Basingstoke Canal Application No. AG00347875

Higher Level Stewardship Funded Projects - planning and actions 2011 to 2014

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.

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.

The basic aim of conservation management for the canal is to provide good conditions for the growth of the SSSI's diversity of aquatic plant species. The main ecological requirements are assured water supply, appropriate water qualities, adequate light, favourable rooting conditions, curbing of dominance by the few strongest-growing species.

Causes of the present unfavourable condition are believed to be as follows; tree shading, which is so extensive that in many lengths the amount of light reaching the channel is insufficient for growth of the aquatic vegetation for which the canal is important And invasive non-native flora and fauna, which displace native species.

Aim and Objectives

- Use HLS funding approximately £50,000 / year to improve the conservation and SSSI value of the canal's vegetation and banks habitat. Initial HLS funding expected for Surrey section in 2011/12 over four years to cover both special and capital projects. Further bids will be made for the Hampshire section for 2012/13 and extend to ten years in all cases

- Aim is to reverse the SSSI status of the canal from 'unfavourable declining' into 'unfavourable recovering' and onto 'favourable condition'

- Funding will be separated into two specific project areas;

Tree shade reduction
Habitat Enhancement

Funding Application

- Use HLS funding approximately £30,000 / year and match funding [at a ratio of 70/30%] to improve the conservation and SSSI value of the canals water condition, reduce where possible and appropriate leaf litter siltation by dredging and enhancement of marginal habitat on either side of the towpath and banks. Dredging is the most advantageous method as it removes detritus material that has the potential to deoxygenate the system. This in turn creates a firm substrate for plants to anchor into more securely and reduces turbidity, whilst allowing the free passage of boats which in turn keeps the mid channel clear of silt build up.

- Use of capital funding in the order of £20,000 without match funding will enable reduction of tree shading towards about 10 % of the channel length, plus 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. 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.

- Where there are tall trees with some overhanging branches along both banks, sunlight reaching the water is reduced by about 90%, this leaves insufficient light for growth of submersed plants, survival of reeds and floating-leaved plants is doubtful.

- Dense tree shade has been extending for many years and continues to do so, making the channel unfavourable as a habitat for aquatic vegetation, and hence for fauna dependent (directly or indirectly) on that vegetation, e.g. dragonflies and fish.

Methodology for enhanced bank protection

A variety of materials have been trialled over the years by the BCA, some have proven both adequate and inadequate, risk management and cost is always a factor. For the benefit of this application and match funding it is proposed that the BCA carry out all of the bank protection indicated as part of its asset management and planned preventative maintenance. This will mean that the design and choice of material will be based on engineering requirements and the cost paid by the client (either Hampshire County

Council or Surrey County Council) as part of its capital investment plan. This satisfy's the risk and maintenance requirements but in order to satisfy conservation objectives there is a need to enhance the habitat value of banks at the same time. Whilst addressing structural issues an opportunity to install a plant shelf exists which will compliment the protection systems used. It is this element that we seek funding from NE to be used in conjunction with the other essential bank protection work.

For the purpose of this project plan the BCA have drawn on previous experience, taken specialist engineering advice, consulted with stakeholder user groups and an expert ecologist. The following method will therefore be used at the three sites included within this HLS application.

Revetment method – see drawing

- Nicospan will be installed at a line to reclaim lost towpath, backfilled with dredged material from canal bed. A plant shelf is installed immediately in front of this to provide a medium for marginal vegetation to establish

- Materials for constructing the plant shelf will be coir roll and/or hazel faggot rolls. These will help prevent the medium from washing out before vegetation such as a good healthy reed mace is established. Whether using coir or hazel, a geo-textile membrane is also used to both prevent further erosion, provide bank stability and prevent washout of the medium.

The adopted method is deemed the most appropriate for the areas covered by this HLS application and addresses both engineering and ecological issues and gains. This method allows for suitable bank stabilisation and is most appropriate where the bank is seriously eroded with loss of towpath (which is the case for all three sites covered by this HLS application). In addition this method uses the most appropriate materials (nicospan and coir role and/or hazel faggot, back filled by arisings from the canal). Nicospan is light weight, has good permeability and soil retention properties, allows the establishment of vegetation through the fabric, is UV stabilised and resistant to attack from chemicals and bacteria, is low priced, easy to install and is particularly suitable for use on banks of a vertical nature and for river narrowing. The arisings from the canal will be used to keep costs to a minimum and provide the most appropriate growth medium for establishing marginal vegetation. In addition, this will have a positive impact on the water quality within the canal. The use of coir role and/or hazel faggots again provides the most appropriate medium for establishing the plant shelf. Coir role has a life expectancy of 10 -15 years and hazel faggots 7 – 10 years.

Project Plan

Timescale	Funding	Project manager/s	Current bid per year	Project	Notes	Resources involved
Year 1 2011/12	Capital Works Programme	Jon Green Senior Ranger	£20,000	**Tree shade reduction** **Sheerwater**: Grid Ref: TQ O30 609 – TQ 021 605. *Parcel no: TQ 0260 1768* (Sheerwater flash, above lock 6, westwards.) Distance: approx 1200 metres. No of trees to clear: approx 188, of which 150 are large. **Total 676 cubic metres (where a large tree = 4m^3 and a small tree 2m^3).**		**Sheerwater** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) 150 trees x £123.00 = £18,450 38 trees x £100.00 = £3,800 **Total = £22,250** 2) Toby Hopkins 188 trees x £140/tree = £26,320 **Total = £26,320** 3) Glendales 188 trees x £140/tree = £26,320 **Total = £26,320** **TOTAL FOR YEAR 1 £22,250**
Year 2 2012/13	Capital Works Programme	Jon Green Senior Ranger	£20,000	**Tree shade reduction** **Brookwood**: Grid Ref: SU 955 572. *Parcel no: SU 9557 1218* Distance: approx 200 metres. No of trees to clear: approx 75, of which 65 are large. **Total 280 cubic metres** **St Johns**: Grid Ref: SU 976 578. *Parcel no: SU 9757 6526.* (Kiln bridge westwards to 200 metres past Hermitage weir, towpath side.) Distance: approx 1000 metres No of trees to clear: approx 100, of which 20 are large.	The tree clearance, on the north side of the canal, will be carried to achieve the objective of not only allowing increased light into the canal but also to facilitate the Surrey Wildlife Trust's endeavour to link up two areas of heathland that exist on either side of the canal, so that species can migrate more easily between these sites. It has the added advantage that heathland species may visit the canal more readily.	**Brookwood** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) 65 trees x £123.00 = £7,995 10 trees x £100.00 = £1,000 **Total = £8,995** 2) Toby Hopkins 75 trees x £140/tree = £10,500 **Total = £10,500** 3) Glendales 75 trees x £140/tree = £10,500 **Total = £10,500** **St Johns**

				Total 240 cubic metres **Lock 25, Deepcut**: Grid Ref: SU 562 929. *Parcel no: 9056 3963.* (Westwards to large flash, non-towpath side) Distance 140 metres No of trees to clear: approx 115, of which 84 are large. **Total 398 cubic metres**		1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) 20 trees x £123.00 = £2,460 80 trees x £100.00 = £8.000 **Total = £10,460** 2) Toby Hopkins 100 trees x £140/tree = £14,000 **Total = £14,000** 3) Glendales 100 trees x £140/tree = £14,000 **Total = £14,000** **Lock 25, Deepcut** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) 84 x £123.00 = £10,332 31 x £100.00 = £3,100 **Total = £13,432** 2) Toby Hopkins 115 trees x £140/tree = £16,100 **Total = £16,100** 3) Glendales 115 trees x £140/tree = £16,100 **Total = £16,100** **TOTAL FOR YEAR 2 = £32,887**
Year 3 2013/14	Capital Works Programme	Jon Green Senior Ranger	£20,000	**Tree shade reduction** **Potter's Pool, Mytchett**: Grid Ref: SU 558 893 *Parcel no: SU 89542465* (eastwards from Canal Centre to near to King's Head bridge, non towpath side). Distance: approx 850 metres No of trees to clear: approx 350,	• Increase in light by up to 50% • Bank stabilisation	**Potter's pool, Mytchett** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) 66 x £123.00 = £8,118 284 x £100.00 = £28,400 **Total = £36,518** 2) Toby Hopkins

				of which 66 are large. **Total 832 cubic metres**		350 x trees x £140/tree = £49,000 **Total = £49,000** 3) Glendales 350 x trees x £140/tree = £49,000 **Total = £49,000** **TOTAL FOR YEAR 3 = £36,518**
Year 4 2014/15	Capital Works Programme	Jon Green Senior Ranger	£20,000	**Tree shade reduction** **Heath Vale Bridge:** Grid Ref: SU 896 531 *Parcel no: SU 8953 5419* (eastwards to Great Bottom flash, non towpath side.) Distance: approx 400 metres No of trees to clear: approx 120, of which 60 are large. **Total 360 cubic metres** **Lock 1 to River Wey**: Grid Ref: TQ 046 937. *Parcel no: TQ 0461 9375* (towpath side) Distance: approx 300 metres. No of trees to clear: approx 120, of which 9 are large. **Total 258 cubic metres**	• Increase in light by up to 70% • Bank stabilisation	**Heath Vale Bridge** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) 60 x £123.00 = £7,380 60 x £100.00 = £6,000 **Total = £ 13,380** 2) Toby Hopkins 120 x trees x £140/tree = £ **Total = £16,800** 3) Glendales 120 x trees x £140/tree = £ **Total = £16,800** **Lock 1 to River Wey** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) 9 x £123.00 = £1,107 111 x £100.00 = £11,100 **Total = £12,207** 2) Toby Hopkins 120 x trees x £140/tree = £16,800 **Total = £16,800** 3) Glendales 120 x trees x £140/tree = £16,800 **Total = £16,800**

						TOTAL FOR YEAR 4 = £25,587
Year 1 2011/12	Special Projects	Jon Green Senior Ranger	£27,000 NE (32%) £55,832.50 BCA Total £82,832.50	**Revetment/dredging** **Potter's Pool, Mytchett**: Grid Ref: SU 558 893 *Parcel no: SU 89542465* (eastwards from Canal Centre to near King's Head bridge. **Distance: 850 metres (**towpath side) Install soft bank protection system as specified in drawing to contain a plant shelf – dredge canal bed and use arising silt to backfill marginal shelf.	• Bank stabilisation • Establish good marginal vegetation • Habitat value	**Full Revetment method** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) / metre = 2) Blue Boar £97.45 / metre = £82,832.50 **Total = £82,832.50** 3) Land & Water – Total price £115,177.48
Year 2 2012/13	Special Projects	Jon Green Senior Ranger	£27,000 NE (37%) £46,087.50 BCA Total £73,087.50	**Revetment/dredging** **Lock 1 to River Wey**: Grid Ref: TQ 046 937. *Parcel no: TQ 0461 9375* (Non towpath side) **Distance: 750 metres** Install soft bank protection system as specified in drawing to contain a plant shelf – dredge canal bed and use arising silt to backfill marginal shelf and raise freeboard.	• Bank stabilisation • Establish good marginal vegetation • Habitat value • Protection from boat mooring	**Full Revetment method** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) / metre = 2) Blue Boar £97.45 / metre = £73,087.50 **Total = £73,087.50** 3) Land & Water = £102,193.48
Year 3 2013/14	Special Projects	Jon Green Senior Ranger	£27,000 NE (55%) £21,725 BCA Total £48,720	**Revetment/dredging** **St Johns**: Grid Ref: SU 976 578. *Parcel no: SU 9757 6526.* (Kiln bridge westwards to 200 metres past Hermitage weir, towpath side.)	• Bank stabilisation • Establish good marginal vegetation • Habitat value • Protection from boat mooring	**Full Revetment method** 1) Scheduled rate (Dyer & Butler) Service Term Contract (HCC/SCC) / metre = 2) Blue Boar £97.45 / metre = £97,450.00 **Total = £97,450.00**

				Distance: 1000 metres Revetment work with two gaps of 80 metres each: one outside Redway Cottages to moor boats and, the other at Hermitage weir.) Install soft bank protection system as specified in drawing to contain a plant shelf – dredge canal bed and use arising silt to backfill marginal shelf.		3) Land & Water = £134,653.48
Year 4 2014-15	Special Projects	Jon Green Senior Ranger	£27,000 NE (55%) £27,725 BCA Total £48,725	**Revetment/dredging** **St Johns continued**: Grid Ref: SU 976 578. *Parcel no: SU 9757 6526*. (Kiln bridge westwards to 200 metres past Hermitage weir, towpath side.) Revetment work with two gaps of 80 metres each: one outside Redway Cottages to moor boats and, the other at Hermitage weir.) Install soft bank protection system as specified in drawing to contain a plant shelf – dredge canal bed and use arising silt to backfill marginal shelf.	• Bank stabilisation • Establish good marginal vegetation • Habitat value • Protection from boat mooring	See Year 3.

Based on the above quotes the BCA have decided to appoint Blue Boar as the contractors to undertake the revetment/dredging work. This is based on a number of factors. Their quote is the cheapest, BCA have used Blue Boar on numerous occasions in the recent past and are extremely satisfied with their standard of work, they are experienced undertaking revetment/dredging work and finally they have specially adapted plant which minimises damage to the towpath resulting in less ecological damage and disruption to the public using the towpath.