



GEOSLOPE STABILITY REPORT

SITE: FORMER G7 CONFERENCE FACILITY AT CARBIS BAY HOTEL, CARBIS BAY, CORNWALL

Issue Record			
Issue	Date	Reason	Prepared by
Rev0	12/08/2023		Tim Green



Our Ref: TJG/SSA/G003.Carbis Bay Hotel.Rev0

12th August 2023

<u>This report is confidential to the named recipient (Carbis Bay Estate Ltd). No assurance should be</u> <u>extended, or legal liability accepted by Slope Stability Southwest (SlopeGeo Ltd), to any parties not</u> <u>named on this report.</u>

Re: GeoSLOPE Stability Report Former G7 Conference Facility at Carbis Bay Hotel, Carbis Bay, Cornwall

Introduction

Slope Stability Southwest (SSSW) have been requested to undertake a GeoSLOPE Stability Assessment on the site and surrounds of the former G7 Conference Facility site, located immediately adjacent to and to the northwest of the Hotel.

A site inspection was undertaken by a Chartered Engineering Geologist on Tuesday 1st August 2023.

The Carbis Bay Hotel is located off Beach Road and the bottom of the Carbis Bay Valley where it meets Carbis Bay. The hotel is to the rear of the beach and to the north of the St Ives Branch Railway line. The former G7 conference facility (the site) is located on an elongate plateau of land approximately 80 metres in length and 15 metres in width, located to the west and northwest of the hotel grounds and separated from the hotel grounds by the southwest coastal path. The site is approximately 1200 m² in area and at an elevation of between 21.8 metres and 23.0 metres above Ordnance Datum (aOD (mean sealevel)) on the northeastern and southwestern boundaries respectively.

Proposed development

As part of the preparations for the G7 Summit Conference in 2021, the Carbis Bay Hotel and Estate constructed three single storey buildings to provide meeting rooms and a conference facility on the site. In September 2021 an enforcement notice was issued by Cornwall Council (Notice Reference EN21/00308). The enforcement notice required for the removal of all structures and infrastructure and to reinstate the land to its original state and condition.

Subsequent to this enforcement notice, the structures have been removed from the site, and an alternative planning application has been submitted to retain some of the constructed features on the site.

The proposed development is for general improvement of the area via habitat enhancement and the installation of a viewing area and safety fencing. The concrete foundation of the former conference buildings are to be retained and supplemented with the installation of granite boulders along the northern boundary in order to retain new soil levels in between the concrete foundations. The area is then to be covered with imported topsoil and planted with wildflower and grasses.



Please refer to Figure 1 for the site location plan and Figure 2a and 2b for the site layout plan and proposed site layout (softworks) plan respectively.

Report limitations

This report is based on desk study information from a variety of published sources and a walkover inspection of the site. This methodology is non-intrusive and does not include ground investigation works (digging or drilling) which may be necessary to make a definitive assessment of ground conditions. Evidence of deep-seated global instability may not be visually evident within the areas inspected as part of the walkover. The potential for such is considered low and has therefore not been considered further in this report.

Readers of this report should be aware of the limitations of this report as presented at the end of this document.

Desk Study

Previous ground investigation works

It is understood ground investigation works were previously undertaken in 2021 by Soils Ltd prior to the initial development of the site. These reports have not been reviewed by SSSW; however it is understood that ground conditions encountered onsite may be summarised as follows:

0 - <0.6 m bgl*: Made Ground (reworked natural ground).
0.6 - <3.6 m bgl: Weathered Bedrock [Mylor Slate Fm]: sandy gravelly CLAY and sandy clayey GRAVEL, and
>3.6 m bgl: Competent Bedrock [Mylor Slate Fm].

Groundwater was encountered between 4.5 and 5.0 m bgl.

* bgl – below ground level.

Published geology

Published geology indicate the prevailing geology underlying the site to be Hornfelsed slate and siltstone of the Mylor Slate Formation,^{1.} The proposed development site sits on the edge of recorded superficial deposits comprising marine beach deposits to the north (sand and gravel) and alluvial deposits along Carbis Valley and located 50 metres to the east of the property, which may typically comprise clays, silts, sands and gravel. However given the relative height of the proposed development above sea level, it is considered unlikely the recorded superficial soils will extend into the proposed development site.²

¹ British Geological Survey dataset – Sheet 351 St Ives and Carbis Bay 1:50,000 (Ver 8.24 2017)

² British Geological Survey dataset – Sheet 351 St Ives and Carbis Bay 1:50,000 Superficial1:50,000 (Ver 8.24 2017)



There is a northeast to southwest trending mineralised vein which is located approximately 50 metres to the west and northwest of the site. The mineral vein is recorded as 'inferred' and any displacement and downthrow are not recorded.¹

Historical records: Landslides

According to the BGS Landslides Database³, there are no recorded landslide events in the vicinity of Carbis Bay. The nearest recorded landfill is located at Godrevy Point, approximately 6.7 kilometres northeast of the site.

Historical records: Ordnance Survey

Historical Ordnance Survey (OS) maps indicate that prior to 1887 the site was extensively undeveloped and used as open agricultural ground. The St Ives Branch rail line is annotated to the south of the site and there is some development within Carbis Valley located approximately 140 metres southeast of the site, including Carbis Valley Station. There is a former Engine House (Ruins) annotated approximately 86 metres to the northwest of the site (not within the site extents) and the site itself appears to have been formed on a pre-existing plateau of land, which may have been formed to facilitate access to the engine house.⁴

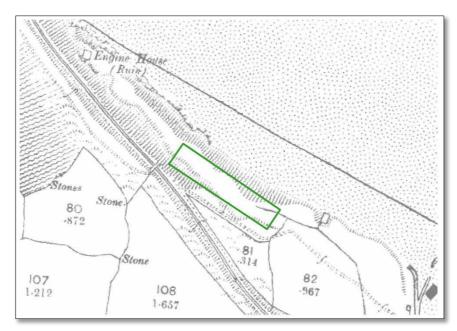


Figure 03: Ordnance Survey dataset from 1887 (proposed development site in green (appr outline)).

The Historic OS dataset from 1908 shows the Carbis Bay Hotel has been constructed (believed to have been constructed in 1894), with surrounding gardens and property extents that are approximately

³ http://mapapps2.bgs.ac.uk/geoindex/home.html (accessed 09/08/2023)

⁴ National Library of Scotland. Cornwall (LXVIII Western or St Ives Division)–Published 1887, 1908, 1947



coincident with the contemporary site boundaries. The site of the former conference facility remains extensively unchanged, though the footbridge over the rail line, located close to the western and southwestern corner of the site has been constructed. There is also residential development within the Carbis Valley. The Engine House is no longer annotated on the 1908 dataset, though there are references to 'Old Shafts', the closest of which is recorded approximately 140 metres west of the site and on the other side of the rail line.

The dataset from 1938 indicates the further residential development of Carbis Bay to the south of the rail line, though the site itself and the Hotel site remain extensively unchanged.

Historic rates of coastal erosion

An inspection of the historical OS maps and satellite aerial photography has enabled an approximation of shoreline erosion and regression to be made from 1887 to the present day. The distance was measured along the rear of Carbis Bay and the coastline east and west of the site.

The historical OS maps indicate that since 1887, the rate of erosion and regression of the shoreline along this section of coastline to the rear of Carbis Bay Beach, is negligible (< 1.0 metres coastline regression).

National Coastal Erosion Risk Mapping

The National Coastal Erosion Risk Mapping (NCERM)⁵ was published in 2018, and is intended to provide an up to date and reliable benchmark dataset indicating estimated erosion extents and rates, around the coastline of Cornwall, for three time periods:

Short term (0 – 20 year), Medium term (20 – 50 Year), and Long term (50 – 100 year).

The dataset shows the 2018 coastal baseline in sections which show consistent characteristics based on the geology, topography and shoreline defences. The dataset provides the estimated erosion rate based on a 'No Active Intervention' (NAI) policy scenario and 5% percentile confidence (most conservative). For the site, the NCERM (assuming a NAI policy) may be summarised as follows:

Shoreline feature / type: Erodible, Defence type: Seawall, Short term erosion extent (5% percentile confidence): 1.0 m retreat distance, Medium term erosion extent (5% percentile confidence): 3.3 m retreat distance, and Long term erosion extent (5% percentile confidence): 6.6 m retreat distance.

⁵ Environment Agency National Coastal Erosion Risk Map: https://www.arcgis.com (accessed 09/08/23)



Cornwall and Isles of Scilly Shoreline Management Plans

The *Shoreline Management Plan for Cornwall and the Scilly Isles* is a non-statutory policy document for coastal defence planning and sets out the recommended approach to managing the shoreline over the next 100 years. This is done by considering location, time and policy. The SMP 2 document was adopted by Cornwall Council in 2011 and is the current shoreline management plan (inclusive of a midterm review in 2016⁴).

The proposed development site falls within Management Area MA26 (Policy unit 26.2 – Carbis Bay) which covers Porthminster Point to Carrack Gladen as part of Policy Development Zone 10, (PDZ-10)⁷. The specific policies for MA 26.2 are 'No Active Intervention (NAI)' to 2055 and 2105.

The proposed development site falls within the 'Erosion Risk Zone (with no active intervention) 2105', suggesting the proposed development site is may be considered to be at risk over these time periods (up to 2105).

The SMP2 report makes the following statement regarding the ongoing and future flood risk management at Carbis Beach:

⁶ Carbis Bay is sheltered and generally subject to low wave and tidal energy except during severe storms from the northwest. Pressure on the frontage therefore is minimal, although some recession (up to 25 metres by 2105) would be expected under the NAI scenario. Pressure on existing defences is not expected to be significantly increased, but under a NAI approach, no assets are indicated to be at risk other than car parking, café and toilet blocks.⁷

Estimated sea level rise

In accordance with the recommendations set out in the Planning Practice Guidance – Flood Risk and Coastal Change,⁸ SSSW have used the EA Guidance on Climate Change Allowances (Table 1)⁹ to predict net sea level rise due to climate change.

The predicted cumulative sea level rise due to climate change in the southwest is 1.45 metres based on the conservative 'upper end' scenario (95th percentile confidence).

Flood Risk Statement

A Flood Risk Statement¹⁰ has previously been undertaken by Campbell Reith Ltd in February 2023. The report makes the following statements:

⁶ Cornwall Isles of Scilly SMP2 – Final report (Feb 2011)

⁷ Cornwall Isles of Scilly SMP2 – Mid Term Review (2016)

⁸ Ministries of Housing, Communities and Local Government (DCLG). April 2015.

¹⁰ Flood Risk Statement. Campbell Reith Ltd. Doc Ref 13853-CRH-XX-RP-C-0001-REV FRA TechNote. Feb 2023



The application site lies within Flood Risk Zone 1 and classified 'Low Risk' of fluvial or tidal flooding, and

The site is at 'very low risk' of flooding from surface water.

The report concludes: 'The site proposals will not increase the risk of flooding from fluvial, tidal or groundwater sources. The increased risk of flooding from surface water will be negligible.'

Please refer to the Flood Risk Statement¹⁰ in full for further details and assurances.

Site inspection

A site inspection was undertaken by a Chartered Engineering Geologist on Tuesday 1st August 2023. The weather at the time of the inspection was cool and overcast, with some wet weather in the preceding days.

The former G7 Conference Facility (the site)

The former G7 conference facility is located on an elongate plateau of land approximately 80 metres in length and 15 metres in width, located to the west and northwest of the hotel grounds and separated from the hotel grounds by the southwest coastal path. The site is approximately level and it is understood to have been at least partially excavated into the prevailing northerly slope face on the southern (landward) site boundary.



Figure 04: The former G7 Conference Facility – from the southeast corner looking west.

The northern (seaward) site boundary is demarked by a post and wire fence that extends part way along the boundary, and the concrete foundation slabs that are regularly spaced along the



boundary. To the immediate north of the site are the sea cliffs and Carbis Bay Beach, though the site is partially overlapped to the northeast by the hotel chalet accommodation on the beach front.

At the time of the inspection the site was partially obscured by shallow vegetation including grasses and weeds, however over the greater part of the site, the ground level was observed to have been made up of imported hardcore subbase. The exception to this was the concrete foundations along the northern boundary, and a small area of tarmac located at the eastern end of the site, adjacent to the southwest coastal path. The ground surface was extensively intact, although tracks marks were visible from the plant and equipment used for the removal of the previous structures. There was no sign of cracking or settlement that may be indicative of ground movement or slope failure.

The southern boundary of the site is formed from the prevailing slope rising above the site to the south, it is understood the western boundary has been subject to limited excavation to increase the width of the site so as to facilitate access for the conference facility. At the western end of the boundary, the excavated face at the toe of the slope is exposed and comprises a degraded rock mass exposure, approximately 2.5 metres in height, comprising metasedimentary lithology (mudstones), highly weathered with remnant horizontal bedding structure, dipping to the north-northeast at a variable dip of 20 to 40 degrees (from horizontal). Secondary vertical fracturing and tree root intrusion was also visible within the exposed rock mass, though the rock mass appeared to be relatively stable and there was no observation of ground movement or instability within the slope face (rockfall).

The centre part of the southern boundary comprised a concrete retaining wall (see below), and to the eastern end of the southern boundary, the slope face is partially comprised of granite stone boulders, installed to stabilise the slope face. The boulders are of granite and are between approximately 0.4 and 0.8 metres in diameter.

The concrete foundations

The concrete foundations are set at regular intervals along the northern boundary of the site. At the time of the inspection, the concrete foundations were partially buried by the hardcore material, however they appeared to be between approximately 2.5 and 3.0 metres in length, 0.7 metres in width and 0.9 metres in height. The concrete slabs appear to have been constructed of high-density concrete, cast in-situ onsite.

The slabs feature mounting bolts on the top, though it is not known if they contain steelwork or any other form of reinforcement, there are no obvious lifting points. The slabs are placed at regular intervals with 1.0 - 2.0 metres spacings, at the time of the inspection the slabs were observed to be in a good state of structural repair, with no observation of structural damage (cracking) and no visible surface weathering or degradation, the slabs were also partially buried in-situ.

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Figure 05: The concrete foundation slabs on the northern boundary of the site – facing east.

The concrete retaining wall

The concrete retaining wall is located towards the centre of the southern (landward) boundary of the site. The retaining wall is approximately 20 metres in length, 1.8 metres in height and > 0.4 metres in width and has been constructed to retain the foot of the prevailing slope on the southern boundary following limited excavation works. The retaining wall appears to have been constructed of mass pour concrete and cast in-situ onsite, with a wooded façade then fitted to the exterior, no drainage infrastructure or weepholes were observed within the wall.



Figure 06: The concrete retaining wall - facing northwest.



At the time of the inspection the concrete retaining wall was observed to be in a good state of structural repair, with no signs of structural damage (cracking or displacement) that may be indicative of structural failure or ground movement.

The slope above the site (southern boundary)

The hillside above the site extends upwards as far as the rail line which is approximately 25 metres behind the site and at an elevation of 37 metres aOD, approximately 17 metres above the site. This section of the hillside is accessed via the southwest coastal path which is cut into the slope and runs obliquely up the slope to intersect the rail line at a small footbridge adjacent to the southwest corner of the site.

The hillside is extensively obscured by vegetation, including small mature trees, bushes and grasses, however the slope face was observed to be extensively intact with no observation of damage or disruption to the slope face (such as tension cracking) that may be indicative of ground movement or slope failure. The surface of the footpath was extensively degraded but there was no sign of significant tension cracking or displacement.

The sea cliffs - Carbis Bay Beach

The sea cliffs to the rear of Carbis Bay Beach, and immediately below the northern boundary of the site were observed to be approximately 20 metres in height and at a variable slope face gradient of between 60 and 80 degrees (from horizontal). The slope face was extensively obscured by vegetation though the slope face was comprised of metasedimentary lithology (mudstones – weak to medium strong), with a prevalent bedding structure dipping to the north-northeast and northeast at a variable angle of dip of between 40 and 50 degrees (from horizontal).



Figure 07: The sea cliffs to the rear of Carbis Bay Beach – facing south.



The base of the sea cliffs are within the rearshore area and obscured by sand. There were no obvious erosional features within the slope face, such as erosional platforms or sea caves, although there was a steepening of the rock face at the base of the sea cliffs that may have been caused by erosion as a result of wave or tidal energy (wave cut notch).

The sea cliffs were extensively obscured by vegetation at the time of the inspection including bushes, shrubs and rare small, immature trees.

Rock slope stabilisation and reinforcement

The sea cliffs to the rear of Carbis Bay Beach have been subject to a programme of rock slope stabilisation and reinforcement, including:

Rock anchors and draped steel mesh: Installed to the height of the slope face directly to the north and beneath the site, the works comprise rock anchors installed at regular 3 to 5 metres spacings into the slope face, with steel plates 300 mm diameter and 20 mm thickness. These anchors are installed in conjunction with a plastic-coated steel mesh and secured with steel cables across the slope face. At the time of the inspection, the installed anchors and slope face mesh were observed to be in a good state of repair, with no observation of damage or degradation. The installed mesh is extensively obscured by vegetation on the slope face, the upper anchor detail was not visible at the time of the inspection, but appears to be present below the crest of the slope (the northern boundary of the site).

Armourstone and sprayed concrete: The armourstone and *sprayed concrete* have been installed as part of the construction of the hotel chalet accommodation on the beach front. The chalet style accommodation incorporates a concrete sea wall on the seaward side, and the armourstone has been installed at the western end of the sea wall, and below the centre part of the site. The armourstone comprises stacked granite boulders, < 1.0 metres in diameter, that are designed to dissipate the impact energy of waves and tides.

The *sprayed concrete* is installed to the rear of the chalet accommodation and close to the boundary of the site in the northeast corner. The sprayed concrete has been installed directly to the slope face in conjunction with the rock anchors, and it is assumed the sprayed concrete may also incorporate steel mesh reinforcement.

At the time of the inspection, all rock slope stabilisation measures and reinforcement were observed to be in a good state of repair (where observable), with the steel mesh and anchors appearing to be appropriately tensioned to the slope face, and the sprayed concrete apparently intact with no observation of cracking or degradation (based on limited visual observation).

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Figure 08: Rock slope stabilisation and reinforcement measures, rock anchors, draped ste and sprayed concrete.

Observations of groundwater

No springlines or surface water was observed during the walkover inspection, though the sea cliffs were observed to be wet in several locations below the northern boundary of the site. No running watercourse or drainage was observed on the beach in the vicinity of the site, the nearest watercourse discharging onto the beach was located 160 metres to the east.

GeoSLOPE Stability Assessment - Conclusion

The principal mechanism for shoreline erosion and regression along the rear of Carbis Bay Beach and in the vicinity of the proposed development area, is considered to be the erosion of the base of the sea cliffs as a result of wave and tidal activity. This results in the formation of erosional features within the sea cliffs such as platforms, wave cut features and ultimately sea caves. As part of this erosional process, the sea cliffs will become overly steepened and undercut by the sea caves, which in turn leads to progressive collapse of material from the cliff face and ultimately the erosion and regression of the shoreline.

This is compounded by the nature and state of the rock mass within the sea cliffs, which comprise metasedimentary lithology, which though relatively competent in-situ, may be subject to weathering and degradation when exposed. The metasedimentary bedrock also has a prevalent bedding structure which is orientated to the north-northeast. This provides a kinematic mechanism whereby rockfall and localised collapse of material may occur due to wedge or sliding type failure.

However, the programme of rock slope stabilisation and reinforcement of the sea cliffs will effectively reinforce the slope face and protect against these causal factors for the design lifespan of the



(stabilisation) works, which is typically up to 120 years. The risk of further such slope failure and collapse of weathered deposits from the slope face is therefore reduced accordingly. The effect of the of rock slope stabilisation and reinforcement of the sea cliffs is not accounted for in the published SMP or NCERM projected level of shoreline erosion for the site, which both assume No Active Intervention to the shoreline.

The site of the former conference stability appears to be in a state of relative geotechnical stability. There was no observation of damage or disruption to the ground surface (such as tension cracking) that may be indicative of the ground being under excessive tensile stress.

The area which would typically be considered most vulnerable to ground movement and collapse would be the northern (seaward) boundary of the site, where the crest of the slope may typically be comprised of weathered bedrock and superficial deposits, and this area is affected to a greater extent by both physical weathering processes (wind and rain), and run-off from the greater part of the site.

In this case, the northern boundary of the site is extensively supported and reinforced by the presence of the concrete foundations, which provide both physical protection to the vulnerable slope crest and tensile support both to the ground surface and the slope crest.

The southern (landward) boundary of the site has been subject to excavation to widen the site. That excavation has resulted in the removal of material from the toe of the prevailing slope that makes up the southern boundary, and as such could lead to localised landslip and collapse of material from the slope face. For the greater extent of the site boundary, the destabilising effect of the excavation has been effectively nullified by the installation of boulders in the southwest corner and the construction of the concrete retaining wall in the centre part of the site. Both these mechanisms should offer both effective support of the slope face and serve to act as additional mass at the toe of the slope, to replace that mass that has been excavated and removed.

The northwest corner of the site, to the west of the concrete retaining wall, the excavated slope is essentially unsupported and there is a mechanism in place whereby localised landslip and collapse of material may occur. The slope face is comprised of weathered, structured metasedimentary bedrock, the observed bedding plane is relatively flat dipping, but is orientated to daylight to the slope face, so there remains a kinematic mechanism whereby failure can occur via wedge of sliding type failure.

It should be noted however, that the slope above the southern boundary was subject to limited visual inspection (where not obscured by vegetation), and the slope face and excavated slope face showed no sign of ongoing or imminent slope failure.

The results of this inspection and assessment indicate that the overall and current stability of the coastline adjacent to the site is not considered unacceptable in terms of the stability of the site and the proposed development and future use of the site via habitat enhancement and the installation of a viewing area.



However, in order to ensure the ongoing and long-term stability of the site, the recommendations set out below should be considered and adhered to.

Recommendations for the future remediation of the site

It is understood the proposed development is for general improvement of the former G7 conference facility area via habitat enhancement and the installation of a viewing area and safety fencing (in accordance with Planning Application PA23/01527).

It is recommended that a risk-based approach to slope and cliff stability may be adopted, whereby the natural process of small and localised failure and rockfall events may be allowed to occur, and warning signage is placed in appropriate locations to provide warnings to site users and members of the public of potential hazards.

Concrete foundations should remain in-situ. The concrete foundations serve to protect the vulnerable crest of the slope from erosion and degradation, and also serve to support the ground surface.

It should also be noted that the removal of the concrete foundations may only be achieved through the use of either heavy lift equipment (such as 18-20 T tracked excavator), or more likely through the use of a large excavator with a hydraulic breaker, to break up the foundations in-situ for excavation and removal. It is the opinion of Slope Stability Southwest Ltd that either of these options will cause excessive load, disruption and vibration to the crest of the slope and may result in the significant weakening of the slope face (both above and below the site) to the point where the risk of rockfall and collapse of material from the slope face is significantly increased.

The existing retaining structures on the southern site boundary (the concrete retaining wall and granite boulders) should remain in-situ. The removal of these structures without the consideration of appropriate long-term retention and support of this slope face, will lead to increased risk of landslip and collapse of material from the slope face on the southern boundary of the site.

The northwest corner of the site, to the west of the existing concrete retaining wall. Where the excavated slope is unsupported at his location, consideration should be given to the implementation of appropriate support and retention of this section of slope face, either through the construction of a retaining wall or through the placement of appropriate toe weight ballast (such as boulders or gabion baskets).

The use of heavy plant and equipment on the site, including works such as excavation and earthworks should be minimised where possible and practicable, so as to reduce static and mobile loading to the site and the slope face.

Consideration should be given to appropriate drainage on the site to ensure the site drains adequately and there is no risk of localised saturation of the slope face.



Yours faithfully

for Slope Stability Southwest

Tim Green – Chartered Engineering Geologist. BSc, MSc, FGS, CGeol, APMP and Manging Director.



Limitations

- 1. This report has been produced in compliance with the agreed scope of works between Slope Stability Southwest (SSSW) and the client (Carbis bay Estates Ltd).
- 2. This report is confidential to the client(s) named on the report and the client's solicitor and/or mortgage lender and/or agent(s) and does not confer of purport to confer any benefits or any right pursuant to the Contracts (Rights of 3rd Parties) Act 1999. It may not be reproduced or further distributed without the permission of Slope Stability Southwest. We shall not be under any liability to any undisclosed party who has not been named on the report. The report may be reassigned to a new client by ourselves, on payment of an appropriate administration fee).
- 3. The scope of this report is limited to the current proposed development site boundaries. No assurances may be extended outside of this area and SSSW accept no responsibility for the use of this report for any purpose or any project except that for which is was commissioned and prepared.
- 4. The conclusions and advice provided in this report are based on:
 - a. Current best practice and legislation (SSSW accept no responsibility or liability for any change in best practice guidance or statute). In the event of additional information becoming available, improved practice or changes in legislation, then amendment and re-interpretation of this report may be necessary.
 - b. Sound engineering judgement by qualified and experienced engineers. This does not take into account the perceptions of other involved and interested parties.
- 5. Any information and data supplied by third parties has been interpreted in accordance with guidance notes and limitations provided by those third parties. Although this information has been reviewed and is considered relevant, no guarantee can be given to its accuracy and SSSW can give no assurance to the accuracy of data supplied by third parties. In addition, interpretation of historic datasets should be considered as indicative only.
- 6. The findings of this appraisal report are advisory and based on a visual site inspection undertaken on a specific date. Should conditions on site change as a result of further development, severe weather conditions, animal activity or other activity or circumstances, then Slope Stability Southwest should be notified, and a re-appraisal of ground conditions may be required.
- 7. The findings of this report are based on a walkover survey and inspection of the site. The works undertaken are extensively non-intrusive and do not represent (nor are they intended to represent) a full and comprehensive investigation of the nature and state of the ground conditions or bedrock underlying the site (should such works (intrusive ground investigation) be required, it may be undertaken under a separate scope of works). The findings of this report should not be used for design or construction purposes.
- 8. Unless otherwise stated, comments made relating to groundwater are based on observations made at the time of site assessment. Groundwater may vary as a result of seasonal effects or other variable factors.



Figures:

Figure 1: Site Location Plan – LDA Design

Figure 2a: Site Layout Plan (Existing) - LDA Design

Figure 2b: Site Layout Plan (Proposed Softworks) - LDA Design



Figure 1: Site Location Plan – LDA Design

Ref: Drawing Ref 8469_100. LDA Design Ltd. Issued 09/02/2023



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LEGEND

- —— Redline Boundary
- Ownership Boundary
- South West Coastal Path

REV. DESCRIPTION

APP. DATE

LDĀDESIGN

PROJECT TITLE Land at Carbis Bay Hotel

DRAWING TITLE Site Location Plan

ISSUED BY Exeter DATE SCALE@A3 1:1,250 STATUS

09.02.2023 Planning

T: 01392 260 430 DRAWN JP CHECKED KB APPROVED ES

DWG. NO 8469_100

All dimensions are to be checked on site. Area measurements for indicative purposes only.

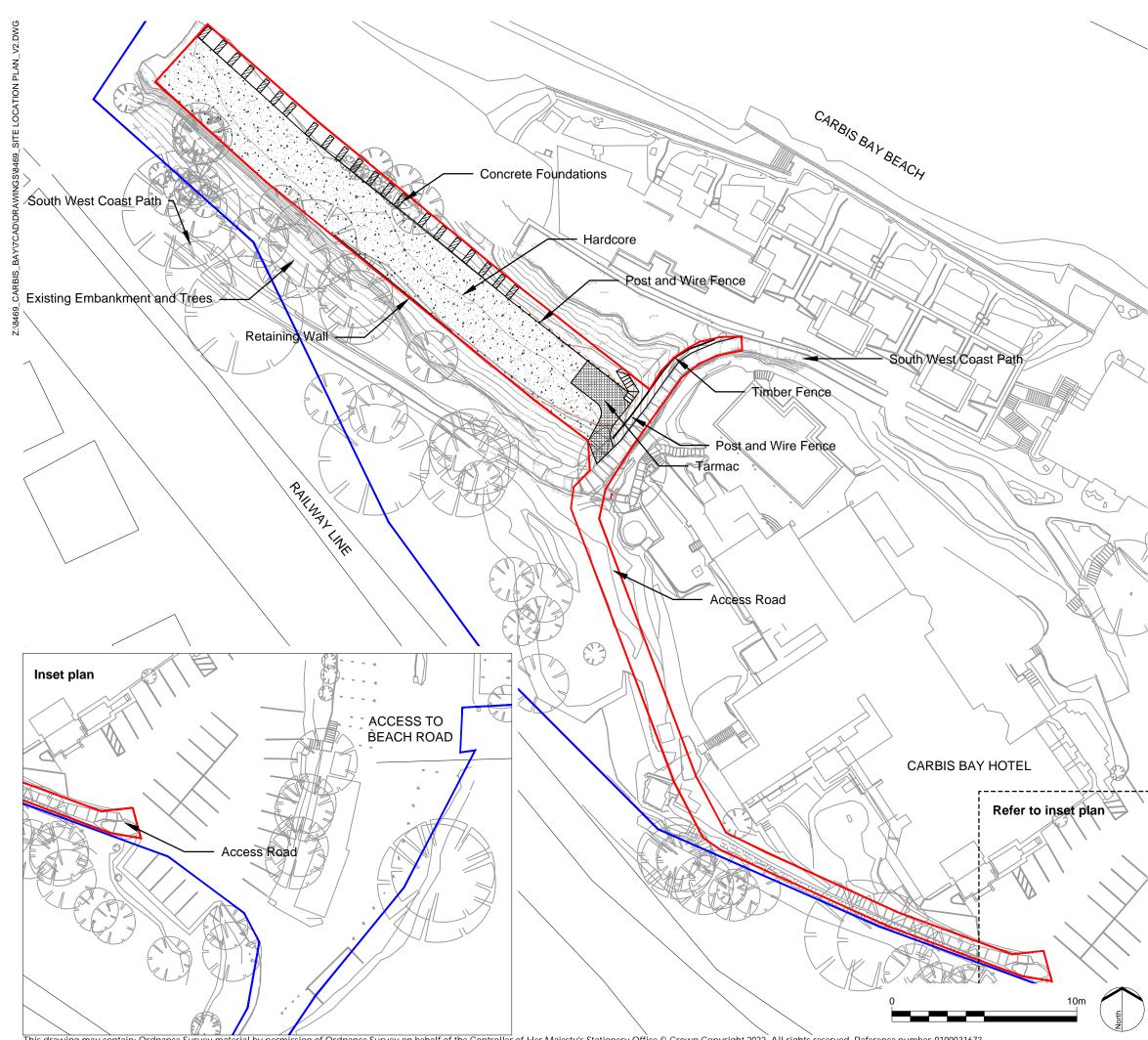
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Sources Ordnance Survey



Figure 2a: Site Layout Plan (Existing) – LDA Design

Ref: Drawing Ref 8469_101. LDA Design Ltd. Issued 09/02/2023



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LEGEND

 Redline Boundary **Ownership Boundary**

REV. DESCRIPTION

APP. DATE



PROJECT TITLE Land at Carbis Bay Hotel

DRAWING TITLE Site Layout Plan Existing

ISSUED BY Exeter DATE SCALE@A3 1:200 STATUS

09.02.2023 Planning

T: 01392 260 430 DRAWN JP CHECKED KB APPROVED ES

DWG. NO 8469_101

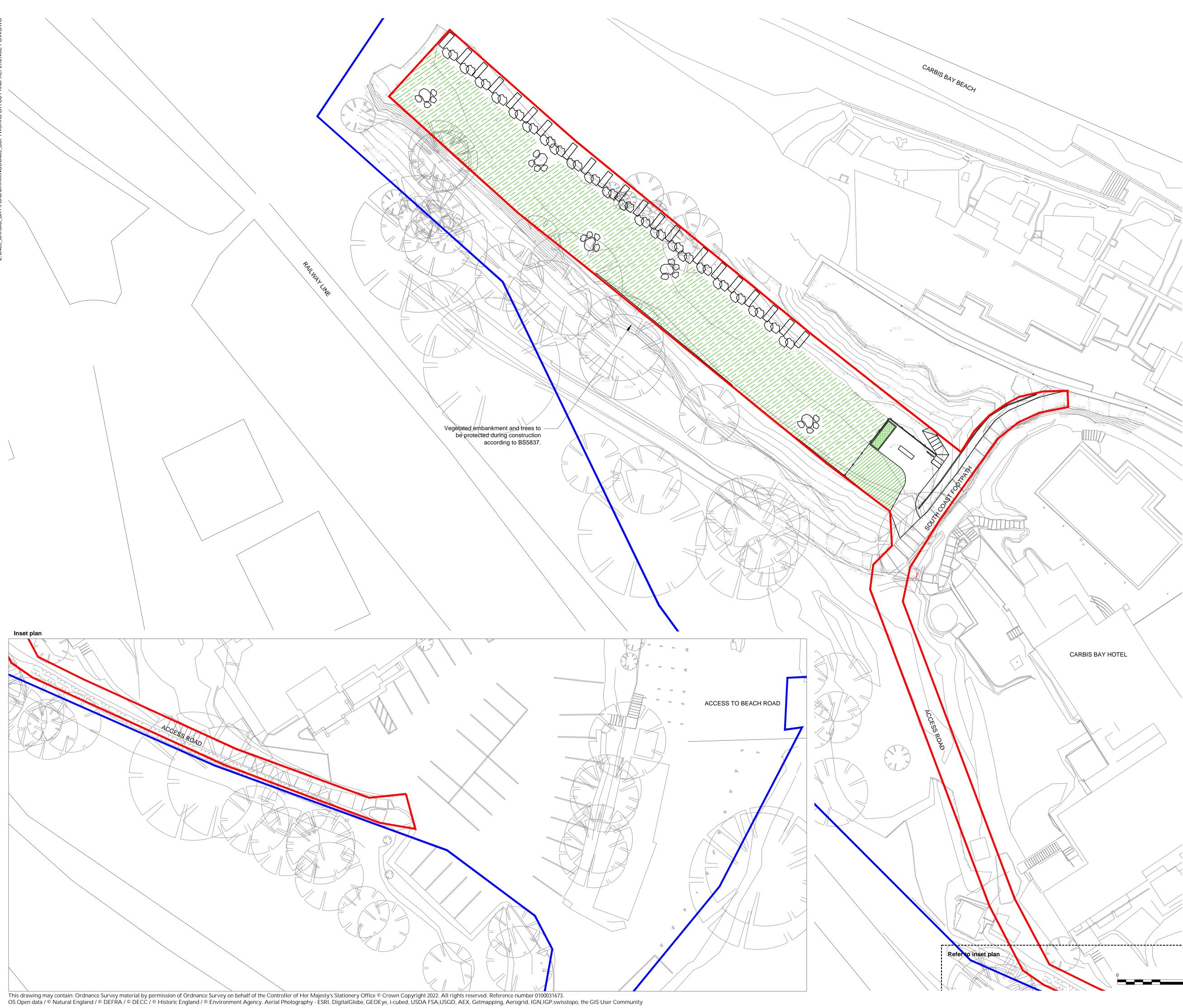
All dimensions are to be checked on site. Area measurements for indicative purposes only.

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Figure 2b: Site Layout Plan (Proposed Softworks) - LDA Design

Ref: Drawing Ref 8469_400. LDA Design Ltd. Issued 17/02/2023







Habitat mix (501m2):

Topsoil: Imported topsoil to BS3882 to be laid over the entire area at a depth of 300mm once settlement has occurred.

601 No. Ulex europaeus, 100 No. Crataegus monogyna, 100 No. Corylus avellana, 100 No. Ilex Aquifolium, 100 No. Prunus spinosa

Plants to be randomly located at a spacing of 2 plants per metre square.

All shrubs to be brought as 30/50cm, container grown form to allow year-round planting & improved establishment.

Maritime seed mix (30m2):

Topsoil: Wildflower low-nutrient topsoil to BS3882 to be laid at 100mm depth. Finished levels to tie-in with surrounding tarmac surfaces.

Grasses: 33% Festuca rubra,

- 14% Festuca ovina
- 10% Agrostis capillaris 14% Cynosurus cristatus

Wildflowers:

- 3% Crithmum maritimum,
- 3% Spergularia rupicola 2% Armeria maritima,
- 2% Plantago maritima,
- 1%Galium verum
- 2% Plantago coronopus
- 3% Daucus carota sap gummifer. 1% Jasione montana,
- 1% Fragaria vesca,
- 1% Stachys officinalis,
- 1% Silene uniflora,
- 3% Ranunculus bulbosus,
- 1% Fumaria officinalis
- 1% Hypochaeris radicata,
- 1% Lotus corniculatus 3% Anthyllis vulneraria

Seeding rate: 4g per metre square.

Raised planter mix (4m2):

Topsoil: Imported topsoil to BS3882 to be laid at a depth of 400mm once settlement has occurred. Decorative bark mulch to be laid at a depth of 50mm to sit flush with top of planter. Planter to be free-draining, 100m depth of pea-gravel to be located to base of planter.

- 2 No. Achillea millefolium (1L),
- 4 No. Fragaria vesca (1L),
- 1 No. Stachys officinalis (1L), 4 No. Silene uniflora (9cm), 4 No. Fumaria officinalis (Plug),
- 3 No. Crithmum maritimum (9cm),
- 2 No. Primula vulgaris (1L), 2 No. Echium vulgare (1L),
- 1 No. Echinacea purpurea 'Ruby Giant' (1L),
- 2 No. Alchemilla mollis (1L), 1 No. Rudbeckia 'Goldsturm' (1L)

All plants to be container grown at sizes shown.

Note: All sub bases are to be free-draining with site sourced hardcore to be laid underneath where levels need to be raised further to match previous average site levels of +22.50.

REV. DESCRIPTION

APP. DATE



PROJECT TITLE Land at Carbis Bay Hotel

DRAWING TITLE Softworks Layout and Reference Plan

ISSUED BY Exeter 17.02.23 DATE SCALE@A1 1:200 STATUS Planning

T: 01392 260 430 DRAWN JP CHECKED KB APPROVED ES

DWG. NO 8469_400

All dimensions are to be checked on site. Area measurements for indicative purposes only. © LDA Design Consulting Ltd. Quality Assured to BS EN ISO 9001 : 2015 Sources Ordnance Survey

