



Bacton, Walcott and Ostend Coastal Management Study

July 2014

North Norfolk District Council



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S. Hampshire
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1 Introduction

1.1 Background

The Bacton, Walcott and Ostend coastline forms part of the ‘*Kelling to Lowestoft Ness Shoreline Management Plan*’ (2005). North Norfolk District Council (NNDC) previously appointed Mott MacDonald to complete a Cromer to Winterton Ness Coastal Management Strategy Study (2013) to validate and potentially refine the current SMP6 management policies within the SMP. The Study provided recommendations for Schemes to be taken forward under the SMP policies to Project Appraisal Report (PAR) stage including the frontage at Bacton, Walcott and Ostend.

Following completion of the Cromer to Winterton Ness Coastal Management Strategy Study, NNDC appointed Mott MacDonald to undertake a further more detailed investigation into the economic case for coastal protection Scheme(s) specifically at Bacton, Walcott and Ostend (Figure 1.1). See section 1.2 for the scope of the investigation.

Figure 1.1: Existing defences along the frontage at Bacton, Walcott and Ostend (Management Units 35-42) from the Strategy Study, (2013). *NB the black lines indicate the extent of the assessments for Bacton and also for Walcott and Ostend. For the purposes of this study no defences have been considered for the central section between MU39-40 as there are no immediate assets at risk.*

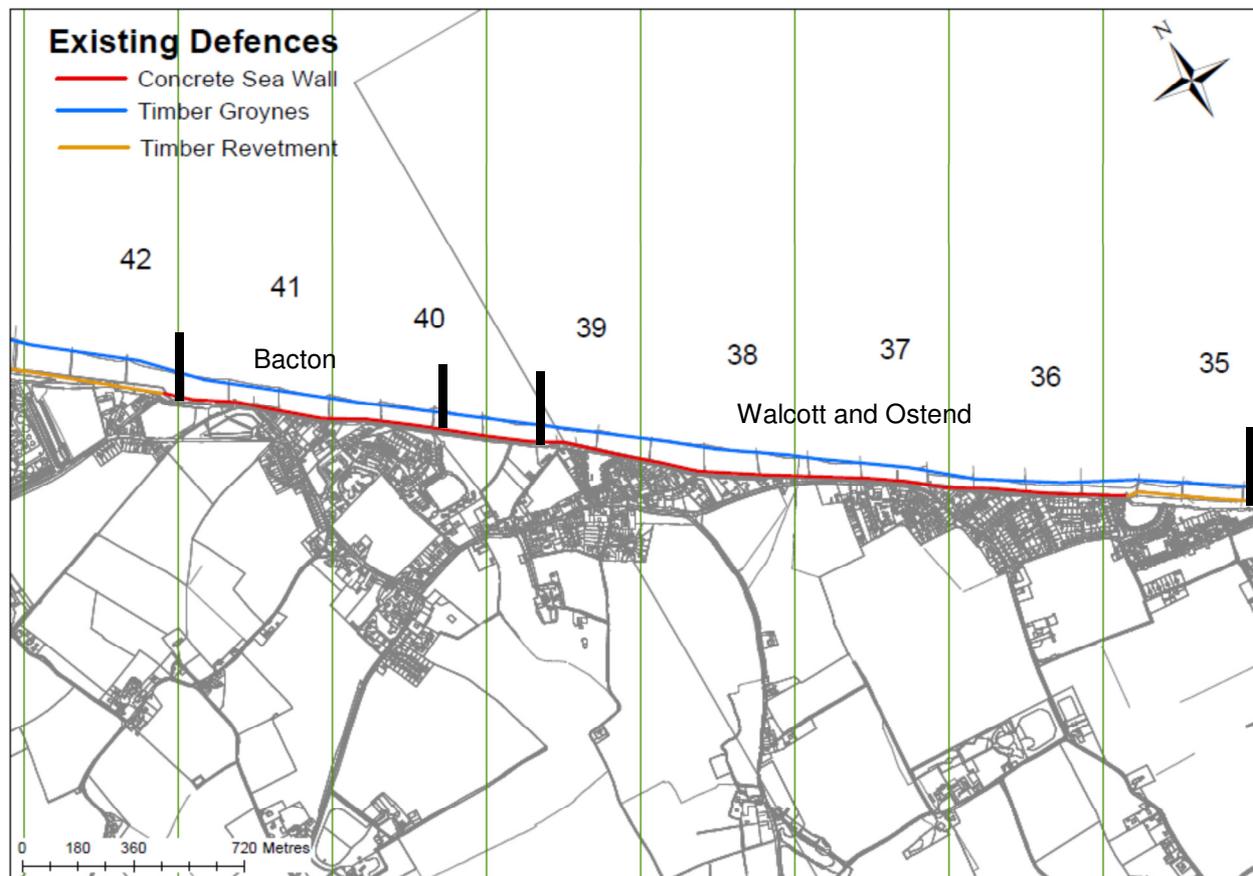


Figure 1.2 Current defences along the frontage include timber revetment, seawall and timber groynes



The SMP policies for Bacton, Walcott and Ostend over the next 100 years are outlined below in Table 1.1. The SMP6 epochs cover from 2005-2025, 2025-2055 and 2055-2105. For the purposes of this Study works will be considered over a period of 20 years from the current day to allow time for adaptation measures to be put in place for the medium term to long term.

Table 1.1: SMP6 policies for each of the three epochs at Bacton Walcott and Ostend

Short term (0-20 years)	Medium term (21-50 years)	Long term (51-100 years)
'Hold the Line'	'Managed Realignment'	'Managed Realignment'

In this area of Bacton, Walcott and Ostend, the locations of the properties are widely distributed across the 4km of frontage. The previous Study (2013) found it was not economically justifiable to implement 'Hold the Line' defences along the entire frontage for 100 years. However there may be a case for considering several Schemes along individual sections of the frontage or providing an integrated Scheme across the frontage where capital works are focussed on protecting the villages. Also it may be feasible to consider a Scheme for 0-20 years only.

This report aims to investigate the potential for Scheme(s) to be taken forward to Project Appraisal Report (PAR) stage at Bacton, Walcott and Ostend. The report aims to include further specific details on the economic costs and benefits and feasibility of options, in addition to the information considered during the previous Study. It considers both capital works options to implement 'Hold the Line' policies in the short term (0-20 years) but also considers these short term options in conjunction with longer term adaptation options (overall 0-100 years) to implement both the 'Hold the Line' and 'Managed Realignment' policies. It should be noted that this assessment provides more detail on the options for consideration than the Strategy stage with focus on Bacton, Walcott and Ostend, but specific details and combinations of different defences should be considered at the PAR stage.

1.2 Structure of report

This report has been divided into several different sections:

- **Optioneering** – undertakes a review of the options proposed at the Strategy stage for Bacton, Walcott and Ostend to “Hold the Line”. The options have been examined in more detail for each of the “Hold the Line” frontages to ascertain real potential short term (20 year) Scheme(s).

- **Adaptation options** – outlines the potential for adaptation options for “Managed Realignment” e.g. roll-back of properties (demolition/renting of existing properties until erosion is imminent and building elsewhere) in the longer term (20-100 years).
- **Economic analysis**- presents the results of the assessment of the associated costs of both short term ‘Hold the Line’ options, in addition to the longer term adaptation “Managed Realignment” options, in relation to the benefits. Partnership Funding outcomes for relevant options are also presented.
- **Combined Scheme with Bacton Gas Terminal**- the potential for combining a Scheme at Bacton, Walcott and Ostend with Bacton Gas Terminal is discussed.
- **Conclusions**- outlines the potential range of solution(s) for the frontage from Bacton to Ostend. It also outlines some key limitations of the study which may need further consideration if any Scheme(s) are progressed to PAR stage.

2 Optioneering

2.1 Initial options

During the development of the Cromer to Winterton Ness Coastal Management Strategy Study (2013) several different options were proposed for Bacton, Walcott and Ostend to 'Hold the Line' for the 0-20 year epoch and 'Managed Realignment' for the 20-100 year epoch. At this high level these options were applied along the entire frontage of Bacton, Walcott and Ostend. These options are outlined in the table below.

Table 2.1 Strategy capital works options previously proposed for Bacton, Walcott and Ostend

Strategy options	Details	Outcome from Strategy
Option 2: Rock placement	<p>Rock placement along 4km of the frontage. Assumed rock placement with a 1:2 slope with 3m height by 6m length in year 0 and then maintenance every 10 years.</p> <p>It was assumed that under a 'Managed Realignment' policy that these rocks could either be rolled back with the erosion or moved to other areas along the coast for protection. However the costs of this were not included.</p>	<p>This was concluded to not be feasible for the entire stretch of the defences and in the short term as it was too expensive.</p> <p>It could potentially be used for small sections or hotspots.</p>
Option 3: Heavy maintenance of timber revetment and groynes and seawall	<p>It was assumed that 4,350m of groyne length (23 timber groynes) would be maintained every 10 years until year 20. Then following this then the maintenance was reduced = 80% in year 30, 60% in year 40, 40% in year 50 etc.</p> <p>This was to ensure that even once the 'Managed Realignment' policy is implemented the groynes were maintained so not to pose a threat to public safety. Realistically they could be removed in the long term but no costs were included.</p> <p>The timber revetment only exists in two units (MU35 and MU41) hence only 1km of frontage. The seawall was proposed to be repointed and reclad with concrete for 3km of the frontage. Maintenance for both the timber revetment and seawall was proposed to be managed in a similar way to the groynes, reducing maintenance over time. Eventually under a 'Managed Realignment' policy the revetment, groynes and seawall would fail and would require removal from the frontage for health and safety reasons (this was not costed as part of the works).</p>	<p>Potentially feasible.</p>
Option 4: Rock groynes	<p>It was assumed that 8 rock groynes would be built over 1km. These groynes would trap sediment from longshore drift and therefore provide increased protection to the seawall and timber revetment.</p> <p>It was assumed that the rock groyne maintenance was the same as rock placement maintenance.</p>	<p>This option was discounted due to the poor benefit cost scores it produced.</p> <p>Also this is not a short term measure due to cost and it would not work over a short frontage as the groynes work best in fields.</p>

These original Strategy options were re-evaluated and additional options have been considered as outlined in the table overleaf. Each of these options have been assessed by Mott MacDonald and either considered to be feasible for taking forward or not feasible and rejected.

Table 2.2 Long list of capital works options for 0-20 years ('Hold the Line')

Option	Discussion
Do Nothing	Baseline option
Emergency works	Reactive approach – would need to apply for emergency funding for works if a breach in defences was to occur. Could be feasible for a 20 year period.
Timber revetment, groyne and seawall maintenance	Likely to be feasible- sweat the existing assets for 20 years.
Seawall encasement (promenade top)	Could be feasible- consider further along the seawall sections.
Gabions (steel baskets with suitable sized rock to break up wave conditions).	Could be feasible- capital works
Rock placement in front of seawalls/existing structures	Likely to be costly just for 20 years- but consider for comparison with other options. Unlikely to be feasible along the entire frontage.
Recharge	Could be feasible as part of sand engine approach with the broader coastal system.

The options taken forward (Table 2.3) represent a range of options that may be feasible along the frontage from Bacton to Ostend. A typical capital works option has been included at this stage for comparison with the emergency works and maintenance options; results showed that typical capital works options for 0-20 years e.g gabions and encasement of the existing sea wall were all of a similar cost magnitude and the specifics of these could be considered at PAR stage.

In addition a 5th option was added to consider a more extensive Scheme – including rock placement or recharge. In this case – rock or beach material could be used elsewhere or materials moved back during the 'Managed Realignment' phase as adaptation occurs. This allows a comparison with the short-term, more typical works for 20 years. Costs of the options are presented in Appendix A.

Table 2.3 Short listed options to be taken forward

	Option
1	Do-nothing (baseline)
2	Do-nothing until failure event and emergency works
3	Capital Maintenance and patch repair- (i.e Timber revetment and groyne and seawall maintenance)
4	Capital Works – Typical Scheme (i.e seawall encasement, recharge or gabions)
5	Capital Works- Extensive Scheme (i.e rock placement)

In addition to these short term options, it is also necessary to consider the adaptation options for implementing the 'Managed Realignment' policy. This is investigated further in Chapter 3.

3 Adaptation options

3.1 Adaptation approach

Adaptation can be defined as *'the process for managing the impacts of coastal change on communities and individuals, in advance of erosion and or realignment, with the aim of reducing the risk and mitigating the adverse effects'* (RPA, 2008). Consideration of adaptation is becoming more important in considering the long term management of the coastline with climate change (e.g Climate Change Adaptation Sub-Committee Progress Report, 2013). However there have been no Schemes that have actually considered how adaptation measures could be feasibly implemented, how much they might cost and how they compare and contrast to implementing capital works. Also adaptation options have not, at present, been funded through EA Partnership funding or other mechanisms.

There is a real opportunity now at Bacton, Walcott and Ostend to explore potential adaptation measures alongside capital works options to fulfil both the short term 'Hold the Line' policy and the longer term 'Managed Realignment' policies. NNDC budgets are increasingly under pressure and the SMP expresses the need to allow more natural coastal processes to occur, whilst also protecting their local communities. A hybrid option combining both capital works and adaptive measures could be a feasible option.

3.2 Previous adaptation studies

A study was carried out in 2008 by RPA (Risk & Policy Analysts Limited) which aimed to collate data for supporting a Strategy for the long term management of the North Norfolk coastline. Specifically there was focus on filling the gaps in information and knowledge regarding adaptation options and their feasibility following the Coastal Pathfinder Study. The report considered options which involved adaptation of communities.

The RPA (2008) report outlined three main approaches to adaptation:

1. Rebuilding key assets/infrastructure as they are eroded. This should help maintain access to key assets such as the beach to reduce local economic impacts.
2. Relocate or roll back properties.
3. Assist property owners, businesses and communities with adaptation.

This Study will focus on approaches 2 and 3 which consider residential properties as these are easiest to value and make up the majority of the benefits (and partnership funding score) of a coastal protection Scheme.

3.3 Adaptation options

In considering both the relocation/roll back of properties and assisting property owners, businesses and communities with adaptation, the study carried out by RPA (2008) identified a long list of potential adaptation options for the North Norfolk coast. These are outlined in Table 3.1. Each of these options has been considered individually in terms of potential for implementation specifically at Bacton, Walcott and Ostend, but all would require funding to be identified and secured.

Table 3.1: Table of options and description (extracted from RPA, 2008)

Options	Descriptions	Suitability for Bacton, Walcott and Ostend
Outright purchase and demolish properties	Property is bought at market value	Potential.
Underwriting values of properties	Liability is accepted for the property in the future. The owner receives guarantee that the property will be bought for a set amount when the erosion is imminent	Potential but unsure how NNDC guarantee the amount later.
Buy and lease properties	The property is purchase and rented out for continued occupation until the property is in imminent danger of erosion	Potential –properties could feasibly be rented for short periods.
Use the property for a time restricted use	Appropriate land uses would be permitted to take over the property and continue to use it until erosion of the property is imminent	Potential.
Land purchase by Local Authorities	Council purchase land to provide a free location for those displaced by erosion to develop new properties	Land behind is agricultural so there is 'space' to realign the villages. However this would be dependent on whether landholders would be willing to sell their land and the price of the land.
Low interest loans to buy new property/land	The property is not bought, instead the opportunity is given for the property owner to take a low interest loan. This is offered to those whose house is to be eroded to help purchase another property or land on which to construct another property	Potential but questions about who would underwrite the loan. Would the lender ever get the investment back?
Government Payback Scheme	An estimate is made of the saving by Government in terms of the coastal defences cost for urban areas downcast that are protected by the material coming from the areas that are eroded. This estimate is used as the basis for pay properties owners for the loss of their land	Potential – could utilise results of the SCAPE model (from the Strategy Study) to help inform potential increased sediment downdrift.
Coastal Adaptation Fund	A fund is established to make payments to those who are suffering due to changes in coastal policies. Payments would help to cover a range of need including new mortgages and cost of removal of building at risk and could be extended to provide further financial assistance where funds are available	Potential – but key questions – where does the funding come from? Who would qualify as 'suffering due to changes in coastal policies'?
Subsidised maintenance	Council pays for/contributes to the cost of maintaining at risk properties to ensure they remain in keeping with the surrounding village/living standards	Potential – however this is likely to be in combination with some of the other options rather than implemented on its own.
Physically move the property	When the property is jacked up and moved, or disassembled and reassembled elsewhere	Unlikely– likely to be logistically difficult. Could be used for particularly historical assets – church buildings?
Re-locate properties at risk	Development would be allowed in the at risk areas provided this only involved properties that can be easily relocated to a new site as the risk increases	Not recommended – NNDC unlikely to grant planning for this.

To assess the potential for adaptation options to be implemented four options have been selected (Table 3.2) representing the more suitable options for the area.

Table 3.2: Potential adaptation options to be considered further

	Option	Assumptions
6	Buy and rent properties	Buy all the properties and lease until they are deemed imminently at risk.
7	Buy, demolish and rebuild properties	Demolish all the properties and relocate and rebuild the properties further back on new land (away from the risk of erosion). This land could either be purchased by the EA or by NNDC. May need to be compulsory purchase.
8	Buy and demolish properties	Buy all the properties and demolish them in the same year
9	Buy, rent and demolish properties	Buy all the properties and rent them until they are deemed imminently at risk and demolish.

Combining both the capital works and the adaptation options this presents a series of options to test further. Firstly the short-listed options will be tested for 0-20 years for capital works only and then long term options (0-100 years) which will include adaptation measures following the short term options.

3.4 Short-listed options to take forward

Table 3.3 outlines the short-listed options to be taken forward to economic analysis at Bacton, Walcott and Ostend respectively, but also as one unit. Short term options can be considered on their own or in conjunction with the long term options. Long term actions in this report should not be considered without the short term options being implemented between 0-20 years.

Table 3.3 Short-listed options for economic analysis

Short term 'Hold the Line' Options (0-20 years only)	1) Do-nothing baseline
	2) Do-nothing until failure event and emergency works
	3) Capital Maintenance and patch repair
	4) Capital Works – typical
	5) Capital Works- extensive
Long term Adaptation Options (20-100 years)	As above but for years 20-100 with : 6) Buy and lease properties 7) Buy, demolish and rebuild properties 8) Buy and demolish properties 9) Buy, rent and demolish properties

4 Economic assessment

4.1 Approach

The economic assessment is based on the latest Flood and Coastal Erosion Risk Management Appraisal Guidance (FCRM-AG, 2010), which provides guidance on the methodology to undertake effective appraisals. The guidance assists in considering economic benefits and losses that arise from particular options.

The economic assessment utilises the spreadsheet templates provided by the Environment Agency (2012), which is the basis on which the Environment Agency will approve coastal defence Schemes and grant funding. The economic assessment includes information from the HM Treasury Green Book (2011) and Multi-Coloured Manual (Middlesex University, 2010). It should be noted that the economic assessment was undertaken in line with current DEFRA and treasury guidance (FCRM-AG, 2010) and is appropriate as any future government funding for Schemes will be assessed against this criteria.

This economic assessment provides a framework for assessing the advantages and disadvantages of the options by expressing all of the potential effects and benefits of an option in terms of its monetary cost. The assessment considers the value (cost) of the options and whether investment in any option is worthwhile against the benefits. Benefits include protection of residential and non-residential properties, infrastructure and tourism/ recreation. An option is considered to be 'justified' if the benefits outweigh the costs (i.e. the benefit cost ratio is greater than one).

Costs and benefits can be expressed in terms of their cash value in pounds sterling but also in terms of their Present Value (PV). The Present Value of the future pound is assumed to fall away through time. To include this in the benefit cost ratio the discount factor provided in the HM Treasury Green Book (2011) is applied. The long term discount rates are included in the benefit cost ratio analysis to allow the uncertainty of the future to be included. This uncertainty is shown to cause a decline in discount rates over time. The HM Treasury Green Book recommends that for benefit cost analyses which accrue for more than 30 years the following discount rates should be used: 3.5% (0 to 30 years), 3% (30 to 75 years) and 2.5% (75 to 100 years). Present Value benefits are calculated by discounting which depends on the year of loss of that benefit e.g. the year a house is lost to coastal erosion. Present Value costs are calculated by discounting the year in which works are implemented.

4.2 Benefits

Benefits (calculated from erosion damages avoided by implementing a Scheme) for Bacton, Walcott and Ostend have been calculated using guidance from the Multi-Coloured Manual (MCM, 2010) and FCRM-AG (2010) over a 100 year period. Benefits have been discounted in accordance with the HM Treasury Green Book. The price date for the benefits is the same as for the costs (April 2014).

The benefits were calculated from the value of the properties, impacts to flooding and other major infrastructure affected by predicted erosion rates during the 100 year time period. The erosion rates were calculated using the SCAPE model based on the residual life of the defences along the 35km stretch of coastline from Cromer to Winterton Ness as part of the previous Study. The SCAPE model aims to provide a more realistic assessment of potential erosion of the coastline (and therefore benefits) by considering the coastal dynamics of the entire 'system' from Cromer to Winterton Ness including sediment transport

between sub-cells. Two separate scenarios were originally considered within the SCAPE model for this benefit assessment:

- **The “Do Nothing” Baseline.** The “Do Nothing” Baseline is not a policy option but is required as a baseline against which all other options to Do Something are assessed and is required when undertaking economic assessment of the options. This allows comparison and contrasting of the costs of ‘doing something’ against the benefits arising from ‘doing nothing’.
- **The SMP6 Scenario considers** the Do Something options in accordance with the adopted SMP6 2005 (Kelling Hard to Lowestoft) policies i.e. ‘Hold the Line’ and ‘Managed Realignment’.

Outputs from the SCAPE model for Bacton, Walcott and Ostend showing the extent of predicted erosion for both of these scenarios over the next 100 years is presented below in Figure 4.1 and Figure 4.2. No additional runs of the model have been taken for this specific Study at Bacton, Walcott and Ostend which has some limitations and will be considered further below.

Figure 4.1: Erosion predictions under the “Do Nothing” scenario at Bacton, Walcott and Ostend

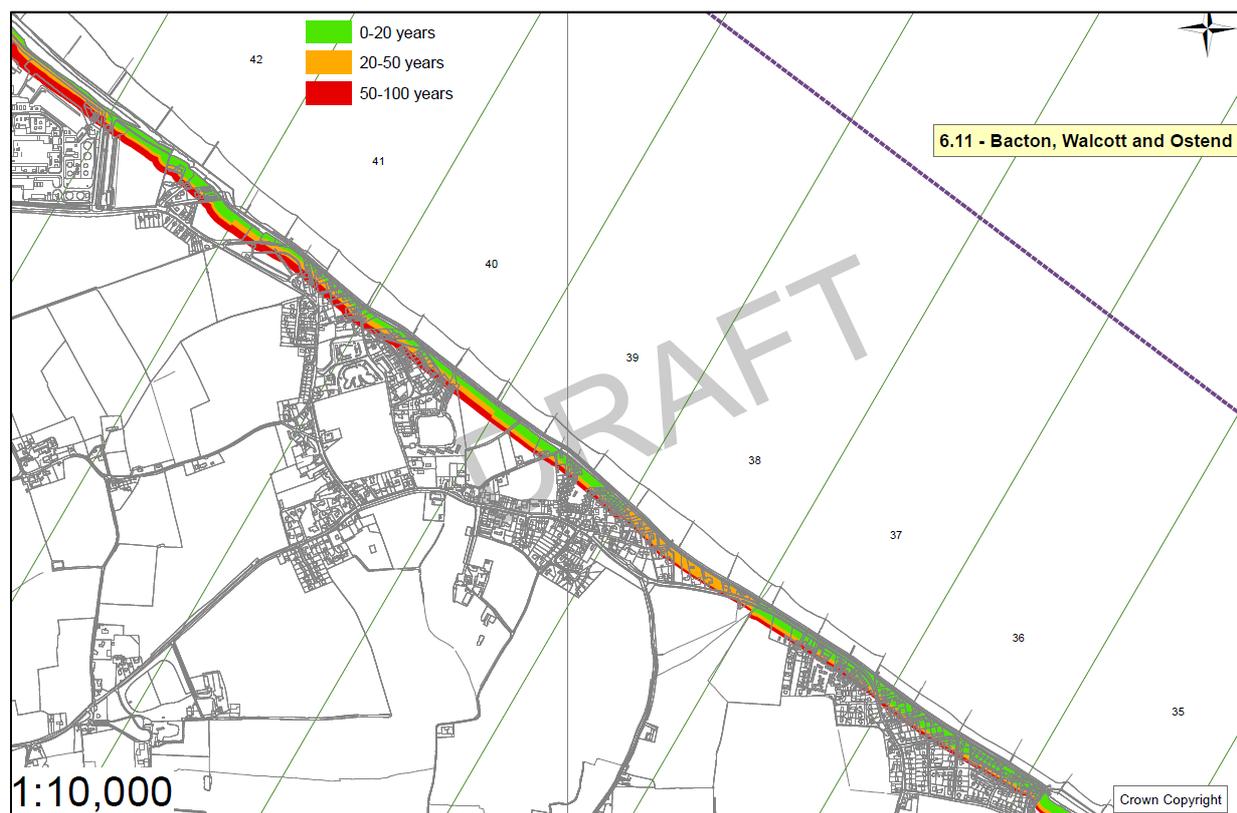


Figure 4.2: Erosion predictions under the SMP policy at Bacton, Walcott and Ostend ('Hold the Line' for 20 years and 'Managed Realignment' for 20-100 years).

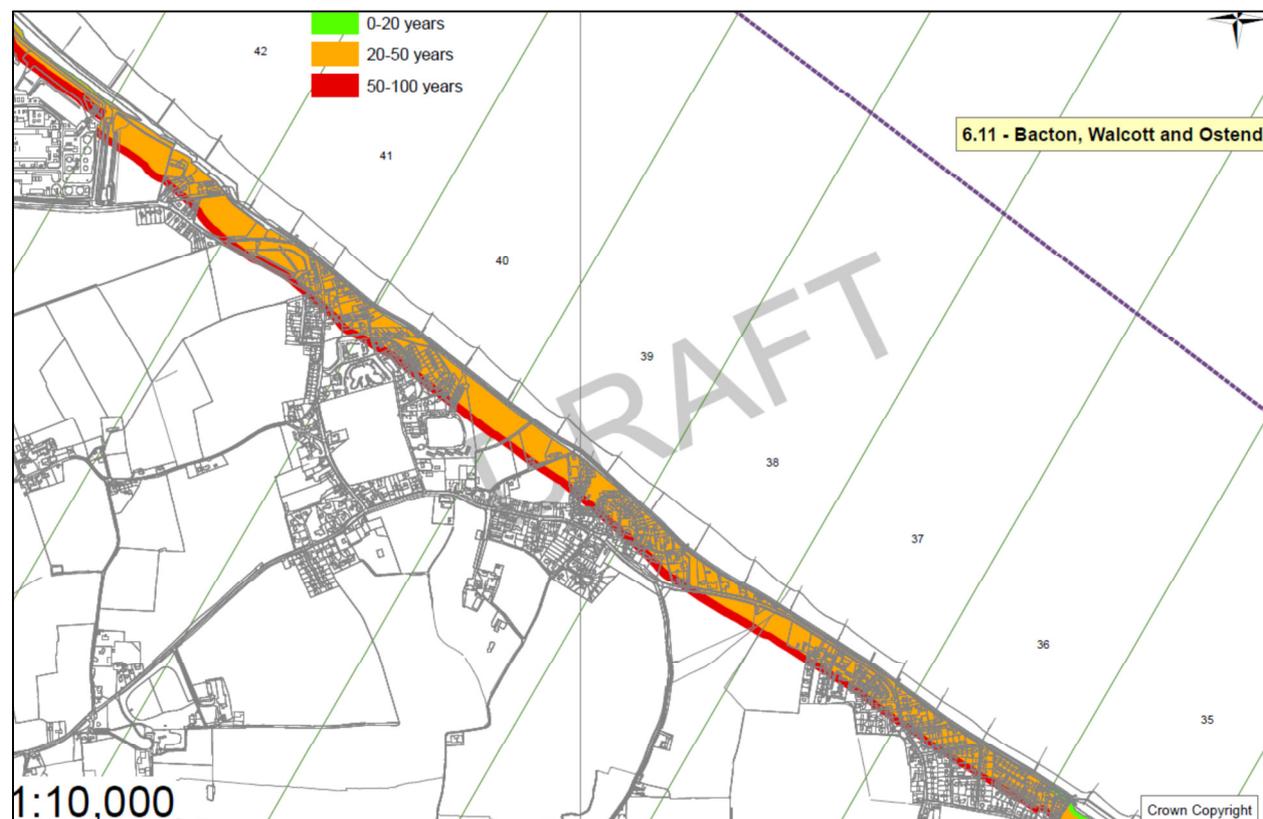


Table 4.1 below shows the number of residential and commercial properties at risk under both scenarios.

Table 4.1: Summary of residential properties (in bold) and commercial properties (in brackets) at risk over 100 years under both a "Do Nothing" Baseline and SMP6 Scenario according to the SCAPE Model for Bacton, Walcott and Ostend

"Do Nothing" Baseline	SMP Policy	"Do Nothing" Baseline	SMP Policy	"Do Nothing" Baseline	SMP Policy	"Do Nothing" Baseline	SMP Policy
0-20 years		21-50 years		51-100 years		Total	
94 (0)	14 (0)	51 (1)	253 (13)	51 (4)	85 (4)	196 (5)	352 (17)

Under a "Do Nothing" Baseline in the SCAPE model, 201 properties (commercial and residential) are at risk of coastal erosion over (approximately) 4km length of frontage from Bacton to Ostend. There are additional flood and infrastructure damages associated with this frontage which will be incorporated into the economic analysis.

Under the SMP6 Scenario, there is minimal erosion of the coastline shown in the SCAPE model over the short term (0-20 years) due to implementation of the 'Hold the Line' policy. However once the defences are left to fail in year 21, increased erosion rates occur and over the 100 years, more erosion occurs under the SMP6 Scenario than the "Do Nothing" Baseline.

Within the SCAPE model runs this is likely to be due to 'Hold the Line' policy and coastal defences at Bacton Gas Terminal limiting the sediment supply to the frontage at Bacton, Walcott and Ostend. This provides less buffering of erosion down drift. It is important to recognise that although the SMP6 Scenario shows increased erosion compared to the "Do Nothing" Baseline, if the SMP6 policies are implemented further up the coastline (Policy Units 6.05-6.10) the erosion in this Policy Unit under a "Do Nothing" Baseline would be accelerated. Therefore the "Do Nothing" Baseline used in this assessment is a very conservative baseline and with further detailed study and SCAPE model runs there is likely to be an increase in damages associated with the "Do Nothing" scenario and therefore an increase in the benefits of doing something.

The market value of each property was reviewed from the Cromer to Winterton Ness Coastal Management Strategy Study (2013) and divided into Bacton, and Walcott and Ostend (Figure 1.1). The values were updated by 1.3% with regards to the RPI change between 2012 and 2014.

4.2.1 Flooding benefits

Walcott and Bacton is potentially vulnerable to flooding. The flood damages in the cost benefit analysis are based on the damages that HR Wallingford obtained for the North Norfolk Coastal Strategy (2004) which has been updated in this Study. The flood damages are assumed to occur up to the year that the sea wall fails, with increased flood damages after this year.

Flood damages have only been calculated up until the property is eroded, after this there are no flood damages assumed (only erosion losses) to that property. The damages to the properties from the 2004 study were increased by 33% based on the latest RPI. Further study would be required at PAR stage to assess the recent flooding which occurred as result of the storm surge in winter 2013/2014 and the Average Annual Damages that result from flooding.

4.2.2 Other benefits

In addition to property benefits, infrastructure and service amenities will also be lost over the next 100 years under a "Do Nothing" Baseline. The assumptions and values of these are outlined below in Table 4.2. Wider socio-economic implications of the "Do Nothing" Baseline e.g. people, businesses (and jobs) moving away to other areas, is not considered as it is very difficult to apply a monetary value to these benefits. The benefits from tourism have not been included in the assessment due to uncertainties with the accuracy of the data (see Mott MacDonald, 2013).

Table 4.2: Other benefits along the frontage (values are before discounting has been applied)

Benefit	Description	Value
Preventing the erosion of roads	Erosion of the B1159 at Walcott represents the loss of the main road which runs along the coast. As all other nearby roads are much smaller, there would not be the opportunity for diversion and therefore new sections of road would need to be built. The sections have been used from the 2004 Strategy. However, the costs have been calculated using figures from Spon's Architects' and Builders' Price Book (2013).	Erosion of B1159 = £1.2 million

4.2.3 Benefit summary

Table 4.3: Benefits along the frontage(s)

Frontage	PV Benefits (£k) (0-20 years)	PV Benefits (£k) (0-100 years)
Bacton	£1,260k	£1,699k
Walcott and Ostend	£12,094k	£14,307k
All	£13,354k	£16,006k

4.3 Option Costs

The Present Value costs of each of the short term and long term options were determined by combining the capital and maintenance and adaptation costs correct as of April 2014 and discounting to the year of implementation. Capital costs include significant works or upgrades to defences. Maintenance costs can either be annual or periodic. Increased sea level rise and potential increases in storm frequency and intensity suggest the maintenance required may be more frequent and more laborious than currently. Assuming that no funding was available and therefore no government funded capital works could go ahead over the next 100 years then the maintenance burden on NNDC would be significantly increased.

Costs have been estimated and optimised using contractor information and recent costs of construction of similar works. Costs have been reviewed and re-assessed as more details and construction information has been obtained. At this stage, appraisal and detailed design costs have been excluded from the estimates.

Costs have been estimated as realistically as possible considering the nature of the study, with an Optimism Bias of 60% (as typical in the FCRM-AG guidance, 2010), which naturally increases estimated prices and reduces derivative benefit cost ratios. As designs are subsequently refined and specific contractor methods, materials and working practices are gained through potential Early Contractor Involvement through Project Appraisal and Detailed Design Stages, the Optimism Bias can be reduced. The costs for the each of the short listed options are presented below.

4.3.1 Short term options (0-20 years)

4.3.1.1 Option 2: "Do Nothing" event until failure and emergency works

This option assumes that no works would be undertaken between 0-20 years but if an event occurs and a section of defences is breached, it would be repaired. The cost of repair for this section would be £1.3million assuming that 10% of the frontage fails and would need repair at some point within 20 years. The cost of the repairs for this failure scenario is based on the recent cost of emergency works along the seawall and promenade undertaken for a 150m long section at Sheringham following the winter storms.

The probability of this failure occurring (expressed as a percentage here) is likely to increase in time as the condition of the defences continues to deteriorate in time. We have assumed an exponential increase in chance of failure in time as shown in Table 4.3 below for the £1.3million works. The cost of the repairs for Bacton, Walcott and Ostend as one unit was then divided into third for Bacton and two thirds for Walcott and Ostend.

Table 4.4: Probability of Repairs for Failure Scenario at **Bacton, Walcott and Ostend** (The total £1.3 million cost of repair has been divided up based on the probability or chance of occurrence per year)

Year	Cumulative probability of event (%)	Proportion of total cost based on an increasing probability of occurrence in time	Cumulative cost
1	1	£ 13,877	£ 13,877
2	2	£ 13,877	£ 27,753
3	3	£ 13,877	£ 41,630
4	4	£ 13,877	£ 55,507
5	6	£ 27,753	£ 83,260
6	8	£ 27,753	£ 111,013
7	10	£ 27,753	£ 138,767
8	15	£ 69,383	£ 208,150
9	20	£ 69,383	£ 277,533
10	25	£ 69,383	£ 346,917
11	30	£ 69,383	£ 416,300
12	35	£ 69,383	£ 485,683
13	40	£ 69,383	£ 555,067
14	45	£ 69,383	£ 624,450
15	50	£ 69,383	£ 693,833
16	60	£ 138,767	£ 832,600
17	70	£ 138,767	£ 971,367
18	80	£ 138,767	£ 1,110,133
19	90	£ 138,767	£ 1,248,900
20	100	£ 138,767	£ 1,387,667

4.3.1.2 Option 3: Capital maintenance and patch rapid repair

This option includes capital maintenance for the groynes, seawall and timber revetment in year 1 and year 9 and then 20% of that as minor maintenance in year 18. This option would be sufficient to patch and repair the defences and sustain their current function to protect the cliffs behind the defences and support trapping of sediment within the groyne field.

Table 4.5: Option 3 assumptions, costs and risks

Option	Assumptions	Cost (£/m)	Risks/Constraints
Seawall	Cement Grouting of seawall- it has been assumed that 10% of the structure is repaired.	Approximately £180/m	This would not increase the residual life of the defences but instead 'sweat' their remaining life until the 'Managed Realignment' policy would start in year 20. Therefore the defences may still be vulnerable to collapse.
Groynes	In each bay the timber planks have been assumed to be between 3-5m in length. The repairs have been taken as 10% of the total number of the planks in each groyne. There are 25 groynes between Bacton and Ostend which are estimated as 90m in length, 2m high and formed of 7 planks per groyne bay. The timber piles have been assumed to be Greenheart Timber and 10m in length. Each plank is fixed to the piles with bolts and an estimate of 4 per plank has been included in the costs.		
Timber Revetment	In each bay the timber planks have been assumed to be between 5-8m in length. The repairs have been taken as 10% of the total number of the planks along the revetment length. The timber piles have been assumed to be 300x300mm Greenheart Timber at 10m lengths. Each plank is fixed to the piles with bolts and an estimate of 4 per plank has been included in the costs.		

4.3.1.3 Option 4: Capital works – typical

This option includes capital works being carried out along the frontage for typical capital works Scheme e.g gabions , seawall encasement or beach recharge. These works would aim to protect the seawall and cliffs behind for a 20 year period. For the purposes of comparison with the other options, the options have been briefly outlined below but the spreadsheets are included in Appendix A. Generally costs are of a similar magnitude in terms of cost per metre (see Table 4.6 below), regardless of which capital works method is chosen.

Table 4.6: Option 4 assumptions, costs and risks

Option	Assumptions	Cost (£/m)	Risks/Constraints
Concrete Encasement	In situ concrete – assumed 200mm cast with timber shuttering	£450/m	Seawall will be repaired but works will not reduce the reflection of waves and therefore overtopping onto the promenade.
Buried Gabions	1mx1m gabion blocks- assume 1 single layer deep and 3 layers high	£420/m	Gabion baskets could be exposed and break up creating debris on the beach.
Recharge	Assume 2.5m high with 1 in 9 slope and material transported by lorry.	£600/m	Beach could be lost in a storm.

4.3.1.4 Option 5: Capital works- extensive

This option includes capital works being carried out along the frontage but is more extensive than the typical works; this includes rock placement. These works would protect the seawall and cliffs behind for a 20 year period and provide confidence to NNDC in case of a storm event.

Table 4.7 Option 5 assumptions, costs and risks

Option	Assumptions	Cost (£/m)	Risks/Constraints
Placement of Rock Armour- Granite	Slope of 1 in 2. Height of 2.5m (0.5 m excavation beneath) and 5m wide.	£1500/m	Would be expensive to construct along entire frontage

4.3.2 Long term options (0-100 years – including adaptation)

In addition to the short term options (0-20years) listed above, in the long term adaptation measures can be considered from year 20 onwards to implement the 'Managed Realignment' policy. A brief sensitivity analysis has been undertaken on when the properties are bought and leased etc in Appendix B.

4.3.2.1 Option 6: Buy and lease properties

This option assumes that all residential properties are bought by NNDC according to the erosion band in which they are situated i.e. 0-20 years, 20-50 years and 50-100 years and then rented out. A 10% allowance has been included on top of the value of the properties to cover maintenance/insurance and potential unoccupied time before the property is leased out. It is assumed that a property cannot be rented the year that it will erode, but would start the year after. Properties are assumed to be protected under the options above (Options 2,3,4) and therefore there will be a delay in when erosion occurs by 20 years. There are few commercial properties within this area however it is difficult to provide accurate estimations of any changes in their market value within this relatively high level Study; therefore the commercial

properties including children's home, hotel, chalet parks, shops etc have been excluded but should be considered further at Project Appraisal stage.

In year 20 all residential properties at risk of erosion within the 0-20 "Do Nothing" erosion band will be bought from their owners and rented until year 35 (average time at which properties will be lost). Similarly, in year 40 all properties from the 20-50 "Do Nothing" erosion band will be bought and rented until year 55, and in year 70 all properties from the 70-100 "Do Nothing" erosion band are purchased and rented until their assumed erosion in year 85. A brief sensitivity analysis has been undertaken (Appendix B) however more detailed analysis of properties and when they are rented out and when they are finally lost will be required at Project Appraisal stage.

The full market value of each of the residential properties at risk of erosion over 100 years was considered. The market value was reviewed from the Cromer to Winterton Ness Coastal Management Strategy Study (2013) and updated according to the RPI.

An average value of the annual rent per each type of property was estimated from the website: homes.findthebest.co.uk and cross-referenced with zoopla.co.uk. For the purposes of this study various assumptions regarding the number of beds properties have been made (see Table 4.8). It has also been assumed that 100% of the properties will be rented 100% of the time from the purchase until the average time at which erosion takes place (midpoint between the erosion bands as above). Table 4.8 presents the annual rent per type of property considered in this Study. Tables 4.9- 4.11 present the total rent for all properties in each year.

Table 4.8: Rent per year according to the property type (number of beds assumed to coincide with data found at www.homes.findthebest.co.uk).

Type of property	Average rent/year (£)
Detached (assumed 4 bed)	£10,200
Semi-detached (assumed 3 bed)	£7,800
Terrace (assumed 2 bed)	£6,300
Flat (assumed 1 bed)	£4,800

Table 4.9: "Do Nothing" erosion scenario total rent (i.e income to NNDC) per year based on the number of properties available to rent at **Bacton**

Years	Total Rent/Year (£)
1-20	£143k
21-50	£65k
51-100	£129k

Table 4.10: "Do Nothing" erosion scenario total rent (i.e income to NNDC) per year based on the number of properties available to rent at **Walcott and Ostend**

Years	Total Rent/Year (£)
1-20	£724k
21-50	£412k
51-100	£374k

Table 4.11: "Do Nothing" erosion scenario total rent per year based on the number of properties available to rent at **Bacton, Walcott and Ostend**

Years	Total Rent/Year (£)
1-20	£867k

Years	Total Rent/Year (£)
21-50	£477k
51-100	£503k

4.3.2.2 Option 7: Buy, demolish and rebuild properties

This option assumes that the demolition, relocation and rebuilding of the properties will be implemented according to the erosion band in which are located. Properties are assumed to be protected by the capital works and therefore there will be a delay in when erosion occurs by 20 years i.e. all properties located on the 0-20 erosion band will be demolished, relocated and re-built in year 20. Similar, in year 40 all properties from the 20-50 erosion band will be demolished, relocated and re-built; and, in year 70 all properties from the 50-100 erosion band will be demolished, relocated and re-built.

NNDC can claim up to £6k per property for demolition via the Coastal Local Authority Erosion Assistance Grant (CLAEAG). This accounts for houses that were constructed before July 2009 and is relevant for properties considered to be at imminent risk of loss to coastal erosion. The £6k is an average value – in some instances landscaping may be required (and further funding may be sought) and for smaller properties it may be cheaper. Table 4.12 presents the summaries of the costs.

Table 4.12: Demolition costs “Do Nothing” erosion scenario

	Bacton	Walcott and Ostend	TOTAL
Number of properties “Do Nothing”	37	158	196
Demolition cost (£/k)	£126k	£948k	£1,074k

The estimation of the relocation of each residential property cost was based on the purchase of an area of land per property. The calculations were based on the North Norfolk Management Plan (2008), where an average of 333m² of land was assumed to be purchased for the relocation of each residential property. Considering an average floor area of 100m², 333m² of new land per property will include a large garden, similar to the current properties in Bacton, Walcott and Ostend. This is a generous assumption which has been included in the assessment.

The land purchase prices were based on agricultural land surrounding the area; original prices were from the North Norfolk Management Plan (2008) included a price of £12,300 per hectare (May 2008). Research carried out since then indicates that land prices in Norfolk have increased (www.savills.co.uk and www.uklandandfarms.co.uk) on average to £21,091 per hectare. This is equivalent to £21.30/m². Table 4.7 presents the land purchase estimation costs under the “Do Nothing” scenario. At this stage, this assessment has not considered potential compensation requirements for farmers. However, this would need to be considered in more detail at PAR stage.

Table 4.13: Land purchase estimation costs (assuming 333m² per residential property)

Area	Cost per m ²	Total for all properties
Bacton only	£21.30	£319k
Walcott and Ostend		£1,331k
All		£1,650k

An estimated rebuild cost was obtained from the North Norfolk Management Plan (2008), corresponding to £850/m² (May 2008). However further investigation found that the average rebuild cost is likely to be higher

between £1300 to £2500/m² (NWBrown, 2013). Therefore a value of £2000/m² was taken instead which is likely to be more realistic.

In order to estimate the rebuild cost per type of property, an average house floor area was obtained from a Nationwide survey (23rd April 2008) (nationwide.co.uk, accessed in November 2013) and cross referenced with the properties in Bacton (Zoopla.co.uk, accessed in April 2014). According to the information available, the average floor area of a 3 bedroom house and 2 bedrooms flat were considered in this assessment. Table 4.14- 4.16 presents the rebuild cost per type of property.

Table 4.14: Rebuild costs at **Bacton** excluding commercial properties

	Detached house	Semi-detached house	Terrace	Flat	TOTAL
Average surface (m ²)	120	105	96	70	
Number of properties "Do Nothing"	27	3	3	4	37
Rebuild cost per type of house	£6,480k	£630k	£576k	£560k	£8,246k

Table 4.15: Rebuild costs at **Walcott and Ostend** excluding commercial properties

	Detached house	Semi-detached house	Terrace	Flat	TOTAL
Average surface (m ²)	120	105	96	70	
Number of properties "Do Nothing"	119	3	3	4	159
Rebuild cost per type of house	£28,560k	£630k	£576k	£560k	£30,326k

Table 4.16: Rebuild costs at **Bacton, Walcott and Ostend** excluding commercial properties

	Detached house	Semi-detached house	Terrace	Flat	TOTAL
Average surface (m ²)	120	105	96	70	
Number of properties "Do Nothing"	146	6	6	8	196
Rebuild cost per type of house	£35,040k	£1,260k	£1,152k	£1,120k	£38,572k

4.3.2.3 Option 8: Buy and demolish properties

This option utilises information on the value of properties at Bacton, Walcott and Ostend and the estimated values for demolition of each property (on average £6k/property) as already outlined above.

4.3.2.4 Option 9: Buy, lease and demolish properties

This option utilises information on the value of properties at Bacton, Walcott and Ostend and the estimated values for rental and demolition of each property (on average £6k/property) as already outlined above.

4.3.3 Summary of costs

The table below provides a summary of costs for each option.

Table 4-17 Summary of Present Value (PV) Costs (£k) for **short term options (0-20years)** (NB numbers have been rounded up and exclude costs for Appraisal and Detailed Design.)

Short term option (0-20 years)		Initial Implementation PV Cost (Year 1-5) (£k)			Future PV Costs (Year 5-20) (£k)			Total PV Cost (£k)	Total PV Cost (£k) (60% bias)
		Capital (£k)	Maintenance (£k)	Sub Total (£k)	Capital (£k)	Maintenance (£k)	Sub Total (£k)		
Bacton only	2- Do-nothing until failure event and emergency works	24	0	24	261	0	261	285	456
	3-Capital Maintenance and patch repair	0	230	230	0	307	307	537	859
	4- Capital Works - typical	590	0	590	0	0	0	590	944
	5- Capital Works - extensive	1,868	0	1,868	0	0	0	1,868	2989
Walcott and Ostend only	2- Do-nothing until failure event and emergency works	50	0	50	532	0	532	582	931
	3-Capital Maintenance and patch repair	0	434	434	0	562	562	996	1,594
	4- Capital Works - typical	1,205	0	1,205	0	0	0	1,205	1,928
	5- Capital Works - extensive	3,814	0	3,814	0	0	0	3,814	6,102
Bacton, Walcott and Ostend	2- Do-nothing until failure event and emergency works	74	0	74	793	0	793	867	1,387
	3-Capital Maintenance and patch repair	0	664	664	0	869	869	1,533	2,453
	4- Capital Works - typical	1,795	0	1,795	0	0	0	1,795	2,872
	5- Capital Works - extensive	5,682	0	5,682	0	0	0	5,682	9,091

Table 4-18 Summary of Summary of Present Value (PV) Costs (£K) for **long term options (0-100 years)** (NB Option 1 is Do Nothing) (NB numbers have been rounded up and exclude costs for Appraisal and Detailed Design.) * Other costs represent the rental income from the properties and therefore is a negative cost.

Long term option (0-100 years)			Initial Implementation PV Cost (Year 1-5) (£k)			Future PV Costs (Year 6-100) (£k)				Total PV Cost (£k)	Total PV Cost (£k) (60% bias)
Area	0-20 years capital works	20-100 years	Capital (£k)	Maintenance (£k)	Sub Total (£k)	Capital (£k)	Maintenance (£k)	Other (£k) *	Sub Total (£k)		
		Adaptation									
Bacton only	2 - Do-nothing until failure event and emergency works	Plus 6) buy and rent properties	24	0	24	1,740	0	-903	837	861	1,378
	3 -Capital Maintenance and patch repair		0	230	230	0	307	-903	-596	-366	-586
	4 Capital Works - typical		590	0	590	1,479	0	-903	576	1,166	1,866
	5- Capital Works - extensive		1,868	0	1,868	1,479	0	-903	576	2,444	3,910
Walcott and Ostend	2 - Do-nothing until failure event and emergency works		50	0	50	7,119	0	-4,467	2,652	2,702	4,323
	3 -Capital Maintenance and patch repair		0	434	434	6,587	562	-4,467	2,682	3,116	4,986
	4 - Capital Works - typical		1,205	0	1,205	6,587	0	-4,467	2,120	3,325	5,320
	5- Capital Works - extensive		3,814	0	3,814	6,587	0	-4,467	2,120	5,934	9,494
Bacton, Walcott and Ostend	2 - Do-nothing until failure event and emergency works		74	0	74	8,859	0	-5,370	3,489	3,563	5,701
	3 -Capital Maintenance and patch repair		0	664	664	6,587	869	-5,370	2,086	2,750	4,400
	4 - Capital Works - typical		1,795	0	1,795	8,066	0	-5,370	2,696	4,491	7,186
	5- Capital Works - extensive		5,682	0	5,682	8,066	0	-5,370	2,696	8,378	13,405
Bacton only	2 - Do-nothing until failure event and emergency works	Plus 7) Buy, demolish and rebuild properties	24	0	24	2,942	0	0	2,942	2,966	4,746
	3 -Capital Maintenance and patch repair		0	230	230	2,681	307	0	2,988	3,218	5,149
	4 - Capital Works - typical		590	0	590	2,681	0	0	2,681	3,271	5,234

Long term option (0-100 years)			Initial Implementation PV Cost (Year 1-5) (£k)			Future PV Costs (Year 6-100) (£k)				Total PV Cost (£k)	Total PV Cost (£k) (60% bias)	
Area	0-20 years capital works	20-100 years	Capital (£k)	Maintenance (£k)	Sub Total (£k)	Capital (£k)	Maintenance (£k)	Other (£k) *	Sub Total (£k)			
		Adaptation										
	5- Capital Works – extensive		1,868	0	1,868	2,681	0	0	2,681	4,549	7,278	
Walcott and Ostend	2 & 6- Do-nothing until failure event and emergency works		50	0	50	13,820	0	0	13,820	13,870	22,192	
	3 Capital Maintenance and patch repair		0	434	434	13,288	562	0	13,850	14,284	22,854	
	4 Capital Works - typical		1,205	0	1,205	13,288	0	0	13,288	14,493	23,189	
	5- Capital Works - extensive		3,814	0	3,814	13,288	0	0	13,288	17,102	27,363	
Bacton, Walcott and Ostend	2 Do-nothing until failure event and emergency works		74	0	74	16,762	0	0	16,762	16,836	26,938	
	3 Capital Maintenance and patch repair		0	664	664	15,969	869	0	16,838	17,502	28,003	
	4 Capital Works - typical		1,795	0	1,795	15,969	0	0	15,969	17,764	28,422	
	5- Capital Works – extensive		5,682	0	5,682	15,969	0	0	15,969	21,651	34,642	
Bacton only	2 - Do-nothing until failure event and emergency works		24	0	24	1,673	0	0	1,673	1,697	2,715	
	3 -Capital Maintenance and patch repair		0	230	230	1,412	307	0	1,719	1,949	3,118	
	4 - Capital Works - typical		590	0	590	1,412	0	0	1,412	2,002	3,203	
	5- Capital Works - extensive		1,868	0	1,868	1,412	0	0	1,412	3,280	5,248	
Walcott and Ostend	2 - Do-nothing until failure event and emergency works	Plus 8) Buy and demolish properties	50	0	50	6,845	0	0	6,845	6,895	11,032	
	3 -Capital Maintenance and patch repair		0	434	434	6,313	562	0	6,875	7,309	11,694	
	4 - Capital Works - typical		1,205	0	1,205	6,313	0	0	6,313	7,518	12,029	
	5- Capital Works - extensive		3,814	0	3,814	6,313	0	0	6,313	10,127	16,203	
Bacton, Walcott and Ostend	2 - Do-nothing until failure event and emergency works			74	0	74	8,518	0	0	8,518	8,592	13,747
	3 -Capital Maintenance and patch repair			0	664	664	7,725	869	0	8,594	9,258	14,813

Long term option (0-100 years)			Initial Implementation PV Cost (Year 1-5) (£k)			Future PV Costs (Year 6-100) (£k)				Total PV Cost (£k)	Total PV Cost (£k) (60% bias)
Area	0-20 years capital works	20-100 years	Capital (£k)	Maintenance (£k)	Sub Total (£k)	Capital (£k)	Maintenance (£k)	Other (£k) *	Sub Total (£k)		
		Adaptation									
	4 - Capital Works - typical		1,795	0	1,795	7,725	0	0	7,725	9,520	15,232
	5- Capital Works - extensive		5,682	0	5,682	7,725	0	0	7,725	13,407	21,451
Bacton only	2 - Do-nothing until failure event and emergency works	Plus 9) Buy, rent and demolish properties	24	0	24	1,807	0	-903	904	928	1,485
	3 -Capital Maintenance and patch repair		0	230	230	1,546	307	-903	950	1,180	1,888
	4 - Capital Works - typical		590	0	590	1,546	0	-903	643	1,233	1,973
	5- Capital Works - extensive		1,868	0	1,868	1,546	0	-903	643	2,511	4,018
Walcott and Ostend	2 - Do-nothing until failure event and emergency works		50	0	50	7,444	0	-4,467	2,977	3,027	4,843
	3 -Capital Maintenance and patch repair		0	434	434	6,912	562	-4,467	3,007	3,441	5,506
	4 - Capital Works - typical		1,205	0	1,205	6,912	0	-4,467	2,445	3,650	5,840
	5- Capital Works - extensive		3,814	0	3,814	6,912	0	-4,467	2,445	6,259	10,014
Bacton, Walcott and Ostend	2 - Do-nothing until failure event and emergency works		74	0	74	9,251	0	-5,370	3,881	3,955	6,328
	3 -Capital Maintenance and patch repair		0	664	664	8,458	869	-5,370	3,957	4,621	7,394
	4 - Capital Works - typical		1,795	0	1,795	8,458	0	-5,370	3,088	4,883	7,813
	5- Capital Works - extensive		5,682	0	5,682	8,458	0	-5,370	3,088	8,770	14,032

4.4 Benefit cost ratios

In order to compare the different options it is useful to consider the benefit cost ratios for each option. The benefit cost ratio compares the cost of each option over the next 20 and 100 years against the benefits over the same periods and are presented below.

4.4.1 Short term options (0-20 years)

Table 4.19: Benefit cost ratios for each option for Bacton only

Option	PV Costs (£k) 60% bias	PV Benefits (excluding tourism) (£k)	Av. BCR (excluding tourism)
2- Do-nothing until failure event and emergency works	456	1,260	2.8
3-Capital Maintenance and patch repair	858		1.5
4- Capital Works - typical	945		1.3
5- Capital Works - extensive	2,988		0.4

Table 4.20: Benefit cost ratios for each option for Walcott and Ostend

Option	PV Costs (£k) 60% bias	PV Benefits (excluding tourism) (£k)	Av. BCR (excluding tourism)
2- Do-nothing until failure event and emergency works	931	12,094	12.5
3-Capital Maintenance and patch repair	1,596		7.6
4- Capital Works - typical	1,929		6.3
5- Capital Works - extensive	6,102		2.0

Table 4.21: Benefit cost ratios for each option for Bacton, Walcott and Ostend as one unit

Option	PV Costs (£k) 60% bias	PV Benefits (excluding tourism) (£k)	Av. BCR (excluding tourism)
2- Do-nothing until failure event and emergency works	1,387	13,354	9.6
3-Capital Maintenance and patch repair	2,454		5.4
4- Capital Works - typical	2,874		4.6
5- Capital Works - extensive	9,090		1.5

4.4.2 Long term options (0-100 years)

Table 4.22: Benefit cost ratios for each option for **Bacton only**

Option		PV Costs (£k) 60% bias	PV Benefits (excluding tourism) (£k)	Av. BCR (excluding tourism)
2 Do-nothing until failure event and emergency works	Plus 6) Buy and rent properties	1,378	1,699	1.2
3 -Capital Maintenance and patch repair		-586		-2.9*
4 Capital Works - typical		1,866		0.9
5- Capital works- extensive		3,910		0.4
2 Do-nothing until failure event and emergency works	Plus 7) Buy, demolish and rebuild properties	4,765		0.4
3 -Capital Maintenance and patch repair		5,149		0.3
4 Capital Works - typical		5,234		0.3
5- Capital works- extensive		7,278		0.2
2 Do-nothing until failure event and emergency works	Plus 8) Buy and demolish properties	2,715		0.6
3 -Capital Maintenance and patch repair		3,118		0.5
4 Capital Works - typical		3,203		0.5
5- Capital works- extensive		5,248		0.3
2 Do-nothing until failure event and emergency works	Plus 9) Buy, rent and demolish properties	1,485		0.9
3 -Capital Maintenance and patch repair		1,888		0.9
4 Capital Works - typical		1,973		0.9
5- Capital works- extensive		4,018		0.4

**this benefit cost ratio is negative due to the rental income from the properties outweighing the capital cost of purchasing the properties.*

Table 4.23: Benefit cost ratios for each option for **Walcott and Ostend only**

Option		PV Costs (£k) 60% bias	PV Benefits (excluding tourism) (£k)	Av. BCR (excluding tourism)
2 Do-nothing until failure event and emergency works	Plus 6) Buy and rent properties	4,323	14,307	3.3
3 -Capital Maintenance and patch repair		4,986		2.9
4 Capital Works - typical		5,320		2.7
5- Capital works- extensive		9,494		1.5
2 Do-nothing until failure event and emergency works	Plus 7) Buy, demolish and rebuild properties	22,192		0.6
3 -Capital Maintenance and patch repair		22,854		0.6
4 Capital Works - typical		23,189		0.6
5- Capital works- extensive		27,363		0.5
2 Do-nothing until failure event and emergency works	Plus 8) Buy and demolish properties	11,032		1.3
3 -Capital Maintenance and patch repair		11,694		1.2
4 Capital Works - typical		12,029		1.2
5- Capital works- extensive		16,203		0.9
2 Do-nothing until failure event and emergency works	Plus 9) Buy, rent and demolish properties	4,843		3.0
3 -Capital Maintenance and patch repair		5,506		2.6
4 Capital Works - typical		5,840		2.4
5- Capital works- extensive		10,014		1.4

Table 4.24: Benefit cost ratios for each option for **Bacton, Walcott and Ostend** as one unit

Option		PV Costs (£k) 60% bias	PV Benefits (excluding tourism) (£k)	Av. BCR (excluding tourism)
2 Do-nothing until failure event and emergency works	Plus 6) Buy and rent properties	5,701	16,006	2.8
3 -Capital Maintenance and patch repair		4,400		3.6
4 Capital Works - typical		7,186		2.2
5- Capital works- extensive		13,404		1.2
2 Do-nothing until failure event and emergency works	Plus 7) Buy, demolish and rebuild properties	26,938		0.6
3 -Capital Maintenance and patch repair		28,003		0.6
4 Capital Works - typical		28,423		0.6
5- Capital works- extensive		34,641		0.5
2 Do-nothing until failure event and emergency works	Plus 8) Buy and demolish properties	13,747		1.2
3 -Capital Maintenance and patch repair		14,812		1.1
4 Capital Works - typical		15,232		1.1
5- Capital works- extensive		21,451		0.7
2 Do-nothing until failure event and emergency works	Plus 9) Buy, rent and demolish properties	6,328		2.5
3 -Capital Maintenance and patch repair		7,394		2.2
4 Capital Works - typical		7,813		2.0
5- Capital works- extensive		14,032		1.1

4.5 Partnership Funding

The 'Flood and Coastal Resilience Partnership Funding' approach allows a proportion of Government funding to be made available to any Scheme. The amount of funding is assessed relative to the benefits delivered by the Scheme including the number of households protected, and the damages being prevented. The 'number of houses protected' within the calculations includes the number of residential properties at risk in a "Do Nothing" Baseline which are outlined below in Table 4.25.

Table 4.25: Number of residential properties at risk in a “Do Nothing” Baseline.

Frontage	Timescale			Total
	0-20 years	20-50 years	50-100 years	
Bacton	16	9	15	37
Walcott and Ostend	77	42	39	158
Bacton, Walcott and Ostend	93	51	54	93

Only those options involving capital works with a benefit cost ratios of above 1 can realistically apply for FDGiA funding. Those options are outlined in the Table 4.26.

Table 4.26: **Short term Partnership Funding Calculator outputs** (NB numbers have been rounded up and exclude costs for Appraisal and Detailed Design.)

Area	Option	Benefit Cost Ratio	PV Total Costs with 60% Optimism Bias (£k)	Raw Partnership Funding Score (PFS) (%)	Maximum Partnership Funding Allocation (£k)	External contributions required to achieve 100% PFS (£k)
Bacton	2 - Do-nothing until failure event and emergency works	Not eligible for FDGiA				
	3 -Capital Maintenance and patch repair	Not eligible for FDGiA				
	4- Capital Works - typical	1.3	£945	29%	£278	£667
	5 Capital Works – extensive	Benefit cost ratio <1				
Walcott and Ostend	2 - Do-nothing until failure event and emergency works	Not eligible for FDGiA				
	3 -Capital Maintenance and patch repair	Not eligible for FDGiA				
	4 - Capital Works - typical	6.3	£1,929	89%	£1720	£209
	5 Capital Works – extensive	2.0	£6,102	28%	£31,720	£4,382
Bacton Walcott and Ostend as one unit	2 - Do-nothing until failure event and emergency works	Not eligible for FDGiA				
	3 -Capital Maintenance and patch repair	Not eligible for FDGiA				
	4 - Capital Works - typical	4.6	£2,874	70%	£2,009	£865
	5- Capital Works - extensive	2.0	£6,102	28%	£1,720	£4,382

Table 4.27: Long term Partnership Funding Calculator outputs for Bacton only– (NB numbers have been rounded up and exclude costs for Appraisal and Detailed Design.) (NB numbers have been rounded up)

Short term option	Long term option	Benefit Cost Ratio	PV Total Costs with 60% Optimism Bias (£k)	Raw Partnership Funding Score (PFS) (%)	Maximum Partnership Funding Allocation (£k)	External contributions required to achieve 100% PFS (£k)
2- Do-nothing until failure event and emergency works	Plus 6) Buy and rent properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		Benefit cost ratio <1				
5 - Capital Works - extensive						
2- Do-nothing until failure event and emergency works	Plus 7) Buy, demolish and rebuild properties`	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		Benefit cost ratio <1				
5 - Capital Works - extensive						
2- Do-nothing until failure event and emergency works	Plus 8) Buy and Demolish Properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		Benefit cost ratio <1				
5 - Capital Works - extensive						
2- Do-nothing until failure event and emergency works	Plus 9) Buy, rent and demolish Properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		Benefit cost ratio <1				
5 - Capital Works - extensive						

* whilst a BCR less than 1 was not previously economically justifiable – it is now possible to justify the business case if external funding sources can be found for the majority of the Scheme.

Table 4.28: Long term Partnership Funding Calculator outputs for Walcott and Ostend only – (NB numbers have been rounded up and exclude costs for Appraisal and Detailed Design.) (NB numbers have been rounded up)

Short term option	Long term option	Benefit Cost Ratio	PV Total Costs with 60% Optimism Bias (£k)	Raw Partnership Funding Score (PFS) (%)	Maximum Partnership Funding Allocation (£k)	External contributions required to achieve 100% PFS (£k)
2- Do-nothing until failure event and emergency works	Plus 6) Buy and rent properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		2.7	£5,320	54%	£2,853	£2,467
5 - Capital Works - extensive		1.5	£9,494	30%	£2,853	£6,641
2- Do-nothing until failure event and emergency works	Plus 7) Buy, demolish and rebuild properties`	Not Eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		Benefit cost ratio <1				
5 - Capital Works - extensive		Benefit cost ratio <1				
2- Do-nothing until failure event and emergency works	Plus 8) Buy and Demolish Properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		1.2	£12,029	24%	£2,853	£9,176
5 - Capital Works - extensive		Benefit cost ratio <1				
2- Do-nothing until failure event and emergency works	Plus 9) Buy, rent and demolish Properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		2.4	£5,840	49%	£2,853	£2,987
5 - Capital Works - extensive		1.4	£10,014	28%	£2,853	£7,161

* whilst a BCR less than 1 was not previously economically justifiable – it is now possible to justify the business case if external funding sources can be found for the majority of the Scheme.

Table 4.29: Long term Partnership Funding Calculator outputs for Bacton, Walcott and Ostend – (NB numbers have been rounded up and exclude costs for Appraisal and Detailed Design.) (NB numbers have been rounded up)

Area	Option	Benefit Cost Ratio	PV Total Costs with 60% Optimism Bias (£k)	Raw Partnership Funding Score (PFS) (%)	Maximum Partnership Funding Allocation (£k)	External contributions required to achieve 100% PFS (£k)
2- Do-nothing until failure event and emergency works	Plus 6) Buy and rent properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		2.2	£7,186	47%	£3,377	£3,809
5 - Capital Works - extensive		1.2	£13,404	25%	£3,377	£10,027
2- Do-nothing until failure event and emergency works	Plus 7) Buy, demolish and rebuild properties`	Not Eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical						
5 - Capital Works - extensive						
2- Do-nothing until failure event and emergency works	Plus 8) Buy and Demolish Properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		1.1	£15, 232	22%	£3,377	£11,855
5 - Capital Works - extensive		Not eligible for FDGIA				
2- Do-nothing until failure event and emergency works	Plus 9) Buy, rent and demolish Properties	Not eligible for FDGIA				
3 -Capital Maintenance and patch repair						
4 - Capital Works - typical		2.0	£7,813	45%	£3,377	£4,436
5 - Capital Works - extensive		1.1	£14,032	24%	£3,377	£10,655

* whilst a BCR less than 1 was not previously economically justifiable – it is now possible to justify the business case if external funding sources can be found for the majority of the Scheme.

5 Combined Scheme with Bacton Gas Terminal

The Bacton Gas Terminal is situated just north of the Bacton, Walcott and Ostend frontage. Initial discussions with the Terminal Operators are required to consider whether a capital works at Bacton, Walcott and Ostend might be combined with works at the Bacton Gas Terminal. This has been investigated further below.

5.1 Benefit cost ratios

The PV Benefits for the Bacton Gas Terminal (from the Strategy stage) were estimated to be £201,219k. However, as noted at the Strategy stage, it is difficult to put an accurate value on this nationally important infrastructure and hence it may be underestimated. At Strategy stage, one of the options for protecting the Terminal over the next 100 years was for *'maximising the life of the current timber defences then implementing a high level rock revetment'*. The PV Cost (with 60% optimism bias) for this option was £6,967k. This therefore gives a benefit cost ratio for Bacton Gas Terminal on its own is 28.9. Two options for combining the Bacton Gas Terminal with a Scheme for Bacton, Walcott and Ostend have been tested – one the most expensive option for Bacton, Walcott and Ostend over 100 years and the least expensive (Table 5.1).

Table 5.1: Long term options for Bacton Gas Terminal to Ostend (NB numbers have been rounded up)

Long term option for Bacton Gas Terminal	Long term option for Bacton, Walcott and Ostend	Combined PV Benefits (£k)	Combined PV Total Costs with 60% Optimism Bias (£k)	Benefit Cost Ratio
Maximising the life of the current timber defences then implementing a high level rock revetment (0-100 years)	Option 5) Capital works- extensive (0-20 years) and Option 7) Buy, demolish and rebuild properties (20-100 years)	£217,225k	£41,608k	5.2
	Option 3) Capital Maintenance and patch repair (0-20 years) and Option 6) Buy and rent properties(20-100 years)		£11,367k.	19.1

5.2 Partnership Funding

However technically Bacton Gas Terminal would not be eligible for FDGiA funding because it does not protect any properties from coastal erosion; therefore funding would need be developed through discussions with private investors and DEFRA funding for this nationally important infrastructure. The combined Scheme has been considered within the Partnership Funding spreadsheets for discussion regardless (Table 5.2).

Table 5.2: Long term Partnership Funding Calculator outputs for Bacton Gas Terminal to Ostend (NB numbers have been rounded up and exclude costs for Appraisal and Detailed Design.)

Long term option for Bacton Gas Terminal	Long term option for Bacton, Walcott and Ostend	Benefit Cost Ratio	PV Total Costs with 60% Optimism Bias (£k)	Raw Partnership Funding Score (PFS) (%)	Maximum Partnership Funding Allocation (£k)	External contributions required to achieve 100% PFS (£k)
Maximising the life of the current timber defences then implementing a high level rock revetment (0-100 years)	Option 5)Capital works-extensive (0-20 years) and Option 7) Buy, demolish and rebuild properties (20-100 years)	5.2	£41,608k	35%	£1,456k	£27,052k
	Option 3) Capital Maintenance and patch repair (0-20 years) and Option 6) Buy and rent properties(20-100 years)	19.1	£11,367k	128%	£11,367k	£0k

6 Conclusions

6.1 Summary

Results from the economic analysis indicate a Scheme(s) may be viable at Bacton, Walcott and Ostend for progression to Project Appraisal stage (PAR). Different approaches could be undertaken to implement works at Bacton, Walcott and Ostend depending on whether a short or long term approach is required:

1. **Short term options** – Schemes are all viable at Bacton, Walcott and Ostend separately and together as one Scheme in the short term, however a stronger economic case can be made for Walcott and Ostend in contrast to Bacton. It should be noted that a Scheme as Walcott and Ostend would be more likely to achieve FDGIA funding due to the number of properties at risk of erosion (and flooding) over the next 100 years captured in the Partnership Funding calculator. However it is unlikely to gain at least 100% to be currently prioritised for funding without substantial external contributions. The preferred option could be doing nothing until failure occurs, maintenance and repair of the existing defences (timber groynes, revetment and seawall) or capital works. However the preferred option will depend on how much NNDC want to invest in works for only the next 20 year period, how the works could be funded and how much risk NNDC are willing to accept.
2. **Long term options** – it appears that all long term Schemes involving buy and rental of properties are likely to be more economically feasible than those which involve demolition and rebuilding of properties. This is because NNDC or the Environment Agency would receive some rental income from the lease of the properties which would counteract the initial spend of purchasing properties. However the technical (and political) feasibility of this option is not known at this stage and requires further discussion, particularly with the Environment Agency. Also the FCRM spreadsheet is not designed to consider adaptation options and several assumptions have been made within the spreadsheet. Further discussion is required with the Environment Agency to establish whether the assumptions undertaken are viable for a formal business case submission in the form of a PAR to be undertaken.
3. **Combined option-** there is potential for a Scheme between Bacton Gas Terminal and Ostend to be considered further. This combined option has a high benefit cost ratio (even taking the most expensive option) and therefore would be economically justified. The key question is how this option would be funded and whether it would be justifiable to utilise the existing Partnership Funding mechanisms despite the Bacton Gas Terminal works not protecting any properties. This requires more discussion with the Environment Agency and Bacton Gas Terminal Operators.

6.2 Limitations and recommendations

There are several limitations with the analysis presented in this study which would need further consideration at PAR stage. Each of which will be outlined below:

1. **Tourism benefits-** tourism benefits have not been captured in this assessment (for the limitations previously suggested within the 2013 study) hence the benefits are likely to have been underestimated. Further detailed studies into tourism benefits would be beneficial to support more detailed economic assessments at the Scheme stage.

2. **Underestimates of erosion under “Do Nothing” with SCAPE model-** The results from the SCAPE model have been used to calculate erosion for the economic assessment. Although the SCAPE model is advantageous in allowing a holistic approach to assessing erosion over the coastline, this large scale approach is at a more broad scale than the economic assessment, which is split into the SMP6 units. This means that the Do Nothing Baseline which has been used as a baseline for the economics is the Do Nothing Baseline for the whole coastline. Therefore at Bacton, Walcott and Ostend more properties appear to be eroded under the SMP6 Scenario compared to the Do Nothing Baseline. It is important to note that this does not suggest a Do Nothing Baseline is more beneficial, this would be only true if it was implemented over the entire coastline. At a Policy Unit scale, the Do Nothing Baseline (under the assumption that the SMP6 Scenario is implemented in all other Policy Units) would show even greater rates of erosion. However, at a PAR stage, for the purposes of the economic assessment, the Do Nothing baseline would be taken for the specific Policy Unit only and therefore results from the economic assessment would be less conservative.
3. **Properties based on average values-** The previous Strategy (2004) undertook a detailed property valuation as part of the economic assessment at the time. However since then the increase in housing demand and general trend for house price increases has meant that the value of individual properties has increased. The benefits from residential properties have been estimated here based on a regional increase in property values by 1.3%. However individual properties may have changed significantly more than this and it would be recommended that a more detailed survey of property values should be undertaken at PAR stage.

Appendix A: Economic Spreadsheets

FCRM spreadsheets (0-20 years for Bacton)

FCRM spreadsheets (0-20 years for Walcott and Ostend)

FCRM spreadsheets (20-100 years for Bacton)

FCRM spreadsheets (20-100 years for Walcott and Ostend)

FCRM spreadsheets (sensitivity tests for Bacton)

FCRM spreadsheets (sensitivity tests for Walcott and Ostend)

Partnership Funding spreadsheets

FCRM spreadsheets (0-20 years for Bacton)

Project Summary Sheet					
Client/Authority North Norfolk District Council			Prepared (date) 22/05/2014		
Project name Bacton, Walcott and Ostend Coastal Management Study			Printed 11/07/2014		
Project reference Base date for estimates (year 0) Apr-2014			Prepared by L Wiggins		
Scaling factor (e.g. £m, £k, £) £ (used for all costs, losses and benefits)			Checked by S Hampshire		
Year 0 30 75			Checked date 02/07/2014		
Discount Rate 3.5% 3.00% 2.50%					
Optimism bias adjustment factor 60%					
Costs and benefits of options					
Option number	Costs and benefits £				
	Option 1	Option 2a	Option 3a	Option 4a	Option 5a
Option name AEP or SoP (where relevant)	Do-nothing	Do-nothing until failure event and emergency works	Capital Maintenance and patch repair	Capital Works - typical works	Capital Works - Intense
COSTS:					
PV capital costs	0	0	0	590,319	1,867,665
PV operation and maintenance costs	0	0	536,540	0	0
PV other	0	285,197	0	0	0
Optimism bias adjustment	0	171,118	321,924	354,192	1,120,599
PV negative costs (e.g. sales)	0	0	0	0	0
PV contributions					
Total PV Costs £ excluding contributions	0	456,315	858,464	944,511	2,988,265
Total PV Costs £ taking contributions into account	0	456,315	858,464	944,511	2,988,265
BENEFITS:					
PV monetised flood damages	0	0	0	0	0
PV monetised flood damages avoided		0	0	0	0
PV monetised erosion damages	1,260,307	0	0	0	0
PV monetised erosion damages avoided (protected)		1,260,307	1,260,307	1,260,307	1,260,307
Total monetised PV damages £	1,260,307	0	0	0	0
Total monetised PV benefits £		1,260,307	1,260,307	1,260,307	1,260,307
PV damages (from tourism)					
PV damages avoided/benefits (from tourism)					
PV benefits from ecosystem services					
Total PV damages £	1,260,307	0	0	0	0
Total PV benefits £		1,260,307	1,260,307	1,260,307	1,260,307
DECISION-MAKING CRITERIA:					
excluding contributions					
<i>Based on total PV benefits (includes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		803,992	401,843	315,796	-1,727,957
Average benefit/cost ratio BCR		2.8	1.5	1.3	0.4
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
Highest bcr					
<i>Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		803,992	401,843	315,796	-1,727,957
Average benefit/cost ratio BCR		2.8	1.5	1.3	0.4
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
Highest bcr					
including contributions					
<i>Taking account of contributions (includes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		803,992	401,843	315,796	-1,727,957
Average benefit/cost ratio BCR		2.8	1.5	1.3	0.4
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
Highest bcr					
<i>Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		803,992	401,843	315,796	-1,727,957
Average benefit/cost ratio BCR		2.8	1.5	1.3	0.4
Incremental benefit/cost ratio IBCR			-	-	-
Highest bcr					
Best practicable environmental option (WFD)					
Brief description of options:					
Option 1	Do-nothing				
Option 2a	Do-nothing until failure event and emergency works				
Option 3a	Capital Maintenance and patch repair				
Option 4a	Capital Works - typical works				
Option 5a	Capital Works - Intense				

Erosion Loss Calculation Sheet with delay options										Sheet 2	
Client/Authority North Norfolk District Council											
Project name Bacton, Walcott and Ostend Coastal Management Study										Option: Option 2a Option 3a Option 4a	
Project reference Base date for estimates (year 0) Scaling factor (e.g. £m, £k, £)										Delay (yrs) 20 20 20	
Discount rate 3.5%										Prepared (date) 22/05/2014 11/07/2014 Prepared by L Wiggins S Hampshire Checked date 41822	
Ref	Asset	Risk free market value	Year when the asset is expected to be lost	Prob of	Do-nothing	Expected value of asset losses £	Do-nothing until failure event and emergency works	Capital Maintenance and patch repair	Capital Works - typical work		
143	.0.ASH COTTAGE,BEACH ROAD,BACTON	120405	5	0.1	10,137.79						
143	.0.CABLE COTTAGE,BEACH ROAD,BACTON	97471	5	0.1	8,206.78						
143	.0.CRANKS CASTLE,MILL LANE,BACTON	45869	5	0.1	3,862.02						
177	.0.HERMITAGE,BEACH ROAD,BACTON	252,278	5	0.1	21,241.09						
177	.0.MORSE HOUSE,BEACH ROAD,BACTON	126,139	5	0.1	10,620.55						
177	.0.SEA EDGE,BEACH ROAD,BACTON	200675	5	0.1	16,896.32						
121	.0.SEABRINK,BEACH ROAD,BACTON	149073	5	0.1	12,551.55						
121	.0.ST.OLAFS,BEACH ROAD,BACTON	120405	5	0.1	10,137.79						
121	.0.THE LEAS,MILL LANE,BACTON	74,537	5	0.1	6,275.78						
117	.6,NEWLANDS ESTATE,BACTON	80,270	5	0.1	6,758.53						
117	.7,NEWLANDS ESTATE,BACTON	74,537	5	0.1	6,275.78						
117	.76,NEWLANDS ESTATE,BACTON	80,270	5	0.1	6,758.53						
144	.77,NEWLANDS ESTATE,BACTON	80,270	5	0.1	6,758.53						
144	.78,NEWLANDS ESTATE,BACTON	80,270	5	0.1	6,758.53						
144	.79,NEWLANDS ESTATE,BACTON	80,270	5	0.1	6,758.53						
184	THE LEAS BEACH PARK,0, MILL LANE,BACTON	143,340	5	0.1	12,068.80						
184	.0.ASH COTTAGE,BEACH ROAD,BACTON	120,406	10	0.8	68,286.57						
184	.0.CABLE COTTAGE,BEACH ROAD,BACTON	97,471	10	0.8	55,279.14						
142	.0.CRANKS CASTLE,MILL LANE,BACTON	45869	10	0.8	26,013.71						
142	.0.HERMITAGE,BEACH ROAD,BACTON	252,278	10	0.8	143,075.42						
142	.0.MORSE HOUSE,BEACH ROAD,BACTON	126,139	10	0.8	71,537.71						
57	.0.SEA EDGE,BEACH ROAD,BACTON	200,675	10	0.8	113,810.00						
57	.0.SEABRINK,BEACH ROAD,BACTON	149,073	10	0.8	84,544.57						
57	.0.ST.OLAFS,BEACH ROAD,BACTON	120,405	10	0.8	68,286.00						
72	.0.THE LEAS,MILL LANE,BACTON	74,537	10	0.8	42,272.28						
72	.6,NEWLANDS ESTATE,BACTON	80,270	10	0.8	45,524.00						
72	.7,NEWLANDS ESTATE,BACTON	74,537	10	0.8	42,272.28						
113	.76,NEWLANDS ESTATE,BACTON	80,270	10	0.8	45,524.00						
113	THE LEAS BEACH PARK,0, MILL LANE,BACTON	143,340	10	0.8	81,292.85						
113	.0.ASH COTTAGE,BEACH ROAD,BACTON	120,405	15	0.1	7,186.87						
114	.0.CABLE COTTAGE,BEACH ROAD,BACTON	97,471	15	0.1	5,817.94						
114	.0.CRANKS CASTLE,MILL LANE,BACTON	45,869	15	0.1	2,737.86						
114	.0.HERMITAGE,BEACH ROAD,BACTON	252,278	15	0.1	15,058.21						
124	.0.MORSE HOUSE,BEACH ROAD,BACTON	126,139	15	0.1	7,529.10						
124	.0.SEA EDGE,BEACH ROAD,BACTON	200,675	15	0.1	11,978.12						
124	.0.SEABRINK,BEACH ROAD,BACTON	149,073	15	0.1	8,898.03						
81	.0.ST.OLAFS,BEACH ROAD,BACTON	120,405	15	0.1	7,186.87						
81	.0.THE LEAS,MILL LANE,BACTON	74,537	15	0.1	4,449.02						
81	.6,NEWLANDS ESTATE,BACTON	80,270	15	0.1	4,791.25						
66	.7,NEWLANDS ESTATE,BACTON	74,537	15	0.1	4,449.02						
66	.76,NEWLANDS ESTATE,BACTON	80,270	15	0.1	4,791.25						
66	.77,NEWLANDS ESTATE,BACTON	80,270	15	0.8	38,329.99						
77	.78,NEWLANDS ESTATE,BACTON	80,270	15	0.8	38,329.99						
77	.79,NEWLANDS ESTATE,BACTON	80,270	15	0.8	38,329.99						
77	THE LEAS BEACH PARK,0, MILL LANE,BACTON	143,340	15	0.1	8,555.80						
120	.77,NEWLANDS ESTATE,BACTON	80,270	20	0.1	4,034.10						
120	.78,NEWLANDS ESTATE,BACTON	80,270	20	0.1	4,034.10						
120	.79,NEWLANDS ESTATE,BACTON	80,270	20	0.1	4,034.10						
Totals		5,418,234			1,260,307						

Notes
 Make one entry in the description column for each property (or group of properties) as this determines subsequent calculation
 MV = risk free market value at base date for estimate - must be entered on each line when probability distribution is used
 Equivalent annual value = MV x discount rate (assumes infinite life)
 Year is year in which there is the probability of loss shown, years must be entered consecutively for each property or group
 If no distribution is used enter year of expected year of loss and enter 1.0 in probability column
 Columns G to K show expected values of asset losses with each option, assuming extensions of life entered above
 The loss is calculated using the formula PV loss = MV * Prob of loss * (1 - (1 - (1+r)^N) / (1+r)^N) = MV * Prob of loss / ((1+r)^N) * (1 - (1+r)^N)
 Additional properties can be entered by inserting lines above line 62 and copying all formulae, including hidden calculation in column C

FCRM spreadsheets (0-20 years for Walcott and Ostend)

Project Summary Sheet						
Client/Authority North Norfolk District Council					Prepared (date)	22/05/2014
Project name Bacton, Walcott and Ostend Coastal Management Study					Printed	11/07/2014
Project reference Base date for estimates (year 0)	340681			Prepared by	L Wiggins	
Scaling factor (e.g. £m, £k, £)	Apr-2014			Checked by	S Hampshire	
Year	£	(used for all costs, losses and benefits)				
Discount Rate	0	30	75			
Optimism bias adjustment factor	3.5%	3.00%	2.50%			
Costs and benefits of options	60%					
	Costs and benefits £					
Option number	Option 1	Option 2a	Option 3a	Option 4a	Option 5a	
Option name AEP or SoP (where relevant)	Do-nothing	Do-nothing until failure event and emergency works	Capital Maintenance and patch repair	Capital Works - typical	Capital Works - Intense	
COSTS:						
PV capital costs	0	0	0	1,205,442	3,813,804	
PV operation and maintenance costs	0	0	997,762	0	0	
PV other	0	582,376	0	0	0	
Optimism bias adjustment	0	349,426	598,657	723,265	2,288,282	
PV negative costs (e.g. sales)	0	0	0	0	0	
PV contributions						
Total PV Costs £ excluding contributions	0	931,802	1,596,419	1,928,707	6,102,086	
Total PV Costs £ taking contributions into account	0	931,802	1,596,419	1,928,707	6,102,086	
BENEFITS:						
PV monetised flood damages	5,082,308	0	0	0		
PV monetised flood damages avoided		5,082,308	5,082,308	5,082,308	5,082,308	
PV monetised erosion damages	6,545,521			0		
PV monetised erosion damages avoided (protected)		6,545,521	6,545,521	6,545,521	6,545,521	
Total monetised PV damages £	11,627,829			0	0	
Total monetised PV benefits £		11,627,829	11,627,829	11,627,829	11,627,829	
PV damages (from tourism)						
PV damages avoided/benefits (from tourism)						
PV benefits from ecosystem services						
Total PV damages £	11,627,829	0	0	0	0	
Total PV benefits £		11,627,829	11,627,829	11,627,829	11,627,829	
DECISION-MAKING CRITERIA:						
excluding contributions						
<i>Based on total PV benefits (includes benefits from scoring and weighting and ecosystem services)</i>						
Net Present Value NPV		10,696,027	10,031,410	9,699,122	5,525,743	
Average benefit/cost ratio BCR		12.5	7.3	6.0	1.9	
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0	
	Highest bcr					
<i>Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)</i>						
Net Present Value NPV		10,696,027	10,031,410	9,699,122	5,525,743	
Average benefit/cost ratio BCR		12.5	7.3	6.0	1.9	
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0	
	Highest bcr					
including contributions						
<i>Taking account of contributions (includes benefits from scoring and weighting and ecosystem services)</i>						
Net Present Value NPV		10,696,027	10,031,410	9,699,122	5,525,743	
Average benefit/cost ratio BCR		12.5	7.3	6.0	1.9	
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0	
	Highest bcr					
<i>Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)</i>						
Net Present Value NPV		10,696,027	10,031,410	9,699,122	5,525,743	
Average benefit/cost ratio BCR		12.5	7.3	6.0	1.9	
Incremental benefit/cost ratio IBCR			-	-	-	
	Highest bcr					
Best practicable environmental option (WFD)						
Brief description of options:						
Option 1	Do-nothing					
Option 2a	Do-nothing until failure event and emergency works					
Option 3a	Capital Maintenance and patch repair					
Option 4a	Capital Works - typical					
Option 5a	Capital Works - Intense					

Erosion Loss Calculation Sheet with delay options										Sheet Nr. 2	
Client/Authority North Norfolk District Council											
Project name Bacton, Walcott and Ostend Coastal Management Study										Option: Option 2a Option 3a Option 4a Option 5a	
Project reference Base date for estimates (year 0) Scaling factor (e.g. £m, £k, £)										Delay (yrs) 100 100 100 100	
Discount rate 3.5%										Prepared (date) Printed Prepared by Checked by Checked date	
										22/05/2014 11/07/2014 S Hampshire V Tonks 41822	
Ref	Asset	Risk free market value	Year when the asset is expected to be lost	Prob of	Expected value of asset losses £						
					Do-nothing	Do-nothing until failure event and emergency works	Capital Maintenance and patch repair	Capital Works - typical			
61	.0.1 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	5	0.1	5,793.02						
61	.0.1 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	10	0.8	39,020.57						
61	.0.1 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	15	0.1	4,106.78						
69	.8. OSTEND ROAD,WALCOTT	63,069	5	0.1	5,310.27						
69	.8. OSTEND ROAD,WALCOTT	63,069	10	0.8	35,768.86						
69	.8. OSTEND ROAD,WALCOTT	63,069	15	0.1	3,764.55						
70	.0.1 THE MOORLANDS,COAST ROAD,WALCOTT	103,204	5	0.1	8,689.54						
70	.0.1 THE MOORLANDS,COAST ROAD,WALCOTT	103,204	10	0.8	58,530.86						
70	.0.1 THE MOORLANDS,COAST ROAD,WALCOTT	103,204	15	0.1	6,160.18						
71	.0.2 THE MOORLANDS,COAST ROAD,WALCOTT	103,204	5	0.1	8,689.54						
71	.0.2 THE MOORLANDS,COAST ROAD,WALCOTT	103,204	10	0.8	58,530.86						
71	.0.2 THE MOORLANDS,COAST ROAD,WALCOTT	103,204	15	0.1	6,160.18						
73	.31. SEA VIEW ESTATE,BACTON	29,815	5	0.1	2,510.31						
73	.31. SEA VIEW ESTATE,BACTON	29,815	10	0.8	16,908.91						
73	.31. SEA VIEW ESTATE,BACTON	29,815	15	0.1	1,779.61						
75	.0. SEAGOATS,THE CRESCENT,WALCOTT	149,073	5	0.1	12,551.55						
75	.0. SEAGOATS,THE CRESCENT,WALCOTT	149,073	10	0.8	84,544.57						
75	.0. SEAGOATS,THE CRESCENT,WALCOTT	149,073	15	0.1	8,896.03						
94	.1. HORIZON VIEWS,WALCOTT	97,471	5	0.1	8,206.78						
94	.1. HORIZON VIEWS,WALCOTT	97,471	10	0.8	55,279.14						
94	.1. HORIZON VIEWS,WALCOTT	97,471	20	0.1	4,898.55						
98	.0. GAP END,ST. HELENS ROAD,WALCOTT	97,471	5	0.1	8,206.78						
98	.0. GAP END,ST. HELENS ROAD,WALCOTT	97,471	10	0.8	55,279.14						
98	.0. GAP END,ST. HELENS ROAD,WALCOTT	97,471	15	0.1	5,817.94						
105	.7. OSTEND PLACE,WALCOTT	137,606	5	0.1	11,586.05						
105	.7. OSTEND PLACE,WALCOTT	137,606	10	0.8	78,041.14						
105	.7. OSTEND PLACE,WALCOTT	137,606	15	0.1	8,213.57						
106	.0.6 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	5	0.1	5,793.02						
106	.0.6 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	10	0.8	39,020.57						
106	.0.6 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	15	0.1	4,106.78						
107	.0. JANTON,OSTEND GAP,WALCOTT	149,073	5	0.1	12,551.55						
107	.0. JANTON,OSTEND GAP,WALCOTT	149,073	10	0.8	84,544.57						
107	.0. JANTON,OSTEND GAP,WALCOTT	149,073	15	0.1	8,896.03						
108	.9. THE CRESCENT,WALCOTT	80,270	5	0.1	6,758.53						
108	.9. THE CRESCENT,WALCOTT	80,270	10	0.8	45,524.00						
108	.9. THE CRESCENT,WALCOTT	80,270	15	0.1	4,791.25						
109	.5. OSTEND PLACE,WALCOTT	137,606	5	0.1	11,586.05						
109	.5. OSTEND PLACE,WALCOTT	137,606	10	0.8	78,041.14						
109	.5. OSTEND PLACE,WALCOTT	137,606	15	0.1	8,213.57						
110	.4. OSTEND ROAD,WALCOTT	63,069	5	0.1	5,310.27						
110	.4. OSTEND ROAD,WALCOTT	63,069	10	0.8	35,768.86						
110	.4. OSTEND ROAD,WALCOTT	63,069	15	0.1	3,764.55						
111	.0.1 MARYLAND,ARCHIBALD ROAD,WALCOTT	103,204	5	0.1	8,689.54						
111	.0.1 MARYLAND,ARCHIBALD ROAD,WALCOTT	103,204	10	0.8	58,530.86						
111	.0.1 MARYLAND,ARCHIBALD ROAD,WALCOTT	103,204	15	0.1	6,160.18						
112	.0. HEYHOE,ARCHIBALD ROAD,WALCOTT	68,803	5	0.1	5,793.02						
112	.0. HEYHOE,ARCHIBALD ROAD,WALCOTT	68,803	10	0.8	39,020.57						
112	.0. HEYHOE,ARCHIBALD ROAD,WALCOTT	68,803	15	0.1	4,106.78						
115	.1. BEAUCOURT PLACE,WALCOTT	74,537	5	0.1	6,275.78						
115	.1. BEAUCOURT PLACE,WALCOTT	74,537	10	0.8	42,272.28						
115	.1. BEAUCOURT PLACE,WALCOTT	74,537	15	0.1	4,449.02						
116	.4. OSTEND PLACE,WALCOTT	137,606	5	0.1	11,586.05						
116	.4. OSTEND PLACE,WALCOTT	137,606	10	0.8	78,041.14						
116	.4. OSTEND PLACE,WALCOTT	137,606	15	0.1	8,213.57						
118	.0. SUMMERHOLME,COAST ROAD,WALCOTT	91,737	5	0.1	7,724.03						
118	.0. SUMMERHOLME,COAST ROAD,WALCOTT	91,737	10	0.8	52,027.43						
118	.0. SUMMERHOLME,COAST ROAD,WALCOTT	91,737	15	0.1	5,475.71						
119	.POST OFFICE,0. COAST ROAD,WALCOTT	223,610	5	0.1	18,927.33						
119	.POST OFFICE,0. COAST ROAD,WALCOTT	223,610	10	0.8	126,816.85						
119	.POST OFFICE,0. COAST ROAD,WALCOTT	223,610	15	0.1	13,347.05						
122	.0. MYARD,WALCOTT ROAD,BACTON	74,537	5	0.1	6,275.78						
122	.0. MYARD,WALCOTT ROAD,BACTON	74,537	10	0.8	42,272.28						
122	.0. MYARD,WALCOTT ROAD,BACTON	74,537	15	0.1	4,449.02						
123	.26. OSTEND PLACE,WALCOTT	126,139	5	0.1	10,620.55						
123	.26. OSTEND PLACE,WALCOTT	126,139	10	0.8	71,537.71						
123	.26. OSTEND PLACE,WALCOTT	126,139	15	0.1	7,529.10						
125	.6. OSTEND ROAD,WALCOTT	63,069	5	0.1	5,310.27						
125	.6. OSTEND ROAD,WALCOTT	63,069	10	0.8	35,768.86						
125	.6. OSTEND ROAD,WALCOTT	63,069	15	0.1	3,764.55						
126	.0. GENESIS,OSTEND GAP,WALCOTT	97,471	5	0.1	8,206.78						
126	.0. GENESIS,OSTEND GAP,WALCOTT	97,471	10	0.8	55,279.14						
126	.0. GENESIS,OSTEND GAP,WALCOTT	97,471	15	0.1	5,817.94						
127	.0. SEACLOSE,COAST ROAD,WALCOTT	68,803	5	0.1	5,793.02						
127	.0. SEACLOSE,COAST ROAD,WALCOTT	68,803	10	0.8	39,020.57						
127	.0. SEACLOSE,COAST ROAD,WALCOTT	68,803	15	0.1	4,106.78						
128	.0.2 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	5	0.1	5,793.02						
128	.0.2 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	10	0.8	39,020.57						

128	.02 SPINDRIFT SEAVIEW CRESCENT WALCOTT	68,803	15	0.1	4,106.78
129	.0 SEA SPRAY THE CRESCENT WALCOTT	183,475	5	0.1	15,448.07
129	.0 SEA SPRAY THE CRESCENT WALCOTT	183,475	10	0.8	104,054.85
129	.0 SEA SPRAY THE CRESCENT WALCOTT	183,475	15	0.1	10,951.42
130	.0 SEA VIEW COAST ROAD WALCOTT	172,007	5	0.1	14,482.56
130	.0 SEA VIEW COAST ROAD WALCOTT	172,007	10	0.8	97,551.43
130	.0 SEA VIEW COAST ROAD WALCOTT	172,007	15	0.1	10,266.96
131	.3 OSTEND PLACE WALCOTT	137,606	5	0.1	11,586.05
131	.3 OSTEND PLACE WALCOTT	137,606	10	0.8	78,041.14
131	.3 OSTEND PLACE WALCOTT	137,606	15	0.1	8,213.57
132	.8 THE CRESCENT WALCOTT	86,004	5	0.1	7,241.28
132	.8 THE CRESCENT WALCOTT	86,004	10	0.8	48,775.71
132	.8 THE CRESCENT WALCOTT	86,004	15	0.1	5,133.48
133	.04 SPINDRIFT SEAVIEW CRESCENT WALCOTT	68,803	5	0.1	5,793.02
133	.04 SPINDRIFT SEAVIEW CRESCENT WALCOTT	68,803	10	0.8	39,020.57
133	.04 SPINDRIFT SEAVIEW CRESCENT WALCOTT	68,803	15	0.1	4,106.78
134	.0 THE RETREAT ARCHBALD ROAD WALCOTT	63,069	5	0.1	5,310.27
134	.0 THE RETREAT ARCHBALD ROAD WALCOTT	63,069	10	0.8	35,768.86
134	.0 THE RETREAT ARCHBALD ROAD WALCOTT	63,069	15	0.1	3,764.55
135	.0 SUNDIAL COTTAGE WATCH HOUSE LANE BACTON	86,004	5	0.1	7,241.28
135	.0 SUNDIAL COTTAGE WATCH HOUSE LANE BACTON	86,004	10	0.8	48,775.71
135	.0 SUNDIAL COTTAGE WATCH HOUSE LANE BACTON	86,004	15	0.1	5,133.48
136	.6 ANNE STANNARD WAY BACTON	149,073	5	0.1	12,551.55
136	.6 ANNE STANNARD WAY BACTON	149,073	10	0.8	84,544.57
136	.6 ANNE STANNARD WAY BACTON	149,073	15	0.1	8,898.03
137	.7 ANNE STANNARD WAY BACTON	149,073	5	0.1	12,551.55
137	.7 ANNE STANNARD WAY BACTON	149,073	10	0.8	84,544.57
137	.7 ANNE STANNARD WAY BACTON	149,073	15	0.1	8,898.03
138	.8 ANNE STANNARD WAY BACTON	149,073	5	0.1	12,551.55
138	.8 ANNE STANNARD WAY BACTON	149,073	10	0.8	84,544.57
138	.8 ANNE STANNARD WAY BACTON	149,073	15	0.1	8,898.03
139	.9 ANNE STANNARD WAY BACTON	149,073	5	0.1	12,551.55
139	.9 ANNE STANNARD WAY BACTON	149,073	10	0.8	84,544.57
139	.9 ANNE STANNARD WAY BACTON	149,073	15	0.1	8,898.03
140	.10 ANNE STANNARD WAY BACTON	149,073	5	0.1	12,551.55
140	.10 ANNE STANNARD WAY BACTON	149,073	10	0.8	84,544.57
140	.10 ANNE STANNARD WAY BACTON	149,073	15	0.1	8,898.03
141	.02 MARYLAND ARCHBALD ROAD WALCOTT	103,204	5	0.1	8,689.54
141	.02 MARYLAND ARCHBALD ROAD WALCOTT	103,204	10	0.8	58,530.86
141	.02 MARYLAND ARCHBALD ROAD WALCOTT	103,204	15	0.1	6,160.18
145	.7 OSTEND ROAD WALCOTT	63,069	5	0.1	5,310.27
145	.7 OSTEND ROAD WALCOTT	63,069	10	0.8	35,768.86
145	.7 OSTEND ROAD WALCOTT	63,069	15	0.1	3,764.55
146	.0 MORNING MIST THE CRESCENT WALCOTT	74,537	5	0.1	6,275.78
146	.0 MORNING MIST THE CRESCENT WALCOTT	74,537	10	0.8	42,272.28
146	.0 MORNING MIST THE CRESCENT WALCOTT	74,537	15	0.1	4,449.02
147	.0 GOLDEN SANDS OSTEND ROAD WALCOTT	74,537	5	0.1	6,275.78
147	.0 GOLDEN SANDS OSTEND ROAD WALCOTT	74,537	10	0.8	42,272.28
147	.0 GOLDEN SANDS OSTEND ROAD WALCOTT	74,537	15	0.1	4,449.02
148	.0 KINGFISHER CAFE COAST ROAD WALCOTT	223,610	5	0.1	18,327.03
148	.0 KINGFISHER CAFE COAST ROAD WALCOTT	223,610	10	0.8	126,816.88
148	.0 KINGFISHER CAFE COAST ROAD WALCOTT	223,610	15	0.1	13,347.05
149	.34 SEA VIEW ESTATE BACTON	29,815	5	0.1	2,510.31
149	.34 SEA VIEW ESTATE BACTON	29,815	10	0.8	16,908.91
149	.34 SEA VIEW ESTATE BACTON	29,815	15	0.1	1,779.61
150	.5 OSTEND ROAD WALCOTT	63,069	5	0.1	5,310.27
150	.5 OSTEND ROAD WALCOTT	63,069	10	0.8	35,768.86
150	.5 OSTEND ROAD WALCOTT	63,069	15	0.1	3,764.55
151	.2 OSTEND PLACE WALCOTT	137,606	5	0.1	11,586.05
151	.2 OSTEND PLACE WALCOTT	137,606	10	0.8	78,041.14
151	.2 OSTEND PLACE WALCOTT	137,606	15	0.1	8,213.57
152	.0 CALM SEAS OSTEND ROAD WALCOTT	80,270	5	0.1	6,758.53
152	.0 CALM SEAS OSTEND ROAD WALCOTT	80,270	10	0.8	45,524.00
152	.0 CALM SEAS OSTEND ROAD WALCOTT	80,270	15	0.1	4,791.25
153	.33 SEA VIEW ESTATE BACTON	29,815	5	0.1	2,510.31
153	.33 SEA VIEW ESTATE BACTON	29,815	10	0.8	16,908.91
153	.33 SEA VIEW ESTATE BACTON	29,815	15	0.1	1,779.61
154	.0 FISHERMANS COTTAGE COAST ROAD WALCOTT	34,401	5	0.1	2,896.51
154	.0 FISHERMANS COTTAGE COAST ROAD WALCOTT	34,401	10	0.8	19,510.29
154	.0 FISHERMANS COTTAGE COAST ROAD WALCOTT	34,401	15	0.1	2,053.93
155	.041 WALCOTT CARAVAN PARK COAST ROAD WALCOTT	114,672	5	0.1	9,655.04
155	.041 WALCOTT CARAVAN PARK COAST ROAD WALCOTT	114,672	10	0.8	65,034.28
155	.041 WALCOTT CARAVAN PARK COAST ROAD WALCOTT	114,672	15	0.1	6,844.64
156	.1 OSTEND PLACE WALCOTT	137,606	5	0.1	11,586.05
156	.1 OSTEND PLACE WALCOTT	137,606	10	0.8	78,041.14
156	.1 OSTEND PLACE WALCOTT	137,606	15	0.1	8,213.57
157	.0 TIGH NA MARA WATCH HOUSE LANE BACTON	160,540	5	0.1	13,517.06
157	.0 TIGH NA MARA WATCH HOUSE LANE BACTON	160,540	10	0.8	91,048.00
157	.0 TIGH NA MARA WATCH HOUSE LANE BACTON	160,540	15	0.1	9,582.50
158	.0 WYNDHAM ARCHBALD ROAD WALCOTT	80,270	5	0.1	6,758.53
158	.0 WYNDHAM ARCHBALD ROAD WALCOTT	80,270	10	0.8	45,524.00
158	.0 WYNDHAM ARCHBALD ROAD WALCOTT	80,270	15	0.1	4,791.25
159	.0 CLIFF VIEW ARCHBALD ROAD WALCOTT	91,737	5	0.1	7,724.03
159	.0 CLIFF VIEW ARCHBALD ROAD WALCOTT	91,737	10	0.8	52,027.43
159	.0 CLIFF VIEW ARCHBALD ROAD WALCOTT	91,737	15	0.1	5,475.71
160	.6 SEA VIEW ESTATE BACTON	172,007	5	0.1	14,482.56
160	.6 SEA VIEW ESTATE BACTON	172,007	10	0.8	97,551.43
160	.6 SEA VIEW ESTATE BACTON	172,007	15	0.1	10,266.96
161	.4 BEAUCOURT PLACE WALCOTT	91,737	5	0.1	7,724.03
161	.4 BEAUCOURT PLACE WALCOTT	91,737	10	0.8	52,027.43
161	.4 BEAUCOURT PLACE WALCOTT	91,737	15	0.1	5,475.71
162	.6 BEAUCOURT PLACE WALCOTT	91,737	5	0.1	7,724.03
162	.6 BEAUCOURT PLACE WALCOTT	91,737	10	0.8	52,027.43
162	.6 BEAUCOURT PLACE WALCOTT	91,737	15	0.1	5,475.71
163	.2 BEAUCOURT PLACE WALCOTT	91,737	5	0.1	7,724.03
163	.2 BEAUCOURT PLACE WALCOTT	91,737	10	0.8	52,027.43
163	.2 BEAUCOURT PLACE WALCOTT	91,737	15	0.1	5,475.71
164	.3 BEAUCOURT PLACE WALCOTT	91,737	5	0.1	7,724.03
164	.3 BEAUCOURT PLACE WALCOTT	91,737	10	0.8	52,027.43
164	.3 BEAUCOURT PLACE WALCOTT	91,737	15	0.1	5,475.71
165	.5 BEAUCOURT PLACE WALCOTT	91,737	5	0.1	7,724.03
165	.5 BEAUCOURT PLACE WALCOTT	91,737	10	0.8	52,027.43
165	.5 BEAUCOURT PLACE WALCOTT	91,737	15	0.1	5,475.71
166	.16 HORIZON VIEWS WALCOTT	86,004	5	0.1	7,241.28
166	.16 HORIZON VIEWS WALCOTT	86,004	10	0.8	48,775.71
166	.16 HORIZON VIEWS WALCOTT	86,004	15	0.1	5,133.48
167	.15 HORIZON VIEWS WALCOTT	86,004	5	0.1	7,241.28
167	.15 HORIZON VIEWS WALCOTT	86,004	10	0.8	48,775.71
167	.15 HORIZON VIEWS WALCOTT	86,004	15	0.1	5,133.48
168	.13 HORIZON VIEWS WALCOTT	126,139	5	0.1	10,620.55
168	.13 HORIZON VIEWS WALCOTT	126,139	10	0.8	71,537.71
168	.13 HORIZON VIEWS WALCOTT	126,139	15	0.1	7,529.10
169	.14 HORIZON VIEWS WALCOTT	126,139	5	0.1	10,620.55
169	.14 HORIZON VIEWS WALCOTT	126,139	10	0.8	71,537.71
169	.14 HORIZON VIEWS WALCOTT	126,139	15	0.1	7,529.10
170	.0 SPINDRIFT THE CRESCENT WALCOTT	74,537	5	0.1	6,275.78
170	.0 SPINDRIFT THE CRESCENT WALCOTT	74,537	10	0.8	42,272.28
170	.0 SPINDRIFT THE CRESCENT WALCOTT	74,537	15	0.1	4,449.02
171	.0 THE FLINT HOUSE OSTEND PLACE WALCOTT	326,814	5	0.1	27,516.87
171	.0 THE FLINT HOUSE OSTEND PLACE WALCOTT	326,814	10	0.8	185,345.71
171	.0 THE FLINT HOUSE OSTEND PLACE WALCOTT	326,814	15	0.1	19,507.22
172	.6 OSTEND PLACE WALCOTT	143,340	5	0.1	12,068.80
172	.6 OSTEND PLACE WALCOTT	143,340	10	0.8	81,292.85
172	.6 OSTEND PLACE WALCOTT	143,340	15	0.1	8,555.80
173	.0 BEACONS GLEAM COAST ROAD WALCOTT	74,537	5	0.1	6,275.78
173	.0 BEACONS GLEAM COAST ROAD WALCOTT	74,537	10	0.8	42,272.28
173	.0 BEACONS GLEAM COAST ROAD WALCOTT	74,537	15	0.1	4,449.02
174	.0 LITTLE HOUSE COAST ROAD WALCOTT	57,336	5	0.1	4,827.52

174	.0 LITTLE HOUSE COAST ROAD,WALCOTT	57,336	10	0.8	32,517.14				
174	.0 LITTLE HOUSE COAST ROAD,WALCOTT	57,336	15	0.1	3,422.32				
175	.7 SEA VIEW ESTATE,BACTON	86,004	5	0.1	7,241.28				
175	.7 SEA VIEW ESTATE,BACTON	86,004	10	0.8	48,775.71				
175	.7 SEA VIEW ESTATE,BACTON	86,004	15	0.1	5,133.48				
176	.0.3 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	5	0.1	5,793.02				
176	.0.3 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	10	0.8	39,020.57				
176	.0.3 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	15	0.1	4,106.78				
178	.0.5 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	5	0.1	5,793.02				
178	.0.5 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	10	0.8	39,020.57				
178	.0.5 SPINDRIFT,SEA VIEW CRESCENT,WALCOTT	68,803	15	0.1	4,106.78				
179	.0 LOTHLOREN,COAST ROAD,WALCOTT	108,938	5	0.1	9,172.29				
179	.0 LOTHLOREN,COAST ROAD,WALCOTT	108,938	10	0.8	61,782.57				
179	.0 LOTHLOREN,COAST ROAD,WALCOTT	108,938	15	0.1	6,502.41				
180	.0 STONE GABLES,COAST ROAD,WALCOTT	108,938	5	0.1	9,172.29				
180	.0 STONE GABLES,COAST ROAD,WALCOTT	108,938	10	0.8	61,782.57				
180	.0 STONE GABLES,COAST ROAD,WALCOTT	108,938	15	0.1	6,502.41				
181	.8 SEA VIEW ESTATE,BACTON	74,537	5	0.1	6,275.78				
181	.8 SEA VIEW ESTATE,BACTON	74,537	10	0.8	42,272.28				
181	.8 SEA VIEW ESTATE,BACTON	74,537	15	0.1	4,449.02				
182	.32 SEA VIEW ESTATE,BACTON	29,815	5	0.1	2,510.31				
182	.32 SEA VIEW ESTATE,BACTON	29,815	10	0.8	16,908.91				
182	.32 SEA VIEW ESTATE,BACTON	29,815	15	0.1	1,779.61				
183	.0 STONE GABLES,COAST ROAD,WALCOTT	108,938	5	0.1	9,172.29				
183	.0 STONE GABLES,COAST ROAD,WALCOTT	108,938	10	0.8	61,782.57				
183	.0 STONE GABLES,COAST ROAD,WALCOTT	108,938	15	0.1	6,502.41				
201	Erosion of B1159	1,232,830	5	0.1	103,800.86				
201	Erosion of B1159	1,232,830	10	0.8	699,181.10				
201	Erosion of B1159	1,232,830	15	0.1	73,586.47				

Present Value Costs for all options															
Client/Authority North Norfolk District Council															
Project name Bacton, Walcott and Ostend Coastal Management Study															
Project reference 340,681															
Base date for estimates (year 0) Apr-2014															
Scaling factor (e.g. £m, £k, £) £															
Initial discount rate 3.5%															
Results £															
Option 1 Do-nothing 0															
Option 2 -nothing until failure event and emergency wo Capital Maintenance and patch repair 582,376															
Option 3 Capital Maintenance and patch repair 997,762															
Option 4 Capital Works - typical 1,205,442															
Option 5 Capital Works 381380															
PV total costs															
Option 1 Do-nothing															
Option 2 -nothing until failure event and emergency wo Capital Maintenance and patch repair															
Option 3 Capital Maintenance and patch repair															
Option 4 Capital Works - typical															
Option 5 Capital Works															
cash sum															
Discount Factor															
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Flood Damages

DISCOUNTING

		Do Nothing		
	Notes	Value of Damages	Damages with RPI	Discounted
0		£ 85,000	£ 113,050	£ 113,050
1		£ 85,000	£ 113,050	£ 109,227
2		£ 85,000	£ 113,050	£ 105,533
3		£ 85,000	£ 113,050	£ 101,965
4		£ 85,000	£ 113,050	£ 98,517
5		£ 85,000	£ 113,050	£ 95,185
6		£ 85,000	£ 113,050	£ 91,966
7		£ 85,000	£ 113,050	£ 88,856
8		£ 85,000	£ 113,050	£ 85,851
9	Sea Wall Fails	£ 1,130,000	£ 1,502,900	£ 1,102,724
10		£ 1,130,000	£ 1,502,900	£ 1,065,434
11		£ 1,130,000	£ 1,502,900	£ 1,029,405
12		£ 1,130,000	£ 1,502,900	£ 994,594
13	Properties Eroded			
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0	1.000
1	0.966
2	0.934
3	0.902
4	0.871
5	0.842
6	0.814
7	0.786
8	0.759
9	0.734
10	0.709
11	0.685
12	0.662
13	0.639
14	0.618
15	0.597
16	0.577
17	0.557
18	0.538
19	0.520
20	0.503
21	0.486
22	0.469
23	0.453
24	0.438
25	0.423
26	0.409
27	0.395
28	0.382
29	0.369
30	0.356
31	0.346
32	0.336
33	0.326
34	0.317
35	0.307
36	0.298
37	0.290
38	0.281
39	0.273
40	0.265
41	0.257
42	0.250
43	0.243
44	0.236
45	0.229
46	0.222
47	0.216
48	0.209
49	0.203
50	0.197
51	0.192
52	0.186
53	0.181

54	0.175
55	0.170
56	0.165
57	0.160
58	0.156
59	0.151
60	0.147
61	0.143
62	0.138
63	0.134
64	0.130
65	0.127
66	0.123
67	0.119
68	0.116
69	0.112
70	0.109
71	0.106
72	0.103
73	0.100
74	0.097
75	0.094
76	0.092
77	0.090
78	0.087
79	0.085
80	0.083
81	0.081
82	0.079
83	0.077
84	0.075
85	0.074
86	0.072
87	0.070
88	0.068
89	0.067
90	0.065
91	0.063
92	0.062
93	0.060
94	0.059
95	0.057
96	0.056
97	0.055
98	0.053
99	0.052
100	0.051

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TOTAL			
			5,082,308

Option Costs

Option Costs	Design life	Cost	unit	Cash costs		
				Bacton	Walcott- Ostend	Full Length (sum of both)
Length of coastline			m	1190	2430	3620
Refurbishment (timber groynes, revetment, concrete)	10					
Concrete Gang (5m an hour repairs)		£ 99	hrs	£23,493	£47,973	£71,466
Cement Grout assume 10% structure est 10m of concrete from prom		£ 135	t	£115,617	£236,091	£351,708
timber 3-5m 300x100 (est 25 groynes 90m each, 2m high, 7 planks per bay, 10%)		£ 63	m	£35,551	£59,252	£102,703
m20 bolts 150mm long est 4 per plank		£ 5	nr	£2,468	£4,113	£7,129
timber 5-8m 300x100 (rev, 3.5m high, 10%)		£ 59	m	£18,867	£27,671	£34,589
Rev - m20 bolts 150mm long est 4 per plank		£ 5	nr	£1,110	£1,628	£2,035
Timber Piles (greenheart 300x300 10m length)		£ 800	nr	£9,600	£14,080	£17,600
Total				£206,705	£390,807	£587,228
Recharge						
Material (Clacton) 2.5m high at 1:9	5 Need to repeat	£16	cu.m	£535,500	£1,093,500	£1,629,000
Preparation of filled surface (beach reprofiling)		£3	sq.m	£70,852	£144,680	£215,532
mobilisation (lorry) as assumed at hartlepool				£100,000	£200,000	£300,000
Total				£706,352	£1,438,180	£2,144,532
Buried Gabions						
Buried Gabions 1x1 (assume x1) single layer deep 3 high	15	£130	cu.m	£462,494	£944,420	£1,406,913
Excavation of beach material (General 0.5-1m) assumed 1m deep		£3	cu.m	£10,234	£20,898	£31,132
Replace Beach Material (double handling earth 300m)		£6	cu.m	£18,743	£38,273	£57,015
Total				£491,470	£1,003,590	£1,495,060
Open Stone Asphalt	15	£ 240	m	£285,600	£583,200	£868,800
Material (Clacton) + selected fill to embankment (SPONS)		£ 18	cu.m	£68,239	£139,346	£207,585
Geotextile (Clacton)		£ 7	sq.m	£31,434	£64,189	£95,623
Excavation of beach material (General 0.5-1m) assumed toe only		£ 3	cu.m	£4,094	£8,359	£12,453
Replace Beach Material (double handling earth 300m)		£ 6	cu.m	£7,497	£15,309	£22,806
Mobilisation (lorry) as assumed at hartlepool				£100,000	£200,000	£300,000
Total				£496,864	£1,010,403	£1,507,267
Repairs for Failure Scenario		£ 500,000	per150m	£396,667	£810,000	£1,206,667
			Above based on Sherringham, North Norfolk			

FCRM spreadsheets (20-100 years for Bacton)

Project Summary Sheet - Long term adaptation (0-100 years)

Client/Authority	North Norfolk District Council	Prepared (date)	22/05/2014
Project name	Bacton, Walcott and Ostend Coastal Management Study	Printed	11/07/2014
Project reference		Prepared by	L Wiggins
Base date for estimates (year 0)	Apr-2014	Checked by	S Hampshire
Scaling factor (e.g. £m, £k, £)	£	Checked date	02/07/2014
Year	0		
Discount Rate	3.5%		
Optimism bias adjustment factor	60%		

Option number	Costs and benefits £				
	Option 1	Option 2	Option 3	Option 4	Option 5
Option name	Do-nothing	Option 6 Purchase and lease of all properties)	Option 7 Demolition, relocation and rebuild all of properties	Option 8 - Buy and Demolish of all properties	Option 9 - buy, lease and demolish of all properties
AEP or SoP (where relevant)					

COSTS:					
PV capital costs	0	1,479,276	2,681,070	1,411,927	1,546,407
PV operation and maintenance costs	0	0	0	0	0
PV other	0	0	0	0	0
Optimism bias adjustment	0	887,566	1,608,642	847,156	927,844
PV negative costs (e.g. sales)	0	902,850	0	0	902,850
PV contributions					
Total PV Costs £ excluding contributions	0	1,463,992	4,289,712	2,259,083	1,571,400
Total PV Costs £ taking contributions into account	0	1,463,992	4,289,712	2,259,083	1,571,400

BENEFITS:					
PV monetised flood damages	0	0	0	0	0
PV monetised flood damages avoided		0	0	0	0
PV monetised erosion damages	1,698,512				
PV monetised erosion damages avoided (protected)		1,698,512	1,698,512	1,698,512	1,698,512
Total monetised PV damages £	1,698,512	0	0	0	0
Total monetised PV benefits £		1,698,512	1,698,512	1,698,512	1,698,512
PV damages (from tourism)					
Total PV damages £	1,698,512	0	0	0	0
Total PV benefits £		1,698,512	1,698,512	1,698,512	1,698,512

DECISION-MAKING CRITERIA:					
excluding contributions					
<i>Based on total PV benefits (includes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		234,520	-2,591,200	-560,571	127,111
Average benefit/cost ratio BCR		1.2	0.4	0.8	1.1
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
		Highest bcr			

<i>Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		234,520	-2,591,200	-560,571	127,111
Average benefit/cost ratio BCR		1.2	0.4	0.8	1.1
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
		Highest bcr			

including contributions					
<i>Taking account of contributions (includes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		234,520	-2,591,200	-560,571	127,111
Average benefit/cost ratio BCR		1.2	0.4	0.8	1.1
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
		Highest bcr			

<i>Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)</i>					
Net Present Value NPV		234,520	-2,591,200	-560,571	127,111
Average benefit/cost ratio BCR		1.2	0.4	0.8	1.1
Incremental benefit/cost ratio IBCR			-	-	-
		Highest bcr			

Best practicable environmental option (WFD)

Brief description of options:	
Option 1	Do-nothing
Option 2	Option 6 Purchase and lease of all properties)
Option 3	Option 7 Demolition, relocation and rebuild all of properties
Option 4	Option 8 - Buy and Demolish of all properties
Option 5	Option 9 - buy, lease and demolish of all properties

Comments and assumptions:

Erosion Loss Calculation Sheet with delay options						Sheet Nr.	
Client/Authority North Norfolk District Council				Option:		Prepared (date)	
Project name Bacton, Walcott and Ostend Coastal Management Study				Option 2 Option 3 Option 4 Option 5		20/05/2014 12/05/2014 SH VT 0	
Base date for estimates (year 0) Scaling factor (e.g. £m, £k, £) Discount rate				41,730.00 £ 0.04		Delay (yrs) 100 100 100 100	
Ref	Asset	Risk free market value	Year when the asset is expected to be lost	Prob of	Expected value of asset losses £		
143	.0,ASH COTTAGE,BEACH ROAD,BACTON	120,405.18	5	0.1	-		
177	.0,CABLE COTTAGE,BEACH ROAD,BACTON	97,470.86	5	0.1	10,137.79		
121	.0,CRANKS CASTLE,MILL LANE,BACTON	45,868.64	5	0.1	8,206.78		
117	.0,HERMITAGE,BEACH ROAD,BACTON	252,277.52	5	0.1	3,862.02		
144	.0,MORSE HOUSE,BEACH ROAD,BACTON	126,138.76	5	0.1	21,241.09		
184	.0,SEA EDGE,BEACH ROAD,BACTON	200,675.30	5	0.1	10,620.55		
142	.0,SEABRINK,BEACH ROAD,BACTON	149,073.08	5	0.1	16,896.32		
57	.0,ST. OLAFS,BEACH ROAD,BACTON	120,405.18	5	0.1	12,551.55		
72	.0,THE LEAS,MILL LANE,BACTON	74,536.54	5	0.1	10,137.79		
113	.6,NEWLANDS ESTATE,BACTON	80,270.12	5	0.1	6,275.78		
114	.7,NEWLANDS ESTATE,BACTON	74,536.54	5	0.1	6,758.53		
124	.76,NEWLANDS ESTATE,BACTON	80,270.12	5	0.1	6,275.78		
81	.77,NEWLANDS ESTATE,BACTON	80,270.12	5	0.1	6,758.53		
66	.78,NEWLANDS ESTATE,BACTON	80,270.12	5	0.1	6,758.53		
77	.79,NEWLANDS ESTATE,BACTON	80,270.12	5	0.1	6,758.53		
120	THE LEAS BEACH PARK,0,MILL LANE,BACTON	143,339.50	5	0.1	6,758.53		
143	.0,ASH COTTAGE,BEACH ROAD,BACTON	120,406.19	10	0.8	81,292.85		
177	.0,CABLE COTTAGE,BEACH ROAD,BACTON	97,470.86	10	0.8	68,286.57		
121	.0,CRANKS CASTLE,MILL LANE,BACTON	45,868.64	10	0.8	55,279.14		
117	.0,HERMITAGE,BEACH ROAD,BACTON	252,277.52	10	0.8	26,013.71		
144	.0,MORSE HOUSE,BEACH ROAD,BACTON	126,138.76	10	0.8	143,075.42		
184	.0,SEA EDGE,BEACH ROAD,BACTON	200,675.30	10	0.8	71,537.71		
142	.0,SEABRINK,BEACH ROAD,BACTON	149,073.08	10	0.8	113,810.00		
57	.0,ST. OLAFS,BEACH ROAD,BACTON	120,405.18	10	0.8	84,544.57		
72	.0,THE LEAS,MILL LANE,BACTON	74,536.54	10	0.8	68,286.00		
113	.6,NEWLANDS ESTATE,BACTON	80,270.12	10	0.8	42,272.28		
114	.7,NEWLANDS ESTATE,BACTON	74,536.54	10	0.8	45,524.00		
124	.76,NEWLANDS ESTATE,BACTON	80,270.12	10	0.8	42,272.28		
120	THE LEAS BEACH PARK,0,MILL LANE,BACTON	143,339.50	10	0.8	45,524.00		
143	.0,ASH COTTAGE,BEACH ROAD,BACTON	120,405.18	15	0.1	8,555.80		
177	.0,CABLE COTTAGE,BEACH ROAD,BACTON	97,470.86	15	0.1	7,186.87		
121	.0,CRANKS CASTLE,MILL LANE,BACTON	45,868.64	15	0.1	5,817.94		
117	.0,HERMITAGE,BEACH ROAD,BACTON	252,277.52	15	0.1	2,737.86		
144	.0,MORSE HOUSE,BEACH ROAD,BACTON	126,138.76	15	0.1	15,058.21		
184	.0,SEA EDGE,BEACH ROAD,BACTON	200,675.30	15	0.1	7,529.10		
142	.0,SEABRINK,BEACH ROAD,BACTON	149,073.08	15	0.1	11,978.12		
57	.0,ST. OLAFS,BEACH ROAD,BACTON	120,405.18	15	0.1	8,898.03		
72	.0,THE LEAS,MILL LANE,BACTON	74,536.54	15	0.1	7,186.87		
113	.6,NEWLANDS ESTATE,BACTON	80,270.12	15	0.1	4,449.02		
114	.7,NEWLANDS ESTATE,BACTON	74,536.54	15	0.1	4,791.25		
124	.76,NEWLANDS ESTATE,BACTON	80,270.12	15	0.1	4,449.02		
81	.77,NEWLANDS ESTATE,BACTON	80,270.12	15	0.8	38,329.99		
66	.78,NEWLANDS ESTATE,BACTON	80,270.12	15	0.8	38,329.99		
77	.79,NEWLANDS ESTATE,BACTON	80,270.12	15	0.8	38,329.99		
120	THE LEAS BEACH PARK,0,MILL LANE,BACTON	143,339.50	15	0.1	4,791.25		
81	.77,NEWLANDS ESTATE,BACTON	80,270.12	20	0.1	7,203.75		
66	.78,NEWLANDS ESTATE,BACTON	80,270.12	20	0.1	4,034.10		
77	.79,NEWLANDS ESTATE,BACTON	80,270.12	20	0.1	4,034.10		
86	.0,CREST-O-GLIFF,MILL LANE,BACTON	57,335.80	30	0.1	2,859.85		
102	.0,MIDSHALLOWS,BEACH ROAD,BACTON	97,470.86	30	0.1	2,042.75		
12	.0,THE WARREN,MILL LANE,BACTON	103,204.44	30	0.1	3,472.68		
63	.0,THE WARREN,MILL LANE,BACTON	103,204.44	30	0.1	3,676.95		
67	.0,THE WARREN,MILL LANE,BACTON	103,204.44	30	0.1	3,676.95		
84	.8,NEWLANDS ESTATE,BACTON	74,536.54	30	0.1	3,676.95		
54	.81,NEWLANDS ESTATE,BACTON	137,605.92	30	0.1	2,655.58		
82	.9,NEWLANDS ESTATE,BACTON	74,536.54	30	0.1	4,902.60		
189	REDHOUSE CHALET, PASTON ROAD, BACTON	149,073.08	30	0.1	2,655.58		
86	.0,CREST-O-GLIFF,MILL LANE,BACTON	57,335.80	35	0.8	36,651.57		
102	.0,MIDSHALLOWS,BEACH ROAD,BACTON	97,470.86	35	0.8	14,096.76		
12	.0,THE WARREN,MILL LANE,BACTON	108,938.02	35	0.8	23,964.49		
63	.0,THE WARREN,MILL LANE,BACTON	103,204.44	35	0.8	26,783.84		
67	.0,THE WARREN,MILL LANE,BACTON	103,204.44	35	0.8	25,374.16		
84	.8,NEWLANDS ESTATE,BACTON	74,536.54	35	0.8	25,374.16		
54	.81,NEWLANDS ESTATE,BACTON	137,605.92	35	0.8	18,325.79		
82	.9,NEWLANDS ESTATE,BACTON	74,536.54	35	0.8	33,832.22		
189	REDHOUSE CHALET, PASTON ROAD, BACTON	149,073.08	35	0.8	18,325.79		
86	.0,CREST-O-GLIFF,MILL LANE,BACTON	57,335.80	40	0.1	3,952.00		
102	.0,MIDSHALLOWS,BEACH ROAD,BACTON	97,470.86	40	0.1	1,520.00		
12	.0,THE WARREN,MILL LANE,BACTON	114,671.60	40	0.1	2,584.00		
63	.0,THE WARREN,MILL LANE,BACTON	114,671.60	40	0.1	3,040.00		
67	.0,THE WARREN,MILL LANE,BACTON	114,671.60	40	0.1	3,040.00		
84	.8,NEWLANDS ESTATE,BACTON	74,536.54	40	0.1	3,040.00		
54	.81,NEWLANDS ESTATE,BACTON	137,605.92	40	0.1	1,976.00		
82	.9,NEWLANDS ESTATE,BACTON	74,536.54	40	0.1	3,648.00		
189	REDHOUSE CHALET, PASTON ROAD, BACTON	149,073.08	40	0.1	1,976.00		
47	.0,1 SOUTHHAVEN,BEACH ROAD,BACTON	120,405.18	70	0.1	1,628.17		
48	.0,2 SOUTHHAVEN,BEACH ROAD,BACTON	114,671.60	70	0.1	1,315.06		
28	.0,EASTWARD HO,PASTON ROAD,BACTON	401,350.60	70	0.1	1,252.44		
19	.0,THE WARREN,MILL LANE,BACTON	108,938.02	70	0.1	4,383.53		
11	.0,VICTORIA,BEACH ROAD,BACTON	103,204.44	70	0.1	1,189.82		
34	.10,NEWLANDS ESTATE,BACTON	63,069.38	70	0.1	1,127.19		

33	,11, NEWLANDS ESTATE,BACTON	63,069.38	70	0.1	688.84				
56	,44, NEWLANDS ESTATE,BACTON	126,138.76	70	0.1	688.84				
15	,46, NEWLANDS ESTATE,BACTON	80,270.12	70	0.1	1,377.68				
53	,70, NEWLANDS ESTATE,BACTON	80,270.12	70	0.1	876.71				
17	,71, NEWLANDS ESTATE,BACTON	86,003.70	70	0.1	876.71				
8	,72, NEWLANDS ESTATE,BACTON	97,470.86	70	0.1	939.33				
44	,73, NEWLANDS ESTATE,BACTON	131,872.34	70	0.1	1,064.57				
50	,80, NEWLANDS ESTATE,BACTON	80,270.12	70	0.1	1,440.30				
35	,83, NEWLANDS ESTATE,BACTON	143,339.50	70	0.1	876.71				
47	,0,1 SOUTHHAVEN,BEACH ROAD,BACTON	120,405.18	75	0.8	10,803.64				
48	,0,2 SOUTHHAVEN,BEACH ROAD,BACTON	114,671.60	75	0.8	9,075.06				
28	,0,EASTWARD HO,PASTON ROAD,BACTON	401,350.60	75	0.8	8,642.92				
19	,0,THE WARREN,MILL LANE,BACTON	103,204.44	75	0.8	30,250.20				
11	,0,VICTORIA,BEACH ROAD,BACTON	103,204.44	75	0.8	7,778.62				
34	,10, NEWLANDS ESTATE,BACTON	63,069.38	75	0.8	7,778.62				
33	,11, NEWLANDS ESTATE,BACTON	63,069.38	75	0.8	4,753.60				
56	,44, NEWLANDS ESTATE,BACTON	126,138.76	75	0.8	4,753.60				
15	,46, NEWLANDS ESTATE,BACTON	80,270.12	75	0.8	9,507.21				
53	,70, NEWLANDS ESTATE,BACTON	80,270.12	75	0.8	6,050.04				
17	,71, NEWLANDS ESTATE,BACTON	86,003.70	75	0.8	6,050.04				
8	,72, NEWLANDS ESTATE,BACTON	97,470.86	75	0.8	6,482.19				
44	,73, NEWLANDS ESTATE,BACTON	131,872.34	75	0.8	7,346.48				
50	,80, NEWLANDS ESTATE,BACTON	80,270.12	75	0.8	9,939.35				
35	,83, NEWLANDS ESTATE,BACTON	143,339.50	75	0.8	6,050.04				
47	,0,1 SOUTHHAVEN,BEACH ROAD,BACTON	120,405.18	80	0.1	1,193.61				
48	,0,2 SOUTHHAVEN,BEACH ROAD,BACTON	114,671.60	80	0.1	1,002.63				
28	,0,EASTWARD HO,PASTON ROAD,BACTON	401,350.60	80	0.1	954.88				
19	,0,THE WARREN,MILL LANE,BACTON	108,938.02	80	0.1	3,342.10				
11	,0,VICTORIA,BEACH ROAD,BACTON	103,204.44	80	0.1	907.14				
34	,10, NEWLANDS ESTATE,BACTON	63,069.38	80	0.1	859.40				
33	,11, NEWLANDS ESTATE,BACTON	63,069.38	80	0.1	525.19				
56	,44, NEWLANDS ESTATE,BACTON	126,138.76	80	0.1	525.19				
15	,46, NEWLANDS ESTATE,BACTON	80,270.12	80	0.1	1,050.37				
53	,70, NEWLANDS ESTATE,BACTON	80,270.12	80	0.1	668.42				
17	,71, NEWLANDS ESTATE,BACTON	86,003.70	80	0.1	668.42				
8	,72, NEWLANDS ESTATE,BACTON	97,470.86	80	0.1	716.16				
44	,73, NEWLANDS ESTATE,BACTON	131,872.34	80	0.1	811.65				
50	,80, NEWLANDS ESTATE,BACTON	80,270.12	80	0.1	1,098.12				
35	,83, NEWLANDS ESTATE,BACTON	143,339.50	80	0.1	668.42				
Totals		13,410,844.63			1,698,512	-	-	-	-

Notes

Make one entry in the description column for each property (or group of properties) as this determines subsequent calculation

MV = risk free market value at base date for estimate - must be entered on each line when probability distribution is used

Equivalent annual value = MV x discount rate (assumes infinite life)

Year is year in which there is the probability of loss shown, years must be entered consecutively for each property or group

If no distribution is used enter year of expected year of loss and enter 1.0 in probability column

Columns G to K show expected values of asset losses with each option, assuming extensions of life entered above

The loss is calculated using the formula $PV \text{ loss} = MV * \text{Prob of loss} * (1 - (1 - 1/((1+r)^{\text{Year of loss}}))) = MV * \text{Prob of loss} / ((1+r)^{\text{Year of loss}})$

Additional properties can be entered by inserting lines above line 62 and copying all formulae, including hidden calculation in column C

Buy and rent back - buy all properties (capital cost) depending on the erosion band in which they sit and then rent them back

Name	Original value (from Strategy)	Year of loss	type
.0,ASH COTTAGE,BEACH ROAD,BACTON	£ 120,406	10	detached
.0,CABLE COTTAGE,BEACH ROAD,BACTON	£ 97,471	10	detached
.0,CRANKS CASTLE,MILL LANE,BACTON	£ 45,280	10	detached
.0,HERMITAGE,BEACH ROAD,BACTON	£ 252,278	10	detached
.0,MORSE HOUSE,BEACH ROAD,BACTON	£ 126,139	10	detached
.0,SEA EDGE,BEACH ROAD,BACTON	£ 200,675	10	terraced
.0,SEABRINK,BEACH ROAD,BACTON	£ 149,073	10	detached
.0,ST. OLAFS,BEACH ROAD,BACTON	£ 120,405	10	semi-detached
.0,THE LEAS,MILL LANE,BACTON	£ 74,537	10	detached
.6,NEWLANDS ESTATE,BACTON	£ 80,270	10	detached
.7,NEWLANDS ESTATE,BACTON	£ 74,537	10	detached
.76,NEWLANDS ESTATE,BACTON	£ 80,270	10	detached
THE LEAS BEACH PARK,0, MILL LANE,BACTON	£ 143,340	10	commercial
.77,NEWLANDS ESTATE,BACTON	£ 80,270	15	detached
.78,NEWLANDS ESTATE,BACTON	£ 80,270	15	terraced
.79,NEWLANDS ESTATE,BACTON	£ 80,270	15	detached
.0,CREST-O-GLIFF,MILL LANE,BACTON	£ 57,336	35	detached
.0,MIDSHALLOWS,BEACH ROAD,BACTON	£ 97,471	35	detached
.0,THE WARREN,MILL LANE,BACTON	£ 103,204	35	flat
.0,THE WARREN,MILL LANE,BACTON	£ 108,938	35	flat
.0,THE WARREN,MILL LANE,BACTON	£ 103,204	35	flat
.8,NEWLANDS ESTATE,BACTON	£ 74,537	35	detached
.81,NEWLANDS ESTATE,BACTON	£ 137,606	35	detached
.9,NEWLANDS ESTATE,BACTON	£ 74,537	35	detached
REDHOUSE CHALET, PASTON ROAD, BACTON	£ 149,073	35	commercial
.0,1 SOUTHHAVEN,BEACH ROAD,BACTON	£ 120,405	75	semi-detached
.0,2 SOUTHHAVEN,BEACH ROAD,BACTON	£ 114,672	75	semi-detached
.0,EASTWARD HO,PASTON ROAD,BACTON	£ 401,351	75	commercial
.0,THE WARREN,MILL LANE,BACTON	£ 114,672	75	flat
.0,VICTORIA,BEACH ROAD,BACTON	£ 103,204	75	detached
.10,NEWLANDS ESTATE,BACTON	£ 63,069	75	detached
.11,NEWLANDS ESTATE,BACTON	£ 63,069	75	terraced
.44,NEWLANDS ESTATE,BACTON	£ 126,139	75	detached
.46,NEWLANDS ESTATE,BACTON	£ 80,270	75	detached
.70,NEWLANDS ESTATE,BACTON	£ 80,270	75	detached
.71,NEWLANDS ESTATE,BACTON	£ 86,004	75	detached
.72,NEWLANDS ESTATE,BACTON	£ 97,471	75	detached
.73,NEWLANDS ESTATE,BACTON	£ 131,872	75	detached
.80,NEWLANDS ESTATE,BACTON	£ 80,270	75	detached
.83,NEWLANDS ESTATE,BACTON	£ 143,340	75	detached

Year	Total number of properties	Detached	semi detached	terrace	flat	Commercial
0-20	15	12	1	2	0	1
21-50	8	5	0	0	3	1
51-100	14	10	2	1	1	1
	40	27	3	3	4	3

not included

Year	Detached	semi detached	terrace	flat	Total
0-20	£122,400	£7,800	£12,600	£0	£142,800
21-50	£51,000	£0	£0	£14,400	£65,400
51-100	£102,000	£15,600	£6,300	£4,800	£128,700

It is assumed that the property cannot be rented the year that it is supposed to erode

RENT VALUE	£/year
Detached (assumed 4 bed)	10,200
Semi-detached (assumed 3 bed)	7,800
Terrace (assumed 2 bed)	6,300
Flat (assumed 1 bed)	4,800

<http://homes.findthebest.co.uk/1/648377/Vanguard-St-Helens-Road-Norwich-Norfolk-NR12-0LU>

Property Values	Cost to purchase all properties	10% added to account for maintainence
Total Value	£ 4,517,473	£ 4,969,221
Value 0-20	£ 1,805,490	£ 1,986,039
Value 20-50	£ 905,906	£ 996,496
Value 50-100	£ 1,806,078	£ 1,986,685

Demolish, relocate and rebuild all properties depending on the erosion band in which they sit.

Number of properties

Year	Total number of properties	Detached	semi detached	terrace	flat	Commercial-ignore
0-20	15	12	1	2	0	1
21-50	8	5	0	0	3	1
51-100	14	10	2	1	1	1
Total	37	27	3	3	4	3

0-100 years

Rebuild costs	3 bed houses					2 bed flat	Commercial
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Average Flat (m2)	Commercial	
£2,000.00	120	105	96	70			
Number of properties	27	3	3	4		0	
Cost per type of house	£6,480,000	£630,000	£576,000	£560,000	£0.00		£8,246,000

Demolition costs	2 floors houses				1 floor flat	Commercial
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Average Flat (m3)	Commercial
£6,000.00	1	1	1	1	1	1
Number of properties	27	3	3	4		0
Cost per type of house	£162,000.00	£18,000.00	£18,000.00	£24,000.00	£0.00	

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£25.31	£311,837
750 m2 per commercial properties	0			£0.00
				£311,836.99

TOTAL for 0-100 years £8,779,837

0-20 years only

Rebuild costs	3 bed houses				2 bed flat	Commercial
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Average Flat (m2)	Commercial
£2,000.00	120	105	96	70		
Number of properties	12	1	2	0		0
Cost per type of house	£2,880,000	£210,000	£384,000	£0	£0.00	

Demolition costs	2 floors houses				1 floor flat	Commercial
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Average Flat (m3)	Commercial
£6,000.00	1	1	1	1	1	1
Number of properties	12	1	2	0		0
Cost per type of house	£72,000.00	£6,000.00	£12,000.00	£0.00	£0.00	

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£25.31	£126,420
750 m2 per commercial properties	0			£0.00
				£126,420.40

TOTAL for 0-20 years £3,690,420

20-50 years only

Rebuild costs	3 bed houses				2 bed flat	Commercial
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Average Flat (m2)	Commercial
£2,000.00	120	105	96	70		
Number of properties	5	0	0	3		0
Cost per type of house	£1,200,000	£0	£0	£420,000	£0.00	

Demolition costs	2 floors houses				1 floor flat	Commercial
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Average Flat (m3)	Commercial
£6,000.00	1	1	1	1	1	1
Number of properties	5	0	0	3		0
Cost per type of house	£30,000.00	£0.00	£0.00	£18,000.00	£0.00	

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£25.31	£67,424
750 m2 per commercial properties	0			£0.00
				£67,424.21

TOTAL for 20-50 years £1,735,424

50-100 years only

Rebuild costs	3 bed houses				2 bed flat	Commercial
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Average Flat (m2)	Commercial
£2,000.00	120	105	96	70		
Number of properties	10	2	1	1		0
Cost per type of house	£2,400,000	£420,000	£192,000	£140,000	£0.00	

Demolition costs	2 floors houses				1 floor flat	Commercial
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Average Flat (m3)	Commercial
£6,000.00	1	1	1	1	1	1
Number of properties	10	2	1	1		0
Cost per type of house	£60,000.00	£12,000.00	£6,000.00	£6,000.00	£0.00	

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£25.31	£117,992
750 m2 per commercial properties	0			£0.00
				£117,992.37

TOTAL for 50-100 years £3,353,992

FCRM spreadsheets (20-100 years for Walcott and Ostend)

Project Summary Sheet - Long term adaptation (0-100 years)

Client/Authority	North Norfolk District Council	Prepared (date)	22/05/2014
Project name	Bacton, Walcott and Ostend Coastal Management Study	Printed	11/07/2014
Project reference	340681	Prepared by	L Wiggins
Base date for estimates (year 0)	year 0	Checked by	S Hampshire
Scaling factor (e.g. £m, £k, £)	£	Checked date	03/07/2014
Year	0		30
Discount Rate	3.5%		2.50%
Optimism bias adjustment factor	60%		

Option number	Costs and benefits £				
	Option 1	Option 2b	Option 2c	0	0
Option name	Do-nothing	Option 6 - Purchase and lease of all properties	Option 7 - Demolition, relocation and rebuild all of properties	Option 8 - Buy and Demolish of all properties	Option 9 - buy, lease and demolish of all properties
AEP or SoP (where relevant)					

COSTS:					
PV capital costs	0	6,587,004	13,287,993	6,312,735	6,911,553
PV operation and maintenance costs	0	0	0	0	0
PV other	0	0	0	0	0
Optimism bias adjustment	0	3,952,202	7,972,796	3,787,641	4,146,932
PV negative costs (e.g. sales)	0	4,466,863	0	0	4,466,863
PV contributions					
Total PV Costs £ excluding contributions	0	6,072,343	21,260,788	10,100,375	6,591,622
Total PV Costs £ taking contributions into account	0	6,072,343	21,260,788	10,100,375	6,591,622

BENEFITS:					
PV monetised flood damages	5,579,075	0	0	0	0
PV monetised flood damages avoided		5,579,075	5,579,075	5,579,075	5,579,075
PV monetised erosion damages	8,727,997				
PV monetised erosion damages avoided (protected)		8,727,997	8,727,997	8,727,997	8,727,997
Total monetised PV damages £	14,307,072	0	0	0	0
Total monetised PV benefits £		14,307,072	14,307,072	14,307,072	14,307,072
PV damages (from tourism)					
Total PV damages £	14,307,072	0	0	0	0
Total PV benefits £		14,307,072	14,307,072	14,307,072	14,307,072

DECISION-MAKING CRITERIA:					
excluding contributions					
Based on total PV benefits (includes benefits from scoring and weighting and ecosystem services)					
Net Present Value NPV		8,234,729	-6,953,717	4,206,696	7,715,450
Average benefit/cost ratio BCR		2.4	0.7	1.4	2.2
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
Highest bcr					

Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)					
Net Present Value NPV		8,234,729	-6,953,717	4,206,696	7,715,450
Average benefit/cost ratio BCR		2.4	0.7	1.4	2.2
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
Highest bcr					

including contributions					
Taking account of contributions (includes benefits from scoring and weighting and ecosystem services)					
Net Present Value NPV		8,234,729	-6,953,717	4,206,696	7,715,450
Average benefit/cost ratio BCR		2.4	0.7	1.4	2.2
Incremental benefit/cost ratio IBCR			0.0	0.0	0.0
Highest bcr					

Based on monetised PV benefits (excludes benefits from scoring and weighting and ecosystem services)					
Net Present Value NPV		8,234,729	-6,953,717	4,206,696	7,715,450
Average benefit/cost ratio BCR		2.4	0.7	1.4	2.2
Incremental benefit/cost ratio IBCR			-	-	-
Highest bcr					

Best practicable environmental option (WFD)					
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Brief description of options:	
Option 1	Do-nothing
Option 2b	Option 2 (Purchase and lease of all properties after year 20)
Option 2c	Option 3 (Demolition, relocation and rebuild all of properties at year 15)

Comments and assumptions:	

Erosion Loss Calculation Sheet with delay options						Sheet Nr.	2
Client/Authority		Project name		Option:	Delay (yrs)	Prepared (date)	
North Norfolk District Council		Bacton, Walcott and Osted Coastal Management Study		Option 2	100	22/05/2014	
Project reference		340681		Option 3	100	12/05/2014	
Base date for estimates (year 0)		year 0		Option 4	100	L. Wiggins	
Scaling factor (e.g. £m, £k, £)		£		Option 5	100	Checked by	
Discount rate		3.5%				Checked date	
						03/07/2014	
Ref	Asset	Risk free market value	Year when the asset is expected to be lost	Prob of	Do-nothing	Expected value of asset losses £	
61	.0,1 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	5,793.02		
69	.8,_OSTEND ROAD,WALCOTT	63069.38	5	0.1	5,310.27		
70	.0,1 THE MOORLANDS, COAST ROAD,WALCOTT	103204.44	5	0.1	8,689.54		
71	.0,2 THE MOORLANDS, COAST ROAD,WALCOTT	103204.44	5	0.1	8,689.54		
73	.31,_SEA VIEW ESTATE,BACTON	29814.616	5	0.1	2,510.31		
75	.0,SEAGOATS,THE CRESCENT,WALCOTT	149073.08	5	0.1	12,551.55		
94	.1,_HORIZON VIEWS,WALCOTT	97470.86	5	0.1	8,206.78		
98	.0,GAP END,ST. HELENS ROAD,WALCOTT	97470.86	5	0.1	8,206.78		
105	.7,_OSTEND PLACE,WALCOTT	137605.92	5	0.1	11,586.05		
106	.0,6 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	5,793.02		
107	.0,JANTON,OSTEND GAP,WALCOTT	149073.08	5	0.1	12,551.55		
108	.9,_THE CRESCENT,WALCOTT	80270.12	5	0.1	6,758.53		
109	.5,_OSTEND PLACE,WALCOTT	137605.92	5	0.1	11,586.05		
110	.4,_OSTEND ROAD,WALCOTT	63069.38	5	0.1	5,310.27		
111	.0,1 MARYLAND, ARCHIBALD ROAD,WALCOTT	103204.44	5	0.1	8,689.54		
112	.0,HEYHOE, ARCHIBALD ROAD,WALCOTT	68802.96	5	0.1	5,793.02		
115	.1,_BEAUCOURT PLACE,WALCOTT	80270.12	5	0.1	6,758.53		
116	.4,_OSTEND PLACE,WALCOTT	74536.54	5	0.1	6,275.78		
118	.0,SUMMERHOLME, COAST ROAD,WALCOTT	91737.28	5	0.1	7,724.03		
119	POST OFFICE,0,_COAST ROAD,WALCOTT	223609.62	5	0.1	18,827.33		
122	.0,MYARD,WALCOTT ROAD,BACTON	74536.54	5	0.1	6,275.78		
123	.26,_OSTEND PLACE,WALCOTT	126138.76	5	0.1	10,620.55		
125	.6,_OSTEND ROAD,WALCOTT	63069.38	5	0.1	5,310.27		
126	.0,GENESIS,OSTEND GAP,WALCOTT	97470.86	5	0.1	8,206.78		
127	.0,SEACLOSE, COAST ROAD,WALCOTT	68802.96	5	0.1	5,793.02		
128	.0,2 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	5,793.02		
129	.0,SEA SPRAY,THE CRESCENT,WALCOTT	183474.56	5	0.1	15,448.07		
130	.0,SEA VIEW, COAST ROAD,WALCOTT	172007.4	5	0.1	14,482.56		
131	.3,_OSTEND PLACE,WALCOTT	137605.92	5	0.1	11,586.05		
132	.8,_THE CRESCENT,WALCOTT	86003.7	5	0.1	7,241.28		
133	.0,4 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	5,793.02		
134	.0,THE RETREAT, ARCHIBALD ROAD,WALCOTT	63069.38	5	0.1	5,310.27		
135	.0,SUNDIAL, COTTAGE,WATCH HOUSE LANE,BACTON	86003.7	5	0.1	7,241.28		
136	.6,_ANNE STANNARD WAY,BACTON	149073.08	5	0.1	12,551.55		
137	.7,_ANNE STANNARD WAY,BACTON	149073.08	5	0.1	12,551.55		
138	.8,_ANNE STANNARD WAY,BACTON	149073.08	5	0.1	12,551.55		
139	.9,_ANNE STANNARD WAY,BACTON	149073.08	5	0.1	12,551.55		
140	.10,_ANNE STANNARD WAY,BACTON	149073.08	5	0.1	12,551.55		
141	.0,2 MARYLAND, ARCHIBALD ROAD,WALCOTT	103204.44	5	0.1	8,689.54		
145	.7,_OSTEND ROAD,WALCOTT	63069.38	5	0.1	5,310.27		
146	.0,MORNING MIST,THE CRESCENT,WALCOTT	74536.54	5	0.1	6,275.78		
147	.0,GOLDEN SANDS,OSTEND ROAD,WALCOTT	74536.54	5	0.1	6,275.78		
148	KINGFISHER CAFE,0,_COAST ROAD,WALCOTT	223609.62	5	0.1	18,827.33		
149	.34,_SEA VIEW ESTATE,BACTON	29814.616	5	0.1	2,510.31		
150	.5,_OSTEND ROAD,WALCOTT	63069.38	5	0.1	5,310.27		
151	.2,_OSTEND PLACE,WALCOTT	137605.92	5	0.1	11,586.05		
152	.0,CALM SEAS,OSTEND ROAD,WALCOTT	80270.12	5	0.1	6,758.53		
153	.33,_SEA VIEW ESTATE,BACTON	29814.616	5	0.1	2,510.31		
154	.0,FISHERMANS COTTAGE, COAST ROAD,WALCOTT	34401.48	5	0.1	2,896.51		
155	.0,41 WALCOTT CARAVAN PARK,COAST	114671.6	5	0.1	9,655.04		
156	.1,_OSTEND PLACE,WALCOTT	137605.92	5	0.1	11,586.05		
157	.0,TIGH-NA-MARA,WATCH HOUSE LANE,BACTON	160540.24	5	0.1	13,517.06		
158	.0,WYNDHAM,ARCHIBALD ROAD,WALCOTT	80270.12	5	0.1	6,758.53		
159	.0,CLIFF VIEW, ARCHIBALD ROAD,WALCOTT	91737.28	5	0.1	7,724.03		
160	.6,_SEA VIEW ESTATE,BACTON	172007.4	5	0.1	14,482.56		
161	.4,_BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	7,724.03		
162	.6,_BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	7,724.03		
163	.2,_BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	7,724.03		
164	.3,_BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	7,724.03		
165	.5,_BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	7,724.03		
166	.16,_HORIZON VIEWS,WALCOTT	86003.7	5	0.1	7,241.28		
167	.15,_HORIZON VIEWS,WALCOTT	86003.7	5	0.1	7,241.28		
168	.13,_HORIZON VIEWS,WALCOTT	126138.76	5	0.1	10,620.55		
169	.14,_HORIZON VIEWS,WALCOTT	126138.76	5	0.1	10,620.55		
170	.0,SPINDRIFT,THE CRESCENT,WALCOTT	74536.54	5	0.1	6,275.78		
171	.0,THE FLINT HOUSE,OSTEND PLACE,WALCOTT	326814.06	5	0.1	27,516.87		
172	.6,_OSTEND PLACE,WALCOTT	143339.5	5	0.1	12,068.80		
173	.0,BEACONS GLEAM,COAST ROAD,WALCOTT	74536.54	5	0.1	6,275.78		
174	.0,LITTLE HOUSE, COAST ROAD,WALCOTT	57335.8	5	0.1	4,827.52		
175	.7,_SEA VIEW ESTATE,BACTON	86003.7	5	0.1	7,241.28		
176	.0,3 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	5,793.02		
178	.0,5 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	5,793.02		
179	.0,LOTHLORIAN,COAST ROAD,WALCOTT	108938.02	5	0.1	9,172.29		
180	.0,STONE GABLES,COAST ROAD,WALCOTT	108938.02	5	0.1	9,172.29		
181	.8,_SEA VIEW ESTATE,BACTON	74536.54	5	0.1	6,275.78		
182	.32,_SEA VIEW ESTATE,BACTON	29814.616	5	0.1	2,510.31		
183	.0,STONE GABLES,COAST ROAD,WALCOTT	108938.02	5	0.1	9,172.29		
201	Erosion of B159	1248856.79	5	0.1	105,150.39		
61	.0,1 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	39,020.57		
69	.8,_OSTEND ROAD,WALCOTT	63069.38	10	0.8	35,768.86		
70	.0,1 THE MOORLANDS, COAST ROAD,WALCOTT	103204.44	10	0.8	58,530.86		
71	.0,2 THE MOORLANDS, COAST ROAD,WALCOTT	103204.44	10	0.8	58,530.86		
73	.31,_SEA VIEW ESTATE,BACTON	29814.616	10	0.8	16,908.91		
75	.0,SEAGOATS,THE CRESCENT,WALCOTT	149073.08	10	0.8	84,544.57		
94	.1,_HORIZON VIEWS,WALCOTT	97470.86	10	0.8	55,279.14		
98	.0,GAP END,ST. HELENS ROAD,WALCOTT	97470.86	10	0.8	55,279.14		
105	.7,_OSTEND PLACE,WALCOTT	137605.92	10	0.8	78,041.14		
106	.0,6 SPINDRIFT,SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	39,020.57		
107	.0,JANTON,OSTEND GAP,WALCOTT	149073.08	10	0.8	84,544.57		
108	.9,_THE CRESCENT,WALCOTT	80270.12	10	0.8	45,524.00		
109	.5,_OSTEND PLACE,WALCOTT	137605.92	10	0.8	78,041.14		
110	.4,_OSTEND ROAD,WALCOTT	63069.38	10	0.8	35,768.86		
111	.0,1 MARYLAND, ARCHIBALD ROAD,WALCOTT	103204.44	10	0.8	58,530.86		
112	.0,HEYHOE, ARCHIBALD ROAD,WALCOTT	68802.96	10	0.8	39,020.57		
115	.1,_BEAUCOURT PLACE,WALCOTT	80270.12	10	0.8	45,524.00		
116	.4,_OSTEND PLACE,WALCOTT	74536.54	10	0.8	42,272.28		
118	.0,SUMMERHOLME, COAST ROAD,WALCOTT	91737.28	10	0.8	52,027.43		
119	POST OFFICE,0,_COAST ROAD,WALCOTT	223609.62	10	0.8	126,816.85		
122	.0,MYARD,WALCOTT ROAD,BACTON	74536.54	10	0.8	42,272.28		
123	.26,_OSTEND PLACE,WALCOTT	126138.76	10	0.8	71,537.71		

Buy and rent back - buy all properties (capital cost) depending on the erosion band in which they sit and then rent them back

Ref	Asset	Risk free market value	Year when the asset is expected to be lost	Prob of erosion	Zoopla type of property
111	0.1 MARYLAND ARCHIBALD ROAD,WALCOTT	103204.44	5	0.1	semi
61	0.1 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	detached
70	0.2 THE MOORLANDS COAST ROAD,WALCOTT	103204.44	5	0.1	semi
141	0.2 MARYLAND ARCHIBALD ROAD,WALCOTT	103204.44	5	0.1	semi
128	0.2 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	detached
71	0.2 THE MOORLANDS COAST ROAD,WALCOTT	103204.44	5	0.1	semi
176	0.3 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	detached
133	0.4 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	terraced
155	0.4 WALCOTT CARAVAN PARK,COAST ROAD,WALCOTT	114671.6	5	0.1	semi
178	0.5 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	terraced
106	0.6 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	5	0.1	detached
173	0.6 BEACONS GLEAM,COAST ROAD,WALCOTT	74536.54	5	0.1	detached
152	0.6 CALM SEAS,OSTEND ROAD,WALCOTT	80270.12	5	0.1	semi
159	0.6 CLIFF VIEW ARCHIBALD ROAD,WALCOTT	91737.28	5	0.1	detached
154	0.6 FISHERMANS COTTAGE,COAST ROAD,WALCOTT	34401.48	5	0.1	detached
98	0.6 GAP END,ST. HELENS ROAD,WALCOTT	97470.86	5	0.1	detached
126	0.6 GENESIS,OSTEND GAP,WALCOTT	97470.86	5	0.1	detached
147	0.6 GOLDEN SANDS,OSTEND ROAD,WALCOTT	74536.54	5	0.1	detached
112	0.6 HEYHOE,ARCHIBALD ROAD,WALCOTT	68802.96	5	0.1	detached
107	0.6 JANTON,OSTEND GAP,WALCOTT	149073.08	5	0.1	detached
174	0.6 LITTLE HOUSE,COAST ROAD,WALCOTT	57335.8	5	0.1	detached
179	0.6 LOTHLOREN,COAST ROAD,WALCOTT	108938.02	5	0.1	semi
146	0.6 MORNING MIST,THE CRESCENT,WALCOTT	74536.54	5	0.1	detached
122	0.6 MYARD,WALCOTT ROAD,BACTON	74536.54	5	0.1	detached
129	0.5 SEA SPRAY,THE CRESCENT,WALCOTT	183474.56	5	0.1	detached
130	0.5 SEA VIEW COAST ROAD,WALCOTT	172007.4	5	0.1	detached
127	0.5 SEACLOSE COAST ROAD,WALCOTT	68802.96	5	0.1	detached
75	0.5 SEACLOSE,THE CRESCENT,WALCOTT	149073.08	5	0.1	detached
170	0.5 SPINDRIFT,THE CRESCENT,WALCOTT	74536.54	5	0.1	detached
180	0.5 STONE GABLES,COAST ROAD,WALCOTT	108938.02	5	0.1	detached
183	0.5 STONE GABLES,COAST ROAD,WALCOTT	108938.02	5	0.1	detached
118	0.5 SUMMERHOLME,COAST ROAD,WALCOTT	74536.54	5	0.1	detached
116	0.5 SUNDIAL COTTAGE,WATCH HOUSE LANE,BACTON	86003.7	5	0.1	semi
171	0.5 THE FLINT HOUSE,OSTEND PLACE,WALCOTT	326814.06	5	0.1	detached
134	0.5 THE RETREAT,ARCHIBALD ROAD,WALCOTT	63069.38	5	0.1	detached
157	0.5 TIGH-NA-MARA,WATCH HOUSE LANE,BACTON	160540.24	5	0.1	detached
158	0.5 WYNDHAM,ARCHIBALD ROAD,WALCOTT	80270.12	5	0.1	detached
115	1. BEAUCOURT PLACE,WALCOTT	80270.12	5	0.1	detached
94	1. HORIZON VIEWS,WALCOTT	97470.86	5	0.1	semi
156	1. OSTEND PLACE,WALCOTT	137605.92	5	0.1	detached
140	10. ANNE STANNARD WAY,BACTON	149073.08	5	0.1	detached
188	13. HORIZON VIEWS,WALCOTT	126138.76	5	0.1	semi
169	14. HORIZON VIEWS,WALCOTT	126138.76	5	0.1	semi
167	15. HORIZON VIEWS,WALCOTT	86003.7	5	0.1	semi
166	16. HORIZON VIEWS,WALCOTT	86003.7	5	0.1	semi
163	2. BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	detached
151	2. OSTEND PLACE,WALCOTT	137605.92	5	0.1	detached
123	26. OSTEND PLACE,WALCOTT	126138.76	5	0.1	detached
164	3. BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	detached
131	3. OSTEND PLACE,WALCOTT	137605.92	5	0.1	detached
73	31. SEA VIEW ESTATE,BACTON	29814.616	5	0.1	detached
182	32. SEA VIEW ESTATE,BACTON	29814.616	5	0.1	detached
153	33. SEA VIEW ESTATE,BACTON	29814.616	5	0.1	detached
149	34. SEA VIEW ESTATE,BACTON	29814.616	5	0.1	detached
61	4. BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	semi
116	4. OSTEND PLACE,WALCOTT	74536.54	5	0.1	detached
110	4. OSTEND ROAD,WALCOTT	63069.38	5	0.1	terraced
165	5. BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	semi
109	5. OSTEND PLACE,WALCOTT	137605.92	5	0.1	detached
150	5. OSTEND ROAD,WALCOTT	63069.38	5	0.1	terraced
136	6. ANNE STANNARD WAY,BACTON	149073.08	5	0.1	detached
162	6. BEAUCOURT PLACE,WALCOTT	91737.28	5	0.1	detached
172	6. OSTEND PLACE,WALCOTT	143339.5	5	0.1	detached
125	6. OSTEND ROAD,WALCOTT	63069.38	5	0.1	terraced
160	6. SEA VIEW ESTATE,BACTON	172007.4	5	0.1	detached
137	7. ANNE STANNARD WAY,BACTON	149073.08	5	0.1	detached
105	7. OSTEND PLACE,WALCOTT	137605.92	5	0.1	detached
145	7. OSTEND ROAD,WALCOTT	63069.38	5	0.1	terraced
175	7. SEA VIEW ESTATE,BACTON	29814.616	5	0.1	detached
138	8. ANNE STANNARD WAY,BACTON	149073.08	5	0.1	detached
69	8. OSTEND ROAD,WALCOTT	63069.38	5	0.1	semi
181	8. SEA VIEW ESTATE,BACTON	74536.54	5	0.1	detached
82	8. THE CRESCENT,WALCOTT	86003.7	5	0.1	detached
139	8. ANNE STANNARD WAY,BACTON	149073.08	5	0.1	detached
108	9. THE CRESCENT,WALCOTT	80270.12	5	0.1	detached
148	KINGFISHER CAFE,0. COAST ROAD,WALCOTT	223609.62	5	0.1	detached
119	POST OFFICE,0. COAST ROAD,WALCOTT	223609.62	5	0.1	detached
61	0.1 MARYLAND ARCHIBALD ROAD,WALCOTT	103204.44	10	0.8	semi
111	0.1 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	detached
70	0.1 THE MOORLANDS COAST ROAD,WALCOTT	103204.44	10	0.8	semi
141	0.1 MARYLAND ARCHIBALD ROAD,WALCOTT	103204.44	10	0.8	semi
128	0.2 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	detached
71	0.2 THE MOORLANDS COAST ROAD,WALCOTT	103204.44	10	0.8	semi
176	0.3 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	detached
133	0.4 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	terraced
155	0.4 WALCOTT CARAVAN PARK,COAST ROAD,WALCOTT	114671.6	10	0.8	semi
178	0.5 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	detached
106	0.6 SPINDRIFT SEAVIEW CRESCENT,WALCOTT	68802.96	10	0.8	detached
173	0.6 BEACONS GLEAM,COAST ROAD,WALCOTT	74536.54	10	0.8	detached
152	0.6 CALM SEAS,OSTEND ROAD,WALCOTT	80270.12	10	0.8	semi
159	0.6 CLIFF VIEW ARCHIBALD ROAD,WALCOTT	91737.28	10	0.8	detached
154	0.6 FISHERMANS COTTAGE,COAST ROAD,WALCOTT	34401.48	10	0.8	detached
98	0.6 GAP END,ST. HELENS ROAD,WALCOTT	97470.86	10	0.8	detached
126	0.6 GENESIS,OSTEND GAP,WALCOTT	97470.86	10	0.8	detached
147	0.6 GOLDEN SANDS,OSTEND ROAD,WALCOTT	74536.54	10	0.8	detached
112	0.6 HEYHOE,ARCHIBALD ROAD,WALCOTT	68802.96	10	0.8	detached
107	0.6 JANTON,OSTEND GAP,WALCOTT	149073.08	10	0.8	detached
174	0.6 LITTLE HOUSE,COAST ROAD,WALCOTT	57335.8	10	0.8	detached
179	0.6 LOTHLOREN,COAST ROAD,WALCOTT	108938.02	10	0.8	semi
146	0.6 MORNING MIST,THE CRESCENT,WALCOTT	74536.54	10	0.8	detached
122	0.6 MYARD,WALCOTT ROAD,BACTON	74536.54	10	0.8	detached
129	0.5 SEA SPRAY,THE CRESCENT,WALCOTT	183474.56	10	0.8	detached
130	0.5 SEA VIEW COAST ROAD,WALCOTT	172007.4	10	0.8	detached
127	0.5 SEACLOSE COAST ROAD,WALCOTT	68802.96	10	0.8	detached
75	0.5 SEACLOSE,THE CRESCENT,WALCOTT	149073.08	10	0.8	detached
170	0.5 SPINDRIFT,THE CRESCENT,WALCOTT	74536.54	10	0.8	detached
180	0.5 STONE GABLES,COAST ROAD,WALCOTT	108938.02	10	0.8	detached
183	0.5 STONE GABLES,COAST ROAD,WALCOTT	108938.02	10	0.8	detached
118	0.5 SUMMERHOLME,COAST ROAD,WALCOTT	74536.54	10	0.8	detached
116	0.5 SUNDIAL COTTAGE,WATCH HOUSE LANE,BACTON	86003.7	10	0.8	semi
171	0.5 THE FLINT HOUSE,OSTEND PLACE,WALCOTT	326814.06	10	0.8	detached
134	0.5 THE RETREAT,ARCHIBALD ROAD,WALCOTT	63069.38	10	0.8	detached
157	0.5 TIGH-NA-MARA,WATCH HOUSE LANE,BACTON	160540.24	10	0.8	detached
158	0.5 WYNDHAM,ARCHIBALD ROAD,WALCOTT	80270.12	10	0.8	detached
115	1. BEAUCOURT PLACE,WALCOTT	80270.12	10	0.8	detached
94	1. HORIZON VIEWS,WALCOTT	97470.86	10	0.8	semi
156	1. OSTEND PLACE,WALCOTT	137605.92	10	0.8	detached
140	10. ANNE STANNARD WAY,BACTON	149073.08	10	0.8	detached
188	13. HORIZON VIEWS,WALCOTT	126138.76	10	0.8	semi
169	14. HORIZON VIEWS,WALCOTT	126138.76	10	0.8	semi
167	15. HORIZON VIEWS,WALCOTT	86003.7	10	0.8	semi
166	16. HORIZON VIEWS,WALCOTT	86003.7	10	0.8	semi
163	2. BEAUCOURT PLACE,WALCOTT	91737.28	10	0.8	detached
151	2. OSTEND PLACE,WALCOTT	137605.92	10	0.8	detached
123	26. OSTEND PLACE,WALCOTT	126138.76	10	0.8	detached
164	3. BEAUCOURT PLACE,WALCOTT	91737.28	10	0.8	detached
131	3. OSTEND PLACE,WALCOTT	137605.92	10	0.8	detached
73	31. SEA VIEW ESTATE,BACTON	29814.616	10	0.8	detached
182	32. SEA VIEW ESTATE,BACTON	29814.616	10	0.8	detached
153	33. SEA VIEW ESTATE,BACTON	29814.616	10	0.8	detached
149	34. SEA VIEW ESTATE,BACTON	29814.616	10	0.8	detached
61	4. BEAUCOURT PLACE,WALCOTT	91737.28	10	0.8	semi
116	4. OSTEND PLACE,WALCOTT	74536.54	10	0.8	detached
110	4. OSTEND ROAD,WALCOTT	63069.38	10	0.8	terraced
165	5. BEAUCOURT PLACE,WALCOTT	91737.28	10	0.8	semi
109	5. OSTEND PLACE,WALCOTT	137605.92	10	0.8	detached
150	5. OSTEND ROAD,WALCOTT	63069.38	10	0.8	terraced
136	6. ANNE STANNARD WAY,BACTON	149073.08	10	0.8	detached
162	6. BEAUCOURT PLACE,WALCOTT	91737.28	10	0.8	detached
172	6. OSTEND PLACE,WALCOTT	143339.5	10	0.8	detached
125	6. OSTEND ROAD,WALCOTT	63069.38	10	0.8	terraced
160	6. SEA VIEW ESTATE,BACTON	172007.4	10	0.8	detached
137	7. ANNE STANNARD WAY,BACTON	149073.08	10	0.8	detached
105	7. OSTEND PLACE,WALCOTT	137605.92	10	0.8	detached
145	7. OSTEND ROAD,WALCOTT	63069.38	10	0.8	terraced
175	7. SEA VIEW ESTATE,BACTON	86003.7	10	0.8	detached
138	8. ANNE STANNARD WAY,BACTON	149073.08	10	0.8	detached
69	8. OSTEND ROAD,WALCOTT	63069.38	10	0.8	semi
181	8. SEA VIEW ESTATE,BACTON	74536.54	10	0.8	detached

Year	Number of properties						Commercial
	Total number of properties	Detached	semi detached	terraced	flat		
0-20	77	55	16	6	0	0	
21-50	42	35	7	0	0	0	
51-100	39	29	10	0	0	0	
Total	158	119	33	6	0	1	

Year	Income from rent for NNDC					
	Detached	semi detached	terraced	flat	Total	
0-20	£561,000	£124,800	£37,800	£0	£723,600	
21-50	£367,000	£54,600	£0	£0	£421,600	
51-100	£295,000	£78,000	£0	£0	£373,000	

It is assumed that the property cannot be rented the year that it is supposed to erode

RENT VALUE	£/year
Detached (assumed 4 bed)	10,200
Semi-detached (assumed 3 bed)	7,800
Terrace (assumed 2 bed)	6,300
Flat (assumed 1 bed)	4,800

<http://homes.findthbest.co.uk/v1648377/vanguard-St-Helens-Norwich-NR12-0LU>

Property Values	Cost to purchase all properties	10% added to account for maintenance
Tota Value	18,501,116	20,351,228
Tota 0-20	7,899,727	8,689,699
Total 20-50	5,517,997	6,069,797
Total 50-100	5,083,392	5,591,731

132	.8.	THE CRESCENT WALCOTT	86003.7	10	0.8	detached
139	.9.	ANNE STANNARD WAY BACTON	149073.08	10	0.8	detached
108	.3.	CRESCENT WALCOTT	80270.12	10	0.8	detached
148		KINGFISHER CAFE.0_COAST ROAD,WALCOTT	223609.62	10	0.8	detached
119		POST OFFICE.0_COAST ROAD,WALCOTT	223609.62	10	0.8	detached
111	.0.1	MARYLAND ARCHIBALD ROAD,WALCOTT	103204.44	15	0.1	semi
61	.0.1	SPINDRIFT SEAVIEW CRESCENT WALCOTT	68802.96	15	0.1	detached
10	.0.1	THE MOORLANDS COAST ROAD,WALCOTT	103204.44	15	0.1	semi
141	.0.2	MARYLAND ARCHIBALD ROAD,WALCOTT	103204.44	15	0.1	semi
128	.0.2	SPINDRIFT SEAVIEW CRESCENT WALCOTT	68802.96	15	0.1	detached
71	.0.2	THE MOORLANDS COAST ROAD,WALCOTT	103204.44	15	0.1	semi
176	.0.3	SPINDRIFT SEAVIEW CRESCENT WALCOTT	68802.96	15	0.1	detached
133	.0.4	SPINDRIFT SEAVIEW CRESCENT WALCOTT	68802.96	15	0.1	terraced
195	.0.41	WALCOTT CARAVAN PARK COAST ROAD,WALCOTT	114671.6	15	0.1	semi
178	.0.5	SPINDRIFT SEAVIEW CRESCENT WALCOTT	68802.96	15	0.1	terraced
106	.0.6	SPINDRIFT SEAVIEW CRESCENT WALCOTT	68802.96	15	0.1	detached
173	.0	BEACONS GLEAM COAST ROAD,WALCOTT	74536.54	15	0.1	detached
182	.0	CALM SEAS,OSTEND ROAD,WALCOTT	80270.12	15	0.1	semi
159	.0	CLIFF VIEW ARCHIBALD ROAD,WALCOTT	91737.28	15	0.1	detached
154	.0	FISHERMANS COTTAGE COAST ROAD,WALCOTT	34401.48	15	0.1	detached
90	.0	GAP END ST. HELEN ROAD,WALCOTT	97470.86	15	0.1	detached
126	.0	GENESIS,OSTEND GAP,WALCOTT	97470.86	15	0.1	detached
147	.0	GOLDEN SANDS,OSTEND ROAD,WALCOTT	74536.54	15	0.1	detached
112	.0	HEYHOE ARCHIBALD ROAD,WALCOTT	68802.96	15	0.1	detached
107	.0	JANTON,OSTEND GAP,WALCOTT	149073.08	15	0.1	detached
174	.0	LITTLE HOUSE COAST ROAD,WALCOTT	57335.8	15	0.1	detached
179	.0	LOTHLOREN COAST ROAD,WALCOTT	108938.02	15	0.1	semi
146	.0	MORNING MIST,THE CRESCENT,WALCOTT	74536.54	15	0.1	detached
122	.0	MYARD,WALCOTT ROAD,BACTON	74536.54	15	0.1	detached
129	.0.5	SEA SPRAY,THE CRESCENT WALCOTT	153474.56	15	0.1	detached
130	.0.5	SEA VIEW COAST ROAD,WALCOTT	172007.4	15	0.1	detached
127	.0.5	SEACLOSE COAST ROAD,WALCOTT	68802.96	15	0.1	detached
75	.0.5	SEAGOATS,THE CRESCENT WALCOTT	149073.08	15	0.1	detached
70	.0.5	SPINDRIFT,THE CRESCENT WALCOTT	74536.54	15	0.1	detached
180	.0	STONE GABLES,COAST ROAD,WALCOTT	108938.02	15	0.1	detached
183	.0	STONE GABLES,COAST ROAD,WALCOTT	108938.02	15	0.1	detached
118	.0	SUMMERHOLME COAST ROAD,WALCOTT	74536.54	15	0.1	detached
135	.0	SUNDIAL COTTAGE WATCH HOUSE LANE BACTON	86003.7	15	0.1	semi
171	.0	FLINT HOUSE,OSTEND PLACE,WALCOTT	309613.32	15	0.1	detached
134	.0	THE RETREAT ARCHIBALD ROAD,WALCOTT	63069.38	15	0.1	detached
157	.0	TIGH-NARA,WATCH HOUSE LANE,BACTON	160540.24	15	0.1	detached
158	.0	WYNDHAM ARCHIBALD ROAD,WALCOTT	80270.12	15	0.1	detached
115	.1.	BEAUJOURT PLACE,WALCOTT	80270.12	15	0.1	detached
156	.1.	OSTEND PLACE,WALCOTT	137605.92	15	0.1	detached
140	.10.	ANNE STANNARD WAY,BACTON	149073.08	15	0.1	detached
168	.13.	HORIZON VIEWS,WALCOTT	126138.76	15	0.1	semi
169	.14.	HORIZON VIEWS,WALCOTT	126138.76	15	0.1	semi
167	.15.	HORIZON VIEWS,WALCOTT	86003.7	15	0.1	semi
166	.16.	HORIZON VIEWS,WALCOTT	86003.7	15	0.1	semi
163	.2.	BEAUJOURT PLACE,WALCOTT	91737.28	15	0.1	detached
151	.2.	OSTEND PLACE,WALCOTT	137605.92	15	0.1	detached
123	.26.	OSTEND PLACE,WALCOTT	126138.76	15	0.1	detached
162	.3.	BEAUJOURT PLACE,WALCOTT	91737.28	15	0.1	detached
131	.3.	OSTEND PLACE,WALCOTT	137605.92	15	0.1	detached
73	.31.	SEA VIEW ESTATE,BACTON	29814.616	15	0.1	detached
182	.32.	SEA VIEW ESTATE,BACTON	29814.616	15	0.1	detached
163	.33.	SEA VIEW ESTATE,BACTON	29814.616	15	0.1	detached
149	.34.	SEA VIEW ESTATE,BACTON	29814.616	15	0.1	detached
161	.4.	BEAUJOURT PLACE,WALCOTT	91737.28	15	0.1	semi
116	.4.	OSTEND PLACE,WALCOTT	74536.54	15	0.1	detached
110	.4.	OSTEND ROAD,WALCOTT	63069.38	15	0.1	terraced
165	.5.	BEAUJOURT PLACE,WALCOTT	91737.28	15	0.1	detached
109	.5.	OSTEND PLACE,WALCOTT	137605.92	15	0.1	detached
150	.5.	OSTEND ROAD,WALCOTT	63069.38	15	0.1	terraced
136	.6.	ANNE STANNARD WAY,BACTON	149073.08	15	0.1	detached
164	.6.	BEAUJOURT PLACE,WALCOTT	91737.28	15	0.1	detached
172	.6.	OSTEND PLACE,WALCOTT	143339.5	15	0.1	detached
125	.6.	OSTEND ROAD,WALCOTT	63069.38	15	0.1	terraced
160	.6.	SEA VIEW ESTATE,BACTON	172007.4	15	0.1	detached
137	.7.	ANNE STANNARD WAY,BACTON	149073.08	15	0.1	detached
105	.7.	OSTEND PLACE,WALCOTT	137605.92	15	0.1	detached
145	.7.	OSTEND ROAD,WALCOTT	63069.38	15	0.1	terraced
175	.7.	SEA VIEW ESTATE,BACTON	86003.7	15	0.1	detached
138	.8.	ANNE STANNARD WAY,BACTON	149073.08	15	0.1	detached
169	.8.	OSTEND ROAD,WALCOTT	63069.38	15	0.1	semi
181	.8.	SEA VIEW ESTATE,BACTON	74536.54	15	0.1	detached
132	.8.	THE CRESCENT WALCOTT	86003.7	15	0.1	detached
139	.9.	ANNE STANNARD WAY,BACTON	149073.08	15	0.1	detached
108	.9.	THE CRESCENT WALCOTT	80270.12	15	0.1	detached
148		KINGFISHER CAFE.0_COAST ROAD,WALCOTT	223609.62	15	0.1	detached
119		POST OFFICE.0_COAST ROAD,WALCOTT	223609.62	15	0.1	detached
94	.1.	HORIZON VIEWS,WALCOTT	97470.86	20	0.1	semi
62	.0.1	LIFEBOAT COTTAGES,KESWICK ROAD,BACTON	91737.28	30	0.1	semi
63	.0.2	LIFEBOAT COTTAGES,KESWICK ROAD,BACTON	91737.28	30	0.1	detached
41	.0.38	WALCOTT CARAVAN PARK COAST ROAD,WALCOTT	57335.8	30	0.1	commercial
60	.0	ANCHORAGE,KESWICK ROAD,BACTON	97470.86	30	0.1	detached
59	.0	ARRADA,KESWICK ROAD,BACTON	0	30	0.1	detached
29	.0	BARN COTTAGE WATCH HOUSE LANE,BACTON	309613.32	30	0.1	detached
64	.0	BRELIN ARCHIBALD ROAD,WALCOTT	108938.02	30	0.1	detached
58	.0	CLIFF BUNGALOW,KESWICK ROAD,BACTON	91737.28	30	0.1	detached
4	.0	COAST BUNGALOW,KESWICK ROAD,BACTON	120405.18	30	0.1	detached
4	.0	DANWAY ARCHIBALD ROAD,WALCOTT	108938.02	30	0.1	semi
16	.0	EVENING SUN,THE CRESCENT WALCOTT	74536.54	30	0.1	detached
16	.0	EVENTIDE,THE CRESCENT WALCOTT	149073.08	30	0.1	detached
30	.0	FALGA M HARA,WATCH HOUSE LANE,BACTON	97470.86	30	0.1	detached
74	.0	NAGOR,KESWICK ROAD,BACTON	172007.4	30	0.1	detached
52	.0	PIED-A-TERRRE,KESWICK ROAD,BACTON	126138.76	30	0.1	detached
67	.0	POACHERS POCKET,WALCOTT ROAD,BACTON	34401.48	30	0.1	detached
103	.0	POPPYDEW ARCHIBALD ROAD,WALCOTT	137605.92	30	0.1	detached
104	.0	SANDIACRE,WALCOTT ROAD,BACTON	74536.54	30	0.1	detached
79	.0	THE FOLLY,OSTEND GAP,WALCOTT	120405.18	30	0.1	detached
16	.0	THE HAVEN,OSTEND GAP,WALCOTT	120405.18	30	0.1	detached
68	.0	TIDEWAYS,COAST ROAD,WALCOTT	91737.28	30	0.1	detached
100	.10.	HORIZON VIEWS,WALCOTT	172007.4	30	0.1	detached
26	.11.	ANNE STANNARD WAY,BACTON	149073.08	30	0.1	detached
101	.11.	HORIZON VIEWS,WALCOTT	172007.4	30	0.1	detached
112	.12.	ANNE STANNARD WAY,BACTON	149073.08	30	0.1	detached
93	.12.	HORIZON VIEWS,WALCOTT	172007.4	30	0.1	detached
27	.17.	ANNE STANNARD WAY,BACTON	149073.08	30	0.1	detached
90	.18.	ANNE STANNARD WAY,BACTON	149073.08	30	0.1	detached
2	.18.	ANNE STANNARD WAY,BACTON	86003.7	30	0.1	detached
85	.2.	HORIZON VIEWS,WALCOTT	97470.86	30	0.1	semi
65	.27.	OSTEND PLACE,WALCOTT	120405.18	30	0.1	detached
90	.3.	ANNE STANNARD WAY,BACTON	74536.54	30	0.1	detached
96	.3.	HORIZON VIEWS,WALCOTT	97470.86	30	0.1	semi
30	.30.	SEA VIEW ESTATE,BACTON	29814.616	30	0.1	detached
97	.7.	THE CRESCENT WALCOTT	126138.76	30	0.1	semi
91	.8.	OSTEND PLACE,WALCOTT	154806.66	30	0.1	detached
99	.8.	HORIZON VIEWS,WALCOTT	172007.4	30	0.1	detached
85	.8.	SEA VIEW ESTATE,BACTON	29814.616	30	0.1	detached
185	.13	ANNE STANDARD WAY, BACTON	200675.3	30	0.1	detached
186	.14	ANNE STANDARD WAY, BACTON	149073.08	30	0.1	detached
187	.15	ANNE STANDARD WAY, BACTON	149073.08	30	0.1	detached
188	.16	ANNE STANDARD WAY, BACTON	149073.08	30	0.1	detached
89		EASTWAYS RESIDENTIAL HOME.0_WALCOTT ROAD,BACTON	183474.56	30	0.1	detached
62	.0.1	LIFEBOAT COTTAGES,KESWICK ROAD,BACTON	91737.28	35	0.8	semi
63	.0.2	LIFEBOAT COTTAGES,KESWICK ROAD,BACTON	91737.28	35	0.8	semi
41	.0.38	WALCOTT CARAVAN PARK COAST ROAD,WALCOTT	57335.8	35	0.8	commercial
60	.0	ANCHORAGE,KESWICK ROAD,BACTON	97470.86	35	0.8	detached
59	.0	ARRADA,KESWICK ROAD,BACTON	0	35	0.8	detached
29	.0	BARN COTTAGE WATCH HOUSE LANE,BACTON	309613.32	35	0.8	detached
64	.0	BRELIN ARCHIBALD ROAD,WALCOTT	108938.02	35	0.8	semi
6	.0	CLIFF BUNGALOW,KESWICK ROAD,BACTON	91737.28	35	0.8	detached
92	.0	COAST BUNGALOW,KESWICK ROAD,BACTON	120405.18	35	0.8	detached
4	.0	DANWAY ARCHIBALD ROAD,WALCOTT	108938.02	35	0.8	semi
76	.0	EVENING SUN,THE CRESCENT WALCOTT	74536.54	35	0.8	detached
16	.0	EVENTIDE,THE CRESCENT WALCOTT	149073.08	35	0.8	detached
30	.0	FALGA M HARA,WATCH HOUSE LANE,BACTON	97470.86	35	0.8	detached
74	.0	NAGOR,KESWICK ROAD,BACTON	172007.4	35	0.8	detached
52	.0	PIED-A-TERRRE,KESWICK ROAD,BACTON	126138.76	35	0.8	detached
67	.0	POACHERS POCKET,WALCOTT ROAD,BACTON	34401.48	35	0.8	detached
103	.0	POPPYDEW ARCHIBALD ROAD,WALCOTT	137605.92	35	0.8	detached
104	.0	SANDIACRE,WALCOTT ROAD,BACTON	74536.54	35	0.8	detached
79	.0	THE FOLLY,OSTEND GAP,WALCOTT	120405.18	35	0.8	detached
78	.0	THE HAVEN,OSTEND GAP,WALCOTT	120405.18	35	0.8	detached
68	.0	TIDEWAYS,COAST ROAD,WALCOTT	91737.28	35	0.8	detached
100	.10.	HORIZON VIEWS,WALCOTT	172007.4	35	0.8	detached
26	.11.	ANNE STANNARD WAY,BACTON	149073.08	35	0.8	detached
101	.11.	HORIZON VIEWS,WALCOTT	172007.4	35	0.8	detached
25	.12.	ANNE STANNARD WAY,BACTON	149073.08	35	0.8	detached
93	.12.	HORIZON VIEWS,WALCOTT	172007.4	35	0.8	detached
93	.17.	ANNE STANNARD WAY,BACTON	149073.08	35	0.8	detached
80	.18.	ANNE STANNARD WAY,BACTON	149073.08	35	0.8	detached
24	.2.	ANNE STANNARD WAY,BACTON	86003.7	35	0.8	detached
95	.2.	HORIZON VIEWS,WALCOTT	97470.86	35	0.8	semi

65	.27	.OSTEND PLACE,WALCOTT	120405.18	35	0.8	detached
90	.3	.ANNE STANNARD WAY,BACTON	74536.54	35	0.8	detached
99	.9	.HORIZON VIEWS,WALCOTT	97470.86	35	0.8	semi
185	.30	.SEA VIEW ESTATE,BACTON	29814.616	35	0.8	detached
97	.7	.THE CRESCENT,WALCOTT	126138.76	35	0.8	semi
91	.8	.OSTEND PLACE,WALCOTT	154806.66	35	0.8	detached
99	.9	.HORIZON VIEWS,WALCOTT	122007.4	35	0.8	detached
85	.9	.SEA VIEW ESTATE,BACTON	29814.616	35	0.8	detached
185	.13	.ANNE STANDARD WAY, BACTON	200675.3	35	0.8	detached
186	.14	.ANNE STANDARD WAY, BACTON	149073.08	35	0.8	detached
187	.15	.ANNE STANDARD WAY, BACTON	149073.08	35	0.8	detached
188	.16	.ANNE STANDARD WAY, BACTON	149073.08	35	0.8	detached
88		EASTWAYS RESIDENTIAL HOME 0, WALCOTT ROAD,BACTON	183474.56	35	0.8	detached
62	.0.1	.LIFEBOAT COTTAGES,KESWICK ROAD,BACTON	91737.28	40	0.1	semi
63	.0.2	.LIFEBOAT COTTAGES,KESWICK ROAD,BACTON	91737.28	40	0.1	semi
41	.0.38	.WALCOTT CARAVAN PARK,COAST ROAD,WALCOTT	57335.8	40	0.1	commercial
60	.0	.ANCHORAGE,KESWICK ROAD,BACTON	97470.86	40	0.1	detached
59	.0	.ARFRADA,KESWICK ROAD,BACTON	0	40	0.1	detached
29	.0	.BARN COTTAGE,WATCH HOUSE LANE,BACTON	309613.32	40	0.1	detached
64	.0	.BREILN,ARCHIBALD ROAD,WALCOTT	108938.02	40	0.1	semi
58	.0	.CLIFF BUNGALOW,KESWICK ROAD,BACTON	91737.28	40	0.1	detached
92	.0	.COAST BUNGALOW,KESWICK ROAD,BACTON	120405.18	40	0.1	detached
4	.0	.DANWAY ARCHIBALD ROAD,WALCOTT	108938.02	40	0.1	semi
76	.0	.EVENING SUN,THE CRESCENT,WALCOTT	74536.54	40	0.1	detached
8	.0	.EVINGDE,THE CRESCENT,WALCOTT	149073.08	40	0.1	detached
30	.0	.FALAI G M HARA,WATCH HOUSE LANE,BACTON	97470.86	40	0.1	detached
74	.0	.NAGOR,KESWICK ROAD,BACTON	122007.4	40	0.1	detached
52	.0	.PIED-A-TERRRE,KESWICK ROAD,BACTON	126138.76	40	0.1	detached
67	.0	.PINES ROCK,WALCOTT ROAD,BACTON	34401.48	40	0.1	detached
103	.0	.POPPYDEW,ARCHIBALD ROAD,WALCOTT	137605.92	40	0.1	detached
104	.0	.SANDIACRE,WALCOTT ROAD,BACTON	74536.54	40	0.1	detached
79	.0	.THE FOLLY,OSTEND GAP,WALCOTT	120405.18	40	0.1	detached
78	.0	.THE HAVEN,OSTEND GAP,WALCOTT	120405.18	40	0.1	detached
68	.0	.THE SEAWAYS,COAST ROAD,WALCOTT	91737.28	40	0.1	detached
100	.10	.HORIZON VIEWS,WALCOTT	122007.4	40	0.1	detached
26	.11	.ANNE STANNARD WAY, BACTON	149073.08	40	0.1	detached
101	.11	.HORIZON VIEWS,WALCOTT	122007.4	40	0.1	detached
102	.12	.ANNE STANNARD WAY, BACTON	149073.08	40	0.1	detached
93	.12	.HORIZON VIEWS,WALCOTT	122007.4	40	0.1	detached
27	.17	.ANNE STANNARD WAY, BACTON	149073.08	40	0.1	detached
90	.18	.ANNE STANNARD WAY, BACTON	149073.08	40	0.1	detached
24	.2	.ANNE STANNARD WAY, BACTON	69603.7	40	0.1	detached
65	.2	.HORIZON VIEWS,WALCOTT	97470.86	40	0.1	semi
85	.27	.OSTEND PLACE,WALCOTT	120405.18	40	0.1	detached
90	.3	.ANNE STANNARD WAY, BACTON	74536.54	40	0.1	detached
96	.3	.HORIZON VIEWS,WALCOTT	97470.86	40	0.1	semi
30	.3	.ANNE STANNARD WAY, BACTON	29814.616	40	0.1	detached
97	.7	.THE CRESCENT,WALCOTT	126138.76	40	0.1	semi
91	.8	.OSTEND PLACE,WALCOTT	154806.66	40	0.1	detached
99	.9	.HORIZON VIEWS,WALCOTT	122007.4	40	0.1	detached
85	.9	.SEA VIEW ESTATE,BACTON	29814.616	40	0.1	detached
185	.13	.ANNE STANDARD WAY, BACTON	200675.3	40	0.1	detached
186	.14	.ANNE STANDARD WAY, BACTON	149073.08	40	0.1	detached
187	.15	.ANNE STANDARD WAY, BACTON	149073.08	40	0.1	detached
188	.16	.ANNE STANDARD WAY, BACTON	149073.08	40	0.1	detached
88		EASTWAYS RESIDENTIAL HOME 0, WALCOTT ROAD,BACTON	183474.56	40	0.1	detached
23	.0	.BAKERSFIELD,ANNE STANNARD WAY, BACTON	122007.4	70	0.1	detached
42	.0	.COAST VIEW,OSTEND GAP,WALCOTT	91737.28	70	0.1	detached
45	.0	.IVY COTTAGE,ST. HELENS ROAD,WALCOTT	0	70	0.1	semi
40	.0	.MONREPOSE,KESWICK ROAD,BACTON	137605.92	70	0.1	detached
13	.0	.REST-A-WHILE,THE CRESCENT,WALCOTT	143339.5	70	0.1	detached
7	.0	.RIVENDELL,COAST ROAD,WALCOTT	97470.86	70	0.1	detached
3	.0	.SELINA,ARCHIBALD ROAD,WALCOTT	34401.48	70	0.1	semi
49	.0	.SPRINGTIDE COTTAGE,HELENA ROAD,WALCOTT	114671.6	70	0.1	detached
1	.0	.SPRINGTIDE COTTAGE,COAST ROAD,WALCOTT	137605.92	70	0.1	detached
32	.0	.WINDBRACE,THE CRESCENT,WALCOTT	97470.86	70	0.1	detached
37	.1	.OSTEND ROAD,WALCOTT	80270.12	70	0.1	semi
22	.10	.OSTEND PLACE,WALCOTT	126138.76	70	0.1	detached
2	.10	.SEA VIEW ESTATE,BACTON	29814.616	70	0.1	detached
18	.11	.OSTEND PLACE,WALCOTT	126138.76	70	0.1	detached
14	.12	.OSTEND PLACE,WALCOTT	126138.76	70	0.1	detached
5	.13	.OSTEND PLACE,WALCOTT	126138.76	70	0.1	detached
43	.14	.OSTEND PLACE,WALCOTT	126138.76	70	0.1	detached
31	.15	.OSTEND PLACE,WALCOTT	126138.76	70	0.1	detached
38	.2	.OSTEND ROAD,WALCOTT	91737.28	70	0.1	semi
21	.22	.OSTEND ROAD,WALCOTT	63069.38	70	0.1	detached
20	.25	.OSTEND PLACE,WALCOTT	131872.34	70	0.1	detached
28	.28	.OSTEND PLACE,WALCOTT	120405.18	70	0.1	detached
81	.29	.SEA VIEW ESTATE,BACTON	29814.616	70	0.1	detached
45	.4	.HORIZON VIEWS,WALCOTT	0	70	0.1	semi
6	.6	.THE CRESCENT,WALCOTT	131872.34	70	0.1	semi
55	.8	.HORIZON VIEWS,WALCOTT	97470.86	70	0.1	semi
39	.9	.OSTEND PLACE,WALCOTT	126138.76	70	0.1	detached
36	.9	.OSTEND ROAD,WALCOTT	63069.38	70	0.1	semi
190	.1	.ANNE STANDARD WAY, BACTON	149073.08	70	0.1	detached
197	.5	.SEA VIEW ESTATE,BACTON	29814.616	70	0.1	detached
199	.9	.FOUR WINDS,WALCOTT RD,BACTON	91737.28	70	0.1	detached
194	.1	.LAMOURETTE, COAST RD, BACTON	149073.08	70	0.1	detached
192	.1	.LA SIESTA, ARCHIBALD RD, WALCOTT	177740.98	70	0.1	semi
9		RED HOUSE CHALET & CARAVAN PARK 0, PASTON ROAD,BACTON	630693.8	70	0.1	commercial
191		SALAMAT, ARCHIBALD RD, WALCOTT	57335.8	70	0.1	semi
196		SAMPHIRE,OSTEND GAP,WALCOTT	122007.4	70	0.1	detached
195		SEACROFT, MILL LANE, BACTON	516022.2	70	0.1	detached
193		SHIP INN, COAST RD, BACTON	263744.68	70	0.1	detached
198		WYNNGATE,THE CRESCENT,WALCOTT	97470.86	70	0.1	detached
23	.0	.BAKERSFIELD,ANNE STANNARD WAY, BACTON	122007.4	75	0.8	detached
42	.0	.COAST VIEW,OSTEND GAP,WALCOTT	91737.28	75	0.8	detached
46	.0	.IVY COTTAGE,ST. HELENS ROAD,WALCOTT	0	75	0.8	semi
40	.0	.MONREPOSE,KESWICK ROAD,BACTON	137605.92	75	0.8	detached
13	.0	.REST-A-WHILE,THE CRESCENT,WALCOTT	143339.5	75	0.8	detached
7	.0	.RIVENDELL,COAST ROAD,WALCOTT	97470.86	75	0.8	detached
3	.0	.SELINA,ARCHIBALD ROAD,WALCOTT	34401.48	75	0.8	semi
49	.0	.SPRINGTIDE COTTAGE,HELENA ROAD,WALCOTT	114671.6	75	0.8	detached
1	.0	.SPRINGTIDE COTTAGE,COAST ROAD,WALCOTT	137605.92	75	0.8	detached
32	.0	.WINDBRACE,THE CRESCENT,WALCOTT	97470.86	75	0.8	detached
37	.1	.OSTEND ROAD,WALCOTT	80270.12	75	0.8	semi
22	.10	.OSTEND PLACE,WALCOTT	126138.76	75	0.8	detached
2	.10	.SEA VIEW ESTATE,BACTON	29814.616	75	0.8	detached
18	.11	.OSTEND PLACE,WALCOTT	126138.76	75	0.8	detached
14	.12	.OSTEND PLACE,WALCOTT	126138.76	75	0.8	detached
5	.13	.OSTEND PLACE,WALCOTT	126138.76	75	0.8	detached
43	.14	.OSTEND PLACE,WALCOTT	126138.76	75	0.8	detached
31	.15	.OSTEND PLACE,WALCOTT	126138.76	75	0.8	detached
38	.2	.OSTEND ROAD,WALCOTT	91737.28	75	0.8	semi
21	.22	.OSTEND ROAD,WALCOTT	63069.38	75	0.8	detached
20	.25	.OSTEND PLACE,WALCOTT	131872.34	75	0.8	detached
51	.28	.OSTEND PLACE,WALCOTT	120405.18	75	0.8	detached
10	.29	.SEA VIEW ESTATE,BACTON	29814.616	75	0.8	detached
45	.4	.HORIZON VIEWS,WALCOTT	0	75	0.8	semi
6	.6	.THE CRESCENT,WALCOTT	131872.34	75	0.8	semi
55	.8	.HORIZON VIEWS,WALCOTT	97470.86	75	0.8	semi
39	.9	.OSTEND PLACE,WALCOTT	126138.76	75	0.8	detached
36	.9	.OSTEND ROAD,WALCOTT	63069.38	75	0.8	semi
190	.1	.ANNE STANDARD WAY, BACTON	149073.08	75	0.8	detached
197	.5	.SEA VIEW ESTATE,BACTON	29814.616	75	0.8	detached
199	.9	.FOUR WINDS,WALCOTT RD,BACTON	91737.28	75	0.8	detached
194	.1	.LAMOURETTE, COAST RD, BACTON	149073.08	75	0.8	detached
192	.1	.LA SIESTA, ARCHIBALD RD, WALCOTT	177740.98	75	0.8	semi
9		RED HOUSE CHALET & CARAVAN PARK 0, PASTON ROAD,BACTON	630693.8	75	0.8	commercial
191		SALAMAT, ARCHIBALD RD, WALCOTT	57335.8	75	0.8	semi
196		SAMPHIRE,OSTEND GAP,WALCOTT	122007.4	75	0.8	detached
195		SEACROFT, MILL LANE, BACTON	516022.2	75	0.8	detached
193		SHIP INN, COAST RD, BACTON	263744.68	75	0.8	detached
198		WYNNGATE,THE CRESCENT,WALCOTT	97470.86	75	0.8	detached
23	.0	.BAKERSFIELD,ANNE STANNARD WAY, BACTON	122007.4	80	0.1	detached
42	.0	.COAST VIEW,OSTEND GAP,WALCOTT	91737.28	80	0.1	detached
46	.0	.IVY COTTAGE,ST. HELENS ROAD,WALCOTT	0	80	0.1	semi
40	.0	.MONREPOSE,KESWICK ROAD,BACTON	137605.92	80	0.1	detached
13	.0	.REST-A-WHILE,THE CRESCENT,WALCOTT	143339.5	80	0.1	detached
7	.0	.RIVENDELL,COAST ROAD,WALCOTT	97470.86	80	0.1	detached
3	.0	.SELINA,ARCHIBALD ROAD,WALCOTT	34401.48	80	0.1	semi
49	.0	.SPRINGTIDE COTTAGE,HELENA ROAD,WALCOTT	114671.6	80	0.1	detached
1	.0	.SPRINGTIDE COTTAGE,COAST ROAD,WALCOTT	137605.92	80	0.1	detached
32	.0	.WINDBRACE,THE CRESCENT,WALCOTT	97470.86	80	0.1	detached
37	.1	.OSTEND ROAD,WALCOTT	80270.12	80	0.1	semi
22	.10	.OSTEND PLACE,WALCOTT	126138.76	80	0.1	detached
2	.10	.SEA VIEW ESTATE,BACTON	29814.616	80	0.1	detached
18	.11	.OSTEND PLACE,WALCOTT	126138.76	80	0.1	detached
14	.12	.OSTEND PLACE,WALCOTT	126138.76	80	0.1	detached
5	.13	.OSTEND PLACE,WALCOTT	126138.76	80	0.1	detached
43	.14	.OSTEND PLACE,WALCOTT	126138.76	80	0.1	detached
31	.15	.OSTEND PLACE,WALCOTT	126138.76	80	0.1	detached

38	2, OSTEND ROAD, WALCOTT	91737.28	80	0.1	semi
21	22, OSTEND ROAD, WALCOTT	63069.38	80	0.1	detached
20	25, OSTEND PLACE, WALCOTT	131872.34	80	0.1	detached
51	28, OSTEND PLACE, WALCOTT	120405.18	80	0.1	detached
10	29, SEA VIEW ESTATE, BACTON	29814.616	80	0.1	detached
45	4, HORIZON VIEWS, WALCOTT	0	80	0.1	semi
6	6, THE CRESCENT, WALCOTT	131872.34	80	0.1	semi
55	8, HORIZON VIEWS, WALCOTT	97470.86	80	0.1	semi
39	9, OSTEND PLACE, WALCOTT	126138.76	80	0.1	detached
36	9, OSTEND ROAD, WALCOTT	63069.38	80	0.1	semi
190	1, ANNE STANDARD WAY, BACTON	149073.08	80	0.1	detached
197	5, SEA VIEW ESTATE, BACTON	29814.616	80	0.1	detached
199	FOUR WINDS, WALCOTT RD, BACTON	91737.28	80	0.1	detached
194	L'AMOURETTE, COAST RD, BACTON	149073.08	80	0.1	detached
192	LA SIESTA, ARCHIBALD RD, WALCOTT	177740.98	80	0.1	semi
9	RED HOUSE CHALEY & CARAVAN PARK, 0, PASTON ROAD, BACTON	630693.8	80	0.1	commercial
191	SALAMAT, ARCHIBALD RD, WALCOTT	57335.8	80	0.1	semi
196	SAMPHIRE, OSTEND GAP, WALCOTT	172007.4	80	0.1	detached
195	SEACROFT, MILL LANE, BACTON	516022.2	80	0.1	detached
193	SHIP INN, COAST RD, BACTON	263744.68	80	0.1	detached
198	WYNGATE, THE CRESCENT, WALCOTT	97470.86	80	0.1	detached

Demolish, relocate and rebuild all properties depending on the erosion band in which they sit.

Number of properties

Year	Total number of properties	Detached	semi detached	terrace	flat	Commercial-ignore
0-20	77	55	16	6	0	1
21-50	42	35	7	0	0	0
51-100	39	29	10	0	0	0
	158	119	33	6	0	1

0-100 years

Rebuild costs	3 bed houses				2 bed flat	
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Commercial	
£2,000.00	120	105	96	70		
Number of properties	119	33	6	0		
Cost per type of house	£28,560,000	£6,930,000	£1,152,000	£0	£0.00	£36,642,000

Demolition costs	2 floors houses				1 floor flat	
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Commercial	
£6,000.00	1	1	1	1		
Number of properties	119	33	6	0		
Cost per type of house	£714,000.00	£198,000.00	£36,000.00	£0.00	£0.00	£948,000.00

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£ 25.31	£ 1,331,628
750 m2 per commercial properties	0			£0.00
				£1,331,628

TOTAL for 0-100 years £36,921,628

0-20 years only

Rebuild costs	3 bed houses				2 bed flat	
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Commercial	
£2,000.00	120	105	96	70		
Number of properties	55	16	6	0		
Cost per type of house	£13,200,000	£3,360,000	£1,152,000	£0	£0.00	£17,712,000

Demolition costs	2 floors houses				1 floor flat	
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Commercial	
£6,000.00	1	1	1	1		
Number of properties	55	16	6	0	1	
Cost per type of house	£330,000.00	£96,000.00	£36,000.00	£0.00	£0.00	£462,000.00

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£25.31	£648,958
750 m2 per commercial properties	0			
				£648,958.06

TOTAL for 0-20 years £18,822,958

20-50 years only

Rebuild costs	3 bed houses				2 bed flat	
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Commercial	
£2,000.00	120	105	96	70		
Number of properties	35	7	0	0	0	
Cost per type of house	£8,400,000	£1,470,000	£0	£0	£0.00	£9,870,000

Demolition costs	2 floors houses				1 floor flat	
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Commercial	
£6,000.00	1	1	1	1		
Number of properties	35	7	0	0	0	
Cost per type of house	£210,000.00	£42,000.00	£0.00	£0.00	£0.00	£252,000.00

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£25.31	£353,977
750 m2 per commercial properties	0			
				£353,977

TOTAL for 20-50 years £10,475,977

50-100 years only

Rebuild costs	3 bed houses				2 bed flat	
Average rebuild cost (m2)	Average house (m2)	Average semi detached house (m2)	Average terrace	Average Flat (m2)	Commercial	
£2,000.00	120	105	96	70		
Number of properties	29	10	0	0	0	
Cost per type of house	£6,960,000	£2,100,000	£0	£0	£0.00	£9,060,000

Demolition costs	2 floors houses				1 floor flat	
Average demolition cost (per house from NNDC)	Average house (m3)	Average semi detached house (m3)	Average terrace	Average Flat (m3)	Commercial	
£6,000.00	1	1	1	1		
Number of properties	29	10	0	0	0	
Cost per type of house	£174,000.00	£60,000.00	£0.00	£0.00	£0.00	£234,000.00

Relocation costs

Land purchase	Replacement (m2)	Type of land	Cost per m2	Cost
Replacement of 333m2 per residential properties	333	Agricultural	£25.31	£328,693
750 m2 per commercial properties	0			
				£328,693.04

TOTAL for 50-100 years £9,622,693

FCRM spreadsheets (sensitivity tests for Bacton)

FCRM spreadsheets (sensitivity tests for Walcott and Ostend)

Sensitivity test 3 Present Value Costs for all options														
Client Authority North Norfolk District Council														
Project name Bloxton, Walcott and Oxtord Coastal Main														
Project reference 30.061														
Base date for estimates (year) year 0														
Scaling factor (e.g. £m, £k, £) £														
Initial discount rate 0														
Results £														
PV total costs														
Option 1 Do-nothing														
Option 2 Option 6 - Purchase and lease of all properties														
Option 3 Buy, Rent and Demolish														
Option 4 Purchase and lease of all														
Option 5														
Option 6														
Option 7														
Option 8														
Option 9														
Option 10														
Option 11														
Option 12														
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Option 98														
Option 99														
Option 100														

Partnership Funding spreadsheets

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Walcott and Ostend 20 years only - Capital Works Extensive
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Scheme Benefit to Cost Ratio:	1.98	to 1
Effective return to taxpayer:	1.98	to 1
Effective return to area:	n/a	to 1

Raw Partnership Funding Score	28%	(1)
External Contribution or saving required to achieve an Adjusted Score of 100%	4,381,858	(2)
Adjusted Partnership Funding Score (PF)	28%	(3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	-	(4)

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	LA	(5)
Duration of Benefits (years)	20	(7)
PV Whole-Life Benefits:	12,094,000	(8)
PV Costs		
PV Appraisal Costs	0	(9)
PV design & Construction Costs	6,102,000	(10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	6,102,000	(11)
PV Post-Construction Costs	0	(12)
PV Total Whole-Life Costs:	6,102,000	(13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date

PV Local Levy secured to date		(14)
PV Public Contributions secured to date		(15)
PV Private Contributions secured to date		(16)
PV Funding from other Environment Agency functions/sources secured to date		(17)
PV Total Contributions secured to date	0	(18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

At:	Before			After			Change due to scheme		
	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
							0	0	0
							0	0	0
							0	0	0
Annual damages avoided, compared with a household at low risk							150	600	1,350

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Per year		Over lifetime of scheme		Qual. benefits (discounted)		
	£	-	£	-	OM2 (20%)	OM2 (60%)	
20% most deprived areas	£	-	£	-	£	-	
21-40% most deprived areas	£	-	£	-	OM2 (21-40%)	£	-
60% least deprived areas	£	-	£	-	OM2 (60%)	£	-

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

Before	
Long-term loss	42
Medium-term loss	77

Damages per household avoided:
Annual damages avoided
Loss expected in
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)

	£	£
Annual damages avoided	6,000	6,000
Loss expected in	50	20
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	1,184	3,015

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):		
	£	-	£	-	OM3 (20%)	OM3 (60%)	
20% most deprived areas	£	-	£	-	OM3 (20%)	£	-
21-40% most deprived areas	-£	281,896	-£	5,637,913	OM3 (21-40%)	£	4,288,310
60% least deprived areas	£	-	£	-	OM3 (60%)	£	-

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

OM4a	0.00	Hectares of net water-dependent habitat created
OM4b	0.00	Hectares of net intertidal habitat created
OM4c	0.00	Kilometres of protected river improved

Assumed benefits per unit:	
£	15,000
£	50,000
£	80,000

Qual. benefits (discounted):		
OM4a	£	-
OM4b	£	-
OM4c	£	-
OM4	£	-

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:
OM1	£ 7,805,690	5.56 p in the £1
OM2	20% most	£ - 45.0
	21-40%	£ - 30.0
	Least 60%	£ - 20.0
OM3	20% most	£ - 45.0
	21-40%	£ 4,288,310 30.0
	Least 60%	£ - 20.0
OM4	£ - 100.0	
Total	£ 12,094,000	

FCRM GiA contribution:	
£	433,649
£	-
£	-
£	-
£	-
£	1,286,493
£	-
£	-
£	1,720,142

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
Sensitivity 4 - Increase Duration of Benefits by 25%
Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
28%	4,381,858
9%	6,954,563
11%	5,429,063
11%	5,429,325
11%	5,429,164
11%	5,429,355

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)

Version 8 January 2014

Project Name
Unique Project Reference

All figures are in 'pounds' (£)
 Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score	<input type="text" value="89%"/> (1)
External Contribution or saving required to achieve an Adjusted Score of 100%	<input type="text" value="208,858"/> (2)
Adjusted Partnership Funding Score (PF)	<input type="text" value="89%"/> (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	<input type="text" value="-"/> (4)

Scheme Benefit to Cost Ratio:	<input type="text" value="6.27"/> to 1
Effective return to taxpayer:	<input type="text" value="6.27"/> to 1
Effective return to area:	<input type="text" value="n/a"/> to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	<input type="text" value="LA"/> (5)
Duration of Benefits (years)	<input type="text" value="20"/> (7)
PV Whole-Life Benefits:	<input type="text" value="12,094,000"/> (8)
PV Costs	
PV Appraisal Costs	<input type="text" value="0"/> (9)
PV design & Construction Costs	<input type="text" value="1,929,000"/> (10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	<input type="text" value="1,929,000"/> (11)
PV Post-Construction Costs	<input type="text" value="0"/> (12)
PV Total Whole-Life Costs:	<input type="text" value="1,929,000"/> (13)

(6)
 Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date	
PV Local Levy secured to date	<input type="text"/> (14)
PV Public Contributions secured to date	<input type="text"/> (15)
PV Private Contributions secured to date	<input type="text"/> (16)
PV Funding from other Environment Agency functions/sources secured to date	<input type="text"/> (17)
PV Total Contributions secured to date	<input type="text" value="0"/> (18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
 NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:	Before			After			Change due to scheme			
20% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
21-40% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
60% least deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
At:	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	
Annual damages avoided, compared with a household at low risk							150	600	1,350	
Change in household damages, in:	Per year			Over lifetime of scheme			Qual. benefits (discounted)			
20% most deprived areas	<input type="text" value="£ -"/>	OM2 (20%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					
21-40% most deprived areas	<input type="text" value="£ -"/>	OM2 (21-40%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					
60% least deprived areas	<input type="text" value="£ -"/>	OM2 (60%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:	Before		Damages per household avoided:		Qual. benefits (discounted):	
20% most deprived areas	<input type="text"/>	<input type="text"/>	Annual damages avoided	<input type="text" value="£ 6,000"/>	<input type="text" value="£ 6,000"/>	
21-40% most deprived areas	<input type="text" value="42"/>	<input type="text" value="77"/>	Loss expected in	<input type="text" value="£ 50"/>	<input type="text" value="£ 20"/>	years
60% least deprived areas	<input type="text"/>	<input type="text"/>	Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	<input type="text" value="£ 1,184"/>	<input type="text" value="£ 3,015"/>	
	Long-term loss	Medium-term loss		Long-term loss	Medium-term loss	
Change in household damages, in:	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):	
20% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (20%)
21-40% most deprived areas	<input type="text" value="£ -281,896"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -5,637,913"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (21-40%)
60% least deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (60%)

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:	<input type="text" value="0.00"/>	Hectares of net water-dependent habitat created	Assumed benefits per unit:	<input type="text" value="£ 15,000"/>	Qual. benefits (discounted):
OM4a	<input type="text" value="0.00"/>	Hectares of net intertidal habitat created	<input type="text" value="£ 50,000"/>	<input type="text" value="£ -"/>	OM4a
OM4b	<input type="text" value="0.00"/>	Kilometres of protected river improved	<input type="text" value="£ 80,000"/>	<input type="text" value="£ -"/>	OM4b
OM4c	<input type="text" value="0.00"/>			<input type="text" value="£ -"/>	OM4c
				<input type="text" value="£ -"/>	OM4

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	<input type="text" value="£ 7,805,690"/>	<input type="text" value="5.56"/> p in the £1	<input type="text" value="£ 433,649"/>
OM2	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
OM3	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
OM4	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
	<input type="text" value="£ -"/>		<input type="text" value="£ -"/>
Total	<input type="text" value="£ 12,094,000"/>		<input type="text" value="£ 1,720,142"/>

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
89%	208,858
28%	1,738,313
35%	1,256,063
35%	1,256,325
35%	1,256,164
35%	1,256,355

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)

Version 8 January 2014

Project Name
Unique Project Reference

All figures are in 'pounds' (£)
 Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score	<input type="text" value="70%"/> (1)
External Contribution or saving required to achieve an Adjusted Score of 100%	<input type="text" value="864,838"/> (2)
Adjusted Partnership Funding Score (PF)	<input type="text" value="70%"/> (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	<input type="text" value="-"/> (4)

Scheme Benefit to Cost Ratio:	<input type="text" value="4.65"/> to 1
Effective return to taxpayer:	<input type="text" value="4.65"/> to 1
Effective return to area:	<input type="text" value="n/a"/> to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	<input type="text" value="LA"/> (5)
Duration of Benefits (years)	<input type="text" value="20"/> (7)
PV Whole-Life Benefits:	<input type="text" value="13,354,000"/> (8)
PV Costs	
PV Appraisal Costs	<input type="text" value="0"/> (9)
PV design & Construction Costs	<input type="text" value="2,874,000"/> (10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	<input type="text" value="2,874,000"/> (11)
PV Post-Construction Costs	<input type="text" value="0"/> (12)
PV Total Whole-Life Costs:	<input type="text" value="2,874,000"/> (13)

(6)
 Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date	
PV Local Levy secured to date	<input type="text"/> (14)
PV Public Contributions secured to date	<input type="text"/> (15)
PV Private Contributions secured to date	<input type="text"/> (16)
PV Funding from other Environment Agency functions/sources secured to date	<input type="text"/> (17)
PV Total Contributions secured to date	<input type="text" value="0"/> (18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
 NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:	Before	After	Change due to scheme
20% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text" value="0"/>
21-40% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text" value="0"/>
60% least deprived areas	<input type="text"/>	<input type="text"/>	<input type="text" value="0"/>
At: Moderate risk	Significant risk	Very significant risk	Moderate risk
			Significant risk
			Very significant risk
Annual damages avoided, compared with a household at low risk			<input type="text" value="150"/>
			<input type="text" value="600"/>
			<input type="text" value="1,350"/>
Change in household damages, in:	Per year	Over lifetime of scheme	Qual. benefits (discounted)
20% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM2 (20%) <input type="text" value="£ -"/>
21-40% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM2 (21-40%) <input type="text" value="£ -"/>
60% least deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM2 (60%) <input type="text" value="£ -"/>

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:	Before	After	Change due to scheme
20% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>
21-40% most deprived areas	<input type="text" value="51"/>	<input type="text" value="93"/>	<input type="text"/>
60% least deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Long-term loss	Medium-term loss	Long-term loss
			Medium-term loss
Change in household damages, in:	Year 1 loss avoided:	Over lifetime of scheme:	Qual. benefits (discounted):
20% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (20%) <input type="text" value="£ -"/>
21-40% most deprived areas	<input type="text" value="£ -340,794"/>	<input type="text" value="£ 6,815,883"/>	OM3 (21-40%) <input type="text" value="£ 5,184,298"/>
60% least deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (60%) <input type="text" value="£ -"/>

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:	Assumed benefits per unit:	Qual. benefits (discounted):
OM4a <input type="text" value="0.00"/> Hectares of net water-dependent habitat created	<input type="text" value="£ 15,000"/>	OM4a <input type="text" value="£ -"/>
OM4b <input type="text" value="0.00"/> Hectares of net intertidal habitat created	<input type="text" value="£ 50,000"/>	OM4b <input type="text" value="£ -"/>
OM4c <input type="text" value="0.00"/> Kilometres of protected river improved	<input type="text" value="£ 80,000"/>	OM4c <input type="text" value="£ -"/>
		OM4 <input type="text" value="£ -"/>

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	£ 8,169,702	5.56 p in the £1	£ 453,872
OM2	£ -	45.0	£ -
	£ -	30.0	£ -
	£ -	20.0	£ -
OM3	£ -	45.0	£ -
	£ 5,184,298	30.0	£ 1,555,289
	£ -	20.0	£ -
OM4	£ -	100.0	£ -
Total	£ 13,354,000		£ 2,009,162

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
70%	864,838
21%	2,849,344
26%	2,130,844
26%	2,131,161
26%	2,131,164
26%	2,131,355

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)

Version 8 January 2014

Project Name
Unique Project Reference

All figures are in 'pounds' (£)
 Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score	<input type="text" value="22%"/> (1)
External Contribution or saving required to achieve an Adjusted Score of 100%	<input type="text" value="7,080,838"/> (2)
Adjusted Partnership Funding Score (PF)	<input type="text" value="22%"/> (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	<input type="text" value="-"/> (4)

Scheme Benefit to Cost Ratio:	<input type="text" value="1.47"/> to 1
Effective return to taxpayer:	<input type="text" value="1.47"/> to 1
Effective return to area:	<input type="text" value="n/a"/> to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	<input type="text" value="LA"/> (5)
Duration of Benefits (years)	<input type="text" value="20"/> (7)
PV Whole-Life Benefits:	<input type="text" value="13,354,000"/> (8)
PV Costs	
PV Appraisal Costs	<input type="text" value="0"/> (9)
PV design & Construction Costs	<input type="text" value="9,090,000"/> (10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	<input type="text" value="9,090,000"/> (11)
PV Post-Construction Costs	<input type="text" value="0"/> (12)
PV Total Whole-Life Costs:	<input type="text" value="9,090,000"/> (13)

(6)
 Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date

PV Local Levy secured to date	<input type="text"/> (14)
PV Public Contributions secured to date	<input type="text"/> (15)
PV Private Contributions secured to date	<input type="text"/> (16)
PV Funding from other Environment Agency functions/sources secured to date	<input type="text"/> (17)
PV Total Contributions secured to date	<input type="text" value="0"/> (18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
 NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:	Before			After			Change due to scheme			
20% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
21-40% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
60% least deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
At:	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	
Annual damages avoided, compared with a household at low risk							150	600	1,350	
Change in household damages, in:	Per year			Over lifetime of scheme			Qual. benefits (discounted)			
20% most deprived areas	<input type="text" value="£ -"/>	OM2 (20%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					
21-40% most deprived areas	<input type="text" value="£ -"/>	OM2 (21-40%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					
60% least deprived areas	<input type="text" value="£ -"/>	OM2 (60%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:	Before		Damages per household avoided:		Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	
20% most deprived areas	<input type="text"/>	<input type="text"/>	Annual damages avoided	<input type="text" value="£ 6,000"/>	<input type="text" value="£ 6,000"/>	years
21-40% most deprived areas	<input type="text" value="51"/>	<input type="text" value="93"/>	Loss expected in	<input type="text" value="£ 50"/>	<input type="text" value="£ 20"/>	
60% least deprived areas	<input type="text"/>	<input type="text"/>	Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	<input type="text" value="£ 1,184"/>	<input type="text" value="£ 3,015"/>	
Change in household damages, in:	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):	
20% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (20%)	<input type="text" value="£ -"/>
21-40% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ 340,794"/>	<input type="text" value="£ -"/>	<input type="text" value="£ 6,815,883"/>	OM3 (21-40%)	<input type="text" value="£ 5,184,298"/>
60% least deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (60%)	<input type="text" value="£ -"/>

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:	<input type="text" value="0.00"/>	Hectares of net water-dependent habitat created	Assumed benefits per unit:	<input type="text" value="£ 15,000"/>	Qual. benefits (discounted):
OM4a	<input type="text" value="0.00"/>	Hectares of net intertidal habitat created	<input type="text" value="£ 50,000"/>	OM4a	<input type="text" value="£ -"/>
OM4b	<input type="text" value="0.00"/>	Kilometres of protected river improved	<input type="text" value="£ 80,000"/>	OM4b	<input type="text" value="£ -"/>
OM4c	<input type="text" value="0.00"/>			OM4c	<input type="text" value="£ -"/>
				OM4	<input type="text" value="£ -"/>

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	£ 8,169,702	5.56p in the £1	£ 453,872
OM2	£ -	45.0	£ -
	£ -	30.0	£ -
	£ -	20.0	£ -
OM3	£ -	45.0	£ -
	£ 5,184,298	30.0	£ 1,555,289
	£ -	20.0	£ -
OM4	£ -	100.0	£ -
Total	£ 13,354,000		£ 2,009,162

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
22%	7,080,838
7%	10,619,344
8%	8,346,844
8%	8,347,161
8%	8,347,164
8%	8,347,355

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

1/z/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score	<input type="text" value="29%"/> (1)
External Contribution or saving required to achieve an Adjusted Score of 100%	<input type="text" value="667,194"/> (2)
Adjusted Partnership Funding Score (PF)	<input type="text" value="29%"/> (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	<input type="text" value="-"/> (4)

Scheme Benefit to Cost Ratio:	<input type="text" value="1.33"/> to 1
Effective return to taxpayer:	<input type="text" value="1.33"/> to 1
Effective return to area:	<input type="text" value="n/a"/> to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	<input type="text" value="LA"/> (5)
Duration of Benefits (years)	<input type="text" value="20"/> (7)
PV Whole-Life Benefits:	<input type="text" value="1,260,000"/> (8)
PV Costs	
PV Appraisal Costs	<input type="text"/> (9)
PV design & Construction Costs	<input type="text" value="945,000"/> (10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	<input type="text" value="945,000"/> (11)
PV Post-Construction Costs	<input type="text" value="0"/> (12)
PV Total Whole-Life Costs:	<input type="text" value="945,000"/> (13)

(6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date

PV Local Levy secured to date	<input type="text"/> (14)
PV Public Contributions secured to date	<input type="text"/> (15)
PV Private Contributions secured to date	<input type="text"/> (16)
PV Funding from other Environment Agency functions/sources secured to date	<input type="text" value="0"/> (17)
PV Total Contributions secured to date	<input type="text" value="0"/> (18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Before		
At:	Moderate risk	Significant risk	Very significant risk
	<input type="text"/>	<input type="text"/>	<input type="text"/>

	After		
	Moderate risk	Significant risk	Very significant risk
	<input type="text"/>	<input type="text"/>	<input type="text"/>

Change due to scheme		
Moderate risk	Significant risk	Very significant risk
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

Annual damages avoided, compared with a household at low risk	<input type="text" value="150"/>	<input type="text" value="600"/>	<input type="text" value="1,350"/>
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Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Per year	
	£	-
20% most deprived areas	<input type="text"/>	<input type="text"/>
21-40% most deprived areas	<input type="text"/>	<input type="text"/>
60% least deprived areas	<input type="text"/>	<input type="text"/>

	Over lifetime of scheme	
	£	-
20% most deprived areas	<input type="text"/>	<input type="text"/>
21-40% most deprived areas	<input type="text"/>	<input type="text"/>
60% least deprived areas	<input type="text"/>	<input type="text"/>

Qual. benefits (discounted)	
OM2 (20%)	<input type="text"/>
OM2 (21-40%)	<input type="text"/>
OM2 (60%)	<input type="text"/>

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Before	
	Long-term loss	Medium-term loss
	<input type="text" value="9"/>	<input type="text" value="15"/>

Damages per household avoided:
Annual damages avoided
Loss expected in
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)

	£	£	years
Annual damages avoided	<input type="text" value="6,000"/>	<input type="text" value="6,000"/>	
Loss expected in	<input type="text" value="50"/>	<input type="text" value="20"/>	
Present value of Year 1 loss	<input type="text" value="1,184"/>	<input type="text" value="3,015"/>	

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Year 1 loss avoided:	
	£	-
20% most deprived areas	<input type="text"/>	<input type="text"/>
21-40% most deprived areas	<input type="text" value="55,883"/>	<input type="text"/>
60% least deprived areas	<input type="text"/>	<input type="text"/>

	Over lifetime of scheme:	
	£	-
20% most deprived areas	<input type="text"/>	<input type="text"/>
21-40% most deprived areas	<input type="text" value="1,117,662"/>	<input type="text"/>
60% least deprived areas	<input type="text"/>	<input type="text"/>

Qual. benefits (discounted):	
OM3 (20%)	<input type="text"/>
OM3 (21-40%)	<input type="text" value="850,117"/>
OM3 (60%)	<input type="text"/>

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

OM4a	<input type="text" value="0.00"/>	Hectares of net water-dependent habitat created
OM4b	<input type="text" value="0.00"/>	Hectares of net intertidal habitat created
OM4c	<input type="text" value="0.00"/>	Kilometres of protected river improved

Assumed benefits per unit:	
£	<input type="text" value="15,000"/>
£	<input type="text" value="50,000"/>
£	<input type="text" value="80,000"/>

Qual. benefits (discounted):	
OM4a	<input type="text"/>
OM4b	<input type="text"/>
OM4c	<input type="text"/>
OM4	<input type="text"/>

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	p in the £1
OM1	£ 409,883	5.56	
OM2	20% most £ -	45.0	
	21-40% £ -	30.0	
	Least 60% £ -	20.0	
OM3	20% most £ -	45.0	
	21-40% £ 850,117	30.0	
	Least 60% £ -	20.0	
OM4	£ -	100.0	
Total	£ 1,260,000		

FCRM GiA contribution:	
£	<input type="text" value="22,771"/>
£	<input type="text"/>
£	<input type="text" value="255,035"/>
£	<input type="text"/>
£	<input type="text"/>
£	<input type="text" value="277,806"/>

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
29%	<input type="text" value="667,194"/>
6%	<input type="text" value="1,111,042"/>
7%	<input type="text" value="874,792"/>
7%	<input type="text" value="874,843"/>
8%	<input type="text" value="874,053"/>
7%	<input type="text" value="874,244"/>

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)

Version 8 January 2014

Project Name
Unique Project Reference

All figures are in 'pounds' (£)
 Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score	<input type="text" value="43%"/> (1)
External Contribution or saving required to achieve an Adjusted Score of 100%	<input type="text" value="4,436,003"/> (2)
Adjusted Partnership Funding Score (PF)	<input type="text" value="43%"/> (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	<input type="text" value="-"/> (4)

Scheme Benefit to Cost Ratio:	<input type="text" value="2.05"/> to 1
Effective return to taxpayer:	<input type="text" value="2.05"/> to 1
Effective return to area:	<input type="text" value="n/a"/> to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	<input type="text" value="LA"/> (5)
Duration of Benefits (years)	<input type="text" value="100"/> (7)
PV Whole-Life Benefits:	<input type="text" value="16,006,000"/> (8)
PV Costs	
PV Appraisal Costs	<input type="text" value=""/> (9)
PV design & Construction Costs	<input type="text" value="7,813,000"/> (10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	<input type="text" value="7,813,000"/> (11)
PV Post-Construction Costs	<input type="text" value="0"/> (12)
PV Total Whole-Life Costs:	<input type="text" value="7,813,000"/> (13)

(6)
 Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date	
PV Local Levy secured to date	<input type="text" value=""/> (14)
PV Public Contributions secured to date	<input type="text" value=""/> (15)
PV Private Contributions secured to date	<input type="text" value=""/> (16)
PV Funding from other Environment Agency functions/sources secured to date	<input type="text" value="0"/> (17)
PV Total Contributions secured to date	<input type="text" value="0"/> (18)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
 NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

WARNING: Contributions less than minimum required in cell (2)

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:	Before			After			Change due to scheme			
20% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
21-40% most deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
60% least deprived areas	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
At:	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	
Annual damages avoided, compared with a household at low risk							150	600	1,350	
Change in household damages, in:	Per year			Over lifetime of scheme			Qual. benefits (discounted)			
20% most deprived areas	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	OM2 (20%)	<input type="text" value="£"/>	<input type="text" value="-"/>	
21-40% most deprived areas	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	OM2 (21-40%)	<input type="text" value="£"/>	<input type="text" value="-"/>	
60% least deprived areas	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	OM2 (60%)	<input type="text" value="£"/>	<input type="text" value="-"/>	

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:	Before		Damages per household avoided:		£		£	
20% most deprived areas	<input type="text"/>	<input type="text"/>	Annual damages avoided	<input type="text" value="6,000"/>	<input type="text" value="6,000"/>	years		
21-40% most deprived areas	<input type="text" value="51"/>	<input type="text" value="93"/>	Loss expected in	<input type="text" value="50"/>	<input type="text" value="20"/>			
60% least deprived areas	<input type="text"/>	<input type="text"/>	Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	<input type="text" value="1,184"/>	<input type="text" value="3,015"/>			
	Long-term loss	Medium-term loss		Long-term loss	Medium-term loss			
Change in household damages, in:	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):			
20% most deprived areas	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="£"/>	<input type="text" value="-"/>	OM3 (20%)	<input type="text" value="£"/>	<input type="text" value="-"/>	
21-40% most deprived areas	<input type="text" value="£"/>	<input type="text" value="340,794"/>	<input type="text" value="£"/>	<input type="text" value="34,079,416"/>	OM3 (21-40%)	<input type="text" value="£"/>	<input type="text" value="10,177,260"/>	
60% least deprived areas	<input type="text" value="£"/>	<input type="text" value="-"/>	<input type="text" value="£"/>	<input type="text" value="-"/>	OM3 (60%)	<input type="text" value="£"/>	<input type="text" value="-"/>	

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:	<input type="text" value="0.00"/>	Hectares of net water-dependent habitat created	Assumed benefits per unit:	<input type="text" value="£"/>	<input type="text" value="15,000"/>	Qual. benefits (discounted):	OM4a	<input type="text" value="£"/>	<input type="text" value="-"/>
OM4a	<input type="text" value="0.00"/>	Hectares of net intertidal habitat created		<input type="text" value="£"/>	<input type="text" value="50,000"/>		OM4b	<input type="text" value="£"/>	<input type="text" value="-"/>
OM4b	<input type="text" value="0.00"/>	Kilometres of protected river improved		<input type="text" value="£"/>	<input type="text" value="80,000"/>		OM4c	<input type="text" value="£"/>	<input type="text" value="-"/>
OM4c	<input type="text" value="0.00"/>						OM4	<input type="text" value="£"/>	<input type="text" value="-"/>

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	£ 5,828,740	5.56 p in the £1	£ 323,819
OM2	£ -		£ -
	£ -		£ -
	£ -		£ -
OM3	£ 10,177,260		£ 3,053,178
	£ -		£ -
	£ -		£ -
OM4	£ -		£ -
Total	£ 16,006,000		£ 3,376,997

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
43%	4,436,003
9%	8,874,540
11%	6,921,290
11%	6,921,912
#N/A	#N/A
11%	6,922,420

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Bacton Walcott and Ostend 100 years - Capita works extensive and buy,rent and demolish properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Scheme Benefit to Cost Ratio:	1.14	to 1
Effective return to taxpayer:	1.14	to 1
Effective return to area:	n/a	to 1

Raw Partnership Funding Score	24%	(1)
External Contribution or saving required to achieve an Adjusted Score of 100%	10,655,003	(2)
Adjusted Partnership Funding Score (PF)	24%	(3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	-	(4)

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	LA	(5)
Duration of Benefits (years)	100	(7)
PV Whole-Life Benefits:	16,006,000	(8)
PV Costs		
PV Appraisal Costs		(9)
PV design & Construction Costs	14,032,000	(10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	14,032,000	(11)
PV Post-Construction Costs	0	(12)
PV Total Whole-Life Costs:	14,032,000	(13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date		
PV Local Levy secured to date		(14)
PV Public Contributions secured to date		(15)
PV Private Contributions secured to date		(16)
PV Funding from other Environment Agency functions/sources secured to date	0	(17)
PV Total Contributions secured to date	0	(18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:	Before			After			Change due to scheme		
20% most deprived areas							0	0	0
21-40% most deprived areas							0	0	0
60% least deprived areas							0	0	0
At:	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
Annual damages avoided, compared with a household at low risk							150	600	1,350
Change in household damages, in:	Per year			Over lifetime of scheme			Qual. benefits (discounted)		
20% most deprived areas	£	-	-	£	-	-	OM2 (20%)	£	-
21-40% most deprived areas	£	-	-	£	-	-	OM2 (21-40%)	£	-
60% least deprived areas	£	-	-	£	-	-	OM2 (60%)	£	-

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:	Before		Damages per household avoided:		Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)		
20% most deprived areas			Annual damages avoided	£	6,000	£	6,000
21-40% most deprived areas	51	93	Loss expected in	£	50	£	20
60% least deprived areas			Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	£	1,184	£	3,015
	Long-term loss	Medium-term loss		Long-term loss	Medium-term loss		
Change in household damages, in:	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):		
20% most deprived areas	£	-	£	-	OM3 (20%)	£	-
21-40% most deprived areas	-£	340,794	-£	34,079,416	OM3 (21-40%)	£	10,177,260
60% least deprived areas	£	-	£	-	OM3 (60%)	£	-

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:		Assumed benefits per unit:		Qual. benefits (discounted):		
OM4a	0.00 Hectares of net water-dependent habitat created	£	15,000	OM4a	£	-
OM4b	0.00 Hectares of net intertidal habitat created	£	50,000	OM4b	£	-
OM4c	0.00 Kilometres of protected river improved	£	80,000	OM4c	£	-
				OM4	£	-

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	£ 5,828,740	5.56p in the £1	£ 323,819
OM2	£ -		£ -
	£ -		£ -
	£ -		£ -
OM3	£ 10,177,260		£ 3,053,178
	£ -		£ -
	£ -		£ -
OM4	£ -		£ -
Total	£ 16,006,000		£ 3,376,997

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
24%	10,655,003
5%	16,648,290
6%	13,140,290
6%	13,140,912
#N/A	#N/A
6%	13,141,420

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Bacton Walcott and Ostend 100 years - Capital works extensive and buy and rent properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key
Input cells
Calculated cells

SUMMARY: prospect of FCRM GiA funding

Scheme Benefit to Cost Ratio:	1.19	to 1
Effective return to taxpayer:	1.19	to 1
Effective return to area:	n/a	to 1

Raw Partnership Funding Score	25%	(1)
External Contribution or saving required to achieve an Adjusted Score of 100%	10,027,003	(2)
Adjusted Partnership Funding Score (PF)	25%	(3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	-	(4)

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	LA	(5)
Duration of Benefits (years)	100	(7)
PV Whole-Life Benefits:	16,006,000	(8)
PV Costs		
PV Appraisal Costs		(9)
PV design & Construction Costs	13,404,000	(10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	13,404,000	(11)
PV Post-Construction Costs	0	(12)
PV Total Whole-Life Costs:	13,404,000	(13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date

PV Local Levy secured to date		(14)
PV Public Contributions secured to date		(15)
PV Private Contributions secured to date		(16)
PV Funding from other Environment Agency functions/sources secured to date	0	(17)
PV Total Contributions secured to date	0	(18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

At:	Before			After			Change due to scheme		
	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
							0	0	0
							0	0	0
							0	0	0
Annual damages avoided, compared with a household at low risk							150	600	1,350

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Per year		Over lifetime of scheme		Qual. benefits (discounted)	
	£	-	£	-	OM2 (20%)	£
20% most deprived areas	£	-	£	-	OM2 (21-40%)	£
21-40% most deprived areas	£	-	£	-	OM2 (60%)	£
60% least deprived areas	£	-	£	-		

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Before		Damages per household avoided: Annual damages avoided Loss expected in Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	Qual. benefits (discounted):	
	Long-term loss	Medium-term loss		£	£
	51	93	£ 6,000	£ 6,000	
			£ 50	£ 20	
			£ 1,184	£ 3,015	

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):	
	£	-	£	-	OM3 (20%)	£
20% most deprived areas	£	-	£	-	OM3 (21-40%) <td>£</td>	£
21-40% most deprived areas	-£	340,794	-£	34,079,416	OM3 (60%) <td>£</td>	£
60% least deprived areas	£	-	£	-		

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

OM4a	0.00	Hectares of net water-dependent habitat created
OM4b	0.00	Hectares of net intertidal habitat created
OM4c	0.00	Kilometres of protected river improved

Assumed benefits per unit:	
£	15,000
£	50,000
£	80,000

Qual. benefits (discounted):	
OM4a	£
OM4b	£
OM4c	£
OM4	£

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	p in the £1
OM1	£ 5,828,740	5.56	
OM2	20% most £ -	45.0	
	21-40% £ -	30.0	
	Least 60% £ -	20.0	
OM3	20% most £ -	45.0	
	21-40% £ 10,177,260	30.0	
	Least 60% £ -	20.0	
OM4	£ -	100.0	
Total	£ 16,006,000		

FCRM GiA contribution:	
£	323,819
£	-
£	-
£	-
£	-
£	3,053,178
£	-
£	-
£	3,376,997

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
25%	10,027,003
5%	15,863,290
7%	12,512,290
7%	12,512,912
#N/A	#N/A
7%	12,513,420

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Bacton Walcott and Ostend 100 years - Capital works typical and buy and demolish properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key
Input cells
Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score **22%** (1)
External Contribution or saving required to achieve an Adjusted Score of 100% **11,855,003** (2)
Adjusted Partnership Funding Score (PF) **22%** (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval) **-** (4)

Scheme Benefit to Cost Ratio: **1.05** to 1
Effective return to taxpayer: **1.05** to 1
Effective return to area: **n/a** to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer **LA** (5)

Yes (6)

Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

Duration of Benefits (years) **100** (7)

PV Whole-Life Benefits: **16,006,000** (8)

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Costs

PV Appraisal Costs (9)

PV design & Construction Costs **15,232,000** (10)

Sub Total - PV Cost for Approval (appraisal,design,construction) **15,232,000** (11)

PV Post-Construction Costs **0** (12)

PV Total Whole-Life Costs: **15,232,000** (13)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.

PV Contributions secured to date

PV Local Levy secured to date (14)

PV Public Contributions secured to date (15)

PV Private Contributions secured to date (16)

PV Funding from other Environment Agency functions/sources secured to date **0** (17)

PV Total Contributions secured to date **0** (18)

WARNING: Contributions less than minimum required in cell (2)

NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

At:	Before		
	Moderate risk	Significant risk	Very significant risk

After		
Moderate risk	Significant risk	Very significant risk

Change due to scheme		
Moderate risk	Significant risk	Very significant risk
0	0	0
0	0	0
0	0	0

Annual damages avoided, compared with a household at low risk: 150 600 1,350

Change in household damages, in:

	Per year	
	£	-
20% most deprived areas	£	-
21-40% most deprived areas	£	-
60% least deprived areas	£	-

Over lifetime of scheme	
£	-
£	-
£	-
£	-

Qual. benefits (discounted)	
OM2 (20%)	£ -
OM2 (21-40%)	£ -
OM2 (60%)	£ -

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

Before	
Long-term loss	Medium-term loss
51	93

Damages per household avoided:
Annual damages avoided
Loss expected in
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)

£	6,000	£	6,000
£	50	£	20
£	1,184	£	3,015

Change in household damages, in:

	Year 1 loss avoided:	
	£	-
20% most deprived areas	£	-
21-40% most deprived areas	-£	340,794
60% least deprived areas	£	-

Over lifetime of scheme:	
£	-
£	-
-£	34,079,416
£	-

Qual. benefits (discounted):	
OM3 (20%)	£ -
OM3 (21-40%)	£ 10,177,260
OM3 (60%)	£ -

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

OM4a	0.00	Hectares of net water-dependent habitat created
OM4b	0.00	Hectares of net intertidal habitat created
OM4c	0.00	Kilometres of protected river improved

Assumed benefits per unit:	
£	15,000
£	50,000
£	80,000

Qual. benefits (discounted):	
OM4a	£ -
OM4b	£ -
OM4c	£ -
OM4	£ -

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:
OM1	£ 5,828,740	5.56 p in the £1
OM2	20% most £ -	45.0
	21-40% £ -	30.0
	Least 60% £ -	20.0
OM3	20% most £ -	45.0
	21-40% £ 10,177,260	30.0
	Least 60% £ -	20.0
OM4	£ -	100.0
Total	£ 16,006,000	

FCRM GiA contribution:	
£	323,819
£	-
£	-
£	-
£	-
£	3,053,178
£	-
£	-
£	3,376,997

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

Sensitivity 1 - Change in PV Whole Life Cost (25% increase)

Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band

Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss

Sensitivity 4 - Increase Duration of Benefits by 25%

Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
22%	11,855,003
5%	18,148,290
6%	14,340,290
6%	14,340,912
#N/A	#N/A
6%	14,341,420

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Bacton Walcott and Ostend 100 years - Capital works typical and buy and rent properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Scheme Benefit to Cost Ratio:	2.23	to 1
Effective return to taxpayer:	2.23	to 1
Effective return to area:	n/a	to 1

Raw Partnership Funding Score	30%	(1)
External Contribution or saving required to achieve an Adjusted Score of 100%	5,029,505	(2)
Adjusted Partnership Funding Score (PF)	30%	(3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	-	(4)

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	LA	(5)
Duration of Benefits (years)	20	(7)
PV Whole-Life Benefits:	16,006,000	(8)
PV Costs		
PV Appraisal Costs		(9)
PV design & Construction Costs	7,186,000	(10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	7,186,000	(11)
PV Post-Construction Costs	0	(12)
PV Total Whole-Life Costs:	7,186,000	(13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date		
PV Local Levy secured to date		(14)
PV Public Contributions secured to date		(15)
PV Private Contributions secured to date		(16)
PV Funding from other Environment Agency functions/sources secured to date	0	(17)
PV Total Contributions secured to date	0	(18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:	Before			After			Change due to scheme		
20% most deprived areas							0	0	0
21-40% most deprived areas							0	0	0
60% least deprived areas							0	0	0
At: Moderate risk				Moderate risk			Moderate risk		
Significant risk				Significant risk			Significant risk		
Very significant risk				Very significant risk			Very significant risk		
Annual damages avoided, compared with a household at low risk							150	600	1,350
Change in household damages, in:	Per year			Over lifetime of scheme			Qual. benefits (discounted)		
20% most deprived areas	£	-	-	£	-	-	OM2 (20%)	£	-
21-40% most deprived areas	£	-	-	£	-	-	OM2 (21-40%)	£	-
60% least deprived areas	£	-	-	£	-	-	OM2 (60%)	£	-

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:	Before		Damages per household avoided:		£		£	
20% most deprived areas			Annual damages avoided		6,000	6,000		
21-40% most deprived areas	51	93	Loss expected in		50	20	years	
60% least deprived areas			Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)		1,184	3,015		
	Long-term loss	Medium-term loss			Long-term loss	Medium-term loss		
Change in household damages, in:	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):			
20% most deprived areas	£	-	£	-	OM3 (20%)	£	-	
21-40% most deprived areas	-£	340,794	-£	6,815,883	OM3 (21-40%)	£	5,184,298	
60% least deprived areas	£	-	£	-	OM3 (60%)	£	-	

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:			Assumed benefits per unit:			Qual. benefits (discounted):
OM4a	0.00	Hectares of net water-dependent habitat created	£	15,000	OM4a	£
OM4b	0.00	Hectares of net intertidal habitat created	£	50,000	OM4b	£
OM4c	0.00	Kilometres of protected river improved	£	80,000	OM4c	£
					OM4	£

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	£ 10,821,702	5.56 p in the £1	£ 601,206
OM2	£ -	45.0	£ -
	£ -	30.0	£ -
	£ -	20.0	£ -
OM3	£ -	45.0	£ -
	£ 5,184,298	30.0	£ 1,555,289
	£ -	20.0	£ -
OM4	£ -	100.0	£ -
Total	£ 16,006,000		£ 2,156,495

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
30%	5,029,505
10%	8,092,011
12%	6,295,511
12%	6,295,827
12%	6,295,831
12%	6,296,022

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Walcott and Ostend 100 years - Capital works extensive and buy, rent and demolish properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key
Input cells
Calculated cells

SUMMARY: prospect of FCRM GiA funding

Scheme Benefit to Cost Ratio:	1.43	to 1
Effective return to taxpayer:	1.43	to 1
Effective return to area:	n/a	to 1

Raw Partnership Funding Score	28%	(1)
External Contribution or saving required to achieve an Adjusted Score of 100%	7,161,347	(2)
Adjusted Partnership Funding Score (PF)	28%	(3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	-	(4)

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	LA	(5)
Duration of Benefits (years)	100	(7)
PV Whole-Life Benefits:	14,307,000	(8)
PV Costs		
PV Appraisal Costs		(9)
PV design & Construction Costs	10,014,000	(10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	10,014,000	(11)
PV Post-Construction Costs	0	(12)
PV Total Whole-Life Costs:	10,014,000	(13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date

PV Local Levy secured to date		(14)
PV Public Contributions secured to date		(15)
PV Private Contributions secured to date		(16)
PV Funding from other Environment Agency functions/sources secured to date	0	(17)
PV Total Contributions secured to date	0	(18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

At:	Before			After			Change due to scheme		
	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
							0	0	0
							0	0	0
							0	0	0
Annual damages avoided, compared with a household at low risk							150	600	1,350

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Per year		Over lifetime of scheme		Qual. benefits (discounted)	
	£	-	£	-	OM2 (20%)	£
20% most deprived areas	£	-	£	-	OM2 (20%)	£
21-40% most deprived areas	£	-	£	-	OM2 (21-40%)	£
60% least deprived areas	£	-	£	-	OM2 (60%)	£

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

Before	
Long-term loss	42
Medium-term loss	77

Damages per household avoided:
Annual damages avoided
Loss expected in
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)

	£	£
Annual damages avoided	6,000	6,000
Loss expected in	50	20
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	1,184	3,015

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):	
	£	-	£	-	OM3 (20%)	£
20% most deprived areas	£	-	£	-	OM3 (20%) <td>£</td>	£
21-40% most deprived areas	-£	281,896	-£	28,189,564	OM3 (21-40%) <td>£</td>	£
60% least deprived areas	£	-	£	-	OM3 (60%) <td>£</td>	£

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

OM4a	0.00	Hectares of net water-dependent habitat created
OM4b	0.00	Hectares of net intertidal habitat created
OM4c	0.00	Kilometres of protected river improved

Assumed benefits per unit:	
£	15,000
£	50,000
£	80,000

Qual. benefits (discounted):	
OM4a	£
OM4b	£
OM4c	£
OM4	£

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:
OM1	£ 5,888,648	5.56 p in the £1
OM2	20% most	£ -
	21-40%	£ -
	Least 60%	£ -
OM3	20% most	£ -
	21-40%	£ 8,418,352
	Least 60%	£ -
OM4	£ -	100.0
Total	£ 14,307,000	

FCRM GiA contribution:	
£	327,147
£	-
£	-
£	-
£	-
£	2,525,506
£	-
£	-
£	2,852,653

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
28%	7,161,347
6%	11,720,609
8%	9,217,109
8%	9,217,624
#N/A	#N/A
8%	9,217,809

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Walcott and Ostend 100 years - Capital works extensive and buy and rent properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Scheme Benefit to Cost Ratio:	1.51	to 1
Effective return to taxpayer:	1.51	to 1
Effective return to area:	n/a	to 1

Raw Partnership Funding Score	30%	(1)
External Contribution or saving required to achieve an Adjusted Score of 100%	6,641,347	(2)
Adjusted Partnership Funding Score (PF)	30%	(3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	-	(4)

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	LA	(5)
Duration of Benefits (years)	100	(7)
PV Whole-Life Benefits:	14,307,000	(8)
PV Costs		
PV Appraisal Costs		(9)
PV design & Construction Costs	9,494,000	(10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	9,494,000	(11)
PV Post-Construction Costs	0	(12)
PV Total Whole-Life Costs:	9,494,000	(13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date

PV Local Levy secured to date		(14)
PV Public Contributions secured to date		(15)
PV Private Contributions secured to date		(16)
PV Funding from other Environment Agency functions/sources secured to date	0	(17)
PV Total Contributions secured to date	0	(18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

At:	Before			After			Change due to scheme		
	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
							0	0	0
							0	0	0
							0	0	0
Annual damages avoided, compared with a household at low risk							150	600	1,350

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Per year		Over lifetime of scheme		Qual. benefits (discounted)		
	£	-	£	-	OM2 (20%)	OM2 (60%)	
20% most deprived areas	£	-	£	-	£	-	
21-40% most deprived areas	£	-	£	-	OM2 (21-40%)	£	-
60% least deprived areas	£	-	£	-	OM2 (60%)	£	-

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

Before	
Long-term loss	Medium-term loss
42	77

Damages per household avoided:
Annual damages avoided
Loss expected in
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)

	£	£	years
Annual damages avoided	6,000	6,000	
Loss expected in	50	20	
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	1,184	3,015	
	Long-term loss	Medium-term loss	

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):		
	£	-	£	-	OM3 (20%)	OM3 (60%)	
20% most deprived areas	£	-	£	-	OM3 (20%)	£	-
21-40% most deprived areas	-£	281,896	-£	28,189,564	OM3 (21-40%)	£	8,418,352
60% least deprived areas	£	-	£	-	OM3 (60%)	£	-

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

OM4a	0.00	Hectares of net water-dependent habitat created
OM4b	0.00	Hectares of net intertidal habitat created
OM4c	0.00	Kilometres of protected river improved

Assumed benefits per unit:	
£	15,000
£	50,000
£	80,000

Qual. benefits (discounted):		
OM4a	£	-
OM4b	£	-
OM4c	£	-
OM4	£	-

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:
OM1	£ 5,888,648	5.56 p in the £1
OM2	20% most	£ -
	21-40%	£ -
	Least 60%	£ -
OM3	20% most	£ -
	21-40%	£ 8,418,352
	Least 60%	£ -
OM4	£ -	100.0
Total	£ 14,307,000	

FCRM GiA contribution:	
£	327,147
£	-
£	-
£	-
£	-
£	2,525,506
£	-
£	-
£	2,852,653

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
30%	6,641,347
7%	11,070,609
8%	8,697,109
8%	8,697,624
#N/A	#N/A
8%	8,697,809

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)

Version 8 January 2014

Project Name
Unique Project Reference

All figures are in 'pounds' (£)
 Figures in Blue to be entered onto MTP

l/z

Key	Input cells
	Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score	<input type="text" value="49%"/> (1)
External Contribution or saving required to achieve an Adjusted Score of 100%	<input type="text" value="2,987,347"/> (2)
Adjusted Partnership Funding Score (PF)	<input type="text" value="49%"/> (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	<input type="text" value="-"/> (4)

Scheme Benefit to Cost Ratio:	<input type="text" value="2.45"/> to 1
Effective return to taxpayer:	<input type="text" value="2.45"/> to 1
Effective return to area:	<input type="text" value="n/a"/> to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	<input type="text" value="LA"/> (5)
Duration of Benefits (years)	<input type="text" value="100"/> (7)
PV Whole-Life Benefits:	<input type="text" value="14,307,000"/> (8)
PV Costs	
PV Appraisal Costs	<input type="text"/> (9)
PV design & Construction Costs	<input type="text" value="5,840,000"/> (10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	<input type="text" value="5,840,000"/> (11)
PV Post-Construction Costs	<input type="text" value="0"/> (12)
PV Total Whole-Life Costs:	<input type="text" value="5,840,000"/> (13)

(6)
 Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date	
PV Local Levy secured to date	<input type="text"/> (14)
PV Public Contributions secured to date	<input type="text"/> (15)
PV Private Contributions secured to date	<input type="text"/> (16)
PV Funding from other Environment Agency functions/sources secured to date	<input type="text" value="0"/> (17)
PV Total Contributions secured to date	<input type="text" value="0"/> (18)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
 NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

WARNING: Contributions less than minimum required in cell (2)

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:	Before			After			Change due to scheme		
20% most deprived areas	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>					
21-40% most deprived areas	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>					
60% least deprived areas	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>					
At:	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
Annual damages avoided, compared with a household at low risk							<input type="text" value="150"/>	<input type="text" value="600"/>	<input type="text" value="1,350"/>
Change in household damages, in:	Per year			Over lifetime of scheme			Qual. benefits (discounted)		
20% most deprived areas	<input type="text" value="£ -"/>	OM2 (20%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					
21-40% most deprived areas	<input type="text" value="£ -"/>	OM2 (21-40%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					
60% least deprived areas	<input type="text" value="£ -"/>	OM2 (60%)	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>					

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:	Before		Damages per household avoided:		£		years
20% most deprived areas	<input type="text"/>	<input type="text"/>	Annual damages avoided	<input type="text" value="6,000"/>	<input type="text" value="6,000"/>		
21-40% most deprived areas	<input type="text" value="42"/>	<input type="text" value="77"/>	Loss expected in	<input type="text" value="50"/>	<input type="text" value="20"/>		
60% least deprived areas	<input type="text"/>	<input type="text"/>	Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	<input type="text" value="1,184"/>	<input type="text" value="3,015"/>		
Change in household damages, in:	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):		
20% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (20%)
21-40% most deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ 281,896"/>	<input type="text" value="£ -"/>	<input type="text" value="£ 28,189,564"/>	<input type="text" value="£ -"/>	<input type="text" value="£ 8,418,352"/>	OM3 (21-40%)
60% least deprived areas	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	<input type="text" value="£ -"/>	OM3 (60%)

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:	<input type="text" value="0.00"/>	Hectares of net water-dependent habitat created	Assumed benefits per unit:	<input type="text" value="£ 15,000"/>	Qual. benefits (discounted):
OM4a	<input type="text" value="0.00"/>	Hectares of net intertidal habitat created	<input type="text" value="£ 50,000"/>	<input type="text" value="£ -"/>	OM4a
OM4b	<input type="text" value="0.00"/>	Kilometres of protected river improved	<input type="text" value="£ 80,000"/>	<input type="text" value="£ -"/>	OM4b
OM4c	<input type="text" value="0.00"/>			<input type="text" value="£ -"/>	OM4c
				<input type="text" value="£ -"/>	OM4

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	£ 5,888,648	5.56p in the £1	£ 327,147
OM2	£ -		£ -
	£ -		£ -
	£ -		£ -
OM3	£ 8,418,352		£ 2,525,506
	£ -		£ -
	£ -		£ -
OM4	£ -		£ -
Total	£ 14,307,000		£ 2,852,653

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
49%	2,987,347
11%	6,503,109
14%	5,043,109
14%	5,043,624
#N/A	#N/A
14%	5,043,809

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Walcott and Ostend 100 years - Capital Works typical and Buy and demolish properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key
Input cells
Calculated cells

SUMMARY: prospect of FCRM GiA funding

Scheme Benefit to Cost Ratio:	1.19	to 1
Effective return to taxpayer:	1.19	to 1
Effective return to area:	n/a	to 1

Raw Partnership Funding Score	24%	(1)
External Contribution or saving required to achieve an Adjusted Score of 100%	9,176,347	(2)
Adjusted Partnership Funding Score (PF)	24%	(3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval)	-	(4)

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer	LA	(5)
Duration of Benefits (years)	100	(7)
PV Whole-Life Benefits:	14,307,000	(8)
PV Costs		
PV Appraisal Costs		(9)
PV design & Construction Costs	12,029,000	(10)
Sub Total - PV Cost for Approval (appraisal,design,construction)	12,029,000	(11)
PV Post-Construction Costs	0	(12)
PV Total Whole-Life Costs:	12,029,000	(13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date

PV Local Levy secured to date		(14)
PV Public Contributions secured to date		(15)
PV Private Contributions secured to date		(16)
PV Funding from other Environment Agency functions/sources secured to date	0	(17)
PV Total Contributions secured to date	0	(18)

WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

At:	Before			After			Change due to scheme		
	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
							0	0	0
							0	0	0
							0	0	0
Annual damages avoided, compared with a household at low risk							150	600	1,350

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Per year		Over lifetime of scheme		Qual. benefits (discounted)	
	£	-	£	-	OM2 (20%)	£
20% most deprived areas	£	-	£	-	OM2 (20%)	£
21-40% most deprived areas	£	-	£	-	OM2 (21-40%)	£
60% least deprived areas	£	-	£	-	OM2 (60%)	£

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:
20% most deprived areas
21-40% most deprived areas
60% least deprived areas

Before	
42	77
Long-term loss	Medium-term loss

Damages per household avoided:
Annual damages avoided
Loss expected in
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)

	£	£	years
Annual damages avoided	6,000	6,000	
Loss expected in	50	20	
Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)	1,184	3,015	
	Long-term loss	Medium-term loss	

Change in household damages, in:

20% most deprived areas
21-40% most deprived areas
60% least deprived areas

	Year 1 loss avoided:		Over lifetime of scheme:		Qual. benefits (discounted):	
	£	-	£	-	OM3 (20%)	£
20% most deprived areas	£	-	£	-	OM3 (20%) <td>£</td>	£
21-40% most deprived areas	-£	281,896	-£	28,189,564	OM3 (21-40%) <td>£</td>	£
60% least deprived areas	£	-	£	-	OM3 (60%) <td>£</td>	£

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

OM4a	0.00	Hectares of net water-dependent habitat created
OM4b	0.00	Hectares of net intertidal habitat created
OM4c	0.00	Kilometres of protected river improved

Assumed benefits per unit:	
£	15,000
£	50,000
£	80,000

Qual. benefits (discounted):	
OM4a	£
OM4b	£
OM4c	£
OM4	£

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:
OM1	£ 5,888,648	5.56 p in the £1
OM2	20% most	£ -
	21-40%	£ -
	Least 60%	£ -
OM3	20% most	£ -
	21-40%	£ 8,418,352
	Least 60%	£ -
OM4	£ -	100.0
Total	£ 14,307,000	

FCRM GiA contribution:	
£	327,147
£	-
£	-
£	-
£	-
£	2,525,506
£	-
£	-
£	2,852,653

Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

- Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
- Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
- Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
- Sensitivity 4 - Increase Duration of Benefits by 25%
- Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
24%	9,176,347
5%	14,239,359
7%	11,232,109
7%	11,232,624
#N/A	#N/A
7%	11,232,809

END OF WORKSHEET

FCRM Partnership Funding Calculator for Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)
Version 8 January 2014

Project Name Walcott and Ostend 100 years, Capital works (typical) and Buy and rent properties
Unique Project Reference

All figures are in 'pounds' (£)
Figures in Blue to be entered onto MTP

l/z

Key
Input cells
Calculated cells

SUMMARY: prospect of FCRM GiA funding

Raw Partnership Funding Score 54% (1)
External Contribution or saving required to achieve an Adjusted Score of 100% 2,467,347 (2)
Adjusted Partnership Funding Score (PF) 54% (3)
PV FCRM GiA towards the up-front costs of this scheme (PV Cost for Approval) - (4)

Scheme Benefit to Cost Ratio: 2.69 to 1
Effective return to taxpayer: 2.69 to 1
Effective return to area: n/a to 1

Cell (2) shows the minimum amount of contributions and/or reductions in scheme cost that are required to raise the Adjusted PF Score to at least 100%. Further increases on this will improve this scheme's chances of an FCRM GiA allocation in the desired year. Planned savings and contributions should be entered into cells(9,10,12) and cells(14-17). See NOTE below.

1. Scheme details

Risk Management Authority type of asset maintainer LA (5)
Duration of Benefits (years) 100 (7)
PV Whole-Life Benefits: 14,307,000 (8)
PV Costs
PV Appraisal Costs (9)
PV design & Construction Costs 5,320,000 (10)
Sub Total - PV Cost for Approval (appraisal,design,construction) 5,320,000 (11)
PV Post-Construction Costs 0 (12)
PV Total Whole-Life Costs: 5,320,000 (13)

Yes (6)
Is evidence available that a Strategic Approach has been taken, and that double counting of benefits has been avoided ?

All costs and benefits must be on a Present Value (PV) Whole-Life basis over the Duration of Benefits period. Where Contributions are identified these should also be on a Present Value basis.

PV Contributions secured to date
PV Local Levy secured to date (14)
PV Public Contributions secured to date (15)
PV Private Contributions secured to date (16)
PV Funding from other Environment Agency functions/sources secured to date 0 (17)
PV Total Contributions secured to date 0 (18)
WARNING: Contributions less than minimum required in cell (2)

The total value of any necessary contributions will depend on whether maintenance (ongoing costs) is funded through revenue FCRM GiA, or by other means.
NOTE: This scheme is to be maintained by an RMA other than the EA (ref cell 5). Capital FCRM GiA will fund the appropriate share of the up-front costs (cell 11) with any shortfall needing to be paid for via contributions identified in cells(14-17). Future ongoing costs (cell 12) and any contributions towards them are a matter for local agreement by the RMA and should NOT be included in cells(14-17). It is recommended that the RMA takes the opportunities created during scheme development to separately secure contributions towards future ongoing costs (cell12).

2. Qualifying benefits under Outcome Measure 2: households better protected against flood risk

Number of households in:

	Before			After			Change due to scheme		
	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk	Moderate risk	Significant risk	Very significant risk
20% most deprived areas							0	0	0
21-40% most deprived areas							0	0	0
60% least deprived areas							0	0	0

Annual damages avoided, compared with a household at low risk

Moderate risk	150	600	1,350
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Change in household damages, in:

	Per year			Over lifetime of scheme			Qual. benefits (discounted)		
	£	£	£	£	£	£	OM2 (20%)	OM2 (21-40%)	OM2 (60%)
20% most deprived areas	-	-	-	-	-	-	£	-	-
21-40% most deprived areas	-	-	-	-	-	-	£	-	-
60% least deprived areas	-	-	-	-	-	-	£	-	-

3. Qualifying benefits under Outcome Measure 3: households better protected against coastal erosion

Number of households in:

	Before		Damages per household avoided:	
	Long-term loss	Medium-term loss	Annual damages avoided	Present value of Year 1 loss (i.e. first year damages, discounted based on when loss is expected)
20% most deprived areas			£ 6,000	£ 6,000
21-40% most deprived areas	42	77	£ 50	£ 20
60% least deprived areas			£ 1,184	£ 3,015

Change in household damages, in:

	Year 1 loss avoided:			Over lifetime of scheme:			Qual. benefits (discounted):		
	£	£	£	£	£	£	OM3 (20%)	OM3 (21-40%)	OM3 (60%)
20% most deprived areas	-	-	-	-	-	-	£	-	-
21-40% most deprived areas	-£	281,896	-	-£	28,189,564	-	£	8,418,352	-
60% least deprived areas	-	-	-	-	-	-	£	-	-

4. Qualifying benefits under Outcome Measure 4: statutory environmental obligations met

Payments under:

		Assumed benefits per unit:	Qual. benefits (discounted):
OM4a	0.00 Hectares of net water-dependent habitat created	£ 15,000	OM4a £ -
OM4b	0.00 Hectares of net intertidal habitat created	£ 50,000	OM4b £ -
OM4c	0.00 Kilometres of protected river improved	£ 80,000	OM4c £ -
			OM4 £ -

5. Qualifying benefits arising from the overall scheme, for entry into the Medium-Term Plan

OM, deprivation:	Qual. benefits:	Payment rate:	FCRM GiA contribution:
OM1	£ 5,888,648	5.56 p in the £1	£ 327,147
OM2	20% most £ -		£ -
	21-40% £ -		£ -
	Least 60% £ -		£ -
OM3	20% most £ -		£ -
	21-40% £ 8,418,352		£ 2,525,506
	Least 60% £ -		£ -
OM4	£ -	100.0	£ -
Total	£ 14,307,000		£ 2,852,653 Maximum for Outcomes delivered

Sensitivity Testing. It is important that users of this calculator appreciate the implications on funding from changes to input data which may become necessary as the project develops and better information is available. Five typical tests are provided below. Users should consider how appropriate these are to their project, what other tests may be appropriate and how best to use the information with all those that may be involved in the project.

As scenario above

Sensitivity 1 - Change in PV Whole Life Cost (25% increase)
Sensitivity 2 - Change in OM2 - 50% of households in Very Significant (Before) risk may already be in Significant Risk band
Sensitivity 3 - Change in OM3 - 50% of households in Medium Term loss (Before) may already be in Long Term loss
Sensitivity 4 - Increase Duration of Benefits by 25%
Sensitivity 5 - Reduce Duration of Benefits by 25%

Raw Score	Contribution for 100% Score (£k)
54%	2,467,347
12%	5,853,109
15%	4,523,109
15%	4,523,624
#N/A	#N/A
15%	4,523,809

END OF WORKSHEET

Appendix B: Sensitivity Analysis on Adaptation options

Sensitivity analysis has been undertaken on the potential timings of buying and renting properties for Options 6 (Buy and rent) and 9 (Buy, rent and demolish) only. This does not include the capital works for 0-20 years before adaptation begins.

Three sensitivity tests have been undertaken:

1. Buy the first batch of properties in year 1 and rent until they are at imminent risk of erosion (on average year 30)
2. Buy the different batches of properties 20 years before currently i.e year 1, year 20 and year 50 and rent all properties until they are at imminent risk of erosion (average years 30,55 and 85)
3. Buy all properties in year 1 and rent all properties until they are at imminent risk of erosion (average years 30,55 and 85)

Results of the sensitivity tests are presented in the tables below.

Table 6.1: Sensitivity analysis for adaptation measures for Option 6(Buy and rent) for Bacton

	PV Benefits(£k)	PV Costs (£k) with 60% Optimism Bias	BCR
Sensitivity test -1- buy and rent first batch of properties from year 0 until year 30	£1,698k	£1,046	1.6
Sensitivity test -2- buy and rent all properties 20 years earlier than currently.		£734k	2.3
Sensitivity test 3- buy all properties in year 0 and rent until lost		£184k	9.2

Table 6.2: Sensitivity analysis for adaptation measures for Option 9(Buy, rent and demolish) for Bacton

	PV Benefits(£k)	PV Costs (£k) with 60% Optimism Bias	BCR
Sensitivity test -1- buy and rent first batch of properties from year 0	£1,698k	£1,220k	1.4
Sensitivity test -2- buy and rent all properties 20 years earlier than currently.		£938k	1.8
Sensitivity test 3- buy all properties in year 0 and rent until lost		£528k	3.2

Table 6.3: Sensitivity analysis for adaptation measures for Option 6(Buy and rent) for Walcott and Ostend

	PV Benefits(£k)	PV Costs (£k) with 60% Optimism Bias	BCR
Sensitivity test -1- buy and rent first batch of properties from year 0	£14,308k	£2,993k	5.3
Sensitivity test -2- buy and rent all properties 20 years earlier than currently.		£1,631k	8.8
Sensitivity test 3- buy all properties in year 0 and rent until lost		£-3,890k	-3.7

Table 6.4: Sensitivity analysis for adaptation measures for Option 9(Buy, rent and demolish) for Walcott and Ostend

	PV Benefits(£k)	PV Costs (£k) with 60% Optimism Bias	BCR
Sensitivity test -1- buy and rent first batch of properties from year 0	£14,308k	£3,795k	3.8
Sensitivity test -2- buy and rent all properties 20 years earlier than currently.		£2,692k	5.3
Sensitivity test 3- buy all properties in year 0 and rent until lost		£436k	32.8

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