Notice of Meeting

Basingstoke Canal Joint Management Committee

Date & time
Thursday, 22 November 2018 at 10.05 am

Place
Mytchett Canal Centre, Mytchett Place Road, Mytchett, Surrey, GU16 6DD

Contact
Richard Plummer
Room 122, County Hall
Tel 020 8213 2782

richard.plummer@surreycc.gov.uk

Chief Executive
Joanna Killian

We're on Twitter: @SCCdemocracy

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This meeting will be held in public. If you would like to attend and you have any special requirements, please contact Richard Plummer on 020 8213 2782.

MEMBERS

Hampshire County Council
Councillor Rod Cooper
Councillor Jonathan Glen
Councillor Anna McNair Scott
Councillor Charles Choudhary

Hart District Council
Councillor Simon Ambler
Councillor Wendy Makepeace-Browne

Rushmoor Borough Council
Councillor Nadia Martin
Councillor John Marsh

Fleet Town Council
Councillor Peter Wildsmith

Special Interest Groups

Basingstoke Canal Society
Mr Martin Leech
Mr Philip Riley

Parish Councils
Mr Alastair Clark

National Trust, River Wey and Godalming Navigations
Mr John Gibson

Surrey County Council
Councillor Mike Goodman
Councillor Ben Carasco
Councillor Paul Deach
Councillor Colin Kemp

Guildford Borough Council
Councillor Nigel Kearse

Runnymede Borough Council
Councillor Stephen Dennett

Surrey Heath Borough Council
Councillor David Lewis

Woking Borough Council
Councillor Kevin Davis
Councillor Deborah Hughes

Natural England
Mr Adam Wallace

Inland Waterways Association
Mr Gareth Jones

Basingstoke Canal Boating Club
Mrs Liz Murnaghan

Galleon Marine
Mr Arthur McCaffery

TERMS OF REFERENCE

The Committee is responsible for the following areas:

- The oversight of the completion of the restoration of the Basingstoke Canal;
- The management and maintenance of the Basingstoke Canal as an environmental navigational and recreational asset in accordance with the policy and budgetary framework set for the Committee; and
- The balancing of the interests of all users of the Basingstoke Canal and conservation of the natural environment.

AGENDA

1 ELECTION OF THE CHAIRMAN

To elect a new Chairman of the Basingstoke Canal Joint Management Committee.

2 APOLOGIES FOR ABSENCE

To report any apologies for absence.

3 MINUTES OF PREVIOUS MEETING: 28 JUNE 2018 (Pages 1 - 8)

To agree the minutes of the previous meeting as a true and accurate record of proceedings.

4 DECLARATIONS OF INTEREST

All Members present are required to declare, at this point in the meeting or as soon as possible thereafter

(i) Any disclosable pecuniary interests and / or

(ii) Other interests arising under the Code of Conduct in respect of any item(s) of business being considered at this meeting

NOTES:

- Members are reminded that they must not participate in any item where they have a disclosable pecuniary interest
- As well as an interest of the Member, this includes any interest, of which the Member is aware, that relates to the Member's spouse or civil partner (or any person with whom the Member is living as a spouse or civil partner)
- Members with a significant personal interest may participate in the discussion and vote on that matter unless that interest could be reasonably regarded as prejudicial.

5 QUESTIONS AND PETITIONS

To receive either any questions or petitions.

Notes:

1. The deadline for Member's questions is 12.00 noon four working days before the meeting *[16 November 2018]*.
2. The deadline for public questions is seven days before the meeting *[15 November 2018]*.
3. The deadline for petitions was 14 days before the meeting, and no petitions have been received.

6 FORECAST OUTTURN 2018/19 AND FORWARD BUDGET 2019/20 (Pages 9 - 22)

Purpose of the report: The purpose of this report is to brief Members on the financial outturn of the Basingstoke Canal Authority.

7 **CANAL MANAGEMENT REPORT** (Pages 23 - 26)

Purpose of the report: To inform the Committee of actions taken by the Strategic Manager and BCA Canal Manager in managing, maintaining and operating the Canal; and report the work of the Conservation Steering Group.

8 **BASINGSTOKE CANAL AUTHORITY RISK REGISTER** (Pages 27 - 30)

Purpose of the report: To inform the JMC of the key risks associated to the BCA Canal Partnership after annual review and to ensure risks are mitigated as far as possible.

9 **CYCLING POLICY - DECISION REPORT** (Pages 31 - 40)

Purpose of the report: To consider the adoption of a cycling policy statement and a Towpath Users code of conduct for the Canal.

10 **CONSERVATION MANAGEMENT PLAN** (Pages 41 - 162)

Purpose of the report: To inform the Committee of actions taken by the Strategic Manager in drafting and gaining approval from Natural England for the new Conservation Management Plan.

11 **REPORT OF THE BASINGSTOKE CANAL SOCIETY** (Pages 163 - 166)

Purpose of the report: To provide the Committee with an update of the work of the Basingstoke Canal Society since the last meeting of the Committee.

12 **ACTIONS TRACKER** (Pages 167 - 170)

Purpose of the report: To review previous actions agreed by the Committee and provide comment as required.

13 **DATE OF THE NEXT MEETING**

The next meeting of the Basingstoke Joint Management Committee will be held on 26 June 2019.

Joanna Killian
Chief Executive
Published: Wednesday, 14 November 2018

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MINUTES of the meeting of the **BASINGSTOKE CANAL JOINT MANAGEMENT COMMITTEE** held at Colt Hill Wharf, Colt Hill, Odiham, HOOK, Hants, RG29 1AL on 28 June 2018
These minutes are subject to confirmation by the Committee at its meeting 22 November 2018.

Hampshire County Council
* Councillor John Bennison
* Councillor Andrew Gibson
* Councillor Anna McNair Scott
* Councillor Charles Choudhary

Hart District Council
* Councillor Simon Ambler
* Councillor Wendy Makepeace-Browne

Rushmoor Borough Council
* Councillor Nadia Martin
Councillor John Marsh

Fleet Town Council
Councillor Peter Wildsmith

Surrey County Council
* Councillor Mike Goodman
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* Councillor Colin Kemp

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Runnymede Borough Council
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Inland Waterways Association
* Mr Gareth Jones

Basingstoke Canal Boating Club
* Mrs Liz Murnaghan

Galleon Marine
* Mr Arthur McCaffery

118 APOLOGIES FOR ABSENCE [Item 118]

218 MINUTES OF PREVIOUS MEETING: [Item 218]

The minutes were agreed as an accurate record of the meeting.

318 DECLARATIONS OF INTEREST [Item 318]

418 QUESTIONS AND PETITIONS [Item 418]

There were no questions or petitions received.

518 FORWARD WORK PROGRAMME AND ACTIONS TRACKER [Item 518]

Declarations of interest:

None

Officers:
Richard Plummer, Democratic Services Officer

Key points raised during the discussion:

1. Members noted and approved the forward work plan and actions tracker.

Actions/ further information to be provided:

1. None

Recommendations:

1. None

618 FINAL ACCOUNTS 2017/18 [Item 618]

Declarations of interest:

None

Officers:
Jane Lovett, Honorary Treasurer, Basingstoke Canal Authority, Hampshire County Council

Key points raised during the discussion:

1. Officers highlighted key points, explaining that the input to reserves for the year 2017/18 had been greater than expected. It was explained that reasons for this were a combination of increases in income, reductions in expenditure but mainly the delay of the tree survey, which would be undertaken in 2019.

2. Officers noted the draw on capital funding from Hampshire was primarily focussed on repairs to the Dogmersfield landslip in 2017/18.

3. It was explained that the levels of reserves were at an acceptable level to cover contingencies, highlighting that the service expected reserves at the end of 2018/19 to be approximately £550,000.

4. Members questioned the Surrey estates policy, and why income from houseboat moorings and Canal cottages was not returned to the Basingstoke Canal Authority (BCA), nor reported in the accounts. The Vice-Chairman noted that Surrey County Council policy was Surrey Property Services acted as the corporate landlord for the Council and that income currently goes to them. It was suggested that a final decision on houseboat income should be made clear and that this would be presented to the Committee.

5. Members asked whether future finance reports could include background income that does not necessarily go directly to the Basingstoke Canal Authority (BCA), but effects the commercial viability of the canal, as part of the finance report.

Actions/ further information to be provided:

1. That a decision from Surrey County Council regarding the status of houseboat income and its allocation to the BCA or Surrey Property

Services be made and presented to the Committee in November 2018.

RESOLVED:

1. That future finance reports include background income, such as that from houseboat revenue, as part of the overall finance report.

718 CANAL MANAGEMENT REPORT [Item 718]

Declarations of interest:

None

Officers:

James Taylor, Strategic Manager, Basingstoke Canal Authority
Fiona Shipp, Canal Manager, Basingstoke Canal Authority

Key points raised during the discussion:

1. Officers outlined the work that had been undertaken by the Basingstoke Canal Authority (BCA) since November 2017. It was particularly noted that the lock gates scheduled in the cyclical replacement programme had been undertaken and that there had been a drain down of the St John's Lock Flight undertaken for Principle Inspections. It was also noted that a bat hibernation survey and engineering inspection of Greywell Tunnel had been completed.

2. Officers highlighted that ten tonnes of Signal crayfish had been removed from the canal as a means of pest control. It was noted that the Canal had an agreement with a fisherman who removed the crayfish gratis for the BCA, but that he kept all profits from selling. It was noted that the service was potentially reviewing this, but stressed that this was a pest control measure and not a profit making scheme. It was noted that levels of damage and reported numbers from crayfish had decreased significantly.

3. Officers highlighted that there had been a boating accident at lock 18 involving irreparable damage to one of the lock gates. It was noted that this had resulted in closure of Deepcut lock flight for approximately 6-8 weeks.

4. It was explained, after concerns were raised by Members, that there have been badger evictions that had been undertaken humanely and using appropriate means under the appropriate licences.

5. Members raised concerns regarding cyclists and potential adverse effects of cyclists on other users of the canal, questioning whether there was potential for a campaign to slow cyclist speeds and increase awareness. Officers highlighted that cyclists use the towpath by permission and that the towpath was not a right of way. Officers also noted that they had been educating cyclist to slow and share the towpath under the "Share the Space, Drop your Pace" slogan for

some time, and that there was funding available for additional signage, but that there had been little evidence of effect on a proportion of users. Officers noted that destination signing which had included times had been removed as previously requested by the Committee. Members suggested that there needed to be an effort to educate users regarding fair usage and safety. Members suggested that the Committee receive a further report on cycling strategies and issues raised from cyclists to a future meeting of the JMC.

6. Officers noted the positive contribution of volunteers on the canal and that there had been a contribution of approximately £86,000 worth of volunteer hours on the Canal. Officers also offered congratulations to the Basingstoke Canal Society on achieving the Queens Award for Voluntary Service in 2018.

7. It was explained that there had been a leak near Farnborough in May 2018 which was being repaired before the Air show.

8. It was noted that there was work being undertaken on the campsite development agreed at the November 2017 meeting of the JMC, noting that the planning application was due for submission in the near future. It was noted that progress had been slower than expected due to the size of the site and the additional requirements resultant of this.

9. Officers provided an update on the Conservation Steering Group (CSG) and the discussion held between stakeholders regarding issues in the renewal of this plan. One of the key issues discussed at CSG was in relation to powered boating and whether there could be any increase in the boating limit. It was stressed that Natural England have to agree this technical document and would be unlikely to suggest an increase to the powered boat limit due to concerns regarding silt displacement from boating being contributory to the continued decline of the status of the Canal as a Site of Special Scientific Interest (SSSI).. Officers noted that the final plan agreed by Natural England would be submitted to the November JMC. Members noted that it would be helpful to have representation from Natural England present for discussion over their decisions in relation to the Conservation Management Plan.

10. Members suggested inclusion of progress of discussions with the Canal and Rivers Trust in future reports.

11. Members noted that the committee could consider options for clean air alternatives for boats on the canal and what options were available as part of a long term project.

12. Members suggested that volunteers and the BCA should note that the Department for Environment, Food and Rural Affairs (DEFRA) was promoting education for the environment, and that education about the benefits of the canal should be promoted. Members noted that District and Borough authorities could engage with volunteers on this issue.

13. Members queried progress on the online booking system. Officers noted that this would take time to develop but that it was in progress.

Actions/ further information to be provided:

1. That an item be included on a future agenda of the JMC regarding a cycling policy on the canal and the issues balance between cyclists and pedestrians.

2. That Natural England representatives be explicitly invited to the November 2018 meeting of the JMC to discuss the conservation management plan.

3. That future Management reports include an update on the progress of talks with the Canal and Rivers Trust (CRT).

Recommendations:

1. None

818 RISK REGISTER UPDATE [Item 818]

Declarations of interest:

None

Officers:
James Taylor, Strategic Manager, Basingstoke Canal Authority

Key points raised during the discussion:

1. Officers noted that the Risk Register had not been modified from the previous meeting and that it was appended to this meeting for information. Members had no further comment.

Actions/ further information to be provided:

1. None

Recommendations:

1. None

918 CAPITAL WORKS PROGRESS REPORT [Item 918]

Declarations of interest:

None

Officers:
James Taylor, Strategic Manager, Basingstoke Canal Authority
Lisa Creaye-Griffin, Countryside Group Manager, Surrey County Council
Jo Heath, Head of Countryside, Hampshire County Council

Key points raised during the discussion:

1. Officers highlighted projects planned in the future using Capital Funding from the two owning authorities. It was noted that there was work planned on bank protection, bed-lining at Crookham and at Scotland Bridge car park amongst other projects for 2018/19.

2. It was noted that most projects were safety related, but some such as Scotland Bridge car park were a spend to save opportunity, noting that following the completion of works the service was planning to implement charges to offset costs and improve revenue to the BCA.

3. It was explained by officers that there was currently a difference in allocated Capital funding between the two owning authorities, with Surrey County Council allocating less. It was noteworthy that this was the first instance in which there had been a difference between the allocations of the two owning authorities.

4. Officers noted that dredging had become a significantly more important issue, and that the service had allocated Capital funding to address this over the next few financial years. It was suggested that the Surrey profile was significantly less silted than that of Hampshire, but that the key requirements in the Surrey owned half was spot dredging.

5. It was noted that the current condition of the canal, which would be maintained through Capital funding, was good. It was further noted that the Canal and Rivers Trust (CRT) had also noted the positive condition of the canal.

Actions/ further information to be provided:

1. SCC agreed to see if they could increase their capital allocation to that provided by HCC.

Recommendations:

1. None

1018 BASINGSTOKE CANAL SOCIETY REPORT [Item 1018]

Declarations of interest:

None

Witnesses:

Philip Riley, Chairman of the Basingstoke Canal Society

Key points raised during the discussion:

1. The Chairman of the Basingstoke Canal Society noted that the Society had been awarded the Queen's Award for Voluntary Service. The Committee acknowledged that this was a significant achievement for the society and congratulated them on their work on the canal.

2. The Chairman of the Basingstoke Canal Society highlighted work undertaken since November 2017, noting the Crookham Wharf work and Lengthsman scheme as key areas of success.

3. It was noted that the society had several projects planned for the future, including developing the Colt Hill Wharf. It was noted that plans were in discussion regarding this.

Actions/ further information to be provided:

1. None

Recommendations:

1. None

1118 DATE OF THE NEXT MEETING [Item 1118]

The Committee noted that its next meeting would be on 22 November 2018.

Meeting ended at: 11.45 am

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Chairman

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HAMPSHIRE COUNTY COUNCIL

Report

Committee/Panel:	Basingstoke Canal Joint Management Committee
Date:	22nd November 2018
Title:	Forecast Outturn 2018/19 and Forward Budget 2019/20
Report from:	Report of Honorary Treasurer and Strategic Manager

Contact name: Jane Lovett, Honorary Treasurer, Hampshire County Council
James Taylor, Strategic Manager, Basingstoke Canal

Tel: 01962 847518 / 01483 517538 **Email:** Jane.Lovett@hants.gov.uk / james.taylor@surreycc.gov.uk

1 Executive Summary

1.1 The purpose of this report is to brief Members on the financial outturn of the Basingstoke Canal Authority. Members are asked to:

- Review and agree the revenue outturn forecast for the current year 2018/19.
- Agree the revenue budget for 2019/20.

1.2 Net revenue costs are incurred on behalf of the Joint Management Committee by Hampshire County Council (HCC) and financed through partner contributions from both Hampshire and Surrey County Councils and the Riparian district councils. Capital expenditure is currently being funded by Hampshire and Surrey County Councils for specific repairs and improvements.

1.3 The outturn shows that Canal will make a draw from reserves of £9,000 compared to a budgeted draw from reserves of £40,000, an improvement of £31,000. Expenditure on maintaining and repairing the canal has been increased but will be more than offset by increases in income due to expected recovery of costs. Further details are set out in section 2 below, and a summary of the revenue position is set out in Appendix A.

2 Outturn Forecast 2018/19

2.1 The outturn forecast for 2018/19 is set out in Appendix A. Overall the current forecast shows the Canal will make a draw from reserves of £9,000 rather than the £40,000 draw set out in the budget.

2.2 The outturn forecast revenue expenditure shows an underspend of £1,000 against the original budget. This variance is broken down by category below with underspends shown as negative figures.

- **Employees [-£14,000]**

  An additional £4,000 is forecast due to the higher than anticipated pay award of 2% rather than the 1% budgeted for. A net saving of £18,000 has been achieved through the Admin Officer leaving in May and the post being held vacant and additional costs resulting from a small increase in visitor facing casual staff and overtime.

- **Canal Maintenance [£17,000]**

  The tree survey inspection is now scheduled for 2018/19 and has been built in to the budget. There are additional costs however that were not budgeted for; £13,000 for creating Farnborough Road moorings, funded by a donation from the Canal Society and £10,000 for temporary changing facilities at the Canal Centre for the Basingstoke Canal Canoe Club, funded by an increased license fee for the club.
  Furthermore, there are the following unplanned costs; There is an unexpected high cost (£27,000) for a new Santa Jetty which has now been prioritised as essential within the maintenance budget to support the Santa Cruise income stream which will be funded by reducing expenditure on soft bank protections works (-£27,000); the replacement of lower lock gate at Lock 18 after damage by a visiting boater (£22,000 plus staff costs to be claimed for from boater's insurance), the cost of damage to camping field caused by caravan fire (£3,000 to be reclaimed from the caravan owner), legal advice on water abstraction (£2,500), stop planks for canal repairs (£2,500), barrier repairs following suspected vandalism at the Canal Centre (£1,000), and various other unexpected costs (£3,000) make up the rest of the unplanned expenditure. This is partly offset by a £40,000 underspend on lock gate replacement costs.

- **Principal Survey of Sluices & Weirs [£0]**

  The survey is still scheduled for 2018/19.

- **Transport [-£7,000]**

  Off-hiring the excavator has generated an underspend (£5,000) to add to the continuing underspends on hire of transport following a change in hire of ranger vans from Surrey County Council (£2,000).

- **Supplies and Services [-£1,000]**

  This underspend is mainly due to an old accrual balance from 2001/02 which was not posted to the Canal due to migration to a new financial system at the time.

- **Campsite Development [£4,000]**

  No budget has been provided specifically for Campsite Development; however, £4,000 is expected to be spent in 2018/19. The total amount expected to be spent by the end of 2018/19 including expenditure made in 2017/18 is £5,816.

2.3 The outturn forecast revenue income shows additional income of £30,000 against the original budget. This variance is broken down by category below with additional income shown as negative numbers.

- **General Fees and Charges [-£22,000]**

  There has been a general increase in fees and charges income. Increased license fees from the Basingstoke Canal Canoe Club for the temporary changing facilities at the Canal Centre will generate an additional £10,000. Boat licence income is £4,500 higher than expected due to an increase in unpowered boat licenses sold on-line and by intercepting unlicensed boaters. Consultancy provision for the Wellesley development secured £4,000 in additional income. The function room hire accounts for £3,500 extra income from securing regular long-term bookings. There are £500 extra receipts for camping due to exceptionally good weather and the airshow. There is a small decrease in dry dock bookings due to navigation closures (£500).

- **Grants & Contributions – Partnership Contributions [£0]**

  Partnership contributions have been received as per the budget.

- **Grants & Contributions – Other [-£44,000]**

  £27,000 will be received from an insurance claim for replacing the lower lock gate at Lock 18 after damage by a visiting boater. £3,000 is to be claimed from the owner of the caravan which caught fire and damaged the campsite. Donations have been received from the Canal Society towards the Farnborough Road moorings (£13,000) and the joint volunteer barbeque (£1,000).

- **Rental Income [£41,000]**

  It is anticipated that the additional planned mooring income will not be received this year due to a number of boats leaving the navigation and delays in the construction of the Farnborough Road moorings (£17,000). To help offset the cost of the £1.5m capital secured for the Canal in February and to bring the two Counties in line the fibre optic income of £24,000 is to be retained by Hampshire County Council.

- **Sales Income [-£5,000]**

  It is anticipated that shop sales will be exceeded by £2,000 and unpowered boat hire will be £3,000 more.

3 Forward Budget 2019/20

3.1 The forward budget for 2019/20 is set out in Appendix A.

3.2 A balanced budget is presented for approval. Budgets have been thoroughly reviewed to ensure that they reflect accurate assessments of income and expenditure for 2019/20.

3.3 A breakdown of expenditure is set out below with changes from 2018/19 highlighted. Reductions in budgets are shown as negative figures:

- **Employees [£6,000]**

  £20,000 has been added to the budget to cover the cost of the pay award for 2018/19 and 2019/20 as well as the increase in the employer's pension contribution rate. An additional £5,000 has been included for the increase in past service pension costs. The Senior Administrator post will be kept vacant however a temporary seasonal position is currently being considered which would result in a net saving of £17,000 if this post is approved by the Senior management Team. The Training budget has been reduced by £2,000 as there are fewer planned courses for staff and volunteers.

- **Canal Maintenance [-£57,000]**

  The Canal Maintenance provision has been increased by £33,000 to pay for the Greywell Tunnel survey, the vegetation survey, and specialist engineering advice. This increase is more than offset by a reduction of £50,000 for the principal survey of sluices and weirs which will be completed during 2018/19 and the tree survey inspection will also be completed during 2018/19 leading to a further budget reduction of £40,000.

- **Transport [-£5,000]**

  The fleet hire costs have reduced by -£10,000 which is made up of a decision to off-hire the long-term hire of the excavator (-£5,000) and the decision to switch the lease supplier from HTM (HCC supplier) to Automotive Lease (SCC supplier) (-£-5,000)]. However other items covered by the transport budget have had increased budget due to inflationary pressures, these include; repairs to vehicles (covers the higher than average wear and tear on the vehicles), fuel, staff travel and insurance (+£5,000).

- **Supplies and Services [£1,000]**

  Card charges have each been increased by £1,000 due to a combination of growth in visitor numbers and sales.

3.4 A breakdown of income is set out below with changes from 2018/19 highlighted. This variance is broken down by category below. Negative figures reflect additional income.

- **General Fees and Charges [£0]**

  Boat license income has been increased by £5,000 following good performance in recent years however camping receipts are expected to decrease by £5,000 because there is no Farnborough Airshow next year.

- **Grants and Contributions – Partner [£0]**

  This category includes the contributions from Partners as set out in the Memorandum of Agreement and there is therefore no change from 2018/19. However, not all of these funds are budgeted to be received – see Appendix A. The budget assumes that partner contributions will be received at the same level in 2019/20 as 2018/19.

- **Rental Income [£22,000]**

  Mooring income is set to increase by £2,000 following an increase in charges in line with CPI, however as mentioned earlier in this report £24,000 Hampshire County Council is now retaining £24,000 of fibre optic rental income that was previously allocated to the Canal.

- **Sales Income [-£7,000]**

  Unpowered boat hire is anticipated to increase by £4,000 due to growth in business and shop income has been increased by £1,000 due to growth in visitor numbers. Sales of tickets for Rosebud trips and Santa Cruises are expected to generate a further £2,000 due to an increase in ticket prices.

4 Capital Expenditure Programme

4.1 The HCC and SCC capital plans for 2018/19, 2019/20 and 2020/21 are set out for Members information in Appendix B with further information in the following paragraphs:

Hampshire County Council

4.2 The Hampshire County Council brought forward balance for capital works was £150,586 from the original £2,000,000 contribution. In February 2018 HCC approved a further £1,500,000 core capital contribution for the Canal over three years, £500,000 for each year 2018/19 to 2020/21. During 2018/19 £480,000 is expected to be spent leaving a balance of £170,586 at the end of the year.

4.3 The only works undertaken so far in 2018/19 are from the Bank Protection budget. £43,000 was spent on works undertaken at Laffans Road, Farnborough to stem leakage shortly before the Farnborough Airshow. A further £3,000 has been spent on preparatory surveys for the Swan “cutting” bank stabilisation proposals; the bulk of these works are budgeted for in 2019/20 (£250,000).

4.4 The largest are of spend planned for the current year is £230,000 for bed-lining of the Crookham Deeps Embankment.

4.5 A further £500,000 core capital contribution will be received in 2019/20. During 2019/20 £655,500 is expected to be spent leaving a balance of £15,086 at the end of the year.

4.6 A further £500,000 core capital contribution will be received in 2020/21. During 2020/21 £512,500 is expected to be spent leaving a balance of £2,586 at the end of the year.

Surrey County Council

4.7 The Surrey County Council funded capital programme brought forward £452,959 along with a further core contribution of £150,000. Additionally, there are contributions of £96,140 from Woking Borough Council and £12,000 from The Basingstoke Canal Society specifically towards works on the Woking Town Wharf. During 2018/19 £624,463 is expected to be spent leaving a balance of £86,636 at the end of the year.

4.8 The Woking Wharf project is continuing with the contractor expected to complete by the end of September 2018. An interim bill has already been paid of £50,000; further payment is not due until completion.

4.9 Aside from Woking Wharf, the biggest planned expenditure in 2018/19 is £90,000 for structural repairs of locks 19 to 23, and £70,000 on bank protection and towpath reinstatement in order to repair damage caused by erosion.

4.10 A further £150,000 core capital contribution will be received in 2019/20. During 2019/20 £220,115 is expected to be spent leaving a balance of £16,521 at the end of the year.

4.11 A further £150,000 core capital contribution will be received in 2020/21. During 2020/21 £162,527 is expected to be spent leaving a balance of £3,994 at the end of the year.

5 Special Projects

5.1 The Special Projects reconciliation is set out in Appendix C.1.

5.2 Odiham Castle – the carried forward balance of funds stood at £2,954 and it is forecast to be spent on signage and maintenance; £500 during 2018/19 with the remainder of the balance forecast to be spent by the end of 2019/20.

5.3 Higher Level Stewardship (HLS) funding

Surrey - HLS Rural Payments Agency

Annual Grassland Maintenance – £2,519 offset staffing costs incurred on grassland maintenance and will be invoiced to Surrey County Council.

Hampshire - HLS Rural Payments Agency

Annual Grass and Woodland Maintenance – receipts of £5,526 are anticipated for 2018/19. Maintenance work on the grassland is expected to continue under the current agreement until 2022. Receipts will offset the staffing costs incurred by the Canal during 2018/19.

6 Reserves

6.1 A detailed breakdown of reserves is shown in Appendix C.2.

6.2 An analysis of the level of general reserve has been undertaken and taking into account factors including unknown costs such as the National Living Wage, the financial strain on Partner's budgets and any unforeseen expenditure. It is the Treasurer's opinion that the level of general reserve is adequate.

6.3 The opening balances for the reserves in 2018/19 were £562,251 Unallocated and £24,078 for Dredging Silt and Disposal, a combined total of £586,329.

6.4 A draw of £40,000 from the Unallocated Reserve was forecast in the last report due to the delay of the tree inspection survey; however it is now anticipated a draw of £9,000 will be made following a projected reduction in expenditure and increase in income.

6.5 The total reserve is projected to stand at £580,329 at the end of 2018/19 and £583,329 at the end of 2019/20 based on the current budget forecasts.

6.6 Interest has been assumed on the balances at 0.5%.

7 Related Income and Expenditure

7.1 At the last meeting Members asked for details of the income retained by Surrey County Council that related to the Canal. In order to present the complete picture Hampshire has also been included as is information on the expenditure incurred.

7.2 Surrey – Income from rents, houseboats and fibre optic cables totals approximately £205,000. The income is partly offset by the costs (approximately £45,000) of managing the houseboat estate which is borne by SCC.

7.3 Hampshire – Now retains the fibre optic cable income of £23,000. It incurs the cost of being the host Authority for services such as finance and revenue.

7.4 Both Authorities cover the cost of the Strategic Manager and their respective Heads of Countryside.

8 Scheme of Charges

8.1 Attached on Appendix D is the scheme of charges produced by the Canal Manager and which have been used when calculating the forward budgets for income.

8.2 A new charge is proposed to cover closures of the navigation and towpath requested by third parties (eg: Network Rail, utility companies) which appear to be increasing in frequency. These charges closely match those on medium use Canal & River Trust waterways (eg: Monmouth & Brecon Canal); the prices are designed to encourage works to be planned in winter. Detailed terms and conditions are being developed to cover these closures. If Members are supportive of this proposal the charges would be introduced from 1 April 2019.

8.3 Members are asked to agree the proposed Scheme of Charges for 2019/20 as set out in Appendix D.

9 Conclusion

9.1 This report indicates that the forecasted position for the Canal for 2018/19 is better than was originally budgeted, and that a small draw from reserves of £9,000 will be made.

9.2 The budget prepared for 2019/20 is set as a balanced budget. Increases to employees have been offset by decreases across the other expenditure headings. Canal Maintenance is now above the recommended level of £168,000 as suggested in the latest recalculation of the “steady state” model contained in the Asset Management Plan; if this should continue it should prevent deterioration of the asset condition during 2019/20 and beyond.

10 Recommendations

10.1 To review and agree the revenue outturn forecast for the year 2018/19; and

10.2 To review and agree the revenue budget for 2019/20; and

10.3 To review and agree the proposed scheme of charges for 2019/20 set out in Appendix D.

BASINGSTOKE CANAL **APPENDIX A**

OUTTURN FORECAST 2018/19 & FORWARD BUDGET 2019/20

Final Outturn 2017/18 £		Original Budget 2018/19 £	Forecast Outturn Sep-18 £	Over/ (Under) Budget £	Actuals Actuals 31 Aug'18 £	Forward Budget 2019/20 £
	Expenditure					
440,899	Employees	456,000	442,000	(14,000)	172,564	462,000
37,894	Premises	33,000	33,000	0	12,605	33,000
127,747	Canal Maintenance	196,000	213,000	17,000	80,484	189,000
0	Principal Survey of Sluices & Weirs	50,000	50,000	0	0	0
49,554	Transport	50,000	43,000	(7,000)	14,729	45,000
44,126	Supplies & Services	46,000	45,000	(1,000)	9,849	47,000
2,177	Campsite Development	0	4,000	4,000	2,253	0
25,151	Shortfall In Partner Contributions	25,000	25,000	0	0	25,000
727,548	**Total Revenue Expenditure**	**856,000**	**855,000**	**(1,000)**	**292,485**	**801,000**
	Income					
115,126	General Fees & Charges	105,000	127,000	22,000	77,506	105,000
547,682	Grants & Contributions - Partner	548,000	548,000	0	522,531	548,000
15,315	Grants & Contributions - other	11,000	55,000	44,000	1,234	11,000
79,438	Rental Income	86,000	45,000	(41,000)	45,317	64,000
66,656	Sales Income	66,000	71,000	5,000	47,255	73,000
101	Other Miscellaneous Income	0	0	0	11	0
824,317	**Total Revenue Income**	**816,000**	**846,000**	**30,000**	**693,854**	**801,000**
(96,770)	Contribution from/(to) Reserves	**40,000**	**9,000**	**(31,000)**	**(401,370)**	**0**
	Partner Contributions					
153,188	Surrey County Council	153,188	153,188	0	153,188	153,188
39,076	Guildford Borough Council	39,076	39,076	0	39,076	39,076
8,000	Runnymede Borough Council	16,869	8,000	(8,869)	8,000	16,869
10,000	Surrey Heath Borough Council	26,282	10,000	(16,282)	10,000	26,282
53,276	Woking Borough Council	53,276	53,276	0	53,276	53,276
153,188	Hampshire County Council	153,188	153,188	0	153,188	153,188
30,924	Hart District Council	30,924	30,924	0	30,924	30,924
3,048	Crookham Village Parish Council	3,048	3,048	0	3,048	3,048
6,750	Church Crookham Parish Council	6,750	6,750	0	6,750	6,750
240	Dogmersfield Parish Council	240	240	0	240	240
18,309	Fleet Town Council	18,309	18,309	0	18,309	18,309
4,036	Odiham Parish Council	4,036	4,036	0	4,036	4,036
250	Winchfield Parish Council	250	250	0	250	250
42,246	Rushmoor Borough Council	42,246	42,246	0	42,246	42,246
522,531		**547,682**	**522,531**	**(25,151)**	**522,531**	**547,682**
	General Reserves					
(486,309)	Opening Balance	(586,329)	(586,329)	0	(586,329)	(580,329)
(96,770)	Contribution from/(to) Reserves	40,000	9,000	(31,000)	0	0
(3,250)	Interest on Balances	(2,000)	(3,000)	(1,000)	0	(3,000)
(586,329)	**Closing Balance**	**(548,329)**	**(580,329)**	**(32,000)**	**(586,329)**	**(583,329)**

Basingstoke Canal - Budgeted Capital Projects 2018 - 2021 **APPENDIX B**

	Surrey County Council Countryside	Hampshire County Council Capital Fund	Total
	£	£	£
Balance as at 31st March 2018	**(452,959)**	**(150,586)**	**(603,545)**
Core Capital Contribution	(150,000)	(500,000)	**(650,000)**
Contribution from Woking BC*	(96,140)	0	**(96,140)**
The Basingstoke Canal Society*	(12,000)	0	**(12,000)**
Expenditure			
Bank Works	136,500	85,800	**222,300**
Water Management	30,106	17,600	**47,706**
Equipment	0	0	**0**
Canal Structure	431,185	319,000	**750,185**
Contingency	26,672	57,600	**84,272**
Total cost of planned starts 2018/19	624,463	480,000	**1,104,463**
Balance as at 31st March 2019	**(86,636)**	**(170,586)**	**(257,222)**
Core Capital Contribution	(150,000)	(500,000)	**(650,000)**
Expenditure			
Bank Works	0	275,000	**275,000**
Water Management	450	231,000	**231,450**
Equipment	70,000	70,000	**140,000**
Canal Structure	139,810	0	**139,810**
Contingency	9,855	79,500	**89,355**
Total cost of planned starts 2019/20	220,115	655,500	**875,615**
Balance as at 31st March 2020	**(16,521)**	**(15,086)**	**(31,607)**
Core Capital Contribution	(150,000)	(500,000)	**(650,000)**
Expenditure			
Bank Works	50,000	55,000	**105,000**
Water Management	5,686	302,500	**308,186**
Equipment	0	0	**0**
Canal Structure	95,810	93,500	**189,310**
Contingency	11,031	61,500	**72,531**
Total cost of planned starts 2020/21	162,527	512,500	**675,027**
Balance as at 31st March 2021	**(3,994)**	**(2,586)**	**(6,580)**

* Contribution in relation to the Woking Town Wharf

Basingstoke Canal - Special Projects Reconciliation **APPENDIX C.1**

	Odiham Castle Scheme	HLS Rural Payments Agency SCC	HLS Rural Payments Agency HCC	Total
	£	£	£	£
Balance as at 31st March 2018	**(2,954)**	**0**	**0**	**(2,954)**
Expenditure				
Grassland Maintenance	0	2,519	5,526	8,045
Special Projects	0	0	0	0
Bank Repairs	0	0	0	0
Consultancy	0	0	0	0
Tree Work	0	0	0	0
Signage & maintenance	500	0	0	500
HLS Grasslands Income	0	(2,519)	(5,526)	(8,045)
HLS Income	0	0	0	0
HLS Match Funding	0	0	0	0
Balance as at 31st March 2019	**(2,454)**	**0**	**0**	**(2,454)**
Expenditure				
Grassland Maintenance	0	2,519	5,526	8,045
Special Projects	0	0	0	0
Bank Repairs	0	0	0	0
Consultancy	0	0	0	0
Tree Work	0	0	0	0
Signage & maintenance	2,454	0	0	2,454
HLS Grasslands Income	0	(2,519)	(5,526)	(8,045)
HLS Income	0	0	0	0
HLS Match Funding	0	0	0	0
Balance as at 31st March 2020	**0**	**0**	**0**	**0**

	Unallocated Reserve	Dredging & Silt Disposal	General Reserves Total
	£	£	£
Balance as at 31st March 2018	**(562,251)**	**(24,078)**	**(586,329)**
Income (Interest on Balances)	(3,000)	0	**(3,000)**
Projected use of reserve	9,000	0	**9,000**
Balance as at 31st March 2019	**(556,251)**	**(24,078)**	**(580,329)**
Income (Interest on Balances)	(3,000)	0	**(3,000)**
Projected use of reserve	0	0	**0**
Balance as at 31st March 2020	**(559,251)**	**(24,078)**	**(583,329)**

6

Scheme of prices, charges and fees 2018/2019 for 2019/2020

CHANGES BY CPI INCREASE OF 2.5%		
Item	**2018/19**	**2019/20**
Private boat licence Mytchett & Hampshire	£ 161.60	£ 165.60
Private boat licence Woodham	£ 32.40	£ 33.20
Private boat licence Hermitage	£ 16.00	£ 16.40
Private boat licence Brookwood	£ 8.00	£ 8.20
Mooring fees - Private (per m/pa)	£ 77.10	£ 79.00
Mooring fees - Standard (per m/pa)	£ 133.80	£ 137.10
Mooring fees - Premium (per m/pa)	£ 154.10	£ 158.00
Visiting boat licence - week	£ 41.20	£ 42.20
Visiting boat licence - fortnight	£ 61.70	£ 63.20
Visiting boat licence - month	£ 92.60	£ 94.90
Undertaking searches, etc per hour (inc VAT)	£ 51.45	£ 52.70

Note - rounded to nearest 10p

OTHER CHANGES				
Item	**2018/19**	**2019/20**	**% increase**	**Narrative**
Camping - Tent 1-3 berth per night	£ 6.50	£ 7.00	7.7	Demand will sustain increases; improve revenue generation
Camping - Tent 4-6 berth per night	£ 7.50	£ 8.00	6.7	
Camping - Tent 7+ berth per night	£ 9.50	£ 10.00	5.3	
Camping - Motorhome or caravan per night	£ 7.50	£ 8.00	6.7	
Santa cruise - Band A per person	£ 15.00	£ 16.00	6.7	To cover increases in running costs
Santa cruise - Band B per person	£ 14.50	£ 15.50	6.9	
Santa cruise - Band C per person	£ 11.50	£ 12.50	8.7	
Boat hire - Canadian canoe per hour	£ 12.00	£ 12.50	4.2	Demand will sustain increases; matches market rates
Boat hire - pedalo per 30 minutes	£ 8.50	£ 9.00	5.9	
Boat hire - double kayak per hour	£ 12.00	£ 12.50	4.2	
Public boat trips - Child (under 1 yrs) per trip	N/A	FREE		
Public boat trips - Adult (over 13 yrs) per trip	£ 6.00	£ 6.50	8.3	To cover increases in running costs
Public boat trips - Family (2 adults + 2 children) per trip	£ 17.00	£ 19.00	11.8	

NO CHANGES		
Item	2018/19	2019/20
Unpowered boat - day	£ 3.00	£ 3.00
Unpowered boat - week	£ 12.00	£ 12.00
Unpowered boat - annual	£ 40.00	£ 40.00
Powered commercial vessel	2.5x private rate	2.5x private rate
Charity operators	60% discount	60% discount
Visiting trail boats - registration fee	£ 15.00	£ 15.00
Visiting trail boats - daily use charge	£ 8.00	£ 8.00
Pump out per use	£ 10.00	£ 10.00
Car park charges	As Hart DC scheme	As Hart DC scheme
Canal Centre function room - per hour - weekends etc	£ 15.00	£ 15.00
Canal Centre function room - per hour - weekdays etc	£ 11.50	£ 11.50
Camping charge per person per night (13 yrs +)	£ 4.00	£ 4.00
Camping charge per person per night (6-12 yrs)	£ 2.00	£ 2.00
Camping charge per person per night (under 5 yrs)	FREE	FREE
Camping rallies (up to 20 units) per night	£ 180.00	£ 180.00
Camping rallies (additional units) per unit per night	£ 9.00	£ 9.00
Camping rallies less than 20 units per unit per night	£ 9.00	£ 9.00
Yurt hire - day hire	£ 40.00	£ 40.00
Yurt hire - 1 nights hire	£ 50.00	£ 50.00
Yurt hire - 2 or more nights hire	£ 40.00	£ 40.00
Seasonal trails - per trail	£ 3.00	£ 3.00
Pond dipping - per hour hire	£ 5.00	£ 5.00
Large towpath based events - up to 100 participants	FREE	FREE
Large towpath based events - up to 101-499 participants	£ 100.00	£ 100.00
Large towpath based events - up to 500-999 participants	£ 200.00	£ 200.00
Large towpath based events - over 1000 participants	£ 400.00	£ 400.00
Boat hire - rowing boat per hour	£ 15.00	£ 15.00
Boat hire - single kayak per hour	£ 10.00	£ 10.00
Public boat trips - Child (1-12 yrs) per trip	£ 4.00	£ 4.00
Public boat trips - cream tea experience per trip	£ 14.00	£ 14.00
Public boat trips - charter hire whole boat per hour (daytime)	£ 60.00	£ 60.00
Public boat trips - charter hire whole boat per hour (evening)	£ 70.00	£ 70.00
Dry dock - per day	£ 42.00	£ 42.00

CPI - Consumer Price Index.

CPI is based on the difference from July 2017 CPI index at 103.2 and July 2018 CPI index at 105.77, which is a percentage change of 2.5.

All % increases to be rounded to the nearest whole 10p.

Where VAT is inclusive this is set at standard rate (current rate 20%) as required by HMRC

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BASINGSTOKE CANAL JOINT MANAGEMENT COMMITEE
Date: September 2018

Canal Management Report

Lead Officers: James Taylor / Fiona Shipp
Tel: 01483 517538 / 01252 370073
Email: james.taylor@surreycc.gov.uk / fiona.shipp@hants.gov.uk

Key Issue

To inform the Committee of actions taken by the Strategic Manager and BCA Canal Manager in managing, maintaining and operating the Canal; and report the work of the Conservation Steering Group.

Operation & maintenance

BCA Maintenance & Inspection Works

Planned

The BCA carried out the following planned maintenance and inspection tasks:

- Lock 17 new balance beam installed
- Summer cutting of 64 miles of towpath
- Summer cutting of canal car parks
- Japanese knotweed injection along whole canal
- Principle inspection of Locks 18 – 24 started early in September taking advantage of empty locks in Deepcut.
- Frimley pump pipe broken and investigation and repairs followed. Frimley pump not working at all this summer as a result.
- Canal centre Swing bridge roller bearings replacement
- Car park night time closures implemented at Barley mow car park and Crookham wharf car park
- Arrangement for paid pub advertising in Crookham car park
- Length Inspections, High Risk Embankment Inspections, Supplemental Inspections, Reservoir Surveillance Inspections and the Lock General Inspections were all conducted on target.

Reactive

- Lower gates at Lock 18 damaged beyond repair by a visiting boater. Deepcut closed in May as a result.
- Lock 18 gates replaced in July however water levels too low to re-open Deepcut and Brookwood. Claim with insurance company for substantial costs incurred in repairs.
- Lock 3 replanking carried out in September after it sprang a leak and temporary repairs not possible.
- Lock 17 replanking carried out taking advantage of low water levels in Deepcut
- Lock 18 upper gate cills replaced taking advantage of low water levels in Deepcut
- Repair to minor leak at double bridge which appears to have been successful
- Lock 1 pumphouse track, a leaking pipe was discovered and repaired
- Seepage investigation on embankment at Claycart. Being monitored.
- Fish rescues carried out in Woodham in July with many fish deaths due to extreme heat, high water temperatures and duck weed blooms all reducing oxygen availability for fish. The EA attended. This was a common occurrence this year across the country with many water bodies fish stocks suffering.

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Events/Visitor Services

- Storage shipping containers moved from the canal centre in preparation for a new improved bin area for campsite
- Successful summer season with Rosebud trips raising over £10K fully supported by volunteers running 4 trips/day, trips 6 days/week during school holidays. While Rosebuds basic trips were more successful with more bums on seats/trip this year, the cream tea trips proved particularly popular and sold out weeks in advance.
- Record breaking year for unpowered boat hire, where for once the hot weather had a positive effect for the canal and brought hirers out in their droves.
- The need for people to be near water when its hot was also reflected in the increase in unpowered boat licences sold on the canal.
- Rangers entered a team to support in the canal's 1st Raft Race event and won!
- Visitor Services Officer and volunteers attended open days at Fleet Pond, and River Wey festival and also had a stall at the Odiham raft race.
- The Canal Centre staff trialled late opening in the summer holidays till 6pm to see if this had a positive effect on income. It was found to not substantially increase income or outweigh the additional staff expenses incurred. As a result late opening will only happen next school summer holidays at weekends when the site is at its busiest.
- An accidental caravan fire on the campsite thankfully had no casualties. Resulting damage to the fence has been repaired and the grass now reseeded. A claim to the insurance company for the caravan owner was made for costs to clear up the dangerous waste. The site has been inspected by HCC Head of Risk Safety as a result and no issues were found with on-site procedures.
- The campsite had some difficulties this year with unruly campers and noise. These issues have been considered in the proposed development of the site with a strong need for an onsite warden in the evening as well as during the day to better inforce the rules that are already in place.
- We now have 3,388 followers of our Facebook page
- The lack of online booking facilities continues to hamper development of several of the BCA's business streams.
- There was an attempted break out of the barn at the canal centre, where someone managed to gain access to the barn through the canoe storage area, but due to our increased security they were then unable to break back out with any equipment!

Volunteers

- Volunteer Celebration Hog Roast event for 200 people as a joint celebration with the Canal Society for their prestigious Queens Award.
- Two Volunteers undertook their BC 1 star canoe award to help with weed and rubbish clearance
- Over the summer the Tuesday group have been undertaking extensive Lock gate painting, hydrocotyle removal and general vegetation works and rubbish removal to keep the towpath clear.
- A sub group is now using the work boat on occasional weekends in Woking clearing rubbish and hydrocotyle which has resulted in several trailer loads of rubbish being removed from the canal.
- The Patrol boat has had a busy summer, spending more time in the Fleet area and as well as usual patrols, licence checks and rubbish and debris clearance it also assisted with special missions to clear the Barley Mow winding hole for the JP11 and facilitated the Bat swarming survey at the Greywell tunnel entrance.
- The Weedcutter having undergone some maintenance works has also been out lifting out mats of hydrocotyle in Woking and Woodham.

Capital Works Programme

The following works from the capital works programmes of Surrey and Hampshire County Councils have been carried out from the 2017 programme:

Surrey

- **Woking town wharf** – works took longer than expected and are still on-going at the time of writing, however they are due to finish by the end of September. (8 weeks behind Schedule)
- **Bank protection** –a scheme of bank protection throughout the Surrey half of the Canal will begin in early October.
- **Deedmans Bridge-** works started to widen the towpath around the bridge that had become too narrow – contractor to rectify snags.
- **Lock inspections / repair** – Deepcut Locks 18 – 24 Principle inspection has begun with follow-up works planned for Dec – Jan

Hampshire

- **Bank protection** projects were delayed due to contractor availability. Bank protection works are due to start in Surrey from October and although there are still some works planned in Hampshire unfortunately a substantial part of the money allocated for these works had to be diverted to deal with a leak which suddenly worsened at Pyestock shortly before the Farnborough Airshow in July.
- **Crookham Deeps –** the embankment between Poulters Bridge and Chequers Bridge has been leaking ever since restoration in the 1980s. Several schemes of repairs have been tried over the year which have only worked partially. A scheme of bed lining (similar to the successful works at Ash Embankment in 2016) is planned for January
- **Swan "cutting"** – The Canal Society's Engineer has submitted some outline proposals for how the issues experienced in the Canal channel at Swan might be addressed. This has been carefully considered by HCC's Engineering team. Their view is that further information is required before a detailed design can be arrived at, as there is some evidence that the issues are wider than the Canal. The Strategic Manager has now instructed HCC Estates and Engineering to liaise with the landowners so the additional data can be obtained.

Management Team

The Canal Manager and Strategic Manager have been working on the following matters:

- **Canal Centre Campsite Redevelopment** – Following a consultation with neighbours and interested parties Plans and preparatory surveys have been prepared and a planning application was submitted in early September.
- **Staffing** - A minor staff restructure is being looked at following the resignation of the Senior Admin Assistant, to ensure the visitor centre can cope in summer seasons, and also looking at ways to ensure that the BCA meet all of their key inspection targets. Two new seasonal roles of campsite warden and visitor services assistant are being considered.
- **Chobham Road turnover bridge** – the Strategic Manager is engaged with design and consents approvals for a Woking Borough Council / SCC project funded by EM3 to provide a new turnover bridge at Chobham Road, Woking. A planning application has now been granted by Woking Borough Council. The bridge will be owned by Woking BC under an agreement with SCC as Canal owner.
- **Water Environment Grant** – the Canal Manager has been working on working up a suitable project to enhance the Canal SSSI using measures set by the Environment Agency in the Water Framework Directive and Natural England; this will be a project based on conservation objectives in the Canal's Conservation Management Plan (see below). The grant is to enhance rural stretches of water and a substantial "pot" of funding is available for projects over the next three years. This is a one-time only grant application process as it is based on EU funding. Still awaiting response to this

- **Abstraction Licensing** – The water abstraction licensing regime changed on 1 January 2018. A large number of previously exempted activities, including navigation, now require licensing. Navigation Authorities are entitled to transitional arrangements and some exemptions within their waterway system; but non-navigation authorities require abstraction licences for every water transfer. The EA have previously challenged SCC/HCC/BCA's role as a navigation authority, there is therefore a substantial risk that additional costly licenses would be required for each lock and bypass should their previous view prevail. The Strategic Manager has therefore instructed SCC Legal Services to engage a legal Counsel for advice, and Counsel has now issued advice which is in the Councils favour.
- **Conservation management Plan** – Following consultation with the Conservation Steering Group over the draft plan a second draft has been produced and is now ready for submission to Natural England for assent. Partners have been sent a copy of this 2nd draft as an opportunity to comment on this before final submission.
- **Basingstoke Canal Canoe Club Changing Facilities** – After a request from BCCC the management team worked with BCCC to source and suitable temporary building to act as changing rooms and kitchen for the club. This 2nd hand refurbished portacabin has now been installed next to the BCCC barn and connected to services to provide a water supply, drainage and electricity for lighting and heating, providing improved year round facilities for the club.

Basingstoke Canal Joint Management Committee

BCA Risk Register

Date: 22 November 2018

Lead officers: James Taylor
Telephone: 01483 517538
Email: james.taylor@surreycc.gov.uk

Key Issue

To inform the JMC of the key risks associated to the BCA Canal Partnership after annual review and to ensure risks are mitigated as far as possible.

Summary

A Risk Register is maintained highlighting that the key risks relate to the partnership ceasing to function properly through partners withdrawing funding, or if the BCA fail to inspect critical infrastructure correctly. The annual review has highlighted very little change in risk.

Officer's recommendation

That the JMC note the annual revision of the Risk Register

1 Introduction & background

1.1 A Risk Register was prepared and reported to Committee in June 2015, building on a register prepared by Officers in 2011.

1.2 The register has now been updated following its annual review by the Strategic Manager.

2 Discussion

2.1 The majority of risks have not changed with the mitigated risk score remaining static since the review in 2017.

2.2 The only risk which has increased is BCA 37 – concerning the risk surrounding the registered reservoir at Mytchett Lake. This is primarily an SCC Risk as the reservoir is registered to SCC, not the BCA. The Strategic Manager was concerned about revised terms and conditions limiting professional liability imposed by the previous supplier. Instead SCC's usual supplier of Engineering Services, Atkins, have been asked to supply the Supervising and Inspecting Engineer – however, the transfer process has not gone well with delays in getting a contract in place. It is expected that the risk will reduce to previous levels once initial "teething" issues have been resolved.

2.3 The highest risk remains the prospect of revenue grant funding reductions from partners.

2.4 Despite officers having already increased directly generated income to 38% of the partnership's budget, it is important for the BCA to continue to seek to reduce reliance on revenue grants further and replace it with more directly generated income streams. Officers have prepared an overall business plan which is in working draft format, and from which individual business cases to develop income are being brought before the JMC for approval.

3 Equalities & diversity implications

3.1 The risks associated with reduced funding and increasing income may make it more likely that those on low incomes feel less able to use Canal facilities as more charges have to be made.

3.2 Any reduction in revenue maintenance for facilities may impact on the provision of facilities, well maintained level towpath, for less able people.

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4 Crime & disorder implications

4.1 The risks associated with Crime & Disorder on the Canal are not significant, and there are no associated risks in the risk register.

4.2 Reducing funding and therefore Canal staffing further would make the on the ground presence even less than at present, with anti-social behaviour and associated crimes, such as graffiti or vandalism, likely to rise.

5 Conclusion and recommendation

5.1 The highest risk remains around funding, especially as it appears that the opportunity of a quick transfer to Canal & River Trust has closed, and the Canal is likely to be managed by the partnership for the foreseeable future. Options to support the BCA generate income and safely reduce costs will need to be brought forward as quickly as possible to ensure that the Canal remains in good condition from a recreation/navigation, safety and biodiversity perspective going forward.

5.2 The Strategic Manager recommends that:

That the JMC note the annual revision of the Risk Register

6 What happens next

6.1 JMC Members note the risks and take action to mitigate them, principally through securing funding.

Basingstoke Canal Partnership Risk Register

Owned by:

Risk ref.	Risk Description	Risk Owner	Impact					L'hood	Total risk score	Mitigation	Action by who	Revised L'hood	2017 Mitigated Risk Score	2018 Mitigated Risk Score	Date of review	Movement of risk since previous assessment	Notes
			Fin	Service	Safety	Rep'n	Total										
BCA 44	The impact of the Comprehensive Spending Review on local government may lead to a reduction or cessation in funding from partners resulting in inability to safely manage the canal with sufficient staff and therefore meet statutory obligations and compromise public safety	JMC	3	3	3	4	13	4	52	Raise political profile of Canal and awareness of AMP / CMP / (BP) to secure adequate funding to meet statutory responsibilities whilst owners review future management options. Analysis undetaken as to cuts in service required at reduced levels of funding	JMC Members	4	52	52	Nov-18	⇨	
BCA 31	Failure to effectively implement a Canal-wide Business Plan leads to inability to finance the management of the canal in the event of revenue grant cuts	JMC	3	3	2	3	11	3	33	Business Plan developed to demonstrate how the BCA can decrease reliance on Revenue Grants and replace it with income.	James Taylor / Fiona Shipp	3	33	33	Nov-18	⇨	
BCA 21	Failure of earthworks, due to extreme weather, falling trees, etc., leads to loss of service, flooding, death or injury.	SCC and HCC	4	4	4	4	16	3	48	Adhere to robust inspection monitoring and recording protocols in AMP. Implement a prioritised maintenance programme (partially implemented). BCA to develop prioritised 5 year work programme	James Taylor / Fiona Shipp	2	32	32	Nov-18	⇨	Despite CRT review of risks from failure suggesting lower than expected values, risks remain very significant. Mitigations remain appropriate.
BCA 19	Failure to adequately manage lock walls, bywash culverts, wing walls leads to structural failure and loss of service, flooding, death or injury	SCC and HCC	4	3	4	3	14	3	42	Adhere to robust inspection monitoring and recording protocols in AMP. Implement a prioritised maintenance programme (partially implemented). BCA to develop prioritised 5 year work programme	James Taylor / Fiona Shipp	2	28	28	Nov-18	⇨	
BCA 37	Failure to comply with the Reservoirs Act could lead to enforcement orders and prosecution	SCC	3	3	2	4	12	3	36	Works in the interest of public safety completed. Regular inspections conducted by Inspecting Engineer.	James Taylor	2	12	24	Nov-18	⇩	Change in Supervising Engineer has not been completed on time.
BCA 32	Lack of investment in the camp site leads to loss of potential additional income and inability to fulfill aims of Business Plan	SCC (BCA)	3	1	1	3	8	4	32	SCC to implement Canal Centre redevelopment *or* support BCA in making sustainable improvements	SCC Estates officers / Lisa Creaye-Griffin / James Taylor	3	24	24	Nov-18	⇨	Campsite development report to JMC 30-11-2017. Planning application with SCC Planners.
BCA 17	Failure to adequately manage trees leads to adverse impact on water quality, potential embankment breach, third party damage and loss of habitat resulting in injury and prosecution	BCA	3	3	3	2	11	3	33	Set up and maintain an adequate monitoring and inspection regime. Detailed inventory found tree stock to be in generally good condition. Implement a prioritised maintenance programme in conjunction with the Conservation Management Plan ..	James Taylor / Fiona Shipp / Jon Green	2	22	22	Nov-18	⇨	Some evidence that tree growth is outstripping BCA's ability to deal with it. BCA to adopt HCC tree management policy.
BCA 24	Failure to carry out length inspections in an appropriate manner results in initial signs of leaks being missed leading to a breach of the canal	BCA	2	3	3	2	10	3	30	Set up and maintain an adequate monitoring and inspection regime.	Fiona Shipp / Jon Green	2	20	20	Nov-18	⇨	Audited annually by senior HCC & SCC officers.
BCA 26	Unauthorised intervention by third parties (vandalism terrorism etc) causes damage to canal infrastructure creating leaks and possible loss of service, flooding, injury or death	HCC and SCC	3	2	2	2	9	3	27	Implement and monitor BCA compliance with the Emergency Response Plan including test exercises.	James Taylor / Emergency Planning Officers	2	18	18	Nov-18	⇨	
BCA 25	Failure to adequately manage canal boundaries can lead to loss of canal estate which impacts on the ability to maintain the canal.	BCA	2	1	1	2	6	4	24	SCC & HCC Esates / Legal to confirm accurate borndaries. BCA to inform HCC and SCC when encroachments are noted	Fiona Shipp / James Taylor / SCC & HCC Estates	3	18	18	Nov-18	⇨	
BCA 45	Failure to provide consistent navigation opportunities due to prolonged maintenance activities leads to reduction in income from boat users and potential closure of the Canal.	JMC	2	2	1	3	8	4	32	Priority miantenance carried out 2011-17 generally much improved asset conditions. Managed navigation policy improves access to Canal year round	James Taylor / Fiona Shipp	2	16	16	Nov-18	⇨	
BCA 41	Failure to effectively implement the Conservation Management Plan leads to adverse impact on the SSSI and potential for prosecution	BCA / HCC & SCC	2	2	1	3	8	2	16	BCA to report actions to Conservation Steering Group and JMC	Fiona Shipp	2	16	16	Nov-18	⇨	
BCA 22	Failure of lock gates or ancillary equipment leads to loss of service, flooding, death or injury	SCC and HCC	4	3	4	3	14	3	42	Inventory completed. Priority mainetnenace carried out. AMP cyclical maintenance regime adopted. Ensure AMP inspection regime continues to be implemented.	James Taylor / Fiona Shipp	1	14	14	Nov-18	⇨	
BCA 53	Failure to adequately manage culverts leads to loss of service, flooding, death or injury.	SCC and HCC	4	3	4	3	14	3	42	Inventory completed. Set up, maintain and record adequate monitoring, inspection. Prioritised maintenance programme partial complete.	James Taylor / Fiona Shipp	1	14	14	Nov-18	⇨	
BCA 12	Failure to adequately manage school visits, events (including santa cruises) and camp site leads to death or injury and prosecution	BCA	4	2	4	4	14	2	28	Complete and implement adequate risk assessments.	Dean Wall	1	14	14	Nov-18	⇨	
BCA20	Failure to adequately manage bridges leads to structural failure and loss of service, flooding, death or injury	SCC and HCC / BCA / third parties	4	3	4	3	14	2	28	Liase with County Council bridge clients to ensure Highway and Rights of Way bridges are maintained in accordance with	SCC & HCC Bridge clients / James Taylor / Fiona Shipp	1	14	14	Nov-18	⇨	
BCA 38	Failure to comply with Client responsibilities of CDM Regulations and other Health and Safety legislation leads to injury or death and/or prosecution by HSE	BCA / SCC & HCC	4	3	4	3	14	2	28	Ensure all works are conducted in accordance with CDM Regulations including the keeping of records and ensuring staff and volunteers are suitably	James Taylor	1	14	14	Nov-18	⇨	
BCA 10	Failure to effectively implement and monitor the HCC Safety Manual or BCA documentation leads to death or injury and prosecution.	BCA	4	2	4	4	14	1	14	BCA to be regulalrly assessed for compliance with standards	James Taylor	1	14	14	Nov-18	⇨	
BCA 49	Prolonged maintenance works requiring closure of tow path creates disruption for recreational users.	BCA / HCC & SCC	1	2	1	3	7	2	14	Legal requirement to keep towpath closures as short as possible. Maintenance works to be properly planned and comply with relevant standards and procedures.	James Taylor / Fiona Shipp	2	14	14	Nov-18	⇨	
BCA 11	Failure to adequately manage the children's play area or picnic site leads to death or injury and prosecution	BCA	4	2	4	3	13	2	26	Complete and implement adequate risk assessments.	Fiona Shipp / Dean Wall	1	13	13	Nov-18	⇨	

Basingstoke Canal Partnership Risk Register

Owned by:

Risk ref.	Risk Description	Risk Owner	Impact					L'hood	Total risk score	Mitigation	Action by who	Revised L'hood	2017 Mitigated Risk Score	2018 Mitigated Risk Score	Date of review	Movement of risk since previous assessment	Notes
			Fin	Service	Safety	Rep'n	Total										
BCA 18	Failure to manage animals (rats, crayfish etc) leads to breach of embankments resulting in damage to property, injury and death	BCA	3	3	4	3	13	2	**26**	Implement length inspection regime in AMP. Carryout regular trapping of crayfish to reduce population.	Fiona Shipp / Jon Green	1	**13**	**13**	Nov-18	⇨	
BCA 28	Failure to prepare and implement a comprehensive emergency plan leads to loss of service, closure of the canal, death or injury, and/or prosecution under H&S law.	BCA / HCC & SCC	3	3	3	3	12	2	**24**	Keep Emergency Response Plan up to date and ensure Emerency Planning Teams have the most up to date copy	James Taylor / Fiona Shipp	1	**12**	**12**	Nov-18	⇨	
BCA 13	Failure to adequately manage the volunteer work force leads to death or injury and possible prosecution	BCA	4	1	4	3	12	2	**24**	Follow HCC H&S policies to adequately risk assess and supervise works.	Fiona Shipp / Jon Green	1	**12**	**12**	Nov-18	⇨	
BCA 15	Failure to employ sufficient adequately trained staff leads to inability to provide agreed levels of service (including inspection data and emergency cover) and difficulties in implementing the various business plans.	BCA	2	3	4	3	12	2	**24**	BCA to recruit staff in accordance with HCC policies and systems.	James Taylor / Fiona Shipp	1	**12**	**12**	Nov-18	⇨	
BCA 1	Loss of Canal Centre through fire, flooding or other major event leads to inability to manage the BCA.	BCA / HCC & SCC	3	3	3	3	12	2	**24**	Implement HCC Business Continuity Plan. SCC to carryout repairs quickly and efficiently	Jo Heath / James Taylor / Fiona Shipp / SCC Estates	1	**12**	**12**	Nov-18	⇨	
BCA 3	Loss of equipment through failure to maintain or theft from buildings, stores and vans results in loss of service and increased costs.	BCA	2	1	2	1	6	2	**12**	BCA to maintain inventory of equipment and keep up to date maintenance schedules in accordance with HCC systems. Store valuable equipment securley in accordance with Police advice. CCTV and alarms installed.	Fiona Shipp / Jon Green	2	**12**	**12**	Nov-18	⇨	
BCA 23	Failure to maintain or operate sluices effectively leads to flooding and third party damage	BCA	4	2	2	3	11	2	**22**	Implement and review winter, summer and extreme weather protocols. Ensure telemetry system is installed and working correctly	Jon Green	1	**11**	**11**	Nov-18	⇨	
BCA 30	Failure to adequately manage capital maintenance programme leads to problems with delivery creating disruption, increased costs and potential prolonged closure of the canal and loss of reputation with stakeholders	SCC & HCC	3	3	2	3	11	2	**22**	Ensure capital works are planned in advanced and delivered in accordance with the financial standing orders of HCC / SCC.	James Taylor	1	**11**	**11**	Nov-18	⇨	
BCA 42	Failure to effectively implement the overall Asset Management Plan, Conservation Management Plan, Emergency Response Plan and Business Plan leads to weak management of the canal, ineffective use of resources and inability to manage risk.	JMC	3	3	2	3	11	2	**22**	JMC to review officer's actions through monitoring reports offered to the JMC. KPI indicators added to Operational Plan	James Taylor / Fiona Shipp	1	**11**	**11**	Nov-18	⇨	
BCA 47	Leakage from canal creates problems for adjacent land owners.	BCA / SCC & HCC	3	2	2	3	10	2	**20**	BCA to comply with AMP robust inspection regime (BCA 24) and develop 5 year prioritised works programme	Fiona Shipp / Jon Green	1	**10**	**10**	Nov-18	⇨	
BCA 2	Loss of workshop or store through fire, flooding or other major event leads to loss of maintenance capacity and / or archive material.	BCA / HCC & SCC	2	2	3	2	9	1	**9**	Implement HCC Business Continuity Plan. SCC or HCC to carryout repairs quickly and efficiently	Jo Heath / James Taylor / Fiona Shipp / HCC and SCC Estates	1	**9**	**9**	Nov-18	⇨	
BCA 27	Disruption to canal navigation and towpath use caused by external maintenance works leading to loss of income and reputation	HCC & SCC / BCA	2	2	1	3	8	3	**24**	Ensure works agreements are entered into with third parties doing work on Canal property, and contain penalties for extensions to agreed programmes of work.	James Taylor / HCC & SCC Estates Officers	1	**8**	**8**	Nov-18	⇨	
BCA 51	Failure to effectively manage media, including website, leads to loss of reputation, funding and complaints from user groups.	BCA	2	2	1	3	8	2	**16**	BCA to develop a Marketing Strategy, branding and extensive use of socila media	Fiona Shipp / Dean Wall	1	**8**	**8**	Nov-18	⇨	
BCA 29	Failure to provide a robust and resilient ICT system leads to loss of service and increased costs.	HCC	2	2	2	2	8	2	**16**		HCC IT	1	**8**	**8**	Nov-18	⇨	
BCA 39	Failure to adequately manage works in vicinity of the fibre optic cable leads to claim and and financial difficulties	BCA / SCC & HCC	3	1	2	2	8	2	**16**	Ensure all works comply with CDM Regulations (BCA 38) and safe working practices	Fiona Shipp / Jon Green	1	**8**	**8**	Nov-18	⇨	
BCA 5	Third party pollution incidents lead to damage to wildlife and habitat.	BCA / Environment Agency	1	1	3	3	8	2	**16**	BCA to inform EA and Natural England (Emergency Planning) promptly. Ensure polution doesn't spread.	Fiona Shipp / EA / Emergency Planning officers	1	**8**	**8**	Nov-18	⇨	
BCA 36	Excessive use of back pumping system could lead to prosecution by the Environment Agency.	BCA / SCC	2	1	1	4	8	1	**8**	BCA to ensure compliance with Abstraction Licence and make statutory returns. Implement telemtry system to semi-automate pump control.	Fiona Shipp / Jon Green	1	**8**	**8**	Nov-18	⇨	Pump automaton may not be possible as originally envisgaged. Legal advice indicates abstraction licensing may be uneccessary.
BCA 14	Failure to adequately implement HCC HR policies leads to staffing issues and reduced level of service	BCA	2	1	2	3	8	1	**8**	BCA to adhere to HCC HR policies. Implementation of IBC means staff recruitment is uniform (if very slow)	Fiona Shipp	1	**8**	**8**	Nov-18	⇨	
BCA 48	Failure to adequately maintain water levels in certain pounds leads to stability problems with house boats and claims from owners.	BCA	2	1	2	2	7	2	**14**	Comply with water level protocols in AMP / CMP / ERP. Carryout regular maintenance of weirs and sluices. Install telemtry system		1	**7**	**7**	Nov-18	⇨	
BCA 4	Failure to control fly tipping and litter on the towpath damages boats, wildlife and habitat and could result in loss of SSSI status	BCA	2	1	2	2	7	2	**14**	Implementation of volunteer lengthsman scheme	Fiona Shipp / Jon Green	1	**7**	**7**	Nov-18	⇨	
BCA 34	Failure to maximise the potential use of volunteers leads to reduction in levels of service and increased costs	BCA	2	2	2	1	7	2	**14**	BCA to ensure good relations with user groups and volunteers through regular meaningful engagement	Fiona Shipp	1	**7**	**7**	Nov-18	⇨	
BCA 6	Failure to manage invasive species leads to additional costs and potential for prosecution	BCA	2	1	1	3	7	1	**7**	BCA to comply with CMP	Fiona Shipp / Jon Green	1	**7**	**7**	Nov-18	⇨	
BCA 43	Conflict of interest between various user groups (recreation / conservation / navigation) leads to failure to effectively manage the canal	BCA	1	1	1	2	5	2	**10**	BCA to ensure good relations with user groups through regular meaningful engagement	Fiona Shipp	1	**5**	**5**	Nov-18	⇨	

Basingstoke Canal Joint Management Committee

Cycling Policy - Decision Paper

22 November 2018

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Key Issue

To consider adopting a Cycling Policy and a Towpath Users code of conduct for the Canal**.**

Summary

To better manage towpath users, and adopt a code of conduct for all towpath users.

Officer's recommendation

The JMC is asked to:

a) Approve the BCA Cycle Policy to be used in reference to the Basingstoke Canal.
b) Authorise BCA officers to keep the Policy Statement under review adding items and making adjustments as appropriate.
c) Authorise officers to draw up and implement a scheme of signing and minor works designed to reduce cycle speed in the Woking section of the Canal towpath, and promote a positive shared space in which pedestrians have priority.

1 Introduction & background

a. The Canal towpath has become a popular access route for recreation and in some areas non-motorised transportation. It provides an ideal green, traffic free commuter route through areas such as St Johns, Sheerwater, Woodham, Woking, Fleet and Ash Vale. Cycling is a very popular way to commute and these towns all have good access from the canal to local train stations at Woking, West Byfleet, Fleet and Ash Vale.

b. The towpath is now at times crowded with many different types of user, and there is inevitably some clashes, physically and verbally. This issue is not unusual to the Basingstoke Canal, and similar issues are seen on many canals throughout Great Britain. Canal & Rivers Trust [CRT] carried out a public consultation on towpath use and found:
    i. '*Based on our research , which we undertook with Forster Communications and involved focus groups workshops and a canal network wide consultation, we discovered most people are now more*

concerned about the speed at which other visitors travel and their consideration for others.' (Canal & Rivers Trust website)

c. As a result CRT have run several public awareness campaigns to encourage cooperative shared use of towpaths; eg "Two Tings", "Share the Space, Slow your Pace".

d. Of particular issue for the Canal is the section between Brookwood and New Haw which has an "improved" surface. A sealed surface was provided in phases around 2005 and has enabled cyclists to cycle much faster through this area. At the same time a project was run in Woking to create cycle routes through the town, and the Canal towpath became part of the Saturn Trail.

e. So although the Canal towpath is not a public right of way nor a cycle-path, it became part of a signposted route. The signage for this included destinations along the route and approximate cycling times to these destinations. It was felt in 2012 that these were causing issues in encouraging cyclists to use this area and cycle faster to try and beat the advertised times. This issue was brought to JMC in 2013 and it was agreed to remove the Saturn Trail signs from SCC Canal manged land. This was actioned. Some of the Saturn trail signs remain around Woking but none on the canal land. Cyclists have however become accustomed to using the towpath and many assume wrongly that it is a cycleway, with cyclists having the priority.

f. Since 2013 the BCA, in conjunction with BCS Lengthsmen, have carried out campaigning activities based on the "Share the space, Drop the pace" campaign - borrowed under license from CRT. This is part of a nationwide campaign, as this problem is not unique to the Basingstoke but a common issue across the UK waterway network. With CRT's permission their slogan was used at a launch held at Woking WWF followed by a number of sessions on the towpath promoting sharing the towpath in an amicable way, giving away merchandise with the slogan and leaflets with more information.

g. West of Deepcut, and especially at the Hampshire end of the Canal the towpath is narrower than in the Woking area and also has an unbound stone surface. The BCA get far fewer reported incidents of aggression between towpath users from Hampshire as the rural surface and narrowness already act as 'traffic calming' on cycle speed.

2. Legal Position

a. The towpath is not a public right of way (except for a small stretch between Greywell and North Warnborough in Hampshire, and adjacent to the Lock chamber and over the lock tail footbridge at Lock 3 at West Byfleet).

b. The Canal was purchased under the National Parks and Access to the Countryside Act 1949, with the aim being for 'countryside for quiet recreation' with special regard for people using the waterway in "small boats".

Pedestrians therefore have the priority on the towpath and cyclists are only allowed to use it with the permission of the owners.

c. The Canal has a set of byelaws and cycling is referred to in the following clauses;

i. Vehicles

ii. (2) No person shall, without reasonable excuse, ride a cycle except on any part of the land where there is a right of way for cycles, or along such routes as may be fixed by the Council and indicated by signs placed in conspicuous positions on the land.

iii. 'cycle' means a bicycle, a tricycle, or a cycle having four or more wheels, not being in any case a motor cycle or motor vehicle

iv. Obstruction

v. No person shall on the land or on the Canal:

1. intentionally obstruct any other person in the proper use of the land or the Canal, or behave so as to give reasonable grounds for annoyance to other persons on the land or on the Canal.

vi. Any person offending against any of these byelaws shall be liable on summary conviction to a fine not exceeding level 2 on the standard scale.

vii. The byelaws came into effect on 1 January 1995. They reinforce the point that cycling is by permission only, is not as of right, and persons using the towpath should be accommodating to one another.

viii. Advice on the duty of care surrounding use the Canal towpath has been sought from Surrey County Council's Legal & Democratic Services Department.

ix. They advise that as the Canal is held as Access Land the provisions of the Countryside & Rights of Way Act 2000 are applicable. This Act limits the liability of owners and occupiers in respect of people using the land as Access Land in many cases. However, as cyclists are invitees onto the towpath the County Councils and BCA owe a duty of care in respect of cycling.

3. Consultation

a. No public consultation has been undertaken. A draft paper covering these issues was taken to Joint Advisory Group for partnership officers to discuss.

b. Many of the partnership officers noted experiencing similar difficulties with cycling on their own sites. Strict enforcement of rules or cycle bans were considered, but agreed by all to be unworkable within existing resource. Partners recognised that signage might have little actual positive impact, but additional signing should still be considered to cover duty of care to show visibly that the BCA had taken steps to try and reduce risk and increase education about the shared space.

c. They also felt it was worthwhile to keep trying to educate the public in other ways. Officers felt that a key message was that pedestrians had priority over cyclists. There was general support for the proposed Towpath Code that educates all users and also felt it was good to get across the key point that pedestrians have the right of way over cyclists.

4. Discussion

a. National guidance concerning the design of cycle routes is currently contained in Local Transport Notes 2/08 and 1/12; these were produced *after* the conversion of the Basingstoke Canal Towpath. This guidance recommends that a shared use path would normally be 3m wide:

   i. "*A width of 3 metres should generally be regarded as the preferred minimum on an unsegregated route, although in areas with few cyclists or pedestrians a narrower route might suffice. Where a significant amount of two-way cycling is expected, additional width could be required. However, the need here for additional width is not clear cut, because the absence of segregation gives cyclists greater freedom to pass other cyclists. It might therefore depend on user flows*." (2012, Department for Transport, Local transport Note 1/12, Shared Use Routes for Pedestrians and Cyclists)

b. During the construction of the paved cycle route in Woking, Borough Planning Officers insisted that the paving be no more than 1.8m wide to fit with the character of the planning Conservation Area. It is not known if a safety audit was conducted by Sustrans / SCC Transportation Officers who were overseeing the construction at the time, as this width would have been below the 2.0-2.5m width recommended in local guidance at the time.

c. The current national guidance goes on to recommend forward visibility limits, which the Canal usually surpasses except at low bridges. The reduced forward visibility is already taken into account with "Cyclist Dismount" signing being provided on all bridges with restricted visibility.

d. The width of the path is substantially below what is now considered to be a minimum for this type of path, now commonly used as a commuting cycle route due to its convenient location. The guidance suggests that widening paths and increasing forward visibility should be considered as a first step where this is the case. However, without additional land ownership there is little prospect of widening the towpath to ease the situation; the cost of acquiring additional land, and constructing a wider path throughout the Brookwood – New Haw section would be prohibitive.

e. With widening largely ruled out due to cost, an alternative option would be to remove all signs permitting cycling and rely on the prohibition provided in the bylaws. However, Canal was purchased by the County Councils for recreation in the countryside – cycling is part of this today and has many health benefits, it would not fit with the policies of either owner to ban cycling; neither would it be fair to punish the many for the inconsiderate actions of just a few people. A

cycling ban would be impossible for the BCA to police within its existing resources and is likely to be very unpopular.

f. National guidance suggests that where cycle routes have to be constructed at less than the ideal width or forward visibility then physical options to control cycle speed should be considered. The suggestions in the guidance include the provision of tactile paving, humps, signing, bollards to restrict width and staggered barriers.

g. Although partnership officers recommended the provision of some additional signing it is unknown whether further signs would have any noticeable effect, and certainly the provision of signs alone is thought unlikely to have any appreciable effect on the way the public use the towpath.

h. Physical barriers could be used to slow cycle speeds, however, these would need to be carefully designed at key places – modern full-suspension bikes might encourage some cyclists to speed up and jump over humps, for example. The use of barriers adds restriction to other users such as wheelchairs and people with prams which are known to be regular users of the towpath, and adds difficulty to the use of the towpath by BCA maintenance vehicles and plant.

i. Unfortunately, it is impossible to enforce consideration for fellow towpath users. However, it is notable that CRT, the industry leader, has concentrated on public awareness campaigns and has gone as far as removing previously provided barriers in some urban areas. Sustrans also publishes user guidance based on sharing off-road routes considerately.

j. The BCA along with other canal managers are aware there is an issue of inter-user conflict, but with a 224 year old heritage asset designed for horses to pull barges is trying to meet modern day transport and recreation needs. This is a complex problem to resolve with no quick fixes, as it relies on people simply being nice and considerate to each other which no amount of barriers, signage or campaigning is likely to fully achieve.

k. The BCA have however arrived at a draft cycling policy which is appended to this report at Appendix 1. This covers a code of conduct based on those produced by the IWA and CRT. It also ensures that any future cycle improvements to the Canal are fully compliant with the core purpose of the local authorities owning the land and ensures compliance with appropriate standards.

5. Financial and value for money implications

a. There is no cost involved with implementing the Policy Statement, however, additional signing and other physical improvements is now required to mitigate the effect of previous cycle improvements in the Woking area. A signing and minor works plan will be developed with an initial budget of £10,000 drawn from the BCA's revenue budget for Canal works.

6. Equalities & Diversity implications

a. The canal towpath is in itself a very accessible routeway that allows many users to access green space. It is suitable for push chairs, wheelchairs and cycles as well as walkers and runners. We don't want to restrict access when so many people enjoy the canal in a very positive way.

b. The speed that some cyclists travel however can cause a risk to other more vulnerable users, particularly the elderly, mothers with young children and the hard of hearing. A cycle bell does not always work particularly for people who are hard of hearing or who wear hearing aids as these are not designed to pick up sounds from behind and make it difficult to identify.

7. Crime & disorder implications

a. Incidents on the Canal have previously been reported to the police to deal with as would any anti social behaviour. The main types of incident have been verbal abuse, pushing of people into the canal and injury to people and dogs from clashes with cycles.

b. The adoption of a policy and provision of signing and works are unlikely to have any effect on anti-social behavior.

8. Conclusion and recommendation

a. A formal cycle policy in respect of the Canal is now required alongside works and campaigning to mitigate cycle speeds. That the Committee:

9. Approve the BCA Cycle Policy to be used in reference to the Basingstoke Canal.
10. Authorise BCA officers to keep the Policy Statement under review adding items and making adjustments as appropriate.
11. Authorise officers to draw up and implement a scheme of signing and minor works designed to reduce cycle speed in the Woking section of the Canal towpath, and promote a positive shared space in which pedestrians have priority.

12. What happens next

a. BCA will use the policy statement in its publications and publicise the Code for Towpaths to promote safer use of the towpath for everyone.

b. The BCA will draw up a scheme of signing and other minor works aimed at reducing cycle speed and promoting shared use for the Woking section of the Canal

Appendix 1 – BCA Cycle Policy
Cycle Policy Statement

The BCA supports sedate cycling on the towpath by individuals, families and small groups. Commuter and recreational cycling should only take place where the safety of the rider can be assured and it does not compromise the safety and enjoyment of other users.

Although there is no specific speed limit for cyclists on waterway towpaths, cyclists should slow down and consider all other users of the towpath. Cyclists must take particular care when passing walkers and anglers, and be prepared to dismount. Cyclists exceeding a speed of approx. 9mph are likely to be going too fast to meet the other criteria.

In busy locations cyclists may find it quicker to use the nearest road as an alternative route.

This policy is proposed to be supported by a code of conduct for all towpath users. This has been developed by Canal & Rivers Trust as part of their Share the Space campaign:

Code for Towpath Users

Share the Space- consider other people and the local environment whenever you're on the towpath.

Drop your pace- jogging and cycling are welcome, but drop your pace in good time and let people know you are approaching by ringing a bell or politely calling out before waiting to pass slowly.

Pedestrians have priority on the towpath, or other shared use areas of Canal land.

Be courteous to others - a smile can go a long way.

Follow signs - they are there for the safety of everyone. Cyclists should dismount where required and use common sense in busy or restricted areas, recognising that pedestrians have priority.

Give way to oncoming people beneath bridges - whether they are on foot or bike and be extra careful at bends and entrances where visibility is limited.

When travelling in large groups - especially if you are running or cycling, please use common sense and give way to others.

Try to avoid wearing headphones - as this makes you less aware of your surroundings, and others sharing the same space.

Keep dogs on a short lead - and clean up after them.

At all times, keep children close to you– and encourage them to learn and follow the Code for Towpaths.

New Cycle Facilities

Proposals for additional cycle infrastructure from developers, planning or transportation departments must accommodate existing navigational and recreational uses. Any proposal which in the opinion of the BCA changes the fundamental balance of the Canal from recreation to transport will not be supported.

The BCA consider that the dedication of any part of the Canal as a public highway (the definition of which includes public rights of way and cycle paths) is contrary to the purpose for which the land is currently held as countryside for quiet recreation. Any proposals which requires adoption of areas of Canal land for public highway will require the Appropriation of the land, which requires the consent of the landowners and Ministerial approval.

The BCA will only support or implement the provision of additional cycling facilities on the Canal towpath where they can demonstrably meet the design requirements of LTN 2/08 and LTN 1/12 (or replacement guidance issued by the DfT for the design and construction of off-road cycle routes). Proposals which cannot meet these standards will not be supported.

Proposals linked to or near known new developments will need to consider the growth of both recreational and functional use on the towpath *after* any known developments have occurred.

Appendix 2 – Background documents

Local Transport Notes – Department for Transport

- LTN 2/08 Cycle Infrastructure Design
- LTN 1/12 Shared Use Routes for Pedestrians and Cyclists

Surrey County Council

- Surrey Transport Plan - Cycling Strategy

Hampshire County Council

- Cycling Strategy

Sustrans

- Advice on using shared use paths

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Basingstoke Canal Joint Management Committee

Conservation Management Plan – Information Paper

22 November 2018

Lead officers: James Taylor
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1. Summary

1.1. To inform the Committee of actions taken by the Strategic Manager in drafting and gaining approval from Natural England for the new edition of the Conservation Management Plan.

2. Officer's recommendation

2.1. That the Joint Management Committee note the report

3. Introduction & background

3.1. The Basingstoke Canal is 90% designated as SSSI, for its unusual water chemistry, and the resultant range of aquatic plants and dragonfly species. At its most recent designation in 1995 it was deemed to be the most diverse freshwater body in England and Wales with 87 species of aquatic plants.

3.2. The Wildlife & Countryside Act 1981 places a duty on public sector owners of SSSI habitats protect and enhance them. It further places restrictions on the type of work which can be undertaken in an SSSI, through a list of "Operations Likely to Damage" [OLDs] without having first obtained the Assent of Natural England.

3.3. It would be entirely unworkable to apply for Assent for most of the day to day managements and maintenance of the waterway; this would take a huge amount of officer time for both the Councils and Natural England.

3.4. A way around this is to agree a management plan for the site with Natural England. This covers most of the normal operations and management activities, based on sound conservation principles, drawn from formal Conservation Objectives for the SSSI set by Natural England, which when combined should serve to protect and enhance the waterway.

3.5. A Conservation Management Plan was agreed with Natural England in 2008 for 10 years. This was in a large part drafted by Dr John Eaton – the leading expert on canal botany at the time. The plan is based on sound science, but has proved very practical and useable with clear objectives and managements.

3.6. Technical oversight of the Plan has been, and continues to be, through ecological experts from each of the County Councils, Natural England, and the Environment Agency sitting alongside officers of BCA and the Canal Society as a Conservation Steering Group [CSG].

4. Discussion

4.1. The 2008 Plan is now near the end of its 10 year period and a further plan is required in order for the BCA to effectively operate the Canal; Natural England will need to approve a replacement plan by November 2018 or the BCA will need to revert to applying for individual permissions for most of its operation and maintenance activities.

4.2. In the intervening years Dr Eaton has retired and is no longer able to advise us. The Canal Manager and Strategic Manager have therefore conducted a revision of the existing plan based on the premise that the previous plan needed only minor revisions to make it work more effectively, advised by ecologists from HCC and SCC; the major reason that the previous plan had not delivered on all of its objectives is simply down to lack of resource.

4.3. The draft was circulated to CSG members in December 2017, who discussed the views at their meeting in March 2018. Natural England were by and large happy with the draft, with some minor amendments, their major comment being a technical one surrounding the national technical measuring standards which have yet to be revised to match those in the Water Framework Directive (which became UK law in 2003).

4.4. Despite a robust debate led by the Canal Society it is quite clear that Natural England has no appetite to allow an increase in the limit on powered boat movements. The evidence of the limited amount of improvements in the botany in the Hampshire portion of the Canal shown in the 2012 botanical survey, previously reported to the JMC, was not repeated in the 2017 survey.

4.5. Whilst it is not clear if there is one single cause for the apparent decline in botany, turbidity from boat traffic especially in Hampshire, is being suggested as one possible culprit. It is the Strategic Manager's view that if pressed too firmly Natural England may decrease the powered boat movement limit, rather than increase it; as there is no supporting evidence to demonstrate boat movements are having a beneficial or neutral effect on the ecology but some limited evidence to suggest it is contributing to decline. As there is now a clear conservation based objective for dredging a better course of action is to plan dredging works to reduce the silt load and monitor the results. HCC have funding in its capital plan for these works commencing in 2019.

4.6. The Strategic Manager and Canal Manager have therefore taken the proposed draft and the CSG's comments and formed a final draft which has been sent for Assent to Natural England, following Senior Officer approval. This paper is appended as Appendix 1.

5. Consultation in addition to those from the Conservation Steering Group

5.1. No public consultation has been undertaken on the evolution of this highly detailed and technical Plan.

5.2. Ecological advisors for both county councils were invited to comment on the final draft management plan;

> *"The latest Management Plan builds upon previous plans and recent surveys to bring an integrated approach to potential conflicts between recreation and protecting the environment. It has been written as a result of a partnership of organisations working together to ensure that the canal environment is managed for today's and future generations of users. I am pleased to have been part of that partnership on behalf of Surrey County Council and support the Management Plan's adoption and implementation."*
> (John Edwards SCC Natural Environment & Assessment Team Manager)

5.3. The Canal Partnership Authorities were consulted on the largely completed draft. Comments were received only from Woking and Rushmoor Borough Councils;

5.3.1. Woking Borough Council thought that the Plan was comprehensive but the section on Water Quality should have a minor modification to make reference to Sustainable Unban Drainage Systems (SUDs). This minor modification has been made to the final version of the Plan.

5.3.2. Rushmoor Borough, however, considered that there was too greater emphasis on recreation, especially boating. They suggested that boat numbers should be decreased and more trees felled to improve the SSSI condition, regardless of other consequences. These observations could not be reconciled with the Plan as it exists, and the Plan was not modified.

5.4. Additionally the Conservation Steering Group meeting on 24th September considered a matter of navigation rules regarding boat engine size and boat length, and it was recommended that the result of this discussion be reported to JMC as part of this paper. Current navigations rules state that outboard engines should be no greater in size than 2.5hp/metre of boat length. However the CSG agreed from a conservation point of view that the 4mph speed limit and 'no breaking wash' rules covered this point adequately and that this rule was in fact redundant. It was agreed to remove it from all BCA paperwork.

6. Financial and value for money implications

6.1. There is no significant cost implication with the CMP itself; although the activities contained in it requires the Councils and BCA to undertake works in the interest of conservation, some of which have no budget allocation in either revenue or capital programmes. However, the CMP is written generally in sufficiently vague terms as to not require specific expenditure at any particular interval.

6.2. The option of not having an agreed CMP would have a very significant immediate impact on the waterway and on the reputation of the Councils.

6.3. Powered boating would effectively become prohibited with immediate effect as it is a "recreational activity likely to damage the SSSI" and use of a "powered vehicle which is likely to disturb or damage the SSSI" – two of the OLDs. The loss of powered boating would have an immediate negative impact on the finances of the BCA exceeding £100,000 per annum. There may also be litigation from commercial powered craft operators for loss of income.

6.4. There would be significant reputational harm to both owning authorities – especially Hampshire as the host for the BCA. The option of not having a CMP has therefore been considered and rejected as unworkable, as this would cause financial and reputational damage.

7. Equalities & Diversity implications

7.1. There are no equalities and diversity implications for the Canal or its partners.

8. Crime & disorder implications

8.1. There are no crime and disorder implications for the Canal or its partners.

9. Conclusion and recommendation

9.1. A CMP is an essential management tool for any property which contains an SSSI, especially where its ownership is the public sector. The prospect of not submitting a CMP for approval in time for a

seamless transition from the 2008-18 CMP is untenable and potentially very damaging to the Canal and its owners.

9.2. The Officer recommends that:

The Joint Management Committee note the report

What happens next

Following the approval by senior officers at Canal Senior Management Team, the final draft was sent to Natural England for Assent as an agreed scheme of management

The submitted document will be reported to JMC on 22/11/2018 as Members had asked for a discussion surrounding conservation management.

Appendix 1 – Conservation Management Plan 2018-2028

Basingstoke Canal Conservation Management Plan

Third edition 2018-2028

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Executive Summary

The Basingstoke Canal is a very special waterway of national importance for its unique water chemistry and the range of plants and invertebrates that this supports. It rightly has statutory protection for much of its length.

Unfortunately, twin pressures from recreational use since its restoration as a navigable waterway, and the continuing growth of trees surrounding the Canal have led to a decline in the condition and diversity of the waterway.

This plan sets out the conservation basis for actions to reverse the declining trend, and allows the managing local authorities to go about their business in the knowledge that the day to day managements are on a sound ecological basis.

Figure 1 - Deepcut Locks in summer, Surrey section of Canal
Photo credit – Paul N Drane

1. Introduction

1.1. The purpose of this plan

The Basingstoke Canal is of national importance for its wealth of wildlife. Most of the waterway has statutory protection as a Site of Special Scientific Interest, for which Conservation Objectives have been set and success in achieving these objectives is measured by Favourable Condition Tables [FCT].

The present FCT are based on the Common Standards Monitoring Guidance [CSMG] for canals, which amongst other matters use General Quality Assessment [GQA] standards for water quality. It is anticipated that the CSMG for canals will be updated during the life of this edition of the Plan; should this occur a formal review will be made to assess if adjustments to the Plan are required.

The Canal has other important functions, being especially highly valued as a linear public park, providing recreation and amenity in the countryside – indeed this is the statutory purpose for which the County Council owners hold the land. There is therefore a need to manage the SSSI in ways which both achieve its Conservation Objectives and maintain its recreational and amenity functions while maintaining its ability to function as a viable business entity.

The purpose of this Conservation Management Plan is to set out the conservation needs and then show how these can be met, while maintaining and, where possible, developing the Canal's other functions. The starting point is to take the Conservation Objectives [CO] and derive from them a list of practical management issues. This list is then turned into specific actions, for each of which success in contributing to conservation is measured against the relevant criteria in the FCT; implications for other functions of the canal are defined, and a timetable for implementation is proposed.

It should be noted at the outset that although "implications for other functions of the canal" may include compromises on some of those functions, in many cases the needs of conservation, recreation and amenity largely coincide. An important part manging the Canal is balancing of the needs of conservation and recreation, alongside the need to maintain and develop the financial viability of the Canal. Over the last 10 years of the previous plan some additional funding has been possible with financial grants from HLS to help work on tree thinning and removal as part of specific projects on the canal. However grant funding is becoming harder to find and with the current (at time of writing) looming of the exit from the European Union. This could have further negative effects. It should be noted that there are other very significant financial constraints on the Canal at this time already which were less significant over the last plan period.

This Plan replaces the Basingstoke Canal Site of Special Scientific Interest Management Plan (1992) and the Basingstoke Canal Conservation Management Plan (2008).

1.2. Governance

This plan is owned by the Basingstoke Canal Authority [BCA] (the local authority partnership who look after the Canal on a day to day basis), and the Canal's two owners Surrey and Hampshire County Councils (who are the statutory navigation authorities for the waterway). Before coming into operation the Plan will be presented to Natural England for their Assent - as an agreed scheme of management. This allows the BCA / owners to do a lot of day to day management without seeking individual assents for every activity, freeing BCA and Natural England officers' time to deal with the less mundane matters which need individual consideration; whilst at the same time providing a conservation based rationale for each action and management.

Periodic maintenance and revision of the plan will be undertaken by the BCA – with all revisions being submitted to Natural England for Assent.

Direction as to the content of the Plan, reviewing progress and any revisions will be given to the BCA by the Basingstoke Canal Conservation Steering Group [CSG] – a technical group made up of people with specialist knowledge in the field, or particular knowledge of the Basingstoke Canal. This group will be chaired by the owners' lead officer for the Canal.[1]

[1] Currently the owners appoint one joint lead officer, *Strategic Manager – Basingstoke Canal*, who will chair all meeting of the CSG. Should the owners in future appoint a separate lead officer each, the lead officer for Hampshire County Council will normally be in the chair, but may be deputised by the Surrey County Council officer as required or agreed between the two.

The CSG will meet at least twice per year and will consist of representatives from:

- Basingstoke Canal Authority
- Natural England
- Environment Agency
- Hampshire County Council
- Surrey County Council
- Basingstoke Canal Society
- Basingstoke Canal Angling Association[2]

At the discretion of the Chair further appropriate representatives who have a particular field of technical knowledge, or pertinent point of view about the Canal, may be invited to attend.

The Chair will periodically report the activity of the CSG to the formal steering body for the Canal – the Basingstoke Canal Joint Management Committee.

1.3. The Canal and its SSSI

For a description of the Canal, its history and current management structure, current usage and links to related websites, see http://www.basingstoke-canal.co.uk

The Basingstoke Canal SSSI has three components –

1. The navigation channel.

2. Off-channel areas, referred to in the Conservation Objectives as Off-channel Reserves and comprising a collection of water bodies such as flashes and ponds associated with and mostly connected to the main channel, together with their marshy surrounding areas.

3. Pondtail Heath. Pondtail Heath is the subject of a separate Conservation Management Plan and is not considered further in this document.

The off-channel areas, although considered (due to their adjoining nature) are largely not owned or managed by the canal.

Locations and ownerships are summarised in Appendix 1

Key stakeholders who have been consulted in the preparation of this Plan as part of the Conservation Steering Group (CSG) and Joint Advisory Group (JAG):-

- **owners**; Hampshire County Council and Surrey County Council, together managing the canal through the Basingstoke Canal Authority (BCA),
- **local riparian authorities**; Hart District Council, Rushmoor Borough Council, Guildford Borough Council, Surrey Heath Borough Council, Woking Borough Council, Runnymede Borough Council, Fleet Town Council
- **statutory regulators**; the Environment Agency, Natural England,
- **voluntary bodies**; Basingstoke Canal Society, and Basingstoke Canal Angling Association

[2] The BCAA represent those with angling interest in the Canal. Should the angling licensee change at any time, the current licensee will replace the BCAA.

1.4. The nature conservation value of the Canal

At the time of its most recent re-designation in 1995, the Canal SSSI had 87 species of native aquatic higher plant species (approximately half the UK total), five of which are nationally scarce and the canal may have been botanically the most species rich aquatic SSSI in England. Twenty four species of dragonfly were recorded on the canal, two of which are nationally rare. A range of other notable invertebrates have been found, both aquatic and in the marshy areas. Some of these also are scarce or rare. Exceptional richness is in part a result of the water quality in the canal, which gradually changes downstream from alkaline and high in calcium at the western end to mildly acid and much lower in calcium in the eastern part. This gradient favours different plant species in different lengths, hence the large overall species list. Also, unusually for a lowland water in present-day England, the water is mostly low in plant nutrients (nitrogen and phosphorus), which further favours a range of unusual species; although there are some initial studies which indicate that the eastern end of the Canal suffers from increased levels of phosphorous. The mix of open water, in-channel and bank side plants, marsh and wet woodland offers diverse habitats for the fauna.

A fuller account of the ecology of the canal and the division of the SSSI into units is in Appendix 3. The latest formal description of the SSSI, the 1995 Notification, is included as Appendix 4.

When the Basingstoke Canal SSSI was re-notified, the section in Working was dry at the time and was not included in the SSSI. This section has since been identified as a Site of Nature Conservation Importance.

During 2016 it became evident that the main channel SSSI units previously agreed by Natural England and proposed on an ecological basis in the 2008 iteration of this plan, dividing into Canal West and Canal East at Norris Bridge had not been used to update the official SSSI records. The official record used the county boundary at the River Blackwater to divide the units – Natural England do not now support the alteration of the units and this plan now reflects the official record dividing the main channel into two units at the county boundary.

1.5. The recreational and amenity value of the Canal

The Canal is greatly used as a recreational resource and was purchased under the National Parks and Access to the Countryside Act 1949 as land for public recreation. It forms a linear “country park” (although not formally designated as such) in which the towpath is much frequented by walkers and provides a traffic-free ‘green corridor’ in urban, suburban and rural areas. The Canal’s easy public accessibility is particularly valuable because it runs through areas in which other accessible green spaces are limited and decreasing. Availability as a quiet and safe place to walk, cycle, picnic and exercise dogs is probably overwhelmingly the canal’s greatest asset nowadays, in terms of numbers of people and hours spent along the waterway. It is this which Council Tax payers in the areas served by the riparian and county local government stakeholders are likely to see as the main benefit from continuing financial support for the canal.

Other recreational users include canoeists, kayakers and powered boaters and anglers. Although they are much smaller groups numerically, they are vital to the overall waterway scene, as well as gaining much enjoyment from their chosen activity and providing some income towards maintenance of the canal. National surveys have shown that public appreciation of canals as places at which to spend time is crucially dependent on those waterways being perceived as ‘living’, in the sense that they are well- maintained navigations on which moving boats are seen on a more or less regular basis. Based on pedestrian counter figures the canal towpath had 116,008 visitors in 2016

at the 4 counter locations. Planning Solutions in 2012 estimated that there were over 1.5million visits to the entire towpath in a 12 month period.

As well as being a place for active recreation, the Canal also provides a more general landscape amenity. Nearness to a canal raises the value of residential property a study for DEFRA by JBA Consulting concluded that property values adjoining an operating navigable waterway rose by up to 20%, and the presence of a 'green' water feature enhances public perception of the whole waterway corridor.

Figure 2 – typical recreational use

1.6. Recreational and amenity links with nature conservation

Some parts of the conservation value of the canal add considerable value to the recreational and amenity aspects.

Thus the 'green' component, mainly the attractive components of the vegetation such as reeds, water lilies and flowering marginal species, greatly enhance the environment for towpath users, while some of the fauna, notably dragonflies and waterway birds adds further interest. Although some of the rarer aquatic and bank side plants and invertebrates of high conservation importance are inconspicuous to non-specialist users, they are greatly valued by the minority of visitors with interest in natural history.

Overall if the SSSI is in good condition, it will contribute substantially to the Canal's appeal to the visiting public and to the waterway's amenity value to those who live alongside it. Likewise the strong amenity value of the canal ensures that it is continued to be managed in a way that is favourable for nature conservation. The two must work hand in hand for both to survive and flourish.

2. The Conservation Objectives

2.1. The ecological basis for conservation management

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Thus the 'green' component, mainly the attractive components of the vegetation such as reeds, water lilies and flowering marginal species, greatly enhance the environment for towpath users, while some of the fauna, notably dragonflies and waterway birds adds further interest. Although

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2.2. The Conservation Objectives and their conversion into management requirements

The Conservation Objectives [COs] and accompanying Favourable Condition Tables (FCTs) are shown in full in Appendix 2

A few of the COs are passive in character, such as the requirement not to reduce the extent of the canal, for example by building on it, an unlikely eventuality for the foreseeable future. For such cases, no specific management action is included here and Appendix 1 provides sufficient reminder of this type of objective.

Most of the COs do require active management. The Canal is an artificial structure, subject to wear by use and structural decay. Unlike rivers, the navigation channel is not self-scouring over time. Instead it slowly silts up until dredging is needed to maintain water movement and depth.

The off-channel areas are subject to vegetation encroachment as well as siltation and if left unattended would gradually turn into reed swamps and ultimately into wet woodland by the process of natural succession. For these reasons, conservation management of this SSSI requires a combination of:

- **active management** of the channel to maintain water depth, bank integrity and good conditions for growth of aquatic vegetation;
- **vegetation and silt control** in the off-channel areas (where ownership makes this possible);

Towpath usage is less influential on the channel ecosystem. High visitor numbers are not, therefore, a major factor in conservation management of this SSSI. Locally areas associated with very high recreational use for angling or dog walking are associated with water's edge vegetation damage and eroded banks so that maintenance and strengthening are required. However most erosion comes from wind-created wave action and boat wash and the protected vegetation planting measures used to arrest this can be equally employed for local damage from the landward side.

2.3. Achieving the Conservation Objectives

The box below sets out the condition of the Basingstoke Canal SSSI in the formal terms of the Conservation Objectives and Favourable Condition Tables in Appendix 2

The condition of the SSSI at the start of this Plan is mostly –

unfavourable declining.

The aim of the Plan is to define ways to reverse this decline, first achieving

unfavourable recovering condition then progressing towards ***favourable condition***

In their 2016 report the Hampshire Biodiversity Information Centre (HBIC) [Survey of Wetland Flora of the Basingstoke Canal *Ralphs & Callegari* 2016 p46] conclude:

> "It does appear that there is no single overriding factor causing the reduction of species in the Basingstoke Canal."

They go on to detail potential factors which may be contributing to the unfavourable condition. These include:

- Tree growth depositing leaf litter in the Canal bed, causing rooting difficulty for submerged aquatics.
- Lack of light reaching the canal surface – caused by tree growth, bankside vegetation and aspect
- Resuspension of silt from the canal bed caused by quantity and different types of siltation and continued use by powered boats.

In a marked change from previous iterations of this plan they also comment:

> "However, it does seem that the reduction of the diversity of aquatic species is principally light related, but currently measurements of direct shade are not explaining the whole problem."

It seems that there is no one overriding factor, and anyone of these could be the major cause, or more likely a combination of all of them.

Figure 3 - autumn leaf fall

Water quality monitoring by the EA has reduced during the period of this plan (due to funding cuts), however, results have not shown any deleterious changes in the key features of water quality.

Water supply is a potentially critical factor in that when it is inadequate, the level falls in the channel, creating stress upon the aquatic ecosystem. However, some short term dewatering have been shown to be potentially beneficial to water ecosystems, encouraging rapid regrowth:

> "Dewatering may encourage regeneration from buried seed" [Plant Records for Surrey Sections 22 & 23 of the Basingstoke Canal *Groom G* 2016].

This factor may be exacerbated in the future by changing climate and continuing modifications to natural drainage patterns as the catchment is developed. It could also be positively affected by proposals from South East Water to stop pumping from the aquafer which is the Canal's main water source, apart from rainfall.

There has been no re-stocking of fish within the last 5 years. Fish rescues during 2015 and 2016, associated with planned de-waterings, have shown fish stocks to be generally quite high, with the exception of carp which appear to be substantially down in number. Intensive control of non-native crayfish over the last 2 years could also have had a beneficial effect for fish populations. It is not thought that fish stocking is a major contributory factor to the decline of the SSSI condition, especially with the reduction in bottom feeding species such as carp.

Influences which are potentially important, but have been managed to be complimentary with conservation for many years, are navigation, invasive weed removal, dredging and bank protection works. These do, of course require continued assessment and regulation for conservation purposes.

A recent depth survey (Autumn 2016) has shown the areas that some areas of the Canal have started to shallow and require dredging; a dredging management plan will be drawn up to implement this. A limited programme of dredging for the Canal has been funded in the Hampshire portion of the Canal. This will be accompanied by an assessment of water clarity and turbidity before and after the works.

Although most of the components needed for effective conservation are susceptible to management, it must be recognized that the two believed to be most important, namely **tree shading** and **invasive non-native species**, pose considerable difficulties. At the start of the period covered by this Plan, bank side tree cover continues to be both extensive and in many places dense. It will continue to be a massive undertaking to reduce this cover to the required much lower level. The planning, cost, effort and public relations needs are considerable and it is unlikely that the necessary tree management could be completed within this second ten year duration of the Plan; as only a limited number of planned reductions were achievable during the first 10 years. The main constraints found were the Town & Country Planning system and local objections to felling of trees, particularly in the Sheerwater, and St John's areas of Woking,

For this reason, the target set for the period covered by this Plan is to achieve half the necessary reduction in tree shading. To have any possibility of achieving this substantial input and support from other local authorities, Natural England and the Environment Agency will be required.

The other component believed to be critical, namely control of non-native species of flora and fauna, is also difficult. Although effective management methods are available for some of the species, for others no feasible control system is currently available. It is possible that advances in management methods in the years ahead will improve the situation. During the first 10 year plan much work has been carried out in the management of invasive species. The key areas of success have been:

- **Japanese Knotweed** - annual herbicide injection has seen the number of stands reducing
- **Himalayan Balsam** - is regularly pulled to reduce spread by seeding
- **Floating Pennywort** – has been a particular success through physical control both with a weed cutter boat and by hand removal by teams of volunteers, this has resulted in a major reduction in the instance of Floating Pennywort. A trial of chemical spraying below Lock 1 (outside the SSSI) was also carried out with results show good dieback after spraying but regrowth is still rapid the following year. Results from the trial being similar to that of physical removal however longer term spraying may have a more significant effect.

- **North American Signal Crayfish** – a reduction in this invertebrate is also desirable to reduce disturbance of the canal banks and bed, with intensive trapping by a commercial trapper from 2013 onwards. Over 50 individual licences were revoked in 2013 with a single commercial trapper now covering the whole Canal; this has given better control over the intensity, control and record keeping – this method has shown to be very successful with approximately 7 tonnes of crayfish removed in 2017

Figure 4 - example catch of signal crayfish

However this work is on-going and will need to be continued for the foreseeable future to maintain and continue to gradually reduce invasive species, with the aim of;

- checking periodically that currently satisfactory ones remain in that state;
- continuing to improve those components which are currently unsatisfactory and for which management techniques are available, with annual targets and tracking of progress in achieving those targets;
- assessing the progress of conservation research in the years ahead in developing any new techniques for managing components currently difficult to control and implementing those techniques where feasible;

Thus a clear management track is possible at the start of the second ten year period, but periodic reviews thereafter may lead to alterations in targets as practical progress and advances in knowledge and experience develop.

In the following section (Section 3) the overall management requirement is broken down into actions, each of which corresponds to one or more CO. For each, a short note on its ecological basis is followed by the necessary action, targets for its progress and a timetable for their completion. Where the ecological aspect warrants fuller coverage, this is provided as technical appendices at the end of the Plan. The monitoring topics are designed to yield data which will be used by Natural England for future statutory Condition Assessments, based on the Favourable Condition Tables (FCTs).

In a final section (Section 4) procedures are set out for assessing annual progress towards specific targets and for periodic review of the Plan.

3. Conservation Management Actions

All Conservation Management Actions [CMA] will be undertaken by the Basingstoke Canal Authority and/or the County Council owners unless stated otherwise.

Each CMA should be referenced to the relevant COs in Appendix 2

3.1. Water level management

Ecological basis

A water level at around design depth is desirable for both navigation and conservation. It provides the greatest water cross-section for boat movements, thereby maximising ease of navigation and minimising disturbance to the channel bed and its plants and animals during each boat passage.

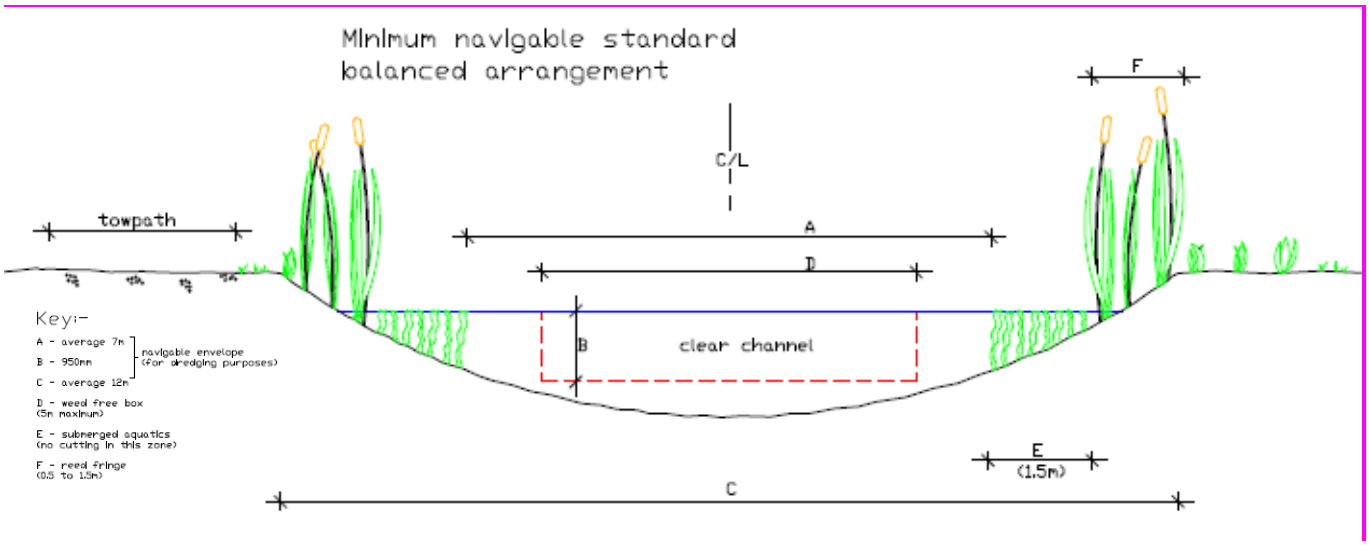

Figure 5 - minimum navigable standard

Lowered levels bring problems; apart from making boat movements more difficult and disruptive, associated exposure of the channel bed can lead to drying out and cracking of the lining, so that the canal leaks when re-filled. Also, during times of drawdown mammals and signal crayfish may construct burrows which become conduits for serious leakage on re-watering.

The majority of emergent aquatic plants have only limited tolerance of drying out, while most submersed and floating-leaved species have even less. On short pounds between locks, where water level variations are inevitable, the marginal vegetation shows some selection in favour of species tolerant of temporary exposure.

Engineering considerations

Historically the canal has been undersupplied with water, especially between Ash Embankment and Brookwood – with the first recorded instance occurring in summer 1804. In long dry periods in summer, levels have sometimes fallen so much that navigation has had to be suspended, and the short channel areas between locks becoming partly drained. Since 2013 new “managed navigation” methods have been brought in to manage water for the use of the lock flights more efficiently. This has led to much shorter periods of lock closures and thus undesired dewaterings – a few days or weeks, rather than months which were common 1991-2009. The back pumping schemes at Woodham and St John’s also are used successfully to maintain levels from Hermitage down to Lock 1. The pump at Frimley is used to help top up the Mytchett pound but is not enough to have a major impact on levels.

Where channel engineering work becomes necessary, scheduled dewatering is often needed, normally in winter when risks of damage by drying out of the lining and by burrowing animals are least.

Because the Canal, unlike a river, is perched in places above adjacent land, breaches are a significant risk with the potential for loss of life, land and property. Emergency dewatering in response to an actual or potential breach must therefore have priority over wildlife conservation interests. A procedure has been drawn up for this that was agreed by the Conservation Steering Group see Appendix 9 – Dewatering Protocol & Fish Rescue Procedure

Target

To maintain water level within 0.2 m below design height on plain channel and within 0.4 m on short pounds between locks.

Actions and timetables

The BCA will achieve these actions through the Basingstoke Canal Strategy, and Operational Plan & Policies. These can be accessed on line via the BCA web site at http://www.basingstoke-canal.co.uk or at the BCA offices.

WL.1 Operational ranges

Water supply will be managed to keep levels within the range 0 – 0.2 m below design level on plain canal and 0 – 0.4 m on short pounds in lock flights.

Continuous.

WL.2 Recording of levels

Water levels will be measured and recorded by BCA staff daily at the following sites:

- Hampshire Pound - Farnborough Road Weir
- Mytchett Pound - Ash Vale Weir

A telemetry scheme has been installed and is partly up and running (2017) which enables remote monitoring of water levels via PC and smart phone at the following locations:

- Colt Hill
- Farnborough Rd Weir
- Ash Vale Weir
- Lock 28 Deepcut (TBC)
- Lock 14 Brookwood (TBC)
- Lock 12 St Johns/Hermitage
- Lock 6 Woking
- Lock 2 Houseboats

This system is still in development and will likely vary over time, however, it will enable long term water level monitoring at a strategic level, as well as aiding field level control by waterside staff.

Continuous.

WL.3 Scheduled dewaterings

NE & EA should be notified of all dewatering. This is notification rather than application for approval as long as works follow the Dewatering Protocol (agreed at Conservation Steering Group Meeting April 2015) as laid out in Appendix 9.

These will be designed to affect the shortest possible length of canal for the shortest possible time and will normally be in winter.

As circumstances require.

WL.4 Emergency dewaterings

These dewaterings will be reported to Natural England and the Environment Agency as soon as possible and advice sought from them on any conservation mitigations and fish rescue needs. Dewatering Protocol (Appendix 9) will be followed where possible.

As circumstances require.

WL.5 Conservation of existing water supplies by back-pumping

Where additional back-pumping is proposed, the assessment of its suitability will include consideration of effects upon the chemical water quality gradient in the canal and the possibility of upstream transfer of non-native species. Proposals will be submitted to the Environment Agency and to Natural England for advice and assent.

As circumstances permit.

WL.6 Development of additional water supplies

Opportunities will be sought to obtain additional sources of water for the Canal. Where a new source is proposed, the assessment of its suitability will include consideration of its chemical quality in relation to the need to maintain the west- to-east alkaline to acidic gradient and the low nutrient status of the canal (WQ.1 and WQ.2 below). Proposals will be submitted to the Environment Agency and to Natural England for advice and assent.

As circumstances permit.

WL.7 Reporting

Water level records, both routine (WL.2) and from dewaterings (WL3 and WL4) will be compiled at the end of each year and failures to comply with WL.1 will be analysed. Proposals to reduce such non-compliances in the future will be developed where possible. Proposals for conserving and increasing water supplies (WL.5 and WL.6) will be reported for review.

Report to CSG for review.

WL.8 Managed Navigation

In the absence of a fully sustainable water supply the BCA will ration the use of the longer lock flights for navigation to ensure that water levels are maintained in the longer pounds of the Canal throughout dry periods, and to try as best as possible to maintain all lengths of channel “in water”. This will consist of the rationing the use of locks for navigation into short periods to enable water conservation measures such as “caulking” lock gates and paddle gear to be deployed in the most efficient way.

Continuous.

3.2. Water quality management

Ecological basis

The alkaline, calcareous chalk springs at the western end of the canal and the acidic sources off sands and gravels in the east create a gradient of water chemistry down the canal, which is crucial to the established pattern of distribution of some species along the canal. For wildlife conservation, water management should be directed to maintaining and enhancing this west to east alkaline to acidic gradient.

Maintaining the historically only moderately nutrient rich (mesotrophic) character of the canal, unusual in a lowland waterway, depends upon controlling side drainages along the whole length of the channel, minimising use of those with high dissolved phosphorus loads. High concentrations of nitrate are entering the canal at the western end from the major spring sources partly due to an historic build-up of nitrates in the aquifers.

Nothing can be done by the BCA to prevent this, the nitrate decreases downstream, more rapidly in summer than in winter, suggesting uptake by channel vegetation is a major cause of this decrease. As the quantity of vegetation has declined at the western end of the canal, this nitrate removal seems also to have diminished, allowing the nutrient to spread eastwards.

Transparency seems to have decreased over many years, perhaps sufficiently to retard submersed aquatic plant growth. Causes probably include inputs of fine particles in side drainages from eroding catchment soils and from roads, organic debris from the very heavy leaf input each autumn and boat passages stirring up the channel bed, especially where the channel is shallow due to insufficient dredging.

The water emerging from the springs near Greywell is calcium-supersaturated. It is therefore unstable when it comes into contact with the atmosphere and precipitates calcium carbonate as a milky greyish white turbidity at the western end of the canal and this is an uncontrollable natural phenomenon, sometimes apparent in the North Warnborough – Broad Oak – Winchfield length.

Pollution has not been a major problem over the years. Minor contaminations from properties near the canal and from road drainages have been controlled effectively. However there is concern over a potential source of pollution in the Woking pound, the result being periodic blooms of duckweed and related floating plants. A study to test water (as part of a BSc dissertation) through this stretch has been conducted in summer of 2017 to ascertain if there are any pollution sources potentially from garden cesspits. It is known that some properties in this area are not connected to the mains sewerage network.

There have also been unconfirmed suggestions that agricultural run-off causes issues for the Canal in the more rural areas upstream of Fleet. The BCA will engage with the EA in the development and implementation of River Basin Management Plans, and any specific projects to influence good agricultural practices in the Canal's catchment.

Engineering considerations

The Canal was designed to use the Hampshire Pound as its reservoir, particularly in summer periods water is transferred from the Hampshire to the Mytchett Pounds via the sluices at Ash Lock, without this the Canal cannot operate and the Mytchett Pound, and Deepcut Locks will dry up in dry weather periods. The boundary between alkalinity and acidity changes around Eelmoor (botanical survey sections H25-27 / chainage 30-31km). Water quality analysis has shown that there is no evidence that passing water down the Canal as intended has had any effect on the acid/alkaline gradient.

Target

To maintain the alkalinity [3]gradient decreasing from >200 mg/l in the Greywell - Colt Hill length to <125 mg/l in the Hermitage Road Bridge - Scotland Bridge length and to maintain annual mean phosphorus ≤35 µg/l.

Actions and timetables

WQ.1 Maintain the alkaline to acidic gradient

BCA will manage water supplies where possible, as far as is consistent with achieving the levels in WL.1, and WL.8

Continuous.

WQ.2 Maintain mesotrophy

Surveillance of existing water supplies will be maintained, so that any increase in phosphorus is detected. Signs, such as outbreaks of duckweed, filamentous algae and plankton blooms, will be noted by the BCA and made the reason for initiating chemical analyses in collaboration with the Environment Agency. [Routine water quality monitoring (WQ.7) will also support this surveillance.

Continuous.

WQ.3 Detecting pollution

The Environment Agency will be informed immediately, by telephone to the EA Emergency Hotline: 0800 80 70 60, of suspected pollutions, whether detected by fish kills, water discoloration, outbreaks of duckweed or filamentous algae, smells or otherwise and the BCA will collaborate with the Agency in providing samples, site knowledge and actions where requested.

As circumstances require.

WQ.4 Management of pollution incidents

The BCA will work with, and take direction from, EA officers to minimise the effect of pollution by isolating and containing, or flushing to dilute pollutants as best suited to the circumstances.

However, in high water conditions the need to ensure continued public safety from overtopping or embankment failure due to surcharging will over-ride the need to isolate any section from a pollution perspective. Also the environmental effect of a catastrophic failure will far out-weigh the initial pollution incident.

The BCA will maintain a stock of stop planks and their grooves, stop gates and contracts for rapid deployment of inflatable dams/booms, so that an affected length can be quickly isolated pending control measures. Where side weirs do not have sufficient capacity to dispose of flow from upstream of any stop-planked length, pumps may need to be deployed to over-pump if necessary.

As circumstances require

WQ.5 Assess water qualities of potential new supplies

The BCA, in collaboration with the Environment Agency, will assess proposed new supplies for expected quality and any pollution risks.

[3] Alkalinity as mg/l CaCO3 at pH4.5. **Phosphorus as µ g soluble reactive P/l.

As a general principle, no new sources of treated effluents and surface drainages from canal side properties will be accepted, although the Environment Agency and the relevant owner will assess each discharge consent application on a case by case basis and may make exceptions. If a land owner can prove a right of easement, a consent may be allowed as long as it is not an increase in volume, and can be demonstrated to be an improvement in water quality. Improvement in quality may be demonstrated through the adherenece to the principles of a Sustainable Urban Drainage Systems (SUDS), which may amongst other matters require attenuation before discharge into the Canal. Quality of water must be monitored and reported back to BCA annually as an on-going process and will be a requisite of the consent. Accepted new sources will be monitored at least four times for actual quality in the first year of their use, using the protocol in WQ.6. This will be the responsibility of the applicant not the BCA or EA. Applicants will be advised to use low phosphate detergents to minimize increases in phosphates.

Drainage from fields (including playing fields and sports pitches, agricultural land, horticultural or equine establishments) will not be accepted, as these nearly always discharge only in wet periods when least needed and are turbid and at risk of carrying accidental pollutions such as agrochemicals. Road bridge drainages are sources of local pollution by gritting salt in winter and by oil, silt and spills from road accidents. They must have adequate traps in place, maintained by the highway authority and/or by the local authority or landowner. As a general rule no new road drainages will be accepted for similar reasons to agricultural drainage.

As circumstances require. Report any developments at CSG.

WQ.6 Water quality monitoring

At the following points, water quality will be analysed at least four times a year **by the EA** (monitoring frequency last confirmed at CSG in 2015 by the EA).

Site 1 - Colt Hill, Odiham - monitored monthly by EA. Existing Environment Agency site, retain for long-term trend detection, near enough to Greywell to represent source, but with some buffering out of the variable local fluctuations that sometimes occur close to sources.

Site 2 Eelmoor – Monitored monthly by EA Existing Environment Agency site, retain for long-term trend detection.

Site 3 Ash Embankment - Monitored 4 times/year by EA

Site 4 Deepcut - Monitored 4 times/year by EA Pre-1995. Environment Agency site; some past data for trend detection.

Site 5 Brookwood Lock Flight - Monitored 4 times/year by EA

Site 6 Scotland Bridge - Monitored 4 times/year by EA. Pre-1995 Environment Agency site; some past data for trend detection.

The minimum analytical programme will be as follows;

In the field

Water temperature, dissolved oxygen, pH, and transparency.

In the laboratory

Alkalinity (mg CaCO3/l at pH4.5), conductance, suspended solids, chlorophyll, total dissolved nitrogen and soluble reactive phosphorus. The BCA will collect field data and water samples and the Environment Agency to carry out laboratory analyses.

Monitoring in April, June, August and October each year. Report results to CSG annually.

3.3. Tree Management

Figure 6 - tree lined nature of many portions of the Canal

Ecological basis

A diversity of waterside trees is beneficial to channel wildlife in a number of ways:

- local shading provides cool areas for fauna in hot, sunny weather; also a niche for shade-tolerant bankside plants excluded from open areas by competition from species which are more vigorous, but require full sunlight; trees are important habitats for the adult stages of some insects with aquatic larvae, including some species of dragonflies;
- groups of trees provide roosts, sources of insect prey and flight paths for bats. These valuable features are, however, sufficiently provided by quite small numbers of trees.

However, if denser tree cover develops, then undesirable features become predominant:

- continuous deep shade prevents reed growth, so bank protection is lost.
- submersed and floating-leaved rooted vegetation is also lost due to insufficient light; this results in almost total loss of the vegetation features for which the SSSI is designated;
- autumnal leaf fall to the water smothers the canal bed with slowly decaying litter, leading to de-oxygenation of the sediment and depressed dissolved oxygen concentrations in the water, which together are deleterious to the whole range of flora and fauna in the channel;
- residues left after leaf decay accumulate quite quickly as black, soft sediment which then requires dredging to maintain navigable depth in the canal.

For these reasons, isolated trees and small clumps benefit wildlife conservation, but long, dense, continuous tree shading is deleterious. On the canal itself, about 10% tree-shading of the channel is required to achieve the above benefits, whilst minimising the deleterious effects also noted above. In addition to this, isolated specimen trees, especially mature ones and clumps of trees should be retained, as these are beneficial as local habitat diversity.

An ecologically valuable feature of lightly managed tree-covered areas is the presence of dead wood, which offers habitat to a diversity of invertebrates. Standing deadwood should be retained where

not dangerous, as this is particularly ecologically valuable. Appendix 5 gives further information on the influence of trees in the ecology of the waterway.

Historical aspects

Along the Basingstoke Canal, long lengths have, over the years, become heavily wooded, which were once open. This encroachment has been a consequence of the commercial decline and subsequent neglect of the canal corridor. Old photographs show that when this and other canals were working freight routes, trees were generally much sparser and indeed were discouraged by many operating companies[4]. Although tree control was a part of the restoration of the canal from the 1970s onwards, on balance continued growth has exceeded removal over the subsequent decades. Therefore to restore the waterway to its historic, mainly open, state from its present heavily tree-lined state will require major clearance.

This process will be assisted by the age distribution of the tree population, as many individuals are approaching the ends of their lives and so would in any case have to be removed in the next few years as dead, diseased or dangerous hazards to the public. Appendix 5 includes an historic photographic comparison and estimates of increasing shading derived from successive aerial photographic surveys.

The off-channel areas mostly have a very extensive tree cover, despite this having been cleared back from the water's edge on a number of occasions by the Wildlife Trusts, MoD and the BCA for conservation of the aquatic vegetation. Periodic clearances will need to be continued to retain the value of these sites, but the overall level of cover will remain markedly higher than on the main navigation channel and will include areas of wet woodland of conservation importance.

Although it is desirable to reduce tree shading and it remains in the CMP for this plan period. It must be noted that currently no funding exists to carry out extensive tree thinnng works although these works will be considered if or when funding becomes available. Attempts to carry out tree thinning have been thwarted over the previous 10 year plan in some areas by refusal of tree planning consent due to objections from neighbours, and national policy favours the retention of trees. This was particularly the case in Sheerwater, Woking. However a successful project was carried out in the Greywell cutting in 2015 with a 1km of trees removed/thinned and in Rushmoor Flash in 2014.

A full canal tree hazard survey was carried out in 2014 by Parsons Brinckerhoff which took over 6 weeks to complete. It concluded that:

> "The authority owns or has responsibility for many hundreds of thousands of trees along the canal route. The recording of only 516 trees requiring remedial action is an indication of the relatively good health and structure of the trees and the high quality of on-going management on site".

The 516 trees identified were programmed for works over the following 3 winters and a resurvey is now planned as soon as possible (originally programmed for winter 2017).

A new tree policy has been adopted by HCC's Countryside Service (CSTREES) this includes the management of the Canal; this policy is primarily aimed at continuing public safety. Its approach is that of a hierarchical inspection regime based on perceived risk – with high risk areas to be inspected

[4] There is some historic evidence to show that some areas of the Basingstoke Canal were heavily wooded even in the nineteenth century, and documentary evidence showing the Basingstoke Canal Navigation Co. planted stands of oak as a crop during the Napoleonic era.

annually, medium risk areas every 3 years, and low risk areas every 6 years. Intelligence on tree and shrub growth will also be gathered during regular asset inspections – especially Length Inspections (LI) which are conducted at 6 monthly intervals.

Target

Along the navigation route, reduce tree shading towards[5] about 10 % of the channel length, leaving shading by single and small groups of trees at intervals elsewhere. This target includes shade reduction which will occur by management of trees which are found to pose a health and safety hazard, and such trees will be the first priority for management.

In the off-channel areas, periodically clear back trees to allow sufficient light to the water to support aquatic plant growth and prevent successionary processes.

Tree management will include crown lifting, lopping and pruning, as well as felling. The management applied in particular locations will depend upon the condition of the trees, their distance from the channel, aspect and the considerations in TR.2 below.

Actions and timetables

TR.1 Continuous assessment of tree stocks

Continue to map trees which pose a safety threat to canal users, neighbours or to the canal structure (e.g. on embankments) in accordance with the hierarchical inspection regime required by the HCC "CSTrees" tree management policy.

Continuous

TR.2 Select lengths for management then implement management programme.

Using the results of continuous tree management surveys select areas of the Canal channel which would be most suitable for a larger programme of tree management. Criteria will include the following:

- Public safety – using the results from TR.1 trees which pose a safety risk to be managed or removed
- Engineering reasons to remove trees, e.g. on embankment or on lower sides of cutting; roots potentially damaging structures such as locks or bridges.
- Landscape or other local reason for retaining trees, e.g. to screen canal from buildings or major road, group of especially fine specimen individuals, isolated mature trees and Tree Preservation Orders.
- Landscape or local reason for reducing or removing trees, e.g. to open up a view.
- Improvements for navigation
- Special or local conservation issues which either favours or disfavours tree management. E.g. - removal of trees along Greywell Cutting to let in light for water plants while maintaining a tree avenue for foraging bats.
- Aspect - canopy reduction in a north facing aspect may not have a meaningful effect on allowing light to water column.

[5] The aim within this ten year Plan is to achieve about half the necessary reduction in shading. However this will only be possible with significant support from the public and cooperation of outside bodies such as local authorities with a planning role, the Forestry Commission, EA and Natural England.

- Land ownership - areas where there is sufficient of the wooded land on Canal property to make a meaningful difference will be preferred.
- The proportion of non-native species of trees; there will be a presumption in favour of reducing non-natives (especially sycamore which causes heavy shading) more than native species.
- Location downstream of a nearby off-channel reserve to facilitate colonisation by aquatic vegetation after shade reduction, as off- channel areas may be a source of propagules.
- Whether a 0.5 km section can be managed without encountering difficulties of ownership or other limitations.
- Lengths of 0.5km or more will be preferred due to leaf drift.

The total management programme proposed over the ten year currency of this Plan should be sufficient to achieve about half the total reduction needed to bring shading down from its present level to around 10%.

Whilst a planned systematic approach would be most efficient in reducing tree shade, in practice over the previous iteration of the Plan financial and local political pressures have coloured the selection of which larger areas of tree management were achievable; these pressures are likely to continue. Due to ongoing financial pressures, opportunities for further funding from external funding bodies are also likely to be highly influential on the prioritisation, or re-prioritisation, of areas selected.

At the Conservation Steering Group annually, propose prioritised areas for tree shade management, with reasons for the choice, numbers of trees and type of management proposed, showing how these link to complimentary works proposed or undertaken under DR1 and BP 1-3.

The CSG will also review progress towards the shade reduction target, by reviewing evidence of the works undertaken to date; including trees managed solely for safety purposes under the HCC "CSTrees" Policy requirements.

Implementation of selected areas for extensive tree management will take place September-March to avoid bird nesting season and disturbance to bats.

TR.3 Maintain control over tree regeneration.

Continue the existing policy of stopping growth of new saplings. Carryout an approx. 5 year rotation of clearance on the towpath side of the Canal. This work is largely carried out by the volunteer workforce.

Continuous.

TR.4 Disposal of wood.

Due to inaccessibility with machinery in many sections of the Canal large sections of cut timber will be left on site to form habitat for fungi and invertebrates. Where landownership allows habitat piles of brash will be left on the non-towpath side to form habitat piles. In appropriate areas where public and engineering safety permit, some stumps or monoliths should also be left to provide habitat for fungi, invertebrates, birds and bats.

Continuous.

TR.5 Bat considerations

Individual trees will be assessed for bat potential before all works are carried out. Planned works will be amended, where safety considerations permit, to retain bat habitat (eg; retaining a monolith as opposed to felling).

When larger areas of tree felling is planned, there will be a presumption in favour of retaining a bat foraging corridor.

Canal rangers will receive training on the identification of bat roosting potential and the procedures necessary if bats are found in trees prior to implementation of any tree management works.

As required.

3.4. Navigation

Ecological basis

Boats exert direct effects on the channel ecosystem by the impact of moving hulls and the chopping action of propellers. They also create indirect effects via the water flows which they generate, namely return flows past the moving hull, waves and the propeller jet.

These cumulatively disturb the canal bed, leading to turbidity in the water and hence a reduction in transparency and thus underwater light for submersed plants. Appendix 6 provides more detail on hydraulic aspects.

Emergent vegetation, i.e. reed fringe, is fairly robust, being firmly rooted and adapted to tolerating waves and other water movements within the range expected when the boats keep inside the BCA speed limit of 6.4 km/h (4 mph). Submersed vegetation ('pondweeds') and floating leaved-rooted plants (e.g. water lilies) are much more susceptible to damage by boat traffic, partly because they are further into the channel than the reed fringes and partly because they are more delicate in structure. Analyses indicate that there is limited scope for sustainable populations of these plants in the central navigation track, hydraulic forces there being too great. Good habitat does, however, remain on the batters (the slopes up on each side of the canal bed from the central track to the water's edges). Here the disturbance by passing craft is only moderate and this is beneficial to many species in that it curbs the dominance of the few most strongly growing species and periodically opens up new patches of habitat to weaker colonisers. The latter group includes some of the aquatic species of greatest conservation importance in the SSSI.

Achieving this favourable state of moderate disturbance, in which the needs of both conservation and navigation are best balanced, depends upon management of certain basic features.

These are as follows.

- *The size of the channel.* Even quite small increases in width and especially in depth confer great improvements in potential plant habitat. For example dredging from 1.0 m to 1.5 m almost halves the boat-induced water velocities and hence the stresses they cause to channel vegetation.
- *The firmness of the canal bed.* A firm rooting medium allows plants to endure the pull generated by boat-induced water flows. In soft silt, plants are easily uprooted and lost.
- The boat traffic density. This determines the total intensity of disturbance. The limit here of 1300 movements per year at any one site is derived from national research, taking into account the size of the SSSI channel (see Appendix 6).

- *The speed of the boat.* Hydraulic forces rise steeply with boat speed and infringements of the speed limit are very damaging.
- *Boat manoeuvring.* When boats start, reverse, or turn using the propeller, locally high and damaging hydraulic forces are created and substantial turbidity may be generated. Concentrating these movements in designated mooring and turning areas at deeply-dredged locations attractive to boaters largely eliminates this problem. Although this feature is included here as a wildlife conservation measure, it will also enhance the canal as a cruising waterway, by offering good mooring facilities to boaters.
- *The availability of underwater light.* Within the traffic density limits specified in this Plan, the boat-induced turbidity is not sufficient to prevent underwater growth on the batters. However, if light is already reduced by tree shade, the further increment from boats may become critical.

Target

A powered boat traffic not exceeding 1300 movements per year and at speeds not exceeding 6.4 km/h, in a channel with a firm bed and attractively located and well-designed stopping and turning places for craft.

Actions and timetables

NV.1 A powered boat traffic not exceeding 1300 movements per year

Boat traffic will be monitored and collated for report annually via recording of all boat licences, and movement records through the locked sections of the Canal

The use of electronic boat counting equipment proposed in the previous version of the plan has been removed as two systems trialled proved unable to give accurate results in the field. Better intelligence is now obtained due to tighter controls on licensing and the "managed navigation" system referred to in WL.8.

Continuously monitor boat movements. If the limit is reached, propose means to curb further increase[6]*.*

NV.2 Revision of the maximum traffic limit in NV.1

If the SSSI returns to Unfavourable Recovering or Favourable Condition, the Conservation Steering Group may recommend to Natural England a specified increase in the traffic limit above 1300 movements per year, with appropriate ecological monitoring of the consequences of such action.

The BCA to bring forward evidence to the Conservation Steering Group to determine if the SSSI condition allows an increase in boat traffic

NV.3 A speed limit of 4mph (6.4 km/h)[7]

BCA will provide literature on the damaging effects of speeding to user groups and to individuals being issued with licences. This will be included in the Boaters Information pack, and will include information on how to assess speeds as most vessels are not equipped with speedometers.

[6] Past records show that historically this limit has occasionally been approached in the Hampshire length but that traffic has always been far below it on the Surrey length.

[7] Temporary lower limits of 4 km/h ("dead slow") on newly dredged lengths and after installation of extensive soft bank protection are specified in DR.3 and BP.6 respectively.

Continuous

NV.4 Concentrate and promote boat manoeuvring and mooring in purpose designed locations

Periodically assess existing and potential stopping, turning and mooring places for width, water depth, hard walls and nearby facilities for boaters (e.g. car parks, shops, pubs). Locating facilities in attractive places for boaters will help reduce ad hoc mooring which has the potential to damage bankside flora. Propose any developments which will make these sites more attractive to users.

Develop proposals and present to CSG for consideration, and react to new opportunities arising from required engineering works as detailed in BP7 below.

NV.5 Boat rallies and waterway festivals

These will normally be held between Brookwood and Woking, avoiding the mid-May to September period of greatest plant growth and ensuring traffic generated will not be sufficient to cause the general 1300 movements/year limit to be exceeded on SSSI lengths.

The BCA will organise turning and mooring arrangements which minimise damage to channel vegetation[8].

Events proposed outside the above locations and times will be subject to approval by Natural England, on prior notice of at least one month. If any adverse effects are noted as a result of boat rallies or festivals which are held before May 15th or after September, then all future events will also be subject to Natural England assent.

As circumstances require. Report events to Conservation Steering Group.

3.5. Fisheries and angling

Ecological basis

A fishery of roach, perch, pike, gudgeon, tench, bream, eels and crucian carp (*Carassius carassius*), with an overall stock density within the carrying capacity of the ecosystem (about 200 kg/ha[9]), is a natural component of lowland, slowly flowing U.K. waterways. Its effects are, therefore, harmonious with conservation objectives. The fishery will also provide good sport for anglers, offering a diversity of target species and fish sizes.

Difficulties for conservation only arise in the following circumstances.

- Non-native species are introduced. Apart from the general objection to non- natives, some of the species are physically very destructive. In particular Common carp, which were probably introduced into the UK during the mediaeval period for food, stir up the channel bed while grubbing in it for their food, damaging and uprooting aquatic vegetation and making the water cloudy with suspended sediment. Larger individuals are also voracious consumers of dragonfly larvae and other invertebrates. (Amongst native species, bream and tench are also bottom-feeders, but at natural population densities are not as disruptive as carp.)
- Artificially high stocking is attempted, beyond the natural carrying capacity of the waterbody. Although over time fish densities will fall back to natural levels, in the interim

[8] Avoidance of damage by mooring and turning is the main issue. Traffic generation has been, on experience to date, a lesser consideration, the largest number of boats attending a festival in recent years being about 75 (i.e. creating about 150 passages).
[9] Fisheries Technical Advisory Group (2005).

high densities can damage other parts of the ecosystem. For example predation on invertebrates may be excessive.

- Angling pressures damage the ecosystem. Very heavy ground baiting can create local water quality problems of de-oxygenation and nutrient release, as well are artificially increased populations in some species. Cutting back vegetation to allow angling, trampling during setting up and the proliferation of locations where anglers sit can cause local bank damage and set up erosion.

Historically there was a limited problem with carp in the SSSI, but fish surveys since 2000 indicate so few carp that damage from this source has become insignificant. There is no past evidence of excessive stocking or ground baiting. Local bank damage has been largely kept under control by ad hoc repairs.

In common with other waterway SSSIs, a Closed Season from 15th March to 15th June inclusive has been maintained for wildlife conservation purposes. The period covered is a vital one for vegetation growth and repair along the banks and water margins.

It also includes a large part of the breeding season of many waterside birds, permitting nesting and rearing of young without the disturbance and interruptions caused by the presence of anglers, who, unlike other waterway users, often remain at one location for many hours at a time.

Target

To allow the canal fishery to maintain itself as a natural mix of native species with an overall stock density of about 200 kg/ha.

Actions and timetables

These are mostly passive. Fish surveys are labour intensive and expensive, so it is impractical to use these to obtain frequent checks on the state of the fishery. Surveys are done mostly in response to specific issues, such as a report of poor angling, a fish kill or suspicion of colonisation by non-native species or as part of other routine works such as dewatering. Instead routine management is confined to maintaining suitable conditions for achieving the above target state for conservation, while providing good recreational angling.

Angling rights are licensed on an exclusive basis by Hampshire and Surrey County Councils as owners of the Canal, the current licensee being the Basingstoke Canal Angling Association. The licence sets out the conditions under which the Angling Association may exercise its rights.

FA.1 Stocking

No fish stocking will be considered unless there has been a proven fall in stock density significantly below carrying capacity, e.g. after a major fish kill and a new fish survey has been carried out to ensure that the above target has not already been reached or exceeded.

Fish stocking must be first authorised by the Environment Agency and Natural England on a case by case basis.

Report any issues to Conservation steering Group for review

FA.2 Non-native fish species

No Common carp or other non-native species will be introduced. Any reports of other non-native fish species, whether made to the BCA or to the Angling Association, will be passed to the

Environment Agency and to Natural England for assessment as to the need for appropriate action, if any.

Continuous.

FA.3 Fish surveys

The Environment Agency will conduct surveys as it considers appropriate, whether in response to particular requests from the BCA, the Angling Association or the advice of its own officers. Wherever possible, advantage will be taken of such surveys to assess the stock densities in the SSSI against the target density, leading to a decision on whether fish stocking or removal is needed. Survey results and possible actions thereon will be assessed in liaison with Natural England, the BCA and the Angling Association.(BCAA)

As circumstances require. Report to CSG.

FA.4 Closed Season

A Closed Season for coarse angling will be maintained from 15th March to 15th June inclusive. It will be bailiffed by the Angling Association, which will seasonally erect, maintain and remove temporary 'No fishing' signs.

Every year, mid-March to mid-June.

FA.5 Fishing competitions

The locations of fishing competitions will be agreed between the Angling Association and the BCA. On these lengths, marked pegs will be cut and kept free of marginal growth. Access for competitions will be limited to these pegs and vegetation clearance elsewhere will not be permitted.

Review each April to decide actions for the year ahead.

FA.6 Provision for disabled anglers

For disabled anglers, fishing platforms incorporating geotextile or coir roll protection of the bank will be constructed and maintained by the Angling Association at locations and in numbers agreed with the BCA in advance.

BCA to review each April to decide actions for the year ahead.

FA.7 Repair of damaged banks

Where banks and marginal vegetation are damaged by anglers, the BCA / County Councils will carry out the necessary repair work as part of prioritised Softbank repairs, including re-instatement of the reed fringes to the specification in 3.7 below. Temporary signage will be placed on site by the BCA, requesting anglers to avoid fishing these lengths until the reeds have re-established and a complete vegetation cover has been achieved on the bank. This should not take more than one summer, with the Closed Season for angling in any case covering the most important period for vegetation establishment.

Continuous.

FA.8 Ground baiting

Routine monitoring by BCA rangers and Angling Association bailiffs will include looking for danger signs, such as patches of ground bait rotting in the water or obvious discoloration (especially grey or

black) in the water or on the canal bed. In such cases the BCA will arrange with the Angling Association for a reduction or dispersal of ground baiting.

Report any issues to BCA immediately.

3.6. Dredging

Ecological basis

As the channel silts up and becomes shallower and its bed becomes softer, habitat quality for aquatic wildlife declines. The combination of shallowness with a soft and easily disturbed bed results in each boat movement stirring up silt, destabilising bottom-living plant and animal communities and filling the water with suspended solids which curtail light penetration and hence depress submersed plant development.

Although periodic dredging (every c. 25 years with spot dredging in-between as required) is essential, it is nevertheless an ecologically highly disruptive event. Plants and their associated fauna are uprooted and removed, along with their substratum. Water quality temporarily deteriorates as large amounts of suspended solids and nutrients enter the water and there is often a reduction in dissolved oxygen and release of ammonia, hydrogen sulphide and other toxic components when oxygen-deficient sediments are disturbed. These disruptions are much reduced by dredging in winter, when temperatures are low and plants and animals are inactive.

Recovery of plant species after dredging varies. Emergent fringes usually re- establish during the next growing season after dredging. Submersed and floating- leaved species take longer, but at the moderate boat traffic on this canal, most can be expected to re-colonise within a few years. Recovery is assisted by limiting the numbers and speeds of boat in the growing season after dredging.

The small amount of information available suggests that recovery of the fauna parallels that of the vegetation.

Fuller detail on the ecological effects and management of dredging is in Appendix 7

Target

To minimise the adverse effects and maximize the positive effects of dredging on the channel ecosystem.

Actions and timetables

DR.1 Planning a dredging operation

For detail, see Appendix 7 Pre-dredging preparations.

Planning of each operation will begin about one year ahead of its implementation. Any necessary mitigations for wildlife will be identified and plans approved by Natural England in time for plant mitigations to be carried out in the summer prior to the operation.

Initiate in response to a bathometric survey which indicates that channel dimensions through siltation or erosion has reduced the channel size below the minimum specified Operational Plan & Policies. Any systematic programme of dredging will be proposed to the CSG – preferably 12 months in advance - with a proposed timetable for preparatory planning and works, including sediment testing, translocations and mitigation planting.

As circumstances require – report to CSG in advance of planned works

DR.2 Dredging procedure

For detail, see Appendix 7 Dredging procedure.

Dredging will be carried out in late autumn and winter and will be to the design profile of the channel, except that where reed fringes are present, they will be left undisturbed as far as possible to a width of about 1 m on each side. Any excess reeds will be used to repair inadequate fringes elsewhere on the canal[10]. Where economically feasible, sequence dredging will be used, clearing a series of

0.5-1.0 km lengths in one year, alternating with similar lengths not cleared until the second or third year. Otherwise linear dredging will be used, working upstream.

As required between October and early March.

DR.3 Post-dredging management

For detail, see Appendix 7 - Management of the recovery phase.

In the summer following dredging, intervention on plant recolonisation of the channel will be avoided, except in extreme circumstances of total blockage to navigation. For the year after dredging, all boat rallies and regular trip-boat workings (as far as practical) will be scheduled away from the length and a 3.2 km/h (2 mph) “dead slow” speed limit will be applied to all traffic, with explanation of its reason.

As required in the year after dredging.

DR.4 Spot dredging

For detail, see Appendix 7 - Spot dredging.

When carried out in winter and at sites without aquatic plants of special conservation importance, spot dredging does not require permission from Natural England.

As required between October and early March.

DR.5 Reporting of dredging

Records will be kept of all lengths dredged and the results from any subsequent botanical surveys of these lengths will be used to measure rates of species recovery and hence develop better understanding of any long-term ecological effects of the operation.

Report to CSG, accumulating data year-on-year

3.7. Bank protection

Ecological basis

The emergent plants within marginal zones on each side of a canal are very important part of the waterway ecosystem. In themselves they have the potential to be species-rich in both plants and invertebrate fauna and they can provide key habitat for fish spawning, fry rearing, bird nesting and refuge and for mammal burrows. Unlike in lakes and large rivers, where the marginal zones can be wide, along inland waterways they are highly compressed, rarely exceeding 2 m in width. Despite

[10] Reeds from below Lock 7 will not be relocated to any other portion of the Canal above Lock 7 to prevent the spread of the non-native invasive Floating Pennywort (*Hyrdocytyle ranuculoides*)

being narrow, they do constitute a major part of the overall ecosystem on account of the high edge to open water ratio of canals.

The margins are also important as access routes between land and water, for amphibians, birds and mammals and as migratory routes for a number of species.

Because of their narrowness, structural complexity and the fragility of some of their components, maintenance of the zones on a working waterway requires considerable care. The two main stresses are –

- *wave-induced erosion from boat wash*, which can undermine rooting systems and break the stems of reeds;
- *tree shading*, which depresses growth of the plants and hence their ability to recover from damage: dense tree shade altogether prevents establishment and survival of marginal vegetation.

Minor localized damage may also come from mooring of boats and from trampling by anglers and by dogs. In rural areas, the offside margin may be subject to cattle trampling and grazing.

Engineering responses to damage

Bank erosion has serious consequences for canals. On raised sections of channel it can lead to a breach. On the towpath side, it can create a hazard for users of the path. It also results in shallowing of the navigation track as eroded bank material falls into the channel and increase the need for dredging.

Historically the Basingstoke Canal was constructed with soft vegetation protection of its margins, this being sufficient for the non-motorised traffic of the time. Tree growth at water's edge was discouraged to allow for effective operation.

With the introduction of motorised craft, boat wash has become a much greater influence on banks, especially since restoration for recreational use, as traffic nowadays is far higher than it was when the canal carried only freight boats. Also, tree shading has reduced the ability of reed fringes to survive wave action.

The traditional engineering response to bank erosion was to use steel sheeting. Engineering techniques have subsequently advanced, with "soft" vegetative margins now being the preferred approach in all cases, and steel or concrete walls being reserved for instances where they are most required from a technical perspective. Soft vegetative protection has been retained in many lengths of the Canal, in some cases with a variety of root re-enforcement techniques, some of which have been more successful than others. Nevertheless, considerable lengths of bank, especially those too tree-shaded to support reeds, have been reduced to bare earth and hence are inevitably subject to some degree of erosion.

Appendix 8 gives further information on both bank erosion and on techniques for combating it.

Target

Wherever engineering requirements permit, to maintain vegetative bank protection as a zone of diverse vegetation which provides habitat for a wide range of fauna.

Actions and timetables

BP.1 Bank erosion creating hazard to towpath users: unshaded locations

Areas of erosion which create a hazard to towpath users will be repaired on a priority basis with three levels of priority based on safety. Funding available at the time will then dictate when works are completed. This will use “soft” re-enforced vegetative bank protection, where engineering considerations permit.

Details of the approved methods and planting specifications are contained in Appendix 8; see also BP7 for areas where “hard” engineering is a requirement.

Continuous

BP.2 Bank erosion creating hazard to towpath users: shaded locations

Soft bank repairs will prioritised as per BP1 where engineering considerations permit, to allow establishment of a reed fringe at a later stage, when shading has been reduced. These areas should be prioritised for tree management.

Details of the approved methods and planting specifications are contained in Appendix 8; see also BP7 for areas where “hard” engineering is a requirement.

Continuous

BP.3 Eroded banks in all other locations

Eroded banks in all other locations will be prioritised according to likelihood of an uncontrolled spill of water, with those areas of erosion on raised embankment receiving the highest priority. Regardless of location “soft” engineering methods which may promote recolonization of vegetative growth will be used in preference to “hard” engineered methods, unless there is a sound engineering reason not to.

Longer lengths of “soft” bank repairs which are heavily shaded should be prioritised for tree shade reduction.

Details of the approved methods and planting specifications are contained in Appendix 8; see also BP7 for areas where “hard” engineering is a requirement.

Continuous

BP.6 Post-installation procedures

On longer lengths of Canal where new soft vegetative protection is installed, a speed limit of 3.2 km/h (2 mph) will be applied to boat traffic for a year after construction. Anglers will also be instructed to avoid these areas, and to prevent all damage. The BCA will provide the necessary notifications (for example in boating information pack and notification to the Angling club), or by site notices.

As required.

BP.7 Engineered banks

Where engineering considerations preclude use of soft bank techniques to solve seepage, or otherwise form part of an existing engineered structure, submerged planting shelves will normally be incorporated into the design on the channel side of the piles / wall to allow for marginal plants to re-establish after the work. The only exceptions to this will be where such a shelf would interfere

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with navigation (such as at bridge, lock, or other engineered narrowing), or where such a hard edge could be used as visitor mooring where the site has been identified as a "navigation hotspot" under NV.4.

As required

3.8. Vegetation control in the channel

Ecological basis

The channel vegetation comprises two components;

- *Reeds and other associated emergent species* which are generally shallow water plants forming fringes along the edges of the channel. These are attractive in appearance and provide habitat for fauna, as well as being of conservation interest in themselves.
- *Floating-leaved rooted[11]* and submersed species*, which extend out into deeper water.

Left alone, the reed fringes will gradually shallow the channel as each year's leaves and stems only partly decay, building up an organic sediment layer on the canal bed, on which the next year's growth extends a little further out until the whole width of the waterway is covered and no open water remains. This process makes the canal un-navigable. It also suppresses floating-leaved and submersed vegetation by removing their open water habitat. Reeds are, however, both a vital part of the ecosystem and important for bank protection, whilst the floating-leaved and submersed vegetation includes many of the most important conservation species and again are also important for fauna.

Management is therefore essential to maintain the required combination of conservation, bank protection and unimpeded navigation. To a large extent, the moderate boat traffic in the canal SSSI will achieve this balance and intervention will only be needed when;

- either the early summer growth of floating-leaved and submersed vegetation is so dense in the navigation track that it obstructs boat movement;
- or the reeds spread so far out into the channel that they displace the floating- leaved and submersed vegetation and, in extreme cases, block the central navigation track.

An ideal balance is a reed fringe width in the range 0.5-1.5 m. Reed control is needed once this is exceeded and a practical trigger for intervention is 2 m, cutting back to 0.5-1.0 m.

Floating-leaved and submersed vegetation should only be cut if absolutely necessary, as doing so can destabilize its species composition and favour fast- growing components which worsen channel blockage. A little impedance to early season boating should be tolerated where possible, as the passage of craft will soon open up the central track.

Cut vegetation should be removed from the channel to avoid risks of re-growth and of de-oxygenation if parts of it were to decay in the water.

The use of herbicides against native plant species should always be avoided, in view of their non-specific action and risk of creating sudden mass decay and de- oxygenation in the water. Should herbicides prove necessary, advice must be sought from the Environment Agency and assent to their use obtained from Natural England.

[11] Free-floating vegetation, notably duckweeds (Lemna spp.) and filamentous green algae, may sometimes form dense mats on the water surface.

Dense free floating mats of floating plant species (eg: Duckweed - *Lemna spp.*) occasionally occur – they are undesirable in that they retard growth of the conservationally important submersed species beneath them and can be a considerable obstruction to boats, both directly and by clogging engine cooling systems. They can also partly block weirs and small culverts threatening water control. These growths are largely uncontrollable by any direct means. Clearance by weed cutting boats or manual raking is laborious, incomplete and usually followed by rapid regrowth. Blooms of duckweed appear to be very sporadic and restricted to the eastern half of the Canal, and although generally a consequence of excessive plant nutrient inputs, so far field data does not support this. A water quality project was carried out by an undergraduate student during summer 2017 – the project concluded that there did appear to be a water quality issue in the eastern most parts of the Canal from possible septic tank leachate; and recommended that this should be investigated further as a source of pollution. Phosphorus levels were high in 2 sampling localities near properties which were known not to have mains sewerage connections, and as septic tanks are highly concentrated in phosphorous (due to the large concentration of domestic waste), it followed that the results we an indication of possible leaching.

Measures to manage water quality (WQ.2, WQ.4, WQ.5) should reduce the incidence of blooms. They are also relatively intolerant of boat traffic and of dispersal by water flow. Depending on local conditions, they may be concentrated or dispersal by wind action.

Targets

To manage reed fringes of 0.5-1.5 m width to provide bank protection without obstructing either navigation or growth of submersed and floating- leaved plants.

To restrict cutting of submersed and floating-leaved vegetation to the navigation track only and there to the minimum needed to permit boat movement.

Actions and timetables

VC.1 Reed control

When reed fringes exceed 2 m in width, reduce them to 1.5-2.0 m, taking care not to detach the bank edge part of the vegetation. Control is best done by taking out whole plants, including rooting systems, rather than just cutting back at the bases of stems, as regrowth from the latter is usually rapid in the next year. Arisings should be removed from the Canal channel unless it is to be reused to bolster reed fringe elsewhere.

Ideally this will be done outside of the bird nesting season (generally March to August inclusive). If this period cannot be avoided, check carefully for birds' nests in both the vegetation to be removed and in adjacent parts intended to remain uncut. If nests are present, delay the start of the work until young have fledged. If water voles present, follow the national water vole guidance (Strachan & Moorhouse 2006).

As required in autumn

VC.2 Vegetation cutting in the navigation track

Intervene only if there is major obstruction to navigation. Cut only in the central 5m and there a little above the canal bed. Aim not to uproot plants. Remove cut material to land disposal. Never cut the submersed and floating-leaved vegetation on the batters.

As required in early summer.

VC.3 Free-floating mats of vegetation

Direct control of duckweed and filamentous algae should only be required if there are very dense blooms – this will be by mechanical or manual raking.

Where lock or weir operation is interfered with by wind-blown banks of vegetation, manual raking may be needed. Alternatively, if sufficient water is available, induced flows can be used to disperse the mats downstream. When blockages of weir crests and culverts interfere with water management, manual raking should be used to clear the vegetation.

As required.

VC.4 Recording of vegetation control

A record will be kept of each year's vegetation control (locations, type of vegetation, methods used and time spent).

Report to CSG, noting any year-on-year trends which may indicate the need for further actions

3.9. Bankside vegetation control

Ecological basis

Bankside vegetation is mostly outside the SSSI boundaries, except in the off- channel areas (3.10 below). Specifications for its management therefore strictly falls outside this Plan, except where they could influence the designated area. Three obvious influences would be disposal of cut material, drift of herbicide sprays from the banks into the channel and allowing dense terrestrial vegetation such as bramble or saplings shade the water.

When terrestrial vegetation is cut, for example in the mowing of towpath verges, the cut material should not be dumped in the channel or allowed to fall or be blown by wind into it. There is no shortage of natural, aquatically-generated organic matter in the channel and this is unavoidably supplemented by wind-blown tree-leaf litter at certain times of year. In the relatively still water conditions of a canal, the risk of dissolved oxygen depletion is always present. Oxygen depletion occurs when organic decay is taking place and is liable to intensify to stressful extents in still water where resupply by downward transfer from the atmosphere is slow. It is therefore important not to add to this potential stress on the aquatic flora and fauna by increasing organic inputs, especially in summer when high temperatures, fast decay processes and reduced oxygen solubility combine together to maximise risks.

During the early 2010s with the BCA employing fewer site staff, winter cutting regimes were reduced; which has led to the dominance of scrub vegetation such as bramble, nettle and sapling trees on the banks in some areas – this was noted in the 2012 and 2016 vegetation surveys as starting to dominate marginal plant growth. In recent years effective volunteer engagement and additional equipment have made some progress towards an effective annual winter cut of dense scrub growth on the banks down to water's edge.

Wherever possible, manual / mechanical control of vegetation should be the preferred option, but where use of herbicides is essential, these should be formulations which are painted or weed wiped rather than sprayed on the vegetation or cut stumps. Advice must be sought from the Environment Agency.

Target

To avoid deleterious effects of bankside vegetation control on the channel ecosystem.

Actions and timetables

BV.1 Cut vegetation disposal

Cut bankside vegetation will be removed to places where it will decay without risk of it entering the channel.

Ideally cutting will be done outside of the bird nesting season (generally March to August inclusive).

If this period cannot be avoided (eg: to ensure continued use of the towpath) check carefully for birds' nests in both the vegetation to be removed and in adjacent parts intended to remain uncut. If nests are present, delay the start of the work until young have fledged. If water voles present, follow the national water vole guidance (Strachan & Moorhouse 2006).

As required

BV.2 Use of herbicides

Herbicides can be used within 20m of the channel edge by staff suitably qualified in pesticide application including use next to water. Control of non-native species is pre-agreed on a 10 year basis for the duration of this plan as agreed with EA and NE. No further permissions need to be sought. This includes stem injection of Japanese Knotweed and painting of cut Rhododendron stumps. It will also include isolated spraying of regrowth of bamboo and Japanese Knotweed (especially after stem injection techniques have already had a pronounced effect).

Spraying of Floating Pennywort may also be considered; but manual or mechanical control will always be preferred. Where necessary herbicide may be used under this agreement, but only if other methods are not being successful in at least containing growth at its current level.

As required at the appropriate time of year depending on growth cycles.

BV.3 Recording of vegetation control

A record will be kept of each year's vegetation control (locations, type of vegetation, methods used and time spent).

Report with VC.4 noting any year-on-year trends which may indicate the need for further actions

BV.5 Annual winter cutting programme

A winter bank cutting programme will be carried out to ensure dense terrestrial vegetation such as bramble does not start to dominate, or allow trees saplings to become established on the banks. This will be done by manual or mechanical means and will be carried out between the months of October and February.

Annually as required

3.10. Management of non-native species

Ecological basis

The spread of non-native flora and fauna is a major environmental issue throughout the world. Whilst the majority of species introduced to sites outside their natural distribution range cause no problems, a minority spread aggressively, reducing diversity by displacing native flora and fauna. As

well as damaging natural ecosystems, often quite severely, the invasions can create major economic costs, as for example when Australian swamp weed (*Crassula helmsii*) or Floating pennywort (*Hydrocotyle ranunculoides*) block waterways and major clearance operations are required. Amongst invasive non-native fauna, Signal crayfish (*Pacifastacus leniusculus*) damage fisheries, aquatic invertebrate populations and channel banks as well as aquatic vegetation.

The scope for controlling non-native species varies. For some, the only feasible control is prompt eradication on first appearance, as once established, their populations outstrip current management technology. This is especially so in SSSIs, where use of heavy doses of herbicides or anti-faunal poisons would cause major collateral damage to the conservation interest. For other species, continuous control effort can keep populations down to levels at which their damage is slight, though it is often impossible to achieve complete eradication. Non-natives currently causing problems in the canal SSSI are as follows.

- *Australian swamp weed (Crassula helmsii).* Colonises channel and lower banks, also off-line waters. Rarely blocks navigation, but can interfere with operation of culverts, weirs and lock gates. Tangles boat propellers and block weed traps. Uncontrollable other than by local manual clearance. Vegetative fragments are easily spread on maintenance machinery. Displaces native channel and water's edge vegetation, though few native species are wholly lost.
- *Floating Pennywort (Hydrocotyle ranunculoides).* There are large amounts of this in the River Wey, from which the canal populations have probably originated and are periodically renewed by fragments carried by boat hulls, or through thoughtless individuals. Early manual clearance prevented establishment of overwhelming quantities in the canal and continuing effort has so far maintained control over the pennywort, which is easily capable of blocking the navigation and displacing most native aquatic plant species. The EA have started a spraying programme on the River Wey and have sprayed the non-SSSI area of the Canal below Lock 1 for the last 3 years. However, although it reduces the growth after spraying it does not prevent regrowth the following year. The population on the Canal has so far been controlled to remain below (east) of Lock 7. Although there was an isolated outbreak in the Fleet area in 2016 which has been locally controlled by manual means and apparently eradicated; there is some evidence to suggest this may have originated from a local resident clearing a garden pond into the Canal.
- *Least duckweed (Lemna minuta).* Outgrows native duckweeds, but, like them, requires a rich source of plant nutrients in the water for it to become a problem. Both its spread and its growth uncontrollable by current methods (other than nutrient limitation). Clogs boat weed traps and engine cooling systems. Largely present in the Woking pound.
- *Water fern (Azolla filiculoides).* Forms dense floating mats. Characteristically erratic in its occurrences. May be hardly detectable for years then suddenly abundant. Both its spread and its growth uncontrollable by current methods.
- *North American Signal crayfish (Pacifastacus leniusculus).* Damage is difficult to quantify, but probably significant to aquatic vegetation and aquatic invertebrate populations and to banks by burrowing and to fisheries by eating eggs and fry. A commercial trapping agreement is in place with all specimens removed from the Canal, to ensure that removal of adults only do not simply boost numbers of juveniles (the species is demonstrated to self-predate). Recording of numbers caught and catch effort will give some indication of any trends in the adult population. Further studies are in progress and until any new guidance becomes available, continuation of the present high intensity trapping policy seems sensible.

- *American mink (Mustela vison).* Conservation damage is caused by predation on Water voles (*Arvicola terrestris*) and other fauna, including fish and breeding birds. Trapping is practiced and is certainly worth continuing, as there is evidence from elsewhere that persistent effort is greatly reducing mink populations and consequently the damage they cause. On the canal, recording of numbers caught and catch effort will give some indication of any trends in the population. There is evidence that where Otter is returning to waterways, they are reducing the numbers of Mink.
- *Japanese knotweed (Fallopia japonica) and Indian ('Himalayan') Balsam (Impatiens glandulifera)*. These species may form tall, dense masses along the water's edge and thus interfere with reed fringe development. Neither is easy to control once established, so prompt eradication is essential as soon as new colonisations start. Large existing populations should be subjected to annual control, with the aim of eradication over a period of years. The eradication of Himalayan Balsam in particular is difficult as it can spread very effectively from surrounding waterways. A new biological has been introduced in the past couple of years which may be effective in reducing the impact of this species.
- *Bamboo.* Bamboos are evergreen perennial flowering plants in the subfamily Bambusoideae of the grass family Poaceae. Bamboos include some of the fastest-growing plants in the world, due to a unique rhizome-dependent system. This incredibly hardy plant spreads quickly from neighbouring properties, breaking through the towpath and quickly providing screening and thus shading of the waters edge and narrowing of the towpath. Bamboo should be targeted for manual removal followed by herbicide spraying annually until it has been killed.

Various other non-native species have been recorded, but have not so far caused problems. Examples amongst the aquatic plants are: Parrot's feather (*Myriophyllum aquaticum*) which is causing serious infestations elsewhere in Britain and should be removed, and Fanwort (*Cabomba caroliniana*) which is noted as spreading to additional sections of the Canal in HBIC's 2016 study.

Target

To minimize damage to the SSSI by non-native species.

Actions and timetables

NN.1 Control of Floating pennywort (Hydrocotyle ranunculoides).

Maintain management by rigorous manual removal[12] as soon as plants are seen. Dispose of cleared material on land. This control should be extended to the non- SSSI Woking length, to safeguard navigation and to prevent build-up of populations there which could spread into the SSSI. Manual removal by weedcutter/lifter, by volunteers with boats and from the towpath.

The programme should include initial manual clearance early the season to control early growth before bird nesting season - particularly moorhens which nest early. A second programme of manual control should be undertaken as soon as possible after nesting season to remove summer regrowth and continue through rest of summer / early autumn.

[12] New control methods, including spraying remaining plants with glyphosate-based herbicides in conjunction with Topfilm adjuvant, are being trialled below lock 1 (outside the SSSI section) in conjunction with the EA's programme on the River Wey. Initial results have been disappointing with the following year's regrowth showing no signs of being reduced. Should herbicide treatments improve control of Pennywort further trials should be considered. EA and NE approvals would be required for use inside the SSSI.

Programme annually in February-March and August-October. Prioritise removal of any spread above (west) of Lock 7.

NN.2 Control of Australian swampweed (Crassula helmsii), Least duckweed (Lemna minuta) and Water fern (Azolla filiculoides).

Blockages and severe concentrations will be cleared manually/mechanically from weirs, culverts and locks and nearby areas of channel, where these interfere with operation of the Canal (water levels, public safety, public health, navigation) No other control will be attempted until effective methods become available (NN.6).

As required at any time of year.

NN.3 Control of Parrot's feather (Myriophyllum aquaticum).

Rigorous manual removal will be undertaken, aiming to eradicate this species before it starts to cause problems.

Identify sites and remove plants.

NN.4 Control of Japanese knotweed (Fallopia japonica) and Indian balsam (Impatiens glandulifera) on canal banks

New infestations will be eradicated as quickly as possible. Established populations will be controlled annually by chemical injection by appropriately trained staff members with the aim of reducing them ultimately to eradicate them on the Canal. Investigate the use of the new biological control techniques for Himalayan Balsam.

Programme in July and August annually

NN.5 Control of Signal crayfish (Pacifastacus leniusculus).

Commercial trapping will continue under licences issued by the BCA & EA, pending further guidance. Trappers will be asked to record numbers caught and numbers of traps and frequency of emptying. They should also remove and dispose of all crayfish caught and not return any including juveniles to the canal.

Continuous. Report trappers' records at end of each season.

NN.6 Control of American mink (Mustela vison).

Continue and where possible intensify trapping. Trapping and disposal must be carried out using humane national guidelines. Trappers will be asked to record numbers caught and numbers of traps and frequency of emptying.

Continuous. Report records to CSG.

NN.7 Response to reports of new non-native species.

Reports of new non-native species will be confirmed where possible and advice sought from Natural England and the Environment Agency on appropriate actions. For plants, the BCA will additionally advise the Centre for Aquatic Plant Management at the Centre for Ecology and Hydrology, Wallingford, requesting a risk assessment and advice on control.

Continuous. Report any new records and actions to CSG.

NN.8 Advances in control methods.

Scope for improving control of non-native species as a result of new research findings will be assessed each year.

NN.9 Education of user groups

The BCA will develop and issue guidance for users of the waterway (i.e. boaters, canoeists, and anglers) on the importance of good biosecurity (eg: "Check, Clean, Dry") to prevent the spread of invasive species.

Continuous

NN.10 – control of native and non-native species of that may be considered a pest within and adjoining the SSSI

Where a dense concentration of species which may be considered a pest (eg; wasps, rats or rabbits) pose a threat to human health or danger to Canal infrastructure lethal controls may be applied, if other less severe options are not considered feasible. Controls will need to be able to be targeted to the specific pest species - all carcasses must be removed from site promptly.

As *required*

3.11. Management of Greywell Cutting & promoting bat habitat

Ecological basis

The management of the cutting requires balancing of the potentially conflicting conservation requirements of the populations of the unusual Stream Water- crowfoot (*Ranunculus penicillatus ssp. pseudofluitans var. vertumnus*) in the channel, which has a high light requirement against the need for tree cover along the banks to provide a protected and shaded route for bats approaching and leaving their roost in the Greywell Tunnel SSSI. The needs of the bats may be satisfied by retaining trees set back from the channel banks and perhaps lopping their lower branches where these significantly shade the water. It may be noted that the *Ranunculus* and bat features have co-existed very satisfactorily in the past, so clearly the potential conflict can be resolved. There is a long history of monitoring of bats on the Basingstoke Canal and a useful dataset has been established.

If some trees are retained for habitat purposes, (e.g. for some dragonflies and other invertebrates and fish), it will be preferable to keep these on the north side of the canal. Trees on the north bank will be more likely to have sunny areas over the water for species such as dragonflies, it will provide more open conditions on the south side, admitting more light to the channel than any tree on the north side.

A large scale tree thinning project took place in winter 2015/6 by BCA to thin approximately 1Km of trees from the cutting (part funded by an HLS grant).

Target

To provide a tree-lined corridor to the tunnel mouth, while retaining sufficient light to the channel to support good growth of the Water buttercup.

Actions and timetables

GC.1 Assess present tree cover

Assess tree regrowth in this area no less than every-other year.

Every-other year.

GC.2 Implement tree management plan for the cutting

Carry out sapling cutting to prevent regrowth establishing as necessary.

As required – outside bird nesting season

Figure 7 - Natters bats in Greywell Tunnel
Photo credit Paul Hope – ECS Ltd

GC.3 Bat Surveys

The Greywell Tunnel is classified as a confined space within the meaning of the Confined Space Regulations. Entry into the tunnel is restricted to trained personnel equipped with breathing apparatus and other safety equipment – the cost of this controlled entry means that BCA can no longer afford the regular monitoring of the bat population which formerly occurred three times per year. Currently tunnel safety inspections are conducted every-other year, which will now be combined with a single bat survey.

Hampshire County Council and the BCA will continue to facilitate access by suitably trained members of the Hampshire Bat Group, or Natural England officers / contractors to conduct additional surveys at their own cost.

Every-other year; and/or facilitate access to bat surveyors with suitable training and safety equipment at other times in consultation with NE

GC.4 Bat Box Monitoring

Continue yearly monitoring of existing bat boxes along the Canal in collaboration with local county bat groups and consider the potential to set up additional bat box monitoring sites (particularly along the Surrey stretch of the canal).

Annually

GC.5 Training

Canal rangers should receive training on the identification of bat roosting potential in trees prior to implementation of any tree management works.

As required

3.12. Management of off-channel areas

Ecological basis

The SSSI includes a large number of wetland areas adjacent to the main navigation channel. These are listed in Appendix 1 and aerial photographs of them are in a CD which forms part of Annex 2 to the Conservation Objectives.

The areas range from substantial open water (Dogmersfield Lake), through the flashes (a combination of open water, marsh, wet woodland and heath) to small canal side marshes. Most, but not all, are hydraulically connected to the canal. They are important in themselves in that they provide habitat for some species not found in the main channel and they also function as refuge areas for channel species whose populations are currently stressed by shading and other factors. Whilst the Canal itself is in its present unfavourable condition, the latter function of the off-channel areas is especially important.

Areas of shallow water, marsh and associated woodland naturally undergo quite rapid change, as the water space becomes filled in with dead leaves and other plant debris and a succession of species exploit the changing habitats. Left alone, such areas move from maximum species diversity, when the whole range of aquatic and marsh habitats is present, through decreasing diversity as reeds then wet woodland encroach. If the process runs to its conclusion, then only woodland remains at the end. The succession can be reversed by conservation management to clear back the woody species and dredge out the silted water bodies. When this has been done, there is usually an initial phase when pioneer, fast-growing plant species predominate as the succession restarts.

Target

Work with the land owners to encourage their management the off-line areas as a group to ensure that there is a range of succession stages present at all times.

Actions and timetables

OC.1 Work with managers of the off-line areas to encourage them to consider appropriate conservation management of these areas.

Offer advice where necessary and collaborate over any plans for management to ensure no damage to the SSSI and any work is to enhance the SSSI.

Continuous

3.13. Minor engineering operations

Engineering considerations

The Canal is a man-made environment, including many engineered structures such as locks, sluices, bridges, brick or steel channel edgings and adjoining mettled or partly mettled tracks and paths. Many of these features will be within, over/under or immediately adjoining the SSSI.

These features require occasional maintenance and repair in order to maintain function and allow the Canal to continue to operate in a safe manner. Small scale repairs may be considered “minor

engineering operations" – examples of these might include the replacement of sluice paddles or winding gear, bridge decking or parapets repairs over the channel, the repairing of brickwork in masonry structures which retain or pass under / over the Canal, or repairs to towpath surfaces adjoining the SSSI.

Ecological basis

Minor engineering works on structures adjoining the canal channel, if not planned or controlled properly, could lead to issues of water quality and harm to the environment. This might be through paints, oils or cement being spilled into the water. Non-stable substances could leach chemicals into the canal, leading to poisoning of fauna, deoxygenation of water or otherwise altering water quality.

Equally if water containing structures are not adequately maintained desirable water levels may be lost. It is therefore in the overall ecological interest of the Canal SSSI that especially those features which retain or control water are kept operable and in good condition at all times, without inundating NE with requests for assent.

This section links particularly to the Conservation Actions contained in *3.1 Water level management* and *3.7 Bank protection* above, whilst not strictly Conservation Actions themselves such small scale works are not considered elsewhere in this Plan but are required to meet the COs and for other CAs to be effective.

Action and timetables

ME1 Materials and design

The chemical make-up and stability of materials should be considered in advance of planned works. Materials which are intrinsically safe and stable in the aquatic environment should normally be selected over other products, where engineering considerations allow. Works involving paints, resins, cement or concrete where this will normally be in contact with the water must be undertaken whilst the canal channel is drained (see WL3 and Appendix 9) and be allowed to thoroughly dry so there is no risk of leachate once refilled. Materials which could partly wash off into the water body should be avoided, or surfaces designed in such a way that drainage is away from the canal channel.

As required

ME2 Methods of working

All works adjoining or over the water will be planned to include a risk and method statement which includes environmental management. This will always include methods of separating and isolating any potential spills of materials or substances (eg: temporary bunds or sheeting), and have a secondary means of containment (eg spill kits) available at all times. All such operations must also have a bio-security plan to prevent the spread of invasive non-native species (eg; clean/dry/inspect all plant and equipment before deployment to site).

Designs or methods which cannot conform to these requirements will require individual consent/assent from Natural England.

As required

4. Monitoring and progress of the Plan

4.1. Collection of field data

NE's Common Standards Monitoring methods, appropriately adapted to the requirements of this Plan, will continue to be used, as they have been in recent years.

Botanical surveys

The County Boundary (R. Blackwater) is the boundary between western and eastern parts.

- 2018 – No monitoring
- 2019 – No monitoring
- 2020 – Full channel survey
- 2021 – No monitoring
- 2022 – No monitoring
- 2023 – No monitoring
- 2024 – Full channel survey
- 2025 – No monitoring
- 2026 – No monitoring
- 2027 – No monitoring
- 2028 – Full channel survey

Dragonfly surveys

No formal arrangement. The BCA will liaise with the Wildlife Trusts, Ministry of Defence contacts and local naturalists expert on dragonflies, collecting and collating survey results as they become available and presenting them to the CM Steering Group. If Natural England requires more than is yielded by these processes for its periodic condition assessment of the SSSI, it will commission the necessary survey.

Figure 8 - Banded Demoiselle (Calopteryx splenden)

Other data

The collection and assessment of other data components is covered in Section 3 above.

Water level	WL.2 WL.7
Water quality	WQ.2 WQ.6
Tree management	TR.1
Navigation	NV.1
Fisheries and angling	FA.3
Dredging	DR.5
Vegetation control	VC.4
Bankside vegetation	BV.3

Non-native species	NN.5, NN.6
Greywell Cutting	GC.1

4.2. Annual assessment

The Conservation Steering Group will assess completion rates towards targets against their individual timetables and recommend any adjustments for the year ahead – this will usually be at the March / April CSG meeting.

4.3. Periodic review

Every three years this Plan will be reviewed and adjusted in relation to experience, changed priorities and advances in conservation research. All amendments will require assent from Natural England.

5. Summary of Conservation Management Actions

The actions in Sections 3 and 4 above are here compiled into summary tables, to provide a management checklist, against which implementation of the Plan can be assessed. Detail is given from the start to 2019, at which point the first Periodic Review (4.3) will set the programme for the next phase.

Actions are divided into those which are either continuous, or at regular intervals of less than one year, those which will be in response to particular circumstances which may arise, topics expected to be covered by CSG review and those timed for completion in the period to 2023.

5.1. Continuous or frequent interval CMAs

Table 1 CMAs with continuous or frequent interval

Water supply	Maintain levels within operational range	Continuous	WL.1
	Record levels	Continuous	WL.2
	Managed navigation	Continuous	WL8
Water quality	Maintain alkaline to acidic gradient	Continuous	WQ.1
	Maintain mesotrophy	Continuous	WQ.2
	Monitoring	April, June, August, October	WQ.6
Tree management	Inspection of tree stock	Continuous - In accordance with HCC tree policy	TR1
	Control regeneration	Continuous	TR.3
	Dispose of wood	Continuous	TR.4
Navigation	Monitor boat movements	Continuous	NV1
	Boat speed limit	Continuous	NV3
Fisheries & angling	Surveillance for non-native species	Continuous	FA.2
	Maintain close season	15 March to 15 June	FA.4
	Monitor competitions	Annually	FA5
	Repair damage to banks	Continuous	FA7
	Monitor ground baiting	Continuous	FA.8

Bank protection	Repair bank erosion which causes hazards	Continuous	BP.1 BP.2 BP3
Non-native species	Control of Floating pennywort and Japanese Knotweed	Annual programme	NN1 NN4
	Control Signal crayfish and American mink	Continuous	NN.5 NN.6
	Educate user groups	Continuous	NN9
Greywell Cutting & bats	Check bat boxes	Annually	GC4
Off-channel areas	Engage with landowners	Continuously	OC1

5.2. Reactive CMAs

Table 2 – CMAs where reaction is required

Water supply	Scheduled dewaterings	As circumstances require	WL.3
	Emergency dewaterings	As circumstances require	WL.4
	Develop new backpumping	As circumstances permit	WL.5
	Develop new water supplies	As circumstances permit	WL.6 WQ.6
Water quality	Detect pollutions	As circumstances require	WQ.3
	Manage pollutions	As circumstances require	WQ4
	Assess new water supplies	As circumstances permit	WL5 WQ6
Navigation	Assess and organise boat rallies: monitor impacts	As circumstances require	NV.5
Fisheries & angling	Requests for stocking	Refer to CSG, also requires authorisation from NE & EA	FA.1
	Fisheries surveys	As circumstances require	FA.3
	Disabled angling provision	As circumstances require	FA6
Dredging	Main length dredging: plan and carry out	Dredging Plan submitted to CSG	DR.1 DR.2 DR.3
	Spot dredging	As local conditions require	DR.4
Bank protection	Post installation measures	As circumstances require	BP6
	Engineered banks	As circumstances require	BP7
Vegetation control	Reeds in channel	When reed fringe >2m wide	VC.1
	In navigation track	As required in early summer	VC.2
	Free-floating vegetation	As required	VC.3
	Bankside, including any use of herbicides	As required	BV.1 BV.2
Non-native species	Control of Australian swampweed, Water fern, and Parrots Feather	As required	NN.2 NN.3
	Control of human pests	As circumstances require	NN10

Greywell Cutting	Manage tree cover	Monitor every-other year, sapling growth as required	GC.1 GC2
	Bat surveys	Every-other year with safety inspection	GC3
	Bat training	As circumstances require	GC5
Minor engineering operations	Control materials design, and methodology	As circumstances require	ME1 ME2

5.3. CMAs to reviewed by Conservation Steering Group

Table 3 - CMAs to be reviewed by CSG

Water supply	Report water levels and supply development proposals	WL2 WL.7
Water quality	Report monitoring and EA results and trends	WQ.7
Tree management	Report proposed tree management for year ahead	TR.2
Navigation	Report boat traffic	NV.1
	Request increases in boat traffic	NV2
	Suggest "boating hotspots"	NV4
	Report previous year's boat rallies and impacts	NV.5
Fisheries & angling	Request re-stocking	FA1
	Report any records of non-native species	FA.2
	Report any fisheries surveys	FA.3
Dredging	Report work done, impact assessments, proposed new work	DR.5
Vegetation control	Channel and banks. Report work done and trends requiring further actions	VC.4 BV.3
Non-native species	Report trapping records for Signal crayfish and American mink	NN.5 NN.6
	Report any new species records and responses thereto	NN.7
	Report any potentially relevant advances in control methods for non-native species and consider their applicability to the SSSI	NN.8

Target plan 2018-2023

2018-2019					
Plan Targets	**Action**	**By Whom**	**Status**	**Funding**	**CMA Ref**
Water Quality	Monitor Water Quality at agreed monitoring points	EA		EA	WQ 7
	Turbidity survey of feeder streams	BCA ?		None	WQ 3
Water Level Management	Record water levels daily	Duty ranger		Revenue	WL2
	Report on scheduled and unscheduled dewaterings annually at CSGM	Canal Manager			WL7
Tree Management	Tree Survey High Risk Areas	Contractor		Revenue	TR 1
	Saplings management	Volunteer team			TR 3
	Off-side cutting & appropriate wood disposal	Ranger Team x 3 Winter 1 month			TR 3

Navigation	Monitor Boat use numbers and report annually to CSGM	BCA			NV 1
Fisheries & Angling	Fish Surveys - carry out as opportunities arise & report to CSGM	BCA			FA 3
	Maintain close season	BCA			FA 4
Dredging	Spot dredge high priority areas	Contractor			DR 4
	Report on any dredging to CSGM	BCA			DR 5
Bank Protection	Soft bank protection (Hampshire) priority areas A	Contractor		Capital	BP 1
	Soft bank protection (Surrey) priority areas A	Contractor		Capital	BP 1
Vegetation Control in the Channel	Weedcutting to maintain a maximum of 1.5-2m fringe	Volunteer team			VC 1
	Record vegetation control and report to CSGM	BCA			VC 4
Bankside Vegetation Control	Winter cut towpath and bankside	Ranger Team flail mower		Revenue	BV 1
	Record vegetation control and report to CSGM	BCA			BV 3
Management of Non Native Species	Mink control	Ranger Ad Hoc			NN 6
	Japenese Knotweed Injection	Ranger x 2 Every August		Revenue	NN 4
	Bamboo control	Volunteer Team			NN
	Himlayan Balsam pulling	Volunteer Team			NN
	Floating Pennywort removal	Volunteer Team			NN 1
	Australian Swampweed removal	Volunteer Team			NN 2
	Signal Crayfish trapping	Commercial trapper		N/A	NN 5
	Cabomba removal	BCA			NN
	Parrrots Feather removal	BCA			NN 3
Management of Greywell Tunnel	Continue implementation of tree management plan	BCA			GC 2
Off Channel Areas	Work with partners to maintain and enhance where opportunities arise	BCA		None	OC 1
Monitoring Progress of the Plan		BCA		Revenue	

2019-2020					
Plan Targets	**Action**	**By Whom**	**Status**	**Funding**	**Ref**
Water Quality	Monitor Water Quality at agreed monitoring points	EA		EA	WQ 7
					WQ 3
Water Level Management	Record water levels daily	Duty ranger		Revenue	WL2
	Report on scheduled and unscheduled dewaterings annually at CSGM	Canal Manager			WL7

Tree Management	Tree Survey High Risk Areas	Contractor			TR 1
	Saplings management	Volunteer team			TR 3
	Off-side cutting & appropriate wood disposal	Ranger Team x 3 Winter 1 month			TR 3
Navigation	Monitor Boat use numbers and report annually to CSGM	BCA			NV 1
Fisheries & Angling	Fish Surveys - carry out as opportunities arise & report to CSGM	BCA			FA 3
	Maintain close season	BCA			FA 4
Dredging	Spot dredge high priority areas	Contractor			DR 4
	Report on any dredging to CSGM	BCA			DR 5
Bank Protection	Soft bank protection (Hampshire) priority areas A	Contractor		Capital	BP 1
	Soft bank protection (Surrey) priority areas A	Contractor		Capital	BP 1
Vegetation Control in the Channel	Weedcutting to maintain a maximum of 1.5-2m fringe	Volunteer team			VC 1
	Record vegetation control and report to CSGM	BCA			VC 4
Bankside Vegetation Control	Winter cut towpath and bankside	Ranger Team flail mower			BV 1
	Record vegetation control and report to CSGM	BCA			BV 3
Management of Non Native Species	Mink control	Ranger Ad Hoc			NN 6
	Japenese Knotweed Injection	Ranger x 2 Every August			NN 4
	Bamboo control	Volunteer Team			NN
	Himlayan Balsam pulling	Volunteer Team			NN
	Floating Pennywort removal	Volunteer Team			NN 1
	Australian Swampweed removal	Volunteer Team			NN 2
	Signal Crayfish trapping	Commercial trapper		N/A	NN 5
	Cabomba removal	BCA			NN
	Parrrots Feather removal	BCA			NN 3
Management of Greywell Tunnel	Continue implementation of tree management plan	BCA			GC 2
Off Channel Areas	Work with partners to maintain and enhance where opportunities arise	BCA		None	OC 1
Monitoring Progress of the Plan					
2020-2021					
Plan Targets	**Action**	**By Whom**	**Status**	**Funding**	**Ref**

Water Quality	Monitor Water Quality at agreed monitoring points	EA		EA	WQ 7
	Turbidity survey of feeder streams	BCA ?		None	WQ 3
Water Level Management	Record water levels daily	Duty ranger		Revenue	WL2
	Report on scheduled and unscheduled dewaterings annually at CSGM	Canal Manager			WL7
Tree Management	Tree Survey High Risk Areas	Contractor		Revenue	TR 1
	Saplings management	Volunteer team			TR 3
	Off-side cutting & appropriate wood disposal	Ranger Team x 3 Winter 1 month			TR 3
Navigation	Monitor Boat use numbers and report annually to CSGM	BCA			NV 1
Fisheries & Angling	Fish Surveys - carry out as opportunities arise & report to CSGM	BCA			FA 3
	Maintain close season	BCA			FA 4
Dredging	Spot dredge high priority areas	Contractor			DR 4
	Report on any dredging to CSGM	BCA			DR 5
Bank Protection	Soft bank protection (Hampshire) priority areas B	Contractor		Capital	BP 1
	Soft bank protection (Surrey) priority areas B	Contractor		Capital	BP 1
Vegetation Control in the Channel	Weedcutting to maintain a maximum of 1.5-2m fringe	Volunteer team			VC 1
	Record vegetation control and report to CSGM	BCA			VC 4
Bankside Vegetation Control	Winter cut towpath and bankside	Ranger Team flail mower		Revenue	BV 1
	Record vegetation control and report to CSGM	BCA			BV 3
Management of Non Native Species	Mink control	Ranger Ad Hoc			NN 6
	Japenese Knotweed Injection	Ranger x 2 Every August		Revenue	NN 4
	Bamboo control	Volunteer Team			NN
	Himlayan Balsam pulling	Volunteer Team			NN
	Floating Pennywort removal	Volunteer Team			NN 1
	Australian Swampweed removal	Volunteer Team			NN 2
	Signal Crayfish trapping	Commercial trapper		N/A	NN 5
	Cabomba removal	BCA			NN
	Parrrots Feather removal	BCA			NN 3
Management of Greywell Tunnel	Continue implementation of tree management plan	BCA			GC 2
Off Channel Areas	Work with partners to maintain and enhance where opportunities arise	BCA		None	OC 1

Monitoring Progress of the Plan	Full botanical survey of Canal (excluding off channel areas)	BCA		Revenue	
2021-2022					
Plan Targets	**Action**	**By Whom**	**Status**	**Funding**	**Ref**
Water Quality	Monitor Water Quality at agreed monitoring points	EA		EA	WQ 7
	Turbidity survey of feeder streams	BCA ?		None	WQ 3
Water Level Management	Record water levels daily	Duty ranger		Revenue	WL2
	Report on scheduled and unscheduled dewaterings annually at CSGM	Canal Manager			WL7
Tree Management	Tree Survey High Risk Areas	Contractor		Revenue	TR 1
	Saplings management	Volunteer team			TR 3
	Off-side cutting & appropriate wood disposal	Ranger Team x 3 Winter 1 month			TR 3
Navigation	Monitor Boat use numbers and report annually to CSGM	BCA			NV 1
Fisheries & Angling	Fish Surveys - carry out as opportunities arise & report to CSGM	BCA			FA 3
	Maintain close season	BCA			FA 4
Dredging	Spot dredge high priority areas	Contractor			DR 4
	Report on any dredging to CSGM	BCA			DR 5
Bank Protection	Soft bank protection (Hampshire) priority areas B	Contractor		Capital	BP 1
	Soft bank protection (Surrey) priority areas B	Contractor		Capital	BP 1
Vegetation Control in the Channel	Weedcutting to maintain a maximum of 1.5-2m fringe	Volunteer team			VC 1
	Record vegetation control and report to CSGM	BCA			VC 4
Bankside Vegetation Control	Winter cut towpath and bankside	Ranger Team flail mower		Revenue	BV 1
	Record vegetation control and report to CSGM	BCA			BV 3
Management of Non Native Species	Mink control	Ranger Ad Hoc			NN 6
	Japenese Knotweed Injection	Ranger x 2 Every August		Revenue	NN 4
	Bamboo control	Volunteer Team			NN
	Himlayan Balsam pulling	Volunteer Team			NN
	Floating Pennywort removal	Volunteer Team			NN 1
	Australian Swampweed removal	Volunteer Team			NN 2
	Signal Crayfish trapping	Commercial trapper		N/A	NN 5
	Cabomba removal	BCA			NN

	Parrrots Feather removal	BCA			NN 3
Management of Greywell Tunnel	Continue implementation of tree management plan	BCA			GC 2
Off Channel Areas	Work with partners to maintain and enhance where opportunities arise	BCA		None	OC 1
Monitoring Progress of the Plan					
2022-2023					
Plan Targets	**Action**	**By Whom**	**Status**	**Funding**	**Ref**
Water Quality	Monitor Water Quality at agreed monitoring points	EA		EA	WQ 7
	Turbidity survey of feeder streams	BCA ?		None	WQ 3
Water Level Management	Record water levels daily	Duty ranger		Revenue	WL2
	Report on scheduled and unscheduled dewaterings annually at CSGM	Canal Manager			WL7
Tree Management	Tree Survey High Risk Areas	Contractor		Revenue	TR 1
	Saplings management	Volunteer team			TR 3
	Off-side cutting & appropriate wood disposal	Ranger Team x 3 Winter 1 month			TR 3
Navigation	Monitor Boat use numbers and report annually to CSGM	BCA			NV 1
Fisheries & Angling	Fish Surveys - carry out as opportunities arise & report to CSGM	BCA			FA 3
	Maintain close season	BCA			FA 4
Dredging	Spot dredge high priority areas	Contractor			DR 4
	Report on any dredging to CSGM	BCA			DR 5
Bank Protection	Soft bank protection (Hampshire) priority areas C	Contractor		Capital	BP 1
	Soft bank protection (Surrey) priority areas C	Contractor		Capital	BP 1
Vegetation Control in the Channel	Weedcutting to maintain a maximum of 1.5-2m fringe	Volunteer team			VC 1
	Record vegetation control and report to CSGM	BCA			VC 4
Bankside Vegetation Control	Winter cut towpath and bankside	Ranger Team flail mower		Revenue	BV 1
	Record vegetation control and report to CSGM	BCA			BV 3
Management of Non Native Species	Mink control	Ranger Ad Hoc			NN 6
	Japenese Knotweed Injection	Ranger x 2 Every August		Revenue	NN 4
	Bamboo control	Volunteer Team			NN
	Himlayan Balsam pulling	Volunteer Team			NN

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	Floating Pennywort removal	Volunteer Team			NN 1
	Australian Swampweed removal	Volunteer Team			NN 2
	Signal Crayfish trapping	Commercial trapper		N/A	NN 5
	Cabomba removal	BCA			NN
	Parrrots Feather removal	BCA			NN 3
Management of Greywell Tunnel	Continue implementation of tree management plan	BCA			GC 2
Off Channel Areas	Work with partners to maintain and enhance where opportunities arise	BCA		None	OC 1
Monitoring Progress of the Plan					

Appendix 1 – Locations and ownerships

The navigation channel

From the eastern portal of the Greywell Tunnel, Hampshire, at SU719 514 to the boundary with Surrey at Ash Vale, SU886 514 and thence within Surrey to Hermitage Bridge, Woking, SU967574 and from Monument Bridge, Woking, TQ016597 to the junction with the River Wey Navigation at Byfleet, TQ053 618. The total distance, excluding the undesignated 6.5 km length in Woking, is 45.1 km.

The Freehold for the whole length from Greywell to Byfleet is held by the two County Councils, each within their jurisdiction.

Greywell Tunnel is the subject of a separate SSSI for its bat interest and is largely excluded from this Plan. 3km of Canal channel west of the Greywell Tunnel is also in Canal ownership, and is managed as a Local Nature Reserve with its own Management Plan.

The off-channel areas

Diagrams of the areas are on a CD supplied with Annex 2 to the Conservation Objectives (Appendix 2 to this Plan). They consist of 1999 aerial photographs of the areas, superimposed on which are lines showing the SSSI boundaries, the extents of open water at the time of the photograph and the minimum acceptable open water after siltation and vegetation encroachment before major clearance is needed for conservation purposes.

Some of these areas are in Canal ownership, most are not with large proportion being owned by the Ministry of Defence [MoD], and some by private landowners. In the latter two cases, the BCA will seek co-operation of the owners and occupiers of these areas in the conservation management of these parts of the SSSI. It may be easier to influence management of some of the MoD areas within Hampshire in future, as they now leased to the Land Trust, who in turn have a management arrangement with the Blackwater Valley Countryside Management Project; with whom the BCA have close ties.

Hampshire

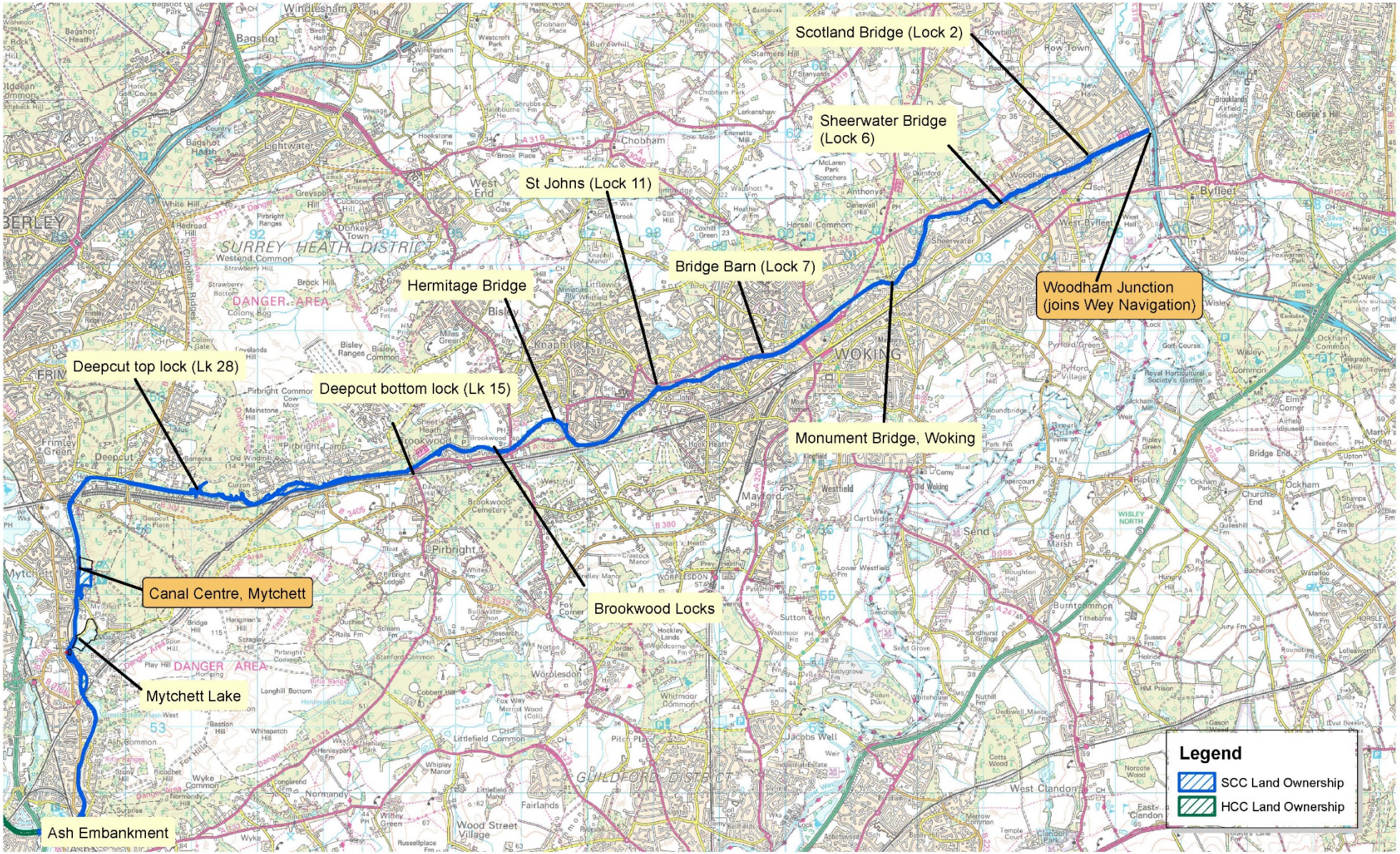
Area no.	Name	NGR SUxx	Notes, including condition recorded by Hall (2004).[1]
1	Dogmersfield Lake	75805180	Lake with narrow surrounding belt of marsh and trees. **Not connected to the Canal, or in Canal ownership.**
2	Pondtail Flash	82345370	Small, shaded area liable to road pollution, fly tipping and trampling.
3	Miles Hill	83645310	Small marsh below Miles Heath; in summer two small inlets from canal, perhaps more extensive water in winter. **Not in Canal ownership.**
4	Eelmoor West	84025284	Seasonally flooded hollow W of Eelmoor Flash, but not connected thereto. **Not in Canal ownership.**
5	Eelmoor Flash	84235280	Large. **Mostly not in Canal ownership**
6	Claycart Flash	85105266	Large, a history of overgrowth by sallows etc. periodically cleared back. **Partly not in Canal ownership.**
7	Claycart Hill Flash	85425252	Overgrown by trees until cleared as part of offside tree management in 2000, after which rapidly re-colonised by wetland flora. Now again being invaded by scrub etc.

[1] The assertions as to ownership in the previous iteration of this plan did not match landownership records, which show that in fact a much larger proportion of the flashes are in fact outside Canal ownership and control. This has now been corrected.

8	Rushmoor Flash	85565226	Large. **Partly not in Canal ownership.**
9	Little Rushmoor Flash	85705223	Overgrown.
10	Wharf Bridge	86185228	Bay at slipway near bridge.

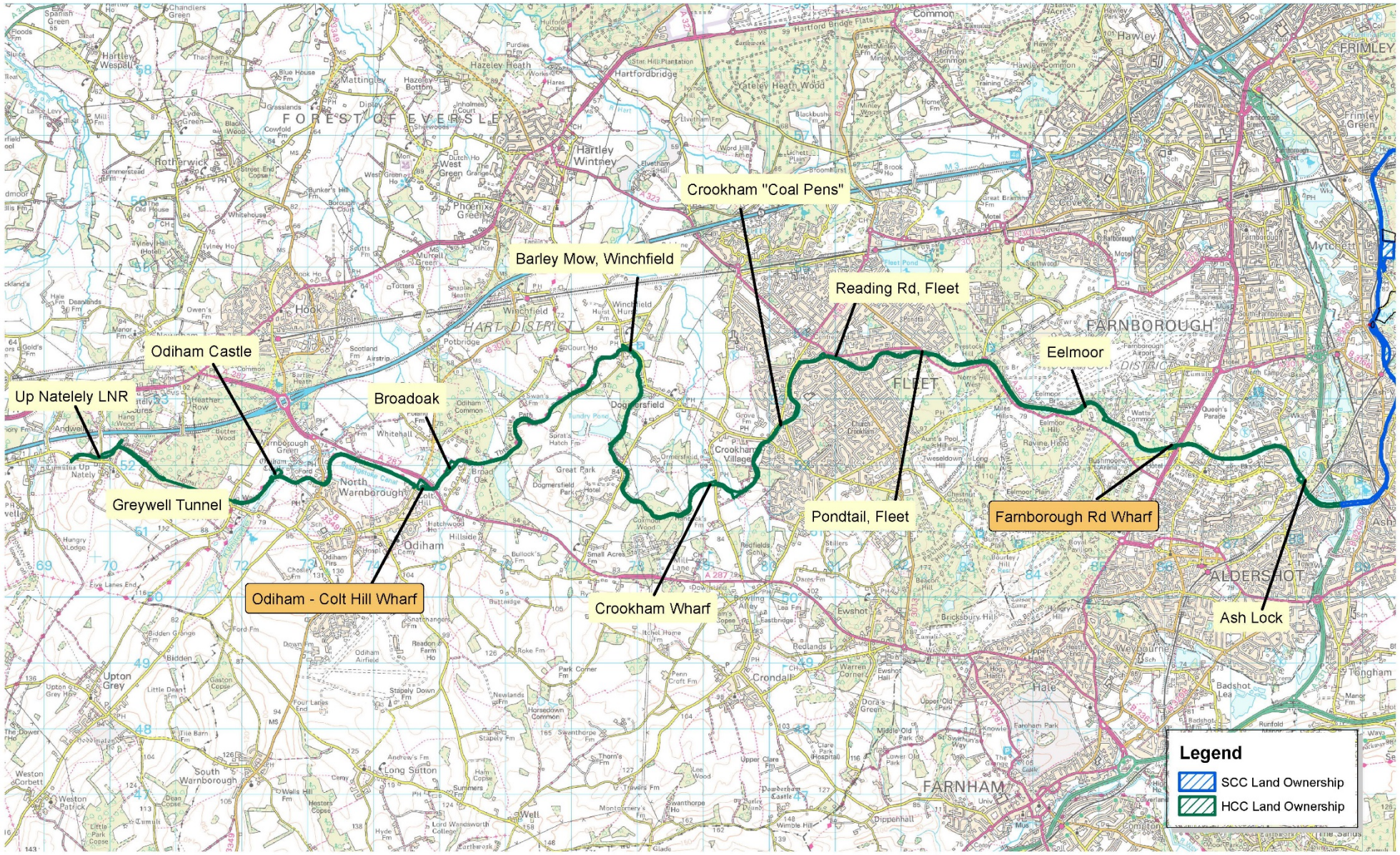
Surrey

Area no.	Name	NGR SUxx	Notes
11	Great Bottom Flash	89555332	Large. **Not in Canal ownership**
12	Fisherman's Flash	89375360	Just N of Ash Vale Bridge. Perhaps old winding hole.
13	Ash Vale North 1	89365383	Small and threatened by trees and leaf litter.
14	Ash Vale North 2	89195400	Small and threatened by trees and leaf litter.
15	Mytchett Lake	89405440	Large. **Not in Canal ownership**
16	Potter's Pool	89335547	Pond connected to canal. Tree-shaded. **Not in Canal ownership.**
17	Frimley Green	89185642	Winding hole - shaded by trees, former stand of Japanese Knotweed now controlled.
18	Lodge Hill West (Lock 27)	91605651	Narrow S facing inlet flanked by trees.
19	Lodge Hill Central (Lock 26)	91695647	Narrow S facing inlet flanked by trees.
20	Lodge Hill East (Lock 26)	91795648	Larger than previous two.
21	Curzon Bridge West	91925640	Small S facing bay W of bridge.
22	Curzon Flash	92155649	Large; great potential but very neglected.
23	Lock 21 (west of)	92685667	Wide S facing offside bay.
24	Lock 19 (west of)	93055666	Bay on N side.
25	New Pond	93355670	**Not connected to the Canal, nor in Canal ownership.**
26	Howfield Flash	94325691	Winding hole just W of Pirbright Bridge.
27	Sheets Heath Flash	94755716	Offside, bordered by private gardens.
28	Brookwood Locks	95685715	Bay on S side.
29	Hermitage Flash	96655756	Attempts in 2008 to establish a reed bed following tree management have largely not been successful.



Surrey Canal locations

SURREY COUNTY COUNCIL



Hampshire Canal locations

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Hampshire County Council

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Appendix 2 – Conservation Objectives and Favourable Condition Tables

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CONSERVATION OBJECTIVES and DEFINITIONS OF FAVOURABLE CONDITION for DESIGNATED FEATURES OF INTEREST:

These Conservation Objectives relate to all designated features on the SSSI, whether designated as SSSI, SPA, SAC or Ramsar features.

Name of Site of Special Scientific Interest (SSSI)	
Basingstoke Canal SSSI	
Names of designated international sites	
Special Area for Conservation (SAC)	N/A
Special Protection Area (SPA)	N/A
Ramsar:	N/A
Relationship between site designations	

10

Version Control information		
Status of this Version (Draft, Consultation Draft,	Consultation Draft	
Prepared by:	John Eaton	
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Quality Assurance information		
Checked by	**Name:**	**Date:**
	Signature	

Conservation Objectives and definitions of Favourable Condition: notes for users

Conservation Objectives

SSSIs are notified because of specific biological or geological features. Conservation Objectives define the desired state for each site in terms of the features for which they have been designated. When these features are being managed in a way which maintains their nature conservation value, then they are said to be in 'favourable condition'. It is a Government target that 95% of the total area of SSSIs should be in favourable condition by 2010.

Definitions of Favourable Condition

The Conservation Objectives are accompanied by one or more habitat extent and quality definitions for the special interest features at this site. These are subject to periodic reassessment and may be updated to reflect new information or knowledge; they will be used by Natural England and other relevant authorities to determine if a site is in favourable condition. The standards for favourable condition have been developed and are applied throughout the UK.

Use under the Habitats Regulations

The Conservation Objectives and definitions of favourable condition for features on the SSSI may inform the scope and nature of any 'appropriate assessment' under the Habitats Regulations. An appropriate assessment will also require consideration of issues specific to the individual plan or project. The habitat quality definitions do not by themselves provide a comprehensive basis on which to assess plans and projects as required under Regulations 20-21, 24, 48-50 and 54 - 85. The

scope and content of an appropriate assessment will depend upon the location, size and significance of the proposed project. Natural England will advise on a case by case basis.

Following an appropriate assessment, competent authorities are required to ascertain the effect on the integrity of the site. The integrity of the site is defined in paragraph 20 of ODPM Circular 06/2005 (DEFRA Circular 01/2005) as the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified. The determination of favourable condition is separate from the judgment of effect upon integrity. For example, there may be a time-lag between a plan or project being initiated and a consequent adverse effect upon integrity becoming manifest in the condition assessment. In such cases, a plan or project may have an adverse effect upon integrity even though the site remains in favourable condition.

The formal Conservation Objectives for European Sites under the Habitats Regulations are in accordance with paragraph 17 of ODPM Circular 06/2005 (DEFRA Circular 01/2005), the reasons for which the European Site was classified or designated. The entry on the Register of European Sites gives the reasons for which a European Site was classified or designated.

Explanatory text for Tables 2 and 3

Tables 2, 2a and 3 set out the measures of condition which we will use to provide evidence to support our assessment of whether features are in favourable condition. They are derived from a set of generic guidance on favourable condition prepared by Natural England specialists, and have been tailored by local staff to reflect the particular characteristics and site-specific circumstances of individual sites.

Quality Assurance has ensured that such site-specific tailoring remains within a nationally consistent set of standards. The tables include an audit trail to provide a summary of the reasoning behind any site-specific targets etc. In some cases the requirements of features or designations may conflict; the detailed basis for any reconciliation of conflicts on this site may be recorded elsewhere.

Conservation Objectives

The Conservation Objectives for this site are, subject to natural change, to maintain the following habitats and geological features in favourable condition[1], with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc.) for which the land is designated (SSSI, SAC, SPA, Ramsar) as individually listed in Table 1.

Habitat Types represented (Biodiversity Action Plan categories)

Standing open water and canals

Dwarf shrub heath

Geological features (Geological Site Types)

N/A

Standards for favourable condition are defined with particular reference to the specific designated features listed in Table 1, and are based on a selected set of attributes for features which most economically define favourable condition as set out in Table 2, Table 2a and Table 3.

[1] *or* restored to favourable condition if features are judged to be unfavourable.

Table 1 - Individual designated interest features

BAP Broad Habitat type / Geological Site Type	Specific designated features	Explanatory description of the feature for clarification	SSSI designated interest features	SAC designated interest features	SPA bird populations dependency on specific habitats			Ramsar criteria applicable to specific habitats			
					Annex 1 species	**Migratory species**	**Waterfowl assemblage**	**1a Wetland characteristics**	**2a Hosting rare species &c**	**3a 20000 waterfowl**	**3c 1% of population**
Standing open water and canals **Fen, marsh and swamp**	Canal systems with emergent fringing vegetation	Emergent fringing vegetation includes the following NVC communities: S4 *Phragmites australis* swamp and reed beds S5 *Glyceria maxima* swamp S6 *Carex riparia* swamp S7 *Carex acutiformis* swamp S8 *Scirpus lacustris ssp lacustris* swamp S10 *Equisetum fluviatile* swamp S12 *Typha latifolia* swamp S13 *Typha angustifolia* swamp S14 *Sparganium erectum* swamp S16 *Acorus calamus* swamp S19 *Eleocharis palustris* swamp S22 *Glyceria fluitans* swamp S26 *Phragmites australis – Urtica dioica* tall-herb fen S28 *Phalaris arundinacea* tall-herb fen	*								
Standing open water and canals	Odonata assemblage	Outstanding Dragonfly assemblage	*								
Standing open water and canals	Plant assemblage	Plant assemblage including: Shore Horsetail (*Equisetum x litorale*) River Water-dropwort (*Oenanthe fluviatilis*) Tasteless Water-pepper (*Persicaria laxiflora*) Hairlike Pondweed (*Potamogeton trichoides*) Stream Water-crowfoot (*Ranunculus pencillatus*	*								

		ssp *pseudofluitans* var *vertumnus*)									
Standing open water and canals	Outstanding assemblage of invertebrates	Broad assemblage type: W21 open water Specific assemblage type: W211 open water on disturbed sediments	*								
Fen, marsh and swamp	Outstanding assemblage of invertebrates	Broad assemblage type: W31 permanent wet mire Specific assemblage type: W314 rich fen	*								
Dwarf shrub heath	Dry heath including: H2 ***Calluna vulgaris* - *Ulex minor*** heath Wet heath including: M16 *Erica tetralix* - *Sphagnum compactum* wet heath	Dwarf shrub heath found on Pondtail Heath, Hampshire, adjoining the canal.	*								

NB. Features where asterisks are in brackets (*) indicate habitats which are not notified for specific habitat interest (under the relevant designation) but because they support notified species.

Table 2a – Habitat extent objectives

Conservation Objective for habitat extent	To maintain the designated features in favourable condition, which is defined in part in relation to a balance of habitat extents (extent attribute). Favourable condition is defined at this site in terms of the following site-specific standards:		
Extent - Dynamic balance	On this site favourable condition requires the maintenance of the extent of each in-channel and off-channel habitat type (either designated habitat or habitat supporting designated species). Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.		
Habitat Feature (BAP Broad Habitat level, or more detailed level if applicable)	**Estimated extent (ha) and date of data source/estimate**	**Site Specific Target range and Measures**	**Comments**
Standing open water and canals	96.36 hectares (1995 revision of 1985 citation)	No reduction in the extent of vegetation types for which the canal was designated. Observations on the balance between cover of emergent and submerged + floating-leaved vegetation and on the aquatic species present, during section surveys. Application of method described in Section 7.1. Site specific targets for different canal sections **Open water:** Navigation channel: no reduction in area of open water, which includes that colonised by marginal emergent vegetation. Observation during surveys and enquiry from Canal Manager. No development should be permitted either in or adjacent to the canal which will cause loss of habitat. Off-channel areas: maintain balance of areas of open water, emergent vegetation and marsh. See site-specific standards for target ranges and measures. No development should be permitted in, adjacent to, or in the catchment area supplying water to the off-channel areas which will cause loss of habitat.	This attribute relates to the botanical reasons for which the canal was notified. In some canals the swamp/fen vegetation is outstanding, in some there is extensive open water vegetation, and others have a combination of the two. Characteristic species assemblages are closely related to water chemistry, with intensity of use (e.g. boat traffic density) influencing deviation from these patterns. Most canal SSSIs contain good examples of the vegetation of eutrophic, base-rich watercourses, but others are important for their oligo-mesotrophic, mesotrophic or base- poor characteristics. Some of the best canals have a range of trophic types, reflecting the source of the inflows. Targets must be set on a site-by-site basis, within the framework of the simple classification given in Section 7.1 The canal (i) from Greywell Tunnel eastern portal, Hampshire to Hermitage Road Bridge, Surrey and (ii) from Monument Bridge, Surrey to Scotland Bridge, Surrey, together with off-channel areas, here defined as flashes and other open waters and marshes associated with each of these two canal lengths. The canal navigation channel is divided into two units, Canal West (CW) from Greywell Tunnel eastern portal to Norris Bridge (OS SU833535) and Canal East (CE) from Norris Bridge to Hermitage Road Bridge and from Monument Bridge to Scotland Bridge. OW comprises the two off-channel areas associated with CW and OE is the group of 27 areas associated with CE. The areas are listed in Appendix 1.

		Floating-leaved and submersed vegetation: Navigation channel: CSM vegetation monitoring to show no reduction in the extent of vegetation types for which the canal was designated below 30% cover. Off-channel areas: see site-specific standards for target ranges and measures. **Emergent vegetation:** Navigation channel: CSM vegetation monitoring to show 0.8 m wide average margin on both banks, minus (i) lengths where dense tree cover is maintained for conservation purposes and (ii) lengths at lock approaches, bridge holes and moorings. The extent of lengths where dense tree cover is to be maintained for conservation purposes is defined in Table 2a as 10% of the total length of the SSSI channel. The 0.8 m width of vegetation gives a cover of ~12%. Off-channel areas: see site-specific standards for target ranges and measures. The extent of lengths where dense tree cover is to be maintained for conservation purposes is defined in Table 2a as, on average over each of OW and OE, 10% of the total length of the margins.	As the citation includes only the overall extent (99.15 hectares), the individual areas of the habitats quoted are estimated from maps. By monitoring this habitat, the indirect attributes for the individual members of the plant assemblage will also be assessed.
Outstanding assemblage of Odonata	Standing open water and canals: navigation channel: one part of the core larval habitat	No reduction. Observation during surveys and enquiry from Canal Manager.	For most of the dragonfly assemblage, suitable larval habitat comprises belts of emergent, floating-leaved and submersed vegetation, heterogeneous in structure, along the edges of the waterbodies. For at least two of the species, there is a requirement for tree cover overhanging the water surface.
	Standing open water and canals: off-channel areas: the other part of the core larval habitat	No more than 10% reduction in open water. Mapped.	For most of the dragonfly assemblage, suitable larval habitat comprises belts of emergent, floating-leaved and submersed vegetation, heterogeneous in structure, along the edges of the waterbodies. For at least two of the species, there is a requirement for tree cover overhanging the water surface.

	Standing open water and canals: navigation channel + off-channel areas: the larval habitat	Open water to have ~10% tree cover.	Tree cover is important for the two of the most notable species cited (*Somatochlora metallica* and *Cordulia aenea*). *Salix* and *Alnus* are the preferred genera of trees.
Lowland heathland	Dry heath = 1.01ha Communities associated with dry heath = 0.17ha Wet heath = 1.61ha	>source of data< No unconsented decline in the area of the habitat, except where a target has been set to increase the extent of other habitat features on the site at the expense of lowland heathland	Lowland heathlands are habitats created mostly through human management by grazing, cutting and burning. If they are left to natural processes, then they lose their open character and disappear under thick scrub or secondary forest. However some fluctuations and variations from year to year are normal and acceptable. The lowland heathland area is located at Pondtail Heath.

Audit Trail

Rationale for habitat extent attribute
(Include methods of estimation (measures) and the approximate degree of change which these are capable of detecting).

Loss of channel area is unlikely so long as the canal remains an active navigation: field observation and periodic enquiry to the Canal Manager will show any such changes.

Off-channel areas are susceptible to siltation from both the navigation channel (if connected thereto) and from any streams which flow into them. They also experience change by natural succession from open water through reed swamp to wet woodland. To maintain the requisite balance of habitats, active conservation management is needed, standards for which are in Table 3. Mapping, together with the use of the latest aerial photographs, provides information on which sites have reached the stage where intervention by tree clearance and dredging is needed. These methods are capable of detecting <5% change between mappings.

The canal should be classed as Type B (JNCC 2005, 5.1), on account of its supporting both floating-leaved + submersed and emergent vegetations of conservation interest. Type A classification is not practicable because of the cover constraints described below on the emergent vegetation component. These constraints are desirable in that they limit the extent to which encroachment of emergent cover down the batters can occupy habitat for submersed and floating-leaved plants. For Type B, the highest target cover range for emergent vegetation is 10-30%. With a mean channel width of ~13 m, 30° batters and a central navigation track ~5 m wide (i.e. ~35% of the total width) and carrying ≤1300 boat movements per year, emergent vegetation should colonise to ~0.5 m water depth, which is ~0.8 m width from each side of the channel. Emergent cover will therefore be, at maximum, ~12%, leaving ~53% of the channel bed available to floating-leaved and submersed vegetation outside the navigation track. The Type B target cover range for floating-leaved + submersed vegetation compatible with these conditions is 30-70%.

The division of the canal into units CW and CE is derived from the Detrended Correspondence Analysis diagram of the gradation of plant assemblages along the SSSI in James & Eaton (1999). This gradation of assemblages is a distinctive feature of the SSSI and is a major influence in creating the high species richness of the SSSI as a whole. The division of this continuum at Norris Bridge must be recognised as somewhat arbitrary.

Rationale for site-specific targets (including any variations from generic guidance)

The site survey method used in 1994 (BIOSCAN 1994), immediately prior to production of the 1995 Citation, was sufficiently close to that in JNCC (2005 8.3) for its results to be adopted as a baseline for site surveys. The walking survey method used by Hall (2003) is likewise sufficiently close to that in JNCC (2005 8.2) to be adopted as a baseline for section surveys.

Other Notes
Off-channel areas supplied by streams are vulnerable to drying out due to silt inputs and reduced water supply when the catchments of those streams are subject to some forms of development; hence the need to regulate and/or mitigate changes in the wider catchments wherever possible. Adjacent forestry development can be another cause of drying which requires control.

Table 2b Species population objectives for the Basingstoke Canal

Conservation Objective for species populations	To maintain the designated species in favourable condition, which is defined in part in relation to their population attributes. Favourable condition is defined at this site in terms of the following site-specific standards:
Population balance	On this site favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature (species or assemblage)	List supporting BAP Broad Habitats	Population Attribute (e.g. presence/absence, population size or assemblage score)	Site Specific Target range and Measures (specify geographical range over which target applies i.e. site, BAP broad habitat or more specific)	Comments
Members of the vascular plant assemblage: Shore Horsetail (*Equisetum x litorale*) River Water-dropwort (*Oenanthe fluviatilis*) Tasteless Water-pepper (*Persicaria laxiflora*) Hairlike Pondweed (*Potamogeton trichoides*) Stream Water-crowfoot (*Ranunculus pencillatus* ssp *pseudofluitans* var vertumnus)	**Standing open water and canals**	Presence/absence by identification of the species	Navigation channel units CW plus CE: 95% of the total of (a) notable native aquatic species listed for the channel in CW and/or CE in the 1995 Citation, and (b) the other less notable native aquatic species recorded in the BIOSCAN (1994) CSM-type surveys of 13 sites and in the Hall (2003) walking survey. Results of repeat CSM surveys every six years. Off-channel areas OW plus OE: (i) 90% of the total of (a) the range of notable native aquatic species listed for off-line areas in the Citation, and (b) other native aquatic and marsh species listed in Hall (2004), including	95% allows for the low species detection turnover (high 're-find rate') expected in favourable condition channels. The use of the 1994 and 2003 datasets provides the best available baseline at SSSI Revision confirmed in June 1995. The Citation does not distinguish between CW and CE. The Citation does not distinguish between CW and CE. 90% allows for the higher turnover in these areas, where rapid succession is natural. The re-find rates, which are from Hall

			those stated in Tables 2A–10 (Hampshire) and Tables 2A-17 (Surrey) to have been recorded over the period 1985-2002, but not in 2003. (ii) mean re-find rates *per area* over all off-channel areas of at least 20% for floating-leaved species, 30% for submersed species and 65% for emergent species. Results of repeat CSM surveys every six years.	(2004), are a measure of the effectiveness of active conservation management in reversing succession in different areas at different times and thereby achieving overall species retention against the tendency for succession to cause losses. The rate for floating-leaved species is based on only a little data and should be reviewed as more survey information accumulates.
Outstanding assemblage of invertebrates Broad assemblage type: W21 open water Specific assemblage type: W211 open water on disturbed sediments	**Standing open water and canals**	Specialist direct monitoring of assemblage score based on presence/absence of specified proportion of species typical of habitat listed in ISIS	Monitor assemblage once in every 6 year monitoring cycle. Using defined invertebrate sampling protocols thresholds to be met: W21 open water: SQI score = 170 W211 open water on disturbed sediments: Weighted Species Score = 4	This attribute is to be assessed through specialist survey.
Outstanding assemblage of invertebrates Broad assemblage type: W31 permanent wet mire Specific assemblage type: W314 rich fen	**Fen, marsh and swamp**	Specialist direct monitoring of assemblage score based on presence/absence of specified proportion of species typical of habitat listed in ISIS	Monitor assemblage once in every 6 year monitoring cycle. Using defined invertebrate sampling protocols thresholds to be met: W31 permanent wet mire: SQI score = 160 W314 rich fen: Weighted Species Score = 10	This attribute is to be assessed through specialist survey.

Outstanding assemblage of Odonata	**Standing open water and canals:** navigation channel plus off-channel areas	Number of species	≥24 species. Monitor the assemblage once in every six year monitoring cycle. Survey visits should be at least one month apart, spanning from late spring (May/June) through mid-summer (Late June – July) to late summer (late July-August). Specific Assemblage Types: W211 open water on disturbed sediments: weighted species score 4 and W314 rich fen: weighted species score 10.	Existing records can be used as long as they are within three years of any reporting round. Both the British Dragonfly Society (BDS) and the National Biodiversity Network (NBN) hold dragonfly records these can be utilised for condition assessment purposes. If data not available, survey is needed.
Outstanding assemblage of Odonata	**Standing open water and canals:** navigation channel plus off-channel areas	Number of species for which evidence of confirmed/probable breeding	≥19 for which breeding is inferred from one of the following states (based on Taylor 2003): 1. Confirmed breeding: exuviae or larvae present or teneral (newly emerged) imagos adjacent to suitable water body. 2. Probable breeding: pair copulating, or female ovipositing, or regular presence of both sexes at a suitable water body on consecutive reporting rounds or visits.	Existing records obtained in accordance with the survey methodology in Heaver, Kay & Webb (2006, 2.4.2) can be used as long as they are within three years of any reporting round. Both the BDS and the NBN hold dragonfly records these can be utilised for condition assessment purposes. If data not available, survey is needed.
Audit Trail				
Rationale for species population attributes **(Include methods of estimation (measures), and the approximate degree of change which these are capable of detecting).**				
‘Presence’ is used as the attribute for the vascular plant assemblage because (i) there are no more detailed data for a substantial number of the less common species and (ii) the general extent targets in Table 2 (0.8 m emergent zones, 30% cover of floating-leaved + submersed vegetation) provide adequate habitat support for the full range of species. For the Odonata, Bioscan (1996) reported 27 species, 20 of which were breeding and a further three may have been breeding on the canal and its side-waters.				
Rationale for site-specific targets (including any variations from generic guidance)				

The site survey method used in 1994 (BIOSCAN 1994), immediately prior to production of the 1995 Citation, was sufficiently close to that in JNCC (2005 8.3) for its results to be adopted as a baseline for site surveys. The walking survey method used by Hall (2003) is likewise sufficiently close to that in JNCC (2005 8.2) to be adopted as a baseline for section surveys.

Other Notes

The total score for the outstanding vascular plant assemblage on the criteria sheet is 250 (a score of at least 200 is needed to qualify for a designated assemblage).
The individual species scores are as follows:

Shore Horsetail (*Equisetum x litorale*) = 50
River Water-dropwort (*Oenanthe fluviatilis*) = 50
Tasteless Water-pepper (*Persicaria laxiflora*) = 50
Hairlike Pondweed (*Potamogeton trichoides*) = 50
Stream Water-crowfoot (*Ranunculus pencillatus* ssp *pseudofluitans* var *vertumnus*) = 50

The species lists in BIOSCAN (1994) and Hall (2003) include native taxa which are not considered aquatic in JNCC (2005 9) and so should be excluded here, together with some non-natives which should be listed separately and not included in target species totals (JNCC 2005 6).

Table 3a Site-specific definitions of Favourable Condition for the Basingstoke Canal

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **standing open water and canal habitat, which includes some adjacent off-line waters and marshes** at the **Basingstoke Canal SSSI** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
The notified feature forms one part of the SSSI, the other part being Pondtail Heath.	

Site-specific standards defining favourable condition

Criteria feature	Attribute term in guidance	Measure	Site-specific Targets	Comments	Use for CA?
Canals including off-line waters and marshes.	Habitat structure: shading	Visual assessment during section surveys (estimate of vertical projection)	On average about 10% of the water surface should be shaded by overhanging vegetation in each section length.	Excessive overhanging vegetation results both in shading of the channel and large inputs of organic matter in the form of leaf litter. Both these influences are damaging to the rich aquatic flora. Regular management is required to control bank side trees and also to protect the integrity of channel structure	Yes
Canal: navigation channel	Habitat structure: sediment depth and texture	Record any re-suspension caused by the use of the grapnel during site surveys	Extent of fine and unconsolidated sediments limited: passage of grapnel should not result in excessive gas eruptions or re-suspension of sediments or leaf litter in at least 90% of throws	The hydraulic stresses caused by boat traffic make unconsolidated sediments an insecure rooting medium and plants may be subject to uprooting. Also, fine sediments are readily re-suspended leading to high turbidity levels and smothering of plant surfaces. Large quantities of leaf litter may lead to anoxic benthic conditions unsuitable for plant roots and for other organisms.	Yes

Canal: navigation channel	Aquatic plant community: quantity of vegetation	During surveys of 150 m sampling sites, record the mean number of random grapnel throws bringing up submersed and floating-leaved vegetation.	In at least 80% of sample sites at least 8 out of 10 transects should have emergent fringes,	Filamentous algae, *Enteromorpha intestinalis* and the four most invasive non-natives (*Azolla* spp., *Crassula helmsii*, *Hydrocotyle ranunculoides* and *Myriophyllum aquaticum*) are not counted in the assessment	Yes
Canal: navigation channel	Indicators of local distinctiveness: rare species and quality indicator - west to east species	The continued presence of populations should be checked during section surveys	CSM vegetation monitoring to show that western channel unit (CW) supports Berula erecta, Hippuris vulgaris, Oenanthe fluviatilis and Ranunculus penicillatus ssp.	A checklist of native aquatic plants is given in JNCC (2005 Appendix 2). This should be used as the standard when numbers of species are counted.	Yes
Canal: navigation channel	Indicators of local distinctiveness: nusual plant communities	The continued presence of characteristic plant communities should be checked during section surveys	Maintain the Ranunculus penicillatus ssp. pseudofluitans var. vertumnus - Berula erecta – Callitriche – Lemna minor chalk stream community at Greywell >90% of species	Indicates overall functioning as habitats for species and as sources of species for colonisation of the navigation channel during recovery phases of the latter.	Yes
Canal: navigation channel and off-line areas	Indicators of negative change: introduced plant species	Presence of all alieb and introduced aquatic plants should be noted during the section surveys. They should be recorded on the DAFOR scale for every site survey.	The four most invasive species (*Azolla* spp., *Crassula helmsii*, *Hydrocotyle ranunculoides*, *Myriophyllum aquaticum*) should be absent or at the most occupy less than 50 m of the whole designated site AND likely that other species may become of concern in the future. New non-native	The four invasive species of major concern at present are listed, but it is likely that other species may become of concern in the future. New non-native arrivals should be recorded and their	Yes

Canal: navigation channel	Habitat functioning: water quality - transparency	Secchi disk measurement or visual observation during section and site surveys.	In at least 90% of observations, the canal bed is clearly visible in water 1m deep in summer. Measurements should not be made within 48h after the end of heavy rainfall, to avoid recording the temporary effects of influxes of turbid side drainages Observations in the length from Colt Hill Bridge to Chequers Bridge should be excluded from the assessment.	Elevated turbidity levels as a result of boat traffic, high phytoplankton densities, or the presence of benthic-feeding fish, have adverse impacts on submersed plant communities. Temporal and spatial variability of turbidity in canals makes direct measurement difficult hence a subjective measure of water clarity is utilised here	Yes
Canal: navigation channel and off-line areas	Habitat functioning: water quality - cover of algae/Lemna/Azolla	Assessment of cover in section surveys	Filamentous algae and combined *Lemna/Azolla* cover, each less than 10% cover on average (no more than Occasional on the DAFOR scale)	Excessive growths of filamentous algae or *Lemna spp* and *Azolla* can result in the competitive exclusion of submersed vegetation and can indicate nutrient enrichment. Monitoring growths of these taxa may serve as an indirect and integrated measure of eutrophication.	Yes
Canal: navigation channel	Habitat functioning: biological quality and water chemistry	Desk study using data collected by Environment Agency. National River Quality Classification - biological class or equivalent. Assess every 6 years.	Biological GQA Class ‘a’ or ‘b’ depending on reach type. In addition, no drop in class from existing situation. No data are currently available.	There is currently no way in which compliance with this mandatory target can be tested.	Yes

		National River Quality Classification - chemical class or equivalent. Assess every 6 years.	Chemical GQA Class 'A' or 'B' depending on reach type. In addition, no drop in class from existing situation. Current targets are Greywell - Winchfield B and Winchfield – Eelmoor D, with no data currently available from Eelmoor eastward to Scotland Bridge.	The current target for Winchfield – Eelmoor is two quality classes below the minimum target in JNCC (2005). Eastwards from Eelmoor, there is currently no way in which compliance with this mandatory target can be tested.	Yes
		Total phosphorus concentrations (annual mean)	Annual mean 35µ g/l There should be no increase in annual concentrations over time.	Elevated phosphorus levels may lead to dominance by attached or planktonic algae and a loss of characteristic plant species. Functionally canals are closely aligned to shallow lake ecosystems but some canals may have significant flows of	Yes
		Alkalinity as mg/l CaCO3 at pH4.5	A gradient from >200 mg/l in the Greywell – Colt Hill Bridge length generally decreasing eastwards to <125 mg/l in the Hermitage Road Bridge – Scotland Bridge length.	May vary considerably over time at individual locations, depending on rainfall and canal hydraulic conditions, but an eastwards decrease should always be present.	Yes
Canal: navigation channel and off-line areas	Habitat functioning: water availability	Obersvations during section survey and enquiry from Canal Manager.	A drop in overall depth of less than 10 cm throughout the canal and in connected off-channel waters, except on lock flights, where temporary decreases of up to 20 cm may occur.	Consistently low water levels may stress emergent and aquatic vegetation. In non-navigable canals water supply may be a problem and aquatic species may be lost through drying out.	Yes

Canal	Presence of non-native species	Non-native species should be controlled and, where feasible, eradicated. Species of concern at present are *Azolla spp., Crassula helmsii, Hydrocotyle ranunculoides and Myriophyllum aquaticum*	Advice on control and eradication should be sought from the Centre for Ecology and Hydrology's Aquatic Plant Management Unit, Wallingford and any proposals for control operations within the SSSI should be discussed with Natural England. The appearance of any other non-native species should be followed by prompt action as above to eradicate them before they become established. Although non-native, *Acorus calamus*, *Elodea canadensis* and *E. nuttallii* are nowadays regarded as sufficiently long-naturalised and beyond their invasive stage to not warrant control.	Non-native species should be controlled and, where feasible, eradicated. Species of concern at present are *Azolla spp*., *Crassula helmsii, Hydrocotyle ranunculoides and Myriophyllum aquaticum*.	Yes
Canal	Recreational use: boat traffic	Traffic records from electronic counters, lock counters and/or logbook surveys: from Canal Manager.	Boat traffic on channel not to exceed 1300 movements per year	1300/yr in the (on average) 13 m² channel corresponds to 1000/yr in a standard 10 x 1 m channel. Below this traffic density encroachment by reeds pre-emptively occupies habitat for submersed and floating-leaved vegetation. Above it disturbance progressively reduces all types of channel vegetation and exposes banks to erosion.	Yes
Canal	Recreational use: angling	Fishery surveys.	A balanced mixed fishery of native species with a total standing crop ≤200 kg/ha		Yes

Emergent fringing vegetation	Habitat structure	Visual estimate of % cover.	Discretionary attribute: Targets should be set to register high or increasing litter cover as unfavourable. As a generic standard, total extent across the area assessed should be no more than 25% cover. Lower thresholds may be appropriate for some communities – e.g. short-sedge mires (M9, M13, etc.).	A high frequency and cover of exposed substrate will usually be undesirable and may indicate, inter alia, over- grazing, and water scour. Patches of exposed substrate are likely to be more typical/desirable for M10, 13-14, 37, S1-23 and some examples of M1-3 and M6. M29 is often based on unconsolidated sloppy peat exposed beneath a water film. More than 25% litter cover indicates insufficient removal of biomass by grazing.	Yes
Emergent fringing vegetation	Habitat structure	Visual estimate of % cover.	Targets should be set to register too much or too little exposed substrate (see comments). As a generic standard, total extent across the area assessed should be no more than 10%. Higher covers of between 5% (min.) and 25% (max.)_should be considered for those communities listed under comments. Higher upper	A high frequency and cover of exposed substrate will usually be undesirable and may indicate, inter alia, over- grazing, and water scour. Patches of exposed substrate are likely to be more typical/desirable for M10, 13-14, 37, S1-23 and some examples of M1-3 and M6. M29 is often based on unconsolidated sloppy peat exposed beneath a water film. More than 25% litter cover indicates insufficient removal of biomass by grazing	Yse

Emergent fringing vegetation	Habitat composition	A baseline map showing the boundary of the components (where appropriate), should be used to assess any changes in extent. Aerial photographs can offer a convenient means of rapidly assessing extent in some cases.	Targets should be set for key components of the wetland where relevant and appropriate (see descriptions in sect. 8). As a generic target there should be no loss of the component types, and in some instances target extents should be set for key elements. (For lowland fens the balance between open fen and wet woodland/ dense scrub should always be addressed as part of this.)	Lowland fens: Variety within fens is determined by water supply mechanism, hydroseral succession and land management practices. Account should be taken of successional processes and management aims/priorities (i.e. what a particular site is important for) in setting limits on extent of fen components. Intervention is often required to give the desired range of habitats and dependent species. The practicality of mapping certain vegetation types may also be a consideration. For Fen woodland and scrub see comments under Negative indicators (woody species) in Table 6. Lowland springs & flushes: These features are often small in extent and their boundaries may be difficult to determine. Their extent may also vary in relation to season and/or recent rainfall events. These should be taken into account when making an assessment.	Yes

Emergent fringing vegetation	Vegetation composition: positive indicators	Visual assessment of cover, using structured walk or transects and recording quadrates. Comparison against accurate baseline maps, assessments of whether a certain percentage of sample points laid out upon a grid conform to the community or not, shifts in the position of community interfaces along permanent transects.	For each component wetland other than fen woodland and fen meadow that has been identified on the site (according to the descriptions given in sect.8), one characteristic NVC community should be selected, any rare NVC communities present should also be monitored. Targets should be set for each of these NVC communities according to the generic limits set out in Table 5. As a generic standard, the frequencies of positive indicators should at the very least, confirm the presence of the target community. Local targets could also be set for site-specific positive indicator species, to register a decrease in frequency of 20% or more as unfavourable. Targets should be set locally to register an increase or decrease in the extent of key communities.	The suite of key communities to be monitored is chosen on a site-specific basis. Characteristic and rare communities would be chosen, e.g.those indicative of Annex I habitat type where these are SAC interests (although note that these must be reported on separately). Site-specific targets should be set using Table 5 as a framework. See text (section 3.5) for examples of instances where this attribute is critical.	Yes
Emergent fringing vegetation	Vegetation composition: indicators of negative change - undesirable non-woody	Visual assessment of cover, using structured walk or transects and recording quadrates	(a) Invasive non-native species[1] should be absent or no more than rare if present (b) Taget should be set to register high or increasing frequency/cover of other undesirable spp.[1] as unfavourable. See Table 6 for negative indicators for each of the key vegetation communities that were monitored for positive indicators, and adapt as relevant.	Spread of alien spp. Can often be very rapid once established. Other negative indicator species have been chosen as indicative of dereliction,	Yes

Emergent fringing vegetation	Vegetation composition: indicators of negative change - undesirable non-woody	Visual assessment of cover of the whole feature, using structured walk or transects. Aerial photography may be a useful aid though will not pick up small saplings and seedlings	As a generic target for open fen(excluding west woodland), woody species (including Betula, Salix, Rhododendron, Pinus, other gymnosperms) should be no more than scattered, predominantly <1.5m high. Cover should be <10% on open fen Saplings/seedlings should be no more than rare. None of these species should be present on flushes & springs, although Salix is acceptable at least 5m from petrifying springs	Scrub and woodland are integral components of many fen systems and may be particularly important for invertebrates. However invasion by woody species and their development to maturity may indicate drying out, dereliction, disturbance and/or enrichment for both fen. Trees and shrubs may also exacerbate drying out.	Yes
Emergent fringing vegetation	Indicators of local distinctiveness* eg notable spp., transitions to other habitats, presence of pools or other structural features	Visual assessment of frequency/cover of rare/scarce/local species in sample points chosen to represent their known distribution. Structured observation or sampling. Aerial photos may offer a convenient means of rapidly assessing these.	There are no generic targets for this attribute. Local targets should be set to ensure: - feature (forming part of the reason for to other habitats, presence of pools or distribution. Structured observation or sampling. Aerial photos may offer a	This attribute is intended to cover any site-specific aspects of this habitat feature (forming part of the reason for the notification) which are not covered adequately by the previous attributes, or by separate guidance (eg for notified species features). Targets to be determined locally. Transitions from fen to other habitats eg grassland, heath are often important and vulnerable features.	

Audit Trail

Rationale for limiting standards to specified parts of the site

Transparency: the Colt Hill Bridge to Chequers Bridge section should be excluded because natural turbidity from precipitation of supersaturated calcium from Greywell occurs variably over this length.

Rationale for site-specific targets (including any variations from generic guidance)

Variations from canal open water guidance = *Habitat structure: shading*: to provide adequate habitat for the notable Odonata which require some trees overhanging the water, the usual target of ≤5% (JNCC 2005, 6) is here raised to ~10%.

Habitat structure: sediment depth and texture: gas eruption is here added to the CSM criteria, as it indicates benthic anoxia deleterious to rooted vegetation and to many invertebrates.

Phosphorus: Phosphorus concentrations consistent with mesotrophic status are not specifically stated for canals. Environment Agency (2000) provides interim standards for mesotrophy of 25µg/l P for standing waters and 60µg/l P for running waters. An interim target of 35µg/l is proposed here, to recognise the significant flow which occurs at times on

*Alkalinity as mg/l $CaCO_3$ at pH4.*5: added because of the importance of the gradient from alkaline to acidic water quality, upon which the overall outstanding aquatic plant species richness depend. The limits quoted are based upon pre-1996 National Rivers Authority data and the 2003-2004 results in McGruer (2004).

Aquatic plant community: quantity of vegetation - tree shading over 10% of the canal's length is the reason for specifying 80% rather than the usual 90% of sampling sites, since

where substantial shading is present, development of the aquatic flora is severely restricted. *Aquatic plant community: species richness* - the criterion of 9 in 90% of sites represents the state in 1994 (James & Eaton 2000). Tree shading over 10% of the canal's length is the reason for specifying 90% rather than the usual 100% of sampling sites, since where substantial shading is present, development of the aquatic flora is severely restricted.
Rationale for selection of measures of condition (features and attributes for use in condition assessment) **(**The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes
The monitoring of this habitat will mean the indirect attributes of the vascular plant assemblage are also monitored.

Table 3b Site-specific definitions of Favourable Condition for Pondtail Heath

Omitted: not relevant to this Plan

Table 3c Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **open water invertebrate and Odonata assemblages** at **Basingstoke Canal** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
Site-specific standards defining favourable condition	

Criteria feature	Attribute	Measure	Site-specific Targets	Comments	Use for CA?
Outstanding assemblage of invertebrates Broad assemblage type: W21 open water Specific assemblage type: W211 open water on disturbed sediments Odonata assemblage (Proxy habitat table = ponds, pools, ditches, reens and lakes)	Vegetation heterogeneity Diverse surface topography of vegetation types	Record Structural Recording Surveys (SRS) of 6m radius at sample stops to determine number of structural surfaces and representation of preferred surfaces within the assessed unit. Preferred surfaces for the water margins are: Wet mud's, peats or thin water covered substrates. Typically bare, maybe with algal mats, sparse higher plants. Marginal hygrophilic vegetation with typical species including *Lycopus, Scutellaria* etc and grazed grassy vegetation.	Which surfaces and layers are required critically depends on the successional stage required. Single surface present in no more than 5 out of 10 SRSs. 3 or more different surfaces present in at least 20% of SRSs.	Wetland systems should generally be assessed between July and September, as it is important for the vegetation to reach its full surface expression before assessing it. Preferred features are micro-habitat features which should always be targeted during an assessment. These should be recorded and mapped. The preferred features for this assemblage are: Good benthic vegetation structure (in oligotrophic waters.) Complex structure of submerged vegetation (where appropriate.) Areas with high proportion of macrophytes with floating leaves. Any emergents with abundant flowers. Small patches of marginal scrub or trees. Fallen wood in water. 'Beach' areas of bare wet sediment.	Yes

		Possible preferred surfaces for the water margins (depending on fauna and circumstances) include: Young to medium-aged scrub - often maintained by rotational coppice. Typical species include marginal *Salix spp, Alnus, Frangula.* Preferred layers for the water body are: A water column layer with typical species including *Ceratophyllum, Calitriche, Myriophyllum, Potamogeton spp.* A water surface layer with typical species including *Nuphar, Nymphaea Stratiotes,* crowfoots *Ranunculus etc Glyceria fluitans, Polygonum amphibium.* A low emergent layer with typical species including *Alisma, Ranunculus flammula, Mentha, etc Eleocharis.* Possible preferred layers for the water body (depending on		Negative factors should be regarded as mandatory parts of the condition assessment process. If a preferred feature is significantly impacted by a negative factor then the unit should fail. The presence of negative factors on the rest of the unit depends on the level of impact, whether it is increasing/ declining, and its location. Negative indicators for this assemblage include: Steeply shelving banks. Deepening of shallow water. Excessive stock access to banks. Eutrophication characterised by green algal blooms. Addition of large fish (trout & coarse fish) to otherwise fish-free water. Removal of fallen timber from water. Excessive marginal trees and scrub leading to excess shading >50% of margin. Aquatic and marginal invasive species - *Azolla, Lemna minuta, Crassula, Hydrocotyle* etc.	

		fauna and circumstances) include: Benthic layer with typical species including *Chara spp, Lobelia, Littorella*			
Outstanding assemblage of Odonata	Canal: navigation channel and off-line areas: vegetation heterogeneity and structure	Floating and emergent vegetation suitable for Odonata oviposition. Vegetation surveys.	At least 5% of water surface to have floating or emergent vegetation, suitable for Odonata oviposition. CSM surveys of 13 channel sites, visual observation of OW and OE.		Yes
Outstanding assemblage of Odonata	Canal: navigation channel and off-line areas: vegetation heterogeneity and structure	Submerged vegetation providing cover for Odonata nymphs. Vegetation surveys.	Submerged vegetation to be present over at least 30% of water area, to provide cover for Odonata nymphs and their prey. CSM surveys of 13 channel sites, visual observation of OW and OE.		Yes
Outstanding assemblage of Odonata	Canal: navigation channel and off-line areas: vegetation heterogeneity and structure	Emergent vegetation suitable for Odonata emergence. Vegetation surveys.	At least 2% of water surface to have emergent vegetation, suitable for Odonata emergence. CSM surveys of 13 channel sites, visual observation of OW and OE.		Yes
Outstanding assemblage of Odonata	Canal: navigation channel and off-line areas: vegetation heterogeneity and structure	Emergent and bankside vegetation, suitable for adult foraging, basking and territory holding. Vegetation surveys.	At least 20% of margins to have emergent vegetation or adjacent tall bankside herbage, suitable for adult Odonata to bask and hold territories. CSM surveys of 13 sites, with additional recording of general structure of bankside vegetation to 1 m from water's edge, visual	Include all emergent vegetation (see above); plus any tall grasses such as *Glyceria* and *Phalaris* or any non-graminaceous species greater than 0.5m in height, which are within 1m of the water's edge.	Yes

			observation of OW and OE.		
Outstanding assemblage of Odonata	Canal: navigation channel and off-line areas: vegetation heterogeneity and structure	Open water areas. Vegetation surveys.	At least 30% of total water surface to be unobstructed. CSM surveys of 13 channel sites, visual observation of OW and OE.	Excessive cover of *Lemna* or *Azolla* may hinder or prevent Odonata oviposition and/or emergence.	Yes
Outstanding assemblage of Odonata	Canal: navigation channel and off-line areas: vegetation heterogeneity and structure	Tree cover for refuge and foraging by adults. Measured in vegetation surveys.	About 10% of margins to have overhanging tree cover. CSM surveys of 13 channel sites, visual observation of OW and OE.	Tree cover is important for the two of the most notable species cited (*Somatochlora metallica* and *Cordulia aenea*). *Salix* and *Alnus* are the preferred genera of trees.	Yes

Audit Trail

Rationale for limiting standards to specified parts of the site

Rationale for site-specific targets (including any variations from generic guidance)

Rationale for selection of measures of condition (features and attributes for use in condition assessment)

(The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).

Other Notes

Table 3d 3d Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **wet mire invertebrate assemblage** at **Basingstoke Canal** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
Site-specific standards defining favourable condition	

Criteria feature	Attribute	Measure	Site-specific Targets	Comments	Use for CA?

Outstanding assemblage of invertebrates Broad assemblage type: W31 permanent wet mire Specific assemblage type: W314 rich fen (Proxy habitat table = fen, reed and other swamp)	Vegetation heterogeneity Diverse surface topography of vegetation types	Record Structural Recording Surveys (SRS) of 6m radius at sample stops to determine number of structural surfaces and representation of preferred surfaces within the assessed unit. Preferred surfaces are: Taller grasses, rush swards and herb surfaces, including those contained within reed or sedge swards. Main reed or sedge sward surface. Possible preferred surfaces (depending on fauna and circumstances) include: Open water (where appropriate.) Open mud or reed/sedge litter surface. (In 10% SRSs.) Short grass swards, usually along paths and tracks. Young to medium-aged scrub - usually maintained by rotational coppice. (In 10% SRSs if appropriate.)	A single surface present in no more than 50% of SRSs. More than 3 different Surfaces present in at least 20% of SRSs.	Wetland systems should generally be assessed between July and September, as it is important for the vegetation to reach its full surface expression before assessing it. Preferred features are micro-habitat features which should always be targeted during an assessment. These should be recorded and mapped. The preferred features for this assemblage are: Scrub patches and margins - including small areas or mosaic with wet woodland. Pools and pool margins. Flowery areas, including those on other habitats (verges, ruderal etc) including 'unwelcome' weeds such as ragwort and thistles. Localised poaching with water filled hoof prints and wet bare substrate. Paths, tracks and their margins. Negative factors should be regarded as mandatory parts of the condition assessment process. If a preferred feature is significantly impacted by a negative factor then the unit should fail. The presence of negative factors on the rest of the unit depends on the level of impact, whether it is increasing/ declining, and its location. Negative indicators for this assemblage include: Change from grazing to mowing Invasive balsams - Impatiens species Excess grazing leading to loss of flowers or winter structures (seed heads - standing dead stems) Closure and coalescence of scrub patches to >20% cover.	Yes

	Dead organic matter litter	Record percentage cover of litter layer of grass/sedge or heather litter (Excluding Molinia) >1cm depth	**Favourable condition if**: 10%-25% of herbaceous, graminoid or ericoid layers with litter layer beneath		Yes
	Cover – seed heads	Percentage of site where seed heads and hollow stems are able to persist through winter	**Favourable condition if:** At least 10% of herbaceous, graminoid swards with erect dead stems and seedheads persisting until late		Yes
	Tussocks	Percentage age of graminoid swards with perceptible tussock structure.	**Favourable condition if:** There is a minimum of 10% of herbaceous and graminoid swards tussock structure, especially in winter		Yes
	Nectar sources (See floweriness table in CSM guidance)	Record percentage occupation of species able to flower throughout the year.	**Favourable condition if:** At least 10% of sward, hedgerow or scrub able or likely to be able to flower at time of year appropriate to flowering species present There should be no reduction in seasonality of existing distribution of flowering through loss of species with a particular flowering phenology between		Yes

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) (The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes

References for Appendix 2

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Mapping of Off-channel areas including permanent open water

This is a separate CD not included in the Plan because of the large amount of pictorial data involved. A copy is held by the Basingstoke Canal Authority.

The areas are presented west to east. For most areas there is an aerial photograph, with the SSSI boundary shown as a black line, the water's edge in

1999 (date of most recent aerial photographs) in blue, and the position of minimum acceptable reduction by siltation and/or vegetation encroachment before action needed to return the water body to its previous size in red.

Appendix 3 - The ecology of the Basingstoke Canal and unitisation of the SSSI on the basis of its ecology

Water quality and channel vegetation

The designated lengths are part of an ecocline, grading from a base-rich (chalk) ecosystem at the western end to a base-poor system at the eastern end, after the water has travelled over and received side drainages from heathland, woodland and their associated acidic clays and sands.

The transition is gradual, as the water quality only slowly adjusts to its surrounding landscape. A De-trended Correspondence Analysis of vegetation composition at sites along the canal shows that the downstream series of assemblages mostly overlap with those on either side of them. The analysis uses data obtained by the standard University of Liverpool quantitative survey procedure (the precursor of the method adopted in JNCC, 2005). Summer survey data were available from

14 sites over 11 consecutive years from 1988 to 1998; see Table 1 below, which is from James & Eaton (1999). This period included the time when the SSSI Citation was last revised (1994).

The DCA diagram is also shown below, as Fig.2 from James & Eaton (1999).

Table 1
Site information from BIOSCAN surveys

Site No.	Site name	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1	Greywell Tunnel	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y
2	Lift Bridge / North Warnborough	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2A	Broad Oak				Y	Y	Y	Y	Y	Y	Y	Y
3	Barley Mow	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4	Crookham Wharf / Chequers	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5	Reading Road	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
6	Pondtail	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
7	Eelmoor (West)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
8	Ash Lock	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
9	Mytchett Lake	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
10	Frimley Aqueduct	Y										
11	Curzon Bridge	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
11A	Brookwood							Y	Y	Y	Y	Y
12	St. John Bridge	Y			Y	Y	Y	Y	Y	Y	Y	Y
12A	Sheerwater							Y	Y	Y	Y	Y
13	Scotland Road Bridge	Y										
	Total number of sites:	13	9	10	12	12	12	14	14	14	14	14

Y = Data available

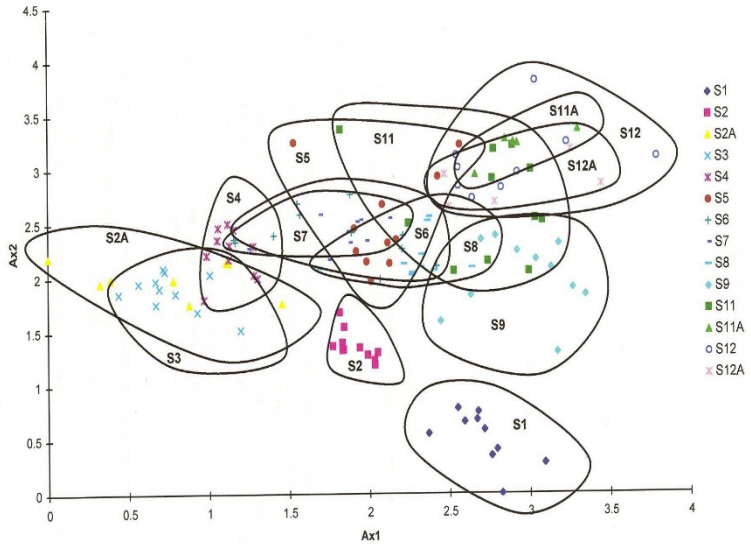


Fig. 2 DCA diagram produced from analysis of abundance data showing the distribution of data points at each site.

Only Sites 1 and 2 (Greywell and North Warnborough) come out as strongly distinct. Greywell is very shallow, visibly flowing and with obvious chalk stream features (e.g. Ranunculus penicillatus ssp. pseudofluitans var. vertumnus, Fontinalis antipyretica). The temperature regime is seasonally buffered by input of spring water at ~10C and the site is not canal-like in its physical structure. North Warnborough also shows calcareous flora features (e.g. Oenanthe fluviatilis, Hippuris vulgaris), along with a range of more usual canal species. The channel is now wholly that of a canal, i.e. deeper and with steeper batters, which probably explains its less specialist overall flora. From Site 2A (Broad Oak) onwards, the channel has started to receive significant side drainages and all remaining sites from 2A eastwards to 12A (Sheerwater) show overlaps with their neighbours. There is no clear boundary between the base-rich and base-poor types, as is to be expected from the hydraulic character of the canal outlined above. The nearest approach to a transition is perhaps Sites 5, 6 and 7 (Reading Road, Pondtail and Eelmoor), but any attempt to define a boundary, or even an ecotone, must be rather arbitrary. Only from Brookwood (11A) eastwards to Sheerwater (12A) is some degree of floristic homogeneity indicated.

Although the SSSI Citation states that the canal 'is botanically the most species-rich aquatic system in Britain', this status is created by the wide range of water qualities within its overall length, enabling the waterway as a whole to support an exceptional number of plant species. It is not, however, particularly species-rich on an individual site basis; some other canals show greater species richness per standard 150 m survey length. This serves to emphasise the importance of maintaining the water quality gradient in the Basingstoke Canal SSSI, as this has probably been historically the single most important factor shaping the observed richness.

Berula erecta, Ranunculus penicillatus ssp. pseudofluitans var. vertumnus, Hippuris vulgaris and Oenanthe fluviatilis, species mainly or wholly towards the western end and are used as indicators of base-rich water. Oenanthe crocata, Potamogeton obtusifolius and Utricularia australis are mainly or wholly in the eastern parts and are used as indicators of base-poor water.

The marginal vegetation

In canal fringe vegetations there is insufficient width for development of multi-species systems at any one point.

The main 'reeds' are clump-forming pre-emptive occupiers of habitat and the particular species recorded at a given site is of little significance. Only over a long length can the full range of species be determined 'like beads on a string'. The associate mainly broad-leaved marginal and marsh species present depend partly on the density of the main 'reed' species. Where boat traffic disturbance and local damage opposes achievement of maximum shoot density of the dominant 'reed', this favours a diversity of associate species.

Most of the emergent species are distributed throughout the canal from west to east. Exceptions are Hippuris vulgaris and Oenanthe fluviatilis. Both are characteristic of base-rich water and are found only in the western section. Also Equisetum x littorale is only found eastwards from Iron Bridge west of Ash.

Off-channel areas

Included in the SSSI are 29 water bodies and marshes associated with the main canal channel. These comprise winding holes, bays, widening adjacent to locks (perhaps part of the original design aimed at limiting level variations on short lock pounds), together with the large flashes and a few much smaller side waters and marshy areas. Dogmersfield Lake and Pirbright New Pond

are also included in the Citation. In addition to their aquatic flora, most of these water bodies have surrounding marsh supporting conservational important vegetation. It is clear from Hall (2004) that many of these areas are important as sources of species for replenishing populations in the main navigation channel, as well as providers of habitat for some species unlikely to colonise the canal. It is also clear from Hall's report that they are ecologically unstable and undergo quite

rapid vegetation succession, from open water with submersed, floating-leaved and emergent vegetation, through reed swamp to scrub and wet woodland (mainly willow and alder). At each stage in this succession different species are favoured. These off-channel areas are best treated as a group, as they will contain a range of succession states at any one time. As each area becomes overgrown, it should be cleared and, if necessary dredged, to restore open water habitat.

The trophic status of the canal

In the Citation, the canal is classified as mesotrophic. JNCC (2005, p.7) proposes that if 'any three or more species marked 'Meso' in Appendix 2 occur in a section, this indicates that the canal water is mesotrophic or oligo-mesotrophic.' This criterion is certainly fulfilled for the SSSI as a whole (e.g. Menyanthes trifoliata, Potamogeton alpinus P. obtusifolius, Ranunculus penicillatus ssp. pseudofluitans var. vertumnus), of which P. alpinus and R. penicillatus ssp. pseudofluitans var. vertumnus occur at the western end. The foregoing assumes that var. vertumnus has approximately the same trophic preference as the subspecies, in line with Webster (1988). Water quality analyses show that the western end of the canal is fed by very

nitrogen-rich chalk spring water (6-7 mg/l N), but phosphorus is low (20-30 µ g P/l). The high N probably accounts for periodic abundance of green filamentous algae at Greywell, but apart from this local feature, the general mesotrophic ranking of the SSSI appears justified and this accords with the conclusions of McGruer (2004 pp.53-54), based on a review of the rather scanty water quality records available for the SSSI.

Unitisation of the SSSI

In the previous (2008) edition of this plan Dr John Eaton proposed that for the purpose of conservation management, the Basingstoke Canal channel (C) be divided into two units; a western section (CW), predominantly supplied with base-rich (chalk spring) water from Greywell and an eastern section (CE) where the water becomes increasingly base-poor as it receives drainages off acid sands and gravels. The boundary between the units was to be at Norris Bridge (SU834536) drawn from analysis of vegetation change down the canal.

Dr Eaton agreed this position with Natural England, who agreed to modify the formal SSSI units to match the proposal. In 2016 it became evident that Natural England had not in fact modified the units as proposed in 2008, but had retained the boundary between the two main canal channel units of the SSSI at the County Boundary – where the Canal passes over the River Blackwater – some 6.5km further east. Natural England Officers made it clear that they did not now want the boundary of the SSSI units modified.

This means that where previously most of the off-channel areas were associated with Canal East they now are spread more evenly between the two associated Canal channel units.

Appendix 4 - Natural England's Citation of the SSSI

FILE REF: LB/BAS

COUNTY: SURREY/HAMPSHIRE

SITE NAME: BASINGSTOKE CANAL

STATUS: SITE OF SPECIAL SCIENTIFIC INTEREST NOTIFIED UNDER SECTION 28 OF THE WILDLIFE AND COUNTRYSIDE ACT 1981.

Local planning authorities:

Hampshire County Council/Surrey County Council

Hart District Council/Rushmoor Borough Council

Guildford Borough Council/Surrey Heath Borough Council

Woking Borough Council/Runnymede Borough Council

National Grid Ref:

SU 719514 to SU 967575

TQ 016597 to TQ 046616

Ordnance Survey Sheets:

1:50,000: 186

1:10,000: SU75SE, SU75SW, SU85NE, SU85SE, SU85SW, SU95NE, SU95NW, TQ05NW, TQ06SW

Hectares/Acres: 99.15 hectares

244.99 acres

Date notified (under 1949 Act): 1955 Date of last revision: 1975

Date notified (under 1981 Act): 1985 Date of last revision: 30 September 1994

Date confirmed: 22 June 1995

Other Information:

Basingstoke Canal SSSI incorporates and extends the Basingstoke Canal (Greywell - Odiham Castle) and Basingstoke Canal (Eelmoor) SSSIs in Hampshire, notified under the Wildlife and Countryside Act 1981 and the Basingstoke Canal East and West SSSI in Surrey, notified under the National Parks and Access to the Countryside Act, 1949. It is largely owned by Hampshire and Surrey County Councils. Eelmoor, Claycart and Rushmoor Flashes (Hampshire) are managed by the Hampshire Wildlife Trust under an informal reserve

agreement. The Basingstoke Canal was added to the Nature Conservation Review (NCR) list of sites in 1989. It lies within the London Basin Natural Area.

Description and Reasons for Notification:

The Basingstoke Canal, together with associated "flashes" and heathland, is nationally important for aquatic plants and invertebrates. The transition from calcareous spring water to slightly acidic conditions produces an extremely diverse flora, containing approximately half (87) of Britain's native aquatic higher plant species, including 5 nationally scarce* species. The Basingstoke Canal is botanically the most species-rich aquatic system in England. Twenty-four species of dragonfly occur on the Canal and other insects, including two nationally rare** (Red Data Book) species, are well represented.

Two sections of the Basingstoke Canal are of SSSI status. The western section lies between Greywell in Hampshire and Hermitage Bridge in Surrey; the eastern section lies between Monument Bridge and Scotland Bridge in Surrey.

The relative lack of pollution in the Canal and the variation in water chemistry throughout its length have given rise to a diversity of plant species and communities that has no parallel elsewhere in Britain. This, together with a rich and varied invertebrate fauna, makes the Basingstoke Canal a waterway of exceptional value to nature conservation.

The Canal is largely supplied by calcareous water from springs situated at the junction of the chalk and Reading Beds (clays) at Greywell. Moving downstream, it is supplemented by progressively more acidic spring and stream water from the Aldershot heathland district. Due to a slight west-east gradient, which gives rise to a definite water movement, the overall system is analogous to a slow-flowing river with initially alkaline water that gradually becomes more acidic and less charged with calcium. Such a combination is a rare feature in Britain.

The vegetation types reflect this gradual change in water chemistry. At Greywell the flora is typical of that of a nutrient-rich southern chalk stream. Here it is dominated by the moss *Fontinalis antipyretica*, the starworts *Callitriche obtusangula* and *C. stagnalis*, fool's watercress *Apium nodiflorum*, lesser water- parsnip *Berula erecta* and water crowfoot *Ranunculus penicillatus subspecies pseudofluitans var. vertumnus*, the latter here in its *locus classicus*, from which it was formally studied and described. As the calcareous waters move across the London Clays the flora changes, with locally abundant mare's tail *Hippuris vulgaris*, river water dropwort *Oenanthe fluviatilis*, arrowhead *Sagittaria sagittifolia*, the pondweed *Potamogeton alpinus* and *P. berchtoldii*, and stoneworts including *Nitella flexilis* and several varieties of *Chara vulgaris*.

The Canal then passes onto the Bracklesham Beds and Bagshot Sands of the Aldershot heathland district. In the downstream stretch some of the species abundant upstream disappear, to be replaced by a very species-rich flora which comprises a remarkable assemblage combining both nutrient-rich and acidic elements. Amongst the characteristic plants of this long stretch are the pondweeds *Potamogeton natans* and *P. perfoliatus*, water solider *Stratiotes aloides*, Canadian and Nuttall's pondweeds *Elodea canadensis* and *E. nuttallii* and great bladderwort *Utricularia australis*. Frog-bit *Hydrocharis morsus-ranae* and greater duckweed *Spirodela polyrhiza* occur amongst the emergent vegetation.

Plants typical of acidic waters, which occur in this stretch, are bulbous rush *Juncus bulbosus*, floating club- rush *Eleogiton fluitans*, alternate- flowered water-milfoil *Myriophyllum alterniflorum*.

The Monument Bridge-Scotland Bridge stretch at Sheerwater to the east of Woking, is rich in open water and emergent species characteristic of the main part of the Canal such as the pondweed *Potamogeton natans*, frogbit *Hydrocharis morsus-ranae*, greater duckweed *Spirodela polyrhiza*, water plantain *Alisma plantago-aquatica*, and narrow leaved water plantain *Alisma lanceolatum*. Of particular note within the Monument Bridge-Scotland Bridge stretch are the nationally scarce pondweed *Potamogeton trichoides* and the nationally scarce tastleless water pepper *Persicaria laxiflora*.

Certain stretches of the Canal are less species-rich, due to shading by overhanging trees, or very localised pollution problems, but these stretches have been included in the SSSI because they enable the continuum from calcareous to acidic water to be expressed within the SSSI.

Ninety species of aquatic plants, including a number of native stoneworts (charophytes) and the aquatic moss *Fontinalis antipytretica*, have been recorded in 1992 and 1993 from the main line of the canal and its extensions (or “flashes”); an additional 16 native wetland species have been recorded on the Canal system since 1986.

Of the 90 plants recorded in 1992 and 1993, 5 are nationally scarce* being river water dropwort *Oenanthe fluviatilis*, the pondweed *Potamogeton trichoides*, tasteless water pepper *Persicaria laxiflora*, the horsetail *Equisetum x litorale* and the water crowfoot *Ranunculus pencillatus subspecies Pseudofluitans var vertumnus*. The nationally scarce water soldier *Stratiotes aloides* and fringed water lily *Nymphoides peltata* have been introduced.

Other noteworthy plants include needle spike rush *Eleocharis acicularis* and various-leaved pondweed *Potamogeton gramineus*.

The invertebrate fauna is correspondingly rich. Twenty four species of Odonata (dragonfly and damselfly) have been recorded on the Canal in 1992 and 1993, making the Canal one of the most important sites for *Odonata* in terms of species diversity in Britain. Surveys undertaken during 1992 and 1993 revealed evidence of breeding of 19 species. Of particular note are populations of the nationally scarce brilliant emerald *Somatochlora metallica*, the hairy dragon fly *Brachytron pratense* and the downy emerald *Cordulia aenea*. In addition to the *Odonata* fauna, the Canal supports a wide range of other insects, associated particularly with the rich emergent vegetation. Hoverflies are well represented. About eighty five species have been recorded along the Canal, including the nationally scarce *Anasimyia contracta*, *Didea intermedia*, *Epistrophe diaphana*, *Volucella inanis* and *Xylota tarda*. The scarce snail-killing fly *Psacadina verbeckei*, the rare (Red Data Book**) solitary bee *Macropis europaea* and the scarce dentated pug moth *Anticollix sparsata* are also present. The Canal also supports populations of water birds such as little grebe, kingfisher and grey wagtail which are of considerable local importance.

Several off-line "flashes" have been included in the site, as they are an integral part of the hydrological system, and provide shallow-water conditions which are rare in the restored main line of the Canal. Of particular significance are Eelmoor Flash, the extensive Mytchett Lake and Great Bottom Flash and the small, shallow Potter's Pool.

Great Bottom Flash is fringed on the eastern side with reed *Phragmites australis* and supports a rich marginal flora including water violet *Hottonia palustris* and royal fern *Osmunda regalis*. Mytchett Lake is an extensive area of open water with abundant white water lily *Nymphaea alba*, and common bulrush *Schoenoplectus lacustris*, and is notable for its fringing colony of purple willow *Salix purpurea*, which is rare in Surrey. The lake supports a large colony of red-eyed damselfly *Erythromma najas*. Potter's Pool, adjacent to open heathland, is an excellent site for dragonflies and supports a rich flora dominated by great bladderwort *Utricularia australis*, with bottle sedge *Carex rostrata* in the emergent fringe of vegetation.

Adjacent to the canal, but not linked to it, is New Pond at Pirbright, which supports an acid bog marginal flora including a number of plants not recorded from the Canal, for example marsh St John's wort *Hypericum elodes*, bog myrtle *Myrica gale*, many-stalked spike-rush *Eleocharis multicaulis*, cotton grass *Eriophorum angustifolium* and lesser bladderwort *Utricularia minor*. Of additional note are the sedges *Carex rostrata*, *C. vesicaria* and *C. curta* and floating club-rush *Eleogiton fluitans*.

Dogmersfield Lake is included within the SSSI as it forms part of the Canal's water catchment, and supports a rich flora including some species which are very rare in or extinct from the remainder of the Basingstoke Canal system for example lesser water plantain *Baldellia ranunculoides*, bogbean *Menyanthes trifoliata* and water purslane *Lythrum portula*. The lake also has strong populations of needle spike rush *Eleocharis acicularis* and fan-leaved water-crowfoot *Ranunculus circinatus*.

The hinterland of woodland, heath, unimproved meadows and fens through which the Canal flows increases the value of the aquatic habitats. Pondtail Heath (Fleet) has been included within the SSSI since it is of direct importance to invertebrates such as the dragonflies, which hawk over this area. Pondtail Heath comprises an area of largely wet heath dominated by ling *Calluna vulgaris*, cross-leaved heath *Erica tetralix* and purple moor-grass *Molinia caerulea*. The flora is rich, with species such as oblong-leaved sundew *Drosera intermedia*, meadow thistle *Cirsium dissectum*, petty whin *Genista anglica* and blunt-flowered rush *Juncus subnodulosus*, the latter in an atypical acidic locality.

The invertebrate fauna includes the nationally rare** (Red Data Book) hoverfly *Pelecocera tricincta*, and a population of the keeled skimmer *Orthetrum coerulescens*, which breeds in small bog pools on the heath.

* Nationally scarce species occur in 16-100 of 10 x 10 km squares in Britain.

** Nationally rare species are listed in the relevant Red Data Book i.e. "British Red Data Book 2: Insects".

Appendix 5 Trees and the waterway ecosystem

An example of how tree shading has increased since the canal ceased to be an operating freight waterway

Figure 9 - Eelmoor military bridge looking east - late C19th

Figure 10 - Eelmoor military bridge looking west - c.2000

The development of shading and loss of channel vegetation

On tree-shaded lengths, up to 90 % of incoming radiation is intercepted before reaching the water surface. James & Eaton (1999) showed that 69 % of the canal from Greywell to Mytchett was tree-lined in 1998, up from 54 % in 1971. On 31 % of the length branches overhung to at least half the channel width, up from 23 % in 1971. Comparable data were not available for the remainder of the canal, but visual inspection suggested that tree growth was substantial through to the junction with the Wey Navigation.

This alone explained the near absence of both submersed and emergent vegetation from long lengths of the SSSI, irrespective of any other stress factors which may have been operating locally.

Tree clearance from a formerly heavily shaded length east of Eelmoor Flash in 2000 has been followed by gradual re-appearance of submersed vegetation on the navigation channel batters.

Disposal of wood after clearances

Although some of the wood may have commercial value, either as timber or for chipping, it is important to leave substantial logs on site where they do not cause hazards to the public. This is because dead wood has considerable ecological value.

Many species of invertebrate fauna depend on dead or decaying wood. These 'saproxylic' animals include beetles, flies bees wasps and ants. Loose bark and hollow trees are also important to woodlice, millipedes, centipedes, springtails, pseudo-scorpions and spiders along with slugs and snails. Many of these invertebrates fill an essential role near to the bottom of food webs. By maintaining suitable habitat for such species, a food source is maintained for birds and other larger animals further up the food chain. Dead wood also provides important conditions for many fungi and lichens. It may take many years for the wood of some species such as oak (*Quercus* spp.) to deteriorate and excellent habitat is provided throughout this time.

Appendix 6 - Boat hydraulics and the waterway ecosystem

The forces generated by moving boats

Boats exert direct effects by the impact of moving hulls and the chopping action of propellers. They also create indirect effects via the water flows which they generate, namely return flows past the moving hull, waves and the propeller jet. These cumulatively disturb the canal bed, leading to turbidity in the water and hence a reduction in underwater light for submersed plants.

A detailed analysis of the hydraulic forces created by a boat moving along a canal, including the effects of channel size and craft size and speed, is given by Verheij (2006).

Emergent vegetation, i.e. reed fringes, is fairly robust, being firmly rooted and adapted to tolerating waves and other water movements created by boats travelling at speeds within the 6.4 km/h limit. Submersed vegetation ('pondweeds') and floating leaved-rooted plants (e.g. water lilies) are much more susceptible to damage by boat traffic, partly because they are further into the channel than the reed fringes and partly because they are more delicate in structure. Analyses in Eaton, Godfrey & Willby (2007) indicate that there is no scope for sustainable populations of these plants in the central navigation track, hydraulic forces there being too great. There is, however, considerable potential for maintaining vegetation on the batters (the slopes up on each side of the canal bed from the central track to the water's edges). This potential is strongly controlled by certain basic features. These are as follows.

- *The size of the channel*. Even quite small increases in width and especially in depth confer great improvements in potential plant habitat. For example dredging from 1.0 m to 1.5 m almost halves the boat-induced water velocities and hence the stresses they cause to channel vegetation.
- *The firmness of the canal bed*. A firm rooting medium allows plants to endure the pull generated by boat-induced water flows. In soft silt, plants are easily uprooted and lost.
- *The speed of the boat*. Hydraulic forces rise steeply with boat speed.
- *The availability of underwater light*. At the boat traffic densities currently planned, the turbidity generated should not be sufficient to prevent underwater growth on the batters.

Verheij (2006) also shows how manoeuvring boats, particularly when starting from static, generate much greater forces through their propeller jets than when they are moving steadily at normal cruising speeds. Therefore additional measures to assist conservation include provision of deeply dredged winding holes and hard banked deeply-dredged moorings at intervals along the canal, so that boat manoeuvring is concentrated in a few locations adapted to minimise channel disturbance.

Basis for the target traffic limit

Research on the national canal network indicates the ideal traffic range for long-term conservation to be 600 - 1000 movements per year in a standard trapezoidal channel with a 10 sq metre water cross-sectional area. This is for a typical range of recreational craft types, travelling at no more than 6.4 km/h.

Within the channel size range 7-20 square metres, the ideal traffic range appears to adjust pro rata with size. Thus, for example -

at 7 square metres, the ideal range is: [600 x 7/10] to [1000 x 7/10]
i.e. 420 - 700 movements/yr

at 20 square metres, the ideal range is: [600 x 20/10] to [1000 x 20/10]
i.e. 1200 - 2000 movements/yr

The 600-1000 unit range maintains the greatest species diversity. Below 600, channel blockage by weed and consequent competitive exclusion of species occurs, at least in the long term. Above 1000 movements, species loss becomes significant

The Basingstoke Canal's normal, fully-dredged channel has a cross-sectional area of about 13 square metres, for which the ideal range, as defined above, is

[600 x 13/10] to [1000 x 13/10] i.e. 780 - 1300 movements/yr

In this Plan, the limit has been set at the upper end of the range, i.e. at 1300 movements/yr, to give the greatest possible accommodation to boat use within the requirements for conservation.

Appendix 7 Ecological impact and management of dredging

General

Dredging is a necessary management intervention, to reverse habitat deterioration due to siltation and to ensure the longer-term availability of the habitats upon which the wildlife interest depends. The act of dredging is, however, highly disturbing to the channel ecosystem and is accompanied by the risk of species losses and short-term destabilisation of aquatic community structures. Its immediate effects can be minimised by appropriate management procedures, so that the deeper- water, firm-bedded channel conditions necessary to support a resilient and diverse ecosystem can be achieved. The ideal is restoration of the original, trapezoidal channel section.

Detailed reviews of ecological aspects of dredging are in Eaton (2007) and Eaton, Godfrey & Willby (2007).

Sequence dredging is often considered to be the ideal, whereby a series of 0.5 - 1.0 km lengths is cleared in one year, alternating with similar lengths not cleared until the second or third year. The purpose of this arrangement is to ensure efficient recolonisation of newly dredged lengths by propagules drifting down into them from the adjacent, established communities. Its conservation advantages, which are supposed rather than proven, have to be weighed against practicability and the added expense of extra machinery movement as compared with continuous linear dredging. When the latter is used, it should, wherever possible, work upstream.

As the waterway relies for bank protection mostly upon vegetated, unhardened batters, dredging should not extend to the bank, but wherever possible should leave a 1 m width fringe of reeds undisturbed. Where the protective fringe has to be removed, post-dredging re-instatement of vegetative bank protection must be an integral part of the programme of works.

Pre-dredging preparations

Because of the long lead times needed to obtain permissions and transplant scarce species, planning should be started as far ahead of the proposed operation as possible. A year is probably about the minimum.

Once a section has been selected for dredging, botanical survey records should be checked for the presence of any scarce plants justifying special conservation by being transplanted to refuge areas. Use of SSSI off-channel areas should always be considered here, as these areas can themselves be enriched by use in this way.

Care should also be taken to identify any evidence of water vole activity. These animals have not been recorded on the canal for many years, but are returning to former habitats in many places. If populations are detected then appropriate steps should be taken to mitigate for them. Strachan & Moorhouse (2006) provides advice on this.

Where the reed fringes are to be narrowed, some other nearby length of the canal which lacks adequate reed fringes may be identified as the planned recipient of the excess vegetation.

At this stage plans for the dredging operation should be submitted to Natural England for approval.

This is to allow sufficient time for incorporation of any modifications required by Natural England and for any species transplants to be completed in the summer before the dredging.

Any transplants for conservation purposes should be made between mid-June and early August.

Permission will have to be sought from the Environment Agency if it is proposed to discharge water from dredging sites to rivers. Its discoloured appearance and possibly toxic nature can lead to complaints and liability for fish kills in receiving waters. Where permission is not granted and the water must be retained, temporary raising of downstream weirs will be needed (by sandbagging if the crest is not of adjustable height), noting that this procedure may have to be suspended at short notice in the event of heavy rain creating large influxes of storm water into the canal which require normal operation of weirs to avoid flood risks. In such circumstances dredging also will have to be suspended.

Permission must be sought from both the local authority and either Surrey County Council or Hampshire County Council, depending on location, to operate silt disposal sites under licence from the Environment Agency. Where this is not practical a licensed contractor will be appointed to carry this out to remove the dredgings for disposal at an authorised site elsewhere.

Dredging procedure

Dredging is a very disturbing operation for channel wildlife and should not be carried out during summer. Disturbance of accumulations of organic-rich silt leads to sudden oxygen demand in the water and release of toxic sulphides, methane and ammonia. At warm summer temperatures, when the fauna is most active, chemical processes are fastest and oxygen solubility is least. These conditions can easily combine to cause fish kills and mass mortalities of invertebrates. The work should therefore be scheduled between October and early March. An early finish will be needed in spring on lengths important for nesting birds and for the fishery.

Wherever possible, a marginal fringe of reeds about 1 m wide should be left undisturbed during dredging. This is the best way to provide restart colonisation for bank protection.

Transfer of excess reeds to new sites can be done during the dredging operation. The material will then be in position to start growth in spring. Removal can be by dredger or excavator, depending on the quantity and physical nature of the plants being conserved. In all cases, care should be taken to remove complete plants with rootstocks and to keep them wet during transfer, which should be as rapid as possible, to their new site. Most species are extremely susceptible to frost damage and drying when exposed to air. Reeds only establish in shallow water, colonising out into deeper water at a later stage. Plantings should therefore be made in the 0-0.2 m depth zone. On lengths exposed to wind and therefore to wave lapping, slippage of introduced plants may be a problem before they have time to root. Here anchorage will be needed initially, either by pegging or by planting in hessian sack containers weighted down with stones.

The method of dredging is a matter of engineering and economic convenience, since no particular method has been shown to have conservation advantages over any other. This includes dry dredging, which, despite its apparently drastic regime, has yielded some of the best post-dredging plant communities on the canal, where it was employed in the nineteen eighties.

Sequence dredging will be employed where possible, clearing a series of 0.5-1.0 km lengths in one year, alternating with similar lengths not cleared until the second or third year. Otherwise linear dredging will be used, working upstream.

Management of the recovery phase

Channel bed recolonisation is best left to natural processes, which often produce a rapid succession of 'pioneer' species and then a more gradual development of a diverse, stable plant community. As little interference as possible with these processes is desirable.

In particular the temptation to intervene with weed control measures should be resisted, except in extreme cases of channel blockage, as such intervention merely prolongs the period of ecosystem instability.

To allow time for establishment of aquatic plants with properly anchored below-ground systems, re-vegetating lengths in their first year after dredging should not be subjected to more boat traffic than is absolutely necessary. Therefore for at least 12 months and always including one complete growing season, boat rallies should be scheduled away from such lengths and a 3.2 km/h (2 mph) speed limit should be applied to remaining traffic.

Spot dredging

Spot dredging of silt and other materials around feeder inlets and bridges may be required every few years, or even every year. Such purely local work, removing recently introduced materials, should not require disturbance of the canal margins. Provided it is carried out between September and March and no scarce plant species are involved, the work should not need the above management safeguards, as there is unlikely to be any threat to the wildlife interest of the canal as a whole. Where these conditions apply, prior authorisation by Natural England is not required.

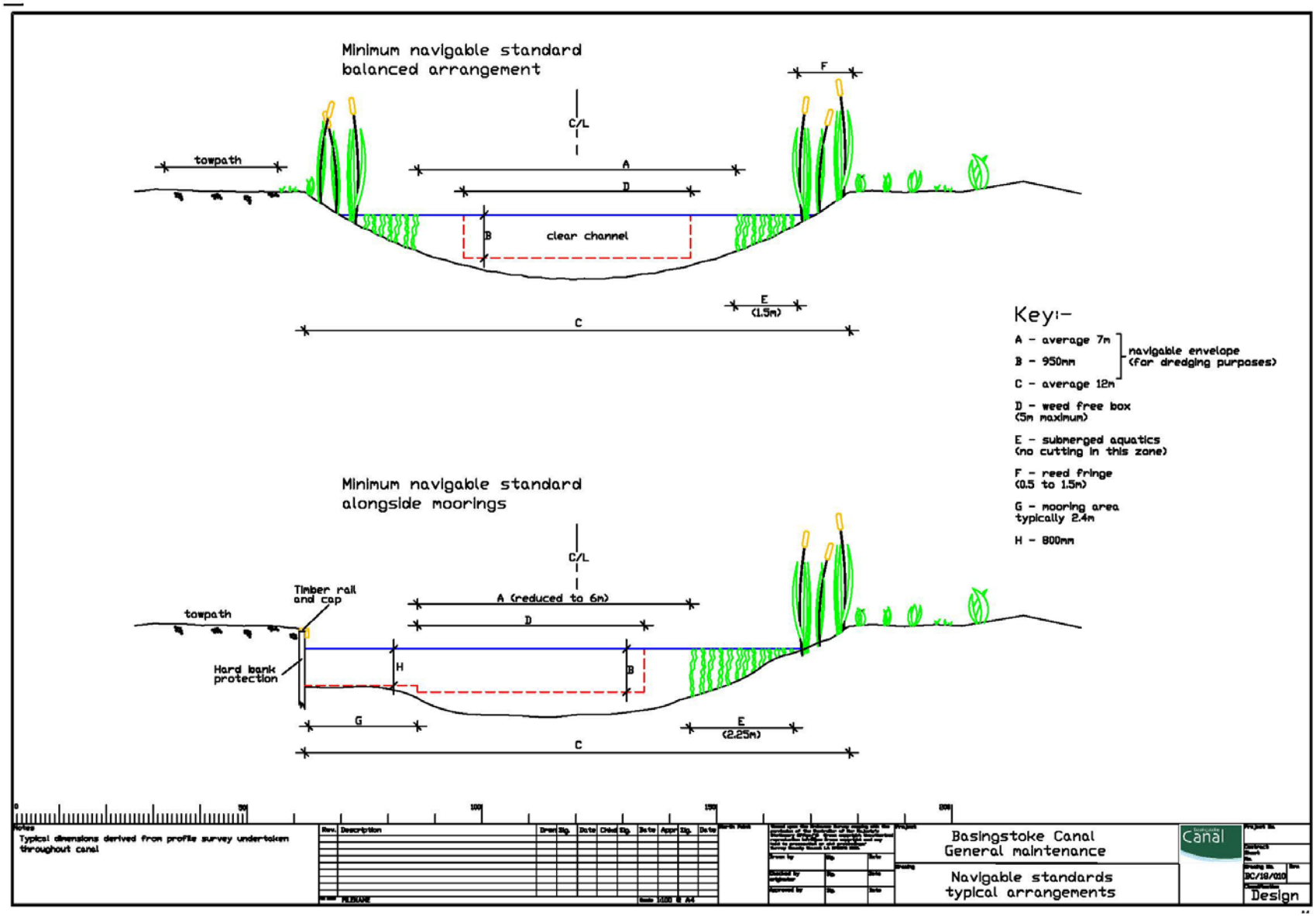


Figure 11 - Drawing showing minimum navigable standards

Appendix 8 - Bank protection

The process of canal bank erosion

There are many factors that contribute to the process of bankside erosion on the Basingstoke Canal including:

- wind-driven wave action, boat wash,
- burrowing animals,
- trampling by anglers, dogs or cattle,
- soil particle size and channel profile.

The dominant cause is the dissipation of wave energy. For the boat component of this, the amount of incoming energy depends considerably on the depth of the channel (Verheij 2006), such that well dredged lengths experience much less erosive wave action than shallower, poorly dredged ones.

Soil constitution and particle size will determine banks susceptibility to erosive influences. Lapping waves gradually cut into the canal banks at the waterline, loosening exposed soils, which then fall into the channel. Steep, unstable banks form as the shoreline erodes back into the ground behind. Once these steep banks have formed the process accelerates, as ledges are further under cut. Often shelves are formed just below the water line and these intensify the problem further, because as waves come onto these shallow areas, their height is increased leading to a higher rate of erosion.

Reflection of wave energy can accelerate erosion. The introduction of hard engineering solutions such as sheet metal piling solves the local erosion problem, but waves hitting the banks are now reflected back across the channel to the opposite bank, rather than absorbed as previously. This may result in intensified erosion of remaining adjacent soft banks, especially just beyond the ends of the hard banking.

By contrast, marginal bankside vegetation absorbs wave energy. There is a resilience limit to the capacity of reeds to dissipate energy, beyond which physical damage to the vegetation exceeds its ability to repair itself by new growth. On the Basingstoke Canal, traffic levels are within those tolerated by reed fringes elsewhere, so vegetated bank protection is potentially a viable system, especially if the rooting systems of the reeds are given some protection from washout of the soil in which they are anchored, by use of techniques described below. However on many parts of the canal the effectiveness of this traditional bank protection system has been compromised by increasing shading from bankside trees. Shading reduces the vigour of the marginal vegetation by limiting its photosynthesis and thus the mechanical strength of the plants and their and ability to repair damage by new growth. In many places the shading is too intense to allow any reed growth and here banks are bare and very susceptible to erosion.

The process of erosion can gain further momentum by the loosening of soil and destabilisation of areas of bank by burrowing mammals the introduced alien Signal Crayfish (*Pacifastacus leniusculus*).

Engineering solutions to bank erosion

Following more than 30 years of experience of bank management, the continued development of engineering techniques, learning from others in the waterway sector (such as contractors and other navigation authorities) the BCA have largely rewritten Appendix 8 in this iteration of the Plan to provide current best practice.

Hard walls

Sheet metal piling

Sheet piles consist of interlocking galvanised steel sheets; their length varies according to project requirements (usually at least 3m long). These sheets can be driven in to create a highly stable edge, and depending on gauge/profile and can be used with or without ground anchors. Soil, dredgings or granular materials can then be used to back fill, creating a hard, stable edge. A steel waling bar, a timber or even a reinforced concrete capping beam may also be required to add stability.

In some circumstances, at canal wharfs, areas where boat mooring is frequent, at structural wing walls of locks, weirs, or bridges, or where there is a technical requirement to effectively stop leakage, or provide structural support this is still a viable, and even a preferred option.

Although there is a moderately high capital cost, the life of galvanised sheet piling is in the 50-120 year range, meaning there is good economy in this type of construction.

However, sheet piling is not desirable for larger stretches of bank stabilisation without other treatments, as it provides an extremely poor environment of the colonisation of marginal aquatic plants and animals.

Where sheet piling is required for technical reasons, especially to resolve leakage or engineering support, and where the resultant bank is not required as a boat mooring; a semi-submerged shelf should be installed in front of the sheet metal wall to provide habitat for marginal plants, or the piles should be buried under dredged material won locally to the site so a naturally vegetated bank may regenerate from roots and seed.

Experiments with cheaper forms of piling, such PVC, have been made – mainly with poor results – and these should be avoided unless the technology improves. Intermittent sheet piling with timber infill panels was a favoured technique during the Canal's restoration period to reduce capital costs; unfortunately, this has the worst of all worlds as having a very limited lifespan plus poor conservation credentials, this technique should also be avoided.

Masonry

Stone and brick were the traditional materials of the canal builders where they required hard edges. These walls largely reflect waves, and therefore contribute to wave action, though designs including crevices and cavities can absorb some of the energy.

After a relatively short period masonry walls start to have voids and rough surfaces as mortar is lost from joints – this offers habitat for invertebrates, and can support small vascular

plants, algae, and mosses. Traditional masonry walls can be very expensive to build or rebuild in the canal environment due to the requirement to dewater.

Masonry should therefore be considered, but only where there is a requirement to repair an existing heritage structure, or create an equivalent new structure.

Reinforced concrete

Reinforced concrete walls are less traditional but are a favoured technique of engineers, as they can be designed to any shape, and have known and easily calculated structural strengths.

From a conservation perspective unless designed with a rough surface they are unlikely to absorb any wave energy, or provide habitat for invertebrates, mosses and lichens.

Concrete has a very high carbon footprint, even compared to steel, and therefore concrete walls should only be used where there is an engineering need for structural strength, and a reason not to use other options.

Gabion baskets

Gabions, i.e. metal wire cages filled with stones, can be used for low rise walls, although modern engineering codes mean that where they offer structural support a relatively massive foundation may be required, rendering the technique very expensive.

They are more aesthetically pleasing and can be favoured by planning officers, considering the heritage nature of the Canal. They provide good energy absorption from wave action, and provide good crevice habitats for all manner of flora and fauna.

The average life of a galvanised basket is around 40 years – after which there is an increased risk of failure leaving loose stones and pieces of wire in the navigation. Gabions therefore should be selected where a hard wall is required with excellent wave absorption properties, and is relatively low to the water not requiring structural support.

"Soft" walls – the vegetative solutions

The following systems are known as soft bank protection. The products installed have a shorter lifespan, but rely on the establishment of marginal vegetation to bind the bank together providing a continuing natural solution once the original installation deteriorates (usually after about 5 -10 years).

Whilst the cost of materials is generally much lower soft bank techniques can be time consuming and labour intensive to install – typically costings in 2018 are between 40% -60% of a sheet steel bank.

Coir fibre rolls

These are made of specially prepared natural coconut fibre, which is compressed into rolls and contained by an exterior mesh netting of synthetic cord. They are approximately 3 metres long and either 300 or 400mm in diameter depending on site requirements. The rolls are fixed using 1.2metre pointed stakes placed both sides (total of 7 per roll) and twine. It is advisable to install a geotextile fabric sheet behind the structure, to prevent the migration of backfill silt.

They are often installed pre-planted with a range of suitable plant stock and allowed to grow on in a nursery. This is not an option on the Basingstoke Canal however as pre planted stock that are not of local provenance cannot be introduced into a SSSI. Therefore, if specified sterile rolls should be installed, then planted with canal vegetation, or left to regenerate naturally.

Faggoting

This technique involves laying bundles of brash horizontally, usually dead willow but occasionally hazel. These faggots are 1m x 0.3m diameter and are secured to a line of stakes that have been driven in to the canal edge. Faggots can either be laid in a line along the toe of the bank or formed into a mattress, which can be used as a foundation for a newly formed bank. The faggot walls are then backfilled with silt from the canal and planted with marginal aquatic plants of local provenance.

Experience on the Canal of this technique has been mixed, with some locations margins re-establishing well and quickly, and in other locations hardly any growth. This may be connected to whether silt is retained in the faggot bundles or washed back into the Canal channel, or other external factors such as shade.

Hazel wattle hurdles

Hazel stakes are driven into the bank of the canal at 500mm centres. Then hazel whips are woven between the stakes until a continuous hurdle is constructed (this is known as spiling). Silt from the canal channel is then used to backfill.

This technique is particularly good for the construction of submerged shelves, which can be backfilled with silt and provide an excellent growing environment for marginal aquatic plants. If materials can be sourced on site it is a low capital cost and low carbon footprint option.

Willow is also commonly used for this technique on other waterways, but can result in vigorous saplings sprouting from the cut willow stakes or whips. In areas with high scour such as on rivers this may be highly desirable, but it should be used with caution on the Canal.

Nicospan

Nicospan is formed of a flexible woven geo-textile material with intermediate pockets to be fitted over timber posts or stakes. As a woven material it is porous and allows water to pass through whilst retaining the majority of silt and granular materials.

The material found particular favour in the late 1990s and early 2000s, as it was cheap, easy to install and had a lifespan of 10-15 years. In many cases it was incorrectly specified as a direct replacement for hard bank techniques such as sheet piling at boat moorings. It should never be used for this purpose, as it results in a sterile vertical bank, with limited support and a relatively short lifespan – thus having the conservation disadvantages of the hard edging, with poor engineering performance and low lifespan.

Nicospan should only now be considered as an alternative to Hazel wattling to retain submerged or semi-submerged plant shelves, or as protection against boat wash at the edge of in-channel reserve areas.

Three-ply geotextile

Where eroded banks now require reinforcement the current preferred option is to use a geotextile envelope to retain silt whilst both terrestrial and marginal plants regenerate on the bank.

The envelope is formed of three geotextile layers – a geo-grid for structural support, a filter membrane (such as Terram 1000) to prevent silt washing out, and an outer coir mesh to aid root growth. The envelope is then filled with locally won silt and soils, and then closed off by wrapping the free end over the placed material. The envelope is supported by cleft chestnut stakes driven at the line of the bank, and shorter stakes used as anchors further back into the bank, which are braced together with fence wire.

The three-ply geotextile can also be used to create open submerged planting shelves in front of the repaired bank – to aid the retention of silt and reduce the effect of boat wash in the margins.

The height of vertical or near vertical bank above water should be kept to the minimum in order to maximise suitable rooting areas.

Dog steps

In areas where there is considerable public use of the towpath dogs are frequently observed to swim in the Canal. Where the dog then re-emerges the scrabbling action leads to eroded embayments especially on the towpath side of the Canal. It is particularly notable in bare soil banks under heavy tree shaded areas, but can occur even in well vegetated banks. It is commonly associated with residential areas along the Canal and where other paths lead away from the towpath.

When specifying soft bank protection, account should be taken of the cause of any erosion; if dog action is suspected or observed then one or more timber “dog steps” should be formed at key locations (especially adjacent to path junctions) to reduce erosion.

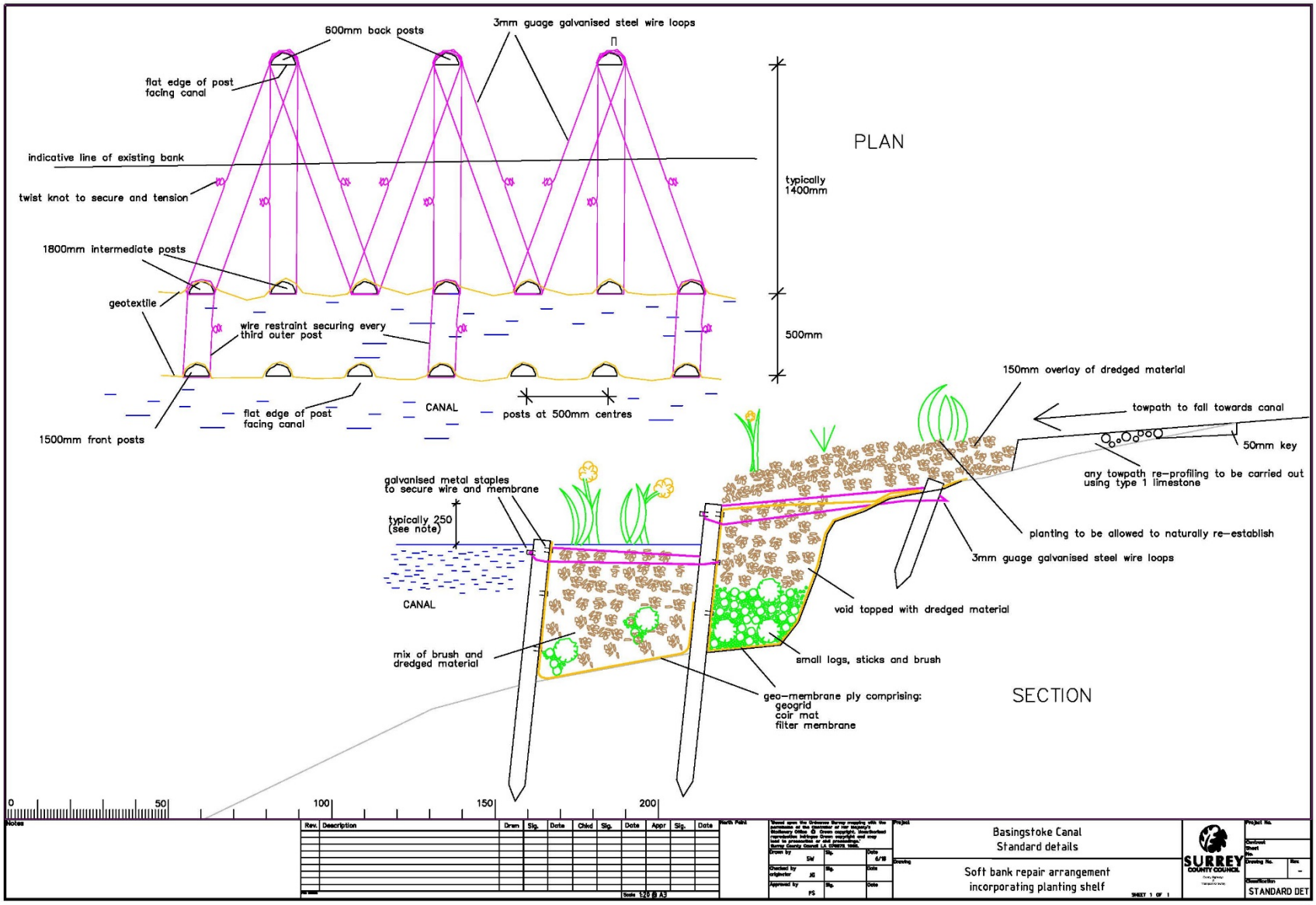


Figure 12 - Soft bank; three-ply geotextile method, including marginal planting shelf

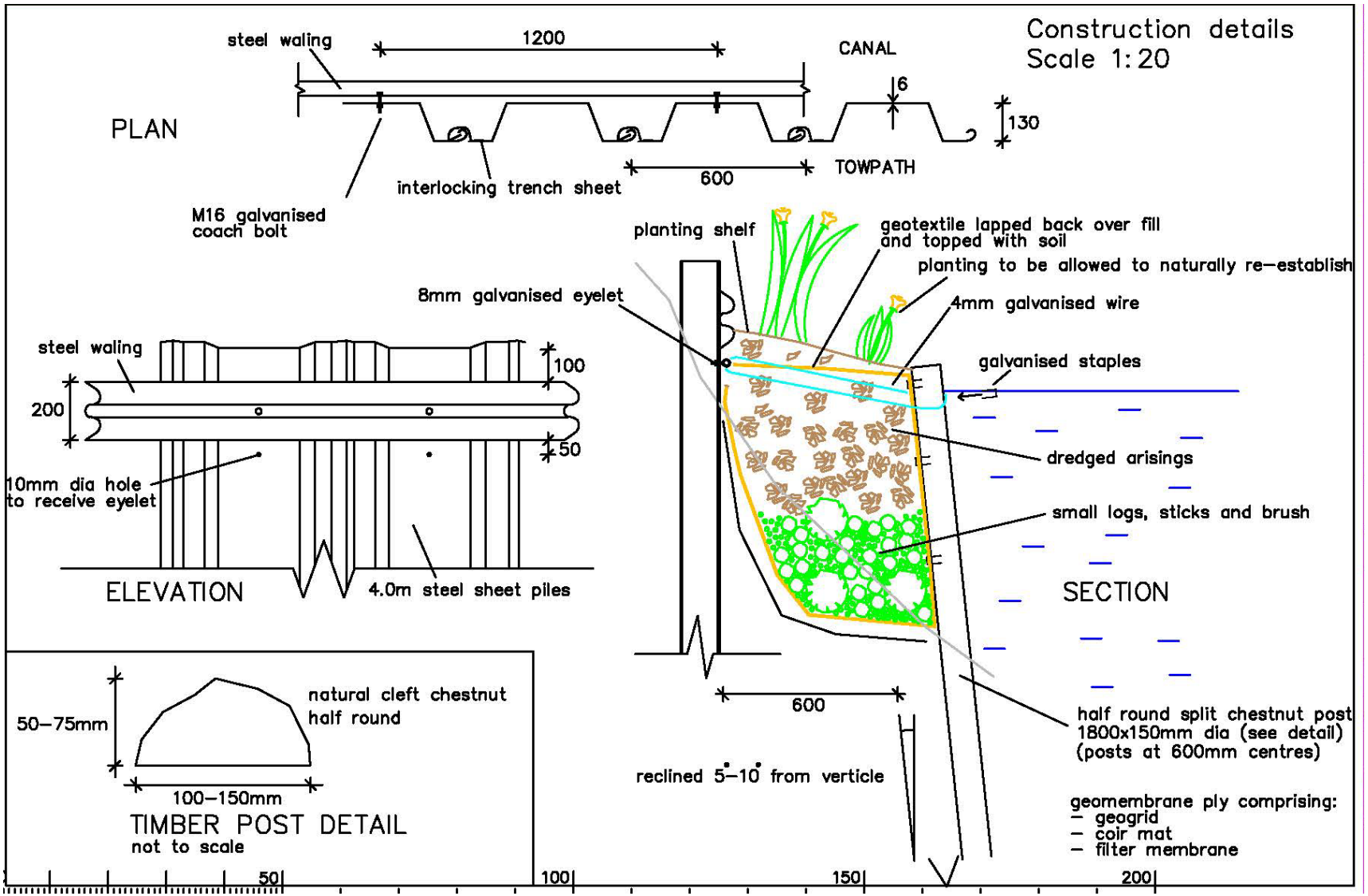


Figure 13 - typical sheet pile wall with planting shelf detail

Planting of soft bank installations

Only plants of local provenance should be used. Natural England has advised that this means native species from the "relatively local area" or from seed bank sources approved by Natural England and checked that they are not contaminated with non-natives.

The following emergent plant species can be collected at certain points along the canal and are suitable for plantings.

At the front on to the channel, in no more than 0.2 m water depth

- Common reedmace (*Typha latifolia*)
- Branched bur-reed (*Sparganium erectum*)
- Flowering rush (*Butomus umbellatus*)

At the rear, between the above and the dry bank, in no more than 0.1 m water depth

- Reed canary-grass (*Phalaris arundinacea*)
- Sedges (*Carex acutiformis, C. paniculata, C. pedula, C. pseudocyperus, C. riparia*.)
- Yellow flag iris (*Iris pseudacorus*)
- Rushes (*Juncus effuses, J. inflexus*)

Although common along the canal, Reed sweetgrass (*Glyceria maxima*) should not be used in plantings, as it outcompetes most other species and so reduces biodiversity; it also forms large decaying oxygen-deficient masses in winter which are poor habitat for invertebrates.

Transplanted plants should be pushed into the silt behind the newly constructed bank, also into the submerged wattle shelves at a spacing of approximately four plants per metre.

To ensure the effective long-term durability of soft bank systems it is essential that bankside tree growth be controlled in order to allow for sufficient sunlight to enter the canal and its margins.

Appendix 9 Dewatering Protocol - Routine Works

Natural England should be notified of all dewaterings. This is a notification rather than application for Assent as long as works follow the protocol below:

- The length of time for any dewatering should be the minimum possible to prevent damage to the canal and its associated wildlife.
- Where possible all dewatering should be done during the autumn or winter months.
- The length of the stretch of canal that is dewatered should be the minimum practically possible to minimise disruption and if possible a partial drain down is preferable.
- Fish rescues will need to be planned if required and the EA informed.(see fish rescue procedure) If dewatering is going to be longer term then crayfish trapping will need to take place to prevent re-burrowing at lower depths.
- Any dewatering will need to be advertised to let the public know. This should be done via the BCA website, Facebook and Twitter and on an email bulletin navigation update.
- Biosecurity should be considered and every effort made to avoid the spreading of invasive species while works are carried out.
- Pollution prevention must be considered for all works in and around the canal. Spill kits should be available in case required. Examples of things to look out for are fuel leaks from machinery, littering and dumping of waste materials such as old mortar and concrete.
- Water should be preserved and passed down the canal system rather than sending it off weirs when dewatering a stretch of canal. Weirs should only be used if necessary to maintain canal safety.
- Consider the protection of the canal banks and lining for any works that are taking place. Ramps may need to be used and as little tracking up the canal bed and banks as possible.

Routine Works Include;

- Gate lifting, fitting
- Cill replacement or repair of canal furniture
- Wing wall repairs
- Repointing of wing walls or chamber
- Sheet piling or soft bank protection works
- Lock Chamber bed clearance
- Obstruction clearance (bed or paddle holes or sunken boat)

Routine works do not include dredging works which are dealt with separately within this Plan.

Any works that require Assent to be sought from Natural England, should include the following additional information in the documentation:

- Biosecurity Measures http://www.nonnativespecies.org the E-learning course should be undertaken by at least the lead member of staff; http://www.nonnativespecies.org/elearning/index.php .

- Safety around water – evidence shown that risk assessments are in place for staff/volunteers working in and around water.
- Pollution Control measures should be in place to ensure that any works do not pose a risk of pollution such as from machinery or materials.
- Damage Control – what measures have been put in place to reduce the risk of long or short term damage to the SSSI.

Fish Rescue Procedure

If dewatering is only for a short period of time, i.e. a few days. If possible leave enough water for the fish to be able to swim and survive. Avoid excessive walking in the channel which will then cloud and suffocate the fish. Any particularly large fish may need to be moved.

Dewatering should be avoided during warmer sunny periods as this quickly deoxygenates the water. If a drain down is unavoidable a constant flow of water should be passed through the centre channel to improve oxygen saturation.

If an area needs to be completely dewatered or if it will be for a longer period of time. Where possible carry out our own fish rescues by hand using nets and buckets and move fish to the next pound. A slow dewatering will also help encourage fish to naturally move to deeper water. Crayfish will also need to be trapped and disposed of.

If the pound is much larger and will require a long period of dewatering the Environment Agency should be informed and a fish rescue arranged to include electrofishing. This is a last resort option as it can result in death of many of the smaller fish.

Fish rescue may also be required in summer months if lack of water in the upper pounds of the Canal results in the closure of the Deepcut / Brookwood lock flights. The short pounds between the locks may start to deplete rapidly once the feed stops at Lock 28.

The Basingstoke Canal Society

The Queen's Award for Voluntary Service

www.basingstoke-canal.org.uk

REPORT TO THE JOINT MANAGEMENT COMMITTEE – NOV 2018

A. QAVS Celebrations and Award

Around 150 volunteers, both past and present, converged on the Canal Centre at the end of August to celebrate the Society having been awarded a Queen's Award for Voluntary Service (equivalent to an MBE for groups). Co-hosted by the BCA team, a hog-roast was laid on with music. The feedback we have had suggested it was a great success.

We have received notification that HRH The Duke of Kent will be making the actual presentation of the glass trophy and certificate signed by Her Majesty. This will take place on November 13th at the Canal Centre (further details to be announced).

B. Inaugural Odiham Raft Race

The first Odiham Raft Race was held at the beginning of September. The idea of Odiham Parish Councillor David Stewart, the event was organised by the Society and Galleon Marine, assisted by ABA. Seven adult teams took part, paddling a mile and a quarter from the North Warnborough lift bridge to Colt Hill wharf on home-made craft built to exacting specifications. Two children's teams also competed along a shorter course. The winning team were the

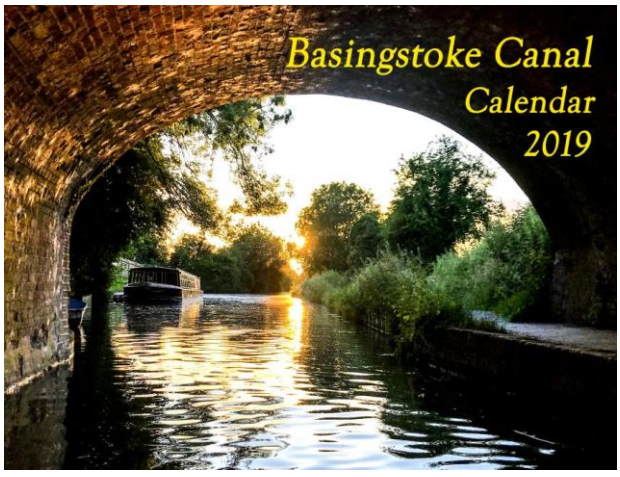
BCA, on their "Raft for Life" (*above*), and all teams received prizes from Air Chief Marshal Sir Joe French, one-time Commander-in-Chief of RAF Strike Command. Over £500 was collected for the Society for the benefit of the canal.

C. Work Parties

Since the last JMC report the BCS weekend work party has been engaged on the rebuilding of the wharf near Crookham Village. The historical wharf was constructed too high for users of typical canal boats to access easily. The Society team, at the request of the Accessible Boating Association, has addressed this by removing 4 courses of bricks along the length of the wharf, and reprofiled the bank behind and re-laid the towpath. Sundry other works have been completed at the site. Unfortunately, the job has taken longer than expected because repair of damaged sections of wall (*left*) was necessary. Reprofiling of the towpath upstream to match the new wharf level has still to be done. As a result, it is not expected to return to building the new mooring at Farnborough Road (on which work is limited to the winter season) until late November.

The BCS engineering team led by John Wharf repaired the fence damaged when a caravan caught fire on the field recently. They have also taken out the weedcutter a few times to remove hydrocotyle weed along the Woking pound, which had spread in the hot weather. They are currently also investigating the possibility of undertaking a major refurbishment of the BCA's *Unity* dredger.

D. Promoting the canal



Interest in the canal continues to grow through the Society's efforts via social media channels. Around 2600 people now follow our Facebook page, since this was set up a year ago, and there are over 1400 Friends of the Canal now in receipt of the bi-monthly Basingstoke Canal Bulletin.

Another photography competition has taken place since the last JMC

report. Fourteen winning photos were chosen from over 200 Facebook entrants, which now appear in the Society's 2019 calendar, now on sale.

Work continues to build closer links between Society reps and individual local councils for the benefit of the canal and local communities, including on Health/Wellbeing and planning issues. We ask that the councils support this initiative.

E. John Pinkerton Canal Cruises

This year has been a successful season for our two trip boats, the weather no doubt encouraging bookings, but low water levels have created many challenges for the *John Pinkerton II*. It has largely not been possible to run trips to King John's Castle since mid-July to the time of writing (19 September) because of the risk of becoming stuck at Swan "Cutting" (see below). This has resulted in the loss of bookings. Trips in the opposite direction have also taken longer than 3 hours, with sticking points in shallow sections, extreme fouling of the propeller and damage to running gear making navigation particularly difficult. Cancellation of trips because of low water conditions was only just avoided. Spot dredging is therefore urgently needed.

Kitty cruises in Woking (which remains in water because of the Society-led back-pumping scheme) have grown dramatically. It has carried nearly 1200 passengers on 144 trips, and looks as if it will have covered its entire capital cost by the season's end. The relationship between the *Kitty* team and the Lightbox/Woking BC has strengthened with collaborations on Party in the Park, Heritage Open Days and Living Well Week. Other trips have included hosting Woking's mayor and councillors, visiting children from Chernobyl, and many other international visitors including from Rome, Toronto and Gothenberg.

We are already thinking about the possibility of replacing *Kitty* with an environmentally friendly electric boat. A project team led by Ian Moore has been set up to investigate and will be visiting the Chesterfield Canal Trust to gain from their experience with their hybrid trip boat *Hugh Henshall*.

F. Major Projects

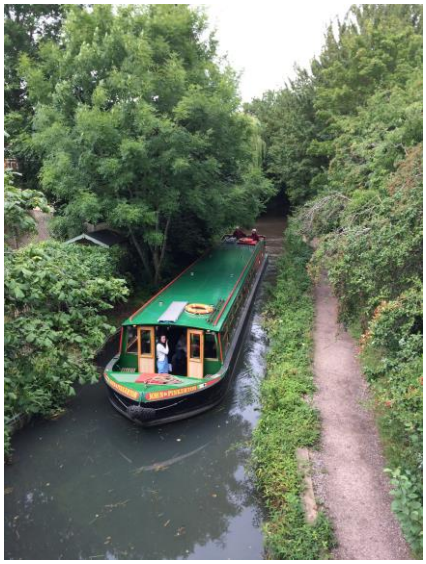
1. Hatchwood Farm Boat Basin Proposal

As previously reported, the Society has acquired a 10m strip of land adjacent to the canal at Colt Hill, which it is hoped to use for the construction of a boat basin accommodating up to 20 boats. A proposal for the boat basin has been written by a Society team, with draft plans and costings for consideration by Odiham PC and to gauge its support for pursuing this project further.

The proposal hinges on the Society being able to take an interest in another 10m strip of land behind that already acquired (through a long-term lease or licence), to give the required space. This additional land is currently owned by the developers of the surrounding housing estate but is the subject of a S106 agreement which would result in its transfer to Odiham PC.

This will be a major project if it goes ahead, requiring substantial fund-raising effort and volunteer involvement.

2. Swan "Cutting"



Swan Cutting has been raised to a Priority 1 issue on the BCA's register because of its potential impact on navigation, particularly on the *John Pinkerton II* (see above). Dredging urgently needs to take place here but this cannot happen unless done in conjunction with the stabilisation of the banks.

At the Society's request, IWA Honorary Consultant Roy Sutton has spent considerable time producing a detailed survey, plans and costings for a number of engineering solutions for a bank repair, however Hampshire CC have yet to respond formally to him. Negotiations between Hampshire and the adjacent landowners also need to take place. We look forward to further progress being made with this project.

G. Canal & River Trust

It is with some disappointment that the Society notes that there has been little recent news on the negotiations between the Counties and C&RT on the transfer of the canal. The Society has long concluded that the future of the canal would be best served by its being incorporated into the national waterway body. We urge the Counties to redouble their efforts to achieve a settlement with the C&RT, before factors like local elections and C&RT's own contract renewal with the Government become major distractions. The Society will be looking into how it can assist with reinvigorating these negotiations.

Martin Leech
Vice-Chairman
The Basingstoke Canal Society

Basingstoke Canal Joint Management Committee 16 November 2018

Actions Tracker

1. The Committee is asked to review its Action Tracker and provide comment as necessary.

Report contact:
Richard Plummer, Democratic Services Officer, Democratic Services SCC

Contact details:
Tel: 020 8213 2782
Email: richard.plummer@surreycc.gov.uk

Annexes

- Annex A - Actions Tracker

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Basingstoke Canal JMC 2017/18
ACTIONS AND RECOMMENDATIONS TRACKER NOVEMBER 2018

The recommendations tracker allows Committee Members to monitor responses, actions and outcomes against their recommendations or requests for further action. The tracker is updated following each Committee meeting. Once an action has been achieved and reported to the Committee meeting it will be removed from the tracker.

KEY	No Progress Reported	Action In Progress	Action Completed

Date of meeting	Item	Recommendations/Actions	Achieved/Outstanding?	Deadline/Progress Check	Responsible Cabinet Member/Member/Officer
29 June 2017	Final accounts 2016/17	That officers provide a report on potential car parking charges being implemented across all rural, riparian car parks and report back to the JMC in its meeting early 2018.	The Committee will receive an update on this issue in 2019, to provide officers sufficient time to conduct an adequate study of feasibility and results of implementation of Reading Road and Scotland Bridge car parks.	June 2019	Fiona Shipp/James Taylor
29 June 2017	Canal management report	That the Chairman make representations to the Member representing Natural England to stress the importance of partnership work and request that they attend meetings to highlight concerns raised by Natural England regarding the Canal's SSSI status.	Natural England representatives have been invited	November 2018	Mike Goodman/Andrew Gibson
29 June 2017	Canal management report	That the KRIs contain an explanation as to what the targets set by the BCA and for this information to be circulated to the Committee.	The Committee will be asked to look at targets set as part of the review of the 5 year strategy.	Early 2019	James Taylor
28 June 2018	Final accounts 2017/18	That a decision from Surrey County Council regarding the status of houseboat income and its allocation to the BCA or Surrey Property Services be made and presented to the Committee in November 2018.	An update has been requested, and a report regarding this will be considered by Cabinet in the near future. A further update will be provided to the Committee in 2019.	Early 2019	Lisa Creaye-Griffin

KEY	No Progress Reported	Action In Progress	Action Completed

28 June 2018	Final accounts 2017/18	That future finance reports include background income, such as that from houseboat revenue, as part of the overall finance report.	This is included in the finance report to Committee	November 2018	Jane Lovett
28 June 2018	Canal management report	That an item be included on a future agenda of the JMC regarding a cycling policy on the canal and the issues balance between cyclists and pedestrians.	This is included on the agenda of this committee	November 2018	James Taylor
28 June 2018	Canal management report	That Natural England representatives be explicitly invited to the November 2018 meeting of the JMC to discuss the conservation management plan.	Natural England representatives have been invited	November 2018	Richard Plummer
28 June 2018	Canal management report	That future Management reports include an update on the progress of talks with the Canal and Rivers Trust (CRT).	An update was provided to Members via email on 6 November 2018	November 2018	James Taylor
28 June 2018	Capital works progress report	Surrey County Council agreed to see if they could increase their capital allocation to that provided by Hampshire County Council.	A short verbal update will be provided to the Committee.	November 2018	Lisa Creaye-Griffin