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**From:** tim & gillian ingram [REDACTED]

**Sent:** 26 October 2019 11:33

**To:** Cleve Hill Solar Park <CleveHillSolarPark@planninginspectorate.gov.uk>

**Subject:** Cleve Hill Solar proposal and consultation

Dear Sirs,

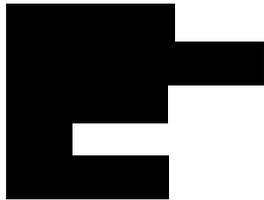
Further to my previous submission, reference AS-038. I would be grateful if I could extend the argument presented previously concerning flood risks into the town of Faversham and potential impacts of the Solar proposal on Faversham Creek and the ecology of the North Kent Marshes, in the light of the Environment Agency's new published future strategy for the north Kent coast - MEASS - and with new photographic and documentary evidence, as attached.

(I am a resident of Faversham who has registered to follow the proceedings of the Planning Inspectorate Consultation and have done so online on the Inspectorate website. I would be grateful if I could submit my specific thoughts on the proposal purely as a private citizen considering the future of the town I live in and its surrounding environment, and past and present perspectives).

My thanks,

sincerely

Dr. Tim Ingram



**(Further to my previous submission, reference AS-038)**

There is a dynamic balance in all things, which Rachel Carson pointed out in her prescient and seminal book 'Silent Spring', written in 1962, and described in this recent article:

<https://przekroj.pl/en/culture/a-lesson-in-wonder-julia-fiedorczyk?fbclid=IwAR2M-q2dyOEtXpSLRRLDbJK6ISmEqZZX6L2moYS4jMlgYMSBz2t7tz6NFd4>.

*Above all, she was fascinated by the shore – the endlessly dynamic transition zone between sea and land. She wrote: “To stand at the edge of the sea, to sense the ebb and the flow of the tides, to feel the breath of a mist moving over a great salt marsh, to watch the flight of shore birds that have swept up and down the surf lines of the continents for untold thousands of years, to see the running of the old eels and the young shad to the sea, is to have knowledge of things that are as nearly eternal as any earthly life can be.” And: “The shore is an ancient world, for as long as there has been an earth and sea there has been this place of the meeting of land and water.”*

These words also emphasise the specificity of place, because environment and ecology are all about local context and function as much or more than global generalisations: the International ecological importance of the Thames Estuary, Sheppey and the North Kent Marshes is undisputed but can be steadily undermined. Her words, of course, have especial resonance now, firstly because of the serious environmental/ecological concerns of the present day, but secondly - and pertinently - with the particular local land-edge/maritime interface here at Faversham, which infiltrates the town itself in the two arms of Faversham and Oare Creeks.

Focussing in closely to Faversham and the Creek, both of which geographically, historically and culturally are so intimately connected over time, and will be into the future, these words of Rachel Carson's retain their same precision and relevance.

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In my previous submission I described the detailed studies carried out in previous years that have monitored and assessed the ecology and geophysical nature of the Creek and Marshes north of Faversham, with particular relevance to the saltmarsh and intertidal, and the very considerable potential there is for this relatively rare and unique habitat in the British Isles - degraded here and elsewhere by development and land drainage - to be restored and extended locally. Not only does this satisfy Habitat Directives required by law, but it also has very significant implications for the future of the town of Faversham itself and its unique location here on the north Kent coast. In the same way that ancient woodlands such as The Blean to the north and west of Canterbury form a vital function for the population of that city and surrounding region, and retain a rich and diverse

and sophisticated habitat on its doorstep, the North Kent Marshes play the same role for the towns of Sittingbourne, Faversham and Whitstable, preserving a very different ecology but an equally rich and valuable landscape, both now and with increasing potential into the future.

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Returning to Faversham Creek itself these two pictures, the first taken 30 to 40 years ago and the second now (on the 21/1/17), at low tide, show the extent to which this channel has slowly silted up over time and today limits its functional navigability.



*'This is what the creek at the bridge should look like if the sluice gates on the bridge were operated regularly . This photo is 30 to 40 years old taken by my father "Bluey" the photo shows 3 commercial trawlers left to right -Girl Elsie , Harvestor and the Kordella (my fathers boat at the time ) these boats require 5-6 feet of water around them to float . This picture was taken at near to low tide as you can see there is little water further down the creek . What's interesting is the pool of water by the bridge the boats could get in and out on some tides 2hours before and after high water allowing a 4 hour operating window to use the quay . Look at how the top of the quay is level with the kordellas wheelhouse. This year the quay top was level with our rails we was literally stepping across from the quay the boat no need*

***for ladders! your looking at between 1.5 and 2 meters more mud at the town quay today than what there was 30 years ago.***

*On this years faversham food festival we arrived on a spring tide at high water and had only 4 inches of water under our keel and the next day when we left 30 minutes after high water and we had to drag our keel along the creek bed all the way to standard quay due to a severe lack of water resulting in catching debris on our propeller costing another days work beaching the boat and clearing the propeller .*

*If nothing is done about the lack of water in the creek in the next 10 months i can no longer see a future in hollowshore fisheries attending such events as the food festival as unfortunately the creek is no longer suitable for our class of vessel . One more year of silt will probably see the end of other such events as the nautical festival for the same reason.'*

(courtesy of Barry Walpole - [Facebook] Faversham and Surrounding Villages Gossip Group)



(Griselda Cann Mussett, 21/1/17 - [Facebook])

This in itself has serious implications for such a vital aspect of the town, but it also impinges on any decisions made regarding the Graveney and Nagden Marshes and Cleve Hill because of how such decisions may compromise and prevent, or facilitate and allow, remedial action.

At particularly high tide the same view now shows how high water levels overtop the quayside.



(High tide 5/10/17, Faversham Weather Station - [Facebook] My Faversham)



Flooding into the town like this, and by the Shepherd Neame Brewery (see below), is not so unusual but is becoming more regular and potentially more severe with future scenarios of sea level rise and climate change, and particularly in potential extremes of tidal surge, and is exacerbated by the silting up and shallowing of the Creek channel.



(Pete O'Keefe, 1/10/19 - [Facebook] Faversham Residents Group)

How close these high tides reach to habitation alongside the Creek is shown in the following picture and the next and has led the Environment Agency to propose increasing the height of embankment and walls within the town in their new coastal defence strategy for the north Kent coast (MEASS).

<https://ea.sharefile.com/share/view/s53042b8483441048/>

[foaa518c-77f9-4111-8a59-23a6f61add9c?](https://ea.sharefile.com/share/view/s53042b8483441048/foaa518c-77f9-4111-8a59-23a6f61add9c?fbclid=IwAR0v53YMA9DZGE8Z2FVOVIA5wS9UvVetOheKdX7enUtuDV26thsjO01kB94)

[fbclid=IwAR0v53YMA9DZGE8Z2FVOVIA5wS9UvVetOheKdX7enUtuDV26thsjO01kB94](https://ea.sharefile.com/share/view/s53042b8483441048/foaa518c-77f9-4111-8a59-23a6f61add9c?fbclid=IwAR0v53YMA9DZGE8Z2FVOVIA5wS9UvVetOheKdX7enUtuDV26thsjO01kB94)

*Raise (sustain) embankments and walls. This option involves improving the current SoP provided by the defences to 0.5% AEP with sea level rise; in year 8 to 4.8m AOD and then in year 50 to 6.0m AOD to continue to provide protection in line with sea level rise.*

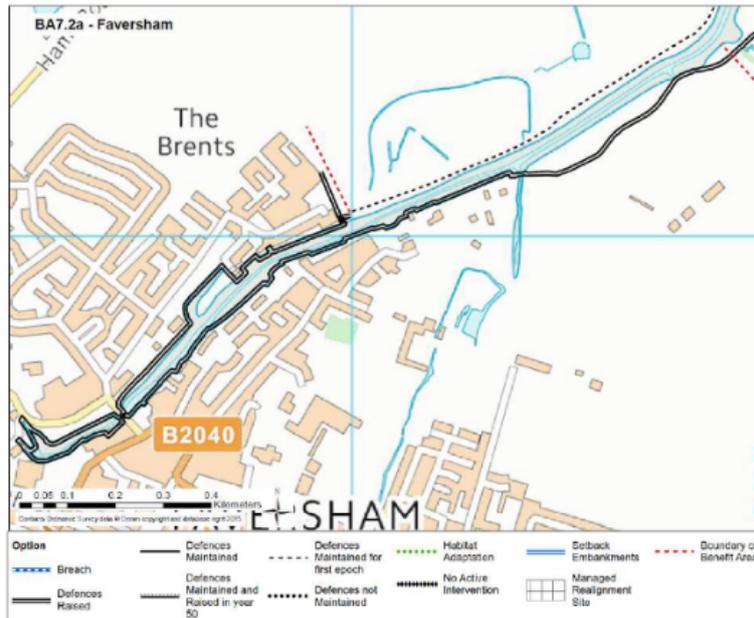


(Anna Maria Bales, 30/4/18, and below, Pete O'Keefe, 1/10/19 - [Facebook])



## BA7.2a: Faversham

| Now – 2038  | 2038-2068   | 2068-2118   |
|-------------|-------------|-------------|
| HTL Sustain | HTL Sustain | HTL Sustain |



### Preferred Option

Raise (sustain) embankments and walls. This option involves improving the current SoP provided by the defences to 0.5% AEP with sea level rise; in year 8 to 4.8m AOD and then in year 50 to 6.0m AOD to continue to provide protection in line with sea level rise.

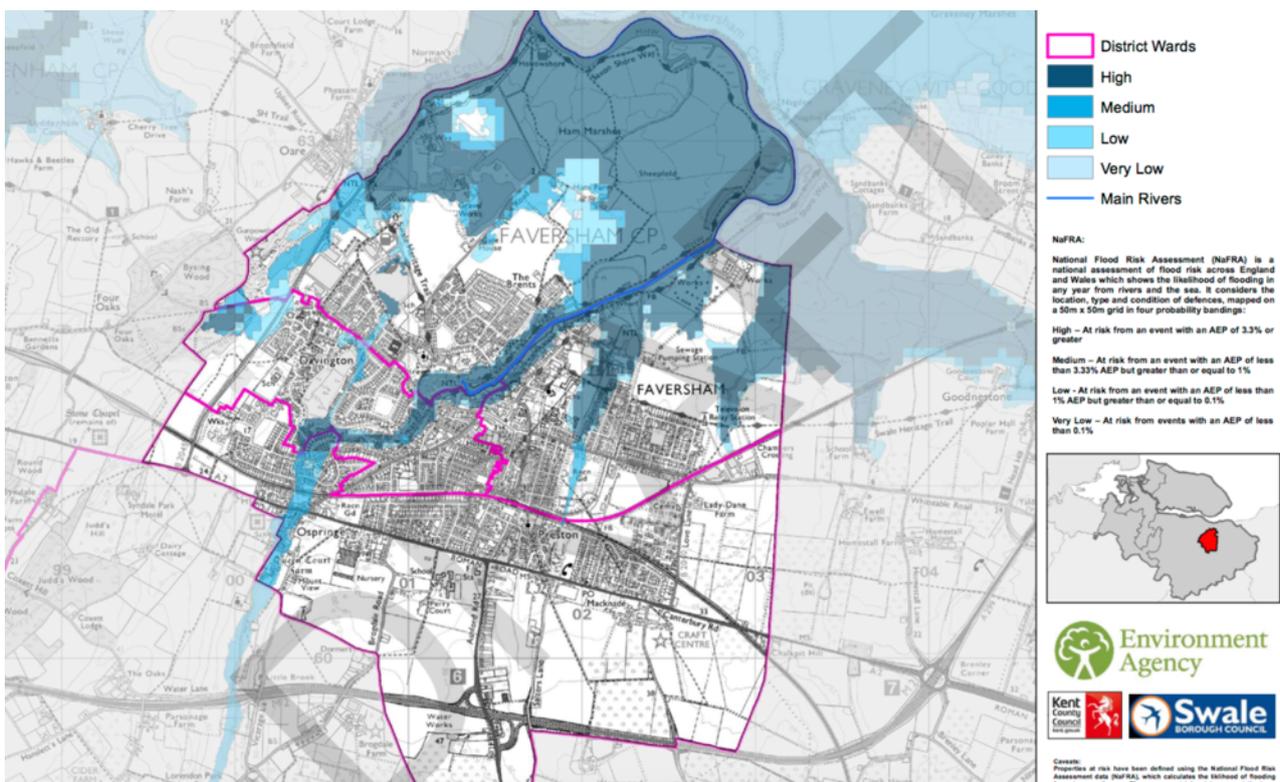
### Justification

The sustain option has the highest BCR and second highest environmental ranking. There is a higher economic justification for raising the defences in the short term rather than waiting for defences to reach their residual life to provide increased flood risk in the short term.

### Preferred Option Costs

| Costs   | Benefits | BCR | PF Score |
|---------|----------|-----|----------|
| £5,877k | £12,235k | 2.1 | 18%      |

The flood risks to the town are analysed in the report and figures prepared by Swale Borough Council and Kent County Council in consultation with the Environment Agency, and summarised in the figure below.



[https://www.kent.gov.uk/data/assets/pdf\\_file/0010/71668/Flood-risk-to-communities-in-Swale.pdf](https://www.kent.gov.uk/data/assets/pdf_file/0010/71668/Flood-risk-to-communities-in-Swale.pdf)

Stronger ebb tidal action scours sediment more effectively and this is increased by restoring or extending wetland and intertidal zones, as described in this paper:

[https://apps.dtic.mil/dtic/tr/fulltext/u2/a485739.pdf?fbclid=IwAR01PSlovL7vbmosDI3371x8OoMwNDt387iDoob0DR9\\_d1IJ-HjYZntOzw](https://apps.dtic.mil/dtic/tr/fulltext/u2/a485739.pdf?fbclid=IwAR01PSlovL7vbmosDI3371x8OoMwNDt387iDoob0DR9_d1IJ-HjYZntOzw).

*'As the estuary becomes less ebb dominant, less sediment is exported, thereby preventing the estuary from eroding. In a similar manner, as wetlands are restored or developed naturally, the intertidal zone increases and ebb dominance is enhanced, thus increasing the export of sediment from the estuary. This interaction between estuary geometry and tidal asymmetry is a natural way by which estuaries stabilize themselves.'*

(and additional references:

[http://www.coastalwiki.org/wiki/Tidal\\_asymmetry\\_and\\_tidal\\_basin\\_morphodynamics](http://www.coastalwiki.org/wiki/Tidal_asymmetry_and_tidal_basin_morphodynamics)  
[http://www.coastalwiki.org/wiki/Sand\\_transport](http://www.coastalwiki.org/wiki/Sand_transport) )

This would indicate that if there is really serious intent to improve the navigability of the Creek then not only does the situation of the Swing Bridge need to be dealt with and the ability to moor boats beyond it properly - as its function serves - but also serious consideration about Managed Realignment of the sea walls to enable that 'stronger ebb tidal action'. In other words that 'development and regeneration of the whole Creek' in David Melville's words. That has significant bearing on the decision to be made on Cleve Hill by the National Infrastructure Planning Inspectorate, and whether development of the Solar Array on that land will prevent such action, and its potential value in limiting the dangers of flooding into the town too? A really in depth (pardon the pun) technical and management analysis for the Creek and sea walls should surely be carried out in consultation with the Environment Agency, Peel Ports, Paul Carter, the Faversham Society and Heritage Harbour Group and other parties involved and bearing responsibilities for the future of the town?

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In the deliberations on Cleve Hill the position of the Environment Agency appears to be that any Managed Realignment of the coastline is a greater requirement for Habitat Restoration (and Directives) than it is for Flood Defences for Faversham, and thus that there is no urgency to proceed as they had previously anticipated (in the light of the proposal to build a Solar Power Station).

This Saltmarsh Management Manual - published by the Environment Agency in collaboration with DEFRA and Royal Haskoning takes a different view and refers back to an important study by Fiona Burd on the Saltmarshes of North Kent and Essex and their historical erosion and depletion in Section 4 (which I also referred to in my previous submission).

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/290974/scho0307bmkh-e-e.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/290974/scho0307bmkh-e-e.pdf)

*"In the context of the wider estuary environment, saltmarsh maintenance, restoration or enhancement is increasingly being considered as a means of managing flood risk. It also has the advantage of enhancing the conservation importance of a 'natural' as well as a frequently designated, priority and Biodiversity Action Plan habitat."*

*"The Essex and North Kent saltmarshes provide an illustration of the process. The saltmarshes in these areas have been enclosed by embankments for many years, with the creation of considerable areas of low quality agricultural land. At the same time there has been a relative rise in sea-level, resulting from a rise in mean sea level and the isostatic adjustment which is taking place in southeast England. Because the upper limit of the saltmarsh is constrained by a sea wall, the intertidal habitat is squeezed between it and the rising sea level. If the rate of sea level rise increases as a result of climate change, then the saltmarsh zone could ultimately disappear, as it has already done in some localities in Essex."*

Information regarding the Environment Agency's strategy for Medway and Swale (MEASS) is available here:

<https://www.gov.uk/government/publications/medway-estuary-and-swale-flood-and-coastal-risk-management-strategy/medway-estuary-and-swale-flood-and-coastal-risk-management-strategy>

<https://ea.sharefile.com/share/view/s53042b8483441048/foaa518c-77f9-4111-8a59-23a6f61add9c>

This includes the following figures and as far as I can see a serious conflict of interests between the EA who propose Managed Realignment of the Graveney Marshes within 20 years (second picture) and the proposed Cleve Hill Solar Array which has a potential life span of 30-40 years, and uncertainty beyond that. These two scenarios cannot be compatible, yet this does not appear evident on the National Infrastructure Planning Inspectorate Consultation? In reality how can any of this be achieved if the Cleve Hill Solar Array proceeds, and in the absence of increasing saltmarsh and intertidal the risks of flooding into the town must surely be increased? The first and last items show that Graveney provides by far the largest area of potential for Managed Realignment and saltmarsh restoration in what is an internationally designated site for Habitat Directives and

ecological protection/restoration, yet proposals to carry this out are effectively under threat from the Cleve Hill Solar Array.

This is of great significance for the future of the Creek and its functioning, and of the North Kent Marshes and their ecological habitat, over the next decades and the prospect that both of these could be seriously damaged if the Cleve Hill Solar proposal is accepted.

6.3.12 The managed realignment sites being proposed as compensation for coastal squeeze are outlined in Table 6.1. Saltmarsh habitat is the only required intertidal habitat for compensation as mudflat habitat is predicted to increase in the estuaries over the 100 years.

**Table 6.1 Managed realignment sites proposed as the preferred strategy option.**

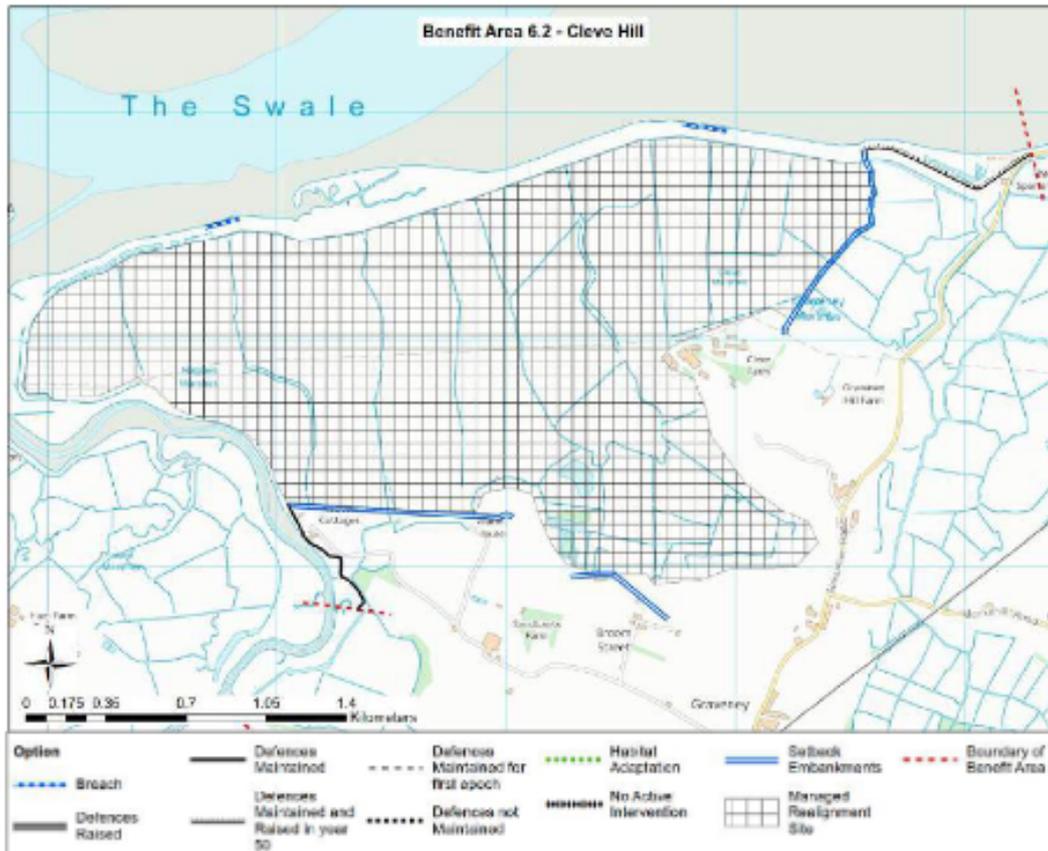
| Epochs | Designated?                | MR Site                        | Area of saltmarsh habitat (ha) | Total Ha provided | Total for Epoch  |
|--------|----------------------------|--------------------------------|--------------------------------|-------------------|--|
| 1      | Internationally Designated | Kemsley                        | 4.8                            | 115.4             | <b>125.6ha</b>   |
|        |                            | Danes Hill                     | 1.9                            |                   |  |
|        |                            | Spitend                        | 7.3                            |                   |  |
|        |                            | Elmley                         | 66.2                           |                   |  |
|        |                            | Tailness Marsh                 | 5.6                            |                   |  |
|        |                            | Abbotts Court                  | 29.6                           |                   |  |
|        | Non – Designated           | Halling Marshes                | 10.2                           | 10.2              |  |
| 2      | Internationally Designated | Cleve Hill                     | 202.7                          | 202.7             | <b>202.7ha</b>   |
|        | Non – Designated           | N/A – ha is covered in epoch 1 |                                | -                 |  |
| 3      | Internationally Designated | Chetney Marsh                  | 175                            | 175               | 175ha + 72.96ha (extra from epoch 2) = <b>247.96ha</b> |
|        | Non – Designated           | To be confirmed in the future  |                                | -                 |  |

This whole area, either side of the Creek could become rich and important maritime-edge habitat which would only increase Faversham's attraction and 'place' on the map! It wouldn't be too much more imaginative to create a Wetlands Centre, albeit much smaller and less famous than in other places (such as Slimbridge) that celebrates and promotes the real ecological value of this coastline north of the town, combined with its maritime heritage. Note what the Environment Agency say re. Cleve Hill:

**'This option has high partnership funding score due to the creation of intertidal habitat'.**

## BA6.2: Cleve Hill

| Now – 2038   | 2038-2068           | 2068-2118           |
|--------------|---------------------|---------------------|
| HTL Maintain | HTL Maintain and MR | HTL Maintain and MR |



### Preferred Option

The Cleve Hill MR site will be developed in year 2 to mitigate against the strategy wide impacts of coastal squeeze in the first epoch. The defences either side of the MR site will be maintained (capital), apart from the section of defences fronting the freshwater SPA habitat at the Sportsman Pub, where the defences will be raised in year 50 to continue to provide the same SoP with sea level rise (50%AEP) to the freshwater designated habitat. There are potential risks associated with the interaction with the electricity pylons and overhead lines for the MR site and this will need careful consideration during the design stage.

### Justification

MR site at Cleve Hill is required to help compensate for coastal squeeze across the Strategy in the second epoch. The justification for the MR site is related to the Strategy wide requirements for coastal squeeze compensation. This option has a high partnership funding score due to the creation of intertidal habitat. The defences will be raised in line with sea level rise near the Sportsman Pub as the cost to compensate the freshwater habitat is much greater than the cost to maintain the defences with sea level rise. This is justified through a cost effectiveness analysis.

### Preferred Option Costs

| Costs | Benefits | BCR | PF Score |
|-------|----------|-----|----------|
| £781k | £3,390k  | 4.3 | 34%      |

(And a reply to a debate online, pertinent to this submission):

*'I think Hollowshore could/would be protected by careful Managed Realignment and suitable local defences. There is that large area of Ham Marshes that could become in part saltmarsh and intertidal (at the moment it is protected as freshwater habitat). But a significant extent of saltmarsh, if you look on Google Maps, is opposite Hollowshore on the edge of the Nagden Marshes - which is the area specifically indicated for MR (and has been for many years already). And historically Nagden is an area of old saltworkings reading 'on the North Kent Marshes'. As the Creek turns south the saltmarsh is then found on the other side along the eastern boundary of Ham Marshes. This resembles the way rivers meander and accrete sediment on their slowing moving side except that here it is the tide doing this. The deeper channel is maintained where the water flows fastest. These must indicate the long historical sites of saltmarsh prior to the tidal defences and land drainage, so are logically the places to allow saltmarsh to regenerate now. Along with this is the probability that restraining the Creek within the sea walls is what is adding to the sediment building up within it and that extending intertidal could change the dynamics of flood and ebb tides in a way that reduces this or actually enables export of sediment rather than import with each tide. This along with important renewal of habitat, that is legally required by Habitat Directives, all points to the damage that the Solar would cause to the town and surroundings.*

