STEAMSHIP HOUSE, HUGH STREET, HUGH TOWN, St. MARY'S, ISLES OF SCILLY.

PROPOSED ALTERATIONS TO STEAMSHIP HOUSE.

FLOOD RISK ASSESSMENT

J-2799



Engineering & Development Solutions

www.eadsolutions.co.uk

STEAMSHIP HOUSE, HUGH STREET, HUGH TOWN, St. MARY'S, ISLES OF SCILLY.

PROPOSED ALTERATIONS TO STEAMSHIP HOUSE.

FLOOD RISK ASSESSMENT

Report No.	Issue Detail	Originator	Date	Checked by	Date
J-2799	01	AW	20/01/2023	TPS	20/01/2023

For: Judith Piper Isle of Scilly Steamship Company Ltd. Steamship House Quay Street Penzance Cornwall TR18 4BZ

 Job No:
 J-2799

 Date:
 January 2023

 Edition:
 01

www.eadsolutions.co.uk

CONTENTS

Item	Content	Page No.
1.0	Introduction	1
2.0	Assessment of Flood Risks	4
3.0	Tidal Flood Risk	7
4.0	Flood Summary	10
5.0	Access and Egress	11
6.0	Policy	13
7.0	Mitigation Measures	14
8.0	Conclusions	16

APPENDICES

- Appendix A Feasibility Study Sketch Scheme including Drawings Showing the Existing and Proposed Development
- Appendix B LiDAR Mapping Extract
- Appendix C Environment Agency Information



1.0 INTRODUCTION

The Isle of Scilly Steamship Co. Ltd. are proposing to make alterations to the existing Steamship House building in Hugh Town, St. Mary's, Isle of Scilly.

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**) ordinarily requires a suitable and proportionate Flood Risk Assessment (FRA) for coastal developments when the level of the development is set at an elevation of 5m AOD or lower. As the site is situated on land below the 5m AOD contour, an FRA is required.

Development proposals to		1000	
Ordnance Datum, Newlyn) coastal erosion, as set out suitable and proportionate flood risk will be managed the development, ta flood risk over its lif surrounding land; appropriate accept undertaken to ensu natural and built en if there is any doub All major developments, ri Flood Risk Assessment an	build below the or in other area tin the proposals Flood Risk Asse and that: aking climate cha fetime to existing able mitigation a re no significant vironment as we t the precautional egardless of loca d appropriate su	5 metre conte s shown to be s maps, will ne essment (FRA ange into acco g or proposed and recovery i adverse impa- ell as cultural l ary principle ¹⁴ ation, should a ustainable dra	our (5 metres above e at risk of flooding or ot be permitted unless a)) demonstrates how the ount, does not create a properties and/or measures can be act on human health or the heritage; and ⁴ will apply. also be accompanied by a ainage system.
Justification and Compliance			
Policy SS7 Flooding Avoidance Justification Compliance with NPPF Monitoring Indicator: Target: Trigger for review: Supports Economic Growth	Spatial Strategy 1, Aims: 1, 2, 6, 7 Paragraph 17 (Core Appoals upheld cor None upheld at app Increasing trend of Supports a full Ran needs	3, 5, 7, 9, e Principle), 94, 99 htrary to policy beal appeals upheld cr ge of Housing	9, 100, 159 ontrary to policy Conserves the Natural and Historic Environment
n/a	n/a		Yes
Key Evidence Base Alternative options considered What the Community have already told us:	National Planning F National Planning F 2014 (NE01) Climate Ch. (I02) Infrastructure 2014 (F03) Cornwall and of Scilly Mid Term F (F04) Local Flood F (NE13) EA Ground None "We consider that y on flood risk to haw Islands over the Pla demonistrate how the Pla demonistrate how the de unsound". "the SMP2 Review, defences and the E the Nation flood risk	Policy Framework, Practice Guidance ange Strategy 201 Plan: Part of the S I Isles of Scilly Shk Review Appendix, Takk Management water Quality Surv rour Authority will e a better underst an period. Without he objectives and consequence that the 2011 water ra- invironment Agen k assessment pro-	2012 : Flood Risk and Coastal Change, 11 Strategic plan for the Isles of Scilly oreline Management Plan 2 - Isles A Strategy 2017 vey 2015/16 need to update the evidence base tanding of how this will affect the this update it will be difficult to vision of the Plan could be the Plan could be considered esources report including flood cy datasets including the State of vide a good, but high level,
¹³ Sustainable urban drainage system approach to managing drainage, pre- and habitat for wildlife. ¹⁴ Precautionary Principle is risk 49 P a g e C O N S	ms (SUDS) can be use went water pollution and assessment and ave ULTATION D	ed in all types of d nd flooding and ca oidance RAFT LOC/ The LOC/	A L PLAN 2015 - 2030 al Plan should be read as a whole.

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

In order to address this requirement, Engineering and Development Solutions Ltd. (EDS) have been commissioned to prepare an FRA.

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487 Phone 01872 306311 Mobile 07973816457



Site Description

The site is located on Hugh Street in Hugh Town, St Mary's, Isle of Scilly, as shown in **Figures 1 and 2** below. The Ordnance Survey Grid Reference (OSGR) for the site is SV 90243 10562. The site is bounded to the south by Hugh Street, and to the north by a thoroughfare which leads off leads off Hugh Street. The property is bounded to the east and west by other properties, although, pedestrian access is available to the sides of the building. Access to the front of the property is off Hugh Street and to the rear off the thoroughfare.

Town Beach, with St Mary's Pool beyond, is located to the north east of the site on the far side of another building at a distance of about 15m to the beach.



Figure 1 Plan Showing Site Location



Figure 2 Plan Showing Site Boundary

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487 Phone 01872 306311 Mobile 07973816457 J-2799 Steamship House. IoS. FRA



The site consists of two buildings which are effectively linked by way of a flat roof. A small courtyard is present to in the west of the plot. The finished floor level (FFL) of the ground floor is 3.81m AOD. The FFL of the first floor is 6.72m AOD.

In the wider context, the site is located on a narrow isthmus which joins the two land areas with higher elevations to the east and west. Ground topography rises towards the south west of the site to a high point of 42m AOD at the Garrison. To the east the land rises to a high point of 32m AOD at Tower. The levels of the isthmus are between 3m AOD and 5m AOD with slightly higher levels located on the south side.

Existing and Proposed Usage

The site consists of two buildings which have been joined in the past by way of a link structure. At present the site operates as a commercial unit on the ground floor with associated office space, kitchen and toilets. The first floor consists of partly commercial space with a boardroom, office, kitchen and toilet alongside a one bedroom flat. Externally there is a small courtyard area between the two buildings on the western side with access steps to reach the first floor flat. A existing site plan is included in **Appendix A**.

The proposed changes to the site are shown in the Feasibility Study Sketch Scheme, included in **Appendix A** as prepared by RLT Architects and summarised as follows:

- Internal alterations to the ground floor to change the space into a commercial unit at the south end of the building accessed from Hugh Street and a ground floor one bedroom flat (Flat 2) accessed from the thoroughfare to the north of the building. An access with lobby will also be created for one of the first floor flats. A small courtyard will be maintained adjacent to the commercial space.
- Conversion of the first floor into a one bedroom flat (Flat 1) located over the commercial space and a two bedroom flat (Flat 3) located to the north of the site.
- Construction of a new second floor accommodation located over the northern extent of the existing building to include the living/kitchen space and balcony for Flat 3.

The FFL of the second floor is 9.72m AOD. Proposed elevational drawings indicate the proposed floor levels, these are included in **Appendix A**.



2.0 ASSESSMENT OF FLOOD RISKS

Groundwater

Groundwater flooding is linked to the presence of aquifers and the ability of the underlying geological strata to bear water. Flooding occurs when water levels in the ground rise above surface elevations. The Environment Agency/BGS maps have been consulted to establish the aquifer designations of bedrock and superficial deposits underlying the site; the aquifer designation is classified as a *Secondary A* aquifer.

This type of aquifer is defined as a permeable layer capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

It is unlikely that groundwater would issue to the surface at this site as it is located in close proximity to the sea which will allow groundwater to drain down to the local sea levels. In addition, the nearby ground levels are similar to that of the site and provide limited opportunity for excessive water to build up and create high groundwater levels. As such, flooding from groundwater is not considered to represent a meaningful risk to the site and this from of flooding is discounted from further consideration.

Overland Flow

There is limited opportunity for significant overland flow to be generated upslope of the site.

Assessment of the topography of the surrounding area indicates that flows from the east of the site generally travel to the north and will be conveyed out into the sea before reaching the site.

Overland flows generated from the upslope areas to the west of the site generally travel to the north and south out towards the sea prior to reaching the site. The IoS Local Flood Risk Strategy 2017 notes that the heathland areas generally hold runoff after rainfall events.

A portion of the upslope areas directly to the west of the site do have the potential to generate overland flows which may travel in the direction of the site. Due to the small catchment area and presence of built up areas around the site it is anticipated that the existing drainage networks serving the highways and locality will dispose of surface water runoff in the site area.

The IoS Local Flood Risk Strategy 2017 notes certain areas of Hugh Town, such as Porthcressa, have experienced surface water flooding during high tide lock conditions. However, improvements to the surface water drainage systems in the vicinity have reduced the occurrence of this. There is not mention of past surface water flooding events in the vicinity of the subject site.

This form of flooding is considered to be of low risk compared to tidal flooding, so this mechanism of flooding is discounted from further assessment as consideration of tidal flooding will provide a much more onerous case.

Fluvial Flood Risk

There are no significant watercourses near or upslope of the site. In consideration of this, flooding from fluvial sources is not considered to represent a meaningful risk to the site and this form of flooding is discounted from further consideration.

Tidal Flooding

The elevation of the ground floor of the site is 3.81m AOD and the site is in close proximity to tidal waters in St. Mary's Pool.

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487 Phone 01872 306311 Mobile 07973816457



An extract from LIDAR mapping providing existing ground levels in and around the site is included within **Appendix B**.

Estimated still water tidal levels for St Marys are provided below in **Table 1** as provided by the Environment Agency. 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 1.45m 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 a mixed commercial/residential development such as this. As such, sea level may be assumed to rise by 1.45m over the lifetime of the development.

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

Tidal Event	Current Day Still Water Level (m AOD)	Still Water Level with Climate Change Allowance (m AOD)		
2 Year Return	3.48	4.93		
5 Year Return	3.56	5.01		
10 Year Return	3.61	5.06		
50 Year Return	3.74	5.19		
200 Year Return	3.84	5.29		
1000 Year Return	3.96	5.41		

 Table 1 - Approximate Sea Levels – Current Day and with Climate Change

 Allowance

With reference to the above flood levels, when compared to the existing and proposed ground floor FFL of 3.81m AOD, the site is at risk of flooding from the present day 1 in 200 year tidal flood event. The flood depth would be 0.03m, which means the site is located in Flood Zone 3.

With reference to Appendix A of the Cornwall and IoS Shoreline Management Plan 2 (reproduced part in **Figure 3** below), it is noted that the policy for this stretch of shoreline is to hold the line for the present time with a possible managed retreat from 2105. The site is located within policy unit 42.3 – The Quay to Custom House.

SUMMARY	OF SPECIFIC POLICIES					
Policy	Unit	SMP1 Policy	SMP2	Policy Plan		
		50 yrs	2025	2055	2105	Comment
42.1	The Mermaid Wall	Hold the line	HTL	HTL	HTL	This part of the quay is integral to the continued shelter of the remainder of the Town Beach frontage. The preferred policy would be to continue with a policy of holding the line, at least while economic justification remains.
42.2	The Quay	Hold the line	HTL	HTL	HTL	This part of the quay is also integral to the continued shelter of the remainder of the Town Beach frontage. There is little scope to realign the defence but its continued presence is accounted for in the management approach to other parts of the frontage. For that reason, (in addition to its historic value and overall importance to the economic well being of St Mary's) the preferred policy would be to continue with a policy of holding the line, at least while economic justification remains.
42.3	The Quay to Custom House	Hold the line	HTL	HTL	MR	Increasing pressure upon this part of the frontage may dictate that a longer term accommodation of rising sea levels is made – this may be done through realignment of the existing defence line. The erosion mapping indicates some pressure on the frontage but its sheltered nature means it is under less pressure than the Porthcressa frontline defences.
42.4	Custom house to Carn Thomas	Hold the line	HTL	HTL	MR	As with the previous policy unit frontage, a longer term realignment to accommodate rising sea levels and address the increasing risk factors is likely to be necessary.
42.5	Porth Mellon	Hold the line	HTL	MR	MR	Significant pressure on the Thomas Porth frontage from sea level rise and increasing storminess dictate that a careful management approach is required. The hinterland behind is low-lying and provides a route for flood waters into the Lower Moors area. Therefore the future management strategy needs to accommodate the increases in sea level rise and avoid coastal squeeze and foreshore narrowing where possible but at the

Figure 3 - Extract from Appendix A Cornwall and IoS Shoreline Management Plan 2

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487

Phone 01872 306311 Mobile 07973816457



In view of this, it is evident that the site is at risk of flooding from tidal sources. This warrants further detailed consideration which is provided in **Section 3.0** of the report.

Flood History

The Isle of Scilly Preliminary Flood Risk Assessment Report May 2011 records no evidence of past flooding to the site from surface water or ground water sources. The IoS Local Flood Risk Management Strategy March 2017 does not include any records of property flooding for the site locality. The Defra Isles of Scilly Water Interests Survey Report on Flood Defenced produced by ARUP in 2011 does note there have been instances of flood water ponding in the thoroughfare to the north of the site following high tides. Although only one instance of property flooding has been recorded at a property fronting Town Beach due to the installation of a basement window located at a low level. The report notes the north side of Hugh Town, where the site is located, is less susceptible to storm flooding than the Porthcressa side of the isthmus. This is due to the sheltered nature of the Town Beach. High tides coinciding with a storm surge pose the highest risk to the site.

Flooding as a Result of Development

Developments have the potential to increase flood risk to properties down slope of the proposed development through the introduction of impermeable areas on previously permeable areas. This development entails modifications to an existing site which is already covered in impermeable surfaces, so there is limited potential to increase runoff from the site. All the modifications proposed will not increase the impermeable areas on site.

Therefore, the proposed development presents no significant risk of increasing flooding elsewhere.



3.0 TIDAL FLOOD RISK

Tidal flood risk to the site is considered in more detail below. To assist with this, a Product 4 Information Request has been submitted to the Environment Agency. The still water tidal flood levels for the site in **Table 1** in Section 2.0 above. The 1 in 200 and 1 in 1000 year data has been summarised below for reference which also includes a depth of flooding when compared to the sites' ground floor FFL of 3.81m AOD.

Event	Water Surface Elevation (m AOD)	Depth of Flooding at Ground Floor FFL (m)
1 in 200 Yr.	3.84	0.03
1 in 200 Yr. with CC	5.29	1.48
1 in 1000 Yr.	3.96	0.12

Table 2 – Still Water Tidal Flood Levels and Depth at the Site Ground Floor Level

The EA data request also provided of Depth of Flooding Maps and Head of Water Maps for undefended flood events for the 1 in 200 year and 1 in 1000 year horizons, with a climate change scenario being provided for the 1 in 200 year event; a copy of the information so received is attached within **Appendix C**. This data is taken from the IoS Coastal Model 2019.

It is noted that the maps include an allowance for wave overtopping. A summary of the flood depths and water surface elevations obtained from the EA mapping is provided in **Table 2** below. This includes an assessment of the flood depth on the ground floor FFL of the building. The first floor FFL is 6.72m AOD.

Event	Water Surface Elevation (m AOD)	Water Depth from Map (m)	Water Depth Based Upon Site Level of 3.81m AOD(m)
1 in 200 Yr.	3.0-4.0	0.0 to 3.0	0.19
1 in 200 Yr. with CC	5.2 to 5.6	0.0 to 3.0	1.79
1 in 1000 Yr.	3.5 to 4.5	0.0 to 3.0	0.69

Table 3. Summary of Flood Depths and Levels Derived from EA Information

Reference to the EA flood mapping (see **Figure 3** below) indicates that the ground floor of the site is at risk of flooding during the present day predicted 1 in 200 year tidal flood event. Therefore, the site can be described as being located in Flood Zone 3 (High risk of flooding).

The flood depth at the ground floor level is predicted to be 0.19m in the present day 1 in 200 year tidal flood event with the allowance for wave overtopping.

Engineering and Development Solutions Ltd



Figure 3 Extract from EA Flood Map for Planning 1in 200 Year – Level (m AOD)

During the climate change event (**Figure 4**), water is shown to inundate a larger area around the site and the site itself is shown to be located in an area with the highest flood levels of 5.2 to 5.6m AOD.



Figure 4

Extract from EA Flood Map for Planning 1 in 200 Year with Climate Change -Depth

The maximum depth of flooding on the site in the climate change situation is predicted to be 1.79m based on a minimum ground elevation at the site of 3.81m AOD.

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487 Phone 01872 306311 Mobile 07973816457



The flood map without climate change shows portions of the access into the site, Hugh Street, being flooded. The flood map for climate change shows a larger proportion of Hugh Street flooded. Access and egress is discussed further in **Section 5.0** of this report.

Using the Rule of Twelfths for tidal movement and assuming a tidal range of 7.64m, it is estimated that the lowest part of the site (3.81m AOD) will be subject to flooding for a period of about 6 minutes, centred around the peak of the tide for the present day 1 in 200 year tidal flood event. The access to the site via the public highway, Hugh Street, would be flooded to some depth for around 1 hour 5 minutes.

In comparison, for the future predicted 1 in 200 year event with an allowance for climate change, the ground floor could be inundated for a period of 2 hours 40 minutes. The access via Hugh Street could be flooded for around 3 hours 45 minutes.

Given the timing of spring tides in this area, the high-risk times will be centred around the early morning and late afternoon periods during a spring tide cycle. 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.



4.0 FLOOD SUMMARY

The risk of flooding to the site from various sources have been considered; the only meaningful risk of flooding is considered to be from tidal flooding propagating from the direction of St. Mary's Pool. The present day predicted tidal flood level for the 1 in 200 year return period event is 3.84m AOD. As the FFL of the site is 3.81m AOD the depth of flooding during this event is predicted to be 0.03m which means the site in Flood Zone 3.

With the predicted effects of climate change and rising sea levels, the risk of tidal flooding will increase, and the site is predicted to experience flooding during an extreme still water tidal event (1 in 200 yr.) to a maximum depth of about 1.48m.

With reference to the EA IoS Coastal Model 2019 which includes an allowance for wave overtopping, these flood levels are predicted to increase. In summary, the current 1 in 200 year event could result in flood depths at ground floor FFL of up to 0.19m. With an allowance for climate change these depths could be up to 1.79m. For the 1 in 1000 year event depths could be up to 0.69m.

The development itself will not increase runoff rates. Also, it will not result in any redirection of flood flow routing or infilling of any fluvial flood plain and as such will not act to raise flood risk elsewhere.



5.0 ACCESS AND EGRESS

Access and egress for the site is via Hugh Street for the commercial aspect of the development on the ground floor. Access for all three flats involves moving off Hugh Street to either side of the building: for side entry for Flats 1 and 3 which lead to the first floor; and access to Flat 2, located entirely on the ground floor, is via an entrance located on the north elevation which can be accessed directly from the thoroughfare or via the side of the building from Hugh Street.

The preferred access route furthest away from the beach would be via Hugh Street, as such, this will be discussed in more detail below as the preferred access.

Light Detection and Radar (LiDAR) data has been used to assess ground levels in the vicinity of the site. This data is included in **Appendix C** for reference. **Figure 5** shows an extract from this data laid onto an aerial photograph. The preferred access/egress route is indicated by the magenta arrows and the site is outlined in red.



Figure 5 – Contour data from LiDAR including the Preferred Access/Egress route for the Site

Road levels to the front of the site are around 3.5m AOD as shown in the above figure. Moving in a south easterly direction away from the site the ground levels rise slightly to 3.75m AOD. Turing right onto Garrison Lane and moving in a south westerly direction moves to higher ground where levels raise above 4m AOD and above.

The 1 in 200 year predicted tide level including allowance for wave action is between 3 and 4m AOD. Assuming the worst case scenario of 4m AOD, the flood depth on Hugh Street could be 0.5m. Moving onto Garrison Lane, this would reduce down to 0m depth approximately 50m distance from the front of the site. The velocity would likely be low due to the tidal nature of the flood event and the fact Hugh Street is sheltered from the sea front.

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487

Phone 01872 306311 Mobile 07973816457

J-2799 Steamship House. IoS. FRA



In the longer-term climate change event , the depth of flooding on Hugh Street is predicted to rise to around 2.1m depth. The velocity of low is likely to be low (less than 0.25m/s) given that it is tidal in nature.

DEFRA document FD2320/TR2 "Flood Risk Assessment Guidance for New Development" provides guidance on risks to persons moving through flood water of varying depths and velocities. Figure 13.1 of FD2321/TR2 is provided below as **Figure 6** for reference purposes.

Considering the situation on Hugh Street at the peak of the flood (depth 0.5m; velocity 0.25m/s) the situation would be classified as between "Danger to most". Moving through these water conditions should not be undertaken except by emergency services.



Figure 6 – Extract from FD2320/TR2

In the event of an anticipated extreme flood where the water level is predicted to exceed about 3.5m AOD, then it is recommended that the site is evacuated in advance of the high tide and/or the premises are not opened for business, if appropriate.

Residents of the building should also evacuate the site, but where this is not possible occupants may take refuge at first floor level which will remain at least 2.5m above the peak flood level and will act as a safe haven. The maximum period of forced occupation due to flooding is estimated to be 1 hour 5 minutes for the present day flood event, which is viable.

The evacuation route should be incorporated into a comprehensive Flood Evacuation Plan for the premises to be prepared by the site occupiers; the plan should be prepared in accordance with further advice provided within **Section 7.0** of this report.

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487 Phone 01872 306311 Mobile 07973816457



6.0 POLICY

The site has been shown to be in Flood Zone 3. In accordance with Planning Practice Guidance (PPG) Table 2, the development use would be classified as 'More Vulnerable' within Table 2 due to the residential element.

Flood Zones	Flood Risk Vulnerability Classification					
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible	
Zone 1	1	1	1	1	1	
Zone 2	1	Exception Test required	1	<i>✓</i>	√	
Zone 3a †	Exception Test required †	х (Exception Test required)~	1	
Zone 3b *	Exception Test required *	×	x	×	√*	
Key:						
🗸 Deve	lopment is app	propriate				
X Deve	lopment shoul	d not be pe	rmitted.			

Figure 6 – PPG Table 3

It should be noted that Paragraph 168 in NPPF states that "*Applications for some minor development and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments..."*

The building can already be classified as 'more vulnerable' due to the presence of residential accommodation, therefore, the vulnerability classification is not changing due to the development proposals.

Therefore, as this development is a minor development, application of the sequential and exception tests are not required, and the appropriateness of the development should be judged on the site-specific flood risk assessment.



7.0 MITIGATION MEASURES

The site is currently located in Flood Zone 3 and used as a commercial building with residential flat above. The proposed development will alter the internal layout of the building to include a commercial space and separate residential flat on the ground floor; and two additional residential flats on the first floor with construction of a third floor to house the living space for the third flat.

A range of mitigation measures are proposed in order to ensure the safety of the development over its anticipated lifetime. Adopting these measures has the potential to reduce the level of flood risk to the site post development.

To this end the following mitigation measures are proposed;

- 1. The proposed development is for alterations within an existing site, with direct access from street level; therefore, it would not be practical to raise the Finished Floor Levels. Therefore, in line with Environment Agency standing advice, the proposed finished floor level (FFLs) for any new buildings should be no lower than the FFLs of the equivalent existing buildings.
- 2. All new construction works undertaken below 5.89m AOD (1 in 200-year event + climate change + 600mm freeboard) should be carried out using flood resilient materials where practicable. Further advice on flood resilient construction is available from Improving Flood Resilience of New Buildings which is available at: http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf
- 3. All future electrical circuitry and apparatus should be installed at or higher than 5.89m AOD where practicable or made resistant to flooding as far as practicable if it cannot be installed at high level.
- 4. Provision to be made for the installation of flood resistant barriers on all the ground floor door openings to the buildings.
- 5. A detailed Flood Evacuation Plan should be prepared; this will become particularly relevant with the onset of sea level rise arising from climate change. This plan should describe how the premises will be operated and how staff, residents and customers will be managed when tidal flooding is expected. As a minimum it should address the following items:
 - a. Describe how tide levels and sea conditions will be monitored and when action will be triggered; predicted water levels of 3.4m and 3.7m AOD are suggested as early trigger thresholds. 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:
 - 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

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487

Phone 01872 306311 Mobile 07973816457



about how to be prepared in the event of an emergency including flood incidents

FLOOD ALERT



FLOOD WARNING



Monitor flood warnings and advice issued by the Environment Agency, IoS Council, the Emergency Services and local radio

• Monitor sea conditions in the Pool

(3.4m AOD)

• Prepare to implement Flood Evacuation Plan

Warning - Significant tidal overtopping is expected. (3.7m AOD)

Amber Alert – Significant tidal overtopping is possible.

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

Severe - Dangerous level of tidal overtopping is expected (4.0m AOD)

- Continue to monitor flood warnings and weather/tide conditions
- Continue to enforce Flood Evacuation Plan and monitor effectiveness
- Advice persons when tide/weather conditions have subsided to safe levels and that normal operation is resumed
- Advise persons of Flood Contingency Plan being implemented again during next tidal cycle
- b. Describe proposals as to how staff, customers and residents will be informed about flooding risks, mitigation measures and emergency access routes and how they will be informed when the Plan is in place.
- c. Describe how and when any vehicles associated with the premises will be moved to higher ground
- d. Describe how and when flood barriers will be deployed
- e. Describe how the risks will be deemed to have subsided to normal levels and how this will be communicated to staff, residents and customers
- Register with the Environment Agency's countrywide flood warning system in as far as it covers the Isle 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/signup-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.

Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4 Threemilestone Industrial Estate, Threemilestone, Truro, Cornwall, TR4 9LD Registered in England and Wales No. 10467487 Phone 01872 306311 Mobile 07973816457



8.0 **CONCLUSIONS**

The risk of flooding to the site from various sources have been considered. The only meaningful risk of flooding is considered to be from tidal flooding propagating from the direction of St. Mary's Pool. The present day predicted tidal flood level for the 1 in 200 year return period event is 3.84m AOD. As the FFL of the site is 3.81m AOD the depth of flooding during this event is predicted to be 0.03m which means the site in Flood Zone 3.

With the predicted effects of climate change and rising sea levels, the risk of tidal flooding will increase, and the site is predicted to experience flooding during an extreme tidal event (1 in 200 yr.) to a maximum depth of about 1.48m.

With reference to the EA IoS Coastal Model 2019 which includes an allowance for wave overtopping, these flood levels are predicted to increase. In summary, the current 1 in 200 year event could result in flood depths at ground floor FFL of up to 0.19m. With an allowance for climate change these depths could be up to 1.79m. For the 1 in 1000 year event depths could be up to 0.69m.

A range of mitigation measures are proposed as outlined in **Section 7.0** of this report. The preparation of a detailed Flood Evacuation Plan is a key aspect of the mitigation measures, though the plan will become especially pertinent with the onset of predicted sea level rise resulting from climate change.

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

Feasibility Study Sketch Scheme including Drawings Showing the Existing and Proposed Development



2634 – Steamship House, Hugh Town, Isles of Scilly Feasibility Study



rlt architects

The Old Stables Chyandour Lane Penzance TR18 3LP 01736 367646

Sketch Scheme

September 2021



Google Earth Plan - I:2500@A3



Site Location Plan - I:1250@A3



As Existing Block Plan - 1:500@A3

rit architects riba chartered architects, the old stables, chyandour lane, penzance, TR18 3LP, cornwall (01736) 367646 ritarchitects.co.uk info@ritarchitects.co.uk





rlt architects

Notes

- 1. This drawing 2. This drawing ses, only figured
- Worked from.
 All dimensions and levels are to be checked on site prion any discrepancies to be reported to the architect.
 This drawing is for design and planning purposes only.

Stage	Planning		
Client	Isle of Scilly Steams	hip Company	
Project	HughTown IOS		
Title	Exisitng Site Plans		
Revision	S	Scale/s	Various@A3
No.		Date	August 2021
Date		Drawn	WW
Initial		Checked	CM

Project No. 2021/2634 Drawing No. 2021/2634 SK 101

Rev.













Existing External Photographs













Panoramic Photographs



rit architects riba chartered practice, the old stables, chyandour lane, penzance, TR18 3LP, cornwall (01736) 367646 ritarchitects.co.uk admin@ritarchitects.co.uk



rlt architects

Notes

1. This drawing is the copyright of the architects and may not be reproduced without litence.
 2. This drawing should not be scaled for construction purposes, only figured dimensions
 worked from.
 3. All dimensions and levels are to be checked on site prior to commencement of any work and
 any discrepancies to be reported to the architect.
 4. This drawing is for design and planning purposes only.
 Stage Planning
 Client Isle of Scilly Steamship Company

Project HughTown IOS

Title Existing Floor Plans

Revisions	Scale/s	I:100@A3
No.	Date	August 2021
Date	Drawn	WW
Initial	Checked	CM
Project No. 2021/2634	Drawing No. 2021/2634 SK 102	Rev.



rlt architects

I:100@A3 August 2021 WW СМ Project No. 2021/2634 Drawing No. 2021/2634 SK 103 Rev.

PLOPOSED FEASIBILING STUDY - STEAMSNIP HOUSE hugh your - Isie of suim





EXISTING VIEN IN CONTECT

Existing view Fram MUAN JOON BOACH

PUT HECHITEETS FOR ISUR OF Sainy STANISHIP

RLT Architects The Old Stables Chyandour Lane Penzance TR18 3LP www.rltarchitects.co.u







PLORESPO VIEW in CONTECT

PROPOSED VIEW TROM MUGH TOWN BEACH



RLT Architects The Old Stables Chyandour Lane Penzance TR18 3LP www.rltarchitects.co.uk







Precedent Images















SH = 4.79 HH = 5.97 SH = 6.01 HH = 4.83 4.00 OFFICE CHL 6.32 FFL 3.89 3.89 + OFFICE CHL 6.23 FFL⁺3.87 CUP'D + FFL 3.89 + CHL SLOPES TO FLOOR 3.88 + 3.90 + OFFICE CHL 6.24 FFL⁺3.90 + WALL HT = 5.0 3.90 CHL 6.24 + DH = 6.14 ||||ENTRAN¢ SERVER RANSOM ABC SH = 5.92 HH = 6.23 DH = 5.92 SH = 5.01 HH = 6.23 CIRC CHL 6.23 + FFL 3.91 + CIRC CHL 6.23 + CIRC CHL 6.03 + FFL 3.80 * 3.81 ELEC. BOX FFL 3.91 + + KITCHEN⁺ CHL 6.03 FFL 3.79 + 3.79 FFL 3.80 ELEC. BOX CHL SLOPES TO U/S STAIR FFL 3.79 + D.B. BOARD COUNTERTOP HT = 4.74 3.91 SHELVING 3.90 U/S 6.26 / / / / / / OH = 5.78 DH = 5.82 DH = 6.05 OFFICE CHL 6.51 + FFL 3.82 + 3.93 DH = 6.00 ENTRANCE 3 3.84 CUP'D DH = 6.0SH = 4.58 HH = 6.36 STEP U/S 6.02 + 3.60 + Ĺ∕Ì

GROUND FLOOR PLAN

∽≁

15m

TOPOGRAPHICAL		UTILITIES	LASER SCAN		
Notes:					
		•			
	/	\wedge	NORTHEAS!		Λ
	STEAMSH		}	V	N
SOUTH	w.				
	1.6%	ī			
Rev	C	omments		By Ch	kd Date
S			YE TAL S		SE
Bath Project	••••••••••••••••••••••••••••••••••••••	14370 - I	London	: 02039 (066892
Hugh S	Street, St	Marys, Is	sles Of S	cilly, TR	21 OLL
SB593	6 - MBS				
Client Henry	Riley			Date 16/08/20)21
Drawn	By Ch	ecked By		Scale A1 @ 1:5 de	0 Revision
SB - YM Orienta ARBITR	I SB Ition ARY	S - JL Site OS	Level Da GPS	36 tum	
All dimens	ions are to be cheo se scaled, and only	cked on site when	re applicable.Th ons should be re	is drawing must spected.	not 🔨
Tree species and s are average about	sizes on this drawing ar	e not guaranteed, and are approximate at th	d if critical should be	e verified by an arbon	riculturist. Tree spreads



TOPOGRAPHICAL		UTILITIES	LASER SCAN			
Notes:						
		\bigwedge^{\bullet}	NORTHEAST			٨
<	STEAMSH	IIP BUILDING				N
< Sol	,					
TH	AFST -					
Rev	С	omments		By (Chkd	Date -
				-	-	-
SI	ID.			RΔ	S	F
SI PRE		VE Survey			S	
S P R E Bath: Project I Hugh S	JR WWW 01225 3 Name treet, St	VE Survey 14370 - I	D YB TAL S (base. London:	CO.UP 02039	S 060 R21	E R S 892 OLL
S P R E Bath: Project I Hugh S CAD Dra SB5936	UR WWW 01225 3 Name treet, St	VE Survey 14370 - I Marys, Is	D YB TAL S (base.) London:	CO.UP 02039	S 060 R21	E 5892 OLL
SI PRE Bath: Project I Hugh S CAD Dra SB5936 Drawing FIRST F	UR WWW 01225 3 Name treet, St wing Nam 5 - MBS	VE SURVEY 14370 - I Marys, Is e	D YB TAL S (base.) London: Sles Of So	CO.UP 02039 cilly, T	S 060 R21	E 5892 OLL
SI PRE Bath: Project I Hugh S CAD Dra SB5936 Drawing FIRST F Client Henry	UR WWW 01225 3 Name treet, St wing Nam 5 - MBS Title LOOR PL Riley	AN	D YB ybase. Jondon: sles Of Se	Date 16/08/2	S 060 R21	E 5892 OLL
SI PRE Bath: Project I Hugh S CAD Dra SB5936 Drawing FIRST F Client Henry	UR WWW 01225 3 Name treet, St wing Nam 5 - MBS Title LOOR PL Riley	AN	D YB TAL S ybase. London: sles Of Se SB Coo	Date 16/08/2 Scale A1 @ 1	S 0 060 R21 2021 :50	BB92
SI Project I Hugh S CAD Dra SB5936 Drawing FIRST F Client Henry Drawn B SB - YM Orientat ARBITRA	UR WWW 01225 3 Name treet, St wing Nam 5 - MBS Title LOOR PL Riley Riley Ch SB	AN AN Becked By Site OS	D YB TAL S (base.) Jondon: Sles Of So Sles Of So SB593 Level Dat GPS	Date 16/08/2 Scale A1 @ 1 de 6 um	S 060 R21 2021 ::50 Rev	DRS 0LL ision
SI PRE Bath: Project I Hugh S CAD Dra SB5936 Drawing FIRST F Client Henry Drawn B SB - YM Orientat ARBITRA	UR WWW 01225 3 Name treet, St wing Nam 5 - MBS Title LOOR PL Riley Riley Ch SB tion ARY	AN Site OS Site	D YB TAL S ybase. London: Sles Of So SB593 Level Dat GPS	Date 16/08/1 Scale A1 @ 1 de 6 um	S 060 R21 :50 Rev -	BRS 0LL ision

		UTILITIES	LASER SCAN		
Notes:					
			NORTHEAS.		٨
				>>	N
"OUTH	NESS .				
Rev	C	omments		By Chk	d Date
				 	-
					-
CI					26
PRE		N DIGI	TAL S ybase.	URVEN co.uk	ORS
Bath Project Hugh S	: 01225 3 Name Street, St	14370 - 1 Marys, Is	London:	cilly, TR2	66892 1 OLL
CAD Dra	awing Nam 6 - MBS	e			
Drawing SOUTH	g Title IWEST PL	AN			
Client Henry	Dilou			Date 16/08/202	21
	Riley			Scale	
Drawn E SB - YM	3y Cr	necked By	SB Co SB593	Scale A1 @ 1:50 de R 36 -) evision
Drawn E SB - YM Orienta ARBITR	By Ch SB tion ARY	ecked By S - JL Site OS	SB Co SB593 Level Dat GPS	Scale A1 @ 1:50 de 36 -) evision
Drawn F SB - YM Orienta ARBITR	By Ch By Ch SB tion ARY	ecked By S - JL Site OS	SB Co SB593 Level Dat GPS	Scale A1 @ 1:50 de 36 - cum	evision

OPOGRAPHICAL		UTILITIES	LASER SCAN		
Notes:					
	/	\wedge	NORTHEAST		٨
<	STEAMSH	IIP BUILDING	\mathbf{z}	Þ	×
SOUTZ					
		-			
Rev 	C	omments		By Ch	kd Date
Rev	C	omments		By Ch	kd Date - - - - -
Rev	C	omments		By Ch	kd Date - - - - -
Rev	C	omments	D	By Ch 	kd Date - - - - -
Rev - <	JR			By Ch 	kd Date
Rev 		omments	D YE ybase.	By Ch 	kd Date
Rev 	UR UR US US US US US US US US US US US US US	omments	D YE TAL S (base. Jondon: sles Of S	By Ch 	kd Date
Rev 	UR UR UNW 01225 3 Name treet, St wing Nam 5 - MBS	omments	D YE ybase. Jondon:	By Ch 	kd Date - - - - - - - - - - - - -
Rev I I I I I I I I I I I I I	UR UR UNW 01225 3 Name treet, St www 5 - MBS Title WEST PL	omments	D YE AL S (base. Jondon: sles Of S	By Ch 	kd Date
Rev A A A A A A A A A A A A A	JR WWW 01225 3 Name treet, St Wing Nam 5 - MBS Title WEST PL Riley	omments	D YE ybase. Jondon: sles Of Se	By Ch 	kd Date
Rev A A A A A A A A A A A A A	JR US VWW 01225 3 Name treet, St wing Nam 5 - MBS Title WEST PL Riley	omments	D YE AL S (base. Jondon: sles Of S sles Of S Level Dat	By Ch 	kd Date . . <
Rev 	C S S S S S S S S S S S S S S S S S S S	omments	D YE ALS (base. Jondon: sles Of St sles Of St SB Cou SB593 Level Dat GPS	By Ch - - <td< td=""><td>kd Date . . <</td></td<>	kd Date . . <

		UTILITIES	LASER SCAN			
NOTES.						
		•	NOR.			
		\wedge				N
	STEAMS	IIP BUILDING	7			
SOUTH	AFST					
Rev 	C	omments		Ву -	Chko -	Date
				-	-	-
· · ·			D			
SI PRE				BA URV .co.u	S EY k	ORS
SI PRE Bath: Project M Hugh S	JR US US US US US US US US US US US US US	VE Survey 14370 - I Marys, Is	YE TAL S ybase London	BA URV .CO.U : 0203	S E Y k 9 06 R 21	SE O R S 6892 . OLL
SB5936	JR WWW 01225 3 Name treet, St wing Nam 5 - MBS	VE Surve 14370 - I Marys, Is e	D YE ybase London	BA URV .CO.U : 0203	S E Y k 9 06 r 21	CRS 6892 . OLL
SB5936 Drawing NORTH	JR UWW 01225 3 Name treet, St wing Nam 5 - MBS Title IEAST PL	VE SURVE 14370 - I Marys, Is e	D YE ybase London	BA URV .CO.U : 0203	S E Y k 9 06 r R21	See See See See See See See See See See
SI Project I Hugh S CAD Dra SB5936 Drawing NORTH Client Henry I	JR OUVU 01225 3 Name treet, St wing Nam 5 - MBS Title IEAST PL/ Riley	VE SURVE 14370 - I Marys, Is e	D YE ybase london	Date 16/08, Scale	S E Y k 9 06 7 R 21	CORS 0 R S 0 R S 0 C S
SB5936 Drawing NORTH Client Henry I Drawn B SB - YM	JR WWW 01225 3 Name treet, St Wing Nam 5 - MBS Title IEAST PL/ Riley Y Ch SB	AN	D YE ybase London sles Of S	Date 16/08, Scale A1 @	S E Y k 9 06 7 R 21 (2022) 1:50 1 :50	Sease o R S 6892 . OLL
SB5936 Drawing NORTH Client Henry I Drawn B SB - YM Orientat ARBITRA	JR UWWW 01225 3 Name treet, St wing Nam 5 - MBS Title IEAST PL/ Riley W Ch SB Sion ARY	AN Becked By Site OS	D YE ybase London sles Of S SB CC SB 59: Level Da GPS	BA URV .CO.U : 0203 Scilly, 7 Date 16/08, Scale A1 @ ode 36 tum	S E Y k 9 06 (2021) 1:50	Cors 6892 . OLL

COPOGRAPHICAL		UTILITIES			
Notes:					
		•			
	/	\wedge	NOR THEAST		
	STEAMS	IIP BUILDING	}	P	N
SOUTH					
	-73%	-			
Rev 	C	omments		By Chl	kd Date
					-
S			YB TAL S		SE
-	VV VV VV	.surve	ybase.	CO.UK	
Bath Project	: 01225 3 Name	14370 - I	_ondon:	02039 0	066892
Bath Project Hugh S	: 01225 3 Name Street, St	14370 - I Marys, Is e	London:	02039 0 cilly, TR2	21 OLL
Bath Project Hugh S CAD Dra SB593 Drawing	street, St awing Nam 6 - MBS	Marys, Is	London:	02039 0	21 OLL
Bath Project Hugh S CAD Dra SB593 Drawing SOUTH Client Henry	: 01225 3 Name Street, St awing Nam 6 - MBS g Title HEAST PLA Riley	Marys, Is	London:	02039 0 cilly, TR2 Date 16/08/20	21 OLL
Bath Project Hugh S CAD Dra SB593 Drawing SOUTH Client Henry	: 01225 3 Name Street, St awing Nam 6 - MBS g Title HEAST PLA Riley	Marys, Is Marys, Is e	sles Of So	02039 0 cilly, TR2 Date 16/08/20 Scale A1 @ 1:50 de	21 OLL
Bath Project Hugh S CAD Dra SB593 Drawing SOUTH Client Henry Drawn I SB - YM Orienta ARBITR	: 01225 3 Name Street, St awing Nam 6 - MBS g Title 1EAST PL/ Riley By Ch SB tion ARY	Marys, Is Marys, Is e AN Secked By Site OS	Level Dat GPS	02039 0 cilly, TR2 Date 16/08/20 Scale A1 @ 1:50 de 6 F 6	21 21 21 21 Revision
Bath Project Hugh S CAD Dra SB593 Drawing SOUTH Client Henry Drawn I SB - YM Orienta ARBITR	: 01225 3 Name Street, St awing Nam 6 - MBS g Title HEAST PL/ Riley By Ch SB tion ARY	14370 - I Marys, Is e AN becked By - JL Site OS sked on site when	Level Dat GPS	02039 0 cilly, TR2 Date 16/08/20 Scale A1 @ 1:50 de 6 F 6 F - um	066892 21 OLL 21 0 Revision

APPENDIX B LiDAR Mapping Extract

	Copyright – This drawing and any ancillary drawings or data are copyright of EDS and may not be used, copied or amended for any purpose whatsoever without written approval.
1,150	 NUTES This drawing is copyright. Refer to details above. This drawing is only to be used for the purposes described in the status box below. Work to figured dimensions only, do not scale.
3.0 3.250 50 50 50	
4.250	
4.250	20:01:23 AW – <u>А</u> REPORT ISSUE
F.250 4.250	DATE. DRWN. CHKD. REV. NOTES. PROJECT MANAGER:- JAN CLARK PROJECT ENGINEER:- ANDY WOOLLEY DRAWN DATE:- JANUARY 2023 SCALE & SHEET SIZE:- NTS
	<image/> REPORTImage: Constraint of the state of the stat
150 5.250 5.750	<u>CLIENT</u> IOS STEAMSHIP CO. LTD <u>PROJECT</u> STEAMSHIP HOUSE, HUGH TOWN, ST. MARY'S ISLE OF SCILLY
6.000	DRAWING TITLE LIDAR 2020 1m COMPOSITE DTM CONTOUR DATA OVERLAID ON SITE AERIAL IMAGERY PROJECT NO. DRAWING NO. REV.

APPENDIX C ENVIRONMENT AGENCY INFORMATION

FIRST

Please check the latest Climate Change allowance :-Flood risk assessments: climate change allowances - GOV.UK (www.gov.uk)

We expect you to use the scenario values as shown on the adjacent table for the different types of development. You may provide different scenario (i.e. High Cen for SLR) as additional assessment but we will use these values/allowances for our assessments of FRA/Designs

*CFB = Coastal Flood Boundary – available at data.gov.uk

Valid May 2022 – FCRM

DCIS Climate Change Allowances – Strategic and Development Planning

L Andres

			_	17	1	73	~
	Development Vulnerability NPPG	Rainfall 1% Storms		River L than 5	ess km2	Fluvial	Sea Level Rise (SLR) Upper End
		Exe & East Devon	All others	Urban	Rural	Use 2080s values for all	Added to CFB* 2017 data
	Commercial 60yr lifetime	30%	30%	30%	? - tbc	Central Allowance- See map next page	0.74m (2082 value)
	Residential 100yr lifetime	45%	50%	50%	? - tbc	Central Allowance - see map next page	1.445m (2122 value)
-	Essential Infrastructure	45%	50%	50%	? - tbc	Higher Central - See map next page	Please confirm with EA office

SPDC@environment-agency.gov.uk or SW_Exeter-PSO@environment-agency.gov.uk

Flood risk assessment data

Location of site: 90248 / 10563 (shown as easting and northing coordinates) Document created on: 1 December 2022 This information was previously known as a product 4. Customer reference number: BRR2FC1FCYUE

Map showing the location that flood risk assessment data has been requested for.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change

This data is updated on a quarterly basis as better data becomes available.

Page 6

Historic Information

The map below is an indicative outline of areas that have previously flooded.

Historic outlines may not be visible where they overlap. You can download the outlines separately via the link below.

Download recorded flood outlines in GIS format

Our historic flood event outlines:

- are an indication of the geographical extent of an observed flood event. We map flooding to land, not individual properties.
- not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.
- are based on a combination of anecdotal evidence, Environment Agency staff observations and survey.
- do not provide a definitive record of flooding.

It is possible that there will be an absence of data in places where we have not been able to record the extent of flooding. It is also possible for errors occur in the digitisation of historic records of flooding.

Remember that: other flooding may have occurred that we do not have records for.

Please note that our records are not comprehensive. We would therefore advise that you make further enquiries locally with specific reference to flooding at this location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.

Modelled data

About the models used

Model name: Isles of Scilly Coastal Model Date: 2019

This model contains the most relevant data for your area of interest.

You will need to consider the <u>latest flood risk assessment climate change</u> <u>allowances</u> and factor in the new allowances to demonstrate the development will be safe from flooding.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1%chance of occuring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

288336 - Head of Water Map Undefended 1 in 200 year taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys Undef 1 in 200 year - head of water mAOD

Head of Water

This map displays the head of water (mAOD) across the site for a 1 in 200 year (0.5% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Head of Water Map Undefended 1 in 200 year (+Climate Change) taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys Undef 1 in 200 year+cc - head of water mAOD

Head of Water This map displays the head of water (mAOD) across the site for a 1 in 200 year (0.5% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Head of Water Map Undefended 1 in 1000 year taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys Undef 1 in 1000 year - head of water mAOD

Head of Water This map displays the head of water (mAOD) across the site for a 1 in 1000 year (0.1% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Head of Water Map Undefended 1 in 1000 year (+ climate change) taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys Undef 1 in 1000 year + cc - Head of Water mAOD

Head of Water This map displays the head of water (mAOD) across the site for a 1 in 1000 year (0.1% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

© Environment Agency copyright and / or database rights 2020.

All rights reserved. © Crown copyright and database rights 2020. All rights reserved. Ordnance Survey licence number 100024198, 2020.

288336 - Depth Map Undefended 1 in 200 year taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys Undef 1 in 200 year - depth					
metres	metres				
	0.0 - 3.0				
	3.0 - 6.0				
	6.0 - 9.0				
	9.0 - 13				
	13 - 17				
	17 - 21				
	21 - 26				
	26 - 31				
	31 - 35				
	35 - 41				

This map displays the depths (m) across the site for a 1 in 200 year (0.5% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Depth Map Undefended 1 in 200 year (+ climate change) taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Mary	ys Undef 1 in 200 year+cc - Depth
metres	
	0.0 - 3.0
	3.0 - 6.0
	6.0 - 9.0
	9.0 - 13
	13 - 17
	17 - 21
	21 - 26
	26 - 31
	31 - 35
	35 - 41

This map displays the depths (m) across the site for a 1 in 200 year (0.5% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Depth Map Undefended 1 in 1000 year taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Mary	St Marys Undef 1 in 1000 year - depth				
metres	metres				
	0.0 - 3.0				
	3.0 - 6.0				
	6.0 - 9.0				
	9.0 - 13				
	13 - 17				
	17 - 21				
	21 - 26				
	26 - 31				
	31 - 35				
	35 - 41				

This map displays the depths (m) across the site for a 1 in 1000 year (0.1% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Depth Map Undefended 1 in 1000 year (+climate change) taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys Undef 1 in 1000 year+cc - Depth
metres
0.0 - 3.0
3.0 - 6.0
6.0 - 9.0
9.0 - 13
13 - 17
17 - 21
21 - 26
26 - 31
31 - 35
35 - 41

This map displays the depths (m) across the site for a 1 in 1000 year (0.1% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Depth Map Defended 1 in 200 year taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys def 1 in 200 year - Depth		
metres		
	0.0 - 3.0	
	3.0 - 6.0	
	6.0 - 9.0	
	9.0 - 13	
	13 - 17	
	17 - 21	
	21 - 26	
	26 - 31	
	31 - 35	
	35 - 41	

This map displays the depths (m) across the site for a 1 in 200 year (0.5% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

288336 - Depth Map Defended 1 in 200 year (+climate change) taken from the Isles of Scilly Coastal Model 2019 centred on Hugh town, St. Marys

Please note this map is intended only as a guide - it is not accurate at individual property level

Legend

St Marys def 1 in 200 year+cc - Depth			
metres			
0.0 - 3.0			
3.0 - 6.0			
6.0 - 9.0			
9.0 - 13			
13 - 17			
17 - 21			
21 - 26			
26 - 31			
31 - 35			
35 - 41			

This map displays the depths (m) across the site for a 1 in 200 year (0.5% AEP) event, taken from the Isles of Scilly Coastal Model 2019 and includes an allowance for wave overtopping.

ENQ22/DCIS/288336 - Coastal Flood Boundary Data - Tidal Levels (2018)

Site	Grid Ref		Tidal Still Water Level (m OD) for return period Base year is 2017					
	Easting	Northing	50% AEP 1 in 2 year	20% AEP 1 in 5 year	10% AEP 1 in 10 year	2% AEP 1 in 50 year	0.5% AEP 1 in 200 year	0.1% AEP 1 in 1000 year
St. Mary's (Isle of Scilly)	90210	10900	3.48	3.56	3.61	3.74	3.84	3.96
Confidence intervals (2.5%)			3.46	3.54	3.59	3.71	3.79	3.86
Confidence intervals (97.5%)			3.48	3.56	3.62	3.77	3.89	4.05

Although levels are given to 2 decimal places, practitioners should treat them as only accurate to 1 decimal place. Confidence levels are provided when conducting sensitivity testing in a study or design.

Correct as of 02 / 12 / 2022

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

Find out more about flood risk activity permits

Help and advice

Contact the Devon Cornwall and the Isles of Scilly Environment Agency team at <u>dcisenquiries@environment-agency.gov.uk</u> for:

- more information about getting a product 5, 6, 7 or 8
- general help and advice about the site you're requesting data for

Engineering and Development Solutions Ltd Registered Office: Unit E4 | Threemilestone Industrial Estate | Truro | Cornwall | TR4 9LD