

Flood Risk Assessment

1 No. Self-Contained Flat

**3 Bembridge Drive
Hayling Island
PO11 9LU**

Martin Critchley, Chartered Architect

**15E South Street
Havant
PO9 1BU**

September 2016

1.0 Generally

- 1.1 This Flood Risk Assessment is in support of a Planning Application to Havant Borough Council for the erection of one self contained flat at 3 Bembridge Drive, Hayling Island, PO11 9LU.
- 1.2 No other purpose is anticipated or accepted. Copyright of this report remains with Martin Critchley, Chartered Architect.

2.0 Strategy

- 2.1 The site is within an area subject to coastal flooding, as indicated by the published Environment Agency Flood Risk Maps. The area is designated as a Flood Zone 2.
- 2.2 The risk is from high tides and flooding at Eastoke, which is approximately 100m south of the site.
- 2.3 The Environment Agency predictions indicate that sea levels in this area are set to rise by up to a meter over the next 100 years. Coastal defences in Eastoke are in the process of being updated by the East Solent Coastal Partnership, once completed the scheme will offer protection against a 1 in 200 year coastal flood event.

In 2009, Havant Borough Council commissioned HR Wallingford to undertake the Eastoke Point Coastal Defence Study. It was completed in May 2009... The study was undertaken to develop a sustainable coastal defence scheme to manage coastal erosion and flooding risks along the Eastoke Point frontage of Hayling Island. The Study considered a total of six main options for coastal defences at Eastoke Point. The studies preferred option, comprised a hybrid of various defences to achieve the desired standard of flood protection of 0.5% Annual Exceedance Probability (1 in 200 year) to these low-lying residential areas. This preferred option proposed the following:

- *Groyne replacement or improvement;*
- *Rock revetment;*
- *Improvement and maintenance of splash wall;*
- *Beach recharge;*
- *Groyne maintenance;*
- *Revetment maintenance;*
- *Beach recycling and management.*

Please see Appendix A: Eastoke Point Works 2012 Planning Permission Overall Plan of Works

2.4

The **Eastoke Point, Hayling Island: Coastal Defence Works** identifies the site within the Eastoke Peninsula '5aHI04'.

The strategy recommends that coastal flood and erosion risk management solutions are prepared at the earliest opportunity to manage the risks of flooding from the sea to the existing communities and infrastructure on the island.

The strategy identifies several high risk priorities for the protection of the infrastructure and environment in Eastoke:

Criterion	Priority	Weighting
Prevention of flooding at Eastoke (by wave overtopping or breaching of the barrier beach at Eastoke Point)	High	10
Providing continued high beaches and coastal defence standard along Eastoke frontage west of Groyne 7	High	8
Minimising down-drift erosion and risks of breaching of the spit leading to Black Point.	High	7
Minimising disturbance to flows in Chichester Harbour entrance.	Moderate	5
Impacts on the Sandy Point Nature Reserve	Moderate	5
Initial maintenance and costs	Moderate	5
Sustainability	Moderate	5

'This multi-criteria analysis considered technical feasibility, environmental acceptability, sustainability and economic benefits of each option... the preferred defence scheme for the Eastoke Corner frontage was confirmed as: Option 5: Rock revetment with groynes, with recharge and recycling'

- 2.5 The **Eastern Solent Coastal Partnership** has started work on options for the additional protection of existing coastal defences:

An extensive tidal floodplain covers the western and eastern ends of this frontage of Hayling Island's open coast and its Langstone and Chichester harbour entrances. Maintaining the defence line through upgrades, maintenance or beach management activities would provide economic and societal benefits to significant numbers of residential properties...'

3.0 **Risk Assessment**

- 3.1 The carriageway level to the north-west of the site on the corner of Rails Lane and Southwood Road is the closest OS Datum Point to the site, this is marked at 4m AoD. The proposed ground floor slab level for the new buildings will be 4.3m AoD.
- 3.2 The flood risk is tidal, therefore the maximum events predicted will only ever be at 'the top of the tide' and for a duration of approximately an hour before the level drops away. Event predictability is effective and accurate from a combination of tidal charts and weather predictions. Adequate warnings will be given of any likely flood events.
- 3.3 In the event of flooding occurring, inundation of the flats will be progressive, allowing time for escape.

4.0 **Recommendations.**

Take low level protection measures:-

- a. Seal service entry connections.
- b. Any service outlets to be 600mm above floor level.
- c. All drain and service access covers to have locking covers and frames.

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Appendix A: Eastoke Point Works 2012 Planning Permission Overall Plan of Works

1.3 Notes on design development

From the initial preferred scheme the design has now been progressed using digital modelling and recognised design methods to produce the proposed design. This has included the consideration of overtopping rates and the length of groynes required in order to keep the beach in place. Also considered was the size of rock armour required to form a stable slope and the crest level of the revetment. This is a compromise between overtopping rates and cost compared to visual impact. A drawing showing the design in a simplified form is given below.

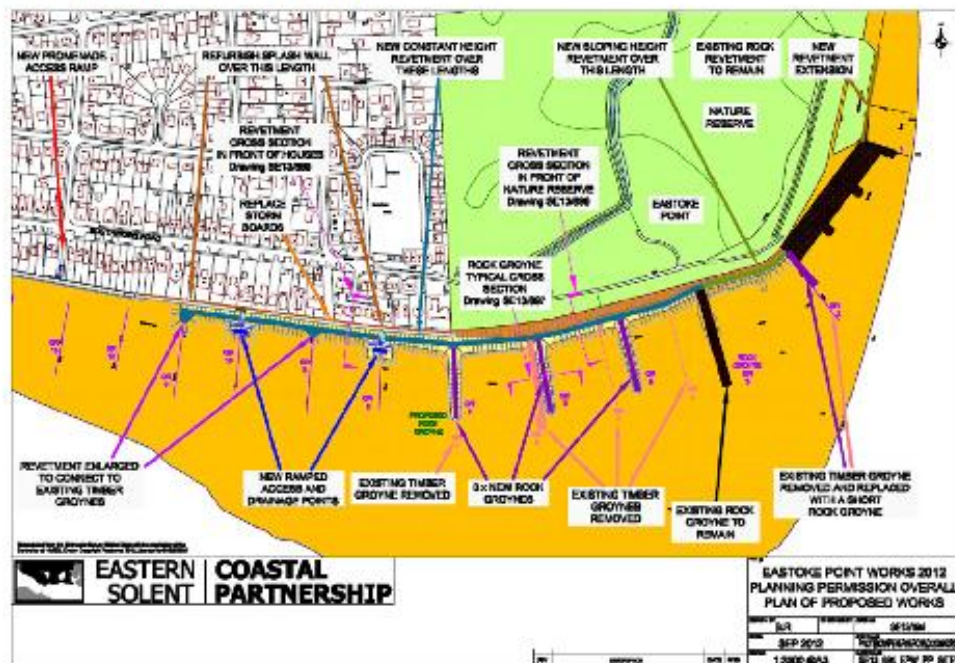


Figure 2: Simplified scheme layout with groyne numbers

1.4 Groyne Replacement or improvement

It is proposed that the existing timber groyne numbers 4, 5, 6 and 7 are replaced with new rock groynes. The new groynes will be constructed with 3 to 6 tonne armour rock. The rock type will be confirmed once contracts have been let depending on market forces, however it is expected to be hard granite (syenite). The majority of the groyne will normally be buried by beach. The top of the groyne will generally follow the profile of the beach but may be up to 1m above the level of the beach, especially following a storm