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Flood Risk Assessment & Drainage Strategy Technical Note

Project	Carbis Bay Hotel	Project No	13853
Subject	Flood Risk Assessment & Drainage Strategy	Date	22 February 2023
File Ref	13853-CRH-XX-XX-RP-C-0001-REV-FRATechNote.docx	Pages	14

1.0 INTRODUCTION

CampbellReith Hill LLP (CampbellReith) has been appointed by The Carbis Bay Hotel to provide a Flood Risk Assessment and Drainage Strategy in support of a response to an Enforcement Notice, reference no. EN21/00308.

1.1 Site Location

The site comprises a small plot of land measuring approximately 0.12Ha, just northwest of Carbis Bay Hotel, Cornwall TR26 2NP. The site is centred on approximate Grid Reference of SW 52627 38954. The site is accessed via a public footpath leading from the main hotel carpark.

The site is located on a natural plateau at a level of approximately 22.5mAOD, within a steep coastal slope. Downhill of the site (the 'sea cliff') is Carbis Bay Beach, at 0.0mAOD. Uphill of the site (the 'rear cliff'), the ground slopes up towards the coastal footpath, around 13m above the site. Beyond the coastal path, the slope continues to rise to the St Erth-St Ives railway.

Refer to Appendix A for the Site Location Plan.

2.0 SITE HISTORY

2.1 Previous Developments

Prior to 2021, the site was undeveloped greenfield, supporting an area of natural scrubland and cliff-face habitats.

In 2021, The Carbis Bay Hotel constructed three single-storey buildings on the site, each containing 3 meeting rooms intended for the G7 Summit held in June the same year. An internal flagstone and gravel access road south of the hotel was resurfaced and extended.

In September 2021, Cornwall County Council issued an enforcement notice (reference EN21/00308) to Carbis Bay Hotel claiming a breach of planning control, and in August 2022 set out requirements to remove the buildings and associated infrastructure.

In 2022 the three main structures and decking were dismantled and removed from site. The only features remaining on site are the shallow foundations, retaining walls, fences and paved access road.

Refer to Appendix B for the current Site Layout Plan.

2.2 Existing Drainage Infrastructure

Prior to the development, the nearest drainage infrastructure to the site was that associated with the main Carbis Bay Hotel. With the development of the meeting rooms, an additional surface and foul water collection system may have been installed. However, following demolition of the meeting room buildings, no functional drainage infrastructure remains within the site boundary.

3.0 EXISTING FLOOD RISKS TO THE SITE

The flood risk to the site has been assessed using the following information:

- Environment Agency (EA) Flood Maps, available online *(https://flood-map-for-planning.service.gov.uk/, retrieved 15.02.2023)*
- Site visits undertaken in March 2022

3.2 Fluvial & Tidal Flooding

EA Flood Maps indicate the site is entirely within Flood Zone 1, i.e. is at Low Risk with a chance of flooding less than 0.1% annually. This means the site is not considered to be at risk from either fluvial or tidal flooding.

Refer to Appendix C for copies of the EA Flood Maps.

Normally, a site under 1 ha and entirely within flood zone 1 does not need a Flood Risk Assessment. However, this site is in the St Ives-Carbis Bay Critical Drainage Area (CDA), which identifies Carbis Bay as having a small steep catchment with flooding problems where new development should reduce run-off and infiltration drainage should be used as much as possible.

3.3 Groundwater Flooding

During a site walkover in March 2022, water was noted as flowing from the base of the sea cliff, indicating groundwater is likely flowing through jointing in the bedrock.

Boreholes dug in November 2021 struck groundwater between 4.5m and 5.0m below ground level, with no subsequent rise in levels observed. The depth somewhat correlates with where water was observed at the base of the cliff.

It can be concluded that although groundwater is present beneath the site, the steep local topography means there is a low risk of this causing flooding within the site boundary.

3.4 Pluvial Flooding

EA mapping indicates that the site in its undeveloped state was at “very low” risk of flooding from surface water, meaning a chance of flooding of less than 0.1% annually.

Refer to Appendix C for copies of the EA Flood Maps.

4.0 SITE PROPOSALS

4.1 Development Proposals

In response to the Enforcement Notice, Carbis Bay Hotel has submitted a new set of proposals. Under the proposals, the majority of the site area will be returned to habitat environment. The foundations and retaining walls still present on the site will remain, in order to not further compromise the structural integrity of the cliffs. Boulders and vegetation will be utilised to reduce the visual impact. A small portion of tarmac hardstanding and associated fencing present at the east of the site will also be retained as a public viewing area, with the tarmac overlaid with a coloured surfacing to reduce visual impact. Finally, the tarmac access road behind the hotel will be retained in order to maintain fire access and egress. Refer to Appendix D for the proposed site plan.

4.2 Drainage Strategy

By returning the site to natural or permeable ground, no formal surface water drainage system is required. Water can be left to infiltrate or overrun as per the natural processes of the site's pre-development condition.

The impermeable areas proposed to be retained total an area less than 60m^2. Water collected by these areas will fall to adjacent green areas and infiltrate. The small overall area means there will not be significant contribution to the existing overland flows.

There are no foul flows generated on the site, so no foul water drainage collection is required.

5.0 FLOOD RISKS FOLLOWING DEVELOPMENT

The development proposals will not alter the site elevation or topography, meaning there is no additional risk to flooding from fluvial, tidal or groundwater sources.

Fluvial flow paths will have been altered by the previous development within the site, and possibly above and below the site. The largest impermeable area within the main site is the tarmac access area; since flows from this area will be directed to the surrounding permeable ground, limited increase to flood risk is expected. The tarmac access road behind the hotel was previously flagstones and gravel, meaning this area is not significantly increasing flood risk. Considering the retaining wall and foundations, the open nature of the foundations will not impact the ability of water to infiltrate the ground between the concrete elements. Finally, additional vegetation planting will further restrain and infiltrate surface flows that could otherwise fall over the cliff surface.

Overall, the proposals are unlikely to increase the low risk of pluvial flooding on or around the site.

6.0 CONCLUSIONS

CampbellReith has been appointed by The Carbis Bay Hotel to provide a Flood Risk Assessment and Drainage Strategy in support of a response to an Enforcement Notice, reference no. EN21/00308. The site in question is a flat plateau within a north-facing cliff forming the backdrop of Carbis Bay Beach.

EA flood information shows the existing site is at very low risk of flooding from fluvial, tidal and pluvial sources. The site elevation and topography places it at low risk of flooding from groundwater.

The site proposals include returning the majority of the site to natural state, but retaining the foundations, retaining walls, and some areas of hardstanding.

The site proposals will not increase the risk of flooding from fluvial, tidal or groundwater sources. The increase to risk of flooding from surface water will be negligible, given the low increase in impermeable areas, and the proportion of soft landscaping and vegetated areas on the site.

Appendix A
Site Location Plan

Carbis Bay Hotel

Client: LDA Design

Site Location

Scale: 1:10000@A4

Job Number: 13853

Drawn by - Checked by: RLF - NB

Drg No - Status/Revision: 13853-CRH-XX-XX-FG-G-7002 - P1

File location: \\red-data1\gis-data\13750 - 13999\13853 R - Carbis Bay Hotel\Project_Workspaces\FRA (pdf in Outputs)

Date (Revision History): 16/02/2023 (P1, First Issue, 16/02/23, RLF)

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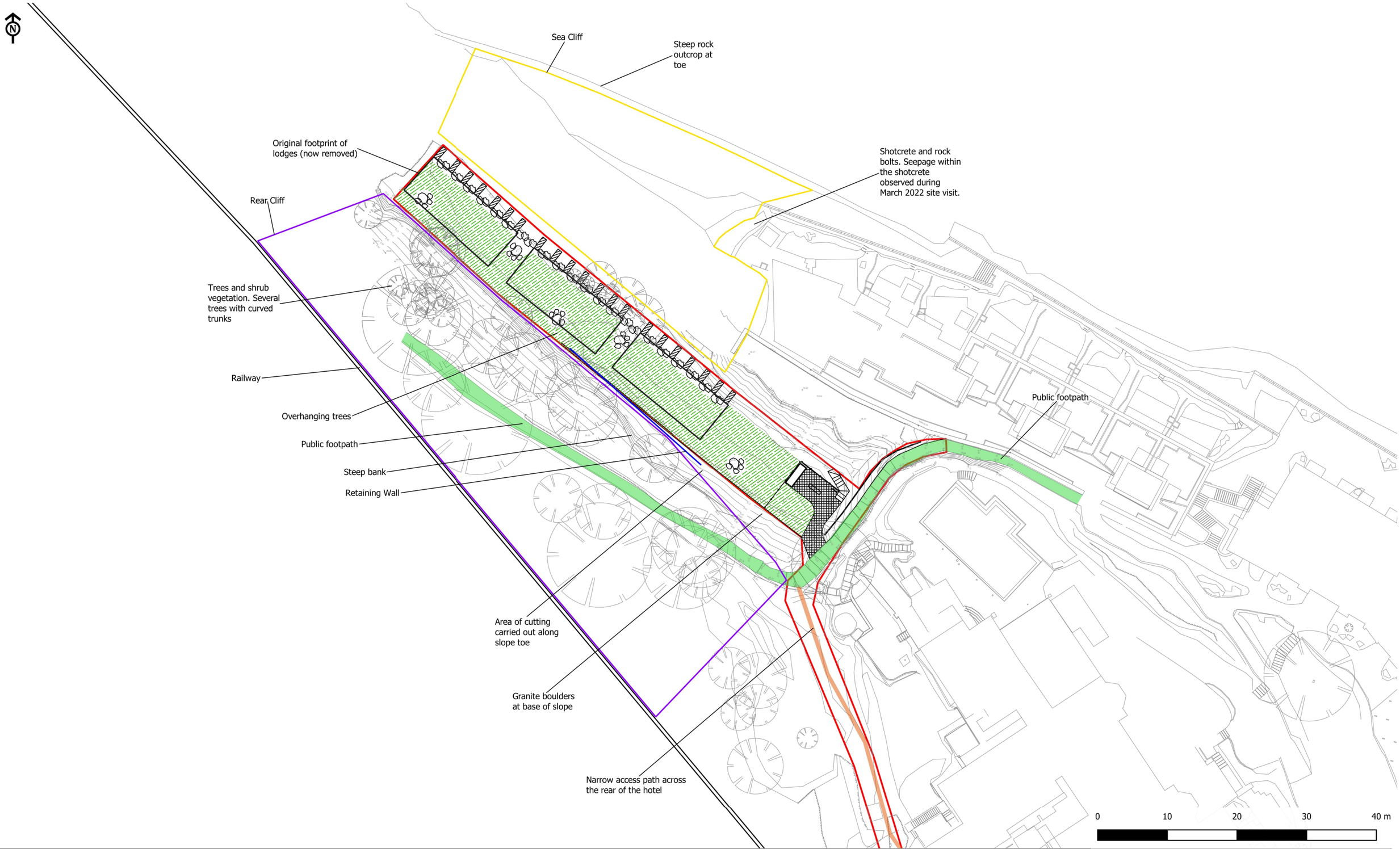
Appendix B
Existing Site Layout Plan



Carbis Bay Hotel

Client: LDA Design

Site Layout Plan

Scale: 1:500@A3

LDA Design Site Layout Plan Proposed, Drg no 8469_102 (Feb 2023)

Job Number: 13853

Drawn by - Checked by: RP - RA

Drg No - Status/Revision: 13853-CRH-XX-XX-FG-G-7001 - P1

File location: Y:\13750 - 13999\13853 R - Carbis Bay Hotel\Project_Workspaces (pdf in Outputs)

Date (Revision History): 13/02/2023 (P1, First Issue, 13/02/23, RP)

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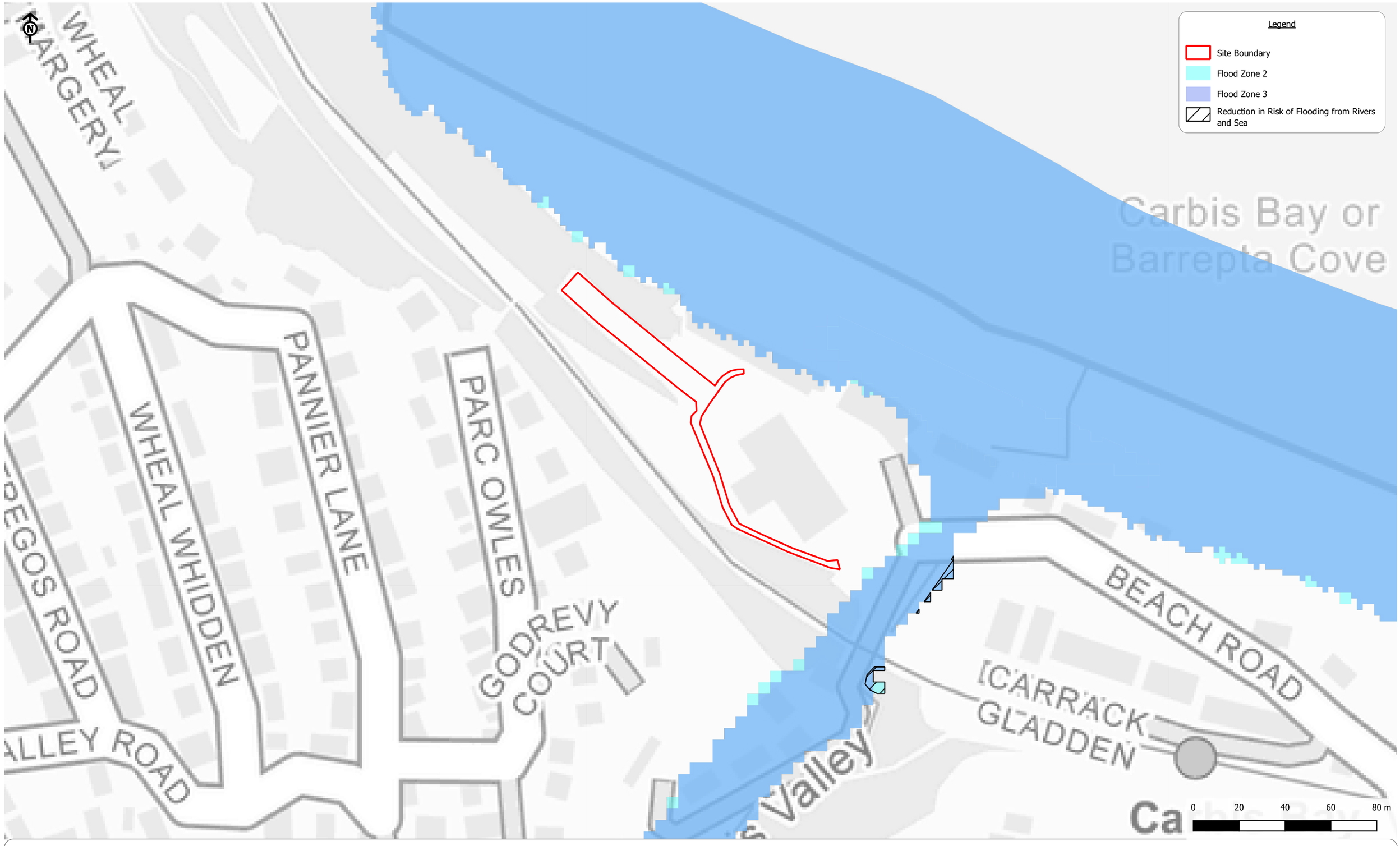
Appendix C
Environment Agency Flood Maps



Carbis Bay Hotel

Client: LDA Design

Flood Zones

Scale: 1:1500@A3

Job Number: 13853

Drawn by - Checked by: RLF - NB

Drg No - Status/Revision: 13853-CRH-XX-XX-FG-G-7003 - P1

File location: \\red-data1\gis-data\13750 - 13999\13853 R - Carbis Bay Hotel\Project_Workspaces\FRA (pdf in Outputs)

Date (Revision History): 16/02/2023 (P1, First Issue, 16/02/23, RLF)

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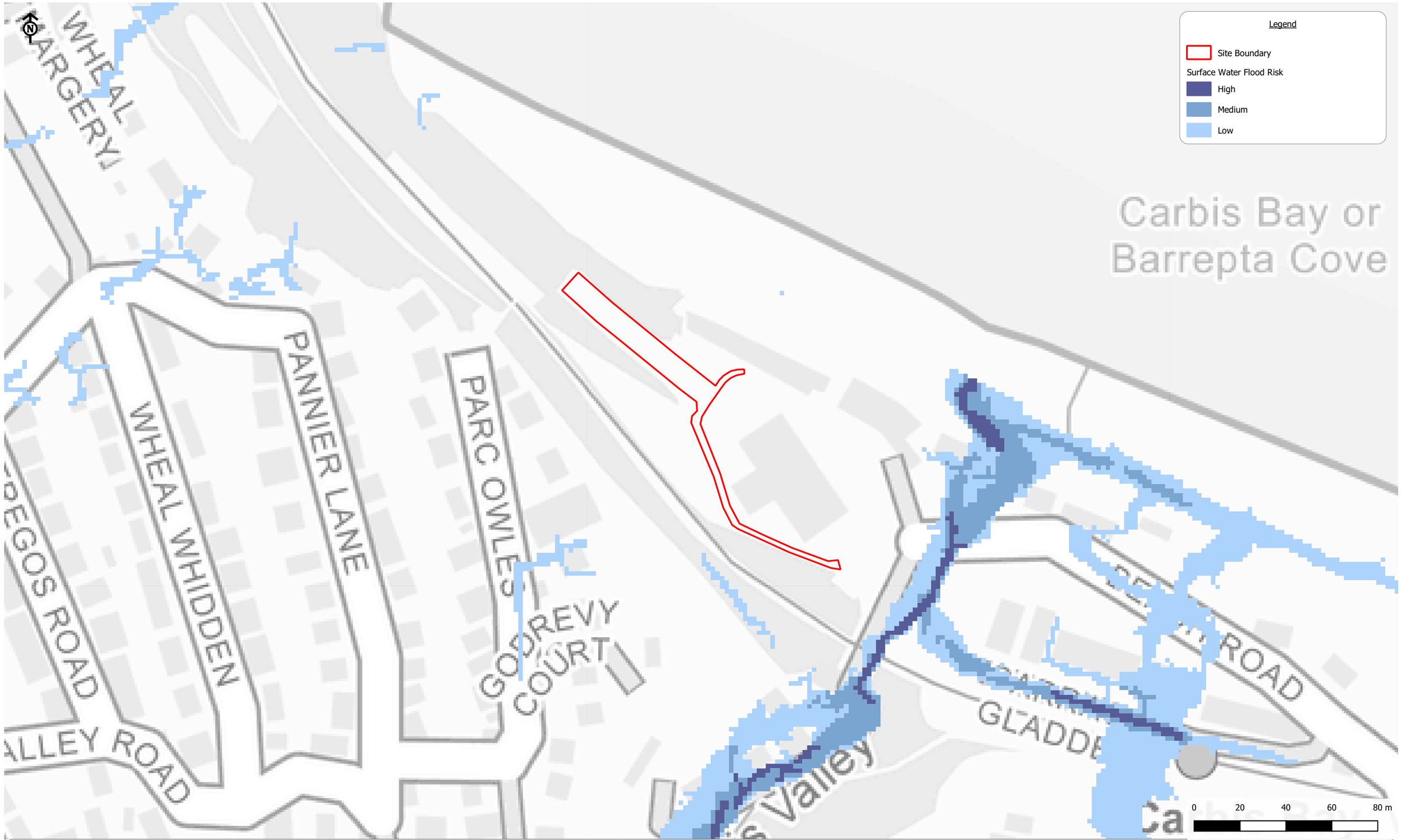

Carbis Bay Hotel

Client: LDA Design

Surface Water Flood Risk

Scale: 1:1500@A3

Job Number: 13853

Drawn by - Checked by: RLF - NB

Drg No - Status/Revision: 13853-CRH-XX-XX-FG-G-7004 - P1

File location: \\red-data1\gis-data\13750 - 13999\13853 R - Carbis Bay Hotel\Project_Workspaces\FRA (pdf in Outputs)

Date (Revision History): 16/02/2023 (P1, First Issue, 16/02/23, RLF)

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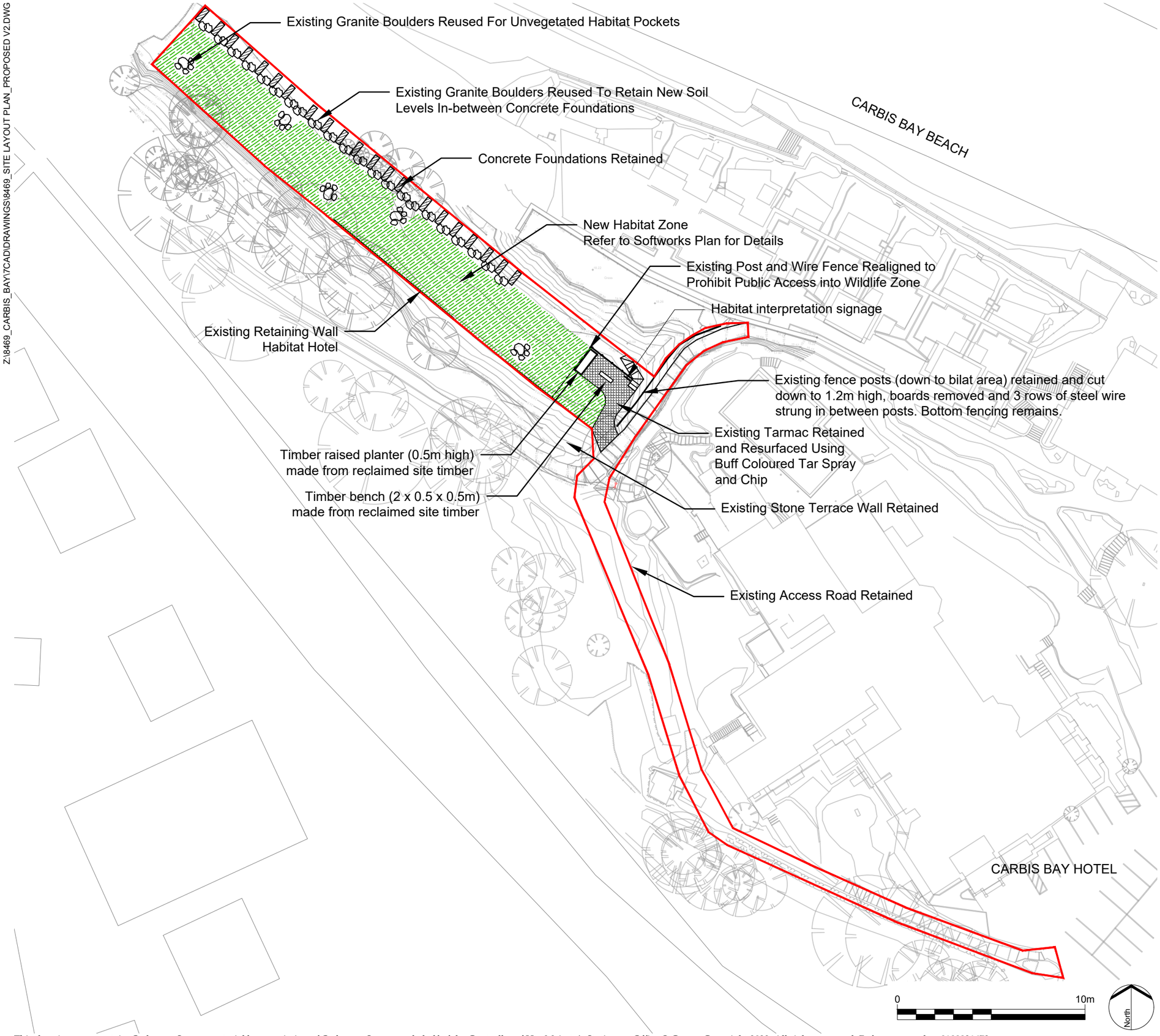
Appendix D
Proposed Site Plan

Z:\8469_CARBIS_BAY\7CAD\DRAWINGS\8469_SITE LAYOUT PLAN_PROPOSED V2.DWG



LEGEND

Redline Boundary

REV. DESCRIPTION APP. DATE

LDĀDESIGN

PROJECT TITLE

Land at Carbis Bay Hotel

DRAWING TITLE

Site Layout Plan
Proposed

ISSUED BY	Exeter	T: 01392 260 430	
DATE	09.02.2023	DRAWN	JP
SCALE@A3	1:200	CHECKED	KB
STATUS	Planning	APPROVED	ES

DWG. NO 8469_102

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

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