

Application for Determination

- Parishes:** Langley-w-Hardley
- Reference:** BA 2011/0405/FUL **Target Date:** 21 March 2012
- Location:** Compartment 20, Right Bank Of The River Yare Between Langley and Hardley Dyke, Norfolk
- Proposal:** Flood defence works including: strengthening and rollback of floodbanks, soke dyke excavation for material sourcing, and riverside erosion protection works, as well as a temporary site compound and associated engineering works, plus permanent footpath diversion
- Applicant:** Environment Agency
- Reason for referral:** Major application
- Recommendation:** Approve with conditions

1 Description of Site and Proposal

- 1.1 The application site extends along a 5.1 kilometre length of floodbank along the River Yare including parts of Langley Dyke and Hardley Dyke. Attached as Appendix 1 is a plan showing the extent of the application site.
- 1.2 The application is accompanied by an Environmental Statement. The non technical summary, required to be attached to the Statement summarising the environmental impact of the proposal, is attached as Appendix 2.
- 1.3 The existing defences comprise mainly earth floodbanks which in places have hard erosion protection in the form of steel and timber piling as well as short lengths of gabions. The existing banks have been rated as less than 1% in good condition, 42% in average condition and over 57% in poor condition. Erosion protection is provided by a combination of measures; 79% rond, 1% gabions and 20% piling. The piling is 9% timber (with an estimated residual life of 5 – 20 years) and remainder is steel (with an estimated residual life of 1 – 30 years).
- 1.4 Compartment 20 defences protect some 425 hectares of mainly grassland area and centrally within this area is the Poplar Farm Meadows SSSI (which extends to some 7.2 ha).

- 1.5 The north western edge of the application site falls within the Langley Conservation Area. Within the works corridor is one Listed Building. Hardley Mill is Listed Grade II and located behind the existing floodbank towards the eastern end of the compartment. There are several other features of historic / archaeological interest, notably the site of medieval brickworks to the south east of Hardley Mill.
- 1.6 Following pre application consultation undertaken by BESL with various stakeholders, this planning application has been formulated and the submission proposes the following works:

Proposed Works	Length (m)
Strengthen floodbank	4184
Rollback floodbank	553
Maintain floodbank	107
Maintain piling	459
Remove piling (retain in short term)	573
Retain piling (Round House)	57
Install Erosion Protection	405
Repair concrete floodwall	118
Maintain erosion protection	167
New crest piling (in adj. comp 21)	10
Install ramp and refurbish slipway at Hardley Dyke	n/a

- 1.7 Material for new flood defences is to be sourced from the excavation of new soke dykes with some enlargement of existing dykes.
- 1.8 The application indicates pile removal will need to take place, however BESL have confirmed that in areas of roll back, pile removal would only be possible once new banks have satisfactorily established. As part of the submission, BESL have detailed the manner in which erosion (following pile removal) will be monitored and the triggers for action where significant erosion takes place. BESL have requested permission is granted at this stage to remove piling but the supporting statement suggests *'the exact timing of the pile removal will need to be agreed with the Broads Authority and this can be covered by planning condition'*.
- 1.9 The proposed works will result in modest change to habitat as outlined below:

Habitat	Net Change (ha)
Rond	+ 0.53
Bank	+ 0.81
Folding	+ 1.15
Soke dyke	+ 3.20
Marsh dyke	- 0.21
Grazing	- 3.82

Arable	- 0.24
Arable reversion / ESA margins	+ 1.26

- 1.10 As grazing marsh is identified as a BAP priority habitat, BESL have confirmed that the Environment Agency intend to create replacement habitat elsewhere to ensure no loss of grazing marsh as a result of the provision of new banks and sokedykes.
- 1.11 The existing floodbank forms a continuous footpath adjacent to the river (part of the long distance Wherryman's Way route). The footpath will need to be closed during (and for a period after the completion of works) until vegetation has successfully established. A short section of footpath where the bank is proposed to be rolled back will realign the current footpath. Therefore BESL have confirmed this will need to be the subject of a permanent footpath diversion. In this compartment, BESL have not identified any temporary diversions and walkers will need to use Langley Street and Hardley Street to link each end of the Wherryman's Way during the period of floodbank footpath closure. BESL have confirmed that footpath closures and alternative routes will be displayed at all access points and publicised through the Broads Authority, Norfolk County Council and Broadland Flood Alleviation Project websites.
- 1.12 Limited opportunities to fish from the land exist in the compartment. These are mainly from piled frontages. Access to the floodbank will prevent angling on a temporary basis until the footpath on the floodbank reopens.
- 1.13 The River Yare is well used for recreation purposes. The application site includes one area of Broads 24 hour moorings (at Langley Dyke). On the River Yare there is a small area of private short stay visitor mooring next to Hardley Mill and a short length of private long term mooring close to Round House. Elsewhere on both Langley Dyke and Hardley Dyke, there are extensive areas of private long term mooring. BESL have confirmed that safe access to moorings will be retained during the construction period and works will be programmed to seek wherever possible to avoid construction works in July and August adjacent to the Broads 24 hour mooring. In addition the application shows the reinstatement of a slipway at Hardley Dyke.
- 1.14 The main site compound is proposed at Acle (utilising the compound that served other works in Compartments 9 and 11). In addition welfare facilities and material storage will be located on existing hard-standing at Hardley Staithe. Site working is proposed 7-00 to 18-00 Monday to Friday and 7-00 to 13-00 on Saturdays. No weekend working is proposed adjacent to any moorings. Should planning consent be granted, BESL propose to start works in Spring 2012.

2 Planning History

BA/2009/0106/FUL Flood improvement works (Compartment 21). Approved October 2007.

3 Consultations

- 3.1 Langley –w–Hardley Parish Council – Approve. As this is Wherryman’s Way, the Broad Authority should look after the items of artwork.

Cantley Parish Council – Awaited.

Limpenhoe Parish Council – Awaited.

Broads Society – We have no objections to the proposal but we suggest that there is a condition that no work is carried out on Sundays or Bank Holidays.

NCC Highways – Awaited.

NCC PROW – Awaited.

Environment Agency – Awaited.

Broads IDB – Awaited.

Natural England – No objection based on the information provided subject to the proposals being carried out in strict accordance with the details of the application. The reason for this view is that we consider that the proposal will not have a significant effect on the interest features of the adjacent SSSIs: Poplar Farm Meadows, Cantley Marshes and Yare Broads and Marshes. We understand from the application that four ha of grazing marsh will be permanently lost as a result of this application. Whilst this is not a desirable outcome in terms of local and national BAP targets, we are reassured that the overall net biodiversity gain from the BFAP project as a whole will ensure no adverse residual impact on the Broads designated sites and, coupled with the Environment Agency’s scheme to create compensatory replacement BAP habitat in the Broads, and specifically to improve existing grazing marsh at Upton and Horsey, we are satisfied that the proposed operations will be beneficial to the long-term integrity of the sites and the wider catchment. We support both the applicants’ proposal to pursue a three year ecological monitoring programme to improve visitor amenity in the longer term, increasing access to and enjoyment of the natural environment, although we note that a short-term closure of the footpath will be necessary while essential works are undertaken. We further consider that protected species issues have been fully addressed and appropriate mitigation will be in place for water voles, otters, grass snakes and breeding birds. Timing of the works and the presence on site of an ecologist with a watching brief will be crucial to guard against incidental impacts to protected species.

We note that at a meeting July 2011, our attention was drawn to the potential

implications of releasing cyanide spent oxide from the flood banks in Compartment 20, which would constitute a significant threat to human health and safety. Given the inherent risks, we would support the decision to maintain the integrity of the existing banks rather than pursue abandonment or engineering works to facilitate major realignment of the river. Following the meeting, we raised concerns that, given the potential public health risks, it may be necessary to maintain the flood banks in perpetuity, leading to a possible problem in the future with the coherence of the whole catchment. Contamination issues notwithstanding, we remain interested in the long-term potential for carrying out realignment work along this section of the Yare. We have taken the view that Compartment 20 can be removed from the scope of the Yare Study, currently being undertaken by the Environment Agency, but we would be pleased to hear how the Agency see this anomalous compartment fitting within the aims and vision of the whole Broadland Flood Alleviation Project and its legacy.

RSPB – Awaited.

N CC Historic Environment Service – No objection. The proposed flood defence works lie adjacent to several known heritage assets including the site of the medieval Premonstratensian Langley Abbey, several drainage pumps and a post-medieval brickworks. There is also potential that previously unrecorded heritage assets with archaeological interest (buried archaeological remains) may be revealed during the proposed works. If planning permission is granted, we therefore ask that this be subject to a condition for a programme of archaeological work in accordance with *Planning Policy Statement 5: Planning for the Historic Environment (2010)*, Policy HE7.7. We suggest that the following condition be imposed:

No development shall take place within the site until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the local planning authority.

In this instance the programme of archaeological work will comprise the monitoring of ground works for the development under archaeological supervision and control. Norfolk County Council Historic Environment Service will produce a brief for the archaeological work on request.

4 Representations

- 4.1 The Navigation Committee is to consider this matter at their meeting on 23 February 2012. The officer conclusion on the application states:

‘Provided that the appropriate specifications are agreed for piling, erosion protection, erosion monitoring, channel marking and timing of works, officers consider that the flood defence works proposed in the planning application will have a limited effect on the navigation. Officers also welcome the considerable benefits regarding countryside

access and the proposed slipway enhancement and consider that no objections should be raised to the flood defence works proposed in the application.'

4.2 No other correspondence has been received on this application.

5 Planning Policy

5.1 Broads Core Strategy

[Core Strategy \(Adopted Sept 2007\).pdf](#)

Policy CS3 – Navigation;
Policy CS4 – Creation of New Resources;
Policy CS6 – Historic and Cultural Environment.

5.2 Broads Authority Development Management Policies DPD

[DMP DPD - Adoption version.pdf](#)

Policy DP1 – Natural environment;
Policy DP5 – Historic Environment;
Policy DP11 – Access on land;
Policy DP13 – Bank protection;
Policy DP28 – Amenity.

6 Assessment

6.1 Whilst the previous 'saved' Local Plan policies have now been superseded by the Authority's Development Management Policies DPD, the thrust of promoting sustainable flood defence improvements remains unchanged. Based on the application proposals, site specific considerations and planning policy principles, it is considered that the main issues relate to:

- Impact on people and property.
- Impact on habitat and ecological interest.
- Impact on recreation.
- Impact on heritage matters, including the Conservation Area, Listed Buildings and archaeology.
- Other considerations, including highway and amenity.

6.2 Impact on Property and People

6.2.1 The works proposed in this compartment will compliment other flood defence works undertaken nearby on the Rivers Yare and Chet. The proposed scheme has been devised to link to these flood defence works to provide enhanced protection to residential properties in the compartment (mainly on Langley Street) and businesses (and agricultural land); as well as protecting the Broads landscape, cultural heritage and ecological features.

6.2.2 Hydrological modelling has been undertaken and demonstrated that the works proposed in this compartment (and in combination with works already

undertaken upstream and downstream) will not result in any significant change in water levels. The scheme will raise defences where required and improve erosion protection which will reduce risk of flooding to people, their property and business interests.

6.3 Impact on Ecology and Biodiversity

6.3.1 The proposal to provide a more sustainable form of flood defence will result in a change in habitat in the compartment, notably the loss of a modest area of grazing marsh (some 3.82 ha) and a smaller area of arable land, to be mainly replaced by a combination of sokedyke, folding, rond and new bank. Whilst the new habitats are of some bio-diversity interest (notably in the form of folding and soke dyke), this is of more limited value than grazing marsh (although of greater value than the arable land lost). As highlighted with other applications, the loss of grazing marsh is regrettable but the proposal will offer the benefit of enhanced defences for the extensive area of grazing habitat and the Poplar Farm Meadows SSSI. BESL have confirmed that the Environment Agency recognise that replacement for the loss of grazing in this compartment should be made and have, in a similar manner to a number of previous schemes, given a commitment to provide replacement grazing marsh (as part of the regional target for mitigating provisions).

6.3.2 Members will be aware that the loss of grazing marsh tends to be an inevitable consequence of promoting a sustainable form of flood defence (with roll back banks, rear floodbank strengthening and sourcing material locally in new / enlarged soke dykes). The grazing marsh lost will be replaced to meet regional targets (although it may not be in the immediate area). Locally the proposed defences will satisfactorily safeguard and enhance biodiversity and ecology interest of an extensive area of grazing marsh behind the defences.

6.3.3 As outlined in section 3 of this report, Natural England have raised no objection to the proposal. Furthermore they welcome the approach taken in this compartment to maintain / strengthen the floodbanks to limit the risk of contamination (identified in their comment).

6.3.4 In view of the above, it is considered that the scheme will accord with the conservation management and sustainable development aims of policies DP1 of the Development Management Policies DPD and Core Strategy Policy CS4.

6.4 Impact on Recreation

6.4.1 The proposed flood defence forms part of the Wherryman's Way public footpath. The proposed works will require the closure of this public right of way on the existing floodbank whilst construction is undertaken and the bank re-vegetates. In several compartments in the Broads area BESL have been able to identify alternative routes, off roads, for walkers to use. However this is not the case in compartment 20 and the submitted details suggest walker should use Langley Street (and other roads) to link to the Wherryman's Way

whilst banks are closed. Whilst use of roads rather than footpaths is unfortunate, the routes to be used on a temporary basis are generally lightly trafficked. Should planning permission be forthcoming, it is considered that a planning condition should be imposed to limit the duration and timing of the floodbank footpath closure and the provision of signage for walkers (to detail closure and the alternative routes available for use). On balance it is considered that during construction this will not unacceptably impact on walking interests. Following completion of works, a more consistent width of floodbank crest will be provided which should be a long-term benefit for walkers using the floodbank footpath. As the disturbance to walking interests will be for a limited period and the benefits of enhanced flood defence works will outweigh short-term inconvenience, it is considered that the proposal does not conflict with the long term rights of way aims of Policy DP11 of the Development Management Policies DPD.

- 6.4.2 As the works involve an area of roll back on the River Yare (close to Langley Dyke), BESL have confirmed that this application is seeking agreement for permanent footpath diversion (under section 257 of the Town and Country Planning Act). As with other previous footpath diversion applications, the key test for the Broads Authority (as the relevant competent determining authority) is whether this permanent diversion is necessary in order to enable the development to be carried out. In this case there is clear conflict between the current line of the permanent footpath on the existing flood bank adjacent to the river and the works required to enhance flood defence in a sustainable manner. This requires the provision of a roll back bank and the re-profiling removal of the original floodbank on the line of the current right of way. Whilst the realignment of the right of way on to the new roll back floodbank will change the route of the path, it is considered that the extent of roll back will not fundamentally harm the character of the path or the views to the river. It is considered that the development of the new roll back bank and the re-profiling of the existing bank to create the new road are necessary to enable the development to take place as part of the sustainable co-ordinated flood defence works to particularly protect the grazing marsh areas of Compartment 20. Therefore it is considered that the permanent diversion meets the above test.
- 6.4.3 The temporary closure of the floodbank whilst flood defence works are undertaken will limit access for some anglers to use these banks. However, this will only be for a limited period and once re-opened will allow angling to continue in the compartment.
- 6.4.4 The area is popular with boating and Langley and Hardley Dykes are extensively used for private long term mooring. This includes the western end of Langley Dyke which is a Broads 24 hour mooring. In Langley and Hardley Dykes, the proposals are to strengthen banks and maintain the sheet steel piling (and reinforce with other erosion protection), ensuring the continuing availability of piling for mooring. Elsewhere on the River Yare (especially towards the western end of the compartment), piling is not in a good condition and is not needed for flood defence purposes (and the proposal is to provide protection in a more sustainable manner using a roll

back floodbank). The application indicates retaining piling until new floodbanks are fully established when piling could be removed.

- 6.4.5 In Langley Dyke, there are a number of sections with gaps behind the existing piling and others where piling requires some attention. BESL have recognised this and a plan is to be submitted detailing where action will take place to repair scour holes, maintain / repair piling and provide capping and wailing. In Hardley Dyke, a new slipway (to replace an existing slipway in poor condition) is proposed. The approaches to maintain and improve facilities in these two Dykes are welcomed.
- 6.4.6 As outlined in paragraph 1.8, BESL's submission is seeking to secure a planning permission without a condition which withdraws the Environment Agency normal permitted development (pd) rights to remove piling (without the need to submit a planning application for this work). BESL have extensive experience of pile removal including on the River Yare and River Chet. Where pile removal has taken place, monitoring has shown limited erosion has taken place following pile removal in the Rivers Yare and Chet. Previous consents for flood defences have contained the condition withdrawing pd rights in order to retain control over future development that could be detrimental to navigation interests (as a result of creating a hazard or erosion of the bank into the navigable channel) or the character and appearance of the Broads. As outlined in paragraph 4.2, the report to Navigation Committee concludes that in this compartment provided that the appropriate specifications are agreed for piling, erosion protection, erosion monitoring, channel marking and timing of works, officers consider that the flood defence works proposed in the planning application will have a limited effect on the navigation. Therefore in view of the experience of pile removal in the River Yare, should the Navigation Committee endorse the officer view, it is considered that a condition requiring the written agreement for pile removal (rather than a formal planning application) is appropriate and justified for compartment 20.
- 6.4.7 Conditions that detail timing of pile removal, pile removal technique and the post piling removal erosion monitoring / remediation requirements will therefore be required. In addition, in a similar manner to previous flood defence planning applications in the Broads, should approval be forthcoming it is considered that the following conditions are reasonable and necessary to be imposed.
- All detail of piling repair/maintenance to be agreed;
 - Navigation / channel markers to be installed, including linked to roll back, etc;
 - Erosion protection details to be agreed prior to works being undertaken;
 - Phasing/timing of works to be agreed.
- 6.4.8 In view of the above, it is considered that the proposal will not unacceptably impact on navigation interests, access to water or navigable water space and linked to the suggested conditions will provide the necessary control to meet the aims of policy DP13 of the Development Management Policies DPD and Policy CS3 of the Core Strategy DPD.

6.5 Impact on Heritage Matters, including Listed Buildings and Archaeology

- 6.5.1 The compartment contains significant heritage interest with Hardley Mill (Listed Grade II), the archaeological interest of the nearby post medieval brickworks, the Conservation Area designation covering the western edge of the application site and heritage finds records available. The design of scheme has been devised to protect the importance of the Listed Building and Conservation Area (and its setting). This approach is consistent with the thrust of Central Government advice in protecting heritage assets.
- 6.5.2 In the works corridor, there are a number of other areas of heritage value and archaeological interest as identified in the Environmental Statement. This is recognised by NCC Historic Environment Service who consider archaeological / heritage interest can be safeguarded with the imposition of a planning condition to protect and record archaeological interest. With this approach it is considered that the aims of Policy DP5 of the Development Management Policies DPD and Core Strategy Policy CS6 would be met.

6.6 Other Considerations, including Highway and Amenity

- 6.6.1 The application shows a number of access routes to be used by construction traffic from Langley Road (accessed from the A146) to the works corridor. BESL have confirmed that the condition of all routes to be used will be recorded before works commence and any damage which takes place during use by construction traffic will be made good at the end of the construction period. Whilst most of the routes are typical rural roads, it is considered that the use of these by construction traffic will not adversely impact on highway safety considerations and provided a planning condition be imposed to address any damage, the proposal will meet the highway safety aims of Policy DP11 of the Development Management Policies DPD.
- 6.6.2 The proposed works will have an impact on the landscape as a result of the construction activities and the appearance of bare floodbanks. However it is considered that this will only be short term and experience has demonstrated that banks re-vegetate during the first growing season after BESL complete works and there will be no long term unacceptable impact on the landscape appearance of the area as a result of completed works.
- 6.6.3 Disturbance to residential amenity from works within the corridor is likely to be limited with few properties in close proximity. Therefore the suggested hours of working between 7-00 and 18-00 Monday to Friday and 7-00 to 13-00 on Saturdays are considered acceptable. However close to the Broads 24 hour mooring, BESL have indicated they will not undertake Saturday working or works in the most busy part of the summer season (in July and August). This is welcomed. It is noted that the Broads Society recommend no working on Sundays and Bank Holidays; this accords with BESL's aims and a planning condition can be imposed to ensure this approach to meet the amenity and access to water space aims of Policy DP28 of the Development Management Policies DPD and Policy CS3 of the Core Strategy.

7 Conclusion

- 7.1 The application will provide enhanced flood defence protecting property, agricultural and nature conservation management interest; preserving recreational opportunities and safeguarding heritage interests. It is considered that subject to the conditions outlined below (and in Appendix 3), the scheme is acceptable and meets the key tests of 'saved' policies in the Broads Core Strategy and the Development Management Policies DPD.

8 Recommendation

- 8.1 That, subject to no substantive representation/comment being raised from any outstanding consultees, this planning application be approved subject to the following conditions:

- Standard time limit condition.
- Amended plan – (Footpath diversions + works in Langley Dyke).
- Landscape/planting.
- Timing of pile removal to be agreed.
- Pile removal timing.
- Pile removal technique.
- Erosion monitoring / remediation.
- Archaeological investigation.
- Temporary footpath closure/signage.
- Site access/delivery route.
- Navigation / channel hazard markers.
- Hours of working.
- Phasing of works to flood banks.
- Detail of maintenance works to piling.
- Erosion protection details to be agreed with Broads Authority.

- 8.2 In addition, an Order is prepared under Section 257 of the 1990 Town and Country Planning Act to deliver a length of public footpath to the new line, as shown on plan WNCLNM 400/101/O and 102/O as it is necessary to do so in order to enable development to be carried out.

- 8.3 The following informative be specified on the decision notice of the planning application:

- The permission shall be granted in the context of the Memorandum of Understanding between the Broads Authority and the Environment Agency on 25 April 2003.
- Works may need separate consents under the Water Resources Act and Land Drainage by-Laws for flood defence consent.

9 Reasons for Approval

- 9.1 The proposal is accompanied by an Environmental Statement which outlines the proposal and the impacts on the area.
- 9.2 The application is accompanied by evidence that demonstrates that the proposal will not have a significant impact on water levels and will protect people, property, land / business interests.
- 9.3 The ecological interest of the area will be safeguarded by the proposal and it is considered that the loss of some grazing marsh to allow more sustainable flood defences is outweighed by the benefit of greater protection to a wide area of grazing marsh and the commitment of the applicant to provide compensatory replacement habitat, meeting the tests of DP1 of the Development Management Policies DPD and Core Strategy Policy CS4.
- 9.4 The recreational interest of the area will be safeguarded by proposals; protecting walking interests during construction and providing enhanced floodbank for use after construction. Furthermore the proposal will generally maintain mooring in Langley and Hardley Dykes (with slipway enhancement in Hardley Dyke) and the works will not be unacceptably harmed for either privately owned moorings or the Broads 24 hour moorings. Subject to planning conditions, the water based recreational interest will be protected as require by Policies DP11 and DP13 of the Development Management Policies DPD or Core Strategy Policy CS3.
- 9.5 Heritage interests will be safeguarded by good design in the scheme and monitoring of works meeting the aims of development plan policy including Core Strategy CS6 and policy DP5 of the Development Management Policies DPD.
- 9.6 Visual and residential amenity will be safeguarded as a result of sympathetic design, re-vegetation and working hours as required by planning condition.
- 9.7 Therefore application is considered to meet the requirements of the Broads Core Strategy DPD and Development Management Policies DPD policies, and would not materially conflict with other policies in the Development Plan Documents. The proposal is considered to represent an appropriate design of development associated with flood defence work in this location.

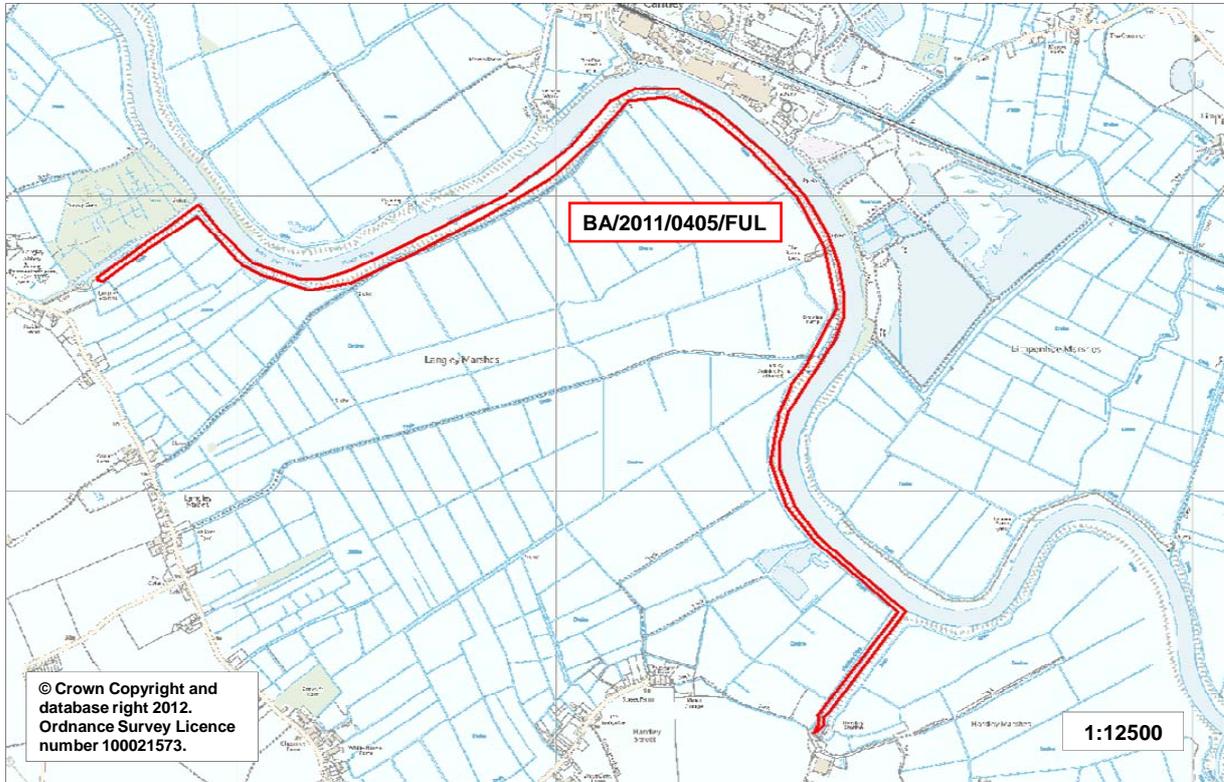
Background papers: Planning File BA 2011/0405/FUL

Author: Andy Scales
Date of report: 14 February 2012

Appendices: APPENDIX 1 – Local Plan
APPENDIX 2 – Environment Statement – Non technical summary
APPENDIX 3 – Draft conditions

APPENDIX 1

BA/2011/0405/FUL - Compartment 20, Right Bank Of The River Yare Between Langley And Hardley Dyke, Norfolk
Flood defence works including: strengthening, rollback of floodbanks, soke dyke excavation for material sourcing, and riverside erosion protection works. As well as a temporary site compound and associated engineering works and permanent footpath diversion.



Introduction

Broadland Environmental Services Limited (BESL) is working on behalf of the Environment Agency to carry out a programme of improvement and maintenance works to the flood defences in Broadland. This work forms part of the Broadland Flood Alleviation Project (BFAP), a long-term 20-year programme of sustainable flood defence improvements in the area.

As part of this project BESL has prepared a scheme for flood defence improvements to a 5km stretch of floodbank along the River Yare between Langley Dyke and Hardley Dyke. This area represents “Compartment 20” of the BFAP. The flood defences protect approximately 425ha of low-lying land, the majority of which is agricultural marshes. There are a small number of residential properties that fall within the compartment, notably The Roundhouse which is located immediately behind the floodbank. Other properties are found along the edge of the compartment at Hardley Street and Langley Street.

The proposed improvement works need planning permission from the Broads Authority. To comply with planning legislation BESL has prepared an Environmental Statement in order to inform the public and decision-makers of the likely environmental effects of this scheme. This shorter report has been prepared as part of the Environmental Statement as a non-technical summary.

Need for the scheme

The standard of protection provided by floodbanks along the Broadland rivers is continually reducing because of settlement, deterioration over time, insufficient maintenance in the past and sea level rise. This makes the banks more vulnerable to erosion and at risk of breaching at times of high level flood events. Such breaches can cause widespread uncontrolled flooding which can have serious implications for the agricultural and wildlife value of the marshes. In Compartment 20 there are residential properties, historic mills and important recreational facilities that would be vulnerable if the defences are not improved and maintained.

The site is located wholly within the Broads Authority Executive Area, part of a nationally important landscape that is valuable for wildlife, agriculture, cultural heritage, the local economy and people’s recreational enjoyment of the area.

Public consultation

As part of the planning and design process for these proposed works, BESL carried out a pre-application consultation exercise with key stakeholders, local interest groups and landowners. A consultation document describing the proposals and a questionnaire for gathering responses were distributed in April 2011. During the consultation a wide range of issues were raised in relation to the proposed scheme. Most of the responses were supportive of the proposals; concerns related mainly to the potential for disruption to informal recreation and the need to deliver improved habitat for breeding waders. Full details of the issues raised by the consultation exercise are reported in the Environmental Statement that has been submitted with the planning application. All consultees have been sent a copy of the BESL response together with notification that the planning application has been submitted.

The proposed scheme

The proposals comprise:

- 4184m of floodbank strengthening;
- 553m of floodbank rollback;
- 573m of piling removal;
- 57m of retain piling (by The Roundhouse);
- 459m of maintain piling;
- 188m of concrete wall repairs;
- 10m of new crest piling
- Installation of ramp and refurbishment of slipway at Hardley Dyke;
- 136m of replacement sheet piling; and
- 405m of erosion protection installation (not piling).

The existing BFAP site compound at Acle will serve as the main base for the engineers and workforce. Welfare facilities (toilets and mess huts) and material storage will be located on existing hardstanding within the yard adjacent to Hardley Staithe. This location was previously used for improvement works between Hardley Dyke and Hardley Flood (compartment 21).

Floodbank strengthening is proposed where there is already a reasonable width of road (reeded margin) between the river and the floodbank. It involves strengthening the floodbanks along their existing alignment by placing material on the rear or front slope. It also usually involves raising the level of the crest to allow for settlement and future sea level rise. Strengthening creates a wider crest and broader profile, which reduces the likelihood of the banks breaching when high level flood events overtop them.

Rollback involves moving the crest of the floodbank away from the river's edge but without constructing a distinct new bank. Piling removal will be undertaken in areas where the bank has been rolled back.

The removal of the piling is done once the new bank has established satisfactorily. In areas where piling is required as ongoing erosion protection it will be maintained and/or replaced by BESL as required.

Material for the improvement works will be sourced by either extending existing dykes or by digging new ones in the marshes.

Programme

The flood defence improvement works are planned to commence in spring 2012 with the erosion protection works undertaken from the river during the winter period 2012/2013. Vegetation clearance along the bank and dyke margins will be undertaken in January and February 2012. The floodbank works will largely be completed in 2012 but it may be necessary to restrict public access to most of the banks until spring 2013. The piling removal will be undertaken during the winter months once the setback banks have established satisfactorily.

Land use and local community

The proposed works will maintain protection of the agricultural land that lies within

the compartment. There will be a permanent loss of approximately 4ha of grazing marsh due to the need to excavate material and construct setback banks. The loss of productive agricultural land is regrettable but is small compared to the extent of land that will be afforded greater protection from the impacts of flooding were there to

be a major breach. Furthermore, the works are only cost effective if the material is sourced locally from the adjoining marshes. There would also be a significant environmental impact of having to import huge quantities of clay to site via the local road network.

There will be some disruption to farming close to the works corridor during construction. BESL will provide landowners with appropriate compensation for both temporary and permanent effects. Any land, including access tracks and roads damaged by the construction process, will be returned to their original state upon completion of the works.

Reed cutting takes place on some sections of the ronds. This is a late winter activity so there will be no direct conflict with the construction works which are undertaken April to October inclusive. However, the alteration of the bank profile could cause access problems so the detailed design includes the provision of ramps to enable safe access following completion of the defence works.

During construction there will be some noise disturbance and visual impact to nearby residents and visitors (see below for impacts on informal recreation). The contractor will operate a Project Management Plan that contains provisions for minimising disturbance to neighbours and the public through ensuring routes are adequately signed, speed limits are adhered to and public information boards are provided at access routes. The working period will be limited to Monday to Friday (07.00-18.00) and Saturday mornings (07.00-13.00) with no Sunday or Bank Holiday working. There will be no weekend working adjacent to The Roundhouse or moorings.

Following completion of the scheme there will be long-term benefits for land use and the local community through the reduced risk of widespread, uncontrolled flooding that would occur if the banks were not maintained.

Ecology and nature conservation

The Broadland river corridors and marshes support a large variety of species, some of which are nationally rare. Consequently surveys have been undertaken to identify any important habitats and species that need to be considered as part of both the scheme design and the construction methods. Signs of water voles and otters were noted while the range of habitats provides suitable nesting conditions for many species of birds including lapwing on the marshes and sedge warblers in the reedy margins either side of the bank. A small number of grass snakes were recorded whilst the only notable plant found within the works corridor include marsh sowthistle and marsh mallow. The dykes within the proposed working corridor generally do not support interesting plant communities though elsewhere in the wider compartment, where water quality is better, there are valued plant communities and a number of rare invertebrate species.

The main potential impacts of the construction works on habitats and species are:

- risk of killing or injuring protected species including water vole and grass snake;
- disturbance to breeding birds or destruction of active nests; and
- loss of vegetation, including notable species, on the floodbank, folding, and within Dykes

These impacts will be avoided or reduced through scheme design and adoption of mitigation measures that have been successfully used on previous schemes e.g. discouraging nesting birds within the working corridor by cutting vegetation before the bird breeding season begins; vegetation cutting and sustained water-drawn down to displace water voles. The net changes in habitats that will result from implementation of the scheme are listed in the table below.

Net Habitat Change (ha)

Habitat	Net change
Rond	+0.53
Bank	+0.81
Folding	+1.15
Soke dyke	+3.20
Marsh Dyke	-0.21
Grazing	-3.82
Arable	-0.24
Arable reversion + ESA field margins	-1.26

Grazing marsh is a national and local Biodiversity Action Plan priority habitat. As part of targets set by the Department for Environment, Food and Rural Affairs (DEFRA), the Environment Agency must aim to avoid any overall loss of BAP habitat as a direct result of flood defence works. In terms of the Broadland Project the only means of cost effectively delivering the maintenance and improvement works to the flood banks is to source the material from the marshes. Consequently there will always be a reduction in the area of grazing marsh following the implementation of individual schemes. However, this reduction has to be considered against the fact that the losses are very small compared to the much larger area of grazing marsh, and associated wildlife that will benefit from improved protection afforded by the works.

Nevertheless, the Environment Agency intend to create replacement habitat (e.g. conversion of arable fields) to ensure that overall there will be no net loss of grazing marsh. The improvement of poor quality grazing marsh is also being undertaken as an option given the limited amount of arable land in the Broads. To date, 78ha of poor quality grazing marsh have been identified for improvement at Upton Marshes and Oulton Marshes, working with Norfolk Wildlife Trust and Suffolk Wildlife Trust respectively on land that they have recently acquired. Additionally 19ha of grazing marsh has been created from former arable (set aside) land at Horsey. If there is difficulty with meeting the targets locally then alternative sites will be sought within

the Anglian region.

Poplar Farm Meadows Site of Special Scientific Interest (SSSI) falls within the compartment but it is remote from the working corridor. Cantley Marshes SSSI and the Yare Broads and Marshes SSSI are located upstream but on the opposite side of the river. Hydraulic modelling has been undertaken to examine the effects that the works could have on the SSSIs during high tide and flood events. This has shown that there will be no significant changes (see Water Environment below).

Following completion of the scheme BESL will evaluate the success of the ecological mitigation measures by undertaking monitoring over a 3-year period.

Landscape and visual effects

There will be no significant long-term changes in local views or on the overall landscape character. The proposals will result in an increase in the extent of water as a result of the much wider soke dykes. However, open dykes are a feature of this landscape and the colonisation by reed and aquatic plants will soon soften the appearance of them. A wide ledge or 'berm' will be constructed to encourage reed growth, thereby limiting the extent of open water. Piling removal and re-grading of the old bank will create a natural edge to the river. The ongoing protection of a nationally valued and sensitive landscape from the effects of flooding, were the defences not to be maintained, is considered to be a major beneficial impact.

The most significant visual intrusion will be during the construction stage when there will be large areas of bare ground and working machinery next to the river. This will be most apparent close to Hardley Mill and the Roundhouse and by those people using the river and moorings. However, the works will also be visible from properties along Langley Street and Hardley Street as well as the floodbank on the opposite side of the river. These impacts can be reduced to some extent by programming the works at the most sensitive locations outside of the summer holiday and with controls on working times. Nevertheless, there will still be some impacts that it is impossible to remove completely.

On immediate completion of the works there will still be some visual impact due to the bare soil on the floodbanks and the widened soke dykes. However, grass will generally establish within one growing season and reeds will also have grown in the soke dykes, helping to blend the affected area back into the landscape, which will ultimately benefit from improved long-term protection.

Water environment

A key requirement of the Project is that the pattern of over-topping of floodbanks in the whole system should remain the same as that which existed in 1995 (i.e. the relative height of banks between different compartments should remain the same). A hydraulic model has been developed to examine the effects on flooding patterns and river flows as a result of undertaking improvements so that design levels can be modified as required. It has been used to examine the effects of this scheme together with others already completed in other parts of the Yare valley. The model has looked at scenarios involving major flood events i.e. those with a 1 in 20 year probability of occurring. The results show that there will be no significant changes to water levels in the River Yare (changes less than 10mm).

Standard pollution prevention methods will be used to minimise the risk of an incident occurring that could affect the water environment. If an incident does occur (e.g. fuel spillage) then emergency procedures are in place to deal with and report it. Soke dykes and marsh dykes will have clay bunds constructed at appropriate locations to keep the working area completely separate from the majority of the marsh network and avoid impacts on water quality and/or levels.

There is some ground contamination in sections of bank along Langley and Hardley Dykes. This originates from waste material from gas works in Norwich that was historically disposed of along the Yare. Tests have been undertaken to locate the material and examine what exactly is present. This includes cyanide spent oxide which, if it were to leach into watercourse could kill fish and invertebrates. However, the material is buried and surrounded by clay. The working methods at these locations will restrict disturbance of the bank to topsoil stripping to allow extra material to be placed on the crest and rear face.

Archaeology and cultural heritage

There are a number of recorded features of archaeological and built heritage interest located within the compartment. Of the 27 features identified from Norfolk County Council's Historic Environment Record as being within the compartment boundary, 9 are within the working corridor.

Hardley Mill is a Grade 2 Listed Building, located behind the floodbank within the works corridor. It dates from 1874 and has recently been restored to full working order and a visitor's centre erected nearby. The floodbank immediately in front of the Mill was improved several years ago to co-incide with the restoration of the building. However, there will be strengthening work to the bank nearby and the access track from Langley Street will be used by the contractors. In order to minimise the risk of direct or indirect damage there will be no material sourcing from the dykes around the buildings and a fenced exclusion zone will be established to prevent machinery from tracking too close. A structural survey will also be undertaken in advance of works starting.

An archaeologist will be employed to undertake an inspection of all areas of material sourcing once topsoil stripping has been completed so that any uncovered remains can be assessed. No excavation works will take place until the archaeologist has signed-off a particular area. Plant operators will be briefed about the need to stop work and report any remains or artefacts that are uncovered in the vicinity of the mills and elsewhere. In addition to the known features there is the potential for previously unrecorded remains to be uncovered during material sourcing works. An archaeological watching brief, to be agreed with Norfolk Landscape Archaeology, will be implemented to record any features uncovered during the proposed works and minimise the effect of disturbance.

Recreation and navigation

Broadland provides valuable opportunities for recreation and it is estimated that the area attracts more than 7 million visitors each year (Broads Plan 2011). Many of the recreational opportunities are water-based such as sailing and boating but landbased activities, including angling, walking and cycling, are also popular.

The River Yare is regularly used by both powered and non-powered craft for pleasure boating and sailing, especially during the summer months. In compartment 20 there is a Broads Authority 24-hour moorings at Langley Dyke and visitor moorings next to Hardley Mill. Private moorings are located in both Langley and Hardley Dykes. Safe access to all these moorings will be provided throughout the construction works. Every effort will be made to avoid working adjacent to the 24-hour moorings during July and August. Installation of erosion protection and piling removal will be undertaken from the river between November and March to minimise any impact on navigation. Appropriate signage will be utilised to ensure that river users are aware of the works and the Broads Authority will be consulted on the exact timing of the works. The proposals include the refurbishment of the slipway at

Hardley Dyke.

A public footpath runs along the crest of the floodbank for the entire length of the compartment. The footpath forms part of the Wherryman's Way Long Distance Path which runs between Norwich and Great Yarmouth. It will be necessary to close the floodbank footpath during the works and for a period afterwards until vegetation has successfully established. There are no other rights of way within the compartment that could provide suitable alternatives so the diversion will have to use Langley Street and Hardley Street. Details of the footpath closure and alternative routes will be displayed at access points on site and advertised on the Broads Authority, Norfolk County Council and BFAP websites.

Once the footpath is re-opened walkers will benefit from an improved surface. BESL will also be cutting vegetation on the path up to three times per year as part of the flood defence maintenance programme; this represents an important benefit at a time when the Broads Authority and Norfolk County Council are likely to be reducing the amount of grass cutting. Along the lengths that coincide with rollback it will be necessary to have a permanent diversion of the public footpath onto the new bank.

The piled frontage on the Yare is used for angling. Access will be restricted during the work and once the piles are removed the area could become unsuitable for fishing. As the amount of bank fishing is limited along the Yare the Project will work with the EA Fisheries Officers and landowner to ensure that people can continue to fish safely from this area in the future.

Conclusions

Flood defence improvement works comprising a combination of bank strengthening, rollback and installation of erosion protection have been identified as the most appropriate solutions to provide ongoing protection to the low-lying marshes between Langley and Hardley Dykes.

Without these works the banks will continue to deteriorate making regular, widespread flooding of the marshes more likely and also threatening residential properties, Hardley Mill, the Poplar Farm Meadows SSSI and informal recreational activities.

The impacts on people and the environment will be confined to the construction period and can be successfully mitigated at the time so that there will be no significant long-term effects. The implementation of recommended mitigation and

monitoring measures, directed by an Environmental Action Plan, will minimise any adverse effects and ensure that environmental benefits are delivered.

Further information

The Environmental Statement and associated planning drawings will be available to view, by prior arrangement, at the Broads Authority Offices, Dragonfly House, 2 Gilders Way, Norwich. Tel. 01603 610734.

Alternatively, for those with access to the Internet, visit the Broads Authority's planning web pages (<https://planning.broads-authority.gov.uk/PublicAccess>) from where a link can be selected to the "Application Search" page. Select "Broadland Environmental Services Ltd." from the drop-down menu against Agent or type PP-01717890 under Planning Portal reference. All of the documentation including consultation responses will be available under the "associated documents" tab.

APPENDIX 3

Compartment 20 – Langley Marshes: Langley Dyke, River Yare and Harley Dyke **Application No: BA/2011/0405/FUL**

Draft Conditions

1. The development must be begun not later than the expiration of three years beginning with the date of this permission.
2. The development hereby permitted shall be carried out in accordance with the environmental statement, the following plans and supporting details as submitted and as amended
 - WNCLNM/400/001/0 Location Plan;
 - WNCLNM /400/003/0 Detailed plan and sections (sheet 1 of 3);
 - WNCLNM /400/004/0 Detailed plan and sections (sheet 2 of 3);
 - WNCLNM /400/005/A Detailed plan and sections (sheet 3 of 3);
 - WNCLNM /400/006/0 Repair work and proposed slipway detail; and
 - WNCLNM /400/101/0 and 102/0 showing permanent footpath diversion.
3. All landscaping and restoration shall accord with the approved details unless otherwise agreed in writing with the Local Planning Authority.

All planting/seeding comprised in any approved details of landscaping/restoration shall be completed within the time periods specified in the approved details or within such other period as may be agreed in writing with the Local Planning Authority.

Any planting/seeding within the limits of the scheme which fails within 5 years of the completion of the landscaping/restoration works shall be replaced in the next planting season with others of a similar size and species unless the Local Planning Authority gives written consent to any variation.

4. No works shall commence on the removal of any piling shown for retention and subsequent removal until a timetable for this work, as well as the details of the technique to be used to remove these piles, have been submitted to and approved in writing by the Local Planning Authority. No change to this is permitted without the further written consent of the Local Planning Authority.
5. Before the removal of any piling is permitted (as detailed by condition 4), a scheme for erosion protection measures and the monitoring of erosion (based in the detailed approach submitted with this application), including a detailed specification for this work and the locations where this will take place, shall be submitted to the Local Planning Authority.

No works shall commence on site without the written approval of this scheme by the Local Planning Authority. No change to the proposed erosion protection measures shall be permitted without the further written consent of the Local Planning Authority.

6. No development shall take place within the site until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved in writing by the Local Planning Authority.
7. No works shall commence on any part of the site where public footpaths will be affected until a programme for the closure and temporary diversion including details of the provision / means of temporary signage (plus access arrangements to public and private moorings) have been submitted to and approved in writing by the Local Planning Authority in conjunction with Norfolk County Council. No change to this programme shall be permitted without the written consent of the Local Planning Authority.
8. Unless otherwise agreed in writing between the applicant and the Local Planning Authority, the means of access and egress from the development hereby permitted shall be via the access routes detailed on drawings no WNCLNM/400/001/0 only. Within three months of the completion of works requiring the use of any such accesses, all works to repair damage and restore routes to a pre-commencement condition shall be carried out in the manner specified in the application unless otherwise agreed in writing with the Local Planning Authority.
9. Within seven days of any works that adversely impacts on navigation (including pile removal), temporary channel marking shall be provided indicating the width of the navigable channel and/or the marking of hazards to boats in a manner to be agreed in writing with the Local Planning Authority. No temporary marker shall be removed prior to the completion of the flood defence works to which they relate without the written agreement of the Local Planning Authority.
10. The hours of working for chainage 0 to 511, 1477 to 1560, 1939 to 1996 and 4538 to 5032 shall be restricted to 08-00 to 18-00 Monday to Friday only. Elsewhere in the compartment, hours of working shall be restricted to 07-00 to 18-00 Monday to Friday and 07-00 to 13-00 on Saturday. No working is permitted outside these hours or on any public holidays. No change to these hours of working shall be permitted unless agreed in writing with the Local Planning Authority.
11. No works shall commence on site until a programme for the phasing of floodbank improvement and erosion protection works (including specifying the timing of work close to residential uses and private/public moorings), has been submitted and approved in writing by the Local Planning Authority. No change to this programme is permitted without

the written consent of the Local Planning Authority.

12. No works shall commence in an area where piling is shown to be maintained until the detailed specification for repair / replacement of piling and other maintenance works (including infill of scour holes / gaps behind piling and areas for repair / replacement of capping and wailing) has been submitted and approved in writing by the Local Planning Authority. No change to this programme is permitted without the written consent of the Local Planning Authority.
13. No works shall commence in other areas where erosion protection measures are proposed until a detailed specification for this work and the locations where this will take place has been submitted and approved in writing by the Local Planning Authority. No change to the proposed erosion protection measures shall be permitted without the written consent of the Local Planning Authority.

NOTE: This permission has been granted linked to the attached Memorandum of Understanding signed on 25 April 2003 between the Broads Authority and the Environment Agency.

NOTE: The applicants' attention is drawn to the advice that works close to any floodbank may require consents under the Water Resources Act, Land Drainage by-laws and Flood Defence Consent.

The reasons for the above conditions are

- 1 Required to be imposed by Section 91 (as amended) of the Town and Country Planning Act 1990.
- 2 For the avoidance of doubt and to ensure satisfactory development and an orderly approach to this development on the site in accordance with the approved plans.
3. For the avoidance of doubt, in the interests of the visual amenities and to ensure a satisfactory appearance and form of development in accordance with policy DP1 of the Broads Authority Development Management Policies DPD and policy CS4 of the Core Strategy DPD.
4. In order to comply with policy DP13 of the Broads Authority Development Management Policies DPD and to ensure that the Local Planning Authority retain control over the timing and technique for pile removal to avoid detrimental to navigation interests.
5. In order that the development complies with policy DP13 of the Broads Authority Development Management Policies DPD and policy CS3 of the Core Strategy DPD and to ensure erosion is monitored in a satisfactory manner and that action be taken should this unacceptably impact on navigation / water space use.

6. To ensure that the archaeological interest of the site is investigated and recorded in accordance with policy DP5 of the Broads Authority Development Management Policies DPD and policy CS6 of the Core Strategy DPD.
7. To ensure that the impact on access to the network of public rights of way is limited during the flood defence works to meet the aims of policy DP11 of the Broads Authority Development Management Policies DPD.
8. To control the impact of construction traffic using other access routes and ensure satisfactory restoration works to accord with the aims of policy DP11 of the Broads Authority Development Management Policies DPD.
9. To ensure that works undertaken do not prove a hazard to navigation to address the aims of policy CS3 of the Core Strategy DPD
10. In order to limit impact on the amenities of local residents and visitors to meet the aims of policy DP28 of the Broads Authority Development Management Policies DPD.
11. To ensure an orderly approach to works to limit impacts on recreation, navigation and conservation interests to meet the aims of policy DP28 of the Broads Authority Development Management Policies DPD and policy CS3 of the Core Strategy DPD.
12. To ensure that the works provide flood defences in a manner that will preserve and enhance the appearance of the area and that specific piled areas remain capable of use for mooring to meet the aims of policy DP13 of the Broads Authority Development Management Policies DPD and Broads Core Strategy DPD policy CS4.
13. In order to comply with policy DP13 of the Broads Authority Development Management Policies DPD and policies CS3 and CS4 of the Core Strategy DPD to enable the Local Planning Authority to retain control over future development that could be detrimental to navigation interests or the character and appearance of the Broads.

Reasons for Approval

The proposal is accompanied by an Environmental Statement which outlines the proposal and the impacts on the area.

The application is accompanied by evidence that demonstrates that the proposal will not have a significant impact on water levels and will protect people, property, land / business interests.

The ecological interest of the area will be safeguarded by the proposal and it is considered that the loss of some grazing marsh to allow more sustainable flood defences is outweighed by the benefit of greater

protection to a wide area of grazing marsh and the commitment of the applicant to provide compensatory replacement habitat, meeting the tests of DP1 of the Development Management Policies DPD and Core Strategy policy CS4.

The recreational interest of the area will be safeguarded by proposals; protecting walking interests during construction and providing enhanced floodbank for use after construction. Furthermore the proposal will generally maintain mooring in Langley and Hardley Dykes (with slipway enhancement in Hardley Dyke) and the works will not be unacceptably harmed for either privately owned moorings or the Broads 24 hour moorings. Subject to planning conditions, the water based recreational interest will be protected as require by policies DP11 and DP13 of the Development Management Policies DPD or Core Strategy policy CS3.

Heritage interests will be safeguarded by good design in the scheme and monitoring of works meeting the aims of development plan policy including Core Strategy CS6 and policy DP5 of the Development Management Policies DPD.

Visual and residential amenity will be safeguarded as a result of sympathetic design, re-vegetation and working hours as required by planning condition.

Therefore application is considered to meet the requirements of the Broads Core Strategy DPD and Development Management Policies DPD policies, and would not materially conflict with other policies in the Development Plan Documents. The proposal is considered to represent an appropriate design of development associated with flood defence work in this location.