

**PROPOSED PARTIAL DEMOLITION & RECONSTRUCTION of 31b, Marsh Rd & two single storey replacement units**

**FLOOD RISK ASSESSMENT, EVACUATION PLAN & CONSTRUCTION PLAN**

The objective is to prepare a Flood Risk Assessment for the proposed development in accordance with National Planning Policy Framework **NPPF**. By identifying the risks the design of the proposed buildings can include features that will protect the building and occupants during a flood event, and assist in creating an evacuation plan.

A key feature of an evacuation plan is to obtain advance warning of a likely flood event. The **Environment Agency (EA)** provides a free flood warning service to those who register their property and telephone numbers. With advance warning the property occupants can prepare and evacuate to higher ground, or prepare and move to a safe refuge if evacuation to high ground is not possible. An evacuation plan should be printed and placed in a conspicuous position within the property so occupants will be aware of the risk, and what to do in the event of a flood. Not all local flooding is predictable and therefore the property owner should provide safe refuge above flood water level and provide the necessary means to be safe and comfortable in such a situation . . . buoyancy aids, drinking water, water proof clothing, torch, first aid kit, radio, blankets, important documents, tinned and non-perishable food, etc..

The EA aim to provide a lead time of 1-2 hours for Flood warnings relating to river flood water, and 6 hours for tidal flooding at coastal locations.

The **Site Specific Flood Risk Assessment** for this development shows the flood risk to the use and safety of this proposed development are: **tidal** from the Solent, and **fluvial** from Gurnard Marsh / River Luck.

The **EA** advises that the site is located within an area Designated **Flood Zone 3** that has a **0.5%** chance of **flooding from the sea** (1 in 200 year storm event) ignoring the presence and effect of flood defences which also incorporates the failure of local infrastructure. [Under the Climate Change Allowances the Higher Central 1 in 200 year tidal flood level in 2015 is 3.9AoD and the equivalent Upper End tidal flood level is 4.3AoD.](#)

The **EA** advises that the site has a **1%** chance of **fluvial flooding** (1 in 100 year storm event) from Gurnard Marsh/ River Luck ignoring the presence and effect of flood defences.

The applicant has owned the site for 30 years and is familiar with the threat of tidal and fluvial flooding in the locality. Indeed this planning proposal reflects the applicants awareness of the increased risk of flooding because of the predicted increased frequency of extreme weather events and sea level rising.

**SITE LOCATION** The application site is at **31b & 31a** Marsh Rd, Gurnard, which is located 2 miles west of Cowes on the north west coast of the IOW.

## RECENT FLOOD HISTORY

The most recent flooding event in this locality was Storm Eunice in February 2022 which caused some flooding of Marsh Road. On the 14<sup>th</sup> February 2014 northerly wind caused wave topping which together with preceding heavy rainfall caused local flooding. The subject property was not damaged in this event but was a 'wake up call' that such severe weather events combined with sea level rising will inevitably cause worse flooding in the future. Consequential of this storm event the 100mtr long sea defences fronting the subject property were improved by way of:

- a. Reinforcing & raising the height of the sea wall.
- b. the fixing of heavy duty storm flood gates to the slipway.
- c. maintenance and improvement to the groynes.
- d. Grading the ground adjacent the sea wall to allow wave topping sea water to drain back to sea.

It is important to note that this application is not a 'new development' proposal. The main purpose of this proposed project is to reduce the future risk of tidal and fluvial flooding and the disruption to business and life it causes..

1. This amended application will raise the ground floor of the **C1** b&b to **3.9AoD** and the **1<sup>st</sup> Floor to 6.5AoD**  
The existing **C1** property ground floor level is 2.6 AoD
2. The 1st floor of the **C3** residential unit will be **5.4 AoD** and therefore no safe refuge area should be needed. The existing 1<sup>st</sup> floor balcony will provide an evacuation platform if needed.  
The proposed ground floor level of the C3 unit is **2.7AoD**. The ground floor will be garage, wet room, storage areas and entrance to the stairway. A 2<sup>nd</sup> external steel stairway will access the north west balcony.
3. The proposed new A1 restaurant will have ground floor level of **3.9AoD** and access to a safe refuge area at **6.5AoD** with an escape window within the roof.

## EXISTING USE

The subject property sits adjacent a 3 bed residential house that was partially deconstructed and rebuilt in 2006 to give a ground floor level of **3.2AoD**. Above the application property is a 3/4 bedroom C3 residential flat. In the period 2010 – 2020 the residential house (not part of this application but within the ownership of the applicants) was used for b&b in connection with the restaurant business. The house has now reverted to the 2006 approved layout.

## PROPOSED USE

The proposed new **C3** residential part will be occupied by the owners. The existing **C3** residential flat above the redundant restaurant (96mtr sq) will be demolished and be replaced with a **C3** dwelling (96mtr sq) at floor level **5.4AoD**. The existing **A3** (redundant) restaurant (137mtr sq) will be converted to garage, wet room, store and entrance to the 1<sup>st</sup> floor **C3** residential accommodation. The replacement **A3** restaurant unit (96mtr sq) built at floor level **3.9AoD** with a refuge area at **5.4AoD**.

The replacement **C1** property will be used for either b&b purpose or self contained holiday accommodation. \* The **C1** b&b/holiday flat has been an important revenue source to the business and will continue to be an important source of revenue.

#### **EXISTING HYDROLOGY & FLOOD ALLEVIATION MEASURES**

The Solent tidal sea presents the greatest risk to the site and surrounding area from wave topping in storm conditions. Fluvial flooding usually occurs after prolonged rainfall in the hours before high tide. At high tide the River Luck sluice gates close which prevents drainage of fluvial floodwater to sea until the tide ebbs and the sluice gates re-open. Drainage of the Marsh between high tides is critical as it creates greater storage capacity for fluvial flood water.

#### **EXISTING FLOOD ALLEVIATION SCHEMES**

Presently there are no flood alleviation schemes underway or planned in the Marsh area, but the community understands that various works will have to be undertaken in the short, medium and long term to reduce risk of flooding. The sea defences within the subject site are continuously monitored by the owner and constant maintenance and improvement is carried out when necessary.

#### **PROPOSALS TO MINIMISE RISK TO OCCUPANTS DURING FLOOD EVENTS PREPARE, RESPOND & RECOVER.**

##### **PREPARE :**

1. Register with the EA flood warning service & develop a flood evacuation plan and display in a conspicuous position.
2. Ensure adequate equipment & provisions are stored or taken to the safe refuge areas for the anticipated number of people likely to use the refuge areas. Items to include : drinking water, torch, radio, blankets, water proof clothing, buoyancy aids, telephone.
3. Fix contact information for essential services in a conspicuous place at ground floor level and within the safe refuge area.

##### **RESPOND :**

In the event of receiving a severe flood warning the property occupants will have two methods to obtain safety :

##### **EVACUATION TO HIGHER GROUND**

Evaluate the situation when a Flood Warning is received. Provided there is no obvious risk to people / occupants and it is deemed safe to do so occupants will be directed to leave the property via **Marsh Road and travel east to Solent View road** (200mtr by foot) This is deemed the safest route as most likely the River Luck bridge and immediate vicinity will be swamped and there may be fast moving water and debris draining to the Luck from the surrounding area. All flood water escapes to sea from The Luck and therefore creates more risk to evacuees.

##### **EVACUATION TO A SAFE REFUGE**

In the event that evacuation to high ground is not possible then occupants will be directed to the safe refuge areas at first floor level

(6.5AoD) of the proposed C1 (b&b) and C3 residential buildings. The property owner shall permanently store blankets, radio, first aid kit, torch, and water proof clothing at both refuge areas, leaving evacuees to take drinking water and food to the refuge area at time of evacuation.

The proposed C3 residential building floor level is 5.5AoD and accessible by staircase and can be used as safe refuge area in the event evacuation to high ground is deemed too risky. Customers of the proposed new restaurant who are not able to evacuate to high ground will be directed to the safe refuge area within the attic or to the adjacent C3 residential unit which could provide safe refuge for 25 – 30 people.

For complete clarity, **if a flood warning is received via Floodline**, or occupants are directed to leave the property by any other recognised emergency service or statutory body, and if it is safe to do so, they should vacate the property at the earliest opportunity **east along Marsh Road to Solent View Road** and if unable to do so move to the safe refuge areas.

If Marsh Road is underwater by time a flood warning is received then occupants will be advised to move to the safe refuge areas of the 1<sup>st</sup> floors and wait there until the EA website confirms the warnings are no longer in force.

Prior to evacuation it may be possible to turn off incoming service supplies (water, gas, electricity) and initiate flood proofing measures. However, in keeping with the main aims of this document, preservation of life, it is recommended that if in any doubt safe evacuation should be the priority.

## **RECOVER**

Flood waters may have been sufficiently deep to cause damage to buildings, items stored within the buildings, and damage to services. Once advised the flood warning is rescinded, or the on-site emergency services have instructed that it is safe to return to the property or leave the safe refuge, it is advisable to have a professional consider the structural integrity of the building. Occupiers should be made aware that infrastructure such as electrical, water and gas services may have been affected by floodwater.

The response to a major flood event will involve a number of bodies working together at a local level, including the emergency services, local authority (council) the Environment Agency and utility companies. The Hampshire and Isle of Wight Local Resilience Forum (**HLOW LRF**) Multi Agency Flood Plan has been produced to provide relevant information and outline the response arrangements in place for a coordinated multi agency response.

The general roles of the main bodies in response to a major flood event are summarised below :

**Hampshire Constabulary (Police):** [Hampshire Police](https://www.hampshire.police.uk/) 0845 045 45 45

- . Overall coordination of the multi-agency response to a major flood event.
- . Coordinate any multi agency decision to evacuate in consultation with key partners.
- . Save life in cooperation with other emergency services.

**Isle of Wight Fire and Rescue Service:**

- . Assist with evacuation and search and rescue operations
- . Provide and/or obtain specialist advice and assistance where hazardous materials are involved.
- . Obtain specialist equipment, such as high volume pumps.
- . Assist other relevant agencies, particularly the local authority, to minimise the effects of major flooding on the community.

**Isle of Wight Council as the Local Authority:**

- . Provide a temporary place of shelter capability for flood risk affected communities and activate staff and voluntary sector to support this.
- . Provide emergency transport for people, equipment and materials, and if necessary evacuation.
- . Provide advice and information to the public (websites, customer service centres, and social media) in accordance with the information provided in the HIOW LRF Multi Agency Flood Plan.

**Environment Agency:**

- . Issue flood alerts/ warnings and/or operational messages
- . Along with partners deploy temporary flood defences where impacts can be mitigated.

**Utility Companies :**

- . Maintain the safety and integrity of the electricity/gas/ water supply system.
- . Repair services and seek alternative means of supply during any disruption and restore supplies as soon as possible

**USEFUL NUMBERS**

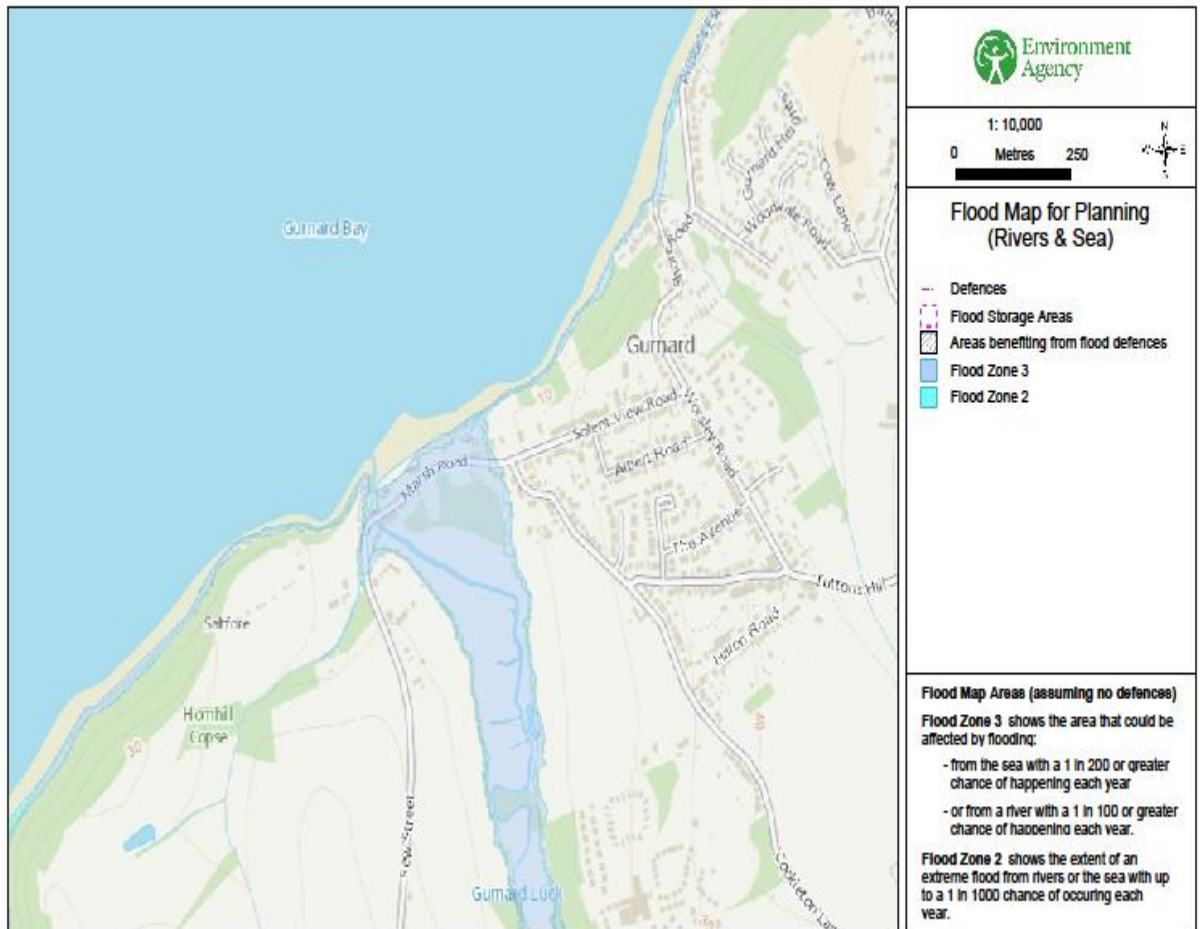
Environment Agency	0345 988 1188
IW Council	01983 82100
Fire & Rescue Service	01983 525121 (IRM Team)
Island Roads	01983 822440
Hampshire Police	0845 045 45 45
NHS Direct	111
Southern Vectis	01983 827000
IW Radio	107 & 102 FM

Alternatively visit the EA website [www.environment-agency.gov.uk/flood](http://www.environment-agency.gov.uk/flood) for flood risk forecasts, live flood warnings and alerts. Also listen to local radio and TV for weather information.

Once the building is complete and ready for occupation provide contact details for:

- . the property owner
  - . contact details for the insurance company
  - . contact details for the utility providers
-

**Flood Map for Planning (Rivers and Sea) - Centred on Marsh Road, PO31 8JQ - Created 25 October 2021**



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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

The property owner / applicant has obtained **PRODUCT 4** from the Environment Agency.

The Levels Map (attached below) shows the area in close proximity to the proposed building **Point 9** to have:

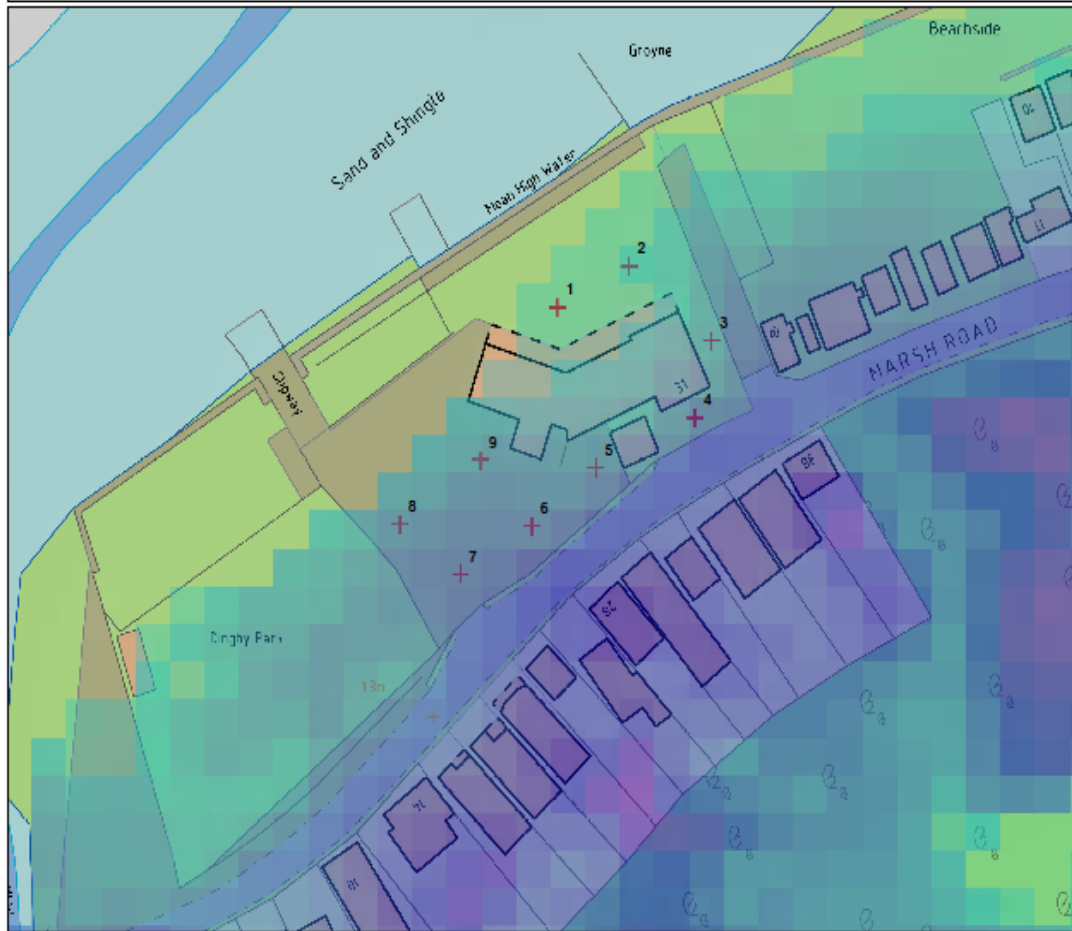
Water surface level 5% annual probability/1 in 200 year present day.

Water Depth 0.5% annual probability /1in 200 year present day (Flood Zone 3)

9	2.59	2.76	2.49	0.10	0.27
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**Levels map Centred on Marsh Road, PO31 8JQ - Created 25 October 2021**



**Legend**

+ Location Point

**Water Depth**

Value

High : 7.30544

Low : 1e-008

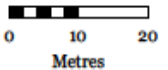
**Ground Level**

Value

High : 57.331

Low : -1.914

1:702 \*  
\*when printed at A4.



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Point	Water Surface Level (mAOD*)		Ground Level	Water Depth (metres)	
	0.5% Annual Probability/1 in 200 Year Present Day (Flood Zone 3)	0.1% Annual Probability/1 in 1000 Year Present Day (Flood Zone 2)		0.5% Annual Probability/1 in 200 Year Present Day (Flood Zone 3)	0.1% Annual Probability/1 in 1000 Year Present Day (Flood Zone 2)
1	No Data	2.65	2.61	No Data	0.04
2	2.56	2.64	2.55	0.01	0.09
3	4.17	4.36	3.94	0.23	0.42
4	2.93	3.12	2.32	0.61	0.80
5	2.45	2.64	2.24	0.21	0.40
6	2.46	2.67	2.08	0.38	0.59
7	2.40	2.58	1.92	0.48	0.66
8	2.51	2.69	2.26	0.25	0.43
9	2.59	2.76	2.49	0.10	0.27

\* Levels in metres above Ordnance Datum Newlyn

Tidal flood levels for the 0.5% (1:200) and the 0.1% (1:1000) annual exceedance probabilities relevant to the site are provided in the table below. These levels have been taken from the Isle of Wight Remedial Model which was produced in 2015 by JBA.

Chainage point: 102	Easting: 445792.137	Northing: 95718.6300
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Year	Tide Level (mAOD*)	
	0.5% annual exceedance probability/1 in 200 Year (Flood Zone 3)	0.1% annual exceedance probability/1 in 1000 Year (Flood Zone 2)
2015	2.8	2.9
2070	3.3	3.4
2115	3.9	4.1

\* Levels in metres above Ordnance Datum Newlyn.

These values are based on 2008 base data. Please note the climate change allowances provided are not up to date. These were updated on 17 December 2019.

**Therefore predicted Tide level rise over 55 years 2015 - 2070 = .500mm**  
**Predicted Tide level rise over 100 years 2015 – 2115 = 1.1mtr**

The proposed ground floor level of the proposed **new restaurant** will be **3.9AoD**

The habitable floor level of the proposed single storey **C3 dwelling** (to replace the existing 1<sup>st</sup> floor flat) will be **5.4AoD** capable of (if necessary) accommodating 30-35 people, and with access to a balcony.

In addition the **C1 b&b** unit will have a ground floor level of **3.9AoD** with a conventional staircase to the 1<sup>st</sup> floor and refuge area at floor level **6.5AoD**.

## Construction Design & Materials

The **existing part of the C1 b&b/holiday accommodation** area that will be retained is conventional masonry construction - concrete block and brick to DPC and thermal block inner skin / concrete block outer skin DPC to eaves. It is proposed to reduce these walls to DPC and re-build in concrete block and brick to the proposed new floor level of **3.9AoD** with the same material. Construction from DPC to eave will replicate the existing construction. All wiring and water sensitive fittings (meters / thermostats / boiler/ heat pumps) will be fitted at 1<sup>st</sup> floor level with wiring dropping down to service **electrical sockets** and switches that will be minimum .600 above floor level ie. at or above **4.5 AoD**.



The ground floor of the **C1** unit will connect to the 1<sup>st</sup> floor by way of conventional staircase where there will be safe refuge at **6.5AoD** and access to a **balcony** on the seaward side also at **6.5AoD**.

The opportunity to reconstruct this part of the building at a new higher level will give greater protection to the occupiers than presently exists within the building and also give opportunity to build at a much higher standard and incorporate better heating systems than presently deployed. A secondary aim is to drastically reduce future energy consumption and utilise heat recovery and solar energy systems.

The proposed new build will not exacerbate future flood events as there will be void between existing ground levels and the underside of the suspended ground floor. Surface water will be collected and stored in above ground vessels that will overflow to sea.

### **Proposed new single storey A1 Restaurant**

The proposed new A1 restaurant floor level will be **3.9AoD** with access to a safe refuge area at **5.6AoD** and raised decking at 3.3AoD. The applicant is reluctant to prepare construction drawings until planning consent is determined, but the proposed building will be timber frame construction with steel wind posts at gables and centre of building which will also serve as ground anchors. All reasonable precautions to construct the building to be resistant to water damage will be followed.

**Foundations.** it is envisaged that 3 concrete beams 12mtr long x 40cm wide x 1.2 high or thereabouts will be placed on concrete strip foundations which will be positioned under the east and west elevations and centre of building. An engineer designed timber frame building will be fixed to the concrete beams and steel wind posts.

### **Proposed new Single Storey C3 Dwelling** (to replace existing 1<sup>st</sup> floor flat)

126mtr sq of first floor will be demolished together with 35mtr sq of balcony (total 151mtr sq) to be replaced with an 8 x 12mtr sq single storey building. The proposed new floor level to be **3.9AoD**. Construction design and build method to be the same as the proposed new restaurant other than the residential unit will have a conventional staircase to the attic where a safe refuge area will be created with access to the 1<sup>st</sup> floor balcony (which could be used for evacuation). **1<sup>st</sup> floor refuge area** level of **6.5AoD**.

### **CLIMATE CHANGE**

Due to the site proximity to the The Solent and Gurnard Luck the highest risk of flooding is tidal and fluvial. As the tide level is predicted to rise 1mtr approximately over the next 100 years it follows that this presents the greatest risk in terms of climate change. It may be that increased tide levels will cause increased risk from fluvial flooding.

As previously mentioned the safe refuge areas will be at **6.5AoD** giving a freeboard allowance of 2.6 or 2.4 (based on IWC SFRA or EA data). This greatly exceeds the

.300 - .600 EA recommendations for freeboard allowances and allows a substantial margin of safety above the adjusted (for climate change) predicted tide/flood heights.

The flood risk mitigation measures designed into this project ensure that the buildings on this site remain 'fit for purpose' for their anticipated lifetime. Approval to this proposal will provide greatly improved safety for the buildings and occupants than the existing buildings provide. Occupancy numbers will be significantly reduced by virtue of the diminished commercial floor areas.

The site owners have carried out considerable sea defence works over the last 30 years including the construction of 110mtrs of sea wall, which carries the coastal path. Approximately 8 mtrs parallel to the sea wall is a 2<sup>nd</sup> (dwarf) wall which prevents wave over topping sea water draining to Marsh Rd. The ground between the sea wall and dwarf wall is graded so flood water naturally drains to sea. This self funded defence has been very effective at reducing tidal flooding, and the negative consequence of sea water draining to the Marsh and property south of Marsh Rd.

## CONCLUSION

The proposed project will provide premises that will allow the business to operate and function relatively risk free compared to the situation that presently exists. Reluctance in the past of the planning authority to allow the existing building to be constructed at a higher level has created a situation whereby it is not economically viable to refit the redundant commercial part as the present flood risk is too great, and will get worse.

The commercial A1 element will be 50% less than presently exists which will cause a 65% approx. reduction in restaurant floor area. Therefore it is reasonable to assume a much reduced customer seating area will lower the number of people on site in an extreme flood event – thereby reducing risk and load to emergency services. Furthermore, the **existing restaurant has no safe refuge area** whereas the proposed re-development will provide safe refuge at 6.5AoD for 30 people.

It is accepted that Weather forecast and Tide prediction will give advance warning allowing evacuation to high ground before a flood event occurs. Therefore restaurant customers will most likely return home in such circumstances and place no burden on the Emergency Services.

There may be unpredicted flood events and in these circumstances the provisions within the building design together with the Flood Evacuation Plan will eliminate most of the risk that presently exists.

**Note** The applicant/site owner proposed to the EA in 2004 that additional outfall pipes be placed in the abutments of The Luck bridge. This idea was implemented by the EA. Consequently the risk of fluvial flooding has been greatly reduced as usually the Marsh will drain down between each tide cycle, and therefore provide greater storage for fluvial flood water.

The EA are to be encouraged in being vigilant in ensuring adequate attenuation measures are required for **all developments** that will drain surface water to Gurnard Marsh.

The applicant has good local knowledge of the area and of the risks attached to property in Gurnard Marsh. The Vacuum pumping station was built by the applicant in 1994, and also the main excavation for the vacuum sewer pipe which runs the entire length of Marsh Rd was undertaken by the applicant.

The subject property was constructed in 1992 by the applicant when no minimum ground floor level was required. By 1998 a minimum ground floor level of 3.0AoD was required by the EA / Local Planning Authority. By 2000 the minimum ground floor level for residential property within Gurnard Marsh area was increased to 3.2AoD, which explains why the adjacent residential property (31, Marsh Rd) was partially deconstructed and reconstructed with a ground floor level of 3.290AoD in 2006. Since 2014 the minimum ground floor level has become 3.9AoD which this proposed development will achieve. There will be safe refuge at 1<sup>st</sup> floor level (5.5AoD & 6.5AoD) in both units of accommodation giving freeboard allowance of 1.2 mtr & 2.2 mtr – against upper end Flood Tidal Level of 4.3 AoD which gives a significant safety factor above predicted tide/flood events. The proposed balcony could provide an evacuation deck for aerial rescue should it become necessary.

The owners of the subject property have registered with the EA Floodline

