

Navigation Committee

05 September 2019

Agenda item number 14

Construction, Maintenance and Environment work programme - progress update

Report by Head of Construction, Maintenance and Environment

Purpose

To update committee members on the Broads Authority's management activities to maintain the public navigation, develop mooring facilities for public use; and demonstration of the effective use of available resources.

Contents

1.	Maintaining water depths for navigation	1
2.	Maintaining safe public mooring facilities	2
3.	Our resources	2
4.	Managing water plants	3
5.	Other navigation works	5
	Appendix 1	6
	Dredging progress	6

1. Maintaining water depths for navigation

- 1.1. The detailed breakdown in Appendix 1 gives the volumes for the annual dredging programme to the end of July 2019. A total of 12,340 m³ of dredged sediment has been removed from the prioritised sites. This figure represents 28% of the programmed target of 44,000 m³ for 2019/20.
- 1.2. Dredging in the River Bure moved on from South Walsham Fleet Dyke and in May started near Acle Bridge, with sediment taken to a floodbank set-back area near Oby. This task is expected to continue until the end of August. Mobilisation to the River Waveney also started in May, with dredging carrying on until mid-August, downstream of Beccles. The sediment from the River Waveney has been placed along the back of the floodbank on the Suffolk side. This will help provide material for any crest raising or floodbank strengthening work in the future.

- 1.3. Remaining planned dredging tasks for 2019/20 are at North Bay Oulton Broad, Hickling Broad, Waxham Cut and Tyler's Cut. Other than awaiting confirmation from Natural England for assent for the dredging at Waxham Cut, which is adjacent to a European Protected Site (Special Area for Conservation) and Site of Special Scientific Interest (SSSI), all projects are on track.
- 1.4. Programming the dredging dates and locations through the year depends upon several parameters, including availability of the correct equipment; landowner agreements for the sediment re-use areas on land; species mitigation; space for other waterways users; and efficient ordering of projects to minimise equipment movement and lifting. The summer programme is a challenge as all areas of the Broads are busy, but to achieve our Waterways Specification objectives, some compromise with users access will always be likely. Maintaining communication and engagement with stakeholders from the beginning at all project sites is essential.
- 1.5. At Hickling Broad, final planning for phase 2 of the EU Interreg funded CANAPE project is being completed. Priority areas for dredging in the marked channel have been identified, with an expected volume of 8,000 m³ to be used to fill the areas retained by the ring of geotextile tubes. The Authority is also working closely with Norfolk Wildlife Trust to clear some overgrown dykes to source live reed to plant along on top of the geotextile tubes and start the transformation into a reedbed.

2. Maintaining safe public mooring facilities

- 2.1. Annual inspection and maintenance to the Authority's mooring pontoon structures was completed in June. These pontoons are typically used for demasting and layby mooring near bridges.
- 2.2. Review of the provision of emergency and layby moorings near Breydon Bridge has suggested some design modifications to the three posted dolphins. The steel cross pieces pose mooring issues to some craft, so will be softened with timber inserts. Additional cross pieces will be installed to allow for comfortable fixing points at different states of tide. Overall location and provision of mooring points is to remain as is.
- 2.3. This winter's major project for re-piling will be at Acle Bridge 24-hour moorings. The Rivers Engineer is finalising the specification for the sheet piling along the mooring and modification/repair of the concrete edge near the existing sheds. The tender for the construction contract will be opened this October. Other work at Acle Bridge will include improvements to the electricity supply and distribution on site, which will facilitate later installation of electrical charging points along the mooring.

3. Our resources

- 3.1. Since the previous report, we welcome into the team Erica Murray, who joins us as Senior Environment Officer. Gavin Devaney, one of our Environment Officers, left the

Authority in July, and following a successful recruitment his replacement will start in October. Following the restructuring of the Strategy & Projects team earlier in the summer, the Waterways & Recreation Officer post will report directly to the Head of CME. The post has been filled by Lewis Treloar, who starts in September.

- 3.2. The tug Cannonbrook has been replaced with a similar specification, but newer vessel, as part of the ongoing asset replacement programme from reserve funds. Cannonbrook was built in 1951 and had reached a condition that was uneconomic for us to repair. Tug ‘Aberdour’ was purchased from a seller in Hull, where the vessel was used for light harbour duties. It has a low air draught and a 140 H.P. engine, so can be used for all of our pontoon moving requirements. A barge has also been purchased, which will replace our use of the motor wherry Onward. Since being taken out of service for moving mud, Onward has been used to house a fuel bowser and one of the Construction teams staff welfare huts when on site.
- 3.3. As part of the Authority’s vehicle replacement strategy, a replacement for a small van used by the Plant and Equipment team at the Dockyard has been ordered from reserve funds. Following a standard assessment of like-for-like costs of diesel vans, a similar specification but all-electric combi-style van was also assessed. Over the ten-year use period, the electric vehicle was slightly more expensive per year (£300), but offered zero carbon emissions. The capital cost for purchase was also higher than standard diesel options (around £8,000), but the savings were apparent over time with cheaper running costs. Given the carbon emission benefits and the opportunity to use an all-electric vehicle for operation purposes, the order has been placed and delivery is expected in December 2019.

4. Managing water plants

- 4.1. As we are in the middle of the active water plant cutting season, this is a good opportunity to refresh everyone on objectives and challenges of maintaining accessible waterways. Repeat cutting at all the main locations for dense and tall water plant growth has been maintained over the summer to date. Repairs to the weed harvester vessel while at Somerton Dyke caused a delay in the second cut, but this was resolved as quickly as possible. Regular cutting locations are given in Table 1. Up to four cuts in any one season is typical.

Table 1
Locations of regular weed cutting

River	Location
Ant	Wayford Bridge to Dilham Staithe
Thurne	Martham Ferry to Somerton Staithe
Thurne	Waxham Cut
Thurne	Catfield Dyke (mainly encroaching reeds)

River	Location
Thurne	Hickling Broad marked channel (cutting only from June to August, subject to good water clarity)
Bure	Belaugh to Horstead Lock
Yare	Thorpe River Green & Trowse Eye
Wensum	Lady Julian Bridge to New Mills
Waveney	Beccles to Geldeston Lock
Waveney	Geldeston Dyke

- 4.2. Maintenance standards of the cutting regime aim to cut to a depth of 150 cm below the water surface. See the [water plant Environmental Standard Operating Procedure](#) for more information on how we approach the main river sites. If the water depth to the sediment surface is less than this, a minimum 30 cm height of uncut water plants is retained at all locations. Some plant cover over the bed is essential for sediment stability. An uncut margin is also retained for biodiversity and bank stability. The width of this uncut margin varies between 1 m and 3 m according to channel width.
- 4.3. Water quality constraints relevant to the cutting operation are adhered to in line with Environment Agency guidance. Dissolved oxygen is a critical parameter for aquatic life, which varies naturally and can rapidly drop with the disturbance generated by weed cutting activity. Operators carry dissolved oxygen meters to test levels in the water. If dissolved oxygen concentrations are below critical thresholds for fish, then no cutting can occur until concentrations return. In Hickling Broad an additional environmental safeguard is included in the protocol for cutting water plants in the marked channel. If water plant coverage over the whole broad (as determined by hydroacoustic surveys) is below 30% or water clarity is below 30 cm (as determined by visibility of a Secchi disc) then cutting cannot occur, as assented by Natural England.
- 4.4. The ability to maintain regular cutting at each of these locations is also driven in any one season by the relative amount of plant growth. To generate additional flexibility in the work programme, contractors are now used to cut within Whitlingham Great Broad. This facilitates the Authority's Ra trip boat and the Norfolk County Council's (NCC) Outdoor Education Centre activities, for which NCC pays half the costs. Large amounts of growth mean slower progress at any one site, given more journeys to dispose of the cut weed on the allocated bankside areas. With a trend of increasing volumes of cut plant material as water clarity improves across all the rivers, the safe management and appropriate location of these heaps is also becoming a significant challenge.

5. Other navigation works

- 5.1. Upcoming work on Breydon Water to replace missing or broken marker posts and to replace temporary buoys will start in September. 15 steel posts have been purchased for installation and the work contracted to a Great Yarmouth based firm.

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Date of report: 20/8/19

Background papers: [Water plant cutting Environmental Standard Operating Procedure](#)

[Broads Plan](#) objectives: 2.1; 2.3; 3.1; 3.2; 4.2; 6.1

Appendix 1 – Dredging progress

Appendix 1

Dredging progress

Project title	Active Broads Authority dredging weeks completed/ planned	Volume m ³ Planned	Actual Volume removed m ³	Planned Annual project cost ¹	Actual project cost
Hickling Broad Dredging of marked channel & habitat creation (Oct - Feb)	0/22	8,000	0	149,670	13,080
Tyler's Cut, Dilham Dilham Staithe and 600m downstream (Nov - Dec)	0/17	3,000	0	40,330	350
Mid-Bure a) South Walsham Fleet Dyke (Apr - May) b) Oby to Acle Bridge (Jun - Aug)	16/22	13,000	7,330	126,640	63,510
Oulton Broad Dredging in North Bay (Aug - Sep)	0/9	6,000	0	51,680	370
Waxham Cut Dredging & sidecast (Nov - Jan)	0/13	4,000	0	38,090	860

1 Project costs includes staff time for all elements (pre-works ecological mitigation, site set-up, active dredging & site restoration); BA plant; & budgetary expenditure (equipment hire, survey costs, contractor costs, mitigation works, materials & consumables etc); within the reporting period.

Project title	Active Broads Authority dredging weeks completed/ planned	Volume m³ Planned	Actual Volume removed m³	Planned Annual project cost ¹	Actual project cost
Waveney Beccles to Stanley Carrs (Apr - Jul)	9/16	8000	5,010	102,550	65,650
Lower Bure Plough dredge (Mar)	Contractor	2,000	0	10,000	0
Site Restoration Stokesby, Lower Bure & Postwick Tip	-	-	-	43,540	10,920
Site Preparation Peto's Marsh, Carlton Marshes	-	-	-	15,860	8,980
Total	25/99	44,000	12,340	568,360	163,720