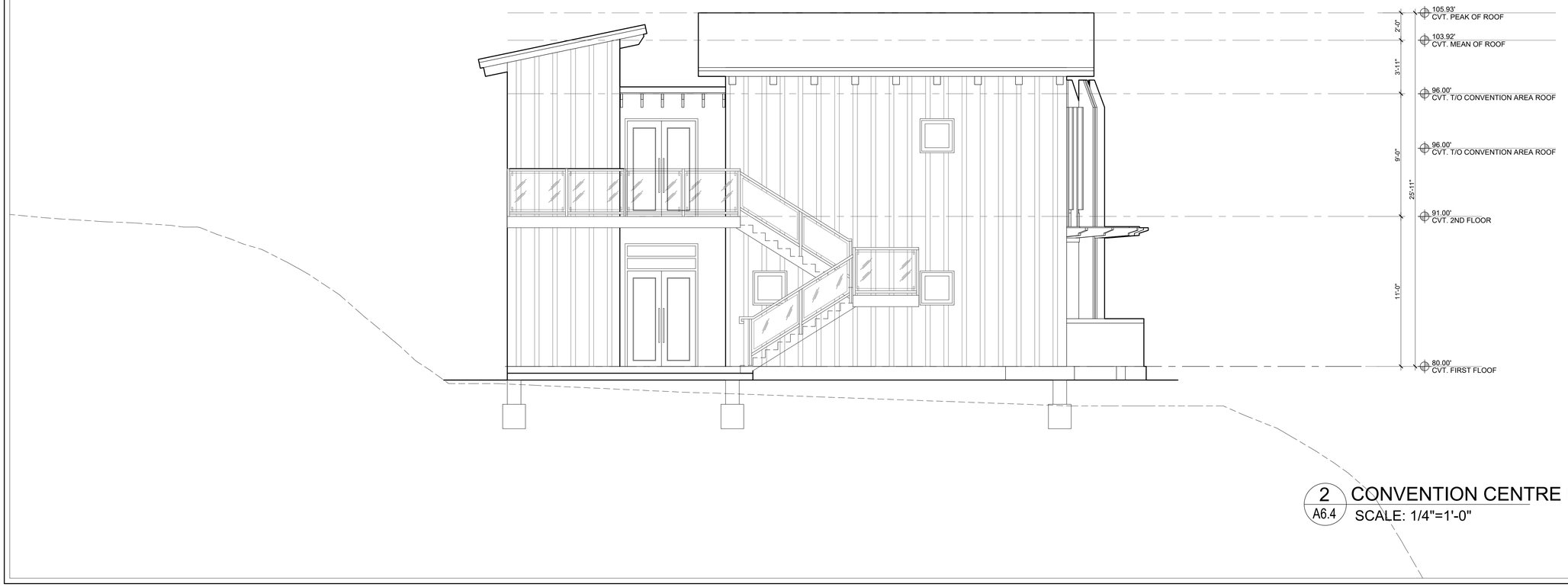
DRAWING NO.

A6.3



1 / A6.4 NORTH ELEVATION
SCALE: 1/4"=1'-0"



2 / A6.4 CONVENTION CENTRE N& E ELEV.
SCALE: 1/4"=1'-0"

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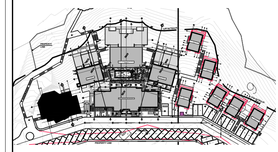

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CONVENTION CENTRE N& E ELEV.

JOB NO.

DRAWN **LT**

DATE

SCALE

CHECKED **J N**

DRAWING NO.

A6.4

1 A6.5 SOUTH ELEVATION
SCALE: 1/4"=1'-0"

2 A6.5 WEST ELEVATION
SCALE: 1/4"=1'-0"

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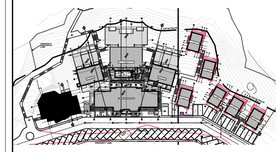

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CONVENTION CENTRE S&W ELEV.

JOB NO.

DRAWN **LT**

DATE

SCALE

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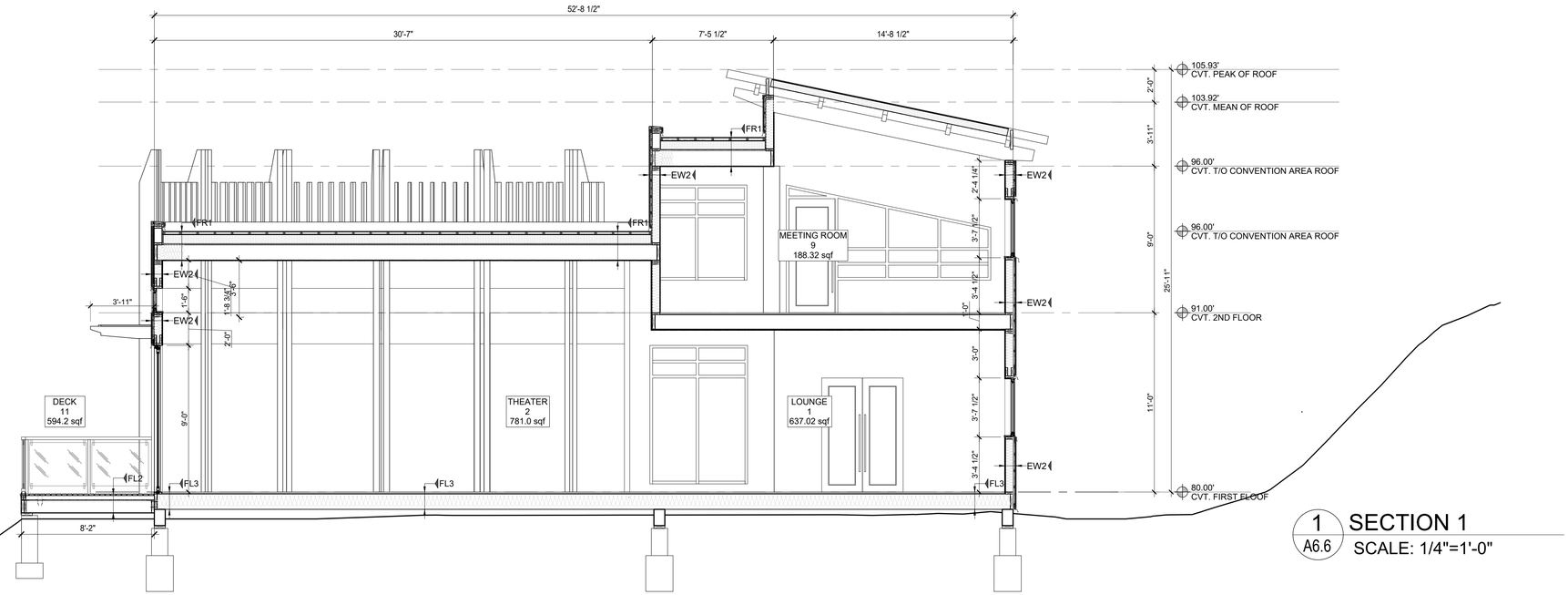
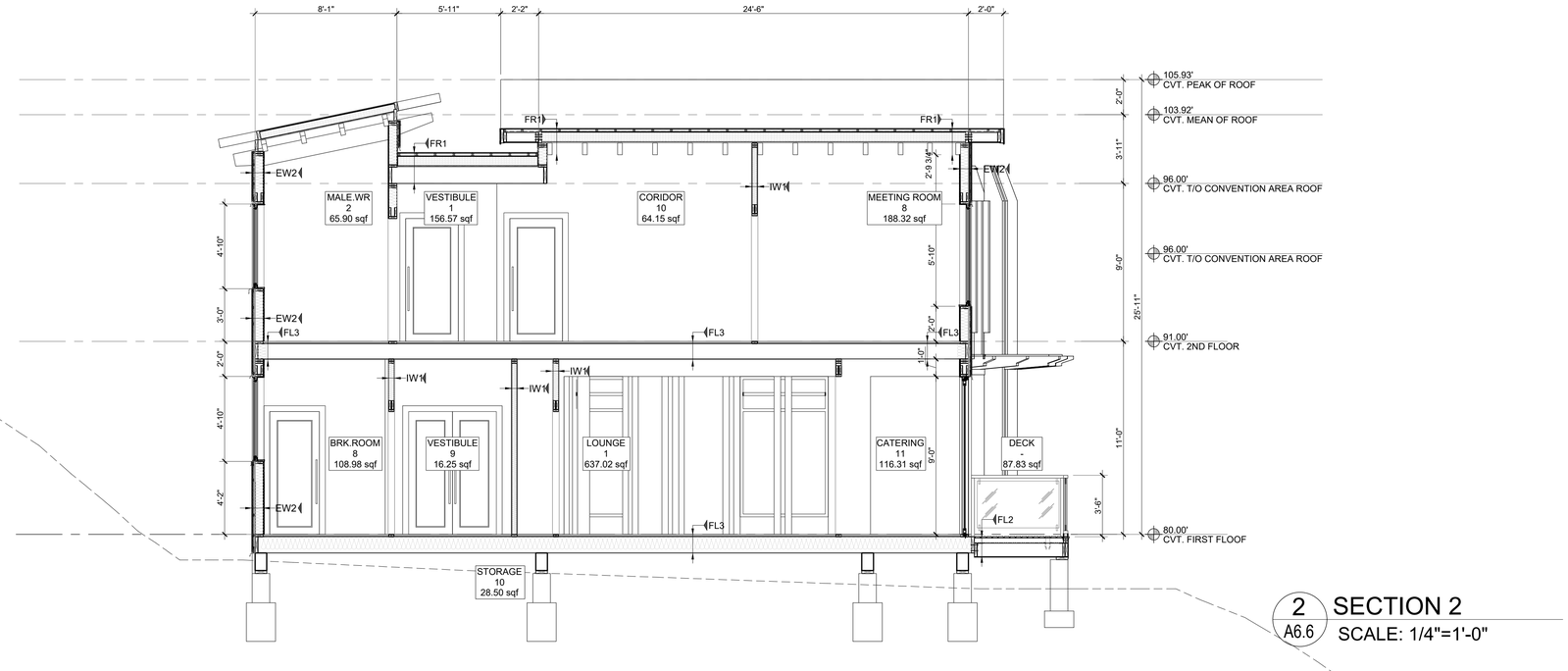
DRAWING NO.

A6.5



1 SECTION 1
A6.6 SCALE: 1/4"=1'-0"



2 SECTION 2
A6.6 SCALE: 1/4"=1'-0"

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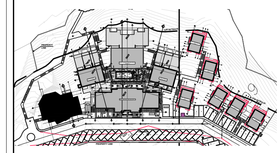

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CONVENTION CENTRE SECTIONS

JOB NO.

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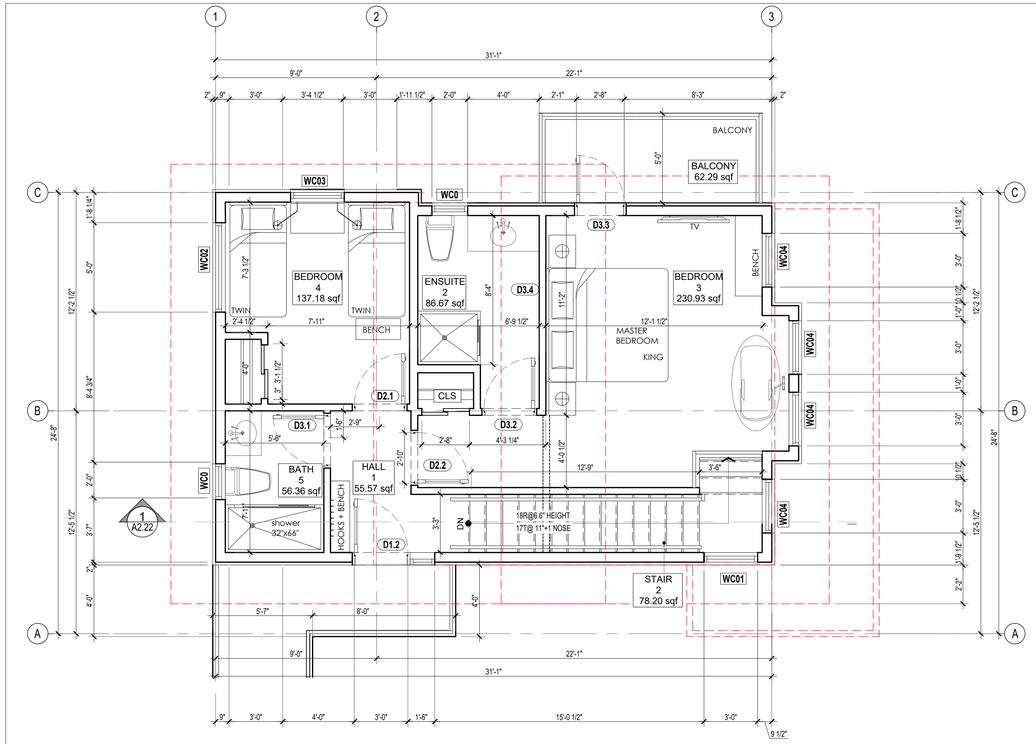
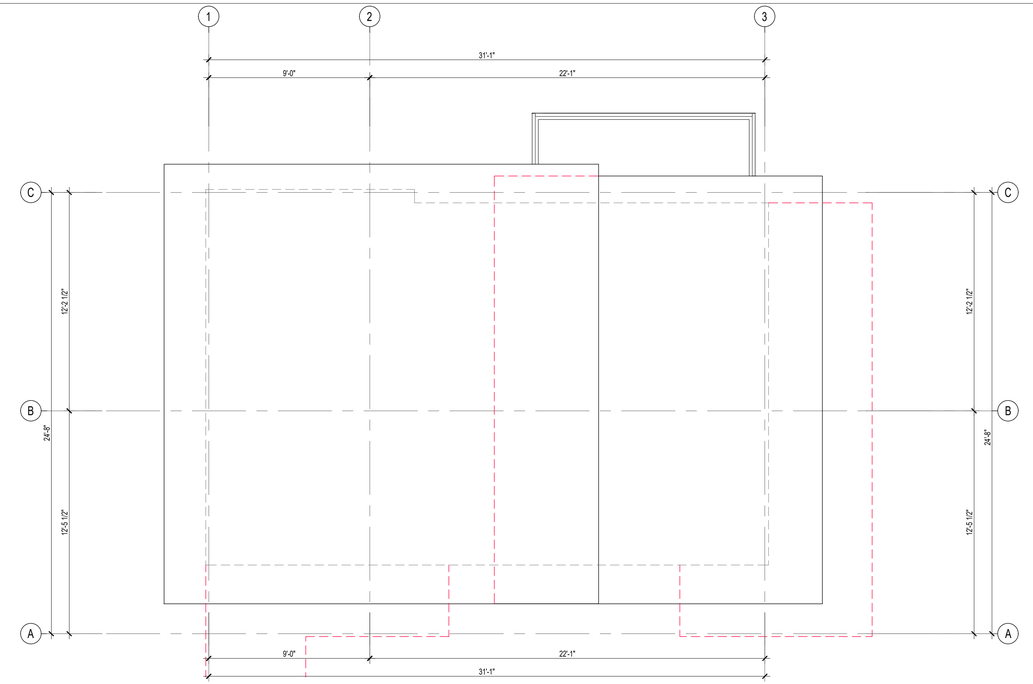
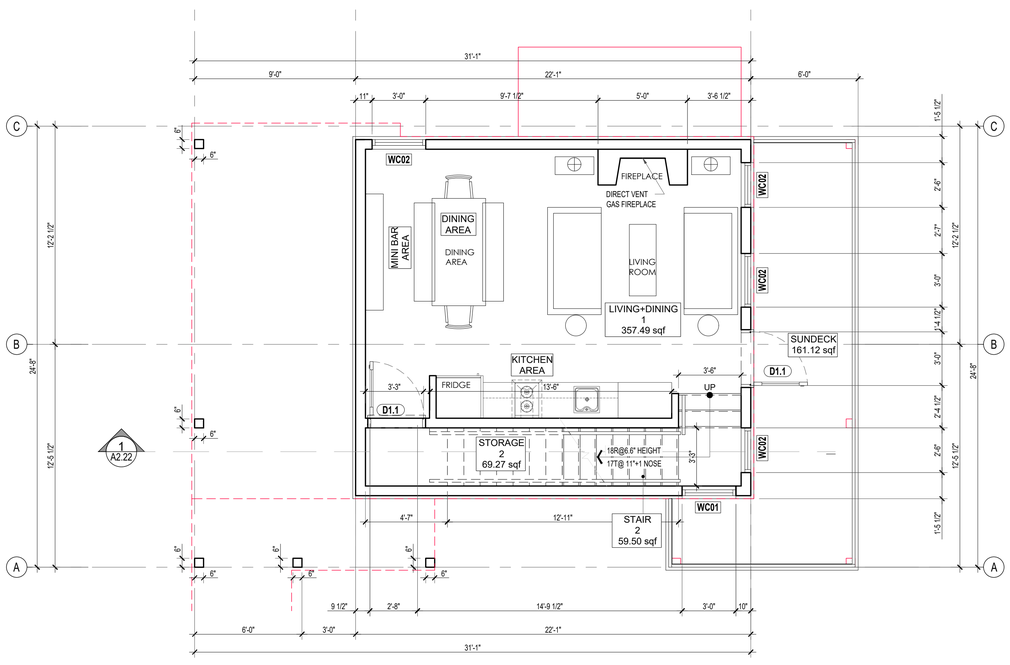
A6.6



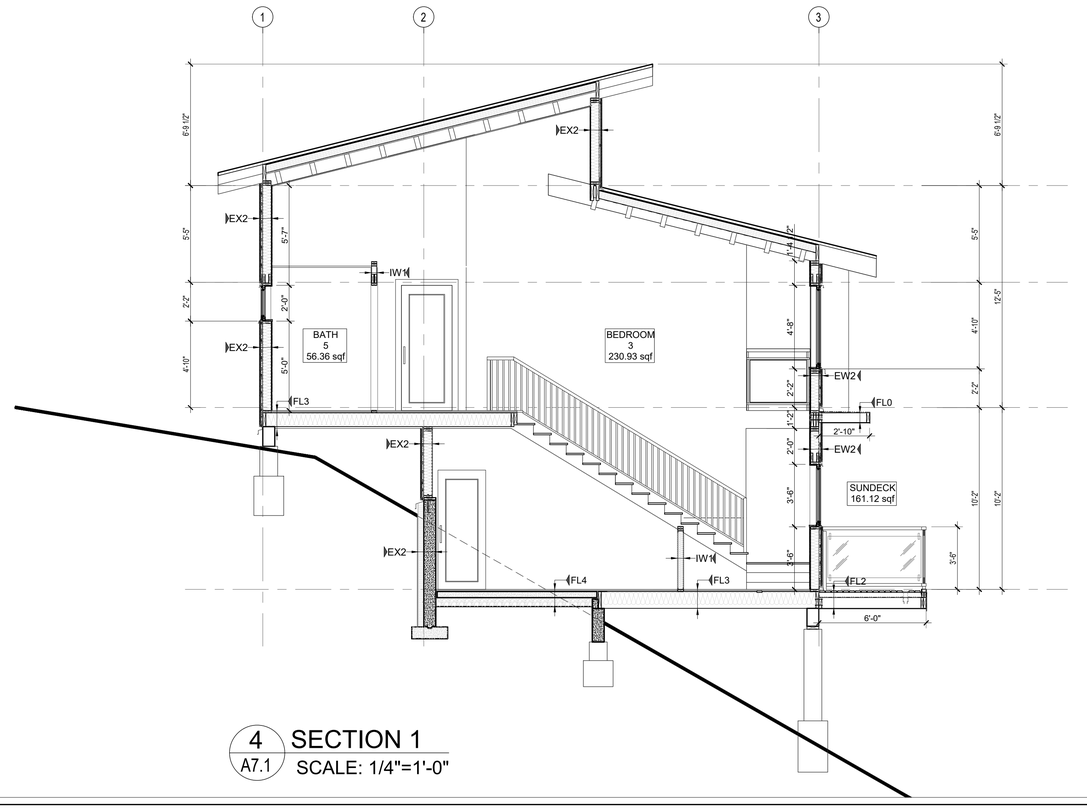
2 CABIN UPER PLAN
A7.1 SCALE: 1/4"=1'-0"



3 ROOF PLAN
A7.1 SCALE: 1/4"=1'-0"



1 CABIN LOWER PLAN
A7.1 SCALE: 1/4"=1'-0"



4 SECTION 1
A7.1 SCALE: 1/4"=1'-0"

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CABIN PLANS AND SECTION

JOB NO.

DRAWN LT

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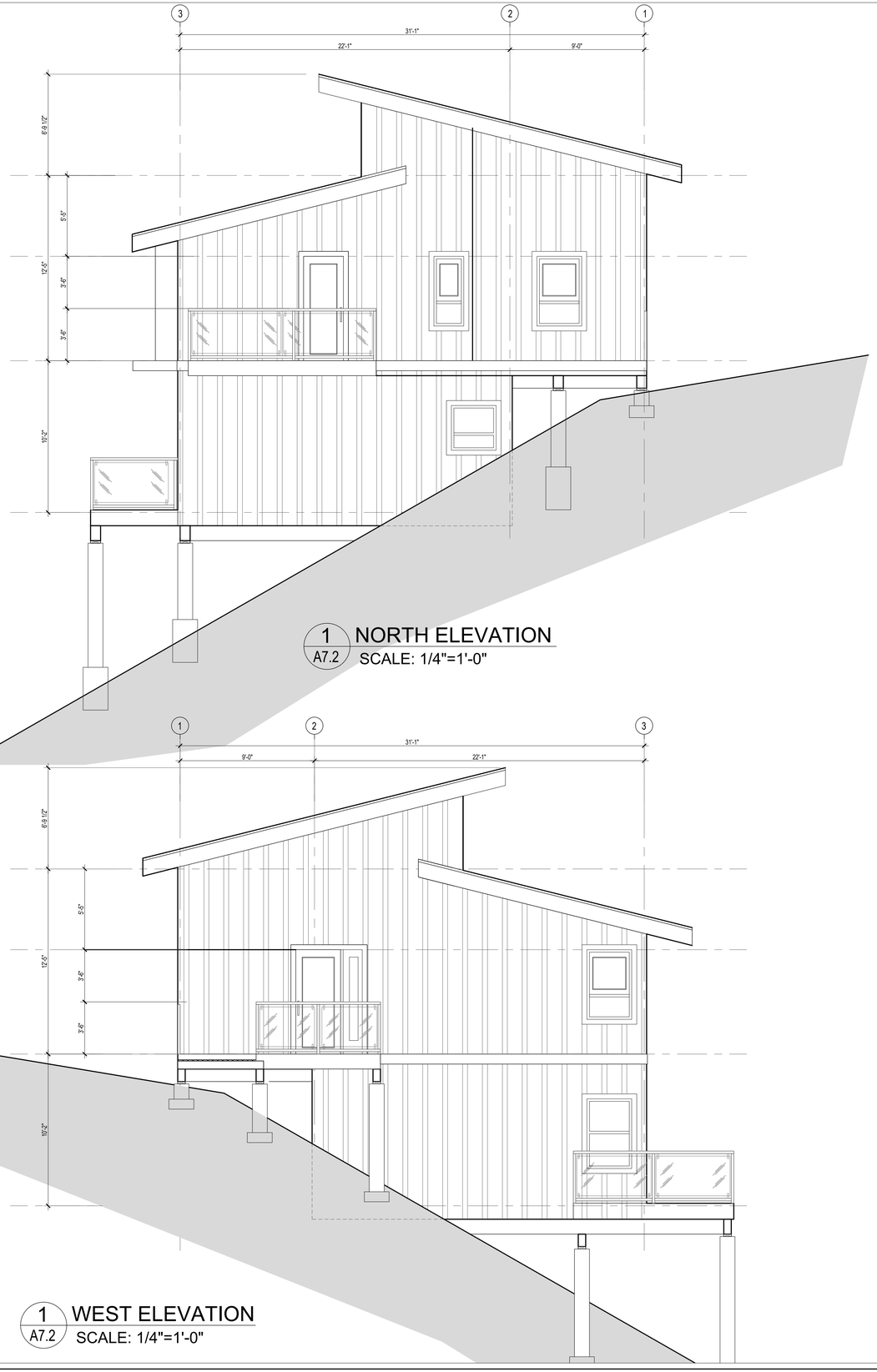
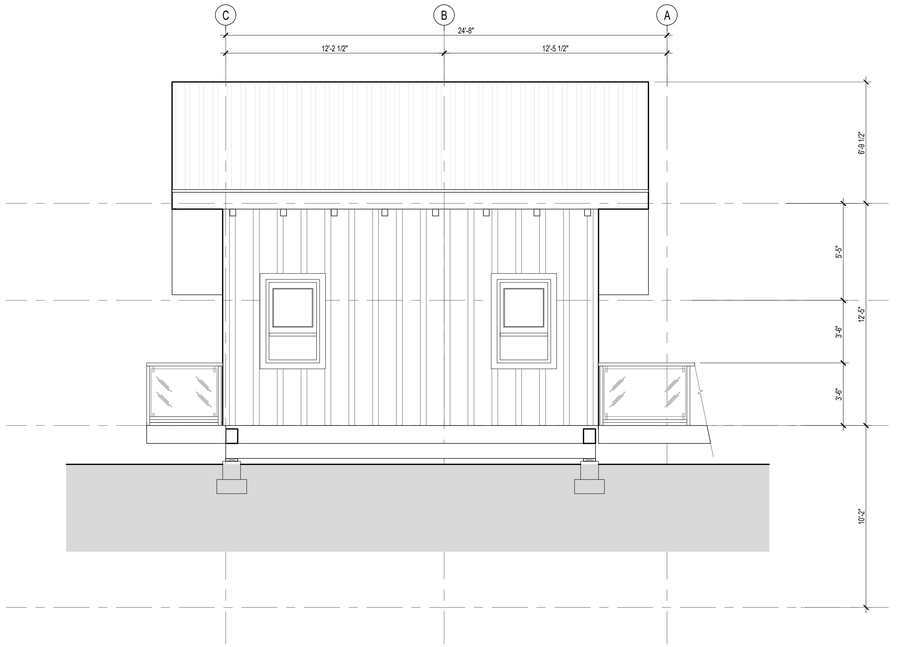
CHECKED J N

DRAWING NO.

A7.1

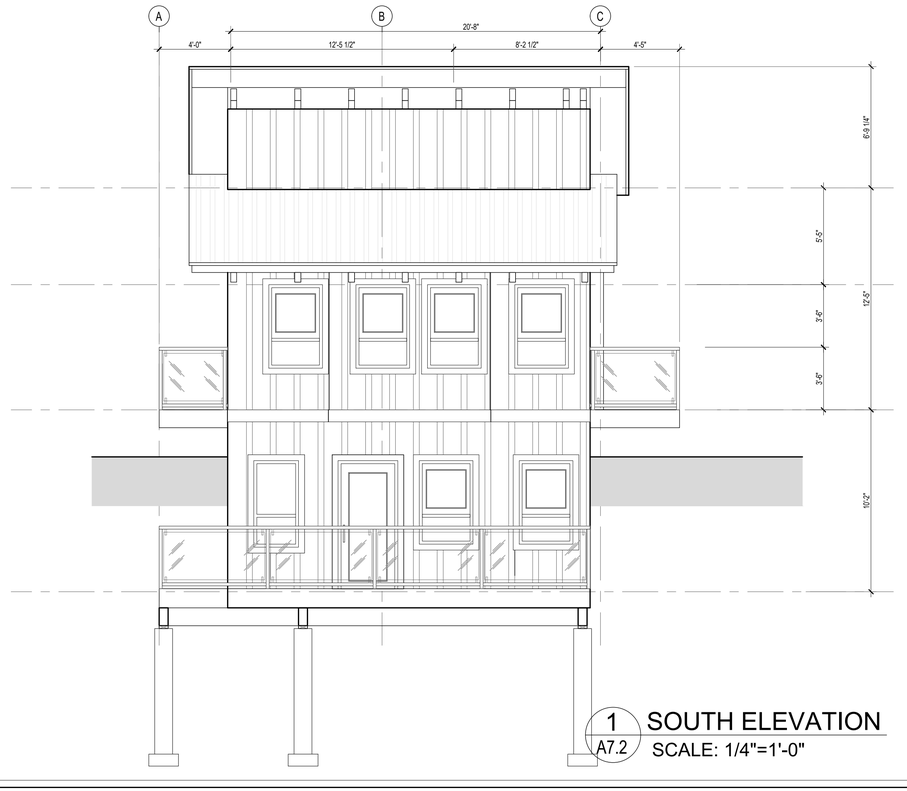


1 A7.2 NORTH ELEVATION
SCALE: 1/4"=1'-0"



1 A7.2 EAST ELEVATION
SCALE: 1/4"=1'-0"

1 A7.2 WEST ELEVATION
SCALE: 1/4"=1'-0"



1 A7.2 SOUTH ELEVATION
SCALE: 1/4"=1'-0"

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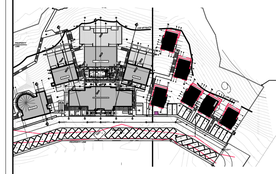

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

SUNSHINE COAST CABIN ELEVATIONS

JOB NO.

DRAWN **LT**

DATE

SCALE

CHECKED **J N**

DRAWING NO.

A7.2

ATTACHMENT 2

RPL

ROYAL PACIFIC LANDING LTD.
太平洋皇家园林设计有限公司
www.royalpl.com
604-338-5035
lu@royalpl.com

N

SCALE 1 /16" = 1'-0"

REVISIONS

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	ISSUES	DATE
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3	ISSUED FOR DP R1	2024.12.18
2	ISSUED FOR BP	2018.12.04
1	ISSUED FOR DP	2018.10.31

PROJECT NUMBER	LD33
DRAWN BY	LX
CHECKED BY	LX
DATE CHECKED	
CONSULTANT	

PROJECT

VANTA PACIFIC
WATERFRONT RESORT
SECHELT, BC

DRAWING TITLE

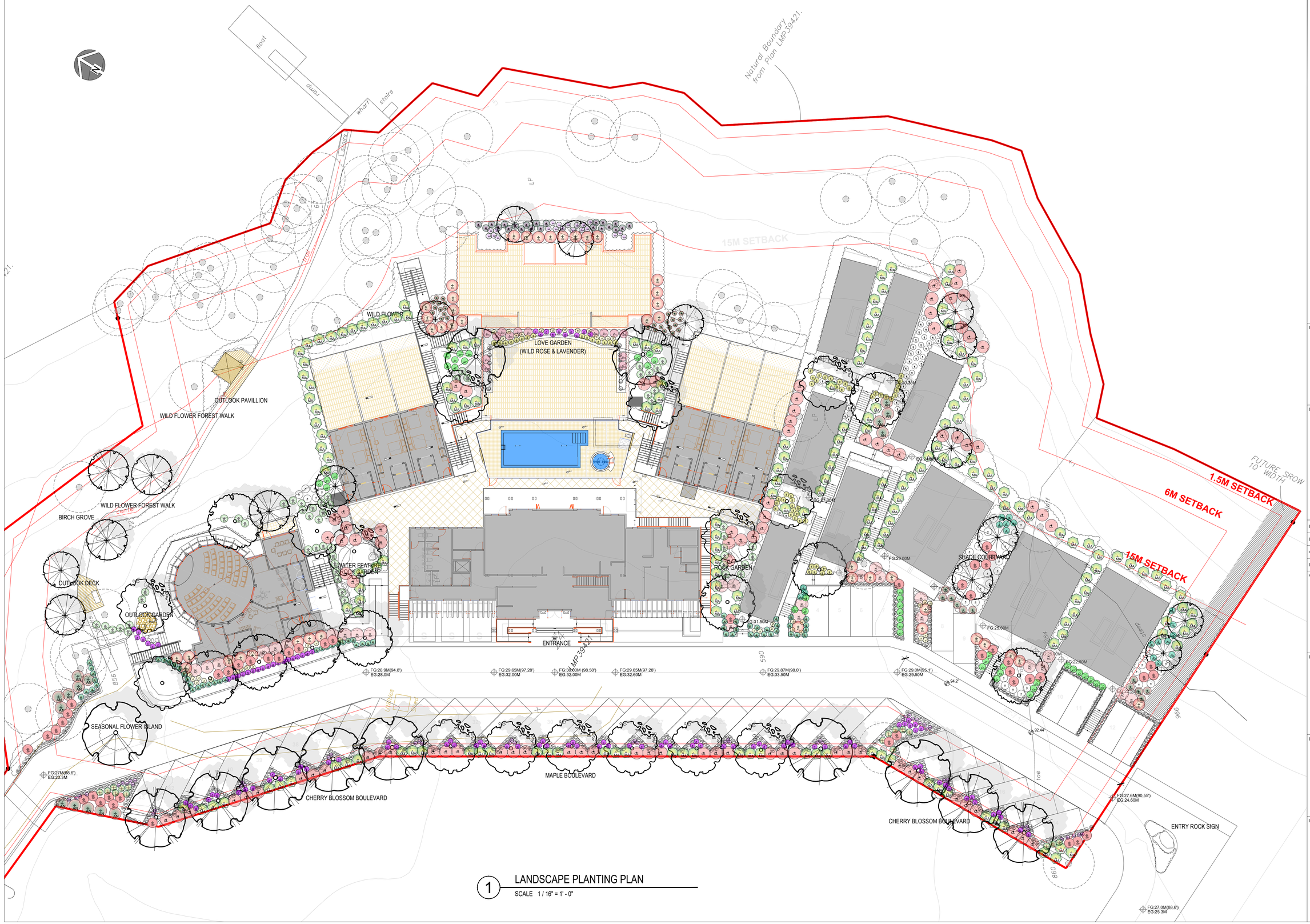
LANDSCAPE SITE PLAN

DRAWING No.

L1

1 LANDSCAPE SITE PLAN - TREE PLAN

SCALE 1 / 16" = 1' - 0"



1 LANDSCAPE PLANTING PLAN

SCALE 1 / 16" = 1' - 0"

RPL

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太平洋皇家园林设计有限公司
www.royalpl.com
604-338-5035
lu@royalpl.com

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SCALE 1 /16" = 1'-0"

REVISIONS
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ISSUES		DATE
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3	ISSUED FOR DP R1	2024.12.18
2	ISSUED FOR BP	2018.12.04
1	ISSUED FOR DP	2018.10.31

PROJECT NUMBER	LD33
DRAWN BY	LX
CHECKED BY	LX
DATE CHECKED	
CONSULTANT	

PROJECT

VANTA PACIFIC
WATERFRONT RESORT
SECHELT, BC

DRAWING TITLE

LANDSCAPE PLANTING PLAN

DRAWING No.

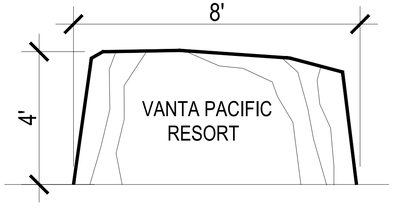
L2

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE & COND.	FEATURE
		TREES & HEDGES			
AGD	3	ACER CIRCINATUM	VINE MAPLE	2.5M HT.B & B	NATIVE; TOLERATE: DEER
AKD	9	ACER TRUNCATUM "PACIFIC SUNSET"	PACIFIC SUNSET MAPLE	6CM CAL. B & B	VIRTUALLY SOIL TOLERANT
CKD	4	CORNUS KOUSA "SATOMI"	PINK DOGWOOD	6CM CAL. B & B	TOLERATE: DEER
CMD	5	CORNUS MAS	CORNELIAN CHERRY	2.5M HT.B & B	TOLERATE: DEER, CLAY SOIL
PAD	6	PRUNUS SERRYLATA "KWANZAN"	DOUBLE FLOWER CHERRY	6 CM CAL. B & B	TOLERATE: DROUGHT, CLAY SOIL
FPD	6	FRAXINUS PENNSYLVANICA "MARSHALL"	MARSHALL'S SEEDLESS ASH	2.5M HT. 1.8M STD. B&B.	TOLERATE OF LOW OXYGEN AT GREATER SOIL DEPTHS
PCC	9	PINUS CONTORTA	SHORE PINE	2.5M HT.B&B.	TOLERATE: DROUGHT, SHALLOW-ROCKY, AIR POLLLUTION
PTC	9	POPULUS TREMULOIDES	TREMBLING ASPEN	2.5M HT.B&B.	NATIVE; ATTRACT: BIRDS
ATD	3	ACER RUBRUM "RED SUNSET"	RED SUNSET RED MAPLE	5CM CAL. B&B	NATIVE; TOLERATE: DROUGHT

NOTES:

1. ALL PLANT MATERIAL SHALL MEET OR EXCEED STANDARDS REQUIRED BY BCNTA OR BCSLA GUIDELINES.
2. TOPSOIL SUPPLIED SHALL BE FROM A REPUTABLE SOURCE. A FULL ANALYSIS OF THE TOPSOIL WILL BE REQUIRED AT THE CONTRACTOR'S EXPENSE, SUBMIT TO LANDSCAPE CONSULTANT FOR APPROVAL.
3. AMMEND TOPSOIL PER SOIL ANALYSIS RECOMMENDATIONS PIOR TO SPREADING ON SITE. REJECTED TOPSOIL SHALL BE REMOVED OFF SITE IMMEDIATELY AT THE LANDSCAPE CONTRACTORS EXPENSE.
4. TOPSOIL DEPTHS FOR PLANTING AS FOLLOWS:
   - A. GRASSED AREAS: 150MM (6")
   - B. GROUND COVERS: 300MM (12")
   - C. SHRUBS: 450MM (18")
   - D. TREE PITS: 1000MM (40") WITH 300MM(12") (BELOW ROOT BALL)
5. LAWN AREAS SHALL BE SODDED WITH #1 PREMIUM RESIDENTIAL SOD.
6. ALL SHRUB PLANTING AREAS SHALL HAVE GROUND COVERS 350MM (14") O.C.
7. 1"MINUS BARK MULCH TO BE INSTALLED IN ALL SHRUB PLANTING AREAS.
8. ROAD GRADING AND OVERALL SITE GRADING BY CIVIL ENGINEERING/OR ARCHITECTURAL.

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE & COND.	FEATURE
		SHRUBS			
AN	26	ARBUTUS UNEDO COMPACTED	COMPACT STRAWBERRY BUSH	#3 @ 2'6" O.C.	TOLERATE: DROUGHT
CL	92	CORNUS STOLONIFERA	RED OSIER DOGWOOD	#2 @ 2' O.C.	NATIVE
KL	44	KALMIA LATIFOLIA	MOUNTAIN LAUREL	#3 @ 2'6" O.C.	TOLERATE: DEER, RABBIT, DRY SOIL
MA	189	MAHONIA AQUIFOLIUM	OREGON GRAPE	#2 POT @ 2' O.C.	NATIVE; TOLERATE: DEER
RC	25	RHODODENDRON "CHRISTMAS CHEER"	CHEER RHODO.(WHITE PINK)	#3 @ 2'6" O.C.	TOLERATE: DROUGHT
RM	131	RHODODENDRON "PURPPLE SPLENDOR"	RHODODENDRON(DARK PURPLE)	#3 @ 2'6" O.C.	TOLERATE: RABBIT
BTC	14	BERBERIS THUNBERGII 'CRIMSON PYGMY'	JAPANESE BARBERRY	#2 POT @ 2' O.C.	NATIVE; TOLERATE: INSECT, DEER, AIR POLLUTION, SALT, DROUGHT
SP	46	SPIRAEA JAPONICA 'LITTLE PRINCESS'	LITTLE PRINCESS SPIRAEA	#3 @ 2'6" O.C.	TOLERATE: URBAN POLLUTION
SY	53	SYMPHORICARPOS ALBUS	SNOWBERRY	#3 @ 2'6" O.C.	NATIVE; TOLERATE: DEER, DROUGHT, EROSION, DRY SOIL
		GROUND COVERS			
la	114	LAVANDULA ANGUSTIFOLIA	ENGLISH LAVENDER	#2 POT @ 18" O.C.	TOLERATE: RABBIT, DEER, DROUGHT, DRY SOIL, SHALLOW-ROCKY SOIL, AIR POLLUTION
AT	41	ATHYRIUM FILIX FERMINA	LADY FERN	#2 POT @ 18" O.C.	NATIVE; TOLERATE: RABBIT, HEAVY SHADE
PM	20	POLYSTICHUM MUNITEM	WESTERN SWORD FERN	#2 POT @ 2' O.C.	NATIVE;TOLERATE: DEER, BLACK WALNUT, AIR POLLUTION
gs	492	GAULTHERIA SHALLON	SALAL	#1 60CM O.C.	NATIVE;TOLERATE: FULL SHADE
LP	44	LONICERA PILEATA	PRIVET HONEY SUCKLE	#3 60CM O.C.	FULL SUN, SALT TOLERANT
		GRASS			
hx	59	HAKONECHLOA MACRA "AUREOLA"	GOLDEN JAPANESE FOREST GRASS	#1@40CM O.C.	TOLERATE: DEER, BLACK WALNUT, AIR POLLUTION
he	60	HELICTRICHON SEMPERVIRONS	BLUE OAT GRASS	#1@30CM O.C.	TOLERATE: DEER, DROUGHT, SALT, RABBIT
ic	43	IMPERATA CYLINDRICA RED BARON	JAPANESE BLOOD GRASS	#1 CONTAINER	
pa	27	PENNISETUM ALOPECUROIDES 'HAMELIN'	DWARF FOUNTAIN GRASS	#1 CONTAINER	TOLERATE: BLACK WALNUT, AIR POLLUTION
ms	16	MISCANTHUS SINENSIS "ADAGIO"	ADAGIO MAIDEN GRASS	#1 CONTAINER	TOLERATE: DROUGHT, EROSION, DRY SOIL, BLACK WALNUT, AIR POLLUTION
		PERENNIALSS			
as1	52	ASTER NOVAE-ANGLIAW "PURPPLE DOME"	NEW ENGLAND ASTER, PURPLE	#1 POT @ 10CM O.C.	TOLERATE: DEER, DROUGHT, WET SOIL
cp	12	CAMPANULA POSCHARSKYANA "BLUE WATER FALL"	BLUE WATERFALL BEDLLFLOWER	#1 POT @ 10CM O.C.	HUMMINGBIRDS BUTTERFLIES BEES
ha	22	HELLEBORUS HYBRIDUS "ROYAL HERITAGE"	LENTEN ROSE	#1 POT @ 10CM O.C.	TOLERATE: FULL SHADE, DEER, RABBIT
sa	20	SALVIA VIOLET RIOT	SAGE	#1 POT @ 10CM O.C.	TOLERATE: DEER, DROUGHT, DRY SOIL, RABBIT
rf	44	RUDBECKIA FULGIDA var 'GOLDSTRUM'	BLACK EYED SUSAN	#2 POT @ 18" O.C.	TOLERATE: PARTIAL SHADE, DROUGHT



1 ENTRY SIGNAGE
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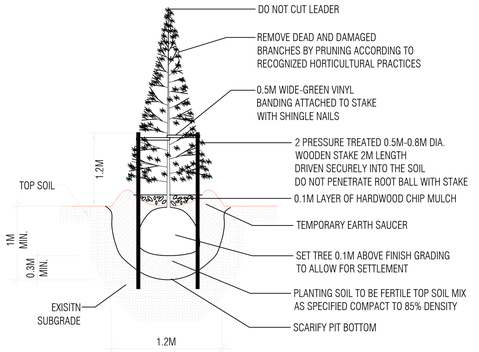
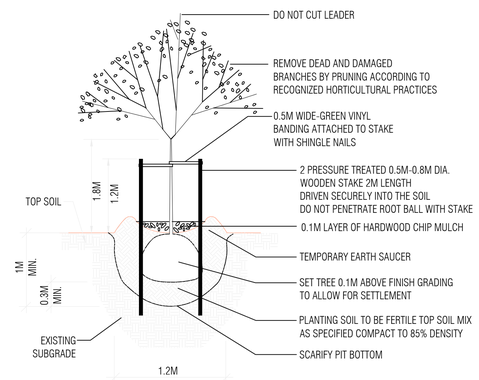


TREE PLACED AT CENTRE OF PIT
MIN. DISTANCE BETWEEN SIDE OF PIT
AND ROOT BALL 0.3M



TREE PLACED AT CENTRE OF PIT
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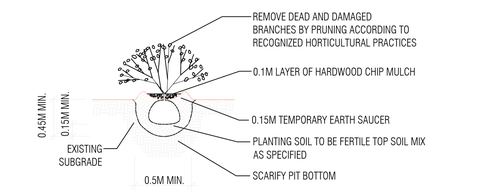

2 PLANTING DETAILS
SCALE NTS

RPL
ROYAL PACIFIC LANDING LTD.
太平洋皇家园林设计有限公司
www.royalpl.com
604-338-5035
lu@royalpl.com

REVISIONS
1

ISSUES		DATE
8		
7		
6		
5		
4		
3	ISSUED FOR DP R1	2024.12.18
2	ISSUED FOR BP	2018.12.04
1	ISSUED FOR DP	2018.10.31

PROJECT NUMBER	LD33
DRAWN BY	LX
CHECKED BY	LX
DATE CHECKED	
CONSULTANT	

PROJECT

VANTA PACIFIC
WATERFRONT RESORT
SECHELT, BC

DRAWING TITLE

PLANT LIST

DRAWING No.

L3

ATTACHMENT 3

July 10, 2024.

Attention: **Yoko Chen**
6086 Poise Island Dr
Sechelt, BC. V0N 3A5

Reference: Environmentally Sensitive Development Permit Area No. 3 (DPA 3) Assessment Report to support the development of a 20-room waterfront resort in Sechelt, BC.

Dear Yoko,

I am pleased to deliver this **Environmentally Sensitive Development Area No. 3 Assessment Report (Marine, Foreshore and Shoreline Areas)** to support the proposed development plans for the property at 6086 Poise Dr., Sechelt, BC.

Based on the information provided and the field visits we completed to the property, it is concluded that the proposed development of a waterfront resort will not have significant adverse effects on the structure or function of fish habitats, the marine foreshore, shoreline and adjacent public or private areas or to unintentional encroach such areas if the measures and recommendations listed within this document are adequately implemented, monitored and managed.

I believe this Assessment Report addresses the District of Sechelt's requirements of identifying potential risks to the environmentally sensitive marine and shore areas associated with this project.

Please feel free to contact us if you or the District of Sechelt officials have any questions on the content of this document.

Sincerely,

David A. Galvez Alcaraz, PhD., RPBio.
Qualified Environmental Professional (QEP)
Coastal Raintree Consulting, Ltd.
Cell Phone: (778) 558-9345
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ENVIRONMENTALLY SENSITIVE DEVELOPMENT PERMIT AREA No. 3 ASSESSMENT REPORT

DEVELOPMENT OF A 20-ROOM WATERFRONT RESORT ON 6086 POISE DR., SECHELT, BC

Prepared for:

Yoko Chen

Prepared by:

Gibsons, British Columbia
July 2024

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LIMITATIONS OF THIS REPORT

This Assessment Report and its contents are intended for the sole use of **Yoko Chen** and their agents. Coastal Raintree Consulting, Ltd. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in this report when the report is used or relied upon by any Party other than **Yoko Chen** or for any project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Coastal Raintree Consulting, Ltd.'s General Conditions are provided in **Appendix A** of this report.

1. INTRODUCTION

Coastal Raintree Consulting (**CRC**) was retained by **Yoko Chen** to prepare an Environmentally Sensitive Development Permit Area No. 3 Assessment Report to support the proposed development of a 20-room waterfront resort (referred hereafter as the *proposed development*) for the property located at 6086 Poise Dr., Sechelt, BC (the *Subject Property*; **Figure 1**). To this end, **CRC**'s **Scope of Work** and **Professional Services Agreement** were reviewed and accepted by **Yoko Chen** in June of 2024.

The *Proposed Development* will comprise a multi-building hotel, a convention room, six duplex cabins, and parking spaces (**Figure 2**). The property lot has a total surface area of 10,156 m^2 (109,316 sq ft), from which 1,826 m^2 (19,660 sq ft) will be occupied by the footprint of the main structures and 1,861 m^2 (20,036 sq ft) by parking spaces and driveways. The total percentage of lot coverage is estimated to be 17.98%. The *Proposed Development* will be accessible by road from Ripple Way on the South and Poise Island Dr. to the West. A detailed description of the main architectural features of the *Proposed Development* is presented in **Section 3** and **Appendix B** of this document.

This Assessment Report addresses the regulatory guidelines indicated in Section 15(c,d) for Building Permits within Development Permit Area No. 3 (DPA 3) as mandated in Part Eight (Development Permit Areas) of the District of Sechelt Official Community Plan (OCP; District of Sechelt, 2010).

These guidelines were created to protect the marine shoreline and foreshore areas of Georgia Strait and Sechelt Inlet, both identified as highly important features of the District of Sechelt. These areas play a significant role in critical environmental functions by providing habitat for young fish, shorebirds and shellfish, seals, sea otters, and many other marine organisms. These marine environments include estuaries and shallow protected waters, which in Sechelt Inlet provide particularly rich and diverse habitats. Additionally, these areas serve as visual and recreation resources that define the character of the community (District of Sechelt, 2010).

Portions of the Sechelt waterfront have been altered over the years with retaining walls, docks, and other structures. DPA 3 guidelines are intended to reduce future alterations and improve habitat conditions on the marine shoreline. Properties along the Sechelt waterfront may also be subject to coastal flooding/storm wave erosion hazards, which should be evaluated and mitigated (where necessary) as part of any development permit application (District of Sechelt, 2010).

2. PURPOSE OF THE STUDY

The *Proposed Development* will be located within the boundaries of the Marine, Foreshore and Shoreline Areas identified in Schedule D2 of the District of Sechelt OCP. The present Assessment Report focused on addressing applicable guidelines of DPA 3, Section 17, requiring to identify:

(a) Impacts of the proposed development on the marine ecosystem and shoreline erosion, transport and deposition processes, including any impacts to surrounding properties or public use areas.
(b) Areas to remain undeveloped and any special steps to ensure protection of these areas.
(c) Remediation measures required to mitigate the impacts or restore habitat conditions.
(d) Details of any works required to address legislative requirements or approvals from any provincial or federal government agencies.
(e) Confirmation of the long-term safety of the proposed building or shoreline protection works in relation to erosion, landslip or wave action, including any anticipated impacts due to climate change and sea level increases.

In addition, this report addresses conditions listed in Section 19, requiring to:

(a) Specify areas of land that must remain free of development, except in accordance with permit conditions;
(b) Specify natural features or areas to be preserved, protected, restored or enhanced;
(c) Require construction of works or other protection measures, including planting or retaining vegetation or trees, in order to control drainage, control erosion, or to protect banks or aquatic habitat;
(d) Require in any area that the permit designates as containing unstable soil or water that is subject to degradation that no septic or drainage systems be constructed;
(e) Establish conditions and requirements that vary the permitted use and density of land that may be subject to hazard, but only as they relate to health, safety or protection of property from damage.
(f) Impose conditions on the sequence and timing of construction;
(g) Require security to ensure completion of landscaping or other works required to address damage to the natural environment or unsafe conditions.

Specific recommendations to address the guidelines listed above and additional recommendations to prevent and mitigate unintended damage to the Marine, Foreshore and Shoreline areas adjacent to the proposed development are presented in **Sections 4** and **5** of this Assessment Report.

3. SITE LOCATION AND GENERAL DESCRIPTION

The *Proposed Development* is planned to occur on Lot A, District Lot 1519, Plan EPP53374, with civic address 6086 Poise Island Dr., Sechelt, BC. Lot A is registered under the Property Identification Number (PID) 029-638-364 and has an approximate area of 10,198 m^2 (2.52 acres). The property lot is located on a waterfront escarpment accessible by road from Ripple Way on the South and Poise Island Dr. to the West. The property has a fan-shaped configuration sloping down from its West side towards the marine shoreline on the East. The elevation change between the top of the property, on the West side, and the marine shoreline is approximately 33 m. The lot surface is characterized by the presence of a relatively flat area on the West, slopping down towards the ocean with two near-vertical slopes on the North and Southeast sides of the property.

The *Subject Property* is only partially developed. The only permanent structures observed during the field visits completed in June of 2024 are a two-bedroom dwelling with an approximate area of 139 m^2 (1,496 sq ft) used by the property's maintenance personnel and a small utility shed (**Figure 4**). Two narrow paths transverse the property, starting from the dwelling, one leading to the dock and one to Ripple Road to the South. A small wooden dock is attached to the shoreline on the East side of the property via a gangway and a small platform (**Figure 5**). An aerial drone image of the property is included in **Appendix C**.

The streets and properties surrounding the *Subject Property* are described as follows:

Northwest side – Poise Island Park and Porpoise Bay.
Northeast side – Porpoise Bay.
Southwest side – Porpoise Bay and Ripple Road.
Southeast side – Lot 8 (undeveloped, forested).

According to the geotechnical report prepared for the *Proposed Development*, the main structures of the project are well above the calculated Floor Construction Level (FCL). The geology and topography of the shoreline on the South side could pose a risk for rockfall events, but it could be managed by engineered mitigation techniques or by establishing a construction setback from the crest of the slope during

construction (MT+E, 2024). A copy of the geotechnical report is included in **Appendix D** of this document.

General Characteristics of the Proposed Development

The proposed waterfront resort, provisionally named Vanta Pacific Waterfront Resort, is expected to include a main hotel divided into four two-storey main buildings located at the centre of the property, a two-storey convention room with a circular deck to the Northwest and six duplex cabins to the Southeast (**Figures 2** and **3**). To minimize impacts associated with construction on the steep rocky slopes of the *Subject Property*, the main structures of the *Proposed Development* will be constructed over conventional concrete strips and pad/column footings (**Figure 3**). A new marina is expected to replace the current small wooden dock on the North side of the property. The primary access to the resort is expected to take place via a purpose-built new extension of Ripple Road to the South, with secondary access through Poise Island Dr. to the East (**Figure 2**). As currently planned, the resort is expected to include 20 rooms and six duplex cabins for a total capacity of 39 beds. Forty-five parking spaces (44 for guests and 1 for the loading area) are included in the design. These features are expected to create 3,688 m^2 (39,697.3 sq ft) of new impervious surfaces.

The expected areas of these features are provided below:

Feature	Surface Area
Hotel	1,092.7 m^2 (11,761.7 sq ft)
Convention Room	259.6 m^2 (2,794.4 sq ft)
Six duplex cabins	474.2 m^2 (5,104.3 sq ft)
Parking	958 m^2 (10,311.9 sq ft)
Driveways	903.5 m^2 (9,724.9 sq ft)

Architectural drawings of the *Proposed Development*'s main features are presented in **Appendix B**.

Natural Features of the Proposed Development

The land parcel where the *Proposed Development* will occur is located within the Coastal Western Hemlock Very Dry Maritime biogeoclimatic zone (CWHxm1). This specific zone encompasses inland areas of heaviest marine dominance, including heavily populated southern areas such as Campbell River, the District of Sechelt, Comox, Courtenay, Port Alberni, and Vancouver. The vegetation of the CWHxm1 zone is often dominated by Douglas-fir (*Pseudotsuga menziesii*) and frequent Grand fir

(*Abies grandis*) with occasional Arbutus (*Arbutus menziesii*) and a few Garry oak (*Quercus garryana*) populations (CFCG, n.d.).

In particular, the vegetation within the *Subject Property* was listed as a woodland, conifer-dominated (WDcc) sensitive ecosystem under the Sensitive Ecosystems Inventory project (SEI Polygon 754) in 2005. The SEI is a "flagging" tool that identifies sensitive ecosystems and provides scientific information to governments and others trying to maintain regional biodiversity (MoE, n.d.). Local eelgrass meadows have been identified on the Southeast shore of the property during the 2002-2004 and 2017-2019 inventories (**Figure 6**).

It is important to note that the current structure and composition of the vegetation in many areas of the *Subject Property*, particularly outside the 15 m shoreline setback, no longer match many of the core characteristics associated with the SEI designation. For example, most of the South area of the *Subject Property* is now occupied by herbaceous vegetation (e.g., common dandelion (*Taraxacum officinale*) and common foxglove (*Digitalis purpurea*) and invasive plant species are well-established across the property (e.g., Scotch broom (*Cytisus scoparius*)) (**Figure 7**). This apparent mismatch between current and expected vegetation was noted in a previous biological review completed for the *Subject Property* last decade (FSCI Biological Consultants, 2012). Abundant carpets of rock mosses (likely *Racomitrium spp*) were observed on the rock outcrops located in the central area of the land parcel (**Figure 8**).

A row of mature, healthy Douglas-fir (*Pseudotsuga menziesii*) and Shore pine (*Pinus contorta var. contorta*) dominate most of the area within the 15 m shoreline setback. Still, many thickets of Himalayan blackberry (*Rubus armeniacus*), an invasive plant species, were also noted within the setback (**Figure 9**). The understory and open areas within the setback contain abundant mats of salal (*Gaultheria shallon*), oceanspray (*Holodiscus discolor*), Oregon grape (*Berberis nervosa*), salmonberry (*Rubus spectabilis*), sword ferns (*Polystichum munitum*) and multiple species of mosses and lichens (**Figure 10**).

Douglas-fir trees on the shoreline of the *Subject Property* and surrounding areas offer a perfect habitat for local raptors and cranes. A large, suspected unoccupied raptor nest was identified on a Douglas-fir near the wooden dock within the 15 m shoreline setback (**Figure 11**). Given the species known to occur in the area and the presence of this nest within the 15 m shoreline setback, it is recommended that any habitat alteration, including vegetation clearing, be conducted outside the March 1 to August 30 timeframe.

Raptors such as Bald Eagles (*Haliaeetus leucocephalus*) and some owl species may nest prior to this window, so it would be prudent to conduct a raptor nest sweep prior to any vegetation clearing occurring from mid-January onward, particularly for Bald Eagles, given the marine setting and Bald Eagles' preference for nesting in large trees in close proximity of water. If a Bald Eagle nest is found, then the BC Ministry of Environment and Climate Change Strategy should be contacted regarding mitigation measures, as Bald Eagle nests are protected year-round under the BC *Wildlife Act*, regardless of whether the nest is active (i.e., occupied).

If vegetation clearing must occur between March 15 and August 15, conducting a pre-clearing nest sweep survey is advisable before any habitat disturbance. Birds can and will nest in disturbed areas, including on the ground and within idle heavy machinery that has been inactive and parked on site for several days. Given the size and habitat complexity at the site, it is recommended that at least three nest sweeps be conducted, ideally on consecutive days under ideal survey conditions, by an experienced, Qualified Environmental Professional (QEP) knowledgeable about the nesting behaviour of the species known or likely to occur at the site. Clearing or brushing activities should then commence within 72 hours of the nest sweep completion.

Additionally, an assessment of the eelgrass (*Zostera spp*.) meadow located in front of the Southeast shoreline (**Figure 6**) should be prepared to identify the exact location and extent of the meadow before any alteration to the marine environment is completed. As detailed in the District of Sechelt Official Community Plan, *"Eelgrass beds within Sechelt Inlet are critical habitats that form the basis of a complex food chain and are particularly important to juvenile salmon. Eelgrass beds are highly sensitive to sedimentation of streams from upland activities, pollution (both chemical and nutrients such as fertilizer), and to construction of seawalls, breakwaters or other structures which alter the shoreline processes that are necessary to retain the fine sediment in which eelgrass grows"* (District of Sechelt, 2010). This assessment should also provide recommendations for optimal construction windows to minimize potential negative impacts on this sensitive marine environment.

The assessment of the eelgrass meadow, as well as measures to protect raptor nests and other environmental monitoring guidelines, should be incorporated within the Construction Environmental Management Plan (CEMP) of the project.

4. GUIDELINES AND RECOMMENDATIONS

Each of the guidelines listed in Section 17 of the DPA 3, as well as applicable guidelines in Section 19, are presented as headings in the following paragraphs, followed by recommendations on how the proposed development should address each one. These guidelines are intended to avoid or mitigate potential deleterious impacts on the marine shoreline processes and their biological components.

Recommendations to address District of Sechelt Development Permit Areas No. 3, Section 17.

(a) Impacts of the proposed development on the marine ecosystem and shoreline erosion, transport and deposition processes, including any impacts to surrounding properties or public use areas.

The construction and landscaping activities needed to implement the *Proposed Development* could potentially result in a negative impact on fish habitat and marine ecosystems if such activities modify the structure (e.g., changes in the morphology of the shoreline and littoral areas) or function of the habitat (e.g., unintentional release of toxic chemicals may directly result in killing or impacting the health of fish or fish food sources) or water chemical composition and quality (e.g., increased turbidity and sediment loads which negatively impact fish respiration and cause gull abrasion, changes in oxygen levels, etc.).

The type of construction work and landscaping activities needed to complete the proposed development (e.g., site preparation, land recontouring, rock excavation, foundation work, creation and maintenance of green spaces, etc.) could generate significant amounts of loose soil, gravel, dust, cement, wood, and general construction waste. These materials have the potential to reach the ocean, increase water turbidity and form sediments foreign to the natural shore environment, thus becoming physical or chemical contaminants. Soil and water contamination by unintentional spill of hydrocarbon-based compounds (e.g., motor oil, fuel, paint, and primers) could also potentially occur if improperly used or stored on site or if service or maintenance of construction equipment is completed on the property. Many of these contaminants could potentially migrate out of the property by soil infiltration, gravity, runoff or wind and, depending on the type and quantity of contaminants, could negatively impact critical functions and processes associated with flora and fauna of the littoral zone, intertidal foreshore, and backshore areas and upland vegetation adjacent to the property.

To avoid or mitigate the potential risks associated with extensive construction and landscaping activities of the proposed development, Coastal Raintree Consulting, Ltd. strongly advises **Yoko Chen** to adhere to the following recommendations to minimize

the possibility of negatively impacting the structure or function of marine ecosystems, transport and deposition processes, and surrounding properties.

These recommendations include those listed in provincial and federal guidelines, including *Measures to Avoid Causing Harm to Fish and Fish Habitat* (DFO, 2019) and *Working Water Quality Guidelines for British Columbia* (BC MoE, 2021).

To facilitate and clarify the nature and applicability of these measures, a summary of the DFO's *Measures to Avoid Causing Harm to Fish and Fish Habitat* guidelines is presented below for reference:

Measures to protect fish and fish habitat
Comply with the fish and fish habitat protection provisions of the *Fisheries Act* by incorporating measures to avoid:

- Causing the death of fish.
- Harmful alteration, disruption or destruction of fish habitat in your work, undertaking or activity.

The developer is responsible for reviewing the complete list of measures and implementing those that are applicable to the work planned for this project.

Measures to prevent the death of fish during development or landscaping activities

- Avoid using explosives in or near water.
- Planning in-water work and associated activities respecting time windows to protect fish, including:
    - their eggs
    - juveniles
    - spawning adults
    - the organisms upon which they feed and migrate.

Carrying out works, undertakings and activities on land
Harmful alteration, disruption or destruction of fish habitat can be mitigated by avoiding:

- Conducting any work, undertaking or activity in water
- Placing fill or other temporary or permanent structures below the high water mark.
- Fording of the watercourse.
- Disturbing or removing materials from the banks, shoreline or waterbody bed, such as:

  - sand
  - rocks
  - aquatic vegetation
  - natural wood debris

To ensure proper sediment control.

Ensuring proper sediment control could be facilitated by:

- Avoiding introducing sediment in the water, like:
  - silts
  - clays
  - sands
- Developing and implementing an erosion and sediment control plan.
  - installing effective erosion and sediment control measures to stabilize all erodible and exposed areas.
  - regularly inspecting and maintaining the erosion and sediment control measures during all phases of the project.
  - keeping the erosion and sediment control measures in place until all disturbed ground has been permanently stabilized.
  - installing settling basin and/or filtration system for water flowing onto the site and water being pumped or diverted from the site, including:
    - holding back runoff water until suspended sediment has resettled in the settling basin and runoff water is clear.
    - dewatering gradually to prevent sediment resuspension and bank destabilization.
- Disposing of and stabilizing all excavated material above the high water mark or top of bank of nearby waterbodies and ensuring sediment re-entry to the watercourse is prevented.
- Heeding weather advisories and scheduling work to avoid wet, windy and rainy periods that may result in high flow volumes and/ or increase erosion and sedimentation.
- Regularly monitoring the watercourse/waterbody for signs of sedimentation during all phases of the work, undertaking or activity and taking corrective action if required.
- Using biodegradable erosion and sediment control materials whenever possible and removing all exposed non-biodegradable erosion and sediment control materials once site is stabilized.
- Operating machinery on land in stable dry areas.
- Stopping work and containing sediment-laden water to prevent dispersal.
- Limiting the impacts to stream or shoreline banks.

To prevent entry of deleterious substances in water

Prevent entry of deleterious substances in water by:

- Avoiding depositing any deleterious substances in the watercourse.
- Developing a response plan to be implemented immediately in the event of a spill of a deleterious substance.
- Keeping an emergency spill kit on site.
- Stopping work and containing deleterious substances to prevent dispersal.
- Reporting any spills of sewage, oil, fuel or other deleterious material, whether near or directly into a water body.
- Ensuring clean-up measures are suitably applied so as not to result in further alteration of the bed and/or banks of the watercourse.
- Cleaning up and appropriately disposing of the deleterious substances.
- Planning activities near water such that materials and chemicals don't enter the watercourse, including:
    - grout
    - paint
    - primers
    - degreasers
    - rust solvents
    - poured concrete
    - blasting abrasives
    - or other chemicals

- Maintaining all machinery on site in a clean condition and free of fluid leaks to prevent any deleterious substances from entering the water.
- Washing, refuelling, servicing machinery, and storing fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
- Disposing of all waste materials (including construction, demolition, excavation, commercial logging) above the high water mark of nearby waterbodies to prevent entry.
- Ensuring that building material used near a waterbody is handled and treated in a manner that prevents the release or leaching of substances into the water that may be deleterious to fish.

(b) Areas to remain undeveloped and any special steps to ensure protection of these areas.

The current design for the *Proposed Development* will likely necessitate land alterations and construction work to be completed in multiple areas directly adjacent

or in very close proximity to the 15 m shoreline setback (**Figure 2**). Every effort should be made to avoid the accidental deposition or release of construction waste and materials, soil, gravel, and other sediment-forming materials on or adjacent to areas within the 15 m setback. These efforts should include:

- A flexible plastic or fabric barrier (e.g., a silt fence) with a minimum height of 1 metre must be installed and properly maintained at the boundary line of the 15 m shoreline setback. Supporting posts should be placed approximately 5 m apart depending on ground conditions. There should be no gaps or openings between the lower edge of the barrier and the ground.

- The barrier should be regularly inspected by the environmental monitor (EM) or foreperson of the project and maintained when damaged or when requested by the EM.

- To avoid unintentional encroachment into the 15 m shoreline setback or damages to the barrier that could lead to encroachment, no construction activities, ground alterations, or storage of construction materials should take place within 2 m of the barrier, when possible.

- If construction activities, ground alterations, or storage of construction materials must take place within 2 m of the barrier, such activities should be monitored and regularly inspected by the EM or foreperson of the project.

- The barrier could be removed after construction and landscaping activities have been completed.

- **CRC** also recommends that **Yoko Chen** consider installing one or more educational signs, once in operation, in areas adjacent to the shoreline setback to inform visitors about the importance of maintaining the integrity and function of the vegetation in the shoreline and marine riparian areas.

- Stockpiles of soil, gravel, construction, or waste materials with the potential to be displaced or dislodged by rain, wind or gravity into the 15 m shoreline setback, neighbouring properties, or adjacent public areas must be covered with plastic tarps.

- Construction and landscaping work with the potential to release sediments and solid or liquid waste into the 15 m shoreline setback, neighbouring properties, adjacent public areas or the shoreline must be completed during favourable weather conditions whenever possible.

- Neither construction nor waste materials must be stored on the 15 m shoreline setback, adjacent public areas or the shoreline.

- Neither the 15 m shoreline setback, adjacent public areas, nor the shoreline must be used to service or store machinery, store hydrocarbon-based products such as fuel, lubricants, paints, primers or chemical compounds such as pesticides, fertilizers or other substances related with landscaping work.

- The construction site should be inspected by the foreperson, or the foreperson appointee to ensure the measures and recommendations listed above are in place and working order, especially during and after heavy rainfall.

(c) Remediation measures required to mitigate the impacts or restore habitat conditions.

No remediation measures are anticipated to be needed during the completion of construction and landscaping works of the proposed development if the recommendations listed in this section are implemented and maintained. Nonetheless, **CRC** strongly recommends that **Yoko Chen** explore design options that minimize impacts on mats of rock mosses and consider rescuing some of the moss mats from areas where impacts are deemed unavoidable. Rescued moss mats could be later incorporated into other suitable areas of the *Subject Property*.

(d) Details of any works required to address legislative requirements or approvals from any provincial or federal government agencies.

Fully addressing the measures and recommendations included within this Environmental Assessment could suffice to comply with applicable Federal, Provincial and local regulations concerning the construction of the *Proposed Development* on land. Legislative requirements to address the construction of the dock are being dealt with separately by the *Proponent* and are not the scope of this Environmental Assessment.

(e) Confirmation of the long-term safety of the proposed building or shoreline protection works in relation to erosion, landslip or wave action, including any anticipated impacts due to climate change and sea level increases.

According to the Geotechnical Assessment prepared for the *Proposed Development*, *"The lower floor elevation of the five buildings and six cabins proposed for the resort vary from 14 to 27 m geodetic elevation, well above the established minimum Flood Construction Level (FCL). In addition, a horizontal setback of 15 m from the natural boundary has been kept for the location of proposed structures, in compliance with DPA # 3 guidelines.*

No evidence of active erosion was observed at this site. Due to the condition of the observed bedrock existing on the shoreline natural boundary of the property (medium strong bedrock, with moderate weathering and discontinuities), hazards related to coastal erosion as a result of wave action provided by Porpoise Bay is considered to be negligible for design life of the proposed development (100 years). No shoreline protection works are needed for this development. No shoreline protection works are needed for this development." (MT+E, 2024).

Recommendations to address District of Sechelt Development Permit Areas No. 3, Section 19 – Additional Guidelines

(a) Specify areas of land that must remain free of development, except in accordance with permit conditions;

The 15 m shoreline setback should remain free of development. All the recommendations and measures presented in **Section 4** regarding the 15 m shoreline setback should be observed and maintained during and after the construction and landscaping work for the proposed development.

(b) Specify natural features or areas to be preserved, protected, restored or enhanced;

In addition to the recommendations and measures presented in the previous paragraphs of this Section regarding the 15 m shoreline setback, **CRC** strongly recommends that **Yoko Chen** consider placing large, visually pleasing markers (e.g., boulders or logs) along the boundary line of the shoreline setback, to prevent or limit visitors from using the 15 m set back area. This measure is important since encroachment is a significant cause of loss and degradation of marine riparian areas and shoreline habitat. Limiting access to the shoreline protects its vegetation by minimizing potential impacts such as dumping, trampling of vegetation and bank erosion. This measure is of particular relevance since some areas of the marine shoreline of the Subject Property retain plant communities identified as sensitive coniferous woodland by the Sensitive Ecosystems Inventory (SEI) of the Sunshine Coast. The setback area includes the tree and suspected raptor nest identified on

site (**Figure 11**), both of which should be protected.

(c) Require construction of works or other protection measures, including planting or retaining vegetation or trees, in order to control drainage, control erosion, or to protect banks or aquatic habitat;

The *Proposed Development* is expected to create 3,688 m^2 (39,697.3 sq ft) of new impervious surfaces. These surfaces could generate significant amounts of stormwater runoff with the potential to increase erosion and destabilize the vegetation of the shoreline if improperly managed. To address these potentially negative effects, the design of the *Proposed Development* incorporates multiple rock pits and lawn basins on-site, which will divert runoff away from shoreline setbacks. Perimeter drains from roofs will be directed toward storm catchments and rock pits. Runoff from driveways will be diverted to catchment areas on- and off-site depending on location and grades, including re-directing runoff drainage towards Ripple Way, where it will drain to the main storm culvert under Ripple Way (Sunco Civil Consulting, Ltd., personal communication, June 30, 2024). From a geotechnical point of view, no shoreline protection works are needed to implement the proposed development safely. The geology and topography of the shoreline on the South side could pose a risk for rockfall events, but it could be managed by engineered mitigation techniques or by establishing a construction setback from the crest of the slope during construction (MT+E, 2024).

(d) Require in any area that the permit designates as containing unstable soil or water that is subject to degradation, that no septic or drainage systems be constructed;

According to the information provided to CRC by Sunco Civil Consulting, Ltd., no septic systems are planned at this time for the proposed waterfront resort structures. The wastewater from buildings in close proximity to the onsite road will be serviced by gravity to a sanitary pipe installed along the road, while lower buildings will use a lift station and wastewater pumped to the proposed new sanitary line. It is important to note that the geotechnical report prepared for the *Proposed Development* indicates that the firm "*must be notified if any septic system is proposed during the design process to provide input regarding the potential effect of the septic field on the stability of the slopes*." If in the future a septic system is deemed necessary for the project, considerations regarding optimal location, technical specifications, depth, lining, construction materials, design, and specific details involving a septic field and accessory systems should be addressed by a qualified engineer professional.

(e) Establish conditions and requirements that vary the permitted use and density of land that may be subject to hazard, but only as they relate to health, safety or protection of property from damage.

No specific conditions or requirements regarding changes in the permitted use or density of land related to health, safety, or protection of the *Subject Property* were identified.

(f) Impose conditions on the sequence and timing of construction.

Construction and landscaping work with the potential to release sediments and solid or liquid waste into the 15 m shoreline setback, neighbouring properties, adjacent public areas or the shoreline must be completed during favourable weather conditions whenever possible. Additionally, the construction site should be inspected by the Environmental Monitor, foreperson, or the foreperson appointee to ensure the measures and recommendations listed within this document are in place and working order, especially during and after heavy rainfall.

As previously stated, vegetation clearing must occur between March 15 and August 15. A pre-clearing raptor nest sweep survey is recommended prior to any habitat disturbance. Birds can and will nest in disturbed areas, including on the ground and within idle heavy machinery that has been inactive and parked on site for several days. Given the size and habitat complexity at the site, it is recommended that at least three nest sweeps be conducted, ideally on consecutive days under ideal survey conditions, by an experienced, Qualified Environmental Professional (QEP) knowledgeable about the nesting behaviour of the species known or likely to occur at the site. Clearing or brushing activities should then commence within 72 hours of the nest sweep completion. Additionally, an assessment of the eelgrass (*Zostera spp*.) meadow located in front of the Southeast shoreline should be prepared to identify the exact location and extent of the meadow before any alteration to the marine environment is completed.

(g) Require security to ensure completion of landscaping or other works required to address damage to the natural environment or unsafe conditions.

No specific security is required to ensure the completion of construction or landscaping work if the measures and recommendations listed within this document are adequately implemented, monitored, and managed.

Additional recommendations

The measures to protect raptor nests and other environmental monitoring guidelines and recommendations listed in this document should be incorporated into a Construction Environmental Management Plan (CEMP) specifically designed for the *Proposed Development*. An assessment of the eelgrass meadow should be performed and incorporated into the CEMP for the construction of the dock.

We also recommend retaining, wherever possible, the coniferous trees and native vegetation in areas where no construction is planned to occur and incorporating native plants typical of a coniferous woodland ecosystem, such as Ponderosa pine and Douglas fir, in the *Proposed Development* landscaping design.

5. CONCLUSIONS

The following findings and recommendations are based on information received and reviewed by CRC from **Yoko Chen** and site visits performed by **CRC** during the preparation of this report.

Based on the information and recommendation presented above, it is concluded that the proposed development of a waterfront resort at 6086 Poise Dr., Sechelt, BC, will not have significant adverse effects on the structure or function of fish habitats, the marine foreshore, shoreline and adjacent public or private areas or to unintentional encroach such areas if the measures and recommendations listed within this document are adequately implemented, monitored and managed.

6. REFERENCES

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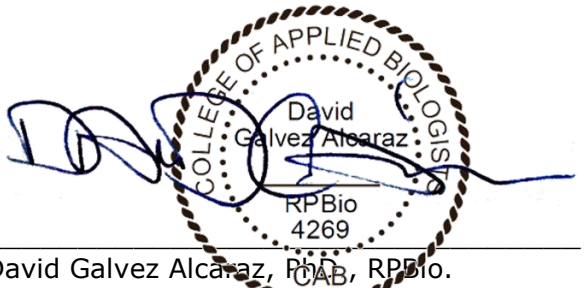
7. SIGNATURES

This report titled "Environmentally Sensitive Development Permit Area No. 3 Assessment Report – Development of a 20-room Waterfront Resort, Sechelt, BC" was completed in general accordance with current professional practices and reporting standards. No other warranty is made, either expressed or implied. Professional judgment has been applied to develop the conclusions stated in this report.

We trust this information will be helpful. If you have any questions or concerns, please do not hesitate to let us know.

Sincerely,



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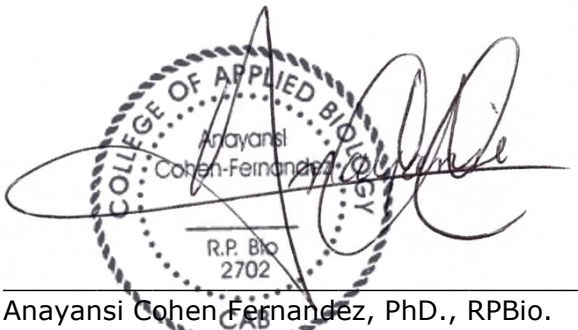

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FIGURES

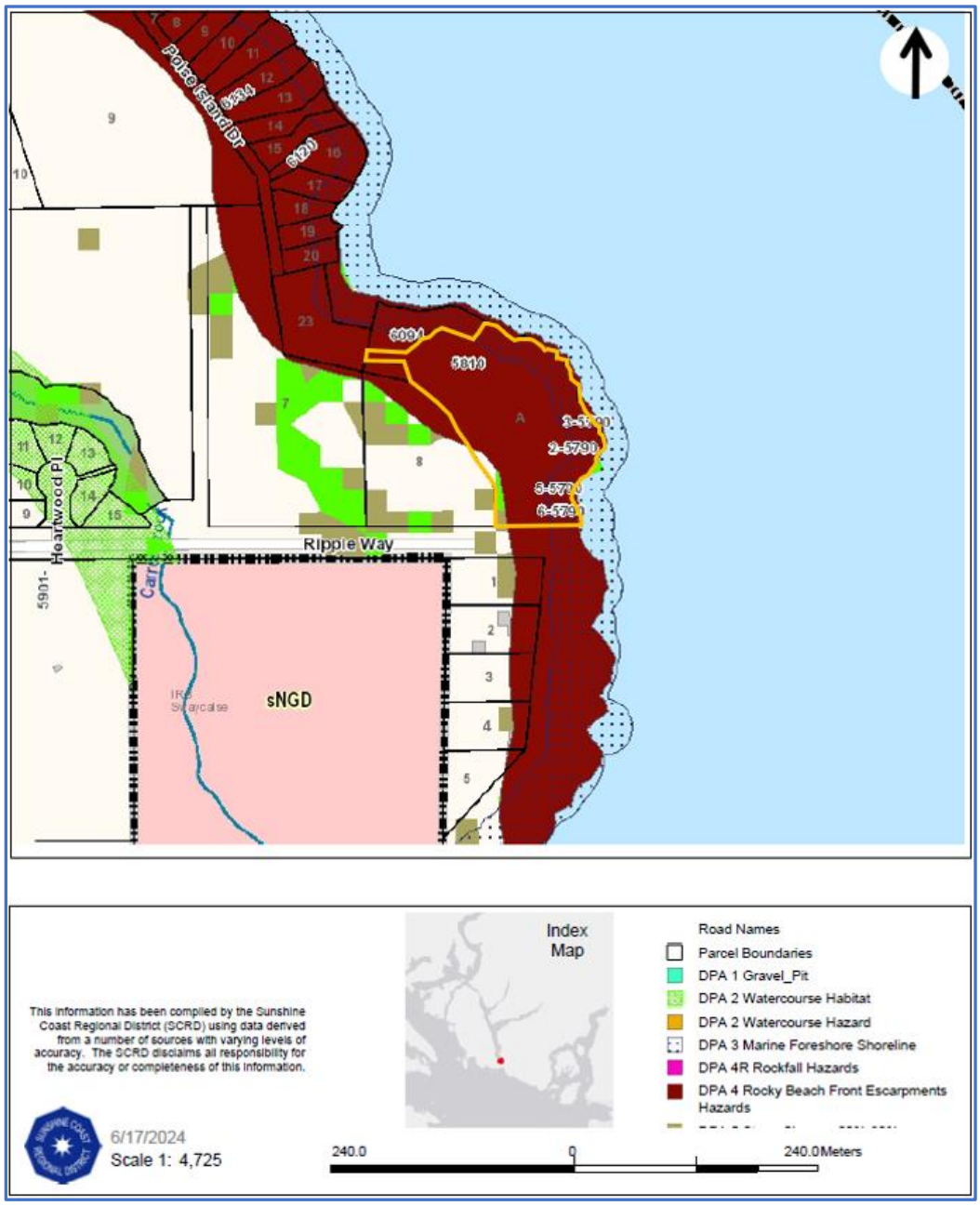

Figure 1. Location of the proposed development for a 20-room waterfront resort. The boundaries of the *Subject Property* are indicated by the orange contour at the centre of the image. The *Subject Property* is located within Development Permit Areas 3 (Marine Foreshore Shoreline; littoral dotted area) and 4 (Rocky Beach Front Escarpments Hazards; burgundy area). *Image modified from the Sunshine Coast Regional District GIS platform (base image) by Coastal Raintree Consulting, Ltd.*

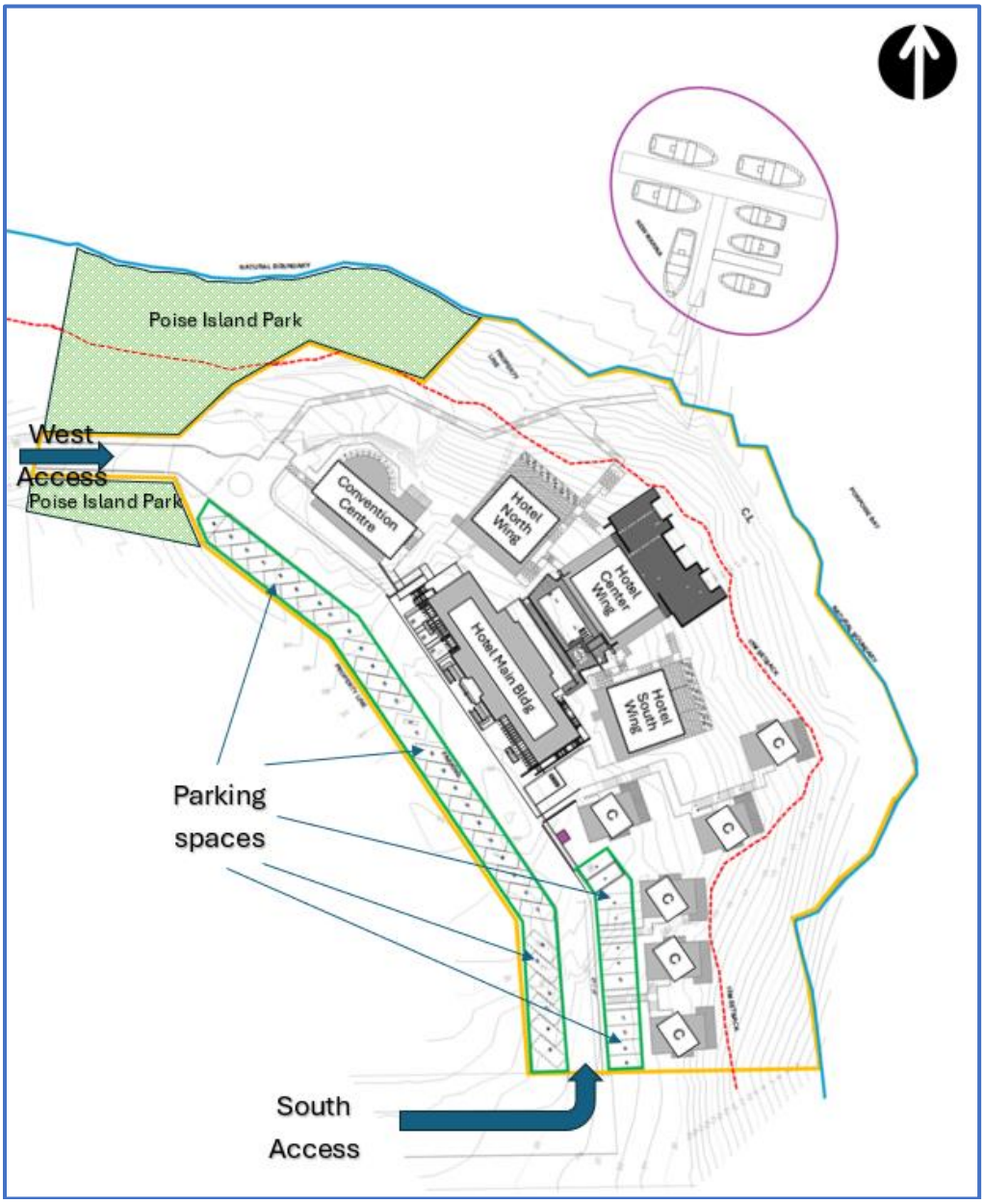

Figure 2. Site Plan. The *Proposed Development* will comprise a multi-building hotel, a convention centre, six duplex cabins (labelled C in the image above) and parking spaces. The boundaries of the *Subject Property* are indicated by the orange contour, while the natural boundary of the ocean and its 15 m setback are indicated by the solid blue and dashed red lines, respectively. The approximate location of a proposed new marina is indicated within the purple oval in the figure above. The main access to the resort is indicated by the solid blue arrows. Refer to **Figure 3** for a 3D render of the main structures. *Image modified from the Sunshine Coast Regional District GIS platform (base image) and HNPA Architecture+Planning Inc by Coastal Raintree Consulting, Ltd.*

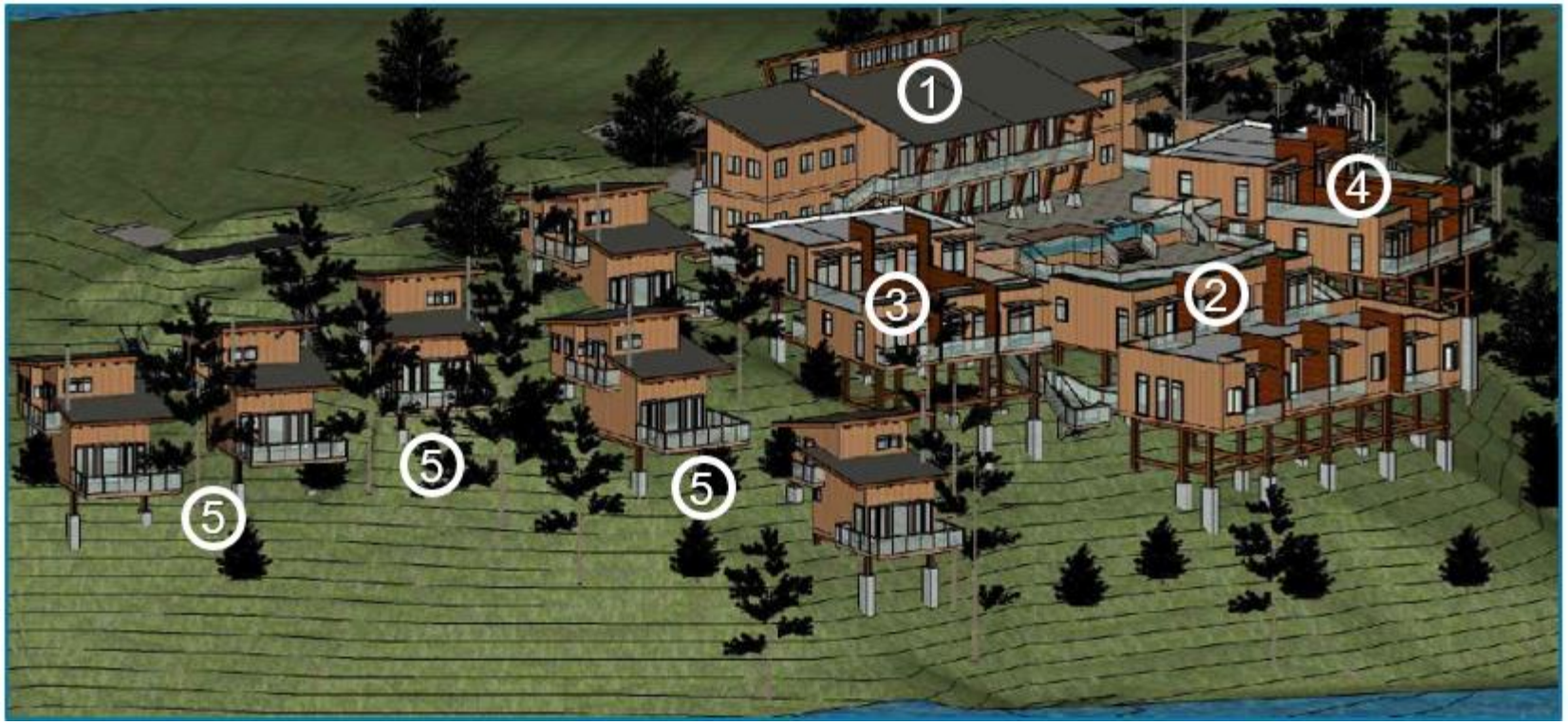

Figure 3. Project 3D render and footings. To minimize impacts associated with construction on the steep rocky slopes of the *Subject Property*, the main structures of the *Proposed Development* will be constructed over conventional concrete strips and pad/column footings. The image above shows a preliminary 3D render of the main hotel building (1), the hotel centre wing (2), the South (3) and North (4) wings, as well as the six duplex cabins (5). The Convention room, located behind the North wing is not visible from this perspective. *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

Figure 4. On-site structures. The only permanent structures observed during the field visits completed in June of 2024 are a two-bedroom dwelling with an approximate area of 139 m^2 (1,496 sq ft; **A**) used by the property's maintenance personnel and a small utility shed (**B**). *Image by Coastal Raintree Consulting, Ltd. captured on June 21, 2024.*

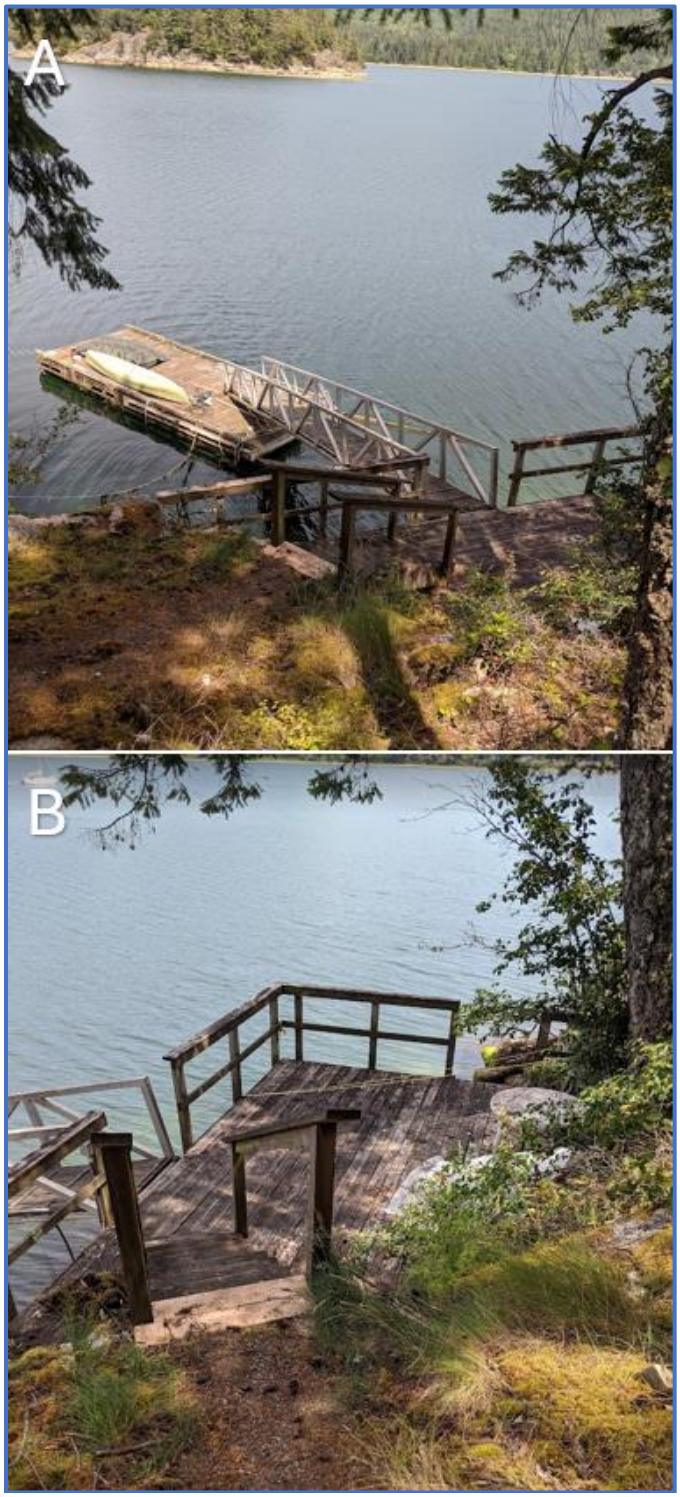

Figure 5. A small wooden dock (**A**) is attached to the shoreline on the East side of the property via a gangway and a small platform (**B**). *Image by Coastal Raintree Consulting, Ltd. captured on June 21, 2024.*

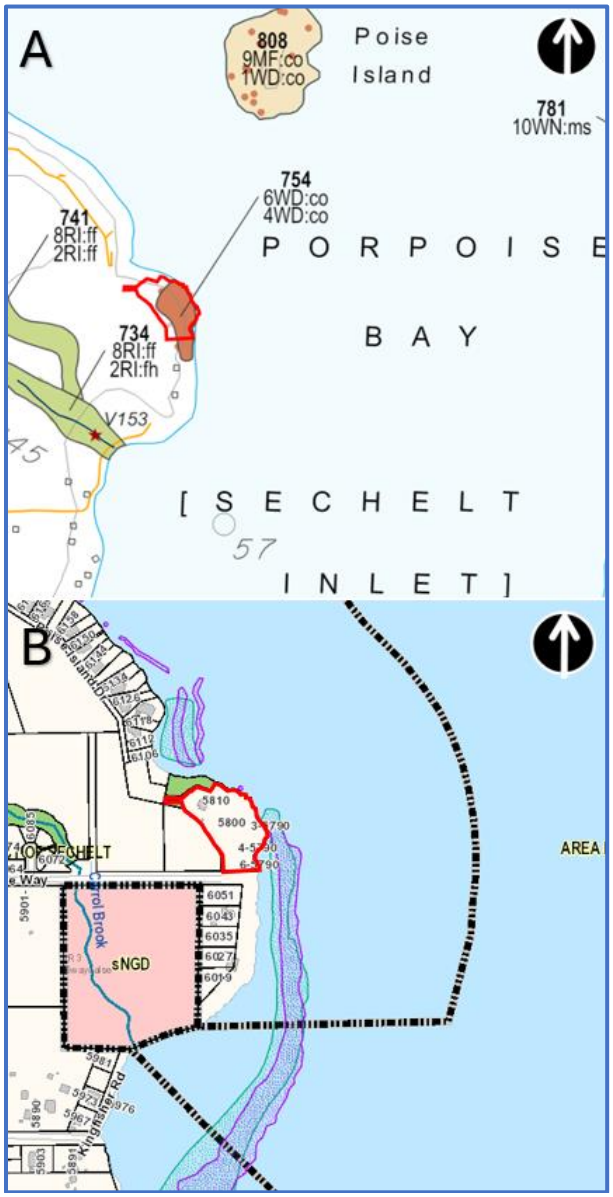

Figure 6. Sensitive Ecosystem. The vegetation within the *Subject Property*, indicated by the red polygons in A and B, was listed as a woodland, conifer-dominated (WDcc) sensitive ecosystem under the Sensitive Ecosystems Inventory project for the Sunshine Coast completed in 2005 (A). Nonetheless, the current vegetation in many areas of the *Subject Property* has significantly changed, particularly in the central and South sections of the plot. Local eelgrass meadows have been identified on the Southeast and Northwest shores of the property during the 2002-2004 and 2017-2019 inventories. The approximate location of the meadows is indicated by the purple (2017-2019) and green (2002-2004) polygons (B). *Image modified from the Sunshine Coast Regional District GIS platform (base image) by Coastal Raintree Consulting, Ltd.*

Figure 7. Current vegetation on the *Subject Property*. Most of the central and Southern areas of the *Subject Property* are now occupied by herbaceous vegetation (e.g., common dandelion (*Taraxacum officinale*) and common foxglove (*Digitalis purpurea*); A), and invasive plant species (e.g., Scotch broom (Cytisus scoparius); B) well-established across the property. *Image by Coastal Raintree Consulting, Ltd. captured on June 21, 2024.*

Figure 8. Rock mosses. Abundant carpets of rock mosses (likely *Racomitrium spp*) were observed on the rock outcrops located in the central area of the land parcel (A,B). *Image by Coastal Raintree Consulting, Ltd. captured on June 21, 2024.*

Figure 9. A row of mature, healthy Douglas-fir (*Pseudotsuga menziesii*) and Shore pine (*Pinus contorta var. contorta*) (A) dominate most of the area within the 15 m shoreline setback, but many thickets of Himalayan blackberry (*Rubus armeniacus*), an invasive plant species, were also noted within the setback (B). *Image by Coastal Raintree Consulting, Ltd. captured on June 21, 2024.*

Figure 10. Understory vegetation. In addition to Douglas-fir trees (trunks visible on the top section of the image above), the understory within the setback and open areas contain abundant mats of salal (*Gaultheria shallon*), oceanspray (*Holodiscus discolor*), Oregon grape (*Berberis nervosa*), salmonberry (*Rubus spectabilis*), sword ferns (*Polystichum munitum*) and multiple species of mosses and lichens. *Image by Coastal Raintree Consulting, Ltd. captured on June 21, 2024.*

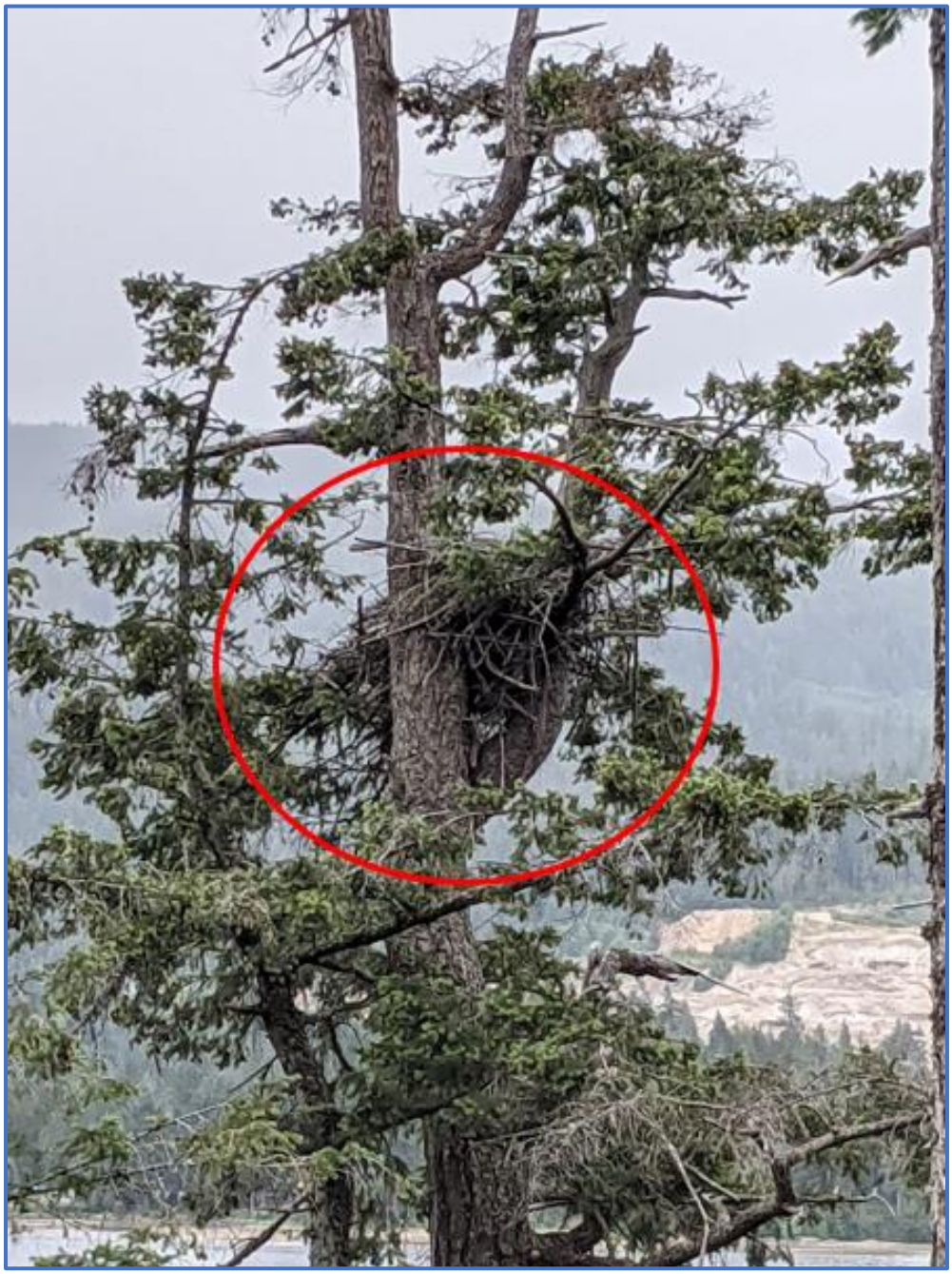

Figure 11. Suspect raptor nest. A large, suspected unoccupied raptor nest was identified on a Douglas-fir near the wooden dock within the 15 m shoreline setback. Given the species known to occur in the area, and the presence of this nest within the 15 m shoreline setback, it is recommended that any habitat alteration, including vegetation clearing, be conducted outside the March 1 to August 30 timeframe. *Image by Coastal Raintree Consulting, Ltd. captured on June 21, 2024.*

APPENDIX A
General Conditions of This Report

Environmentally Sensitive Development Area No. 3 Assessment Report – Development of a 20-room Waterfront Resort, Sechelt, BC.

This report incorporates and is subject to the following General Conditions.

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of Coastal Raintree Consulting, Ltd.'s client. Coastal Raintree Consulting, Ltd. does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Coastal Raintree Consulting, Ltd.'s Client unless otherwise authorized in writing by Coastal Raintree Consulting, Ltd.

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2.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed, and the client agrees that notification to such bodies or persons as required may be done by Coastal Raintree Consulting, Ltd. in its reasonably exercised discretion.

3.0 INFORMATION PROVIDED TO COASTAL RAINTREE CONSULTING BY OTHERS

During the performance of the work and the preparation of the report, Coastal Raintree Consulting, Ltd. may rely on information provided by persons other than the Client. While Coastal Raintree Consulting, Ltd. endeavours to verify the accuracy of such information when instructed to do so by the Client, Coastal Raintree Consulting, Ltd. accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

APPENDIX B

Main Architectural Features of the proposed development at 6086 Poise Dr., Sechelt, BC.

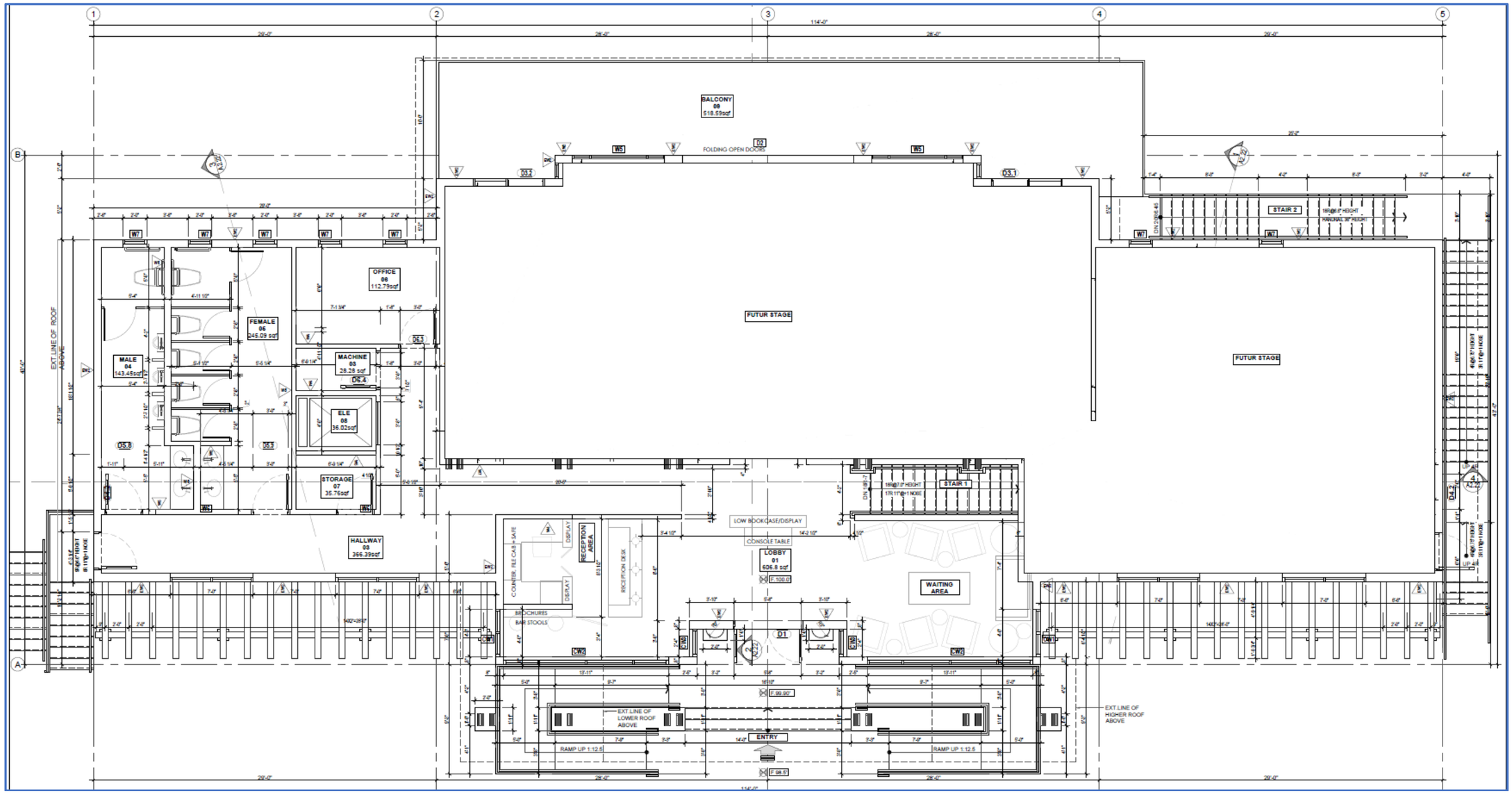

Figure B1. Upper floor of the main building in the *Proposed Development* (refer to Building 1 in **Figure 3** for a 3D rendering of the structures). The main entrance and reception lobby of the resort will be located on this floor. *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

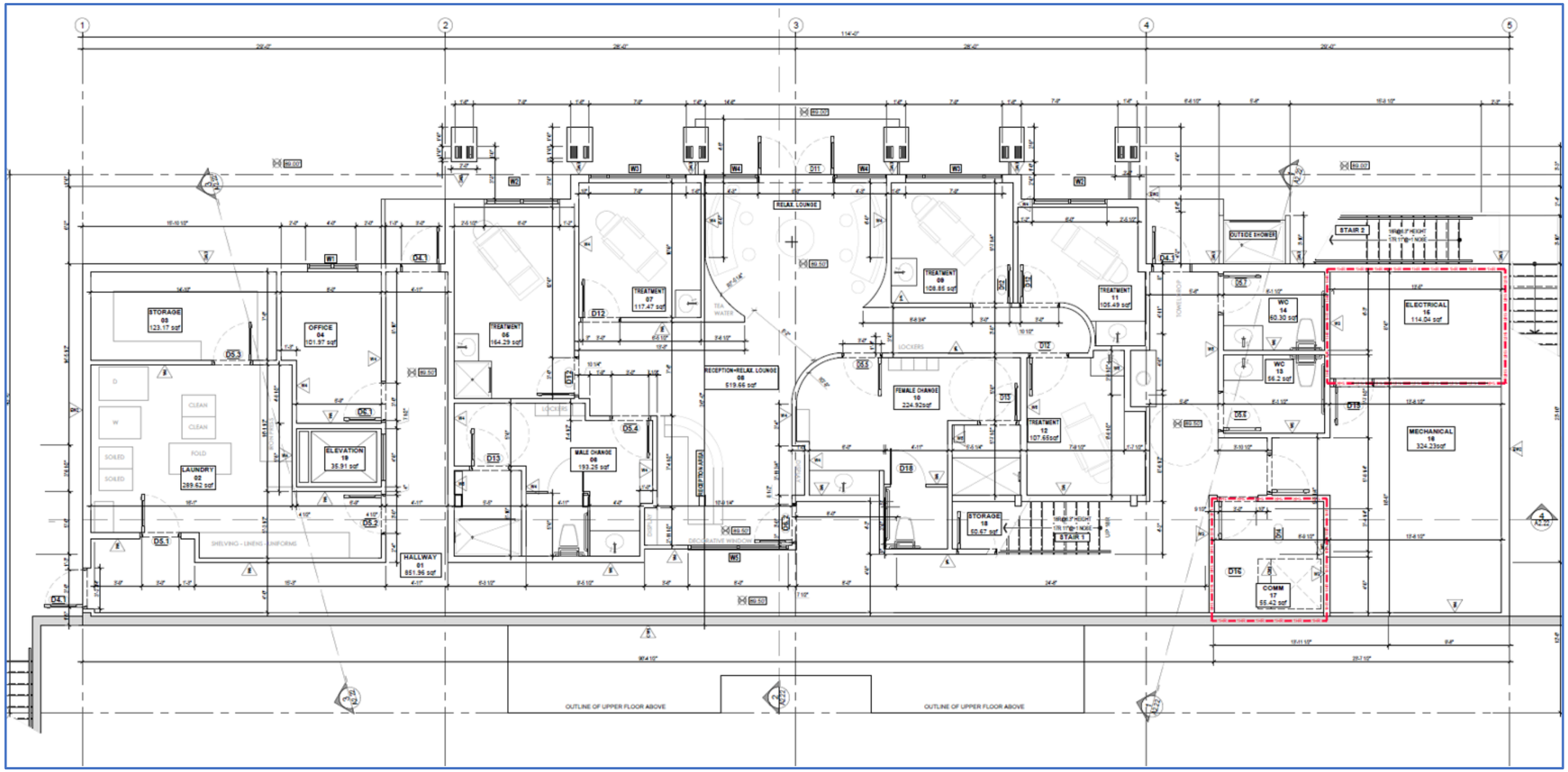

Figure B2. Lower floor of the main building in the *Proposed Development* (refer to Building 1 in **Figure 3** for a 3D rendering of the structures). This floor will house a Spa and auxiliary spaces (e.g., electrical, mechanical, laundry and storage rooms). *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

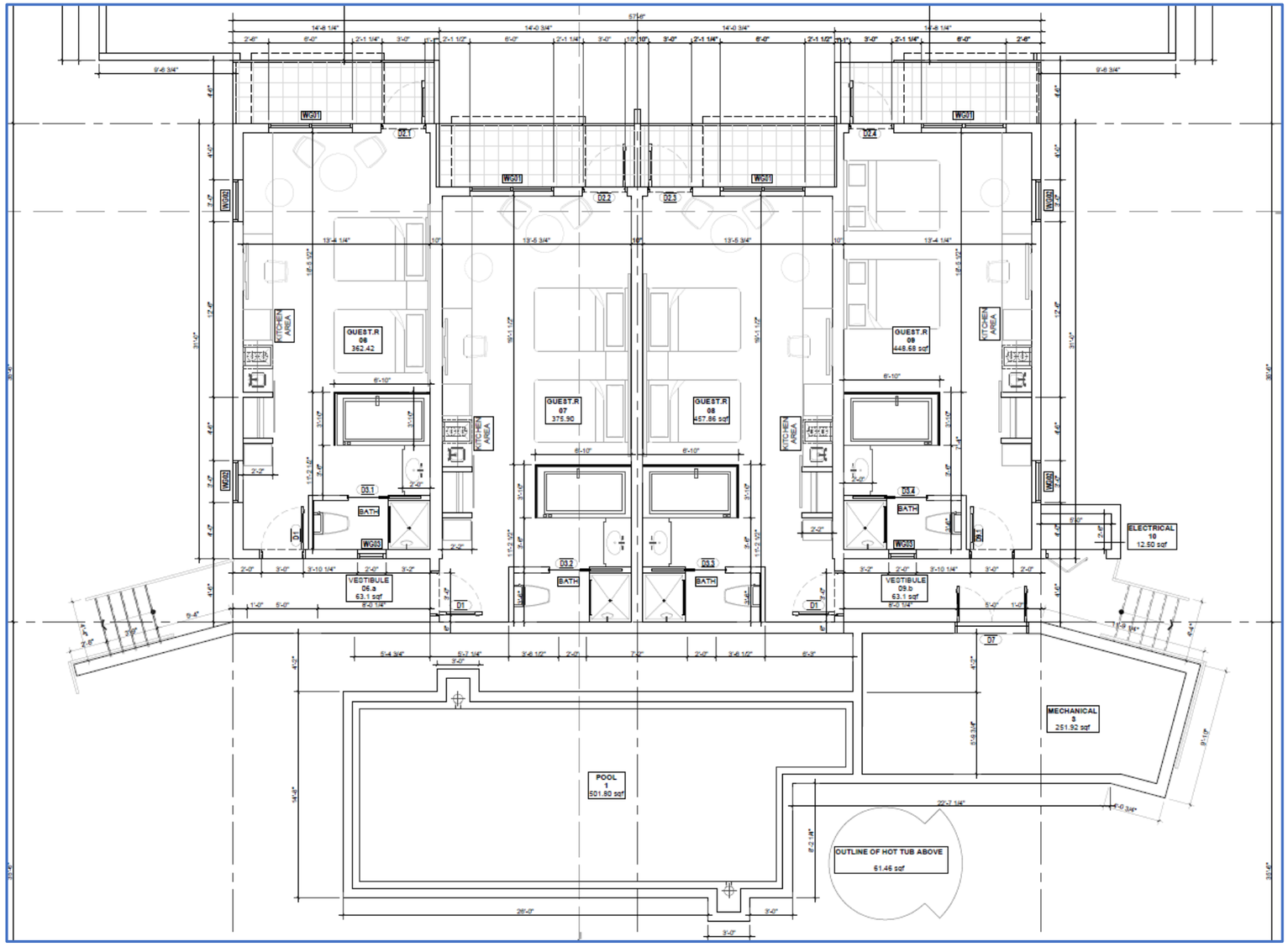

Figure B3. Upper floor of the Centre wing in the *Proposed Development* (refer to Building 2 in **Figure 3** for a 3D rendering of the structures). This floor will house guest rooms and an outdoor pool. *Image modified from HNPA Architecture+Planning Inc by Coastal Raintree Consulting, Ltd.*

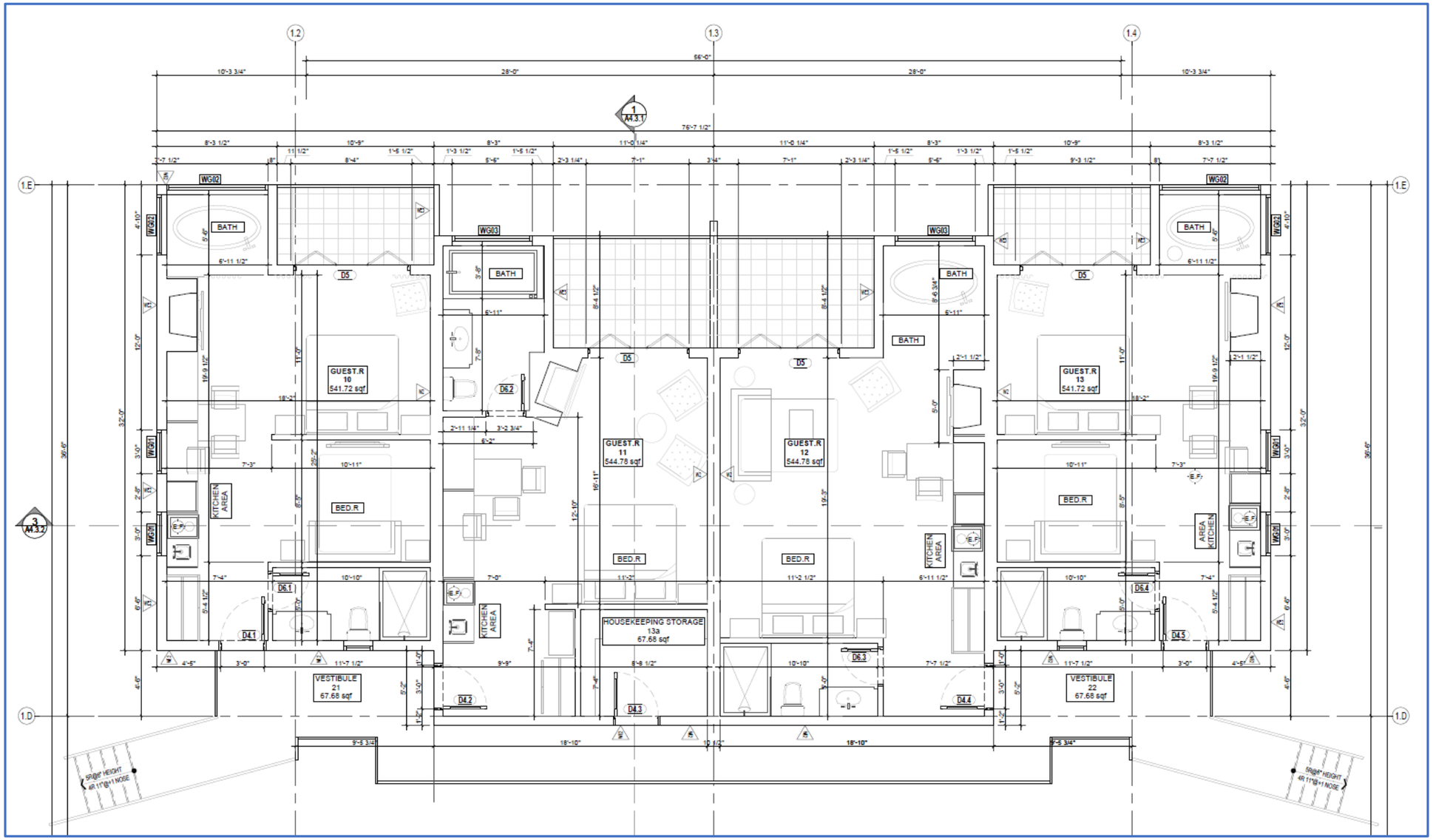

Figure B4. Lower floor of the Centre wing in the *Proposed Development* (refer to Building 2 in **Figure 3** for a 3D rendering of the structures). This floor will house guestrooms closer to the shoreline. *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

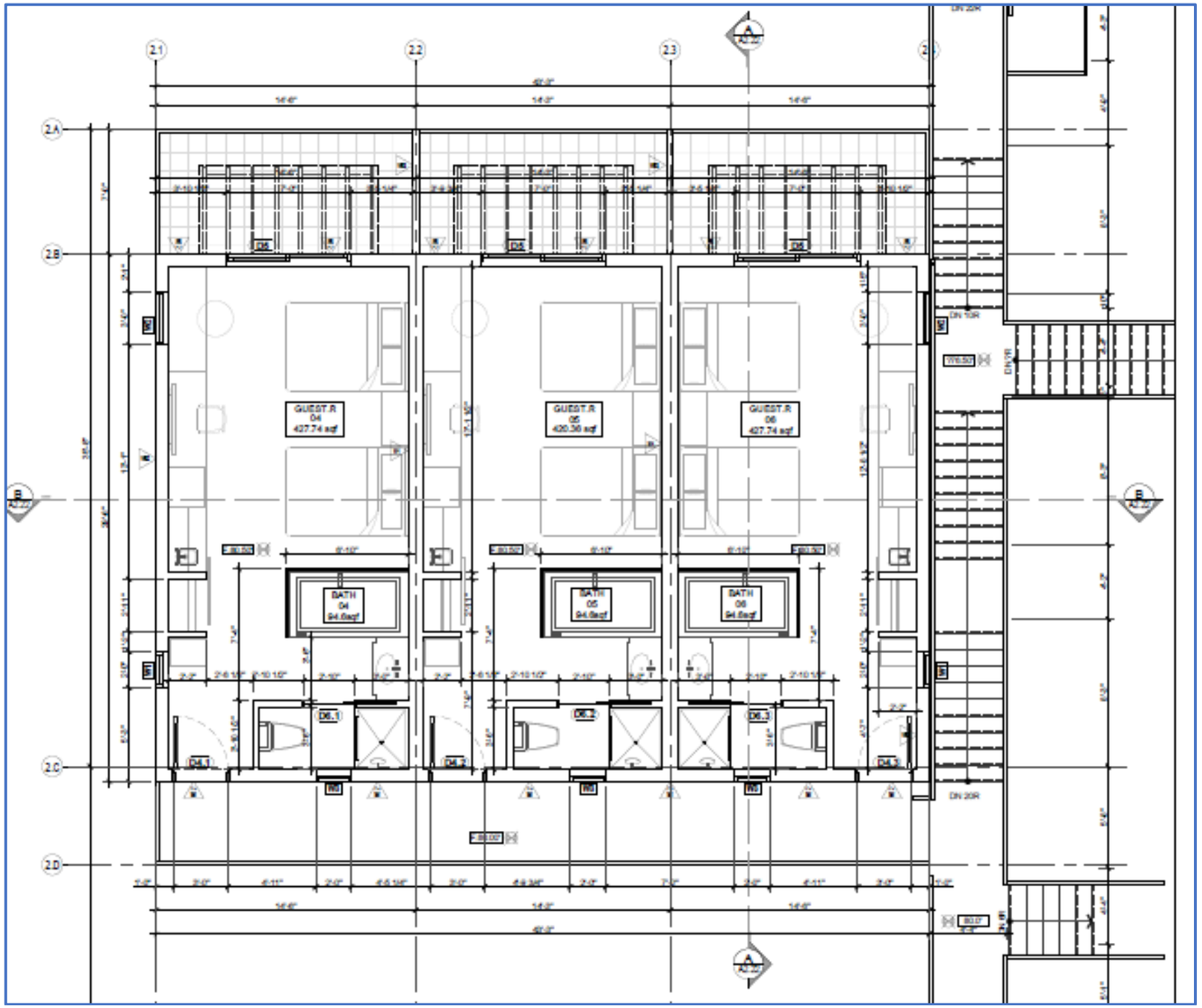

Figure B5. Upper floor of the North and South wings in the *Proposed Development* (refer to Buildings 3 and 4 in **Figure 3** for a 3D rendering of the structures). The upper floor of the North and the South wings will have the same floor configuration. This floor will house smaller guestrooms than the ones in the Centre wing. *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

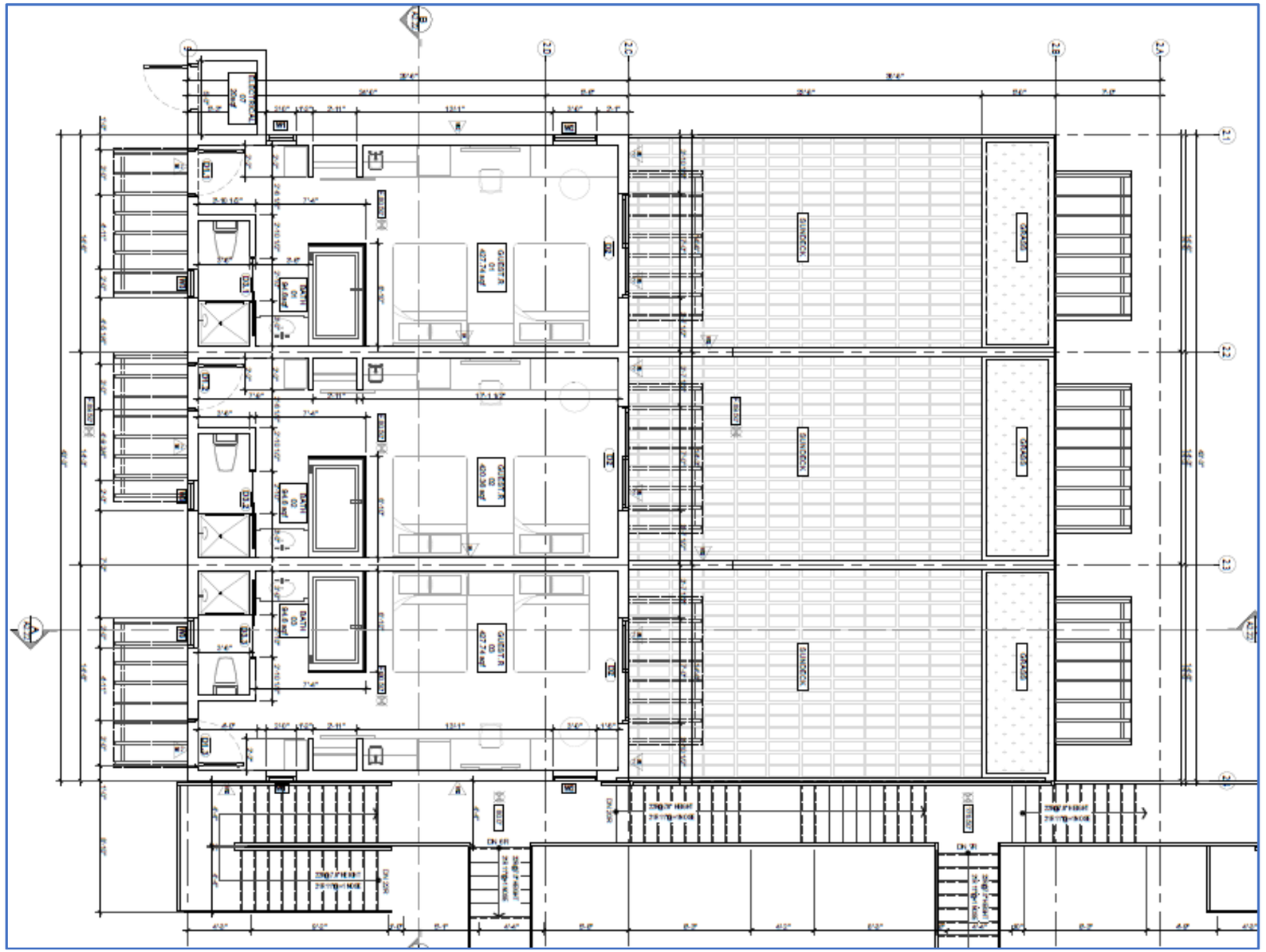

Figure B6. Lower floor of the North and South wings in the *Proposed Development* (refer to Buildings 3 and 4 in **Figure 3** for a 3D rendering of the structures). The lower floor of the North and the South wings will have the same floor configuration. This floor will house smaller guestrooms than the ones in the Centre wing but will have large sundeck areas closer to the shoreline. *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

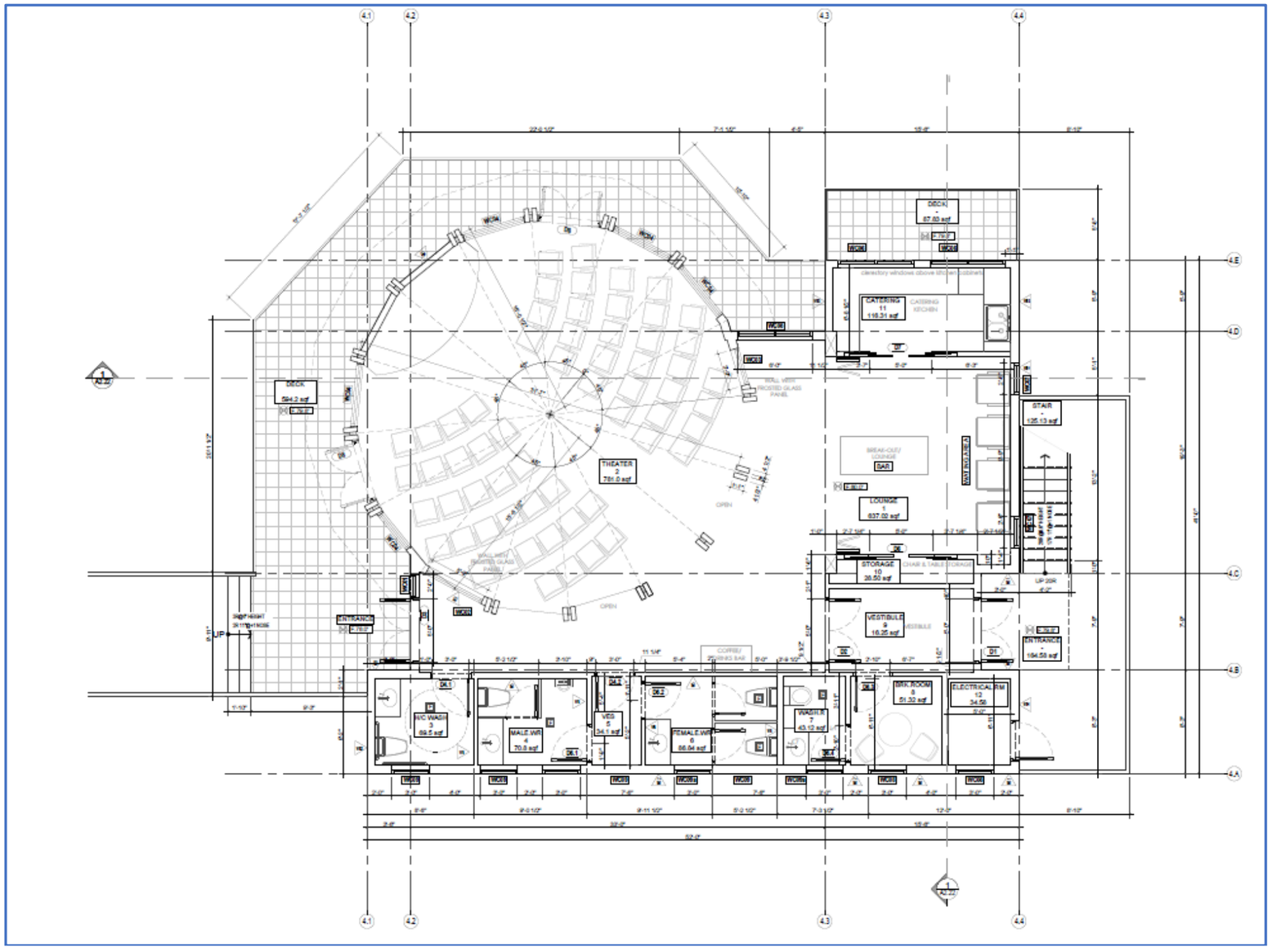

Figure B7. Lower floor of the Convention Room in the *Proposed Development* (this building is not visible in **Figure 3**). The lower floor of the Convention room will house a circular theatre, bathrooms and a panoramic deck. *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

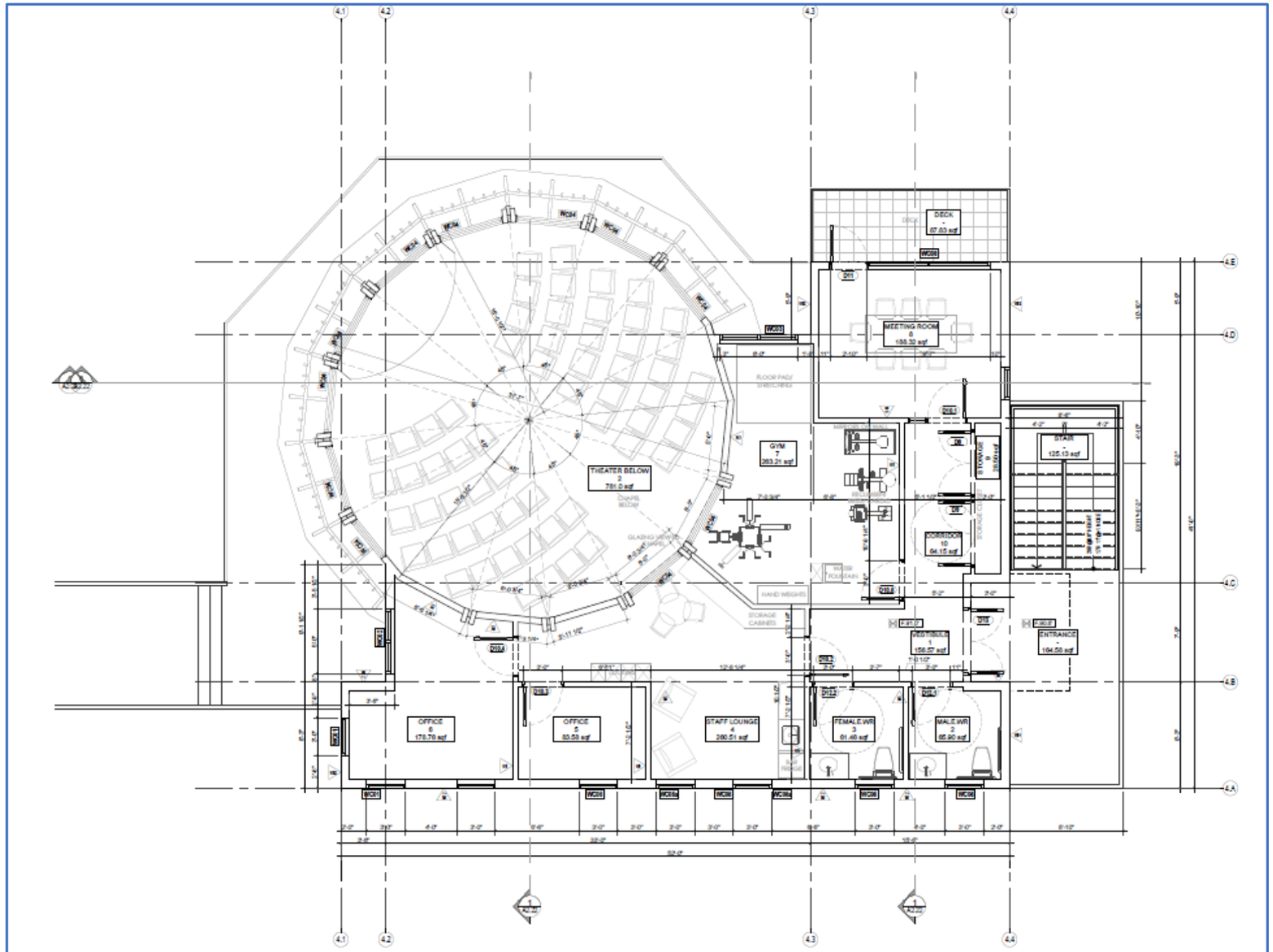

Figure B8. Upper floor of the Convention Room in the *Proposed Development* (this building is not visible in **Figure 3**). The upper floor of the Convention room will house a gymnasium, a meeting room with a deck and staff facilities. *Image modified from HNPA Architecture+Planning Inc. by Coastal Raintree Consulting, Ltd.*

APPENDIX C

Aerial Drone Image of the *Subject Property*

Figure C1. Current aerial view of the *Subject Property*. An aerial image of the *Subject Property* (yellow polygon) and surrounding areas was commissioned to assess the current state of the vegetation inside and outside the 15 m shoreline protection setback (dashed red line parallel to the natural boundary of the ocean, indicated by the blue continuous line). *Image capture on June 22, 2024, modified from InsightVisualSolutions by CRC.*

APPENDIX D
Geotechnical Report

GEOTECHNICAL ASSESMENT AND REPORT – UPDATE 2.0

Proposed Waterfront Resort

6086 Poise Island Drive, Sechelt, BC

Vanta Pacific Development Corporation
2010 – 1082 Seymour Street
Vancouver, BC V6V 1X9

Document Version: R0
Project Number: WF47350

July 5, 2024

www.metrotesting.ca

T 604-385-4244 – info@metrotesting.ca
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Experience Applied

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Permit to Practice:

Report Distribution

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Revisions and Publications Log

Rev	Description	Date	By	Check	Approve
A	Issued For Internal Review	July 2, 2024	PV	RF	✓
B	Issued For Client's Review	July 2, 2024	PV		✓
C	Issued For Construction	July 5, 2024	PV	RF	✓

Important Information and Limitations of This Report

Standard of Care

Metro Testing and Engineering Ltd. (Metro) has prepared this report in a manner consistent with that level of care ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the limits and physical constraints applicable to this report. No other warranty, expressed or implied, is made.

Basis and Use of the Report

This report has been prepared for the specific site, design objective, development and purpose described to Metro by the Client. The factual data, interpretations and recommendations pertain to the specific project described in the report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of this report may alter the validity of the report. Metro cannot be responsible for use of this report, or portions thereof, unless Metro is requested to review and, if necessary, revise the report.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Metro's express written consent. If the report was prepared to be included for a specific permit application process, then upon the Client's reasonable request, Metro may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Metro. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Metro, are considered its professional work product and shall remain the copyright property of Metro, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Metro. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility. Therefore, the Client cannot rely upon the electronic media versions of Metro's report or other products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Metro by the Client, communications between Metro and the Client, and any other reports prepared by Metro for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Metro cannot be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of boreholes, necessary to determine all of the relevant conditions which may affect construction costs would generally be more significant than has been carried out for design purposes. Contractors bidding on or undertaking the work should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their own work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.

Soil, Rock and Groundwater Conditions

Classification and identification of soils, rocks and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgement, and boundaries between different soil, rock or geologic types or units may be translational rather than abrupt. Accordingly, Metro does not warrant or guarantee the exactness of the descriptions, associated soil characteristics or parameters.

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions, and even a comprehensive investigation, assessment, sampling and testing program may fail to detect all certain subsurface conditions. The environmental, geological, geotechnical, geochemical, and hydrogeological conditions that Metro interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or adjacent properties. The professional services retained for this project include only geotechnical aspects of the subsurface conditions at the site unless otherwise explicitly stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The soil, rock and groundwater condition may be significantly altered by construction activities (traffic, groundwater level lowering, pile driving, blasting, etc.) on the site or adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated, the soil must be protected from these changes during construction.

Follow-up and Construction Services

All details were not known at the time of submission of Metro's report. Metro should be retained to review the final design, project plans and documents prior to construction to confirm that they are consistent with the intent of Metro's report.

During construction, Metro should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Metro's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Metro's report. Adequate field review, observation and testing during construction are necessary for Metro to provide letters of assurance in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Metro's responsibility is limited to interpreting accurately the information encountered at the borehole locations at the time of their initial determination or measurement during the preparation of this Report.

Changed Conditions and Drainage

Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Metro be notified of any changes and be provided with the opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience. Metro should be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Subsurface water drainage commonly requires either temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Metro takes no responsibility for the aspects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

Executive Summary

Based on the findings of this assessment update, and provided that all of the recommendations presented herein are implemented, the land at 6086 Poise Island Drive, Sechelt, British Columbia, may be considered safe for the use intended. The subject site falls within the District of Sechelt's Development Permit Area (DPA) # 3 Marine, Foreshore and Shoreline Areas, DPA # 4 Rocky Beach Front, Escarpments and Slope Hazards, and DPA # 5 Steep Slopes (Slopes 20%-30% and >30%). The tables presented below provide reference to the sections in this report that address development permit area criteria outlined by the District for the subject site.

DPA # 3: Marine, Foreshore and Shoreline Areas

Section	DPA #3: Marine, Foreshore and Shoreline Areas
**	15. An environmental assessment report is required prior to any proposed development or alteration of the land, marine or foreshore areas within DPA 3, including but not limited to:
4.1	(a) Shoreline protection works such as retaining walls;
**	(b) Clearing or removal of existing riparian vegetation;
**	(c) Construction of impervious surfaces such as patios or beach access steps with more than ten (10) sq.m. total site coverage;
**	(d) Any proposed buildings or structures, including accessory buildings, wharves, piers or other moorage facilities;
**	(e) Placement of fill or removal of fill in the foreshore or upland areas.
**	16. The environmental assessment shall be completed by a Qualified Professional(s) with experience in assessing marine shoreline impacts. This may include a registered professional engineer with expertise in geotechnical engineering (for geotechnical and coastal processes) and a qualified environmental professional (for habitat/biological assessment).
**	17. The assessment report(s) shall identify:
**	(a) Impacts of the proposed development on the marine ecosystem and shoreline erosion, transport and deposition processes, including any impacts to surrounding properties or public use areas;
**	(b) Areas to remain undeveloped an any special steps to ensure protection of these areas;
**	(c) Remediation measures required to mitigate the impacts or restore habitat conditions;
**	(d) Details of any works required to address legislative requirements or approvals from any provincial or federal government agencies;
4.1	(e) Confirmation of the long-term safety of the proposed building or shoreline protection works in relation to erosion, landslip or wave action, including any anticipated impacts due to climate change and sea level increases.

***Additional criteria should be provided by a separate qualified professional.*

DPA # 4: Rocky Beach Front, Escarpments and Slope Hazards

Section	DPA #4 – Rocky Beach Front, Escarpments and Slope Hazards
2.2, 2.3, 4.2	(a) Provide accurate field definition of slope crest, location of geological features and document the extent of slope instability or rockfall areas. Site plans and slope profiles shall be included;
4.1, 4.2	(b) Assess the erosion potential of ocean waves on beachfront slopes, including potential increase in wave action/height due to climate change;

3.2	(c) Evaluate groundwater conditions and the potential for slope instability caused by groundwater seepage;
4.3	(d) Identify possible changes in slope conditions that might indicate an imminent landslide or rockfall hazard, for the attention of landowners;
5.9	(e) Identify the anticipated effects of septi8c and site drainage systems on slope stability. These systems should be designed to avoid surface and groundwater erosion of beach front slopes. The extent of bedrock or low permeability soils at shallow depth throughout this area will limit the viability of in-ground septic disposal systems;
5.5, 5.8	(f) Provide geotechnical assessment of cut and fill slope stability and provide appropriate recommendations and restrictions on excavation, blasting and filling;
4.2	(g) Building envelopes and setbacks and other restrictions to development should be established with reference to natural or cut slope crests and possible rockfall zones should be determined.
4.1, 4.2	(h) Provide detailed land use and construction recommendations to address local bank erosion and protection measures, including appropriate building setbacks from hazards slopes or rockfall hazards
4.2, 5.8	(i) In areas of bedrock, the engineer should assess the necessity and provide detailed recommendations for selective scaling, rock bolting, and tree removal/replanting to improve stability conditions, on a site-specific basis;
*	(j) Reports must meet the report guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia published by the Association of Professional Engineers and Geoscientists of British Columbia, March 2006 13, including submission of Schedule D (Landslide Assessment Assurance Statement) to specify that the land may be safely used for the use intended.

** Schedule D in a separate deliverable.*

DPA #5: Steep Slopes (Slopes 20%-30% and >30%)

Section	DPA #5 – Steep Slopes (Slopes 20%-30% and >30%)
2.0, 3.0	(a) An inventory and accurate plan of site features, including tree cover, rock outcroppings, watercourses and assessment of soil types, depths and conditions;
2.2, App A	(b) Plans showing the location of all existing and proposed buildings and structures, building envelopes, utility services, driveways and other impervious surfaces;
4.3, 4.1	(c) A slope analysis, geotechnical assessment, and slope stability plan providing assessment of the potential for landslide, landslip or erosion, detailing how the proposed development is to be designed and constructed to prevent any destabilization or erosion of the slope. This will include plans showing lands with 0-10%, 10-20%, 20-30% and 30% and over grades at a 1m contour interval.
N/A	(d) Location and amount of anticipated removal or fill.
**, 2.2	(e) View corridor analysis to determine the visual impact of development. The District may also require a 3D digital terrain model illustrating pre and post-development conditions, illustrating extents of cuts and fills, clearing an building placements;
**	(f) A site grading plan including sections through each lot that clearly shows building envelopes, including the top of cut and toe of slope, and the slopes of adjacent uphill and downhill adjacent lots.
4.1, 4.2, 4.3	(g) Recommendations on appropriate building envelopes or setbacks in relation to potential slope hazard, with specific recommendations and criteria for design, construction and maintenance.
5.5, 5.8	(h) Detailed measure to safeguard neighbouring properties and structures arising from the proposed construction or site preparation (including blasting)
5.9	(i) Identify the anticipated effects of septic and drainage systems on slope stability;

*	(j) Any geotechnical reports must meet the report guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia published by the Association of Professional Engineers and Geoscientists of British Columbia, March 2006, including submission of Schedule D (Landslide Assessment Assurance Statement) to specify that the land may be safely used for the use intended.

** Schedule D in a separate deliverable.*

***Additional criteria should be provided by the appropriate consultant.*

The proposed waterfront resort will consist of five (5) two-storey buildings with areas for reception, administration, amenities, convention center, and lodging. In addition, six (6) detached cabins are proposed at the south side of the complex. Parking spaces with capacity of 44 parking stalls accessible through an onsite road are proposed at the west side, and a marina for recreational boats is proposed at the north side of the development. The proposed structures in general will follow the natural contours of the land, as recommended in the DPA # 5 guidelines.

The site is underlain by medium strong igneous bedrock in the majority of its area, with a thin layer of surficial sand and gravel deposits observed on discrete zones, overlying the bedrock. We are of the opinion that the architectural and structural proposals are feasible from a geotechnical perspective and in general compliance with the guidelines outlined in DPA # 5 of the District of Sechelt Official Community Plan.

Due to its coastal location and moderate to steep slope, the subject site presents evidence for susceptibility of inundation by flood waters and rock fall events. Our analyses conclude that a minimum Flood Construction Level of 4.839 m geodetic elevation should be kept to mitigate the potential for coastal flooding. Rock fall mitigation measures will be provided during construction. The potential for coastal erosion and slope instability is anticipated to be very low.

Conventional concrete strip or pad footings are the recommended foundation type for the proposed waterfront resort. Footings seated on bedrock may be designed for a serviceability limit states (SLS) bearing pressure of 500 kPa. Footings founded on engineered fill, as defined in Section 5.2, may be designed for a SLS bearing pressure of 125 kPa.

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1 Introduction

With Vanta Pacific Development Corporation (Vanta Pacific) authorization, Metro Testing & Engineering (Metro) has completed this geotechnical assessment update for the proposed waterfront resort consisting of five (5) two-storey buildings and six (6) detached cabins at 6086 Poise Island Drive in Sechelt, British Columbia. The purpose of this assessment update was to address the current Guidelines for Development Permit Area outlined in the District of Sechelt Official Community Plan Bylaw No 492, 2010. Metro (formerly Western Geo) previously conducted a field program in August 2014 and issued a geotechnical report titled *Geotechnical Engineering Report 6086 Poise Island Drive Sechelt, BC* dated September 23, 2014.The information contained in this report will supplement the information obtained during our site reconnaissance conducted on June 12, 2024. The purpose of this geotechnical assessment report is to provide updated geotechnical engineering comments and recommendations including:

- Subsurface and groundwater conditions;
- Hazard assessment;
- Seismic design considerations including site class;
- Foundation recommendations and bearing capacity;
- Excavation, backfilling and compaction requirements;
- Earth pressure on retaining walls;
- Utility trench excavation and backfill; and
- Subgrade preparation for proposed building foundations.

This geotechnical assessment update has been prepared in accordance with the standard geotechnical engineering principles and practices in British Columbia. In writing this update, the following documents and publications were studied:

- National Building Code of Canada (NBCC 2015) and British Columbia Building Code (BCBC 2018);
- Engineers and Geoscientists of British Columbia (EGBC) Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia;
- District of Sechelt's Development Permit Guidelines (DPA #3, DPA #4, and DPA #5);
- Hazard Acceptability Thresholds for Development Approvals by Local Government, by Dr. Peter Cave, November 1993;
- Topographic plan, provided by the client;
- Architectural design by HNPA Architecture + Planning, dated February 2020;
- Structural design by TIDES Consulting, dated December 2018.

Use of this report is subject to the conditions outlined in Important Information and Limitations of this Report which precedes the main text on Page 4 and forms an integral part of this document. This report may be used by the District of Sechelt for development and building planning purposes.

2 Site Description and Proposed Development

2.1 Site Layout

The subject site is located at 6086 Poise Island Drive in Sechelt, British Columbia. The site is irregular in shape, encompassing an area of about 1 ha (10,195 m^2). The site is bounded by Ripple Way to the south, an undeveloped residential lot to the west, Poise Island Park to the north, and by Porpoise Bay to the east. Access to the site is via a gravel paved extension of Poise Island Drive and via Ripple Way (see Figure 1).

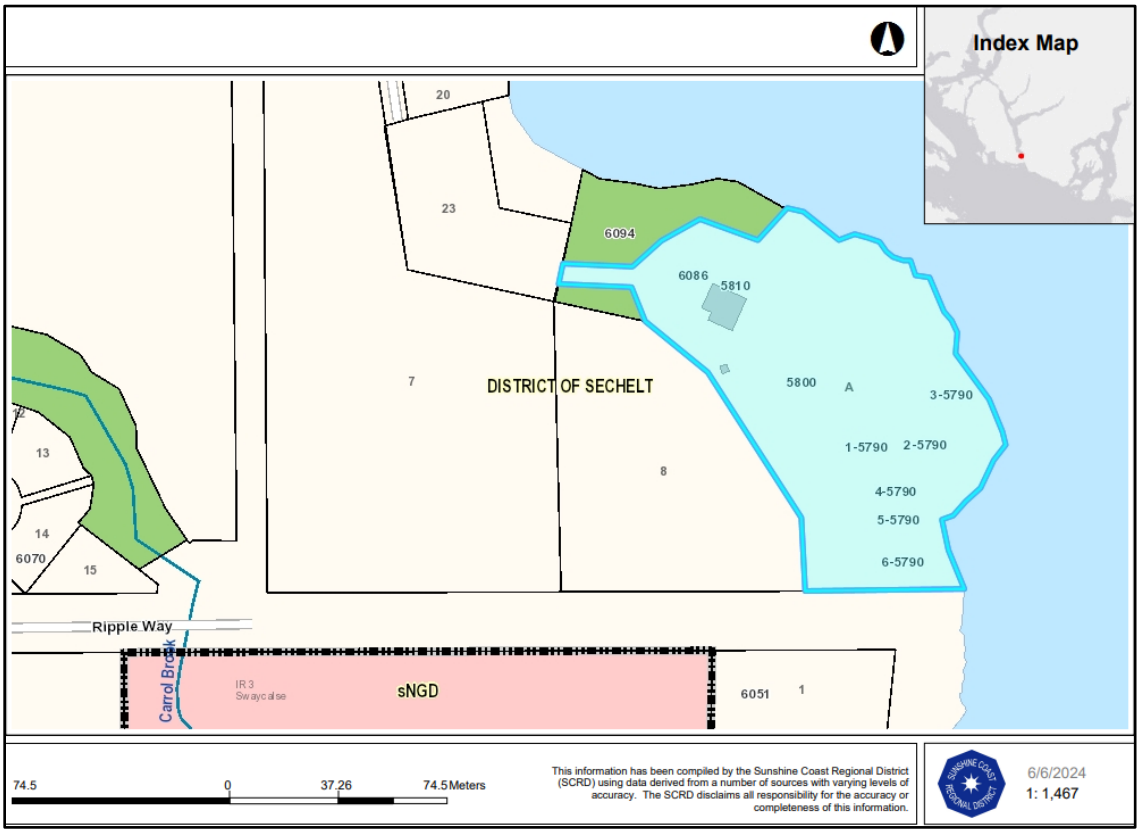

Figure 1: Site Location (Source: SCRD GIS Maps)

2.2 Existing and Proposed Structures

There is currently a detached single-family cabin with a footprint of approximately 125 m^2 located on the northwestern portion of the lot. A floating dock that allows mooring of small, recreational boats is located to the north side of the lot. The cabin and the dock are connected by a 3 m wide, about 70 m long path.

According to architectural drawings provided, the proposed waterfront resort will consist of five (5) two-storey buildings with areas for reception, administration, amenities, convention center, and lodging. In addition, six (6) detached cabins are proposed at the south side of the complex. Parking spaces with

capacity of 44 parking stalls accessible through an onsite road are proposed at the west side, and a marina for recreational boats is proposed at the east side of the development. The proposed structures will follow the natural contours of the land.

The conceptual layout of the proposed development and 3D architectural model is shown below on Figures 2 and 3. Relevant architectural drawings are provided in Appendix A.

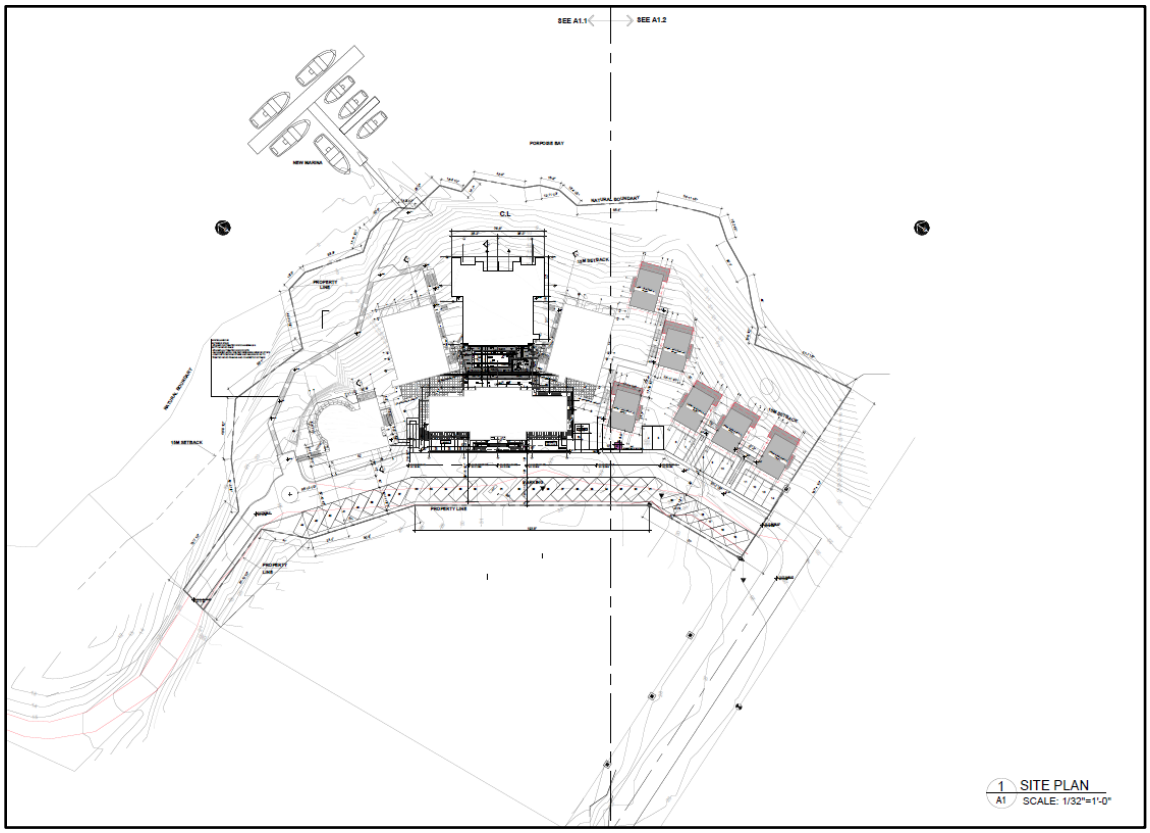

Figure 2: Plan View of Proposed Development

Figure 3: 3D Architectural Model of Proposed Development

2.3 Topography

The western portion of the site is relatively flat for about 16 m and then slopes down to the east to a rate of about 33% (18°) transitioning then to a rate of about 47% (25°) and finally 75% (37°) where it meets the natural boundary at Porpoise Bay (see Figures 4 and 5). There is a very steep cliff near the southeast portion of the lot which drops to a rate of approximately 200% (63°).

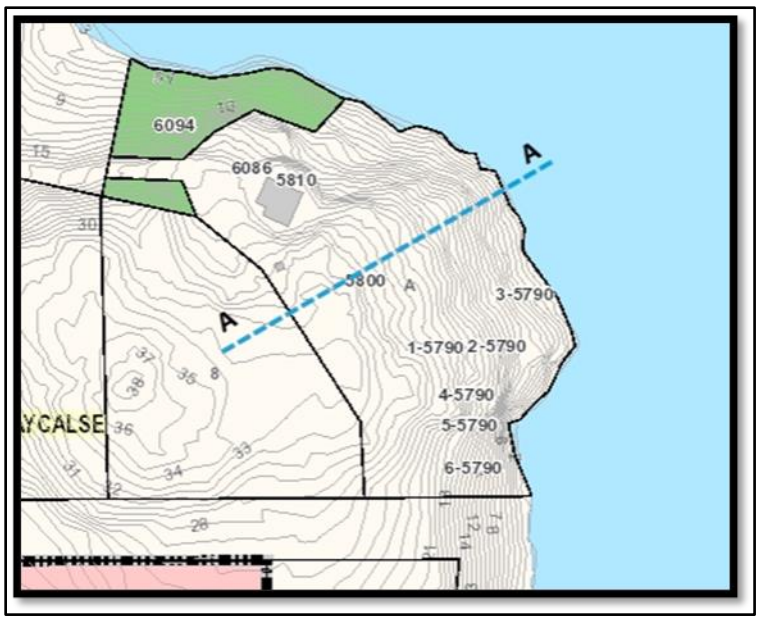

Figure 4: Contours and Section A-A location

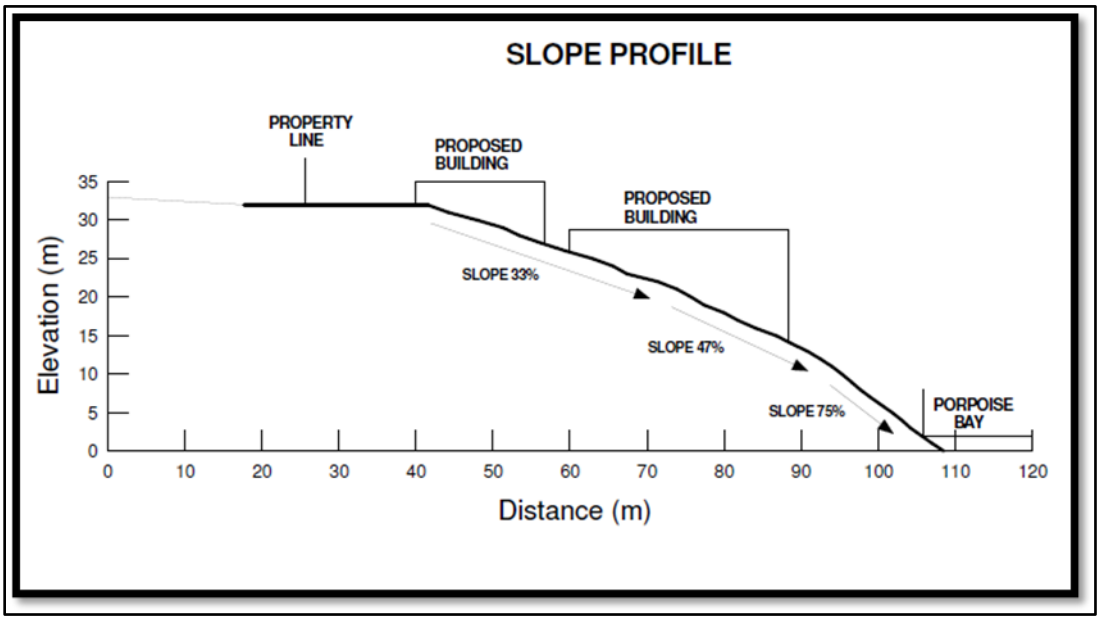

Figure 5: Slope Profile

2.4 Vegetation

The vegetation at the site includes a second growth forest comprised of a mix of Douglas Fir and Western Hemlock species. The forested area of northeastern portion of the site includes a sparse canopy and a very thin understory comprised primarily of a variety of mosses and lichens, with some woody stemmed plants. The southern portion of the lot includes a denser canopy and a thicker understory comprised of a variety of woody stemmed plants, herbaceous plants, mosses and lichens.

2.5 Surface Water

No surface water or localized ponding was evident on site during the field reconnaissance investigation. As no pronounced drainage swales or draws are present on the property, runoff appears to be by sheet-flow following the natural topography of the lot downslope from southwest to northeast, and leading into Porpoise Bay below.

3 Subsurface Conditions

3.1 Soil and Bedrock Conditions

Based on Surficial Geology Map of the Sunshine Coast published by the Ministry of Mines and Petroleum Resources of British Columbia, the site is underlain by bedrock outcrops, mostly bare rock with thin patches of overburden, usually till or marine veneer. The subsurface conditions encountered in the site reconnaissance were generally consistent with the published geological information. Due to the presence of exposed bedrock in the majority of the site and evidence of only a thin surficial layer of soil at discrete areas, an exploration program was considered not required.

In general, the subsurface soils were observed to consist of a veneer of sand and gravel deposit over medium strong igneous bedrock. Where the bedrock is exposed, the rock was observed to be unweathered to moderately weathered, dark greyish, fine-grained materials. Discontinuities were observed to be moderately widely spaced (200 mm – 600 mm) with moderately narrow aperture (6 mm – 20 mm).

The overlying soil deposit is estimated to range in thickness from 0.3 m to 1.2 m or more based on hand probing methods and visual observations taken on the site and adjacent properties.

Photograph 1: Slightly weathered bedrock at the upper side of site

3.2 Groundwater

Due to the presence of exposed bedrock and the anticipation of shallow bedrock in the proposed development area, permanent groundwater conditions are not expected in the vicinity of the proposed complex. No groundwater or indications of groundwater were detected during the site reconnaissance, and this condition is not expected to pose geotechnical issues related to the proposed works.

4 Geohazard Assessment

Geohazard susceptibility at the subject site was screened using the 1993 paper Hazard Acceptability Thresholds for Development Approvals by Local Government by Dr. Peter W. Cave (Cave Report), acknowledged throughout British Columbia as a defining document in hazard assessment. The eight

hazards have been summarized in Table 1 below. The subject site did not present substantial geotechnical evidence for susceptibility to hazard as a result of *Mountain Stream Erosion and Avulsion, Debris Flows and Debris Torrents, Debris Floods, Localized Landslides, Snow Avalanche, Rock Fall, or Catastrophic Landslide*. Due to its coastal location and moderate to steep slope, the subject site presents evidence for susceptibility of inundation by flood waters and rock fall events.

Table 1: Relevant Geotechnical Hazards

Hazard	Definition
Inundation by Flood Waters	Characterized by an unusually large volume of water flowing in a channel, a portion of which may flow overbank. Floods are associated with other hazards such as channel erosion and avulsion.
Mountain Stream Erosion and Avulsion	Characterized by the lateral migration of a stream channel (erosion) and/or the abandonment of the channel course to occupy a different position on the alluvial fan (avulsion). This type of hazard may be associated with large flow events.
Debris Flows and Debris Torrents	A rapid, channelized, fluid transport of water saturated debris. A debris flow path can be divided into an initiation zone, a transport and erosion zone, and a deposition zone. Transport often initiates within steep gullies and is conveyed downslope at high velocity which can damage forests and human development.
Debris Floods	A large flood event associated with an unusually high amount of sediment movement consisting of coarse bed load material and organic material such as trees and logs.
Landslides, Small-Scale, Localized	The sudden and rapid or gradual and incremental downslope movement of soil, rock, and other weathered materials.
Snow Avalanche	The sudden and rapid downslope movement of snow and ice. Avalanches develop large amounts of kinetic energy, damaging anything in its path.
Rock Fall	The detachment of individual rock fragments from a steep slope and their gravitational downslope transport.
Landslides, Massive, Catastrophic	The sudden and rapid movement of unusually large amounts of soil, rock and other weathered materials.

Additionally, the subject site falls within the District of Sechelt's Development Permit Area (DPA) # 3 Marine, Foreshore and Shoreline Areas, DPA # 4 Rocky Beach Front, Escarpments and Slope Hazards, and DPA # 5 Steep Slopes (Slopes 20%-30% and >30%).

4.1 DPA # 3: Marine, Foreshore, and Shoreline Areas

The subject site is a coastal parcel and is prone to influence by the oceanic waters of Purpose Bay. A minimum flood construction level (FCL) should be determined to mitigate any potential for coastal flooding for any planned structure at the subject site. The FCL has been estimated as follows:

Component	Note
Higher high-water large tide (HHWLT)	1.289 m geodetic (*)
Sea Level Rise	1.00 m for year 2100
Storm Surge	1.30 m
Wave Effects	0.65 m
Freeboard	0.60 m
Flood Construction Level = Sum of all components = 4.839 m geodetic elevation	

(*) *Based on information obtained from Canadian Hydrographic Services (CHS) 7852 station located in Porpoise Bay, the HHWLT of the subject site is estimated in 1.298 m Geodetic GD.*

The lower floor elevation of the five buildings and six cabins proposed for the resort vary from 14 to 27 m geodetic elevation, well above the established minimum FCL. In addition, a horizontal setback of 15 m from the natural boundary has been kept for the location of proposed structures, in compliance with DPA # 3 guidelines.

No evidence of active erosion was observed at this site. Due to the condition of the observed bedrock existing on the shoreline natural boundary of the property (medium strong bedrock, with moderate weathering and discontinuities), hazards related to coastal erosion as a result of wave action provided by Porpoise Bay is considered to be negligible for design life of the proposed development (100 years). No shoreline protection works are needed for this development. In addition, the rocky shores on the subject site are very stable and have very limited sediment supply. The new marina is proposed at the same location of the existing dock to minimize disturbance on the shoreline. Please refer to Photograph 2.

Photograph 2: Rocky shoreline at the south side of site

4.2 DPA # 4: Rocky Beach Front/Escarpment, Rockfall and Upland Slope Hazards

Rock fall and rock slope instability events are characterized by the loosening of bedrock units to create movement of rock fragments down a slope. Rock fall events are typically smaller and more translational in nature, while rock slope instability events are larger and more local in nature. In general, the majority of the rock slopes on the subject site are not subject to Rock Fall hazards from rock fall or rock slope instability. Strong igneous bedrock outcrops were noted at the upper side of the site, with negligible to very low probability of rock fall events. The south side of the site presents evidence of fractured bedrock and a very steep slope that could induce rock fall events. A minimum setback distance from the top of the slope may be required above this section of rock slope. The need for a setback distance will be determined during construction based on the exact final location of the proposed structures. Alternatively, the setback distance may be waived if rock slope mitigation techniques such as pinning, scaling and/or netting are implemented. These requirements will be determined during construction.

4.3 DPA # 5: Steep Slopes

4.3.1 Slope Stability Analysis

Small scale, localized slope stability events are characterized by either the rapid or gradual destabilization of steep slopes typically comprised of loose, unconsolidated material. Massive instability events are similarly characterized by either quick or gradual destabilization of steep slopes. However, catastrophic events of this nature are further characterized by the movement of a large mass of material and a deep-seated failure plane.

The subject site exhibits moderate to steep slopes ranging from 33% to 75% (18° to 37°) in the majority of the site and very steep slopes 63° or steeper at the southeastern portion of the site. There was no evidence of instability or deformations at the vicinity of the crest of the slopes during our site reconnaissance on June 12, 2024. For this assessment, Metro has conducted both static and seismic (pseudo-static/dynamic) limit equilibrium analyses of a relevant Section A-A. Section A-A is shown in Figure 6.

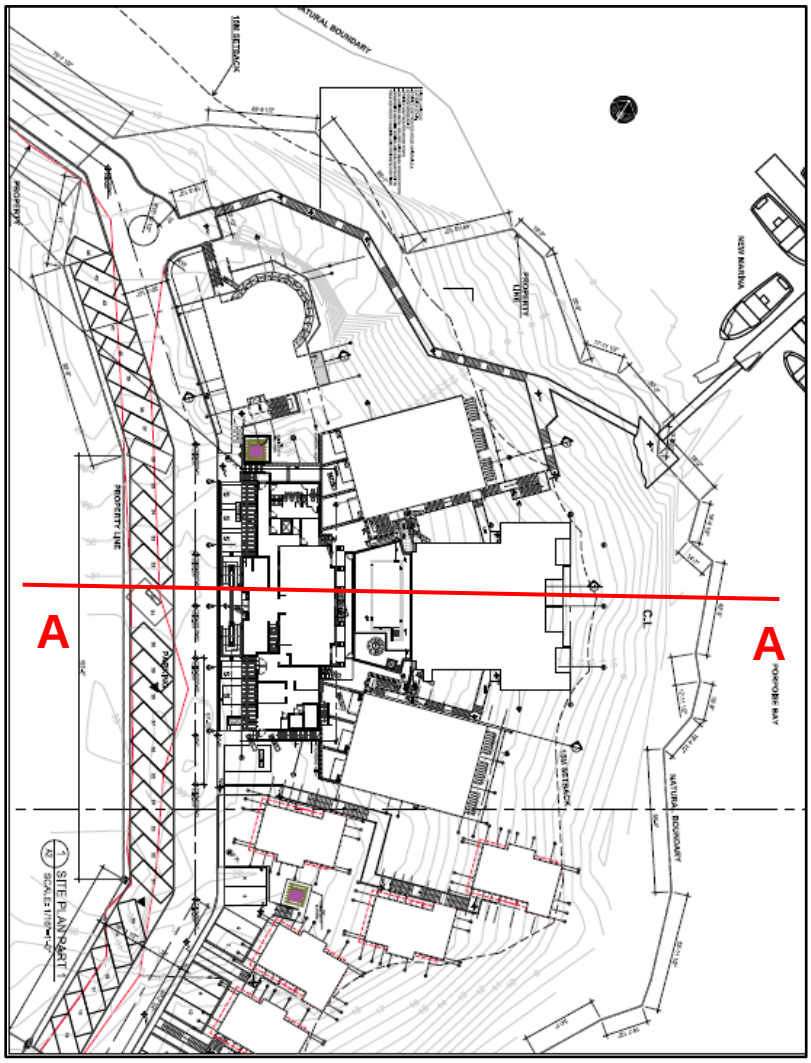

Figure 6: Section A-A for Slope Stability Analysis

The analyses were carried out using commercially-available computer software "SLOPE/W" by GeoStudio 2023.1.0 (ver. 23.1.0.520). The model used for the limit equilibrium slope stability analyses was developed using information from the site topographic survey, architectural drawings, and available SCRD GIS contours, while material strength and unit weight parameters were selected based on information collected during the site reconnaissance in June, 2024.

The computer software calculates the Factor of Safety (FOS) against slope instability for multiple potential failure surfaces through the slope, where FOS is defined as the ratio of soil strength along a potential failure plan (typically expressed in forces and/or moments) to the forces (and moments) that tend to cause failure. The Engineers and Geoscientists of BC (EGBC) *Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC* requires a seismic slope stability analysis considering the 1 in 2,475 years return period ground motions, which is equivalent to a 2 percent probability of exceedance in 50 years. The minimum required FOS is 1.5 for static loading and 1.0 for seismic loading conditions.

A seismic coefficient k equal to 50% of the peak ground acceleration (PGA) has been used for the pseudo-static (seismic) analysis. PGA = 0.307g, as provided by the 2015 NBCC online Seismic Hazard Calculator (provided in Appendix B). The material strength and unit weight parameters used in the analyses are summarized in Table 2 below.

Table 2: Input Parameters for Slope/W Subsurface Materials

Parameter	Granitic Bedrock
Internal Friction Angle, φ	30°
Cohesion, c (kPa)	120
Unit Weight, ɣ (kN/m^3)	24

The proposed buildings are assumed to have a distributed loading of 40 kPa. Figures 7 and 8 illustrate results of static and seismic (pseudo-static) analyses for a potential global landslide hazard. The results of the slope stability analyses indicate calculated FOS of 2.6 for static loading and 2.0 for seismic loading conditions for Section A-A. In both cases the calculated FOS satisfy the minimum requirements set out by EGBC Guidelines 2010.

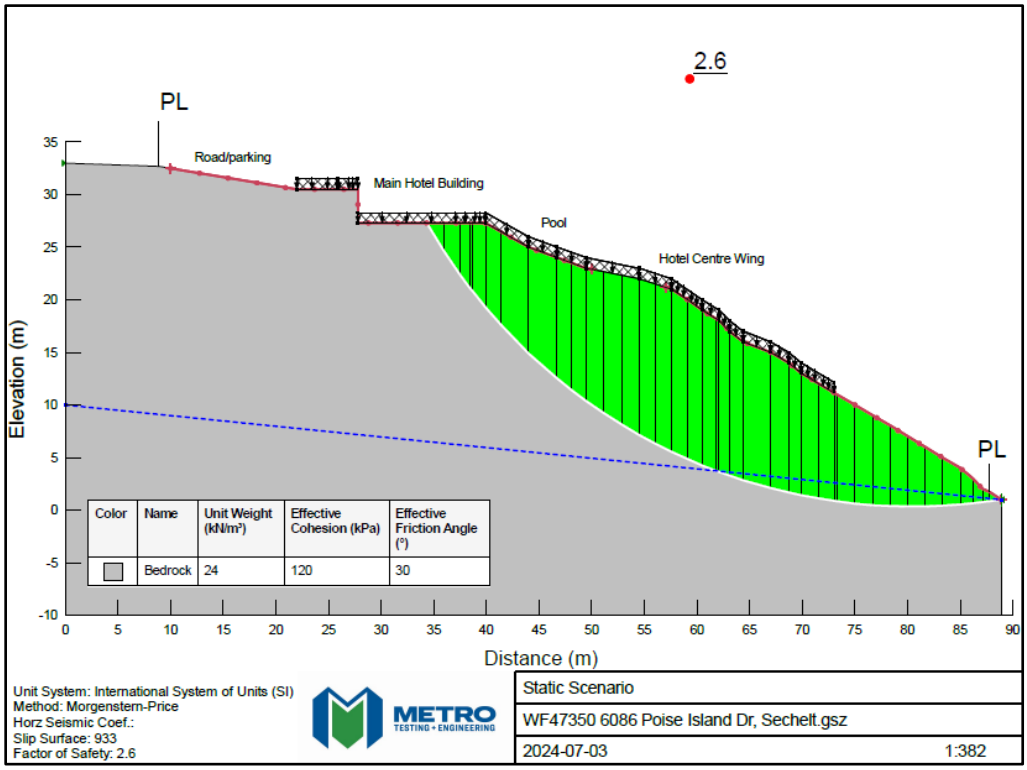

Figure 7: Static Analysis for Global Stability at Section A-A (Calculated FOS=2.6)

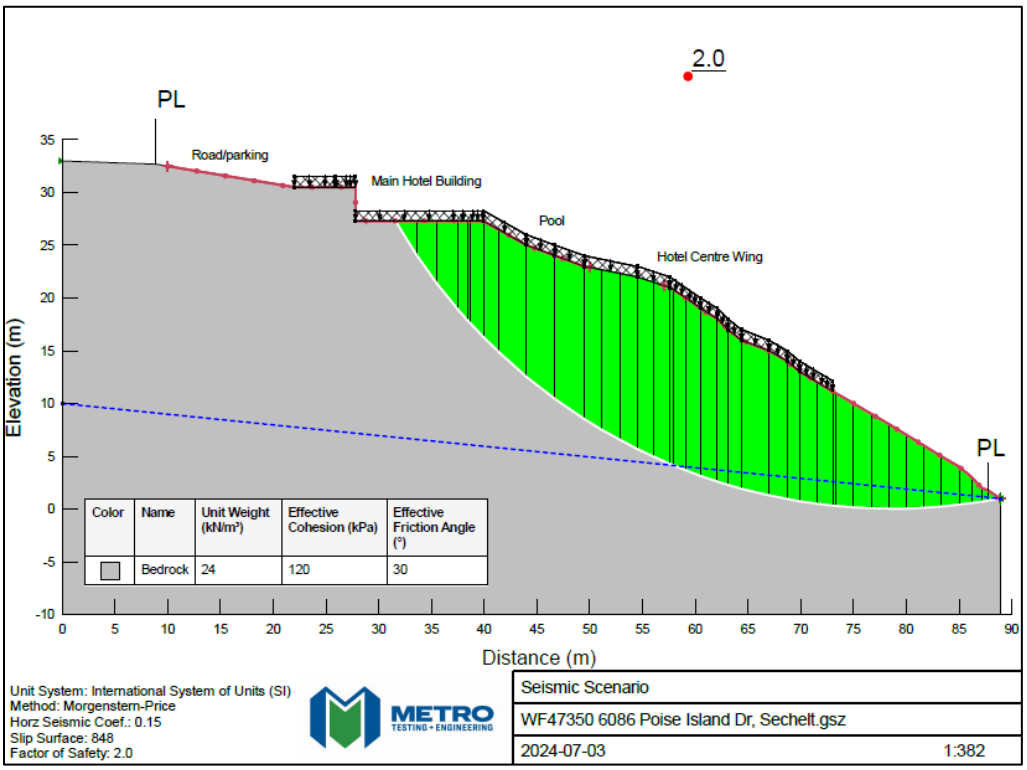

Figure 8: Seismic Analysis for Global Stability at Section A-A (Calculated FOS=2.0)

4.3.2 Slope Stability Assumptions

The following inputs and assumptions have been considered in the stability assessment pertaining to the proposed development:

- The soils encountered during the geotechnical reconnaissance (June 2024) would not be subject to liquefaction behavior.
- Assumed horizontal seismic coefficient k_h = 0.15g.
- Seismic loading analyzed for a return period of 2,475 years for global (deep-seated) failure.
- 40 kPa distributed building loads were assumed for the proposed structures.
- Groundwater level at Section A-A is assumed to follow the topography of the site, flowing through the fractures of the rock.
- Conservative values of cohesion and friction angle have been used in the slope model assuming the rock mass behaves as a Mohr-Coulomb material, in which the shear strength is expressed in terms of the cohesion and friction angle along the rupture surface.

4.3.3 Slope Stability Analysis Results

The results obtained from the static and seismic slope stability analyses indicate that the slopes observed on site are considered stable with respect to a deep-seated failure. No setbacks from the proposed buildings to the crest of slopes are required at this time.

The slope stability should be reassessed if the architectural plan/house plan is changed, and Metro should be provided the opportunity to review the change.

Slope stability analysis is based upon the available soil and rock information. In the event that unexpected soil conditions are encountered at the time of site development, further analysis may be required to revise susceptibility of slope areas to undergo deformation under static and design seismic conditions.

Satisfactory factors of safety present only a baseline assessment of slope conditions at the time of analysis and may not present an accurate representation of slope conditions over the long term due to man-made processes or natural processes.

Man-made processes with potential to negatively impact the stability of slopes and/or promote erosion include, but may not be limited to the following:

- Excavations into the slope or slope toe areas,
- Excessive vibration from heavy machinery, such as compaction equipment or pile drivers,
- Defective maintenance of slope drainage systems,
- Blasting activities, and
- Unexpected changes to groundwater flow regimes due to site development.

Natural processes with potential to negatively impact the stability of the site slopes include, but may not be limited to the following:

- Extended periods of seasonally wet/extremely cold weather,
- Storm events with exceptionally high rainfall intensity and duration,
- Erosion of slope at toe areas, and
- Removal of slope tree and vegetation cover by disease or fire.

Thus, the site slopes must be maintained and all measures should be installed to safe guard the stability of the slope.

5 Geotechnical Engineering Comments and Recommendations

5.1 General

Based on our site reconnaissance and previous assessment, the site is in general underlain by a thin layer of sand and gravel deposit over medium strong igneous bedrock. As outlined in Sections 4.1 and

4.3, hazard related to slope instability and coastal erosion are considered very low for the proposed waterfront resort.

The proposed structures (five buildings and six cabins) are well above the calculated FCL; thus, the potential for coastal flooding is considered very low. As mentioned in section 4.2, the potential for rock fall in the vicinity of the proposed cabins can be addressed by allowing a setback from the crest of the slope or by removing loose fragments of rock during construction.

Following our review, and as required by the District of Sechelt in the *Guidelines for Preparation of Geotechnical Reports* (2019), it is Metro's opinion that the land may be used safely for the use intended, provided that our recommendations are adhered to. This report may be relied upon by the District of Sechelt in considering an application for a development permit as outlined in the District of Sechelt's Official Community Plan for lands within Development Permit Areas #3, #4, and #5.

For the purpose of this report, we have combined each applicable type of geo-hazard and the types of approval to form a matrix for the type of proposed development, which is new building. Table 3 below provides Geotechnical Hazards and Annual Return Frequency.

Table 3: Geohazards and Annual Return Frequency

Hazard	Annual Return Frequency	Building Approval Application
Inundation by Flood Waters	<1:200	Approval with compliance of minimum FCL.
Mountain Stream Erosion and Avulsion	<1:500	Approval without conditions relating to hazards.
Debris Flow / Debris Torrent	<1:10,000	Approval without conditions relating to hazards.
Small Scale Localized Landslip	<1:2,500	Approval without conditions relating to hazards.
Snow Avalanche	<1:10,000	Approval without conditions relating to hazards.
Rockfall Small Scale Detachment	1:1000 - 1:10,000	Approval with removal of any loose rock fragments during construction.
Major Catastrophic Landslide	1:1000 - 1:10,000	Approval without conditions relating to hazards.
Debris Flood	1:500 - 1:10,000	Approval without conditions relating to hazards.

5.2 Site Preparation

After demolition of existing structures, any surface vegetation, as well as loose, soft, saturated, and deleterious material should be removed in order to expose strong bedrock in the area of proposed buildings. Some blasting or rock hammering shall be required to reach proposed floor elevations. Recommendations for blasting are provided in Section 5.8. Footing subgrades must be reviewed and approved by the geotechnical engineer prior to the placement of any engineered fill or formwork.

All imported engineered fill and approved native material to be used as engineered fill should be inspected by the geotechnical engineer. Engineered fill is defined as clean sand to sand and gravel with less than 5% fines content passing # 200 sieve, compacted in 300 mm loose lifts to a 100% of ASTM D698 Standard Proctor maximum dry density at moisture content within 2% of optimum for compaction. Water collected in the excavation during construction must be properly conveyed and discharged in accordance with local bylaws and environmental regulations.

5.3 Footings and Slabs o Grade

The recommended foundation type for the proposed resort structures is continuous concrete strip and pad/column footings which are the preferred choice of the design team. Footings should be placed a minimum of 450 mm below surface for frost protection.

In accordance with the NBCC, the foundation recommendations included in this report are based on limit state design (LSD) methodology. The unfactored ultimate limit state (ULS), factored ultimate state (ULS_f) and serviceability limit states (SLS) design criteria for the relevant geotechnical parameters have been determined and are provided in Table 4 below for use by the structural engineer.

Table 4: Recommended Bearing Capacity Values

Material	Recommended Bearing Capacity (kPa)			
	Ultimate Geotechnical Resistance (kPa)	Geotechnical Resistance Factor (φ)	Factored Geotechnical Resistance at ULS (kPa)	SLS (kPa)
Intact bedrock	1500	0.5	750	500
Engineered fill	375	0.5	187	125

The geotechnical bearing capacity for the proposed structures may be considered 500 kPa for footings on intact bedrock or 125 kPa for footings on structural fill. This represents a factored serviceability limit states resistance value (SLS). Factored ULS bearing pressures can be used for transient loads such as wind and earthquakes. Any special conditions should be approved by the geotechnical engineer. Footing subgrades should be thoroughly cleaned of any disturbed, loose, soft or saturated material to expose competent bedrock prior to forming and the pouring concrete.

If the footings are to be stepped, this should be done so that a line connecting the closest edges of two footings is no steeper than 2H:1V.

To minimize the chance of undesirable floor wetness and possible moisture migration, a layer of a minimum of 150 mm thick, 19 mm free draining gravel should be placed beneath the slabs on grade, that

serves as a capillary barrier between the subgrade material and the slab. An impermeable membrane should be placed over the gravel such as 6 mil polypropylene sheeting or an approved equivalent.

The bearing surfaces must be cleaned of all loosened or softened soil. Foundation excavations and bearing surfaces should be protected before, during and after footing construction from rain, snow, freezing temperatures, excess drying and the ingress of free water. Footings must not be constructed on frozen soils. In addition, a qualified geotechnical engineer should observe bearing surfaces, prior to placement of foundation concrete, to confirm that the design bearing parameters are appropriate.

5.4 Site Drainage and Final Discharge

It is understood that drainage for most of the buildings will be conducted by gravity and discharged to a service pipe along the onsite access road. Buildings away from the access road may discharge to an approved outfall location. In general, permanent drainage should consist of individual perimeter drains for permanent structures and paved sections. This consist of a minimum of 100 mm diameter perforated pipe surrounded by a minimum drainage zone of 300 mm of 19 mm free draining gravel wrapped in non-woven geotextile fabric. This drainage system should be sloped at a minimum 2% gradient and discharged to an approved outfall location. Our office will provide input once civil drawings are completed.

5.5 Cut/Fill and Site Grading

Thickness of organic deposits encountered within the proposed resort area was relatively minor. Therefore, conventional site grading procedures, which would include stripping of the organic soils followed by the construction of the subgrade, are considered appropriate. The composition and consistency of the soils encountered at the site were such that excavation with conventional earthmoving equipment, and/or hydraulic excavators, is considered feasible. However, due to the presence of weak to medium strong bedrock, which was encountered near surface, specialized equipment capable of *ripping* may be required to achieve design grade elevations.

Moderate cut and fill volumes of soil are expected during construction of onsite road and parking stalls, with fill thicknesses of up to 3.7 m. At the main hotel building (building 1), hotel wings (buildings 2, 3, and 4), pool, and convention centre (building 5) locations, excavation in rock will be required to reach basement floor elevations and imported fill will be required behind foundation walls, although in relatively small to moderate volumes. The six proposed cabins are mostly supported on columns, with relatively small volumes of excavation in rock.

The proposed waterfront resort has been planned in general to follow the natural contours of the site, as recommended in DPA # 5 guidelines. All temporary excavations, temporary stockpiling of surplus material, or any movement of material that has the potential to impact neighboring properties or Porpoise Bay must be carefully planned with the participation of the geotechnical engineer.

The proposed structures are accessed from the main hotel building (entrance) and parking stalls through wooden or concrete stairs, following in general the natural grade of the site. Based on the review of the current architectural drawings and grading plan, cut and fill activities are not expected to affect the stability of the site.

5.6 Seismic Design Considerations

The proposed structures should be designed under the seismic provisions of the 2015 NBCC. Horizontal Peak Ground Acceleration (PGA) and 5% damped spectral response acceleration values $S_a(T)$ for different periods (i.e. 0.2 s, 0.5 s, 1.0 s, 2.0 s, 5.0 s and 10.0 s) are outlined in Table 5 for various probabilities of exceedance and interpolated seismic hazard values, respectively. As per current standards, the proposed structures should be designed for a seismic event with a 2% probability of exceedance in 50 years (1 in 2,475-year event).

Table 5: NBCC Interpolated Seismic Hazard Values (Site Class C)

Return Period (years)	S_a (0.2)	S_a (0.5)	S_a (1.0)	S_a (2.0)	S_a (5.0)	S_a (10.0)	PGA (g)	PGV (g)
2,475	0.807	0.728	0.423	0.260	0.085	0.030	0.353	0.542

Based on the current level of geotechnical data, and according to the 2018 BC Building Code, Table 4.1.8.4.A, the development's Site Classification for Seismic Response is Site Class B – Rock. The site-specific design spectral acceleration values of S(T) for Site Class B are provided below:

Table 6: Design Spectral Acceleration Values of S(T)

Period, T (seconds)	Design Spectral Value, S(T) (g)
T ≤ 0.2 s	0.621
T = 0.5 s	0.621
T = 1.0 s	0.266
T = 2.0 s	0.164
T = 5.0 s	0.054
T = 10.0 s	0.021
PGA	0.307
PGV	0.363

5.7 Underground Structures and Retaining Walls

Lateral loads on retaining walls are provided assuming that the wall is frictionless and the soil backfill against the vertical foundation wall is horizontal, the following Rankine earth pressure coefficients are

presented below in Table 5. For purpose of preliminary design, Table 5 provides earth pressure coefficients assuming a granular soil backfill with the following properties:

- Friction Angle Ø = 33 degrees;
- Unit Weight ɣ = 21 KN/m^3; and,
- Peak Ground Acceleration, PGA = 0.307g.

Table 7: Rankine Earth Pressure Coefficients

Description	Coefficient
Static Active Earth Pressure Coefficient, K_a	0.29
At-Rest Earth Pressure Coefficient, K_o	0.46
Passive Earth Pressure Coefficient, K_p	3.39
Dynamic Active Earth Pressure Coefficient, K_{ae}	0.39
Incremental Dynamic Active Earth Pressure Coefficient, K_{ae} - K_a	0.10

The values provided above assume that the underground structures will be backfilled with clean, free draining granular material. Also, it is important to ensure that any groundwater entering the backfill area is free to drain vertically into the drainage system. If it is not possible to provide the granular materials and drainage behind the wall, then increased earth pressures and hydrostatic pressures must be assumed to act on the wall and the hydrostatic pressures would be additive to the static design earth pressures.

5.8 Temporary Excavations - Blasting

Shallow excavations on the surficial soil veneer are expected along the onsite access road and parking stalls. The temporary cuts should be limited to 3H: 4V for the soils observed on this site. Slopes in soil are to be covered with poly sheeting for protection against erosion induced instability. Excavations in excess of 1.2 m require inspection by a geotechnical engineer in accordance with Worker's Compensation Board guidelines. In the event of spatial constraints, excavations can be supported by gravity walls approved by the geotechnical engineer.

Bedding material for utility trenches should have Type 1 gradation, in accordance with Master Municipal Construction Document (MMCD) specifications and should be placed and compacted in lifts to provide a minimum of 95% Modified Proctor maximum dry density (ASTM D-1557) around the pipe, including underneath its haunches. Hand-tamping equipment should not directly contact the pipe and should not be allowed to compact above the pipe until the full 300 mm bedding zone has been placed above it.

Imported trench backfill should consist of pit-run gravel or approved equivalent fill material that follows MMCD guidelines and should be placed only within the zone of trench backfill, above the pipe bedding zone. Trench backfill should be compacted to a minimum of 95% Modified Proctor maximum dry density.

Depending on the nature of the rock to be excavated to build underground structures and footings, some blasting may be required. Blasting shall be carried out by a certified blaster (the person, firm or corporation engaged by the owner to conduct blasting) and monitored by a professional engineer or specialist who specializes in rock mechanics and has expertise in blasting in urban areas, in general accordance with the District of Sechelt Blasting Regulation Bylaw No. 458, 2007, consolidated in August 2019. Some of the requirements to be included for blasting permit application are mentioned below:

- A control blasting plan, prepared by the blaster and accepted in writing by the Engineer and Director (designated by the District of Sechelt), which shall consist of a sketch of the blasting pattern and include the sequence of detonation and the maximum weight of explosives and shall specify measures designed to minimize the impact of the blasting.
- A pre-blast survey report which shall be made of all principal structures, swimming pools, retaining walls, patios and driveways on any parcel of land within a minimum 50 m radius of the blast site. The report of the pre-blast survey shall identify all observed damage to structures existing and anything that may be susceptible to damage from blasting.
- Monitoring of blasting shall include measurement of ground vibration at the closest structure to the blast and at any structure considered to be sensitive to ground vibrations, as determined by the engineer. Ground vibration at any structure shall not exceed a particle velocity of 50 mm per second or any other limit specified by the engineer.
- A report detailing how drill rigs and compressors are to be muffled and the use of equipment to reduce or control noise levels.

5.9 Septic System

It is understood that the wastewater from buildings in close proximity to the onsite road will be serviced by gravity to a sanitary pipe installed along the road. Lower buildings will use a lift station and wastewater pumped to the proposed new sanitary line. No septic systems are planned at this time for the proposed waterfront resort structures. Metro must be notified if any septic system is proposed during the design process to provide input regarding the potential effect of the septic field on the stability of the slopes.

5.10 Pavement Structure

All fill, topsoil and loose soils should be removed, before placing the pavement structure. The pavement structure for the proposed new onsite road should be constructed with the minimum dimensions shown in Table 7 below:

Table 8: Recommended Minimum Flexible Pavement

Material	Thickness (mm)
Asphalt	75
Granular Base (19 mm crushed gravel road base)	100

Granular Sub-base (75 mm crushed gravel sub-base)	200
Total Thickness	**375**

It is recommended that the sub-base and base meet the Master Municipal Construction Documents (MMCD) grain size distribution specification summarized in Table 8. The subbase and base should be placed and compacted to a minimum of 95% of the Modified Proctor maximum dry density, as per ASTM D1557, and within 2% of the material's optimum moisture content (OMC).

Table 9: Recommended Grain Size Distribution for Sub-base and Base Crushed Gravel

Sieve Designation	Sub-base (75 mm crushed gravel) Percent Passing (%)	Base (19 mm crushed gravel) Percent Passing (%)
80 mm		
75 mm	100	
38 mm	60-100	
25 mm	-	100
19 mm	35-80	80-100
12.5 mm	-	-
9.5 mm	26-60	50-85
4.75 mm	20-40	35-70
2.36 mm	15-30	25-50
1.18 mm	10-20	15-35
0.6 mm	5-15	-
0.3 mm	3-10	5-20
0.18 mm	-	-
0.15 mm	-	-
0.075 mm	0-5	0-5

Prior to sub-base gravel placement, the exposed subgrade should be proof-rolled to identify any soft, loose, or non-uniform areas. Any soft areas detected should be over-excavated and replaced with approved material. If extensive, deep, soft soil deposits are encountered, geogrid and/or geotextile may

be incorporated to improve the condition of the subgrade soils. The use of such methods to improve poor subgrade conditions will have to be made at the time of construction.

6 Construction Review

The recommendations presented in this report update assume an adequate level of observations will be provided during construction, performed by experienced contractors. The recommended design values are subject to engineering and approval by a qualified geotechnical engineer. It is recommended, that a qualified and experienced geotechnical firm, such as Metro, be engaged to evaluate designs and to perform the specified materials engineering and testing services. The frequency of materials engineering and testing services can be provided, once site development concepts, schedules and specifications are established.

Metro should be notified (in advance) during construction in order to carry out the necessary field reviews and testing. As a minimum, the following field reviews and testing are considered necessary:

- Field subgrade review for building foundations and pavement following site stripping;
- Confirmation of suitable bearing for building foundations and floor slabs; and,
- Compaction of structural fill.

Upon request, Metro can issue British Columbia Building Code Schedule B for the geotechnical aspects of the Building Permit Application for the building constructed for this project. To ensure commitment to field reviews, Metro must be notified when the work commences, to conduct the necessary field reviews during construction. Metro cannot assume responsibility or liability for the adequacy of its recommendations when they are used in the field without Metro being retained to review and approve the actual soil conditions during construction. Following successful completion of construction, and assuming all required field reviews and testing is completed, Metro will issue the BC Building Code Schedule C/B.

7 Closure

Geotechnical engineering recommendations presented herein are based on Metro's interpretation and evaluation of the findings of the geotechnical investigation completed on September 2014 and subsequent field reviews in October 2020 and May 2024, review of available information and recognized foundation engineering principles and practice. The materials in this report reflect Metro's best judgment based on the information that was available to Metro at the time of preparation of this report. If conditions other than those are noted during subsequent phases of the development, Metro should be given the opportunity to review and revise the recommendations included in this report, as necessary.

This report has been prepared for the exclusive use of Vanta Pacific Development Corporation, their designated consultants and agents, and representatives for the specific application of the development described within this report. Any use of this report by third parties, or any reliance on or decisions made

based on it are the responsibility of such third parties. Metro accepts no responsibility, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

We appreciate the opportunity to be of service to you. If you have any questions regarding the contents of this report, or if we can be of further assistance to you on this project, please contact Metro's production team noted on Page 3.

8 References

McCammon, J.W. (1977). *Surficial Geology Sunshine Area.* Province of British Columbia: Ministry of Mines and Petroleum Resources;

National Building Code of Canada (NBCC 2015) and British Columbia Building Code (BCBC 2018);

Engineers and Geoscientists of British Columbia (EGBC) Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia;

Cave, P.W. (1993). *Hazard Acceptability Thresholds for Development Approvals by Local Government.* British Columbia Geologic Hazard Workshop, Victoria, BC.

Canadian Geotechnical Society (CGS). *Canadian Foundation Engineering Manual,* (5th Edition, 2023);

District of Sechelt's Development Permit Guidelines (DPA #3, DPA #4, and DPA #5);

Architectural design by HNPA Architecture + Planning, dated February 2020;

Structural design by TIDES Consulting, dated December 2018.

Master Municipal Construction Documents Association (MMCD). *Master Municipal Construction Documents,* Platinum Edition, 2019;

Workers' Compensation Board of British Columbia (WCBBC), *WorkSafeBC. Occupational Health and Safety Regulation: Construction, Excavation and Demolition*, part 20.78 – 20.95, 2019;

Appendix A
Relevant Architectural Drawings

PORPOISE BAY

NEW MARINA

NATURAL BOUNDARY

C.L

15M SETBACK

PROPERTY LINE

MISCELLANEOUS
EXTERIOR STAIR:
-STAINED 2X6 TREATED WOOD HANDRAILS & BOTTOM WOOD RAILS
-STAINED 4X4 TREATED WOOD POSTS
-GALVANIZED METAL WELDED WIRE MESH W/WOOD STOPS
-COMPOSITE DECKING STAIRS AND WALKWAYS ON TO TREATED WOOD FRAMING AND CONCRETE FOOTINGS

PARKING

PROPERTY LINE

PROPERTY

LOADING

PMT CONNECTED TO BC HYDRO

42'-9"
16'-9"
19'-4 1/2"
12'-11 1/2"
18'-8 1/2"
14'-7"
28'-2"
13'-8 1/2"
30'-3"
17'-11 1/2"
50'-9"
19'-3"
53'-11 1/2"
65'-4"
19'-7 1/2"
34'-1"
69'-7"
49'-10 1/2"
49'-8 1/2"
3'-10"
15'-3 1/2"
R10'
10'
R16'-10 1/2"
20'-1 1/2"
79'-7 1/2"
41'
90'-8"
193'-8"
57'-10"
97'-7 1/2"
19'-11 1/2"

1 A2 SITE PLAN PART 1
SCALE: 1/16"=1'-0"

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TEL:606-726-1338
604-559-8566

ISSUED FOR
BUILDING PERMIT

FEB, 2020	RESUBMIT FOR BUILDING PERMIT

REVISIONS

PROJECT
VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE
SITE PLAN PART 1

JOB NO.

DRAWN KN

DATE

SCALE

CHECKED J N

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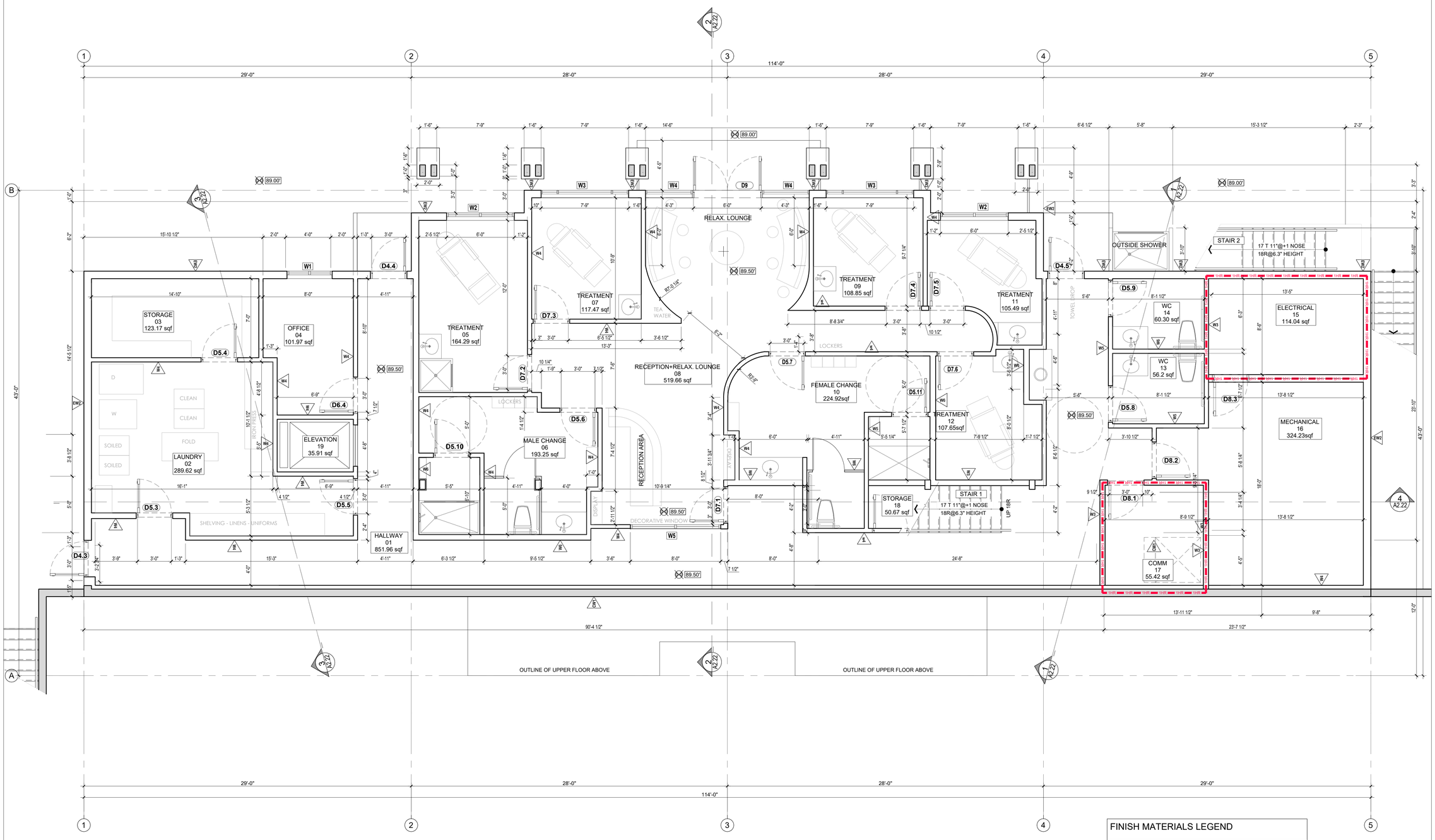

FINISH MATERIALS LEGEND

D1.3	DENOTES ROOM NUMBER
W7	DENOTES WINDOW NUMBER
R.NAME 08 sqf	DENOTES ROOM NAME, NUMBER & AREA
W5	DENOTES WALL TYPE

1 / A4 HOTEL PLAN AT 90.50' LEVEL
SCALE: 1/4"=1'-0"

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DRAWING TITLE
MAIN HOTEL-BUILDING 1 PLAN AT 90.50' LEVEL

JOB NO.

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DATE

SCALE

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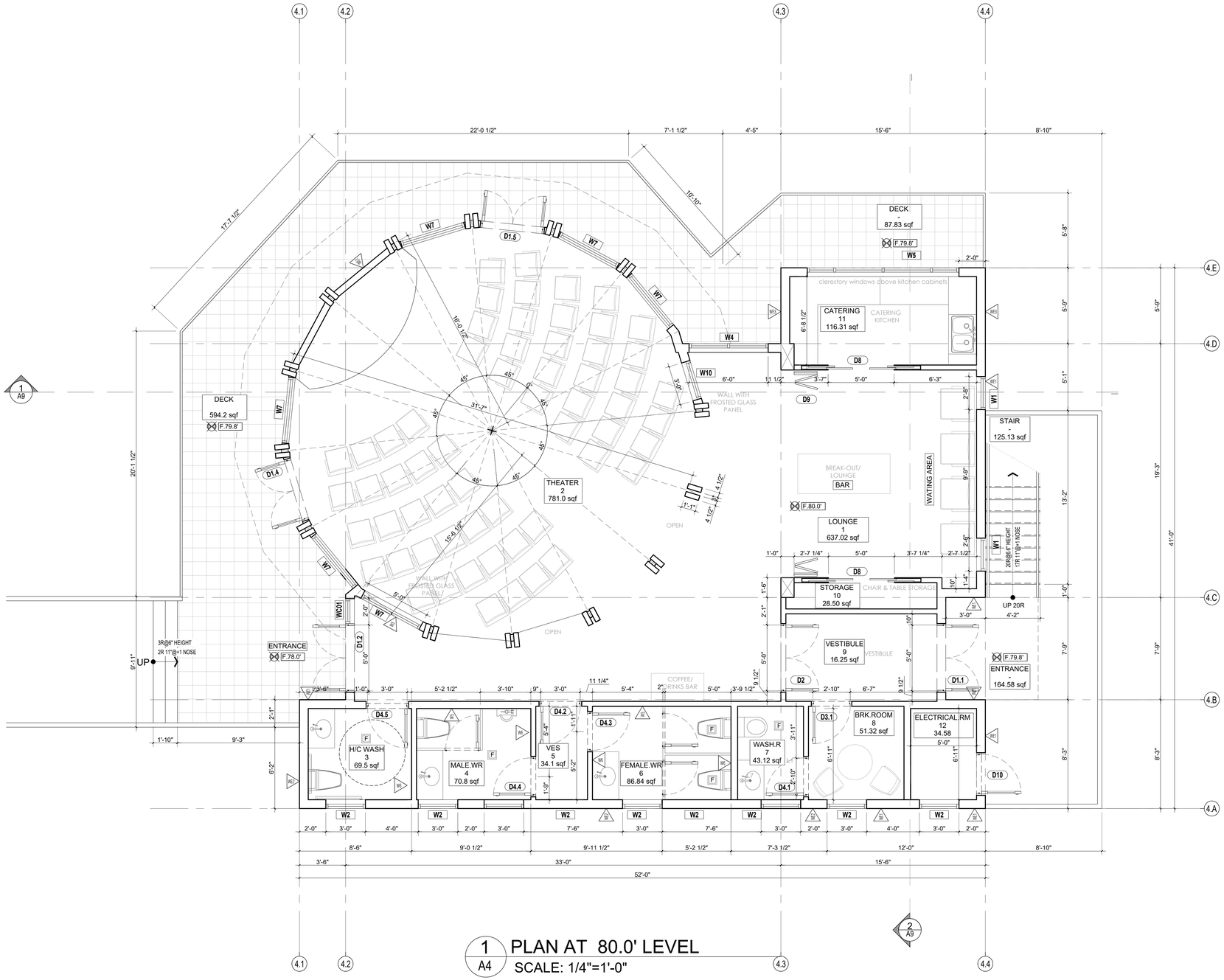
A4



1 A9

2 A9

1 PLAN AT 80.0' LEVEL

1 A4 SCALE: 1/4"=1'-0"

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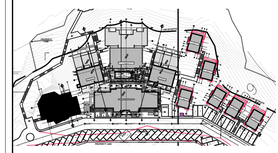

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VANTA PACIFIC WATERFRONT RESORT

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CONVENTION-BUILDING 5 PLAN AT 80.0' LEVEL

JOB NO.

DRAWN: KN

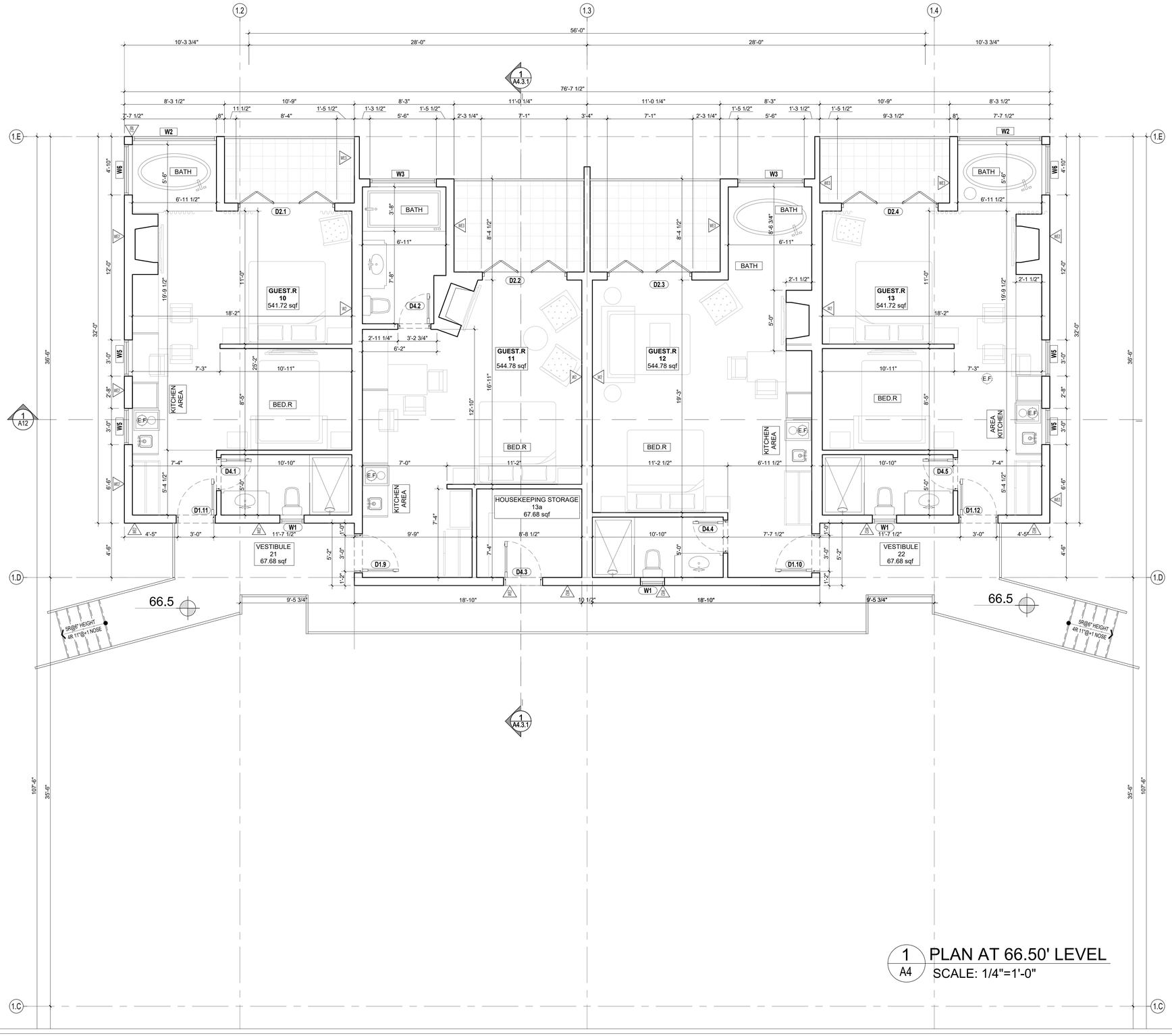
DATE

SCALE

CHECKED: J N

DRAWING NO.

A4



1 A4 PLAN AT 66.50' LEVEL
SCALE: 1/4"=1'-0"

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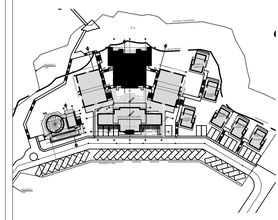

5		
4		
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

HOTEL CENTRE WING-BUILDING 2
PLAN AT 66.50' LEVEL

JOB NO.

DRAWN: LEON

DATE

SCALE

CHECKED: J N

DRAWING NO.

A4

PORPOISE BAY

NATURAL BOUNDARY

C.L

15M SETBACK

15M SETBACK

18'-8 1/2"
42'-9"
16'-9"
19'-4 1/2"
14'-7"
12'-11 1/2"
65'-4"
53'-11 1/2"
19'-7 1/2"
34'-1"
44'
13'-6 1/2"
87'-7 1/2"
167'-1 1/2"
76'-6"
38'-3"
38'-3"
32'
31'
4'-6"
SWIMMING POOL UNDER SEPERATE PERMIT
3'6 GUARDRAIL HEIGHT
CABIN 1 (BUILDING 6.1) PHASE 2
CABIN 1 (BUILDING 6.3) PHASE 2
CABIN 1(BUILDING 6.4) PHASE 2
CABIN 1(BUILDING 6.5) PHASE 2
CABIN 1(BUILDING 6.6) PHASE 2
CABIN 1 (BUILDING 6.2) PHASE 2
17'-11 1/2"
17'-10 1/2"
20'-11 1/2"
28'-4"
31'-7"
21'-5"
LANDING
12'-1
PARKING
GARBAGE & RECYCLE
PMT CONNECTED TO BC HYDRO
FG:29.65M(97.28')
EG:32.00M
FG:30.00M (98.50')
EG:32.00M
FG:29.65M(97.28')
EG:32.60M
FG:29.87M(98.0')
EG:33.50M
FG:29.0M(95.1')
EG:29.50M
FG:27.6M(90.55')
EG:24.60M
50'-11 1/2"
PARKING
19'-11 1/2"
97'-7 1/2"
PROPERTY LINE
193'-8"
87'

1 / A2 SITE PLAN PART 2
SCALE: 1/16"=1'-0"

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SITE PLAN PART 2

JOB NO.

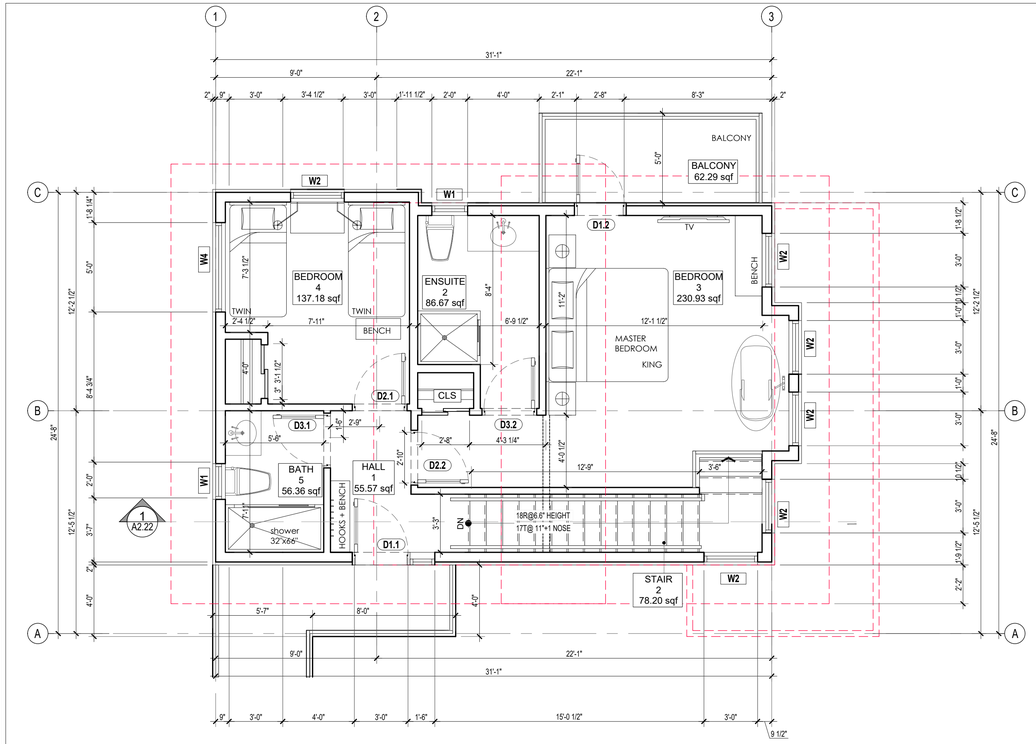
DRAWN KN

DATE

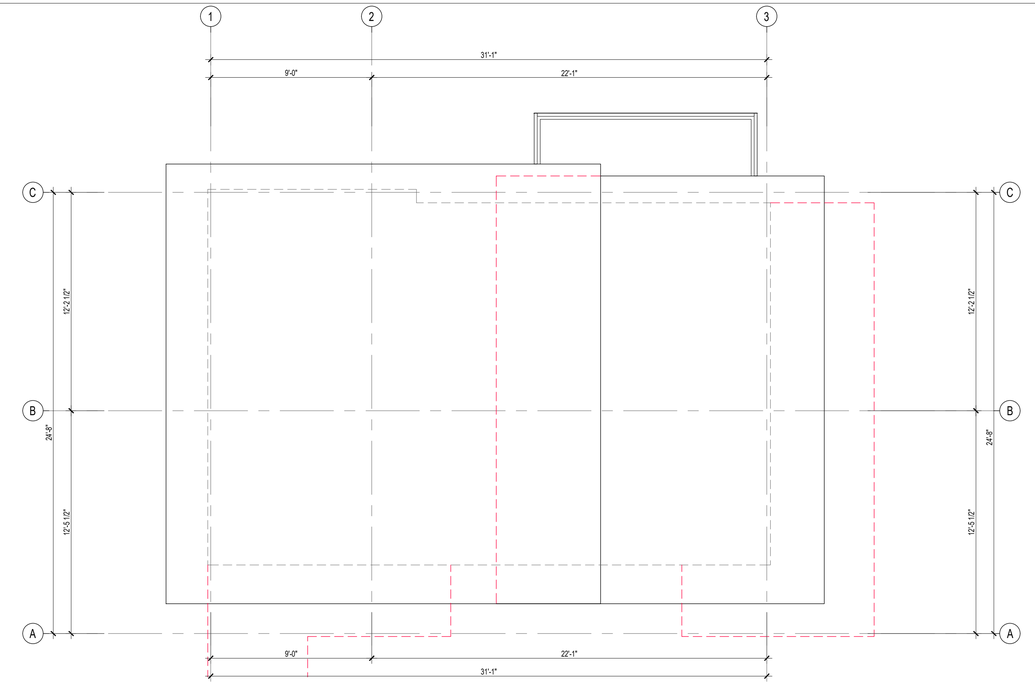
SCALE

CHECKED J N

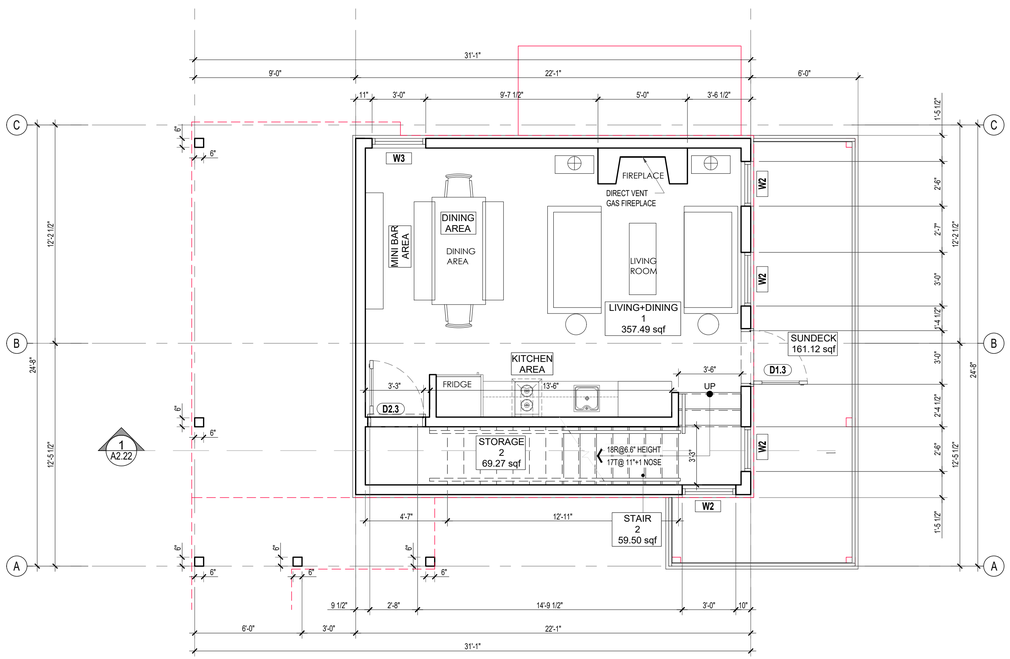
DRAWING NO.
A2



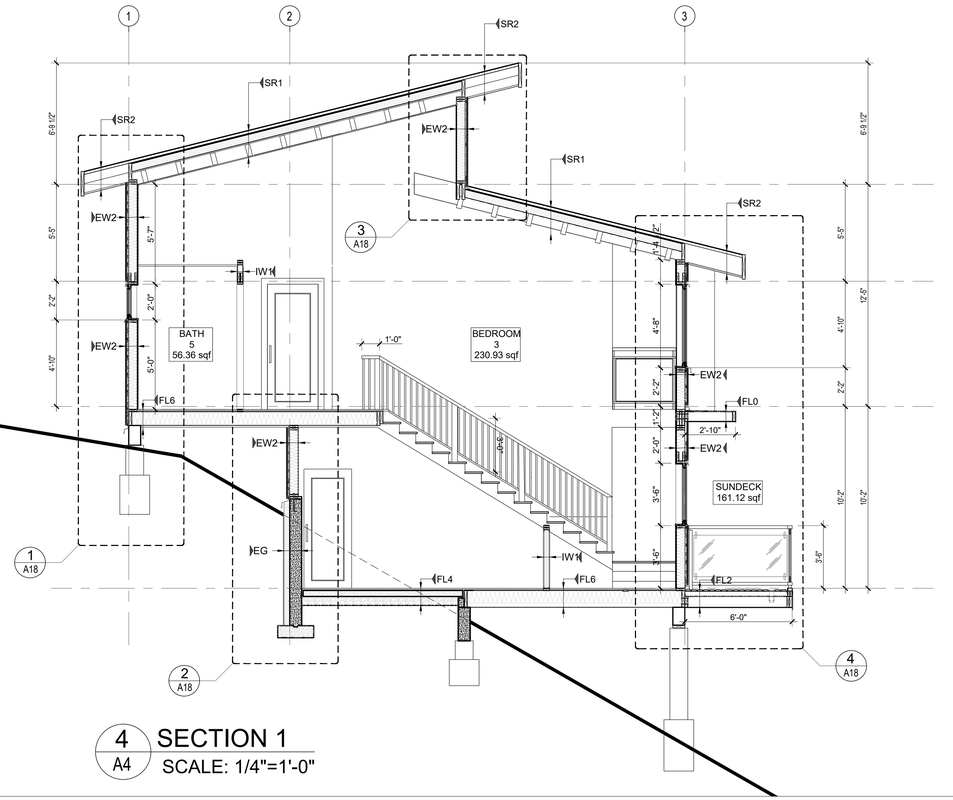
2 CABIN UPER PLAN
A4 — SCALE: 1/4"=1'-0"



3 ROOF PLAN
A4 — SCALE: 1/4"=1'-0"



1 CABIN LOWER PLAN
A4 — SCALE: 1/4"=1'-0"



4 SECTION 1
A4 — SCALE: 1/4"=1'-0"

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REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

PLANS AND SECTION CABIN6.1

JOB NO.

DRAWN: KN

DATE

SCALE

CHECKED: J N

DRAWING NO.

A4

Appendix B

2015 National Building Code of Canada Seismic Hazard Calculation

2015 National Building Code Seismic Hazard Calculation

INFORMATION: Eastern Canada English (613) 995-5548 français (613) 995-0600 Facsimile (613) 992-8836
Western Canada English (250) 363-6500 Facsimile (250) 363-6565

Site: 49.493N 123.766W

2024-07-01 21:45 UT

Probability of exceedance per annum	0.000404	0.001	0.0021	0.01
Probability of exceedance in 50 years	2 %	5 %	10 %	40 %
Sa (0.05)	0.428	0.295	0.210	0.089
Sa (0.1)	0.652	0.451	0.323	0.137
Sa (0.2)	0.807	0.564	0.405	0.172
Sa (0.3)	0.815	0.573	0.412	0.172
Sa (0.5)	0.728	0.505	0.357	0.142
Sa (1.0)	0.423	0.285	0.195	0.073
Sa (2.0)	0.260	0.170	0.112	0.040
Sa (5.0)	0.085	0.049	0.029	0.009
Sa (10.0)	0.030	0.017	0.010	0.004
PGA (g)	0.353	0.247	0.177	0.074
PGV (m/s)	0.542	0.364	0.249	0.089

Notes: Spectral (Sa(T), where T is the period in seconds) and peak ground acceleration (PGA) values are given in units of g (9.81 m/s^2). Peak ground velocity is given in m/s. Values are for "firm ground" (NBCC2015 Site Class C, average shear wave velocity 450 m/s). NBCC2015 and CSAS6-14 values are highlighted in yellow. Three additional periods are provided - their use is discussed in the NBCC2015 Commentary. Only 2 significant figures are to be used. **These values have been interpolated from a 10-km-spaced grid of points. Depending on the gradient of the nearby points, values at this location calculated directly from the hazard program may vary. More than 95 percent of interpolated values are within 2 percent of the directly calculated values.**

References

National Building Code of Canada 2015 NRCC no. 56190; Appendix C: Table C-3, Seismic Design Data for Selected Locations in Canada

Structural Commentaries (User's Guide - NBC 2015: Part 4 of Division B)
Commentary J: Design for Seismic Effects

Geological Survey of Canada Open File 7893 Fifth Generation Seismic Hazard Model for Canada: Grid values of mean hazard to be used with the 2015 National Building Code of Canada

See the websites www.EarthquakesCanada.ca and www.nationalcodes.ca for more information

GEOTECHNICAL ASSESMENT AND REPORT – UPDATE 2.0

Proposed Waterfront Resort

ATTACHMENT 4

6086 Poise Island Drive, Sechelt, BC

Vanta Pacific Development Corporation
2010 – 1082 Seymour Street
Vancouver, BC V6V 1X9

Document Version: R0
Project Number: WF47350

July 5, 2024

www.metrotesting.ca

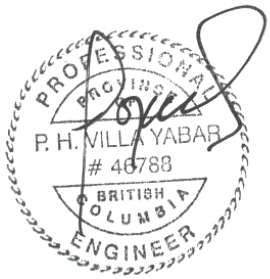
T 604-385-4244 – info@metrotesting.ca
#20-3275 McCallum Road - Abbotsford, BC V2S 7W8

Experience Applied

Vanta Pacific Development Corporation

Project Number: WF47350

Prepared by:



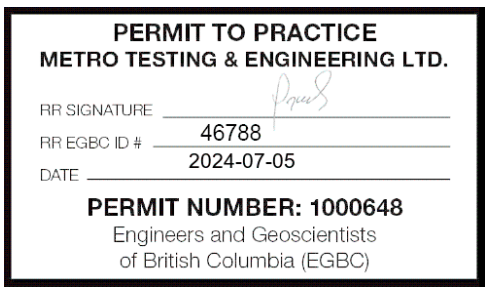
Percy Villa, P. Eng.
Senior Geotechnical Engineer
Geotechnical Department

2024-07-05

Reviewed by:

Read Fenton, P.Eng., MBA
Senior Geotechnical Engineer
Geotechnical Division Manager

Permit to Practice:



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Revisions and Publications Log

Rev	Description	Date	By	Check	Approve
A	Issued For Internal Review	July 2, 2024	PV	RF	✓
B	Issued For Client's Review	July 2, 2024	PV		✓
C	Issued For Construction	July 5, 2024	PV	RF	✓

Important Information and Limitations of This Report

Standard of Care

Metro Testing and Engineering Ltd. (Metro) has prepared this report in a manner consistent with that level of care ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the limits and physical constraints applicable to this report. No other warranty, expressed or implied, is made.

Basis and Use of the Report

This report has been prepared for the specific site, design objective, development and purpose described to Metro by the Client. The factual data, interpretations and recommendations pertain to the specific project described in the report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of this report may alter the validity of the report. Metro cannot be responsible for use of this report, or portions thereof, unless Metro is requested to review and, if necessary, revise the report.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Metro's express written consent. If the report was prepared to be included for a specific permit application process, then upon the Client's reasonable request, Metro may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Metro. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Metro, are considered its professional work product and shall remain the copyright property of Metro, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Metro. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility. Therefore, the Client cannot rely upon the electronic media versions of Metro's report or other products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Metro by the Client, communications between Metro and the Client, and any other reports prepared by Metro for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Metro cannot be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of boreholes, necessary to determine all of the relevant conditions which may affect construction costs would generally be more significant than has been carried out for design purposes. Contractors bidding on or undertaking the work should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their own work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.

Soil, Rock and Groundwater Conditions

Classification and identification of soils, rocks and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgement, and boundaries between different soil, rock or geologic types or units may be translational rather than abrupt. Accordingly, Metro does not warrant or guarantee the exactness of the descriptions, associated soil characteristics or parameters.

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions, and even a comprehensive investigation, assessment, sampling and testing program may fail to detect all certain subsurface conditions. The environmental, geological, geotechnical, geochemical, and hydrogeological conditions that Metro interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or adjacent properties. The professional services retained for this project include only geotechnical aspects of the subsurface conditions at the site unless otherwise explicitly stated and identified in the report. The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The soil, rock and groundwater condition may be significantly altered by construction activities (traffic, groundwater level lowering, pile driving, blasting, etc.) on the site or adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated, the soil must be protected from these changes during construction.

Follow-up and Construction Services

All details were not known at the time of submission of Metro's report. Metro should be retained to review the final design, project plans and documents prior to construction to confirm that they are consistent with the intent of Metro's report.

During construction, Metro should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Metro's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Metro's report. Adequate field review, observation and testing during construction are necessary for Metro to provide letters of assurance in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Metro's responsibility is limited to interpreting accurately the information encountered at the borehole locations at the time of their initial determination or measurement during the preparation of this Report.

Changed Conditions and Drainage

Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Metro be notified of any changes and be provided with the opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience. Metro should be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Subsurface water drainage commonly requires either temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Metro takes no responsibility for the aspects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

Executive Summary

Based on the findings of this assessment update, and provided that all of the recommendations presented herein are implemented, the land at 6086 Poise Island Drive, Sechelt, British Columbia, may be considered safe for the use intended. The subject site falls within the District of Sechelt's Development Permit Area (DPA) # 3 Marine, Foreshore and Shoreline Areas, DPA # 4 Rocky Beach Front, Escarpments and Slope Hazards, and DPA # 5 Steep Slopes (Slopes 20%-30% and >30%). The tables presented below provide reference to the sections in this report that address development permit area criteria outlined by the District for the subject site.

DPA # 3: Marine, Foreshore and Shoreline Areas

Section	DPA #3: Marine, Foreshore and Shoreline Areas
**	15. An environmental assessment report is required prior to any proposed development or alteration of the land, marine or foreshore areas within DPA 3, including but not limited to:
4.1	(a) Shoreline protection works such as retaining walls;
**	(b) Clearing or removal of existing riparian vegetation;
**	(c) Construction of impervious surfaces such as patios or beach access steps with more than ten (10) sq.m. total site coverage;
**	(d) Any proposed buildings or structures, including accessory buildings, wharves, piers or other moorage facilities;
**	(e) Placement of fill or removal of fill in the foreshore or upland areas.
**	16. The environmental assessment shall be completed by a Qualified Professional(s) with experience in assessing marine shoreline impacts. This may include a registered professional engineer with expertise in geotechnical engineering (for geotechnical and coastal processes) and a qualified environmental professional (for habitat/biological assessment).
**	17. The assessment report(s) shall identify:
**	(a) Impacts of the proposed development on the marine ecosystem and shoreline erosion, transport and deposition processes, including any impacts to surrounding properties or public use areas;
**	(b) Areas to remain undeveloped an any special steps to ensure protection of these areas;
**	(c) Remediation measures required to mitigate the impacts or restore habitat conditions;
**	(d) Details of any works required to address legislative requirements or approvals from any provincial or federal government agencies;
4.1	(e) Confirmation of the long-term safety of the proposed building or shoreline protection works in relation to erosion, landslip or wave action, including any anticipated impacts due to climate change and sea level increases.

***Additional criteria should be provided by a separate qualified professional.*

DPA # 4: Rocky Beach Front, Escarpments and Slope Hazards

Section	DPA #4 – Rocky Beach Front, Escarpments and Slope Hazards
2.2, 2.3, 4.2	(a) Provide accurate field definition of slope crest, location of geological features and document the extent of slope instability or rockfall areas. Site plans and slope profiles shall be included;
4.1, 4.2	(b) Assess the erosion potential of ocean waves on beachfront slopes, including potential increase in wave action/height due to climate change;

3.2	(c) Evaluate groundwater conditions and the potential for slope instability caused by groundwater seepage;
4.3	(d) Identify possible changes in slope conditions that might indicate an imminent landslide or rockfall hazard, for the attention of landowners;
5.9	(e) Identify the anticipated effects of septi8c and site drainage systems on slope stability. These systems should be designed to avoid surface and groundwater erosion of beach front slopes. The extent of bedrock or low permeability soils at shallow depth throughout this area will limit the viability of in-ground septic disposal systems;
5.5, 5.8	(f) Provide geotechnical assessment of cut and fill slope stability and provide appropriate recommendations and restrictions on excavation, blasting and filling;
4.2	(g) Building envelopes and setbacks and other restrictions to development should be established with reference to natural or cut slope crests and possible rockfall zones should be determined.
4.1, 4.2	(h) Provide detailed land use and construction recommendations to address local bank erosion and protection measures, including appropriate building setbacks from hazards slopes or rockfall hazards
4.2, 5.8	(i) In areas of bedrock, the engineer should assess the necessity and provide detailed recommendations for selective scaling, rock bolting, and tree removal/replanting to improve stability conditions, on a site-specific basis;
*	(j) Reports must meet the report guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia published by the Association of Professional Engineers and Geoscientists of British Columbia, March 2006 13, including submission of Schedule D (Landslide Assessment Assurance Statement) to specify that the land may be safely used for the use intended.

** Schedule D in a separate deliverable.*

DPA #5: Steep Slopes (Slopes 20%-30% and >30%)

Section	DPA #5 – Steep Slopes (Slopes 20%-30% and >30%)
2.0, 3.0	(a) An inventory and accurate plan of site features, including tree cover, rock outcroppings, watercourses and assessment of soil types, depths and conditions;
2.2, App A	(b) Plans showing the location of all existing and proposed buildings and structures, building envelopes, utility services, driveways and other impervious surfaces;
4.3, 4.1	(c) A slope analysis, geotechnical assessment, and slope stability plan providing assessment of the potential for landslide, landslip or erosion, detailing how the proposed development is to be designed and constructed to prevent any destabilization or erosion of the slope. This will include plans showing lands with 0-10%, 10-20%, 20-30% and 30% and over grades at a 1m contour interval.
N/A	(d) Location and amount of anticipated removal or fill.
**, 2.2	(e) View corridor analysis to determine the visual impact of development. The District may also require a 3D digital terrain model illustrating pre and post-development conditions, illustrating extents of cuts and fills, clearing an building placements;
**	(f) A site grading plan including sections through each lot that clearly shows building envelopes, including the top of cut and toe of slope, and the slopes of adjacent uphill and downhill adjacent lots.
4.1, 4.2, 4.3	(g) Recommendations on appropriate building envelopes or setbacks in relation to potential slope hazard, with specific recommendations and criteria for design, construction and maintenance.
5.5, 5.8	(h) Detailed measure to safeguard neighbouring properties and structures arising from the proposed construction or site preparation (including blasting)
5.9	(i) Identify the anticipated effects of septic and drainage systems on slope stability;

*	(j) Any geotechnical reports must meet the report guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia published by the Association of Professional Engineers and Geoscientists of British Columbia, March 2006, including submission of Schedule D (Landslide Assessment Assurance Statement) to specify that the land may be safely used for the use intended.

** Schedule D in a separate deliverable.*

***Additional criteria should be provided by the appropriate consultant.*

The proposed waterfront resort will consist of five (5) two-storey buildings with areas for reception, administration, amenities, convention center, and lodging. In addition, six (6) detached cabins are proposed at the south side of the complex. Parking spaces with capacity of 44 parking stalls accessible through an onsite road are proposed at the west side, and a marina for recreational boats is proposed at the north side of the development. The proposed structures in general will follow the natural contours of the land, as recommended in the DPA # 5 guidelines.

The site is underlain by medium strong igneous bedrock in the majority of its area, with a thin layer of surficial sand and gravel deposits observed on discrete zones, overlying the bedrock. We are of the opinion that the architectural and structural proposals are feasible from a geotechnical perspective and in general compliance with the guidelines outlined in DPA # 5 of the District of Sechelt Official Community Plan.

Due to its coastal location and moderate to steep slope, the subject site presents evidence for susceptibility of inundation by flood waters and rock fall events. Our analyses conclude that a minimum Flood Construction Level of 4.839 m geodetic elevation should be kept to mitigate the potential for coastal flooding. Rock fall mitigation measures will be provided during construction. The potential for coastal erosion and slope instability is anticipated to be very low.

Conventional concrete strip or pad footings are the recommended foundation type for the proposed waterfront resort. Footings seated on bedrock may be designed for a serviceability limit states (SLS) bearing pressure of 500 kPa. Footings founded on engineered fill, as defined in Section 5.2, may be designed for a SLS bearing pressure of 125 kPa.

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1 Introduction

With Vanta Pacific Development Corporation (Vanta Pacific) authorization, Metro Testing & Engineering (Metro) has completed this geotechnical assessment update for the proposed waterfront resort consisting of five (5) two-storey buildings and six (6) detached cabins at 6086 Poise Island Drive in Sechelt, British Columbia. The purpose of this assessment update was to address the current Guidelines for Development Permit Area outlined in the District of Sechelt Official Community Plan Bylaw No 492, 2010. Metro (formerly Western Geo) previously conducted a field program in August 2014 and issued a geotechnical report titled *Geotechnical Engineering Report 6086 Poise Island Drive Sechelt, BC* dated September 23, 2014.The information contained in this report will supplement the information obtained during our site reconnaissance conducted on June 12, 2024. The purpose of this geotechnical assessment report is to provide updated geotechnical engineering comments and recommendations including:

- Subsurface and groundwater conditions;
- Hazard assessment;
- Seismic design considerations including site class;
- Foundation recommendations and bearing capacity;
- Excavation, backfilling and compaction requirements;
- Earth pressure on retaining walls;
- Utility trench excavation and backfill; and
- Subgrade preparation for proposed building foundations.

This geotechnical assessment update has been prepared in accordance with the standard geotechnical engineering principles and practices in British Columbia. In writing this update, the following documents and publications were studied:

- National Building Code of Canada (NBCC 2015) and British Columbia Building Code (BCBC 2018);
- Engineers and Geoscientists of British Columbia (EGBC) Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia;
- District of Sechelt's Development Permit Guidelines (DPA #3, DPA #4, and DPA #5);
- Hazard Acceptability Thresholds for Development Approvals by Local Government, by Dr. Peter Cave, November 1993;
- Topographic plan, provided by the client;
- Architectural design by HNPA Architecture + Planning, dated February 2020;
- Structural design by TIDES Consulting, dated December 2018.

Use of this report is subject to the conditions outlined in Important Information and Limitations of this Report which precedes the main text on Page 4 and forms an integral part of this document. This report may be used by the District of Sechelt for development and building planning purposes.

2 Site Description and Proposed Development

2.1 Site Layout

The subject site is located at 6086 Poise Island Drive in Sechelt, British Columbia. The site is irregular in shape, encompassing an area of about 1 ha (10,195 m^2). The site is bounded by Ripple Way to the south, an undeveloped residential lot to the west, Poise Island Park to the north, and by Porpoise Bay to the east. Access to the site is via a gravel paved extension of Poise Island Drive and via Ripple Way (see Figure 1).

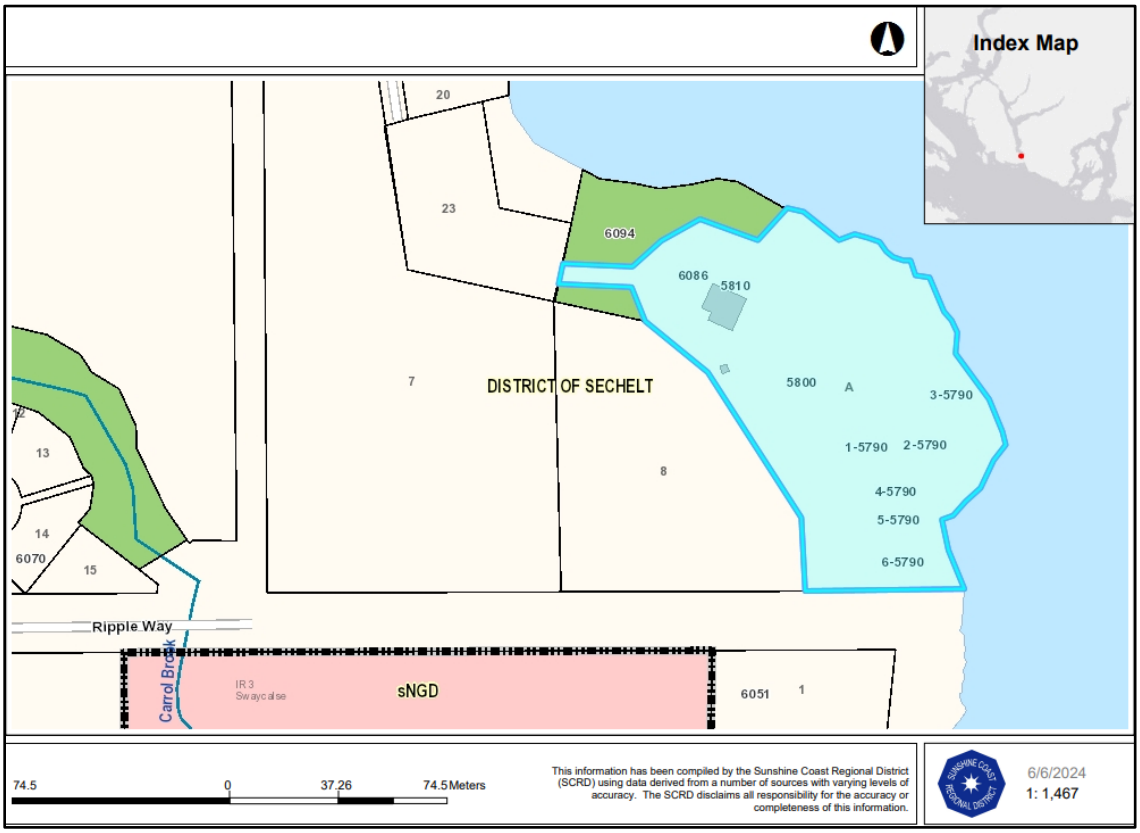

Figure 1: Site Location (Source: SCRD GIS Maps)

2.2 Existing and Proposed Structures

There is currently a detached single-family cabin with a footprint of approximately 125 m^2 located on the northwestern portion of the lot. A floating dock that allows mooring of small, recreational boats is located to the north side of the lot. The cabin and the dock are connected by a 3 m wide, about 70 m long path.

According to architectural drawings provided, the proposed waterfront resort will consist of five (5) two-storey buildings with areas for reception, administration, amenities, convention center, and lodging. In addition, six (6) detached cabins are proposed at the south side of the complex. Parking spaces with

capacity of 44 parking stalls accessible through an onsite road are proposed at the west side, and a marina for recreational boats is proposed at the east side of the development. The proposed structures will follow the natural contours of the land.

The conceptual layout of the proposed development and 3D architectural model is shown below on Figures 2 and 3. Relevant architectural drawings are provided in Appendix A.

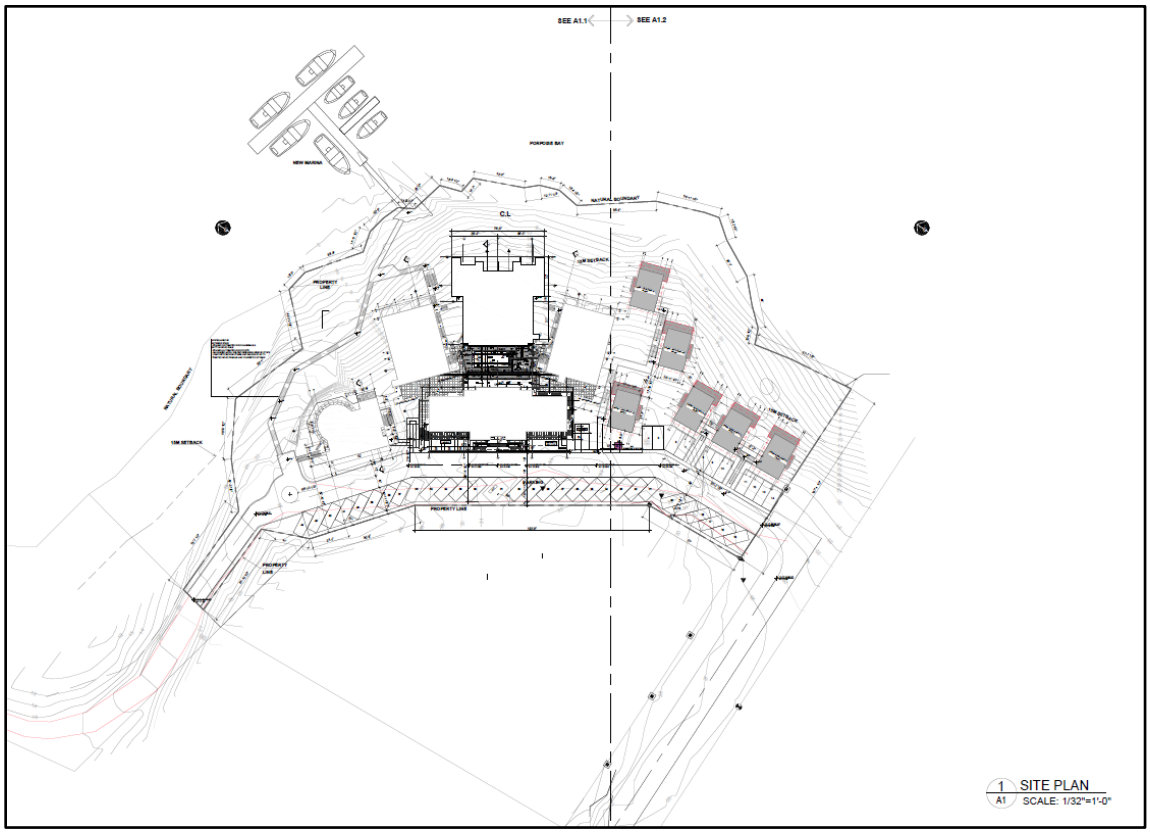

Figure 2: Plan View of Proposed Development

Figure 3: 3D Architectural Model of Proposed Development

2.3 Topography

The western portion of the site is relatively flat for about 16 m and then slopes down to the east to a rate of about 33% (18°) transitioning then to a rate of about 47% (25°) and finally 75% (37°) where it meets the natural boundary at Porpoise Bay (see Figures 4 and 5). There is a very steep cliff near the southeast portion of the lot which drops to a rate of approximately 200% (63°).

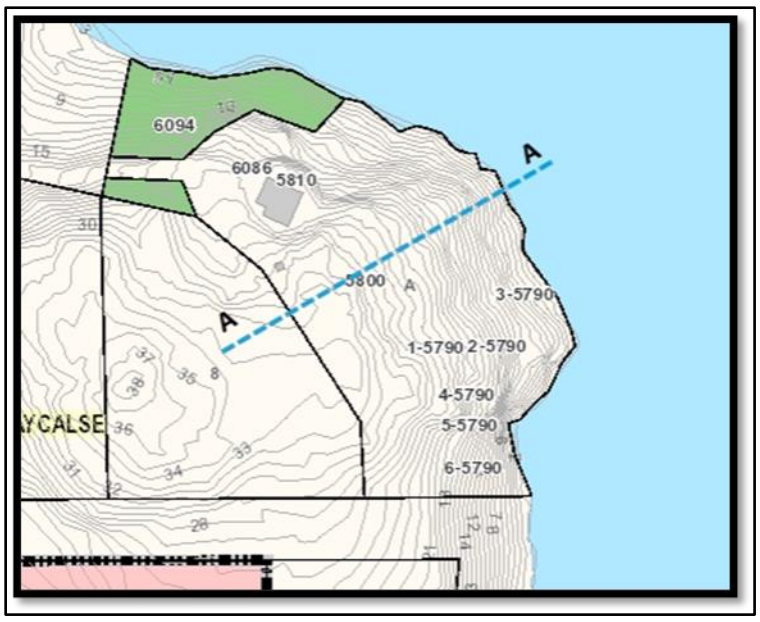

Figure 4: Contours and Section A-A location

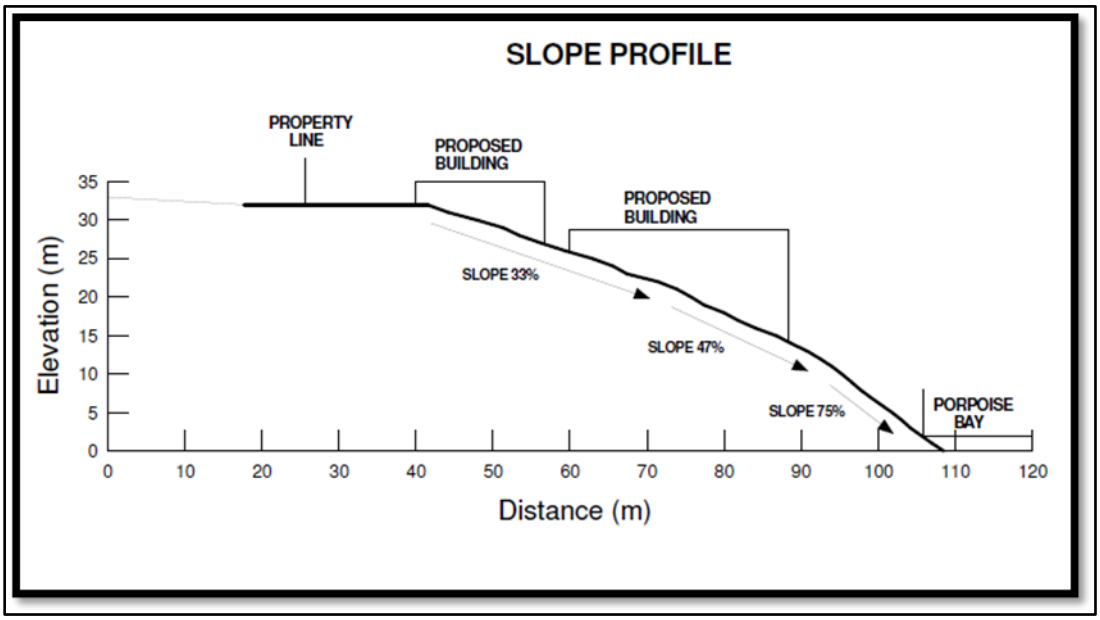

Figure 5: Slope Profile

2.4 Vegetation

The vegetation at the site includes a second growth forest comprised of a mix of Douglas Fir and Western Hemlock species. The forested area of northeastern portion of the site includes a sparse canopy and a very thin understory comprised primarily of a variety of mosses and lichens, with some woody stemmed plants. The southern portion of the lot includes a denser canopy and a thicker understory comprised of a variety of woody stemmed plants, herbaceous plants, mosses and lichens.

2.5 Surface Water

No surface water or localized ponding was evident on site during the field reconnaissance investigation. As no pronounced drainage swales or draws are present on the property, runoff appears to be by sheet-flow following the natural topography of the lot downslope from southwest to northeast, and leading into Porpoise Bay below.

3 Subsurface Conditions

3.1 Soil and Bedrock Conditions

Based on Surficial Geology Map of the Sunshine Coast published by the Ministry of Mines and Petroleum Resources of British Columbia, the site is underlain by bedrock outcrops, mostly bare rock with thin patches of overburden, usually till or marine veneer. The subsurface conditions encountered in the site reconnaissance were generally consistent with the published geological information. Due to the presence of exposed bedrock in the majority of the site and evidence of only a thin surficial layer of soil at discrete areas, an exploration program was considered not required.

In general, the subsurface soils were observed to consist of a veneer of sand and gravel deposit over medium strong igneous bedrock. Where the bedrock is exposed, the rock was observed to be unweathered to moderately weathered, dark greyish, fine-grained materials. Discontinuities were observed to be moderately widely spaced (200 mm – 600 mm) with moderately narrow aperture (6 mm – 20 mm).

The overlying soil deposit is estimated to range in thickness from 0.3 m to 1.2 m or more based on hand probing methods and visual observations taken on the site and adjacent properties.

Photograph 1: Slightly weathered bedrock at the upper side of site

3.2 Groundwater

Due to the presence of exposed bedrock and the anticipation of shallow bedrock in the proposed development area, permanent groundwater conditions are not expected in the vicinity of the proposed complex. No groundwater or indications of groundwater were detected during the site reconnaissance, and this condition is not expected to pose geotechnical issues related to the proposed works.

4 Geohazard Assessment

Geohazard susceptibility at the subject site was screened using the 1993 paper Hazard Acceptability Thresholds for Development Approvals by Local Government by Dr. Peter W. Cave (Cave Report), acknowledged throughout British Columbia as a defining document in hazard assessment. The eight

hazards have been summarized in Table 1 below. The subject site did not present substantial geotechnical evidence for susceptibility to hazard as a result of *Mountain Stream Erosion and Avulsion, Debris Flows and Debris Torrents, Debris Floods, Localized Landslides, Snow Avalanche, Rock Fall, or Catastrophic Landslide*. Due to its coastal location and moderate to steep slope, the subject site presents evidence for susceptibility of inundation by flood waters and rock fall events.

Table 1: Relevant Geotechnical Hazards

Hazard	Definition
Inundation by Flood Waters	Characterized by an unusually large volume of water flowing in a channel, a portion of which may flow overbank. Floods are associated with other hazards such as channel erosion and avulsion.
Mountain Stream Erosion and Avulsion	Characterized by the lateral migration of a stream channel (erosion) and/or the abandonment of the channel course to occupy a different position on the alluvial fan (avulsion). This type of hazard may be associated with large flow events.
Debris Flows and Debris Torrents	A rapid, channelized, fluid transport of water saturated debris. A debris flow path can be divided into an initiation zone, a transport and erosion zone, and a deposition zone. Transport often initiates within steep gullies and is conveyed downslope at high velocity which can damage forests and human development.
Debris Floods	A large flood event associated with an unusually high amount of sediment movement consisting of coarse bed load material and organic material such as trees and logs.
Landslides, Small-Scale, Localized	The sudden and rapid or gradual and incremental downslope movement of soil, rock, and other weathered materials.
Snow Avalanche	The sudden and rapid downslope movement of snow and ice. Avalanches develop large amounts of kinetic energy, damaging anything in its path.
Rock Fall	The detachment of individual rock fragments from a steep slope and their gravitational downslope transport.
Landslides, Massive, Catastrophic	The sudden and rapid movement of unusually large amounts of soil, rock and other weathered materials.

Additionally, the subject site falls within the District of Sechelt's Development Permit Area (DPA) # 3 Marine, Foreshore and Shoreline Areas, DPA # 4 Rocky Beach Front, Escarpments and Slope Hazards, and DPA # 5 Steep Slopes (Slopes 20%-30% and >30%).

4.1 DPA # 3: Marine, Foreshore, and Shoreline Areas

The subject site is a coastal parcel and is prone to influence by the oceanic waters of Purpose Bay. A minimum flood construction level (FCL) should be determined to mitigate any potential for coastal flooding for any planned structure at the subject site. The FCL has been estimated as follows:

Component	Note
Higher high-water large tide (HHWLT)	1.289 m geodetic (*)
Sea Level Rise	1.00 m for year 2100
Storm Surge	1.30 m
Wave Effects	0.65 m
Freeboard	0.60 m
Flood Construction Level = Sum of all components = 4.839 m geodetic elevation	

(*) *Based on information obtained from Canadian Hydrographic Services (CHS) 7852 station located in Porpoise Bay, the HHWLT of the subject site is estimated in 1.298 m Geodetic GD.*

The lower floor elevation of the five buildings and six cabins proposed for the resort vary from 14 to 27 m geodetic elevation, well above the established minimum FCL. In addition, a horizontal setback of 15 m from the natural boundary has been kept for the location of proposed structures, in compliance with DPA # 3 guidelines.

No evidence of active erosion was observed at this site. Due to the condition of the observed bedrock existing on the shoreline natural boundary of the property (medium strong bedrock, with moderate weathering and discontinuities), hazards related to coastal erosion as a result of wave action provided by Porpoise Bay is considered to be negligible for design life of the proposed development (100 years). No shoreline protection works are needed for this development. In addition, the rocky shores on the subject site are very stable and have very limited sediment supply. The new marina is proposed at the same location of the existing dock to minimize disturbance on the shoreline. Please refer to Photograph 2.

Photograph 2: Rocky shoreline at the south side of site

4.2 DPA # 4: Rocky Beach Front/Escarpment, Rockfall and Upland Slope Hazards

Rock fall and rock slope instability events are characterized by the loosening of bedrock units to create movement of rock fragments down a slope. Rock fall events are typically smaller and more translational in nature, while rock slope instability events are larger and more local in nature. In general, the majority of the rock slopes on the subject site are not subject to Rock Fall hazards from rock fall or rock slope instability. Strong igneous bedrock outcrops were noted at the upper side of the site, with negligible to very low probability of rock fall events. The south side of the site presents evidence of fractured bedrock and a very steep slope that could induce rock fall events. A minimum setback distance from the top of the slope may be required above this section of rock slope. The need for a setback distance will be determined during construction based on the exact final location of the proposed structures. Alternatively, the setback distance may be waived if rock slope mitigation techniques such as pinning, scaling and/or netting are implemented. These requirements will be determined during construction.

4.3 DPA # 5: Steep Slopes

4.3.1 Slope Stability Analysis

Small scale, localized slope stability events are characterized by either the rapid or gradual destabilization of steep slopes typically comprised of loose, unconsolidated material. Massive instability events are similarly characterized by either quick or gradual destabilization of steep slopes. However, catastrophic events of this nature are further characterized by the movement of a large mass of material and a deep-seated failure plane.

The subject site exhibits moderate to steep slopes ranging from 33% to 75% (18° to 37°) in the majority of the site and very steep slopes 63° or steeper at the southeastern portion of the site. There was no evidence of instability or deformations at the vicinity of the crest of the slopes during our site reconnaissance on June 12, 2024. For this assessment, Metro has conducted both static and seismic (pseudo-static/dynamic) limit equilibrium analyses of a relevant Section A-A. Section A-A is shown in Figure 6.

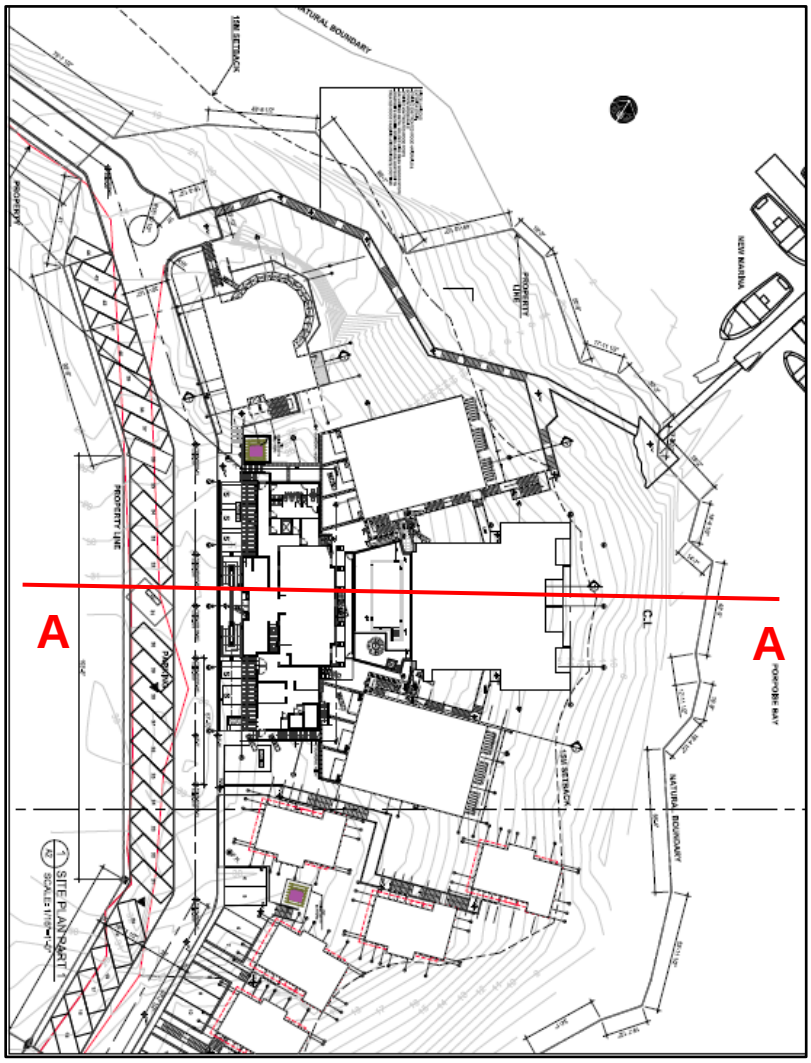

Figure 6: Section A-A for Slope Stability Analysis

The analyses were carried out using commercially-available computer software "SLOPE/W" by GeoStudio 2023.1.0 (ver. 23.1.0.520). The model used for the limit equilibrium slope stability analyses was developed using information from the site topographic survey, architectural drawings, and available SCRD GIS contours, while material strength and unit weight parameters were selected based on information collected during the site reconnaissance in June, 2024.

The computer software calculates the Factor of Safety (FOS) against slope instability for multiple potential failure surfaces through the slope, where FOS is defined as the ratio of soil strength along a potential failure plan (typically expressed in forces and/or moments) to the forces (and moments) that tend to cause failure. The Engineers and Geoscientists of BC (EGBC) *Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC* requires a seismic slope stability analysis considering the 1 in 2,475 years return period ground motions, which is equivalent to a 2 percent probability of exceedance in 50 years. The minimum required FOS is 1.5 for static loading and 1.0 for seismic loading conditions.

A seismic coefficient k equal to 50% of the peak ground acceleration (PGA) has been used for the pseudo-static (seismic) analysis. PGA = 0.307g, as provided by the 2015 NBCC online Seismic Hazard Calculator (provided in Appendix B). The material strength and unit weight parameters used in the analyses are summarized in Table 2 below.

Table 2: Input Parameters for Slope/W Subsurface Materials

Parameter	Granitic Bedrock
Internal Friction Angle, φ	30°
Cohesion, c (kPa)	120
Unit Weight, ɣ (kN/m^3)	24

The proposed buildings are assumed to have a distributed loading of 40 kPa. Figures 7 and 8 illustrate results of static and seismic (pseudo-static) analyses for a potential global landslide hazard. The results of the slope stability analyses indicate calculated FOS of 2.6 for static loading and 2.0 for seismic loading conditions for Section A-A. In both cases the calculated FOS satisfy the minimum requirements set out by EGBC Guidelines 2010.

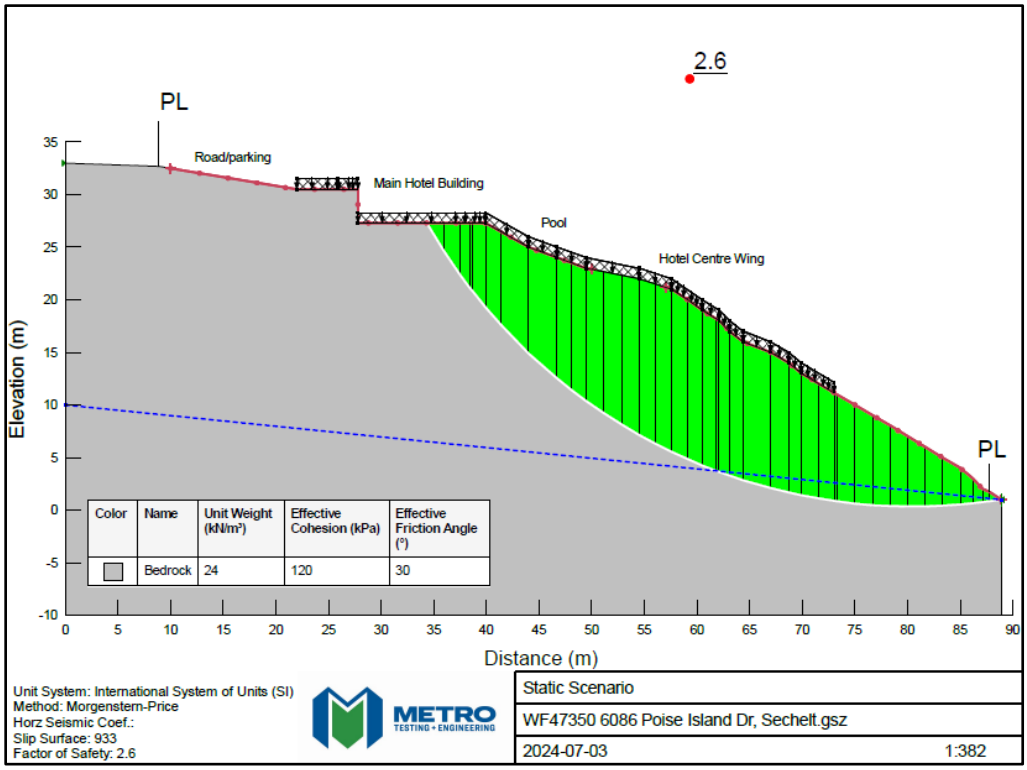

Figure 7: Static Analysis for Global Stability at Section A-A (Calculated FOS=2.6)

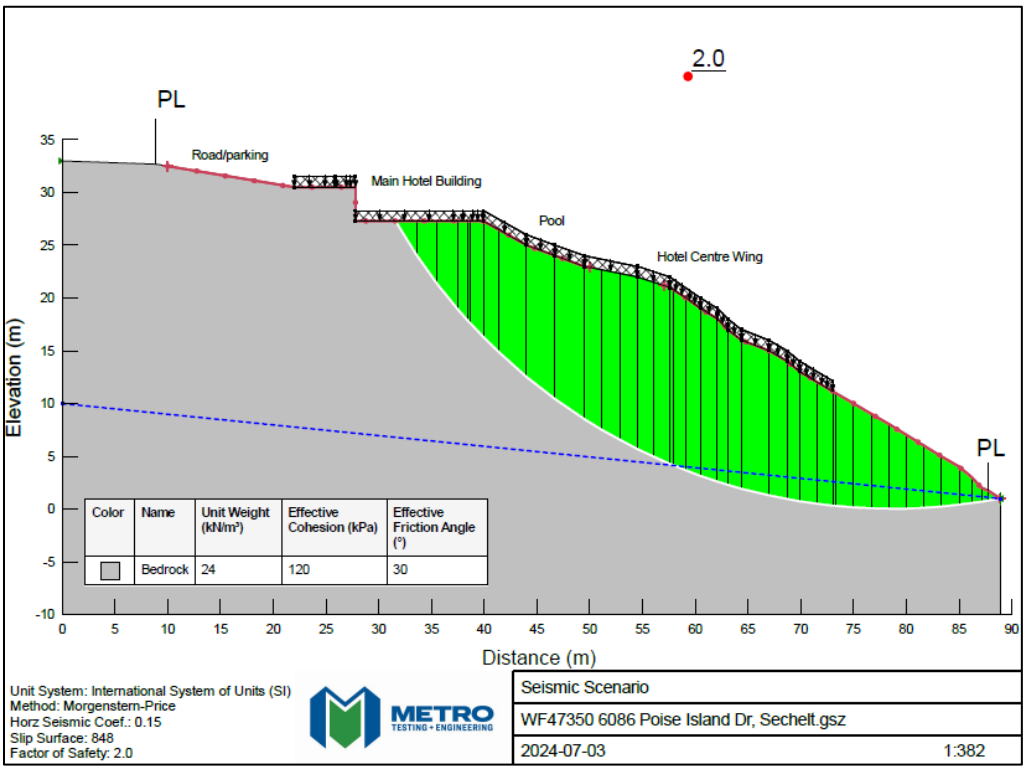

Figure 8: Seismic Analysis for Global Stability at Section A-A (Calculated FOS=2.0)

4.3.2 Slope Stability Assumptions

The following inputs and assumptions have been considered in the stability assessment pertaining to the proposed development:

- The soils encountered during the geotechnical reconnaissance (June 2024) would not be subject to liquefaction behavior.
- Assumed horizontal seismic coefficient k_h = 0.15g.
- Seismic loading analyzed for a return period of 2,475 years for global (deep-seated) failure.
- 40 kPa distributed building loads were assumed for the proposed structures.
- Groundwater level at Section A-A is assumed to follow the topography of the site, flowing through the fractures of the rock.
- Conservative values of cohesion and friction angle have been used in the slope model assuming the rock mass behaves as a Mohr-Coulomb material, in which the shear strength is expressed in terms of the cohesion and friction angle along the rupture surface.

4.3.3 Slope Stability Analysis Results

The results obtained from the static and seismic slope stability analyses indicate that the slopes observed on site are considered stable with respect to a deep-seated failure. No setbacks from the proposed buildings to the crest of slopes are required at this time.

The slope stability should be reassessed if the architectural plan/house plan is changed, and Metro should be provided the opportunity to review the change.

Slope stability analysis is based upon the available soil and rock information. In the event that unexpected soil conditions are encountered at the time of site development, further analysis may be required to revise susceptibility of slope areas to undergo deformation under static and design seismic conditions.

Satisfactory factors of safety present only a baseline assessment of slope conditions at the time of analysis and may not present an accurate representation of slope conditions over the long term due to man-made processes or natural processes.

Man-made processes with potential to negatively impact the stability of slopes and/or promote erosion include, but may not be limited to the following:

- Excavations into the slope or slope toe areas,
- Excessive vibration from heavy machinery, such as compaction equipment or pile drivers,
- Defective maintenance of slope drainage systems,
- Blasting activities, and
- Unexpected changes to groundwater flow regimes due to site development.

Natural processes with potential to negatively impact the stability of the site slopes include, but may not be limited to the following:

- Extended periods of seasonally wet/extremely cold weather,
- Storm events with exceptionally high rainfall intensity and duration,
- Erosion of slope at toe areas, and
- Removal of slope tree and vegetation cover by disease or fire.

Thus, the site slopes must be maintained and all measures should be installed to safe guard the stability of the slope.

5 Geotechnical Engineering Comments and Recommendations

5.1 General

Based on our site reconnaissance and previous assessment, the site is in general underlain by a thin layer of sand and gravel deposit over medium strong igneous bedrock. As outlined in Sections 4.1 and

4.3, hazard related to slope instability and coastal erosion are considered very low for the proposed waterfront resort.

The proposed structures (five buildings and six cabins) are well above the calculated FCL; thus, the potential for coastal flooding is considered very low. As mentioned in section 4.2, the potential for rock fall in the vicinity of the proposed cabins can be addressed by allowing a setback from the crest of the slope or by removing loose fragments of rock during construction.

Following our review, and as required by the District of Sechelt in the *Guidelines for Preparation of Geotechnical Reports* (2019), it is Metro's opinion that the land may be used safely for the use intended, provided that our recommendations are adhered to. This report may be relied upon by the District of Sechelt in considering an application for a development permit as outlined in the District of Sechelt's Official Community Plan for lands within Development Permit Areas #3, #4, and #5.

For the purpose of this report, we have combined each applicable type of geo-hazard and the types of approval to form a matrix for the type of proposed development, which is new building. Table 3 below provides Geotechnical Hazards and Annual Return Frequency.

Table 3: Geohazards and Annual Return Frequency

Hazard	Annual Return Frequency	Building Approval Application
Inundation by Flood Waters	<1:200	Approval with compliance of minimum FCL.
Mountain Stream Erosion and Avulsion	<1:500	Approval without conditions relating to hazards.
Debris Flow / Debris Torrent	<1:10,000	Approval without conditions relating to hazards.
Small Scale Localized Landslip	<1:2,500	Approval without conditions relating to hazards.
Snow Avalanche	<1:10,000	Approval without conditions relating to hazards.
Rockfall Small Scale Detachment	1:1000 - 1:10,000	Approval with removal of any loose rock fragments during construction.
Major Catastrophic Landslide	1:1000 - 1:10,000	Approval without conditions relating to hazards.
Debris Flood	1:500 - 1:10,000	Approval without conditions relating to hazards.

5.2 Site Preparation

After demolition of existing structures, any surface vegetation, as well as loose, soft, saturated, and deleterious material should be removed in order to expose strong bedrock in the area of proposed buildings. Some blasting or rock hammering shall be required to reach proposed floor elevations. Recommendations for blasting are provided in Section 5.8. Footing subgrades must be reviewed and approved by the geotechnical engineer prior to the placement of any engineered fill or formwork.

All imported engineered fill and approved native material to be used as engineered fill should be inspected by the geotechnical engineer. Engineered fill is defined as clean sand to sand and gravel with less than 5% fines content passing # 200 sieve, compacted in 300 mm loose lifts to a 100% of ASTM D698 Standard Proctor maximum dry density at moisture content within 2% of optimum for compaction. Water collected in the excavation during construction must be properly conveyed and discharged in accordance with local bylaws and environmental regulations.

5.3 Footings and Slabs o Grade

The recommended foundation type for the proposed resort structures is continuous concrete strip and pad/column footings which are the preferred choice of the design team. Footings should be placed a minimum of 450 mm below surface for frost protection.

In accordance with the NBCC, the foundation recommendations included in this report are based on limit state design (LSD) methodology. The unfactored ultimate limit state (ULS), factored ultimate state (ULS_f) and serviceability limit states (SLS) design criteria for the relevant geotechnical parameters have been determined and are provided in Table 4 below for use by the structural engineer.

Table 4: Recommended Bearing Capacity Values

Material	Recommended Bearing Capacity (kPa)			
	Ultimate Geotechnical Resistance (kPa)	Geotechnical Resistance Factor (φ)	Factored Geotechnical Resistance at ULS (kPa)	SLS (kPa)
Intact bedrock	1500	0.5	750	500
Engineered fill	375	0.5	187	125

The geotechnical bearing capacity for the proposed structures may be considered 500 kPa for footings on intact bedrock or 125 kPa for footings on structural fill. This represents a factored serviceability limit states resistance value (SLS). Factored ULS bearing pressures can be used for transient loads such as wind and earthquakes. Any special conditions should be approved by the geotechnical engineer. Footing subgrades should be thoroughly cleaned of any disturbed, loose, soft or saturated material to expose competent bedrock prior to forming and the pouring concrete.

If the footings are to be stepped, this should be done so that a line connecting the closest edges of two footings is no steeper than 2H:1V.

To minimize the chance of undesirable floor wetness and possible moisture migration, a layer of a minimum of 150 mm thick, 19 mm free draining gravel should be placed beneath the slabs on grade, that

serves as a capillary barrier between the subgrade material and the slab. An impermeable membrane should be placed over the gravel such as 6 mil polypropylene sheeting or an approved equivalent.

The bearing surfaces must be cleaned of all loosened or softened soil. Foundation excavations and bearing surfaces should be protected before, during and after footing construction from rain, snow, freezing temperatures, excess drying and the ingress of free water. Footings must not be constructed on frozen soils. In addition, a qualified geotechnical engineer should observe bearing surfaces, prior to placement of foundation concrete, to confirm that the design bearing parameters are appropriate.

5.4 Site Drainage and Final Discharge

It is understood that drainage for most of the buildings will be conducted by gravity and discharged to a service pipe along the onsite access road. Buildings away from the access road may discharge to an approved outfall location. In general, permanent drainage should consist of individual perimeter drains for permanent structures and paved sections. This consist of a minimum of 100 mm diameter perforated pipe surrounded by a minimum drainage zone of 300 mm of 19 mm free draining gravel wrapped in non-woven geotextile fabric. This drainage system should be sloped at a minimum 2% gradient and discharged to an approved outfall location. Our office will provide input once civil drawings are completed.

5.5 Cut/Fill and Site Grading

Thickness of organic deposits encountered within the proposed resort area was relatively minor. Therefore, conventional site grading procedures, which would include stripping of the organic soils followed by the construction of the subgrade, are considered appropriate. The composition and consistency of the soils encountered at the site were such that excavation with conventional earthmoving equipment, and/or hydraulic excavators, is considered feasible. However, due to the presence of weak to medium strong bedrock, which was encountered near surface, specialized equipment capable of *ripping* may be required to achieve design grade elevations.

Moderate cut and fill volumes of soil are expected during construction of onsite road and parking stalls, with fill thicknesses of up to 3.7 m. At the main hotel building (building 1), hotel wings (buildings 2, 3, and 4), pool, and convention centre (building 5) locations, excavation in rock will be required to reach basement floor elevations and imported fill will be required behind foundation walls, although in relatively small to moderate volumes. The six proposed cabins are mostly supported on columns, with relatively small volumes of excavation in rock.

The proposed waterfront resort has been planned in general to follow the natural contours of the site, as recommended in DPA # 5 guidelines. All temporary excavations, temporary stockpiling of surplus material, or any movement of material that has the potential to impact neighboring properties or Porpoise Bay must be carefully planned with the participation of the geotechnical engineer.

The proposed structures are accessed from the main hotel building (entrance) and parking stalls through wooden or concrete stairs, following in general the natural grade of the site. Based on the review of the current architectural drawings and grading plan, cut and fill activities are not expected to affect the stability of the site.

5.6 Seismic Design Considerations

The proposed structures should be designed under the seismic provisions of the 2015 NBCC. Horizontal Peak Ground Acceleration (PGA) and 5% damped spectral response acceleration values $S_a(T)$ for different periods (i.e. 0.2 s, 0.5 s, 1.0 s, 2.0 s, 5.0 s and 10.0 s) are outlined in Table 5 for various probabilities of exceedance and interpolated seismic hazard values, respectively. As per current standards, the proposed structures should be designed for a seismic event with a 2% probability of exceedance in 50 years (1 in 2,475-year event).

Table 5: NBCC Interpolated Seismic Hazard Values (Site Class C)

Return Period (years)	S_a (0.2)	S_a (0.5)	S_a (1.0)	S_a (2.0)	S_a (5.0)	S_a (10.0)	PGA (g)	PGV (g)
2,475	0.807	0.728	0.423	0.260	0.085	0.030	0.353	0.542

Based on the current level of geotechnical data, and according to the 2018 BC Building Code, Table 4.1.8.4.A, the development's Site Classification for Seismic Response is Site Class B – Rock. The site-specific design spectral acceleration values of S(T) for Site Class B are provided below:

Table 6: Design Spectral Acceleration Values of S(T)

Period, T (seconds)	Design Spectral Value, S(T) (g)
T ≤ 0.2 s	0.621
T = 0.5 s	0.621
T = 1.0 s	0.266
T = 2.0 s	0.164
T = 5.0 s	0.054
T = 10.0 s	0.021
PGA	0.307
PGV	0.363

5.7 Underground Structures and Retaining Walls

Lateral loads on retaining walls are provided assuming that the wall is frictionless and the soil backfill against the vertical foundation wall is horizontal, the following Rankine earth pressure coefficients are

presented below in Table 5. For purpose of preliminary design, Table 5 provides earth pressure coefficients assuming a granular soil backfill with the following properties:

- Friction Angle Ø = 33 degrees;
- Unit Weight ɣ = 21 KN/m^3; and,
- Peak Ground Acceleration, PGA = 0.307g.

Table 7: Rankine Earth Pressure Coefficients

Description	Coefficient
Static Active Earth Pressure Coefficient, K_a	0.29
At-Rest Earth Pressure Coefficient, K_o	0.46
Passive Earth Pressure Coefficient, K_p	3.39
Dynamic Active Earth Pressure Coefficient, K_{ae}	0.39
Incremental Dynamic Active Earth Pressure Coefficient, K_{ae} - K_a	0.10

The values provided above assume that the underground structures will be backfilled with clean, free draining granular material. Also, it is important to ensure that any groundwater entering the backfill area is free to drain vertically into the drainage system. If it is not possible to provide the granular materials and drainage behind the wall, then increased earth pressures and hydrostatic pressures must be assumed to act on the wall and the hydrostatic pressures would be additive to the static design earth pressures.

5.8 Temporary Excavations - Blasting

Shallow excavations on the surficial soil veneer are expected along the onsite access road and parking stalls. The temporary cuts should be limited to 3H: 4V for the soils observed on this site. Slopes in soil are to be covered with poly sheeting for protection against erosion induced instability. Excavations in excess of 1.2 m require inspection by a geotechnical engineer in accordance with Worker's Compensation Board guidelines. In the event of spatial constraints, excavations can be supported by gravity walls approved by the geotechnical engineer.

Bedding material for utility trenches should have Type 1 gradation, in accordance with Master Municipal Construction Document (MMCD) specifications and should be placed and compacted in lifts to provide a minimum of 95% Modified Proctor maximum dry density (ASTM D-1557) around the pipe, including underneath its haunches. Hand-tamping equipment should not directly contact the pipe and should not be allowed to compact above the pipe until the full 300 mm bedding zone has been placed above it.

Imported trench backfill should consist of pit-run gravel or approved equivalent fill material that follows MMCD guidelines and should be placed only within the zone of trench backfill, above the pipe bedding zone. Trench backfill should be compacted to a minimum of 95% Modified Proctor maximum dry density.

Depending on the nature of the rock to be excavated to build underground structures and footings, some blasting may be required. Blasting shall be carried out by a certified blaster (the person, firm or corporation engaged by the owner to conduct blasting) and monitored by a professional engineer or specialist who specializes in rock mechanics and has expertise in blasting in urban areas, in general accordance with the District of Sechelt Blasting Regulation Bylaw No. 458, 2007, consolidated in August 2019. Some of the requirements to be included for blasting permit application are mentioned below:

- A control blasting plan, prepared by the blaster and accepted in writing by the Engineer and Director (designated by the District of Sechelt), which shall consist of a sketch of the blasting pattern and include the sequence of detonation and the maximum weight of explosives and shall specify measures designed to minimize the impact of the blasting.
- A pre-blast survey report which shall be made of all principal structures, swimming pools, retaining walls, patios and driveways on any parcel of land within a minimum 50 m radius of the blast site. The report of the pre-blast survey shall identify all observed damage to structures existing and anything that may be susceptible to damage from blasting.
- Monitoring of blasting shall include measurement of ground vibration at the closest structure to the blast and at any structure considered to be sensitive to ground vibrations, as determined by the engineer. Ground vibration at any structure shall not exceed a particle velocity of 50 mm per second or any other limit specified by the engineer.
- A report detailing how drill rigs and compressors are to be muffled and the use of equipment to reduce or control noise levels.

5.9 Septic System

It is understood that the wastewater from buildings in close proximity to the onsite road will be serviced by gravity to a sanitary pipe installed along the road. Lower buildings will use a lift station and wastewater pumped to the proposed new sanitary line. No septic systems are planned at this time for the proposed waterfront resort structures. Metro must be notified if any septic system is proposed during the design process to provide input regarding the potential effect of the septic field on the stability of the slopes.

5.10 Pavement Structure

All fill, topsoil and loose soils should be removed, before placing the pavement structure. The pavement structure for the proposed new onsite road should be constructed with the minimum dimensions shown in Table 7 below:

Table 8: Recommended Minimum Flexible Pavement

Material	Thickness (mm)
Asphalt	75
Granular Base (19 mm crushed gravel road base)	100

Granular Sub-base (75 mm crushed gravel sub-base)	200
Total Thickness	**375**

It is recommended that the sub-base and base meet the Master Municipal Construction Documents (MMCD) grain size distribution specification summarized in Table 8. The subbase and base should be placed and compacted to a minimum of 95% of the Modified Proctor maximum dry density, as per ASTM D1557, and within 2% of the material's optimum moisture content (OMC).

Table 9: Recommended Grain Size Distribution for Sub-base and Base Crushed Gravel

Sieve Designation	Sub-base (75 mm crushed gravel) Percent Passing (%)	Base (19 mm crushed gravel) Percent Passing (%)
80 mm		
75 mm	100	
38 mm	60-100	
25 mm	-	100
19 mm	35-80	80-100
12.5 mm	-	-
9.5 mm	26-60	50-85
4.75 mm	20-40	35-70
2.36 mm	15-30	25-50
1.18 mm	10-20	15-35
0.6 mm	5-15	-
0.3 mm	3-10	5-20
0.18 mm	-	-
0.15 mm	-	-
0.075 mm	0-5	0-5

Prior to sub-base gravel placement, the exposed subgrade should be proof-rolled to identify any soft, loose, or non-uniform areas. Any soft areas detected should be over-excavated and replaced with approved material. If extensive, deep, soft soil deposits are encountered, geogrid and/or geotextile may

be incorporated to improve the condition of the subgrade soils. The use of such methods to improve poor subgrade conditions will have to be made at the time of construction.

6 Construction Review

The recommendations presented in this report update assume an adequate level of observations will be provided during construction, performed by experienced contractors. The recommended design values are subject to engineering and approval by a qualified geotechnical engineer. It is recommended, that a qualified and experienced geotechnical firm, such as Metro, be engaged to evaluate designs and to perform the specified materials engineering and testing services. The frequency of materials engineering and testing services can be provided, once site development concepts, schedules and specifications are established.

Metro should be notified (in advance) during construction in order to carry out the necessary field reviews and testing. As a minimum, the following field reviews and testing are considered necessary:

- Field subgrade review for building foundations and pavement following site stripping;
- Confirmation of suitable bearing for building foundations and floor slabs; and,
- Compaction of structural fill.

Upon request, Metro can issue British Columbia Building Code Schedule B for the geotechnical aspects of the Building Permit Application for the building constructed for this project. To ensure commitment to field reviews, Metro must be notified when the work commences, to conduct the necessary field reviews during construction. Metro cannot assume responsibility or liability for the adequacy of its recommendations when they are used in the field without Metro being retained to review and approve the actual soil conditions during construction. Following successful completion of construction, and assuming all required field reviews and testing is completed, Metro will issue the BC Building Code Schedule C/B.

7 Closure

Geotechnical engineering recommendations presented herein are based on Metro's interpretation and evaluation of the findings of the geotechnical investigation completed on September 2014 and subsequent field reviews in October 2020 and May 2024, review of available information and recognized foundation engineering principles and practice. The materials in this report reflect Metro's best judgment based on the information that was available to Metro at the time of preparation of this report. If conditions other than those are noted during subsequent phases of the development, Metro should be given the opportunity to review and revise the recommendations included in this report, as necessary.

This report has been prepared for the exclusive use of Vanta Pacific Development Corporation, their designated consultants and agents, and representatives for the specific application of the development described within this report. Any use of this report by third parties, or any reliance on or decisions made

based on it are the responsibility of such third parties. Metro accepts no responsibility, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

We appreciate the opportunity to be of service to you. If you have any questions regarding the contents of this report, or if we can be of further assistance to you on this project, please contact Metro's production team noted on Page 3.

8 References

McCammon, J.W. (1977). *Surficial Geology Sunshine Area.* Province of British Columbia: Ministry of Mines and Petroleum Resources;

National Building Code of Canada (NBCC 2015) and British Columbia Building Code (BCBC 2018);

Engineers and Geoscientists of British Columbia (EGBC) Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia;

Cave, P.W. (1993). *Hazard Acceptability Thresholds for Development Approvals by Local Government.* British Columbia Geologic Hazard Workshop, Victoria, BC.

Canadian Geotechnical Society (CGS). *Canadian Foundation Engineering Manual,* (5th Edition, 2023);

District of Sechelt's Development Permit Guidelines (DPA #3, DPA #4, and DPA #5);

Architectural design by HNPA Architecture + Planning, dated February 2020;

Structural design by TIDES Consulting, dated December 2018.

Master Municipal Construction Documents Association (MMCD). *Master Municipal Construction Documents,* Platinum Edition, 2019;

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Appendix A
Relevant Architectural Drawings

PORPOISE BAY

NEW MARINA

NATURAL BOUNDARY

C.L

15M SETBACK

PROPERTY LINE

MISCELLANEOUS
EXTERIOR STAIR:
-STAINED 2X6 TREATED WOOD HANDRAILS & BOTTOM WOOD RAILS
-STAINED 4X4 TREATED WOOD POSTS
-GALVANIZED METAL WELDED WIRE MESH W/WOOD STOPS
-COMPOSITE DECKING STAIRS AND WALKWAYS ON TO TREATED WOOD FRAMING AND CONCRETE FOOTINGS

PARKING

PROPERTY LINE

PROPERTY

LOADING

PMT CONNECTED TO BC HYDRO

42'-9"
16'-9"
19'-4 1/2"
12'-11 1/2"
18'-8 1/2"
14'-7"
28'-2"
13'-8 1/2"
30'-3"
17'-11 1/2"
50'-9"
19'-3"
53'-11 1/2"
65'-4"
19'-7 1/2"
34'-1"
69'-7"
49'-10 1/2"
49'-8 1/2"
3'-10"
15'-3 1/2"
R10'
10'
R16'-10 1/2"
20'-1 1/2"
79'-7 1/2"
41'
90'-8"
193'-8"
57'-10"
97'-7 1/2"
19'-11 1/2"

1 A2 SITE PLAN PART 1
SCALE: 1/16"=1'-0"

H N P A
ARCHITECTURE+PLANNING INC
2983 W. 41ST AVENUE
VANCOUVER BC CANADA V6N 3C8
EMAIL: office@hnpadesign.com
TEL:606-726-1338
604-559-8566

ISSUED FOR
BUILDING PERMIT

FEB, 2020	RESUBMIT FOR BUILDING PERMIT

REVISIONS

PROJECT
VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE
SITE PLAN PART 1

JOB NO.

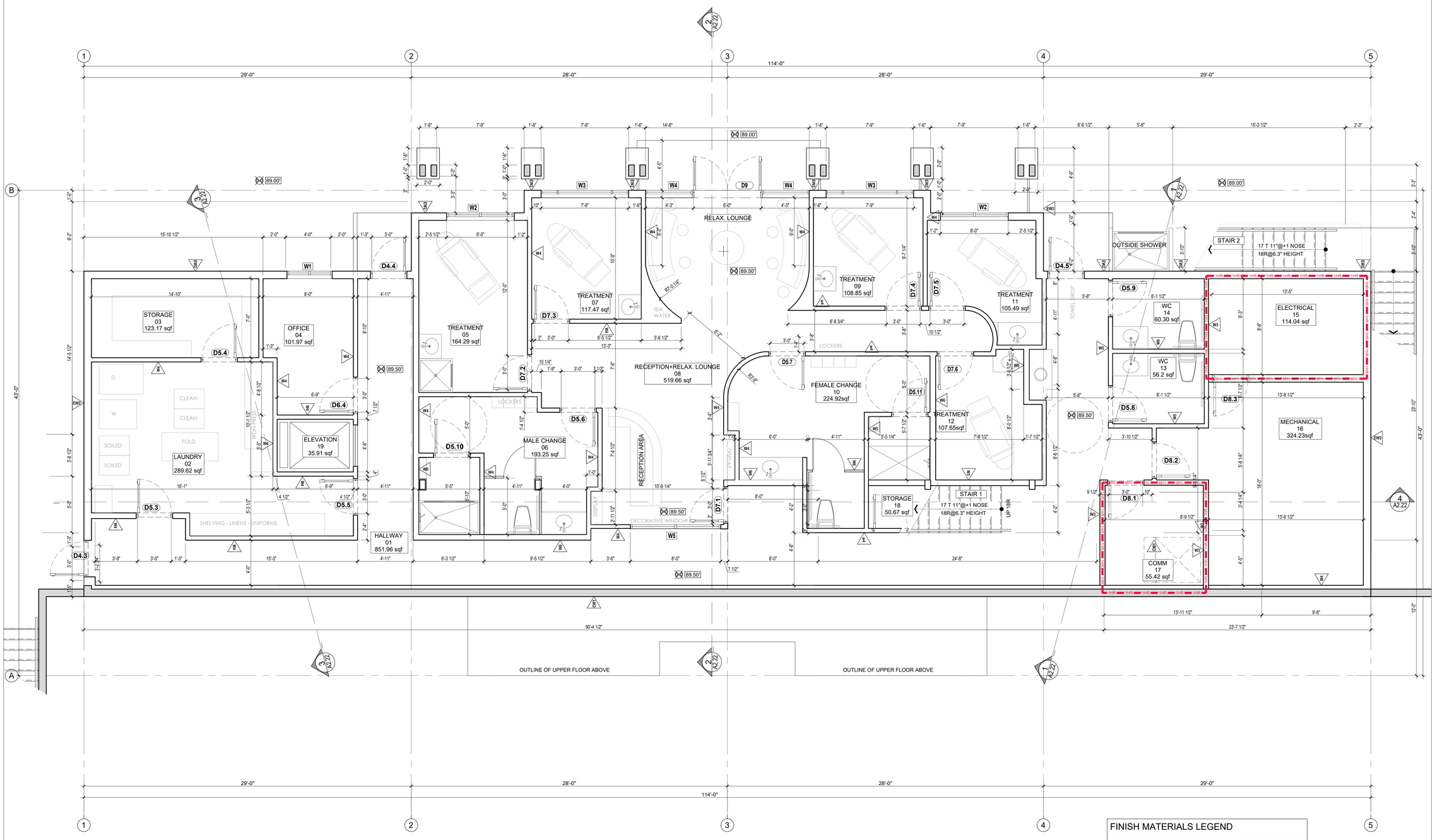
DRAWN KN

DATE

SCALE

CHECKED J N

DRAWING NO.
A2



FINISH MATERIALS LEGEND

D1.3	DENOTES ROOM NUMBER
W7	DENOTES WINDOW NUMBER
R.NAME 08 sqf	DENOTES ROOM NAME, NUMBER & AREA
W5	DENOTES WALL TYPE

1 / A4 HOTEL PLAN AT 90.50' LEVEL
SCALE: 1/4"=1'-0"

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ISSUED FOR
BUILDING PERMIT

REVISIONS

PROJECT
VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE
MAIN HOTEL-BUILDING 1 PLAN AT 90.50' LEVEL

JOB NO.

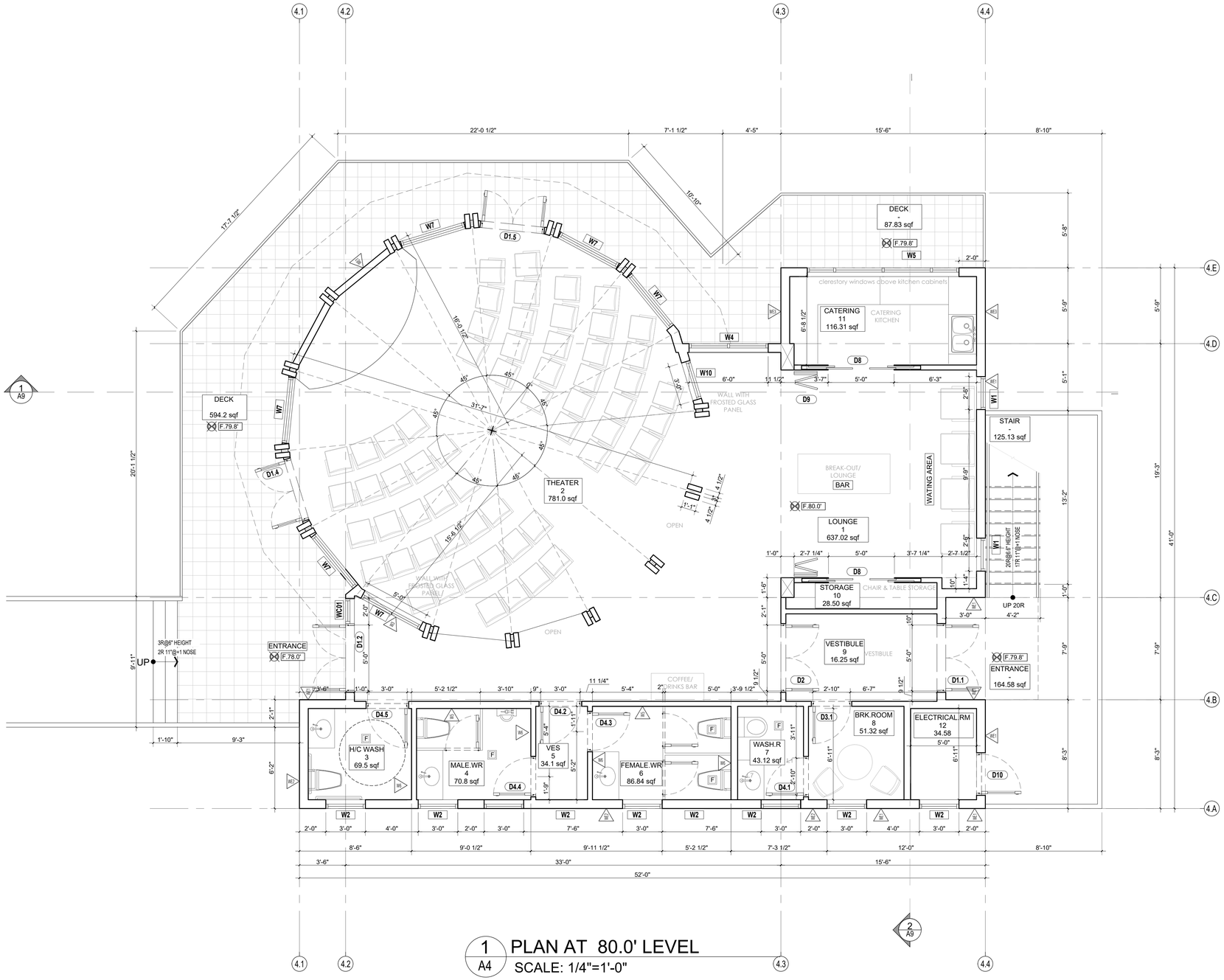
DRAWN **KN**

DATE

SCALE

CHECKED **J N**

DRAWING NO.
A4



1 A9

2 A9

1 PLAN AT 80.0' LEVEL

1 A4 SCALE: 1/4"=1'-0"

H N P A

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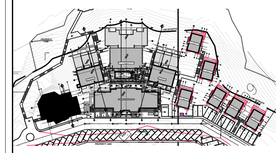

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PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

CONVENTION-BUILDING 5 PLAN AT 80.0' LEVEL

JOB NO.

DRAWN: KN

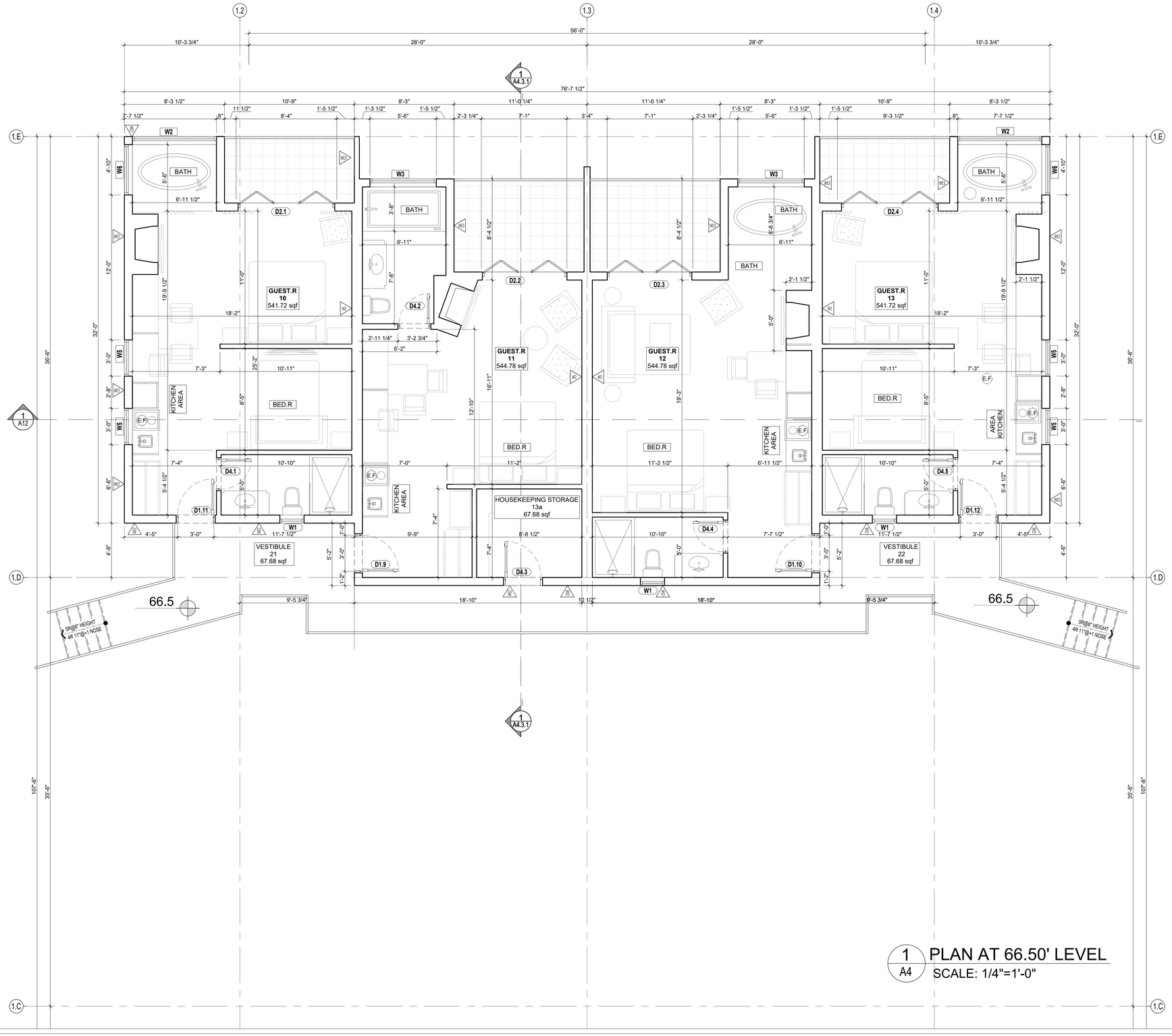
DATE

SCALE

CHECKED: J N

DRAWING NO.

A4



1 A4 PLAN AT 66.50' LEVEL
SCALE: 1/4"=1'-0"

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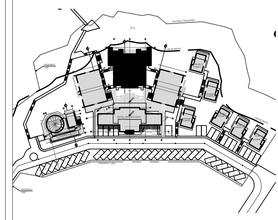

5		
4		
3	APRIL 06, 2016	REISSUED FOR BP
2	NOV 13, 2014	REISSUED FOR BP
1	SET 21, 2014	ISSUED FOR BP

REVISIONS

PROJECT

VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

HOTEL CENTRE WING-BUILDING 2
PLAN AT 66.50' LEVEL

JOB NO.

DRAWN: LEON

DATE

SCALE

CHECKED: J N

DRAWING NO.

A4

PORPOISE BAY

NATURAL BOUNDARY

C.L

15M SETBACK

15M SETBACK

18'-8 1/2"
42'-9"
16'-9"
19'-4 1/2"
14'-7"
12'-11 1/2"
65'-4"
53'-11 1/2"
19'-7 1/2"
34'-1"
44'
13'-6 1/2"
87'-7 1/2"
167'-1 1/2"
76'-6"
38'-3"
38'-3"
32'
31'
4'-6"
SWIMMING POOL UNDER SEPERATE PERMIT
3'6 GUARDRAIL HEIGHT
CABIN 1 (BUILDING 6.1) PHASE 2
CABIN 1 (BUILDING 6.3) PHASE 2
CABIN 1(BUILDING 6.4) PHASE 2
CABIN 1(BUILDING 6.5) PHASE 2
CABIN 1(BUILDING 6.6) PHASE 2
CABIN 1 (BUILDING 6.2) PHASE 2
17'-11 1/2"
17'-10 1/2"
20'-11 1/2"
28'-4"
31'-7"
21'-5"
LANDING
12'-1
PARKING
GARBAGE & RECYCLE
PMT CONNECTED TO BC HYDRO
FG:29.65M(97.28')
EG:32.00M
FG:30.00M (98.50')
EG:32.00M
FG:29.65M(97.28')
EG:32.60M
FG:29.87M(98.0')
EG:33.50M
FG:29.0M(95.1')
EG:29.50M
FG:27.6M(90.55')
EG:24.60M
50'-11 1/2"
PARKING
19'-11 1/2"
97'-7 1/2"
PROPERTY LINE
193'-8"
87'

1 / A2 SITE PLAN PART 2
SCALE: 1/16"=1'-0"

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DRAWING TITLE
SITE PLAN PART 2

JOB NO.

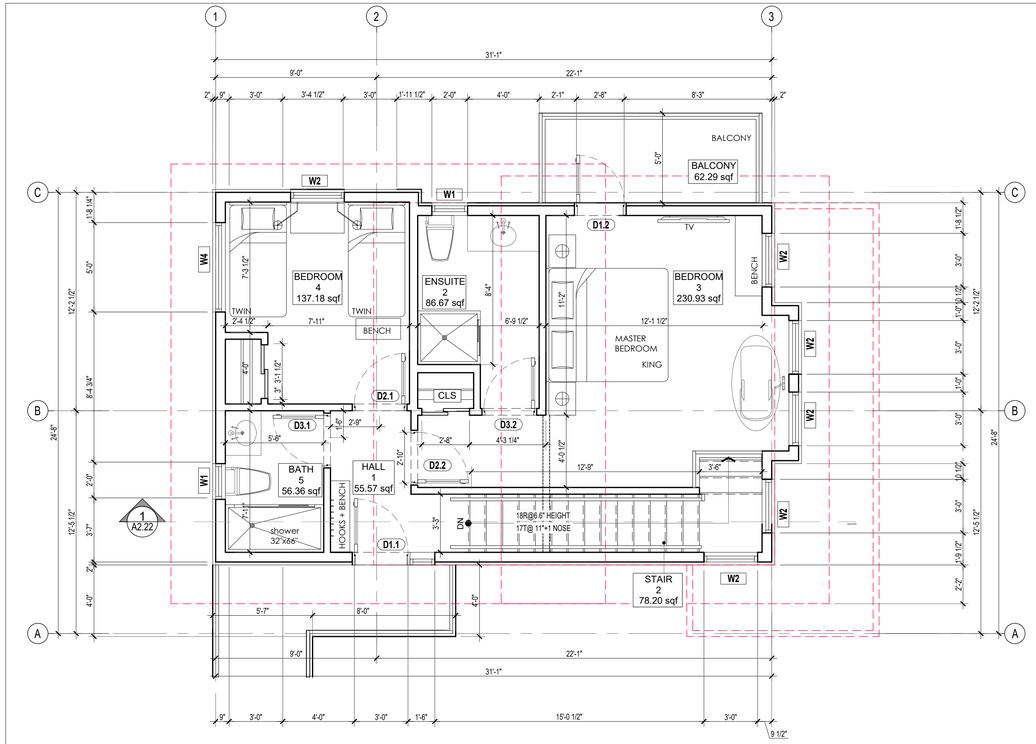
DRAWN KN

DATE

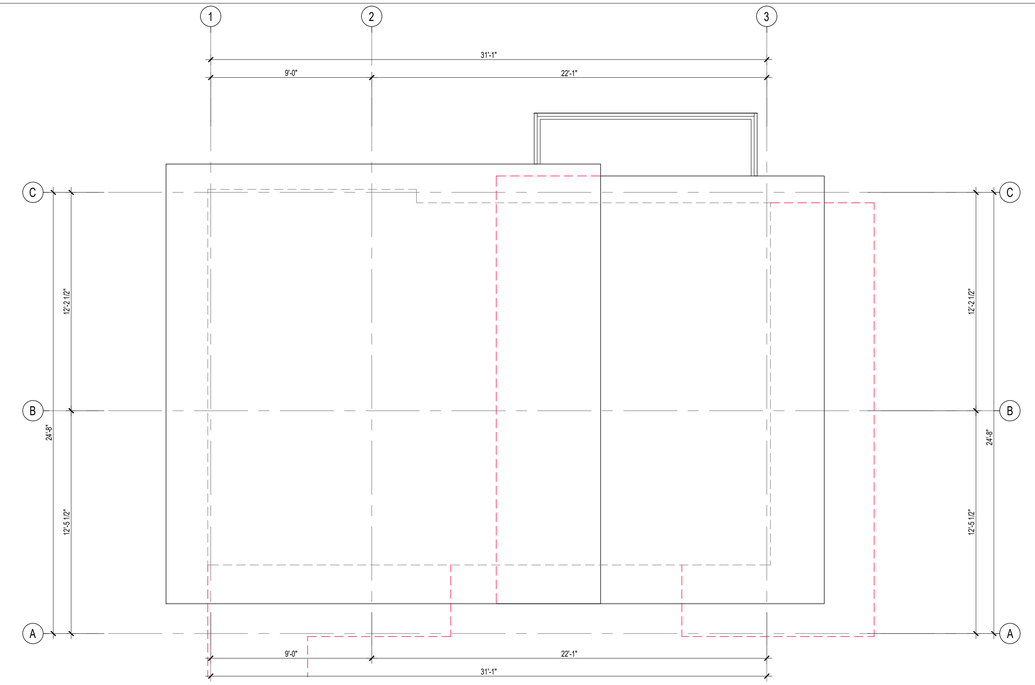
SCALE

CHECKED J N

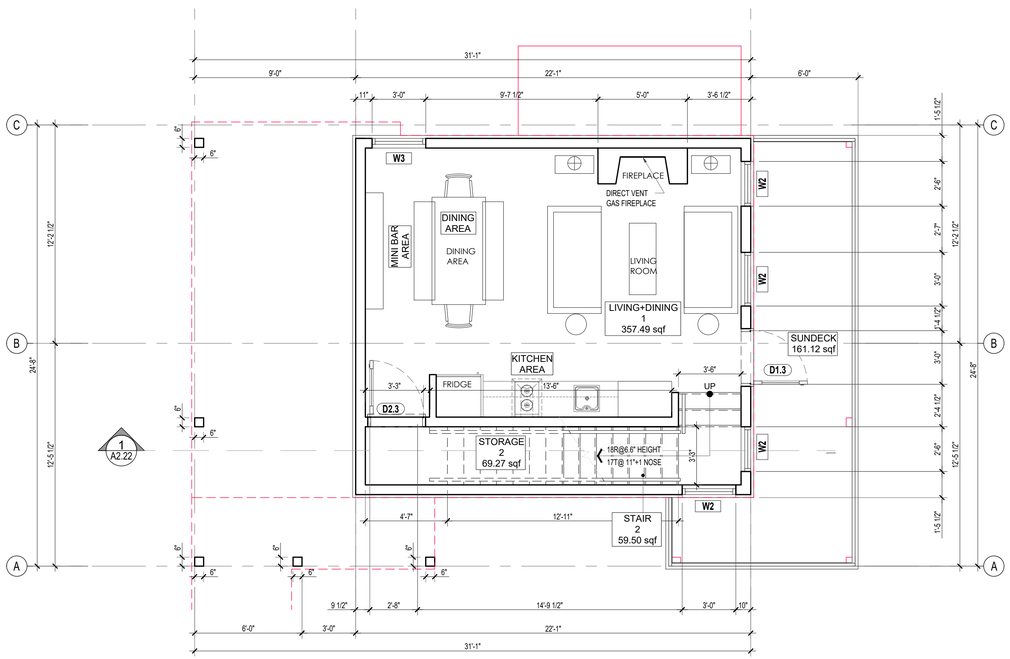
DRAWING NO.
A2



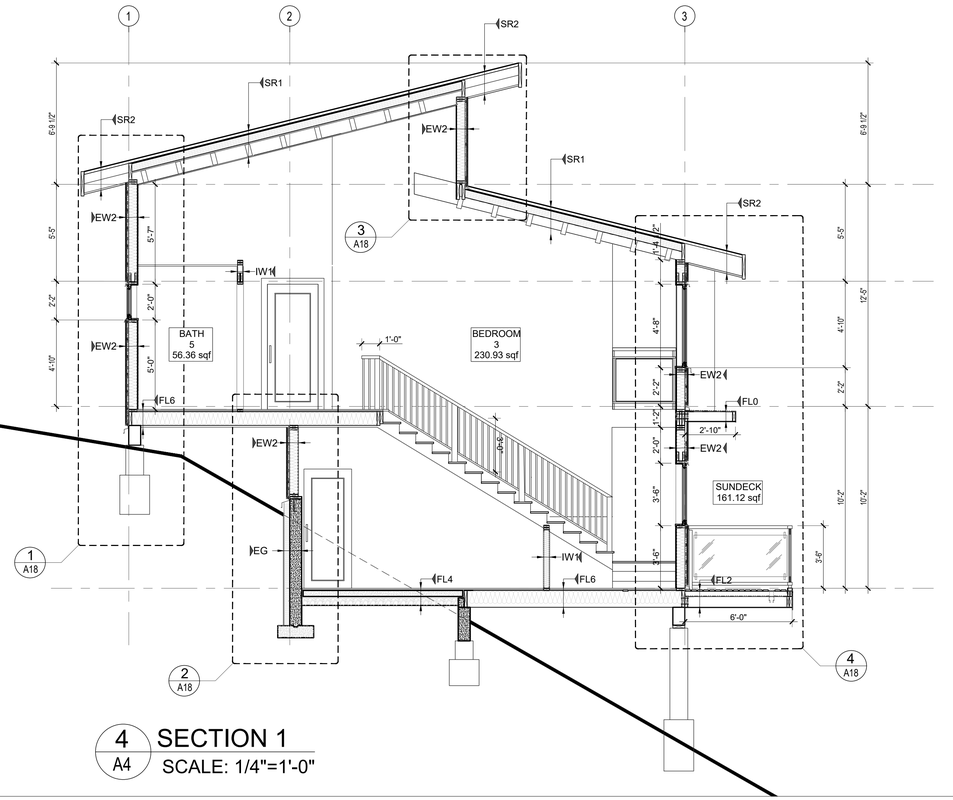
2 CABIN UPER PLAN
A4 — SCALE: 1/4"=1'-0"



3 ROOF PLAN
A4 — SCALE: 1/4"=1'-0"



1 CABIN LOWER PLAN
A4 — SCALE: 1/4"=1'-0"



4 SECTION 1
A4 — SCALE: 1/4"=1'-0"

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VANTA PACIFIC WATERFRONT RESORT

DRAWING TITLE

PLANS AND SECTION CABIN6.1

JOB NO.

DRAWN: KN

DATE

SCALE

CHECKED: J N

DRAWING NO.

A4

Appendix B

2015 National Building Code of Canada Seismic Hazard Calculation

2015 National Building Code Seismic Hazard Calculation

INFORMATION: Eastern Canada English (613) 995-5548 français (613) 995-0600 Facsimile (613) 992-8836
Western Canada English (250) 363-6500 Facsimile (250) 363-6565

Site: 49.493N 123.766W

2024-07-01 21:45 UT

Probability of exceedance per annum	0.000404	0.001	0.0021	0.01
Probability of exceedance in 50 years	2 %	5 %	10 %	40 %
Sa (0.05)	0.428	0.295	0.210	0.089
Sa (0.1)	0.652	0.451	0.323	0.137
Sa (0.2)	0.807	0.564	0.405	0.172
Sa (0.3)	0.815	0.573	0.412	0.172
Sa (0.5)	0.728	0.505	0.357	0.142
Sa (1.0)	0.423	0.285	0.195	0.073
Sa (2.0)	0.260	0.170	0.112	0.040
Sa (5.0)	0.085	0.049	0.029	0.009
Sa (10.0)	0.030	0.017	0.010	0.004
PGA (g)	0.353	0.247	0.177	0.074
PGV (m/s)	0.542	0.364	0.249	0.089

Notes: Spectral (Sa(T), where T is the period in seconds) and peak ground acceleration (PGA) values are given in units of g (9.81 m/s^2). Peak ground velocity is given in m/s. Values are for "firm ground" (NBCC2015 Site Class C, average shear wave velocity 450 m/s). NBCC2015 and CSAS6-14 values are highlighted in yellow. Three additional periods are provided - their use is discussed in the NBCC2015 Commentary. Only 2 significant figures are to be used. **These values have been interpolated from a 10-km-spaced grid of points. Depending on the gradient of the nearby points, values at this location calculated directly from the hazard program may vary. More than 95 percent of interpolated values are within 2 percent of the directly calculated values.**

References

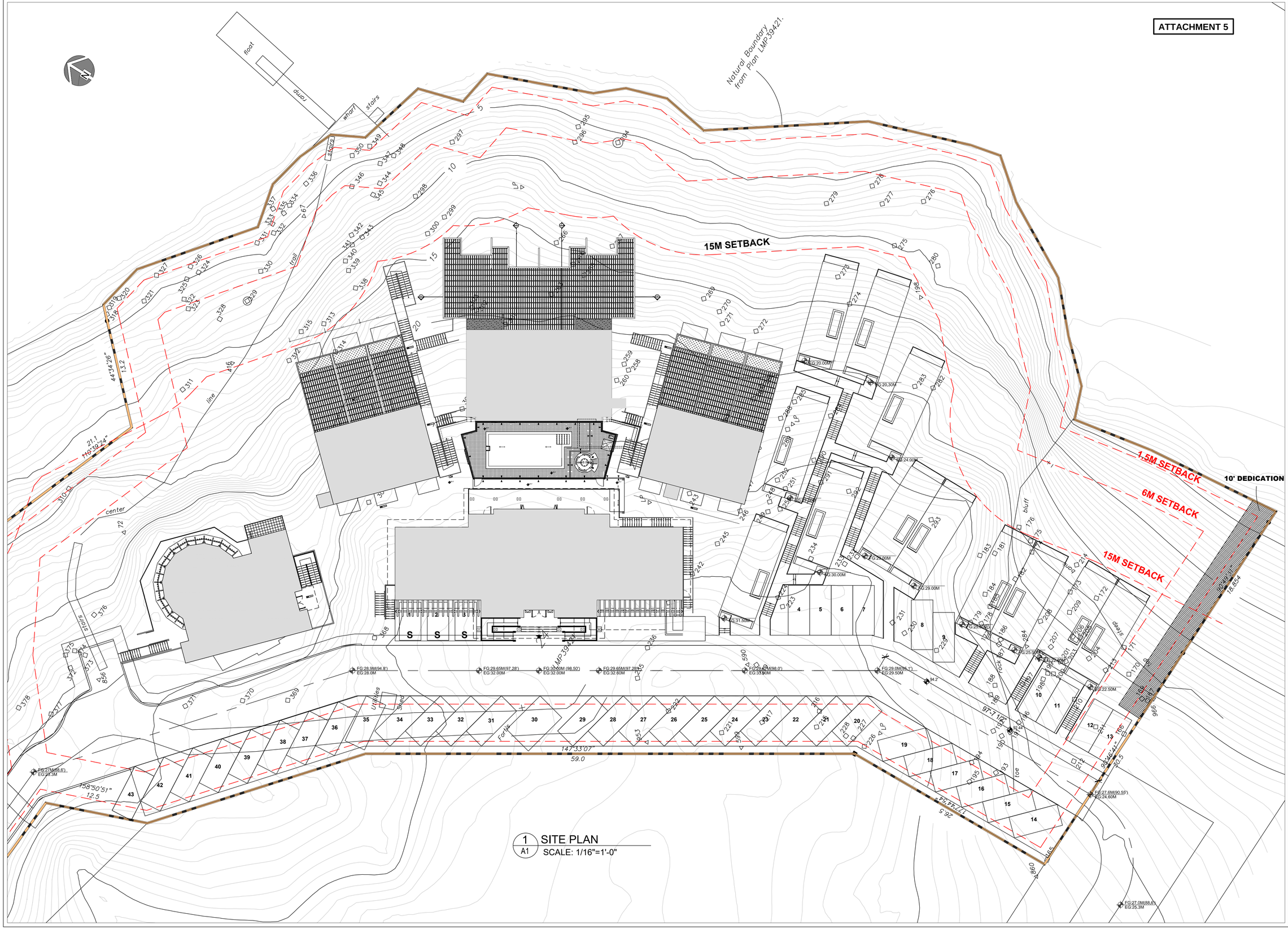
National Building Code of Canada 2015 NRCC no. 56190; Appendix C: Table C-3, Seismic Design Data for Selected Locations in Canada

Structural Commentaries (User's Guide - NBC 2015: Part 4 of Division B)
Commentary J: Design for Seismic Effects

Geological Survey of Canada Open File 7893 Fifth Generation Seismic Hazard Model for Canada: Grid values of mean hazard to be used with the 2015 National Building Code of Canada

See the websites www.EarthquakesCanada.ca and www.nationalcodes.ca for more information

ATTACHMENT 5



1 A1 SITE PLAN
SCALE: 1/16"=1'-0"

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4		
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6086 POISE ISLAND DR, SECHELT, BC

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