

**TREGARTHEN'S HOTEL. St MARY'S. ISLES OF SCILLY.**

**DEVELOPMENT OF FIVE MICRO LODGES**

FLOOD RISK ASSESSMENT

J-1829



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Report No.	Issue Detail	Originator	Date	Checked by	Date
J-1829	01	TS	14/01/2021	EC	14/01/2021

**For:** Tregarthen's Hotel Ltd  
Garrison Hill,  
Isles of Scilly  
St Mary's  
TR21 0PP

**Job No:** J-1829  
**Date:** January 2021  
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## **1.0 INTRODUCTION**

Tregarthen's Hotel Ltd. are considering the viability of developing five detached "Micro Lodges" within a derelict garden area of the Hotel.

During the planning process, the Environment Agency (EA) have requested a development specific Flood Risk Assessment (FRA) in support of the planning application.

It is noted that the footprint of the proposed lodges are set on ground at a minimum elevation of about 7.1m AOD and as such would ordinarily be exempt from the requirement for an FRA. In this regard, Policy SS7 of the Council of the Isle of Scilly Draft Local Plan does not require an FRA for coastal developments unless the level of the development is set at an elevation of 5m AOD or lower.

Flood studies for previous development proposals on this site (PA/18/031/FUL) have concentrated primarily on risks associated with wave overtopping and wind driven spray, including hazards to pedestrians using the area in extreme storm events. Consistent with previous studies, this report also focuses primarily on these aspects of the flood risk to the development.

## **2.0 SITE SETTING AND SURROUNDING CONDITIONS**

The proposed lodges are located towards the north west corner of the overall site of the Tregarthen's Hotel complex, in an area formerly used as gardens. The main part of the hotel building is situated close to the south boundary of the development and there is an existing two storey building associated with the hotel, known as Hendra and Gibson to the immediate east. A residential plot is situated to the west.

The north boundary of the site faces onto a small tidal bay bounded by Rat island to the north and St Mary's Quay to the east; in the wider context this bay opens out into The Road, the area of sea between the islands of St Mary's and Tresco/Samson.

The grounds of the hotel extend right down to the edge of the tidal waters where the rocky upper beach area is separated from the grounds by means of a vertical masonry faced sea wall. The level of the cope of the wall in this area is approximately 7.40m AOD whilst the ground level immediately inland of the wall is about 6.60m AOD. The typical ground level on the development plot varies from about 7.1m AOD to 9.3m AOD. The proposed lodges will be set on a level terrace formed over the site, such that the finished floor level of the lodges will be set at a consistent elevation of 9.00m AOD.

The level on the rocky beach immediately seaward of the sea wall is about 2.85m AOD.

## 2.1 Sea Levels

Seawater levels in the bay will vary dependent upon the state of the tide and whether it is in neap or spring tidal cycle. Typical current day high water tide levels shown below in **Table 1**.

Tidal Event	Current Day Still Water Level (m AOD)	Still Water Level with Climate Change Allowance (m AOD)
Highest Astronomical Tide	3.40	4.49
Mean High Water Springs	2.77	3.86
Mean High Water Neaps	1.44	2.53
1 Year Return	2.81	3.90
5 Year Return	3.30	4.39
10 Year Return	3.43	4.52
25 Year Return	3.49	4.58
50 Year Return	3.59	4.68
100 Year Return	3.75	4.84
200 Year Return	3.82	4.91

**Table 1. Approximate Sea Levels – Current Day and with Climate Change Allowance**

It is predicted that sea levels in the UK will be rising as a result of global climate change. Predictions provided by the EA recommend that an allowance of 1.09m should be assumed for net sea level rise in the south west of England over a 100-year horizon; 100 years is taken as a reasonable estimate for the lifetime of residential developments. As such, sea level may be assumed to rise by 1.09m over the lifetime of the development.

Predicted sea levels accounting for climate change over the lifetime of the development are also provided within **Table 1** in the right-hand column.

A section through the proposed development showing the relative level of the site compared to the principal still water tide levels is provided in **Appendix A**.

## 3.0 REQUIREMENT FOR A FLOOD RISK ASSESSMENT

With reference to **Table 1**, the extreme still water tidal event (1 in 200-year return period) when allowing for climate change is significantly lower than the ground floor slab of the proposed lodges, 4.91m AOD and 9.00m AOD respectively. This provides a freeboard of about 4.09m.

As such, based upon still water levels, and allowing for climate change, it may be concluded that the development is at negligible risk of flooding from tidal effects.

In this regard it is noted that Policy SS7 of the Council of the Isle of Scilly Draft Local Plan (extract provided below as **Figure 1**) does not ordinarily require Flood Risk Assessments (FRA) for coastal developments unless the level of the development is set at an elevation of 5m AOD or lower. This threshold is roughly consistent with the predicted 1 in 200 year still water tidal level allowing for climate change.

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Policy SS7 does caveat that the need for an FRA is also influenced by whether the site is shown to be at risk from proposals maps; Figure 1 1 of the Local Plan Document. The resolution of Figure 1 1 is such that it is not possible to accurately identify the boundary of the site on the plan, so it is difficult to apply this requirement.

Reference has been made to the IoS Shoreline Management Plan 2 which is the source document for Figure 1 1. The Shoreline Management Plan (extract provided below as **Figure 2**) shows that the subject site is at risk of erosion if there is no active intervention to flood defences beyond 2055, though it does not necessarily identify that the site is at risk of flooding. It is relevant to note that the Shoreline Management Plan 2 (p30) recommends "Holding the Line" with respect to the existing sea defence wall outside the site. This objective is reinforced within the IoS Climate Change Strategy Plan (p39) which confirms that the quay wall by the Mermaid Inn is integral to the continued protection of the Hugh Town and it will be the Council's policy to maintain the line for sea defences in this area.

The conclusion is that the Council's policy does not necessarily require a Flood Risk Assessment for this site and that it is their intention to maintain the integrity of the existing seawall to the north of the site for the foreseeable lifetime of the development.

POLICY SS7 Flood Avoidance	
<p>Development proposals to build below the 5 metre contour (5 metres above Ordnance Datum, Newlyn) or in other areas shown to be at risk of flooding or coastal erosion, as set out in the proposals maps, will not be permitted unless a suitable and proportionate Flood Risk Assessment (FRA) demonstrates how the flood risk will be managed and that:</p> <ul style="list-style-type: none"> <li>the development, taking climate change into account, does not create a flood risk over its lifetime to existing or proposed properties and/or surrounding land;</li> <li>appropriate acceptable mitigation and recovery measures can be undertaken to ensure no significant adverse impact on human health or the natural and built environment as well as cultural heritage; and</li> <li>if there is any doubt the precautionary principle<sup>14</sup> will apply.</li> </ul> <p>All major developments, regardless of location, should also be accompanied by a Flood Risk Assessment and appropriate sustainable drainage system.</p>	
Justification and Compliance	
Policy SS7 Flooding Avoidance	Spatial Strategy 1, 3, 5, 7, 9.
Justification	Aims: 1, 2, 6, 7
Compliance with NPPF	Paragraph 17 (Core Principle), 94, 99, 100, 159
Monitoring	Appeals upheld contrary to policy
Indicator:	None upheld at appeal
Target:	Increasing trend of appeals upheld contrary to policy
Trigger for review:	Supports a full Range of Housing
Supports Economic Growth	Conserves the Natural and Historic Environment
n/a	Yes
Key Evidence Base	n/a
	National Planning Policy Framework, 2012
	National Planning Practice Guidance: Flood Risk and Coastal Change, 2014
	(NE01) Climate Change Strategy 2011
	(I02) Infrastructure Plan: Part of the Strategic plan for the Isles of Scilly 2014
	(F03) Cornwall and Isles of Scilly Shoreline Management Plan 2 - Isles of Scilly Mid Term Review Appendix A
	(F04) Local Flood Risk Management Strategy 2017
	(NE13) EA Groundwater Quality Survey 2015/16
Alternative options considered	None
What the Community have already told us:	<p>"We consider that your Authority will need to update the evidence base on flood risk to have a better understanding of how this will affect the Islands over the Plan period. Without this update it will be difficult to demonstrate how the objectives and vision of the Plan could be achieved, with the consequence that the Plan could be considered unsound".</p> <p>"the SMP2 Review, the 2011 water resources report including flood defences and the Environment Agency datasets including the State of the Nation flood risk assessment provide a good, but high level,</p>
<p><sup>13</sup> Sustainable urban drainage systems (SUDS) can be used in all types of development to provide a natural approach to managing drainage, prevent water pollution and flooding and can create or enhance green spaces and habitat for wildlife.</p> <p><sup>14</sup> Precautionary Principle is risk assessment and avoidance</p>	
49   Page	
CONSULTATION DRAFT LOCAL PLAN 2015 – 2030	
The Local Plan should be read as a whole.	
Proposals will be judged against all relevant policies.	

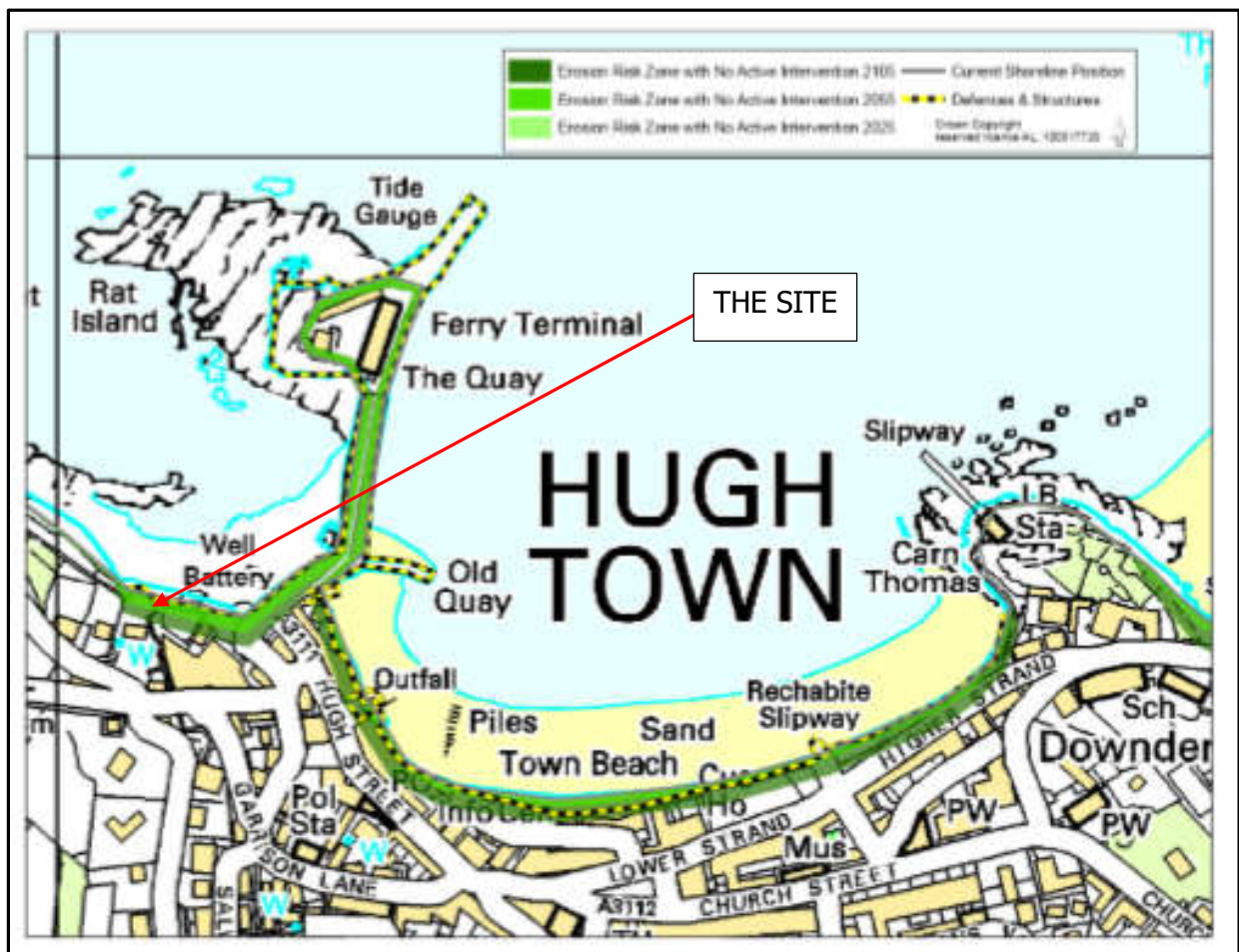
**Figure 1. Policy SS7 Council of the Isle of Scilly Draft Local Plan**

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**Figure 2. Extract from IoS Shoreline Management Plan 2 Showing Erosion Zones**

#### 4.0 WIND AND WAVE ACTION

The island of St Mary's is extremely exposed to Atlantic waves and swell particularly from westerly, southerly and easterly directions. The islands experienced severe storm conditions in February 2016 arising from storm Imogen, when wave heights off shore in the Atlantic were reported to be between 12m to 14m by the Met Office.

The section of quay wall directly outside of the Mermaid Inn, around 50m east of the site, faces almost due west and waves from this direction have almost unlimited fetch from across the Atlantic (see **Figure 3** below), though offshore wave heights will be significantly reduced by the shallow sea around the Islands.

The section of quay wall adjacent to the development site faces in a more northerly direction compared to the Mermaid Inn, and there is limited wave fetch from this direction as the extent of open sea is constricted by the islands of Samson, Tresco and St Martins to the north (**Figure 4**). As such, wave impact will be significantly worse on the west facing section of quay outside of the Mermaid Inn than at the subject site.

Large waves coming from a westerly direction will tend to propagate parallel to the sea wall at the site and impact on the wall opposite the Mermaid Inn, though refracted and reflected waves will also impact on the wall at the Tregarthen's. Waves arising from a northerly direction will impact directly on the wall at the development site, though waves from this direction will be of lower magnitude than waves from the west due to the reduced fetch across open water.

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British Standard BS6349 for Maritime Works, section 23.5, notes that as a conservative estimate, the significant wave height ( $H_s$ ) at a particular site may be taken as equal to 0.8 times the water depth at the site. Considering the 1 in 200 tidal event with climate change at the site, the still water level is predicted to be 4.91m AOD; the approximate beach level is 2.85m AOD therefore the significant wave height would be 1.65m. This is average trough to crest dimension for the highest third of the waves. As a rule of thumb, the highest 10% of waves would be  $1.27 \times H_s$  or 2.1m, and the highest 1% of the waves would be  $1.67 \times H_s$  or 2.8m.

This compares reasonably well with information provided within the Shoreline Management Plan for the Islands (p7) which predicts a 10% annual exceedance wave height of around 3.0m to 3.5m for St Mary's, though it is not certain if this is an inshore or off shore wave height prediction.

Overall an assessment of 2.8m for a large wave height at the site would seem to be reasonable. This is a trough to crest height, so the level of the crest of the wave would be one half of the overall wave height above the still water level. In the case of the 1 in 200-year tidal event with climate change, then the elevation of the wave crest height would be 6.31m AOD.

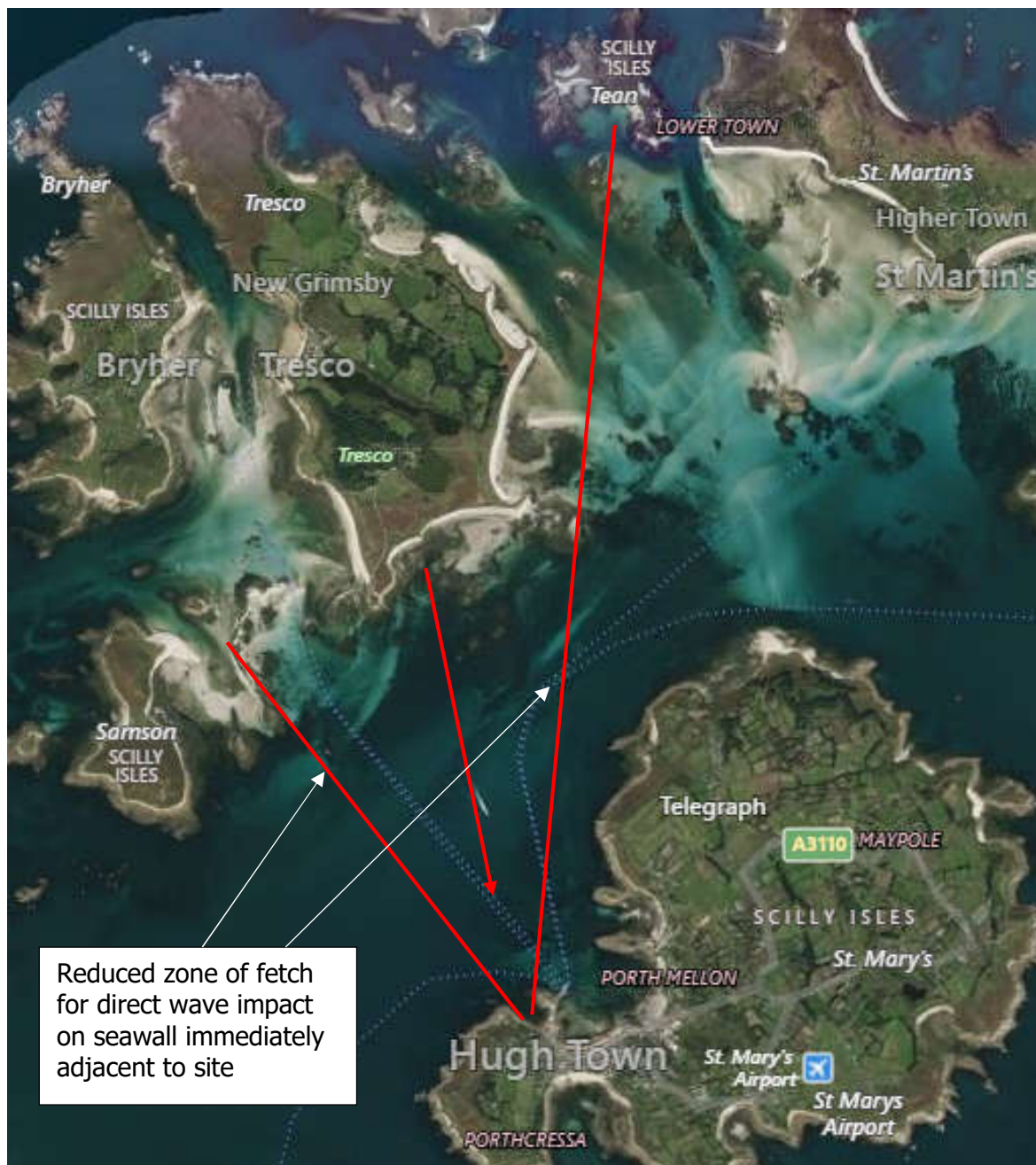


**Figure 3. Plan Showing Fetch Direction Towards Mermaid Inn**

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**Figure 4. Plan Showing Fetch Direction Towards Quay Adjacent to the Site**

## 5.0 FLOOD IMPLICATIONS FOR DEVELOPMENT

Comparison of predicted tide level with allowance for climate change, and wave height, indicates a wave crest level at the site of 6.31m AOD compared to a cope level of the sea wall at 7.40m AOD and a ground level behind the wall of about 6.6m AOD. The ground then rises up to the location of the lodges where the proposed ground floor levels will be 9.00m AOD.

As such, the proposed buildings are protected by the seawall from direct impact by waves ;in addition the proposed floor levels are set about 2.7m above the crest level of the waves. Therefore, direct flooding of the

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development by tide and wave action is not a realistic probability. However, with the effects of a strong northerly wind it is likely that wind driven spray and debris entrained within the water such as kelp and small beach pebbles could impact on the northern elevations the proposed buildings, given that they set back by only some 8m from the seawall in places. Water could also be lifted over the wall by the momentum of waves impacting with the wall, driving the wave crest up and over the cope of the wall.

Spray and debris could also impact upon the external areas between the adjacent car park and the lodges, which forms the frontages to the lodges.

It is recognised that inundation of this nature occurred during storm Imogen when water overtopped the sea wall outside of the Mermaid Inn and impacted on the external elevations of the building. Debris such as kelp and beach material were deposited on the roadway outside of the pub indicating that it had been picked up and entrained within the overtopping water.

Record photographs (**Figures 5 & 6**) show windblown spray almost up to the level of the ridge of the Inn building, approximately 11.0m AOD. Vehicles parked outside the pub were also damaged.



**Figure 5. Wave Conditions Outside of Mermaid Inn During Storm Imogen**



**Figure 6. Wave Conditions Outside of Mermaid Inn During Storm Imogen**

The effect of the storm on the site at the Tregarthen's Hotel is not known, but it was likely to be less severe than conditions experienced at the Mermaid Inn for a number of reasons. Firstly, the cope level of the sea wall opposite the Mermaid is set at a level of about 6.14m AOD whilst the comparable level opposite the development site is about 7.4m AOD. The ground levels behind the walls are 5.4m AOD and 6.6m AOD respectively and the Mermaid Inn is set back from the sea by only about 6m whilst the proposed lodges are set back by at least 8m. So, the defences to the Tregarthen's site are about 1m higher and the proposed buildings are set back further from the sea than is the case for the Mermaid Inn.

Of further note is the fact that the Mermaid Inn and the adjacent seawall face west towards the direction of the Atlantic fetch whilst the seawall protecting the subject site is aligned facing north, parallel to the direction of the greatest ocean swell; the site is also afforded some protection by the headland to the west.

Therefore, though it is acknowledged that though there is a risk of overtopping water, spray and entrained debris impacting on the development site, conditions will not be as severe as those experienced at the Mermaid Inn. In this regard, it is relevant to note that there is no known record of damage to the existing Hendra Cottage which is located in the grounds of the hotel at a slightly lower elevation and similar distance to the sea wall than the proposed lodges.

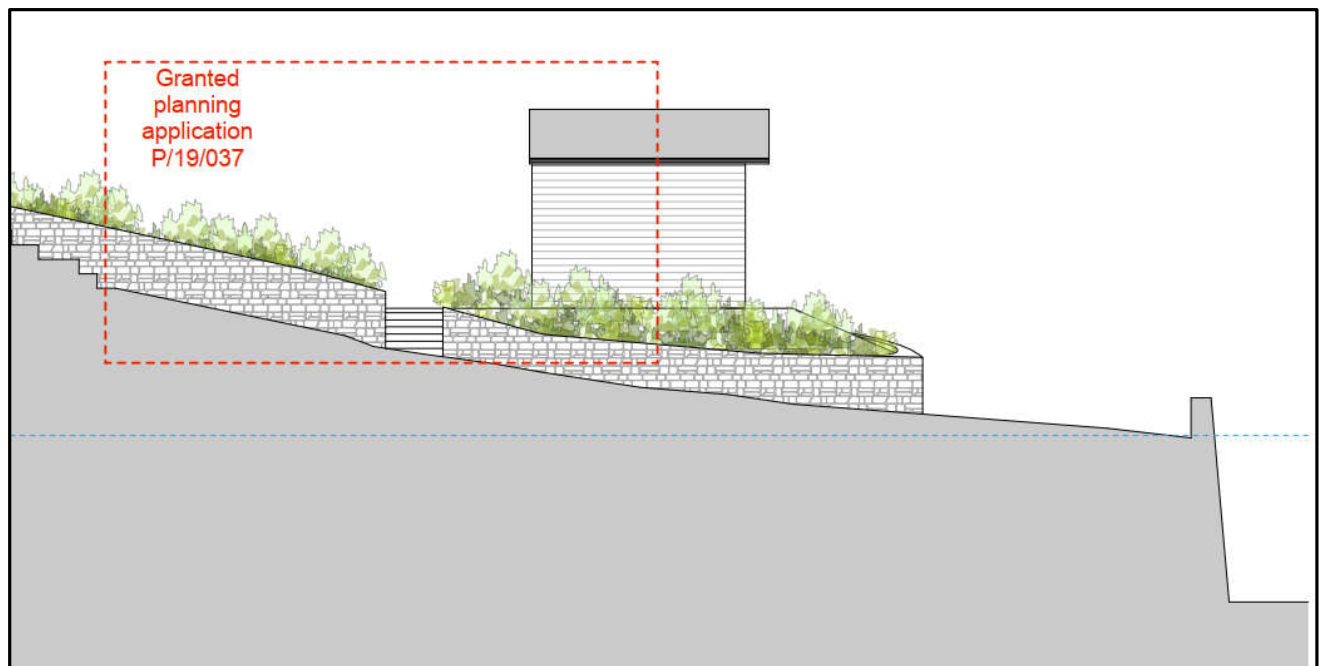
In this respect, it is also noted that pedestrian access routes and doorways into the proposed lodges on the site are on the inland facing elevations of the buildings such that pedestrians entering/leaving the lodges are protected from the sea by the buildings themselves.

## 6.0 HAZARDS ARISING FROM OVERTOPPING WATER, WIND DRIVEN SPRAY AND DEBRIS

Hazards arising from wind driven spray and debris projected over the seawall adjacent to the proposed development are as follows:

- Injury to persons –
  - Injury from kelp and beach debris projectiles when walking behind the seawall and lower garden area (access to lodges is on the inland side of the buildings which will reduce this risk)
  - Injury to persons being knocked off their feet from water impact/wind force when walking behind the seawall and lower garden.
  - Injury from windows shattering within the proposed building.
  - Injury to persons being swept off their feet by fast moving water flowing back to the sea – regarded to be low risk as volumes of water actually deposited behind the seawall will be relatively small.
- Damage to property –
  - Damage to windows on the seaward facing elevations of the proposed buildings
  - Damage to vehicles parked between the lodges and the sea, broken windows, damaged body panels etc.

The risks from significant volumes of water entering the proposed buildings/flooding are considered to be very low given the raised elevation, the lateral separation of the buildings from the seawall and limited amount of “green” water that will actually overtop the wall. The ground profile falls back towards the sea from the proposed buildings at a relatively steep gradient of about 1 in 11 and buildings will sit on a terraced platform elevated above surrounding ground levels; so overtopping water should run back to the wall fairly quickly and not move towards the buildings once it impacts on the ground (see **Figure 7** below).



**Figure 7. Side Elevation of Lodges Showing Ground Sloping Back to Seawall**

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### **Periods of High Risk**

The risk of occurrence of windblown overtopping water/debris will be most significant during a spring tide cycle when the height of the tide will be at its greatest over a bi-weekly cycle. Spring tides occur twice every month during new and full moon conditions with the largest tides occurring a day or two after the full or new moon. The range of the spring tide is further increased around the equinoxes at spring (typically the 20th March) and autumn (typically the 22nd September).

Spring tides occur on a consistent bi-weekly basis with the peak of the tide typically occurring between 5:00 to 7:00 in the morning and 17:00 to 19:00 in the evening.

High spring tides are predictable, but weather conditions can create storm surges and ground swell that add to the water levels, so unfavourable conditions could still occur outside of the spring tide cycle, though the worst conditions will always occur during the coincidence of a high spring tide, strong winds from the north to north west and storm surge caused by low barometric pressure.

It is difficult to predict the exact combination of tide/weather conditions that may result in a risk of injury/damage from windblown overtopping water/debris, but it is suggested that the following weather/tidal conditions are taken as an indicator of potential dangerous conditions occurring;



#### **Amber Alert – Significant overtopping is possible.**

Seawater Level Predicted to exceed 2.7m AOD and wind predicted to approach Force 7 (high wind) from a northerly or westerly direction



#### **Warning - Significant overtopping is expected.**

Seawater Level Predicted to exceed 2.85m AOD and wind predicted to approach Force 8 (gale) from a northerly or westerly direction



#### **Severe - Dangerous level of overtopping is expected**

Seawater Level Predicted to exceed 3.0m AOD and wind predicted to approach Force 9 (severe gale) from a northerly or westerly direction

These threshold levels may be modified with ongoing experience of weather/tidal events and corresponding overtopping conditions at the site, though they are considered to be a safe and pragmatic starting point.

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## 7.0 MITIGATION MEASURES

The following measures are proposed to mitigate against the risks of wind blown overtopping water and debris.

### Mitigation Measures Through Design:

- Specify toughened glass in all seaward (north) facing windows complying to Class 1 (C) when tested to BS EN 12600 for pendulum body impact resistance. (Pilkington T Glass or equivalent)
- Specify enhanced weathertight seals to all seaward (north) facing windows.
- Specify the installation of robust shutters to all windows on the seaward (north) facing elevation on the building
- Ensure that windborne water impacting of the front elevations of the buildings and garden area has a free drainage route back to the sea with adequate falls away from the building. This requirement is met by the existing design which provides sloping surfaces falling towards the seawall providing a drainage route away from the buildings.

It is noted that the cope level of the seawall is some 1.6m lower than the proposed floor slabs, so even in the unlikely event that all the drainage holes through the wall become blocked, any retained water can weir back over the wall into the sea without reaching the level of the habitable accommodation.

- Provide a means of access and egress to the lodges through the hotel which avoids having to walk in the direction of the sea wall during periods of bad weather. Keep this route assessable at all times and clearly signed. The current proposed layout for the development provides such an egress/access route as shown below in **Figure 8**.

Alternative access is available from the lodges to the main hotel around the back of the lodges at a minimum elevation of 7.65m AOD.



**Figure 8. Plan Showing Alternative Access Egress Route in Event of Wave Overtopping**

#### Mitigation Measures Through Operation:

- Develop a Flood Contingency Plan describing how the lodge accommodation will be operated and the residents managed when significant wave overtopping is expected. As a minimum this should address the following items:
  - Describe how weather and sea conditions will be monitored and when action will be triggered; refer to the suggested wind/tide threshold levels provided in **Section 6.0**. The plan should include proposals for monitoring local radio, monitoring the EA's website and keeping in contact with the IoS Council. In this regard the IoS Local Flood Risk Management Strategy notes that flood warning information will be disseminated by the Council by the following means:

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- Council website.
- Community Message Board.
- Tourist Information Office.
- Town Hall.
- Radio Scilly.
- Posters in various locations.
- Where deemed appropriate – door knocking in specific vulnerable areas.
- Direct to IOS Fire and Rescue Service.
- General flooding advice is provided on the Council website and Z-Cards have been produced and distributed to all households giving information about how to be prepared in the event of an emergency including flood incidents



**Amber Alert – Significant overtopping is possible.**

- Monitor flood warnings and advice issued by the Environment Agency, IoS Council, the Emergency Services and local radio
- Monitor sea conditions at the seawall
- Prepare to implement Flood Contingency Plan



**Warning - Significant overtopping is expected.**

- Continue to monitor flood warnings and weather/tide conditions
- Put Flood Contingency Plan into action
- Inform affected guests that flood contingency plan is in force



**Severe - Dangerous level of overtopping is expected**

- Continue to monitor flood warnings and weather/tide conditions
- Continue to enforce Flood Contingency Plan and monitor effectiveness
- Advise guests when tide/weather conditions have subsided to safe levels and that normal operation is resumed
- Advise guests of likelihood of Flood Contingency Plan being implemented again during next tidal cycle

- Describe proposals as to how guests will be informed about overtopping risks, mitigation measures and alternative access routes when first checking into the hotel
- Describe how guests will be informed about the requirements of the Flood Contingency Plan and how they will be informed when the Plan is in place.
- Describe the alternative access/egress route to the lodges and explain how this will be kept clear and available for use by guests at all time when the Flood Contingency Plan is in force
- Describe how any vehicle associated with the lodges will be moved to higher ground if parked in the lower parking area.
- Describe how shutters will be deployed to windows

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- Describe how the normal access route to the lower garden/seawall area will be locked off or signed to prohibit access in this direction
- Describe how the risks will be deemed to have subsided to normal levels and how this will be communicated to guests
- Register with the Environment Agency's countrywide flood warning system in as far as it covers the Isles of Scilly. Flood warnings are issued by phone, text or email. Registration to receive warnings can either be by phone on 0345 988 1188 or online at [www.gov.uk/sign-up-for-flood-warnings](http://www.gov.uk/sign-up-for-flood-warnings)

Provided that the specified mitigation and contingency measures are adopted, then it is considered that the development may be operated in a safe and appropriate manner over its lifetime.

## 8.0 CONCLUSIONS

The proposed development at Tregarthen's Hotel comprises the construction of five new micro lodge units at a minimum distance of some 8m from the sea. The buildings are protected to the seaward side by an existing sea wall and raised ground. It is the intention of the Isles of Scilly Council to maintain the sea defences in this area as part of their Shoreline Management Plan and Climate Change Strategy, so the buildings will benefit from these defences over their lifetime.

The floor levels of the lodges are proposed to be set at a level of 9.00m AOD. The maximum still seawater level adjacent to the development, allowing for the effects of climate change over the next 100 years, is predicted to be 4.91m AOD with a wave crest levels of about 6.31m AOD. Therefore, the proposed development is not considered to be at risk of direct tidal flooding. This conclusion is supported by Policy SS7 of the Council of the Isle of Scilly Draft Local Plan which states that coastal developments will not ordinarily require a Flood Risk Assessments unless the level of the development is set at 5m AOD or lower.

Notwithstanding this, it is recognised that windblown overtopping water and entrained debris may impact upon the site during periods of high tide and unfavourable wind conditions, and that this may present risks to property and guests using the lodges.

The nearby Mermaid Inn and quay area have a history of serious windblown and wave overtopping water, most recently during Storm Imogen which occurred in February 2016. However, it is considered that conditions observed at the Mermaid Inn are not directly comparable to the development site as it does not face in the worst direction of open sea fetch and large waves/swell will tend to propagate parallel to the site rather than directly at it. In addition, the elevation of the sea defences and ground behind at the site are at least 1m higher than respective levels at the Mermaid Inn.

To mitigate risks to acceptable levels, it is recommended that some minor items are implemented within the design of the development, some of which are already inherently met within the existing design. In summary, these are as follows;

- Toughened glass and enhanced weathertight seals in all seaward (north) facing windows.
- Robust shutters to all windows on the seaward (north) facing elevation on the buildings.
- Free drainage route with adequate fall to all interrupted runoff of windblown water back to the sea
- Provide an alternative means of access and egress which avoids having to move through the area immediately behind the sea wall.

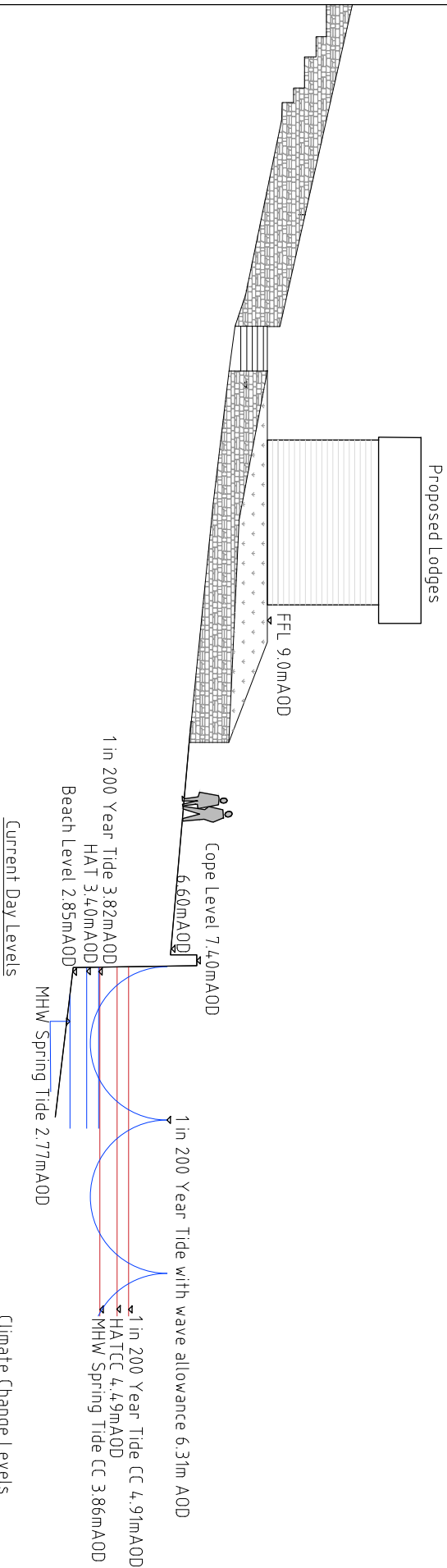
It is further recommended that a Flood Contingency Plan is prepared describing how the lodges will be operated, and the residents managed when significant overtopping is expected. Requirements for the content of the Flood Contingency Plan are provided within **Section 7.0** of this report.

Provided that the specified mitigation and contingency measures are adopted, then it is considered that the development may be operated in a safe and appropriate manner over its lifetime.

## **APPENDIX A      Section Through Site Showing Water Levels**

NOTES

1. This drawing is copyright. Refer to details above.
2. This drawing is only to be used for the purpose described. Work to fixed dimensions only, do not scale.
3. This drawing is to be used in conjunction with all other drawings, details and specifications pertaining to the work described.
4. Materials and workmanship shall comply with the appropriate British Standards and Codes of Practice unless otherwise stated.
5. The activities required to construct the work, shown on drawings clearly marked FOR CONSTRUCTION, may be subject to the provisions of the Construction Design & Management Regulations 2015. The contractor shall ensure that they are adequately conversant with these regulations and that the appropriate procedures required under the regulations are observed at all times.
6. Design Risk Assessment  
A risk assessment relating to potential hazards associated with the construction, operation and demolition of the work described on this drawing is set out as far as it has been ascertained by the design team. It is acknowledged that the design team cannot eliminate all risks, but those identified have been eliminated by design wherever practicable. The situation with regard to residual risks is as follows.  
Planning Stage - to be risk assessed at detail design stage.



SCHEMATIC SECTION THOROUGH SITE  
SHOWING TIDE AND WAVE LEVELS

CLIENT			
TREGARTHEN'S HOTEL LTD			
PROJECT			
DEVELOPMENT OF 5 MICRO LODGE UNITS			
DRAWING TITLE			
SCHEMATIC SECTION THOROUGH SITE SHOWING TIDE AND WAVE LEVELS			
PROJECT No.	DRAWING No.	REV.	
J-1829	3000	A	



**Engineering and Development Solutions Ltd**

Registered Office: Unit 10 | Penstraze Business Centre | Truro | Cornwall | TR4 8PN

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