Replacement Quay Heading/Piling Topic Paper

November 2023

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1. Introduction

Across the Broads area, the banks of the rivers, Broads, dykes and inlets vary in terms of the treatment of the edge. Mostly, the banks are natural with the land sloping down to the water, often with a wide, reeded fringe. Where the tidal flow is strong, or there is erosion or protection is required, the bank may be piled. The piling may be steel or timber and the material used often depends on the age of the piling and its primary function. The term 'piling' tends to be used where there is primarily an engineering purpose for the piling. Where mooring is required, the bank is often piled so that vessels can be tied alongside the bank, and there is often a walkway constructed parallel to the bank to facilitate access. Where the purpose of the piling is primarily to enable a mooring use, it tends to be referred to as 'quay heading'. 'Quay heading' can cover commercial, visitor, residential, householder and other types of moorings.

Planning permission is usually required to install piling and quay heading as it is an engineering operation. The Broads Authority treats like-for-like replacement of quay heading as 'maintenance', subject to a 25m maximum length and the replacement being on the same alignment, height and depth as the previous and being in the same materials.

Landowners may want to improve a quay heading in a particular area to maintain it in a good condition, to enable a change in the way an area is used, or to replace the quay heading at the end of its life. They may do this by placing new quay heading in front of the original quay heading, rather than removing the original quay heading. The new quay heading tends to be placed 10cm to 50cm in front of the old quay heading. Timber quay heading tends to be replaced every 10 to 15 years and steel quay heading every 20 to 30 years.

Placing new quay heading in front of existing quay heading at a typical distance of 10cm to 50cm reduces the width of the river in that location. This is a particular issue in narrower waterways with high volumes of river traffic. Importantly, reducing navigable space impacts

on the ability of users to navigate safely. One of the statutory purposes of the Broads Authority is to protect the interests of navigation. The Local Plan for the Broads has a strategic policy (SP13) that seeks to protect and enhance the navigable water space.

There are some stretches of rivers that are both narrow and have quay heading. In some areas, a small encroachment could have a significant impact on the available channel space. Another issue to consider is how busy a stretch of water is and the typical size of vessels that use that stretch. Therefore, any policy approach could apply to certain areas.

Ideally, the old quay heading would be removed first, and the new quay heading would then go in its place or new quay heading could go behind the original quay heading which is then removed. This would ensure that there is no encroachment into the river. However, this is not always done because it may be costly and can be technically challenging.

This Topic Paper explores the issue as well as proposes a way forward for the Local Plan.

2. Issues and Options

This Issue was discussed in the Issues and Options Local Plan document that was consulted on at the end of 2022.

In planning terms, we tend to use the strategic policy SP13. Under the Broads Act 1988, certain schemes require a Works Licence and one of the considerations in issuing these licences is the impact on navigation. Taking these together, we usually request that replacement quay heading is not placed more than 30cm in front of the original. However, the reason we are raising this as an issue is that in some areas we are at a critical point and need to safeguard navigation from further encroachment.

The options and related question we included in the Issues and Options document are as follows.

a. No specific policy approach to address quay heading in front of quay heading.

b. Geographic risk-based approach. Map areas where the rivers are narrow and where there is already quay heading – through assessment of channel width and river usage, areas where new quay heading being placed in front of old quay heading would impact navigation would be identified. In the areas identified as being most impacted from encroachment, the approach could be to hold the existing line of the quay heading.

c. Have a policy that applies to all the Broads, regardless of river width. This seeks to minimise the impact through set criteria for how far quay heading could be in front of existing.

Question 23: Do you have any comments on the issue of new quay heading in front of old quay heading?

Here are the responses:

Organisation	Comment
Bradwell Parish Council	We should adopt option C.
Broads Society	The Society favours the 'Geographic risk-based approach' detailed in 'Option b'.
Brooms Boats	Option B however economic viability regarding business needs is vital and hence requires a collaborative approach.
East Suffolk Council	East Suffolk Council's view is that the Broads Authority are best placed to determine which of the options best deliver against the statutory purposes of the Broads Authority in protecting the interests of navigation. However, an approach based on the evidence of risk (option b) would seem sensible as this will allow for the policy to focus on those areas where a critical point has been reached.
Mrs S Lowes	Old quay heading should be removed.
RSPB	Prioritisation for replacement of quay head must go to locations where the heading protects bank integrity first and foremost and provision of mooring facilities second. We recommend the construction cost in terms of CO2 becomes part of the validation process, just as for materials and design of residential developments.
Sequence UK LTD/Brundall Riverside Estate Association	We note the issues that have been raised within the consultation document but are concerned that this is a matter that does need to be considered on a site-by-site basis and therefore the options set out within b) or c) are too prescriptive and inflexible, particularly where navigation matters will also be a factor. Therefore, we would recommend that no specific policy would be more appropriate, although guidance only could be provided within the Design Guide or an SPD (Supplementary Planning Document) to ensure there is some form of assistance on this issue.

3. Research – technical issues and costs

To further understand the impact of placing quay heading in the same place or even behind the existing quay heading, the Authority contacted two contractors who operate in the

Broads and are often hired to replace quay heading. The key information from the contractors is as follows:

a) To understand the potential for piling to be removed, it is important to understand the piling type (timber, plastic, steel), location (can the quay heading be reached by an excavator? By road or river?), condition of the piling to be removed (is the piling likely to break, particularly at the waterline making extraction difficult) and waste disposal/transport costs.

b) In many ways the outcomes are very site specific. But in general, there are more risks with piling behind the original line. The chance of encountering debris that hampers or prevents piles being driven behind is greater when you pile behind. It is not unusual to find old revetments, old anchors, services, or aggregate backfill behind the piles. If these items are encountered, then it can add considerable time to the product or change the end results.

c) If there are no such items behind the piles and the piles drive freely then the additional costs would be the excavation and disposal of the material between the old and new. It will cost less if the material is allowed to be spread on site, but if it must be taken away, assuming a collection vehicle can get to within a few yards for the source, then that would cost more.

d) The old piles would also need extracting. If they come out freely and intact and a collection vehicle can get close to the site then the scrap metal cost would go some way to covering the cost, but this is an additional cost.

e) The advantage of piling behind existing piling is that the importing of material needed to fill the void between the old and new piles is not necessary. There is a cost of providing and placing this material.

f) One consequence of removing old works first is that in most cases, once the old work is removed, the material directly behind the removed quay heading immediately starts to fall away. This does then require the land to be reinstated behind the new quay heading either by dredging the original material back out of the water, or by bringing additional material back to the site. There could be an additional cost because of the material falling away. The likelihood of this happening will depend on the local soil type and conditions as well as the rate of river flow.

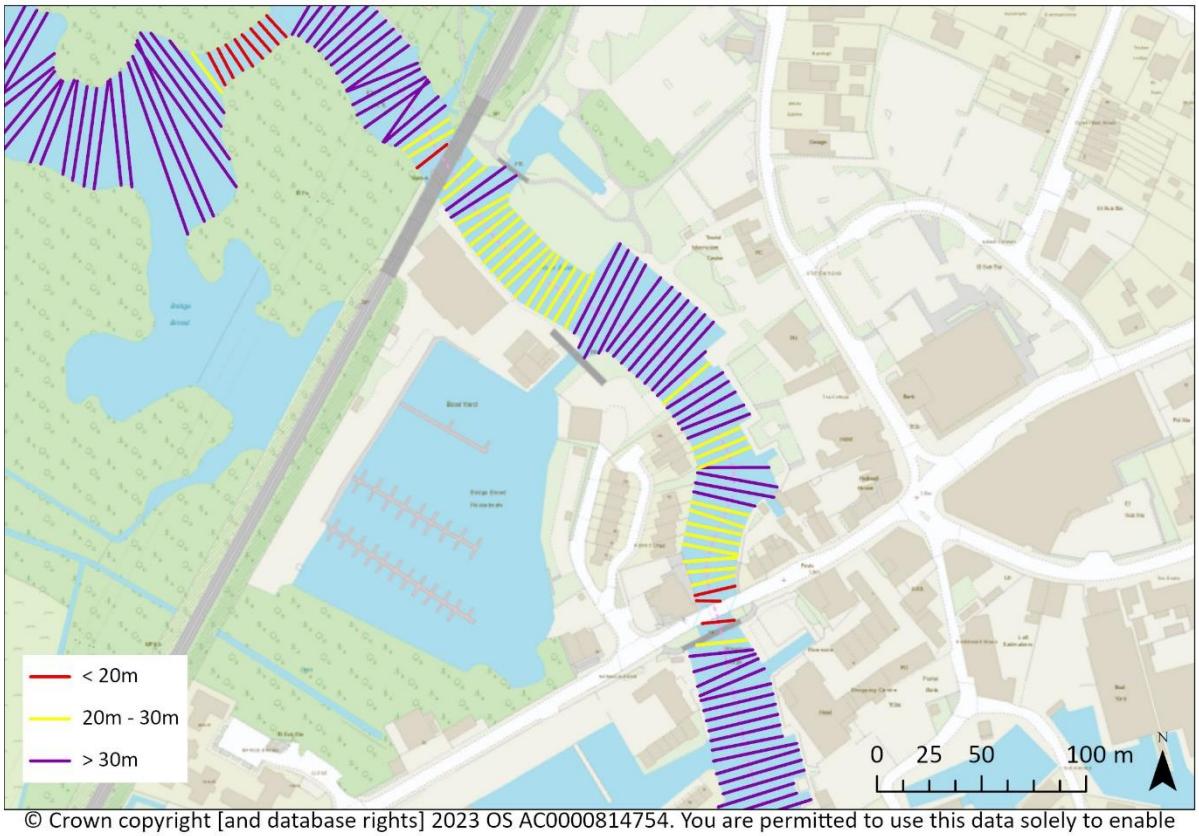
In summary, from a theoretical point of view, if there are no obstacles behind the piles, there is little difference in the cost and work required to place piling in line or behind the existing quay heading. However, given the risk of obstacles and access for vehicles having a potentially pivotal impact, site specific assessment is really needed. The issue of material falling away if piling removed first is another consideration and cost.

Placing quay heading in place of or behind	
Additional costs	• Removing piling • Excavation and disposal of material • Material falling away and then being dredged
Potential costs	• Encountering debris
Cost savings/offset	• Scrap metal value of piling • Back filling of material/importing material

4. Width of waterways

The widths calculated are based on Ordnance Survey MasterMap data which is the most accurate large-scale mapping available. Transects have been created at 5m intervals perpendicular to the Broads Authority centreline dataset and clipped to the extent of the water body. Each transect has been assigned one of the following 3 categories based on the length across. Less than 20m wide, More than 20m wide, but less than 30m, More than 30m. Some examples are included here:

Showing width of the river at 5m intervals though Wroxham/Hoveton



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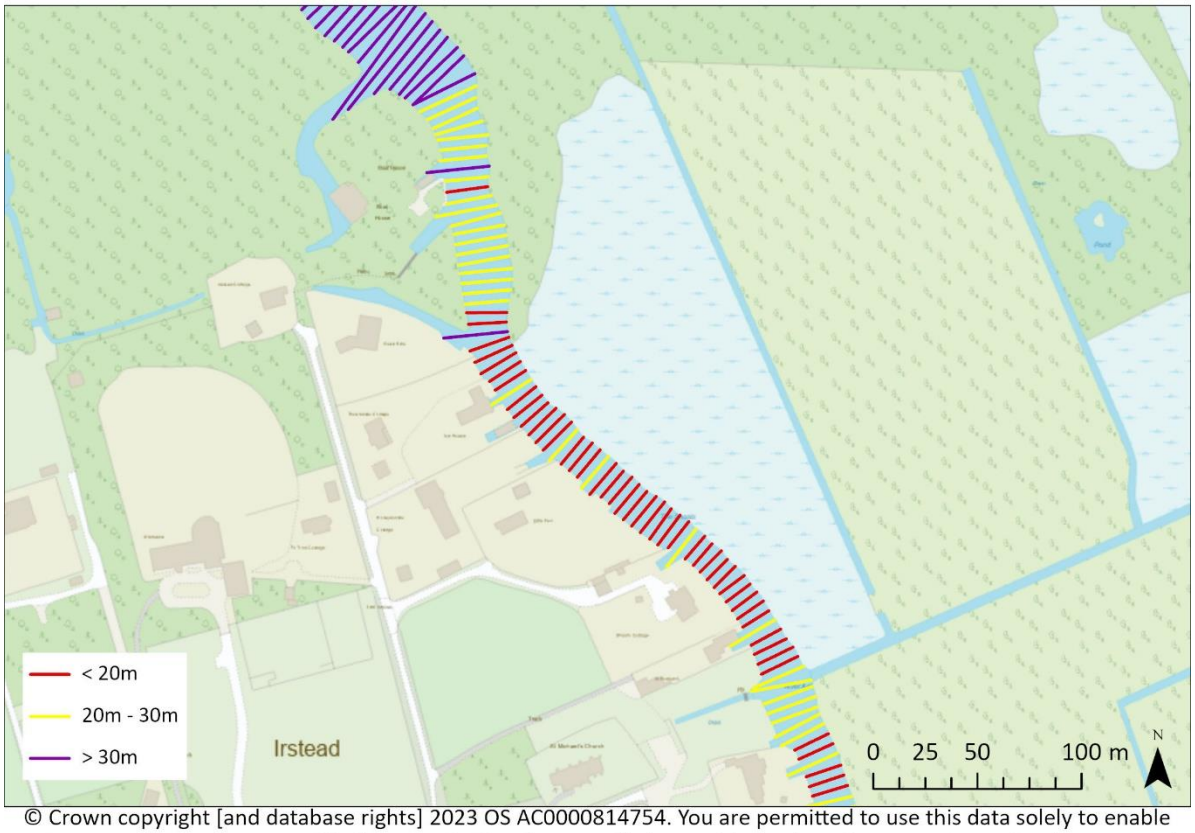
Showing width of the river at 5m intervals though Irstead



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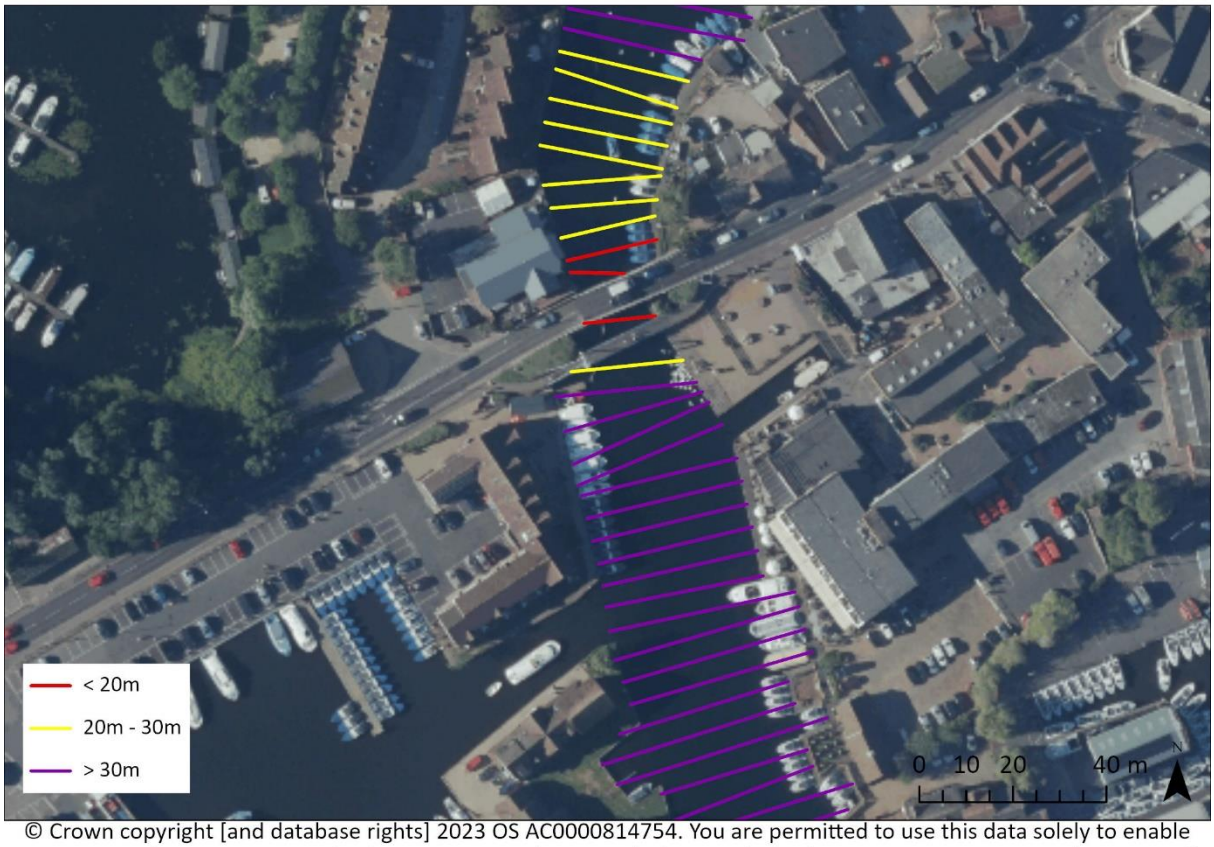
It is not just the width of the channel that we need to consider; we also need to understand if boats do or will moor either on one side or both sides of the stretch of water. The aerial imagery below shows that boats can moor on one or both sides of the waterways.

Showing width of the river at 5m intervals though Wroxham/Hoveton



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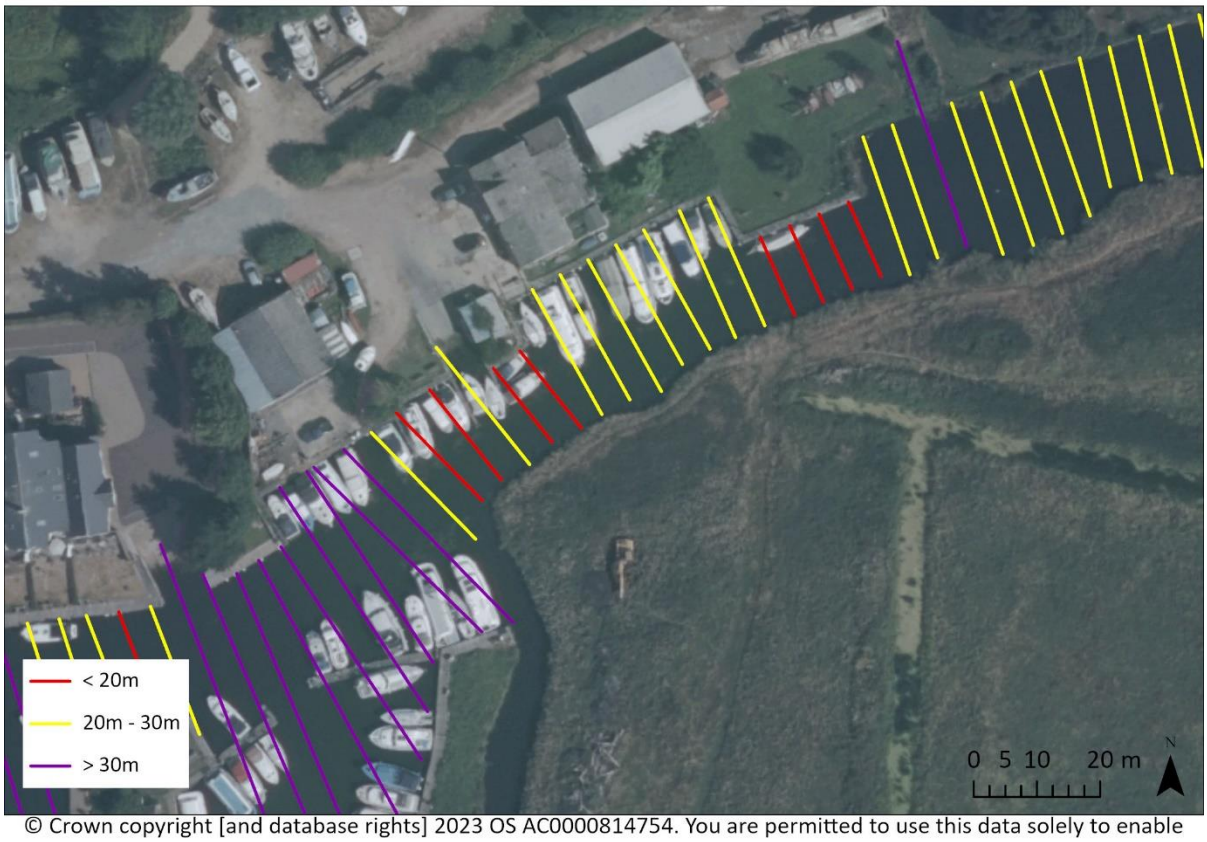
Because the areas where stern on moorings are known, they have also been mapped.

Showing width of the river at 5m intervals though Chedgrave



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5. Way forward

It is proposed that there is a policy approach in the Local Plan to address this issue.

It is proposed that the approach is a geographic risk-based approach.

The 5m segments would be a starting point to consider the impact of any proposal, and aerial imagery would be used to indicate if boats are moored at the site in question. The Development Management Officer would then measure the width using GIS, taking into account the boat(s) moored there.

There is potential for the mapping system to be public facing.

In the areas identified as being most impacted from encroachment, the approach would be to hold the existing line of the quay heading.

Appendix 1: Proposed draft policy.

Local Plan for the Broads - Review
Preferred Options bitesize pieces
November 2023

The impact of replacement quay heading on navigation.

This is a proposed draft section/policy for the Preferred Options Local Plan. Member's comments and thoughts are requested. This policy is a new policy.

There is an assessment against the UN Sustainable Development Goals at the end of the policy.

The proposed Sustainability Appraisal of the policy is included at the end of the document. This would not be included in the Preferred Options Local Plan itself; this table would be part of the Preferred Options Sustainability Appraisal but is included here to show how the policy and options are rated.

Policy x: The impact of replacement quay heading on navigation.

1. Proposals for replacement quay heading that adversely impact on the navigable waterways will be refused.

2. Replacement quay heading proposals on waterways that are less than 30m in width, as indicated by the navigation transect dataset, will be assessed, on a case-by-case basis, to ascertain whether the replacement quay heading needs to be placed in line with or behind the existing quay heading in order to not erode the width of the navigable waterway.

Reasoned justification

Schemes involving replacement quay heading often place the new quay heading in front of the original quay heading, rather than removing the original quay heading first. The new quay heading tends to be placed 10cm to 50cm in front of the old quay heading. Timber quay heading tends to be replaced every 10 to 15 years and steel quay heading every 20 to 30 years.

Placing new quay heading in front of existing quay heading at a typical distance of 10cm to 50cm reduces the width of the river in that location. This is a particular issue in narrower

waterways with high volumes of river traffic. Importantly, reducing navigable space impacts on the ability of users to navigate safely. One of the statutory purposes of the Broads Authority is to protect the interests of navigation. The Local Plan for the Broads has a strategic policy (SP13) that seeks to protect and enhance the navigable water space.

There are some stretches of rivers that are both narrow and have quay heading. In some areas, a small encroachment could have a significant impact on the available channel space. Another issue to consider is how busy a stretch of water is and the typical size of vessels that use that stretch.

Ideally, the old quay heading would be removed first, and the new quay heading would then go in its place or new quay heading could go behind the original quay heading which is then removed. This would ensure that there is no encroachment into the river. However, this is not always done because it may be costly and can be technically challenging.

Under the Broads Act 1988, certain schemes require a Works Licence and one of the considerations in issuing these licences is impact on navigation.

The Replacement Quay Heading/Piling Topic Paper explores this issue in more detail and seeks to justify the policy approach.

Delivering the policy

1. When a proposal for replacement quay heading is received, the Broads Authority will use the Waterway Width Mapping System to ascertain the width of the waterway.

2. The mapping system will also include aerial imagery from the last few years, and these will be used to ascertain if vessels usually moor along the stretch of waterway in question and indeed, how they moor (stern on, alongside or double alongside).

3. The aerial imagery will be used to understand the actual width of the river, considering moored vessels.

4. The Authority will also assess accident data and data relating to how busy a stretch of water is.

5. All this information will be combined to determine whether the new quay heading needs to be in line or behind the existing quay heading.

Reasonable alternative options

a) No policy.
b) No quay heading is allowed in front of quay heading across the entire system.
c) Proposed policy.

Sustainability appraisal summary

The three options have been assessed in the SA. The following is a summary.

A: No policy	0 positives. 0 negatives. 3 ?
B: No quay heading allowed in front of quay heading across the entire system	3 positives. 0 negatives. 0 ? Overall, positive.
C: Preferred Option – proposed policy	3 positives. 0 negatives. 0 ? Overall, positive.

Why have the alternative options been discounted?

Placing new quay heading in front of existing quay heading at a typical distance of 10cm to 50cm reduces the width of the river in that location. This is a particular issue in narrower waterways with high volumes of river traffic. Importantly, reducing navigable space impacts on the ability of users to navigate safely. So having a policy is favoured and having a policy that judges schemes on a case-by-case basis is favoured.

UN Sustainable Development Goals check

This policy meets these UN SD Goals:

None identified

Sustainability Appraisal

SA objectives:

- ENV1: To reduce the adverse effects of traffic (on roads and water).
- ENV2: To safeguard a sustainable supply of water, to protect and improve water quality and to use water efficiently.
- ENV3: To protect and enhance biodiversity and geodiversity.
- ENV4: To conserve and enhance the quality and local distinctiveness of landscapes and towns/villages.
- ENV5: To adapt, become resilient and mitigate against the impacts of climate change.
- ENV6: To avoid, reduce and manage flood risk and to become more resilient to flood risk and coastal change.
- ENV7: To manage resources sustainably through the effective use of land, energy and materials.
- ENV8: To minimise the production and impacts of waste through reducing what is wasted, and re-using and recycling what is left.
- ENV9: To conserve and enhance the cultural heritage, historic environment, heritage assets and their settings.
- ENV10: To achieve the highest quality of design that is innovative, imaginable, and sustainable and reflects local distinctiveness.
- ENV11: To improve air quality and minimise noise, vibration and light pollution.
- ENV12: To increase the proportion of energy generated through renewable/low carbon processes without unacceptable adverse impacts to/on the Broads landscape.
- SOC1: To improve the health and wellbeing of the population and promote a healthy lifestyle.
- SOC2: To reduce poverty, inequality and social exclusion.
- SOC3: To improve education and skills including those related to local traditional industries.
- SOC4: To enable suitable stock of housing meeting local needs including affordability.
- SOC5: To maximise opportunities for new/ additional employment.
- SOC6: To improve the quality, range and accessibility of community services and facilities and to ensure new development is sustainability located with good access by means other than a private car to a range of community services and facilities.
- SOC7: To build community identity, improve social welfare and reduce crime and anti-social activity.
- ECO1: To support a flourishing and sustainable economy and improve economic performance in rural areas.
- ECO2: To ensure the economy actively contributes to social and environmental well-being.
- ECO3: To offer opportunities for Tourism and recreation in a way that helps the economy, society and the environment.

Assessment of policy

	A: No policy		B: No quay heading allowed in front of quay heading across the entire system		C: Preferred Option – proposed policy	
ENV1		Not having a policy does not mean that these issues will not be considered or addressed. A policy does however provide more certainty.				
ENV2						
ENV3						
ENV4						
ENV5						
ENV6						
ENV7						
ENV8						
ENV9						
ENV10						
ENV11						
ENV12						
SOC1						
SOC2						
SOC3						
SOC4						
SOC5						
SOC6						
SOC7						
ECO1	?		+	Navigable waterways are fundamental to many businesses in the Broads.	+	Navigable waterways are fundamental to many businesses in the Broads.
ECO2	?		+		+	
ECO3	?		+		+	