

River Loddon, Loddon Bridge

*A River Corridor Survey carried out for the Environment Agency,
Thames Region*

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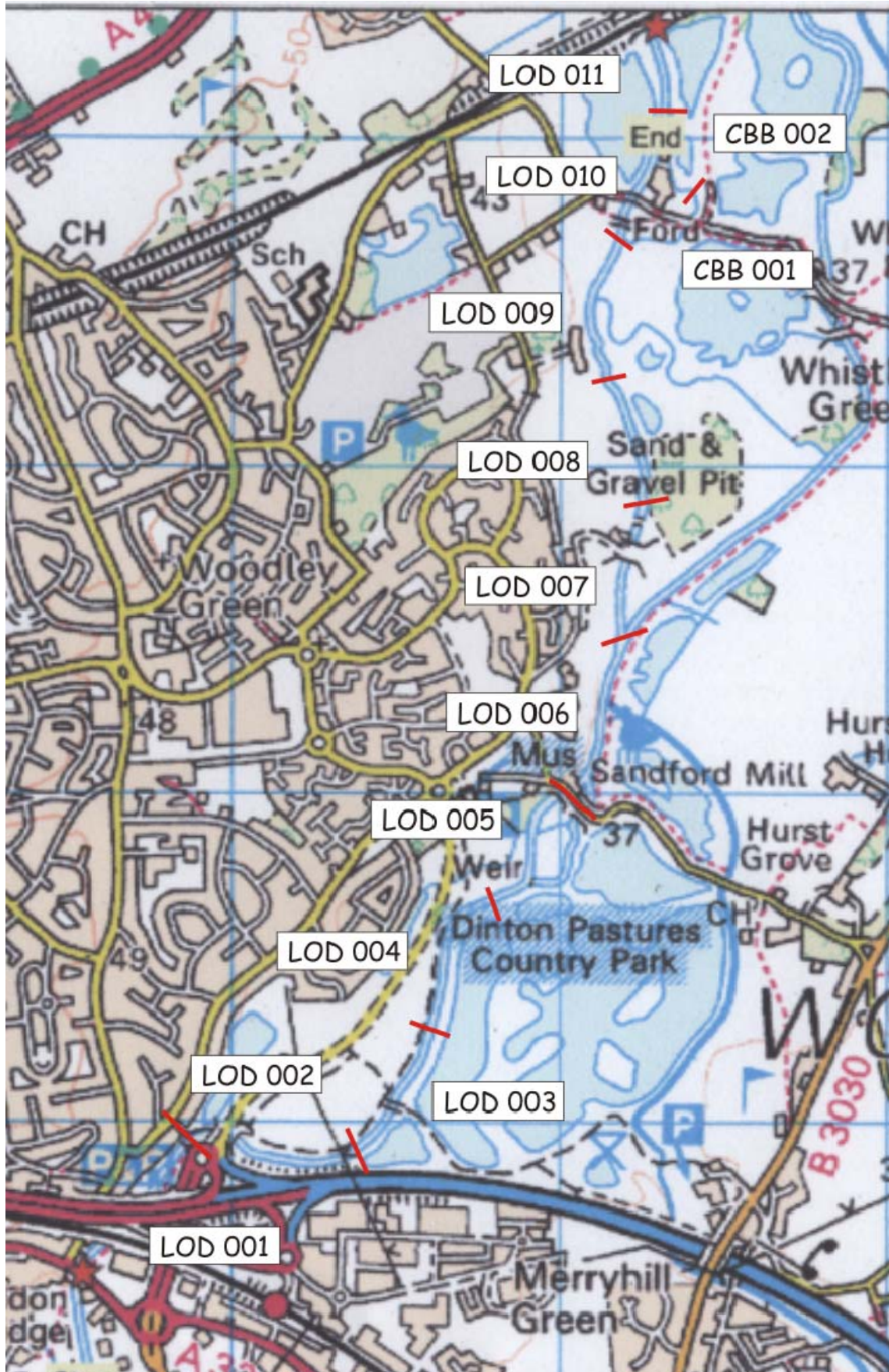
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Contents

Page

LOCATION MAP AND KEY TO SURVEY LENGTHS	3
SUMMARY OF THE SURVEY	4
Introduction and Methodology	4
Adjacent Habitats	4
Banks	5
Margins	6
Channel	7
Fauna	8
DREDGING RECOMMENDATIONS	9
Adjacent Habitats	9
Banks	9
Margins	9
Channel	9
Trees and Shrubs	10
WORKING MAPS	11
INDIVIDUAL REACH REPORTS.....	Error! Bookmark not defined.
APPENDICES	Error! Bookmark not defined.
KEY TO SYMBOLS USED ON RIVER CORRIDOR SURVEY MAPS	25
KEY to the COMMONER SPECIES & CODES USED ON RCS MAPS	26
HABITAT and LAND USE CODES	28

LOCATION MAP AND KEY TO SURVEY LENGTHS



SUMMARY OF THE SURVEY

Introduction and Methodology

A River Corridor Survey was carried out along the River Loddon on the eastern outskirts of Reading to provide an ecological baseline for proposed maintenance works. The survey starts at the A329 Reading Road at SU 76554 71526 and follows the main Loddon until it divides into two channels. The survey then covers the left channel, the Old Loddon, until it reaches the railway culvert at SU 78280 75355, a distance of approximately 5.5km. The survey also covers a side stream, the Copperbridge Brook, which leaves the Old Loddon at SU 78193 74618 and rejoins the river at SU 78322 75094. This is a length of around 800m.

The survey was carried out using the standard methodology for River Corridor Survey (RCS) as devised by the National Rivers Authority, now the Environment Agency¹. The watercourse was divided into reaches of approximately 500m, adjusted where necessary to correspond to significant features on site and numbered in sequence from the upstream to the downstream end.

Whilst carrying out the surveys observations were made of any rare plants and protected animal species either seen directly or inferred from field signs such as burrows, droppings or tracks. The condition of the bankside trees was also noted with regard to potential for bat roosts, although this was not an exhaustive survey in the time available.

There are records of Loddon lily, a Red Data Book species, along the river banks but these were not evident at this time of year. The reach between Sandford Mill and the Museum of Berkshire Aviation is noted for a good population of this species in damp, shaded hollows parallel to the river.²

The survey was carried out between 3rd and 17th August 2010. There were some areas that were inaccessible due to tall, dense vegetation and private gardens. These are mainly in the section from Sandford Farm to Giddy Bridge.

Adjacent Habitats

Although the river lies on the edge of an urban area it is largely within open countryside and a much of this is designated Country Park or other sites of nature conservation value. Most of the land has been disturbed by gravel extraction and restored to a range of habitats including wetland, woodland, arable fields and grassland. The wildlife interest is centred on a series of gravel pit lakes. These are predominantly on the right bank apart from one lake, part of Charvil Country Park, which lies on the left bank at the downstream end of the study section. The lakes were not surveyed in detail but support a range of habitats and vegetation types including aquatic and marginal vegetation with shaded and open banks and varying bank and

¹ National Rivers Authority (1992) 'River Corridor Surveys: Methods and Procedures'. NRA Bristol

² Crawley, M.J. (2005) 'The Flora of Berkshire'. Brambleby Books

margin profiles. Two other small lakes are present on the right of the Old Loddon downstream of Sandford Farm, one lake set in an extensive area of common reed and the other in woodland.

Around the gravel pit lakes is a mosaic of woodland, scrub and open habitats with a diverse flora of predominantly native plants. The woodland is partly semi-natural and partly plantation of native broad-leaved species. Other areas of woodland occur alongside the river outside the country park and these include a medium age plantation on the right bank of the Old Loddon downstream of Sandford Farm. Woody species present throughout the area include pedunculate oak *Quercus robur*, ash *Fraxinus excelsior*, field maple *Acer campestre*, wild cherry *Prunus avium*, sycamore *Acer pseudoplatanus*, alder *Alnus glutinosa*, crack, white, grey, hybrid and weeping willows *Salix fragilis*, *S. alba*, *S. cinerea*, *S. x*, guelder rose *Viburnum opulus*, blackthorn *Prunus spinosa*, hazel *Corylus avellana* and common hawthorn *Crataegus monogyna*. Many of the woodland areas adjoin dense or open scrub and have a varied structure and outline that provides rich potential for invertebrates and other wildlife.

The open habitats near to the river are largely dry but there are areas of impeded drainage with wetland vegetation as well as the large reedbed referred to above, located in reach LOD 008. The dry areas include improved and semi-improved grassland, tall herb, ruderal and ephemeral vegetation. No particularly species-rich habitats were noted but the mosaic of vegetation types and structure provides considerable potential for invertebrates, small mammals and birds.

Copperbridge Brook lies mainly in farmland where there is a mixture of pasture (horse paddocks), farmyard and tall herb. At the downstream end there is a small, secluded gravel pit lake on the right bank and this is surrounded by mixed woodland and scrub.

In summary the Loddon Valley along this section supports a diverse range of habitats. There are significant areas in the country parks and nature reserves in reaches LOD 002-3 and LOD 005-6 (mainly right bank), LOD 004 (both banks) and LOD 010 (left bank). In LOD 008-9 there are significant non-designated areas of 'wilderness', particularly on the right bank.

Banks

The banks have been resectioned in the past and there are some lengths with concrete and other revetments. These lie mainly in the upstream reaches and particularly beneath the two viaducts where there are long lengths of concrete bank. Timber decking is used for minor features in some of the gardens and for fishing platforms in Dinton Pastures. The majority of the other banks are a mixture of clay and earth with some gravelly layers in places.

Bank profiles are predominantly steep, ranging from 45-70° but there are a few shallow and compound slopes created by poaching plus occasional short lengths of undercut or vertical bank. The most notable cliffs are on the left in Dinton Pastures (LOD 003) where a kingfisher nest site was reported and in Luckley Farm Stables (LOD 010) where the rapidly eroding right bank is threatening the manège. The

shallow banks are minor features that are noted in individual reaches. Bank heights range from 1-2m over most of the section with some higher banks in LOD 008 where there is an embankment on the left and on the right bank of CBB 002.

The bank flora is dominated by trees and shrubs and most reaches are treelined on at least one bank. The most open reach is LOD 006 where there are only short clumps of woodland on one bank and more scattered trees and shrubs along the rest. The most wooded reaches are LOD 002, which has strips of woodland or dense scrub on both banks for most of its length, and LOD 008, which is lined with dense scrub and woodland throughout. Other reaches such as the whole of Copperbridge Brook have only one bank treelined or have more numerous gaps in the cover on both banks. The woody species present include all those listed above but on the banks the dominant species are alder and the various willows. There are also several non-native species including horse-chestnut *Aesculus hippocastanum*, cricket bat willow *Salix alba* var. *caerulea* and weeping willow *S. x sepulcralis*. There are a number of mature and old and specimens with standing dead wood, hollows and crevices and some of the more significant trees are indicated on the field maps. A number of trees and larger branches have fallen into the river, particularly in reaches LOD 004,5,6,8 and 10 and CBB 001.

Beneath the trees the flora consists of nettle *Urtica dioica*, cleavers *Galium aparine* and ivy *Hedera helix* with occasional ground ivy *Glechoma hederacea*, cow parsley *Anthriscus sylvestris* and other shade tolerant species. Wherever there is a gap there is the typical lowland flora with patches of mixed tall grasses and herbs including hogweed *Heracleum sphondylium*, mugwort *Artemisia vulgaris*, nettle, false oat-grass *Arrhenatherum elatius*, creeping bent *Agrostis stolonifera* and other species. There are occasional small patches of purple loosestrife *Lythrum salicaria*, common comfrey *Symphytum officinale*, reed canary-grass *Phalaris arundinacea* and great willowherb *Epilobium hirsutum* and large patches of the invasive alien Indian balsam *Impatiens glandulifera*.

On shallow banks such as the lower slope on the right near the A329 and the small trampled areas next to fishing points there are patches of redshank *Pericaria maculosa*, hemlock water-dropwort *Oenanthe crocata*, orange balsam *Impatiens capensis*, hemp-agrimony *Eupatorium cannabinum*, celery-leaved buttercup *Ranunculus sceleratus*, trifold bur-marigold *Bidens tripartita*, water forget-me-not *Myosotis scorpioides*, gypsywort *Lycopus europaeus* and other wetland species. Trifold bur-marigold is a declining species in Berkshire and rare in the east of the county.

On the Copperbridge Brook there is one patch of yellow loosestrife *Lysimachia vulgaris* but otherwise the flora is similar to the main river.

Margins

The margins are shaded by overhanging and low branches and consequently the marginal vegetation is restricted in most reaches. There are occasional clumps of vegetation with the dominant species being branched bur-reed *Sparganium erectum*, but overall there is a good variety of species present despite the shade. The most extensive fringes occur in reaches LOD 006 and LOD 011 and the least in LOD 008 and LOD 010.

Other species present include common club-rush *Schoenoplectus lacustris*, water mint *Mentha aquatica*, bittersweet *Solanum dulcamara*, great yellow-cress *Rorippa amphibia*, fool's water-cress *Apium nodiflorum*, gypsywort, brooklime *Veronica beccabunga*, reed sweet-grass *Glyceria maxima* and the less common species blue water-speedwell *V. anagallis-aquatica*. There are a few stands of common reed *Phragmites australis* with a good fringe on the left in reach LOD 004 where it has encroached onto the bank. In a few locations the stands marginal vegetation have spread well into the channel, notably by the railway viaduct in LOD 001, upstream of the weirs in LOD 007 and at the downstream end of LOD 009.

Copperbridge Brook had no water on the day of survey and thus no discrete fringes. The riparian vegetation is described in the next section.

Channel

The River Loddon has been heavily modified in the past by realigning and deepening. It is uniform in width and the planform restricted. It is crossed by a variety of bridges and a ford and has been constrained by a mill at Sandford Lane and weirs at Sandford Farm. Both of these properties are no longer functional and have been converted to private residences. A few 'natural' meanders and curves remain in the Old Loddon, reaches LOD 007-010, where there is a greater variety of flow features including pools, runs and riffles and two small gravel bars.

The width of the channel is mostly between 14-18m with some wider bays at the mill. Downstream of the divide the Old Loddon is between 8-10m wide, widening slightly at the downstream end near the railway. The depth in the centre was not determined but is estimated to be over 1.5m. In the Old Loddon there is a more varied depth with some shallow reaches of 0.1-0.2m at riffles and several deep pools. The bed is a mixture of clay and gravel throughout as far as could be determined. Some silt has accumulated around stands of vegetation.

The water level was low at the time of the survey but there was a good flow with clear water except for alongside the paddocks in LOD 009 where the water was slightly coloured.

Copperbridge Brook is a dry bypass channel with an earth bed. There are small meanders at the upstream end before a realigned section leading to Copper Bridge. Downstream of the road the channel appears more 'natural' with a sinuous planform. The bed is around 1.5m wide, widening in meanders and where poached and at the downstream end where it rejoins the Old Loddon.

The channel of the main river is dominated by dense beds of aquatic vegetation wherever it is unshaded. The flora includes extensive beds of the nationally rare and Red Data Book species Loddon pondweed *Potamogeton nodosus* as well as a number of more common species. These include arrowhead *Sagittaria sagittifolia*, unbranched bur-reed *Sparganium emersum*, yellow water-lily *Nuphar lutea*, Nuttall's water-weed *Elodea nuttallii* and spiked water-milfoil *Myriophyllum spicatum*. There are occasional beds of white water-lily *Nymphaea alba* and in the slacker areas a mixture of common, least and greater duckweeds *Lemna minor*, *L. minuta* and *Spirodela*

polyrhiza grows on the surface. Greater duckweed is declining and confined to the Thames and Loddon (Crawley, M.J. 2005) and the least duckweed is an introduced alien which is on the increase. In the side or overflow channel at Sandford Mill, LOD 006, there is a large bed of fringed water-lily *Nymphoides peltata*. This is scarce as a native plant but is often introduced. On the gravel at the ford in LOD 010 there are small beds of willow moss *Fontinalis antipyretica*.

Stands of emergent reeds are present in the open reaches, consisting of branched bur-reed and common club-rush. Most of these are small but in a few locations there are large beds which are likely to restrict flow. The most significant of these is in LOD 006 at the point where the Loddon divides. This stand appears to be diverting flow down the Old Loddon rather than the main river.

Along the Copperbridge Brook there is little riparian vegetation owing to the dense shade and largely dry bed. At the upstream end the bed is slightly damp and supports patches of water forget-me-not, water mint and redshank. Either side of Copper Bridge the channel is open and full of vegetation, mainly reed sweet-grass with some water mint and redshank. After another dry, shaded length the channel is again open and full of similar vegetation. Here it is also poached by horses. There is another dry length and then a small wet area where it meets the Old Loddon. Here the channel widens slightly and soft silt on the bed supports a mixed stand of reed sweet-grass, bulrush, Indian balsam and purple loosestrife.

Fauna

The open reaches of the River Loddon support numerous coot, moorhen, mute swan and mallard as well as an occasional grey heron and an array of non-riparian birds. There is also a resident pair of kingfishers and a fisherman reported a nest burrow in reach LOD 003.

An occupied sparrow hawk nest is located in an alder tree on the left bank of the upstream bypass channel of Sandford Mill, reach LOD 005.

There are numerous tree hollows in the mature trees along the banks. These could provide nest sites for various bird species as well as roosts for bats. Probable or possible bat roosts are noted on the field maps.

There are several large exposed root systems in bankside trees. These and the cover provided by 'wilderness' areas such as the scrub and reedbed in LOD 008 could provide potential for otter, although no signs were found.

There were no signs of water voles found.

DREDGING RECOMMENDATIONS

Adjacent Habitats

1. Avoid damage to woodland, scrub, wetland and open water areas in country parks and elsewhere, such as the reedbeds and willow scrub on the right bank in LOD 008. Working banks are recommended to avoid the more sensitive areas but care will be needed where there are important habitats on both banks.

Banks

1. Retain the range of bank profiles, particularly the kingfisher cliff on the left in LOD 003 and the small areas of shallow bank with more diverse flora. These include the right bank upstream of Sandford Farm (LOD 007) and the old ford at the upstream end of LOD 008.
2. Retain the small pool and silt bar on the left bank at the downstream end of reach LOD 002.
3. The left bank next to Bader Way in LOD 002 could be reprofiled to create a gravel beach for invertebrates, with possibly some protection to reduce the bank erosion at this point.
4. The right bank in LOD 010 at Luckley Farm Stables needs to be reinforced to protect the manège.
5. The banks of the Copperbridge Brook downstream of the road need to be fenced to prevent poaching of the banks and channel.

Margins

1. Retain any shallow margins and gravel bars. In LOD 010 the gravel bar on the right downstream of the fallen willows is likely to disperse in part once the fallen tree has been removed and could be left to natural processes.
2. Retain at least 1m widths of marginal vegetation along both margins throughout the main river with the exception of LOD 009. Here at the downstream end where the channel is narrower a 1m width along one margin would be sufficient to retain some cover.
3. Along Copperbridge Brook retain small areas of wetland vegetation where possible, to provide a refuge for invertebrates.

Channel

1. Retain any firm substrate throughout, particularly the gravel bed.
2. Retain a varied bed profile, particularly along the Old Loddon where there are gravel shoals, riffles and pools.

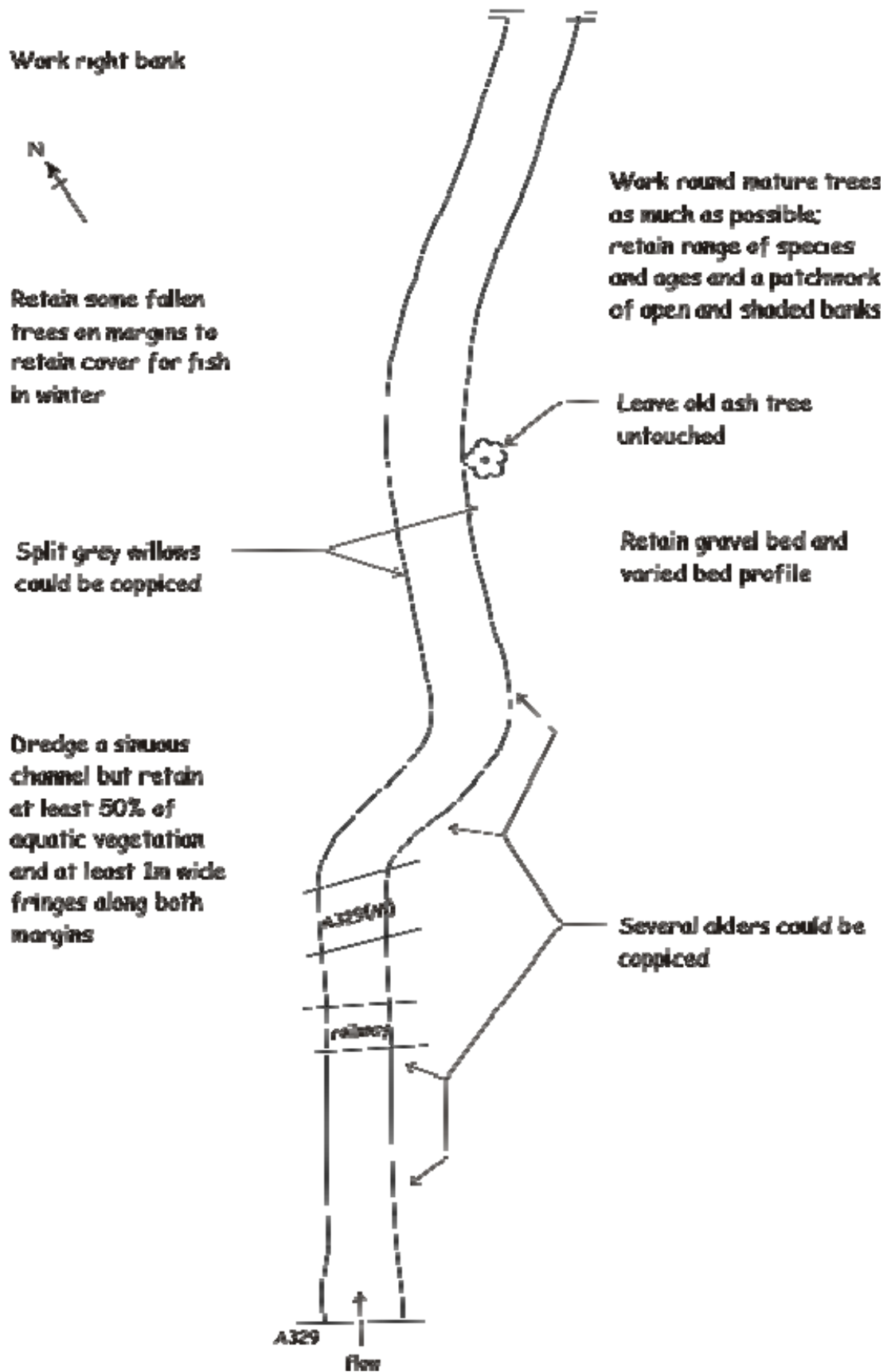
3. In LOD 007 spot dredge only where necessary to remove larger stands of emergent vegetation.
4. In LOD 008 restrict work to minimal clearance of fallen trees. At the upstream end leave the river untouched to retain the old ford with riffles and a mid-channel bar.
5. Dredge a sinuous channel where necessary for flood defence but retain at least 50% of the channel vegetation to retain the rare Loddon pondweed, the varied flora, a habitat for invertebrates and cover for fish.
6. In LOD 006 retain at least 50% of the fringed water-lily in the side channel by Sandford Lane. The stand of club-rush at the downstream end should be removed to allow the flow to follow the main river rather than the Old Loddon.
7. Along the Copperbridge Brook it may be necessary to regrade the bed if it is proposed to restore the flood bypass role of this channel. Removal of fallen trees and rubbish in the channel will also be needed.

Trees and Shrubs

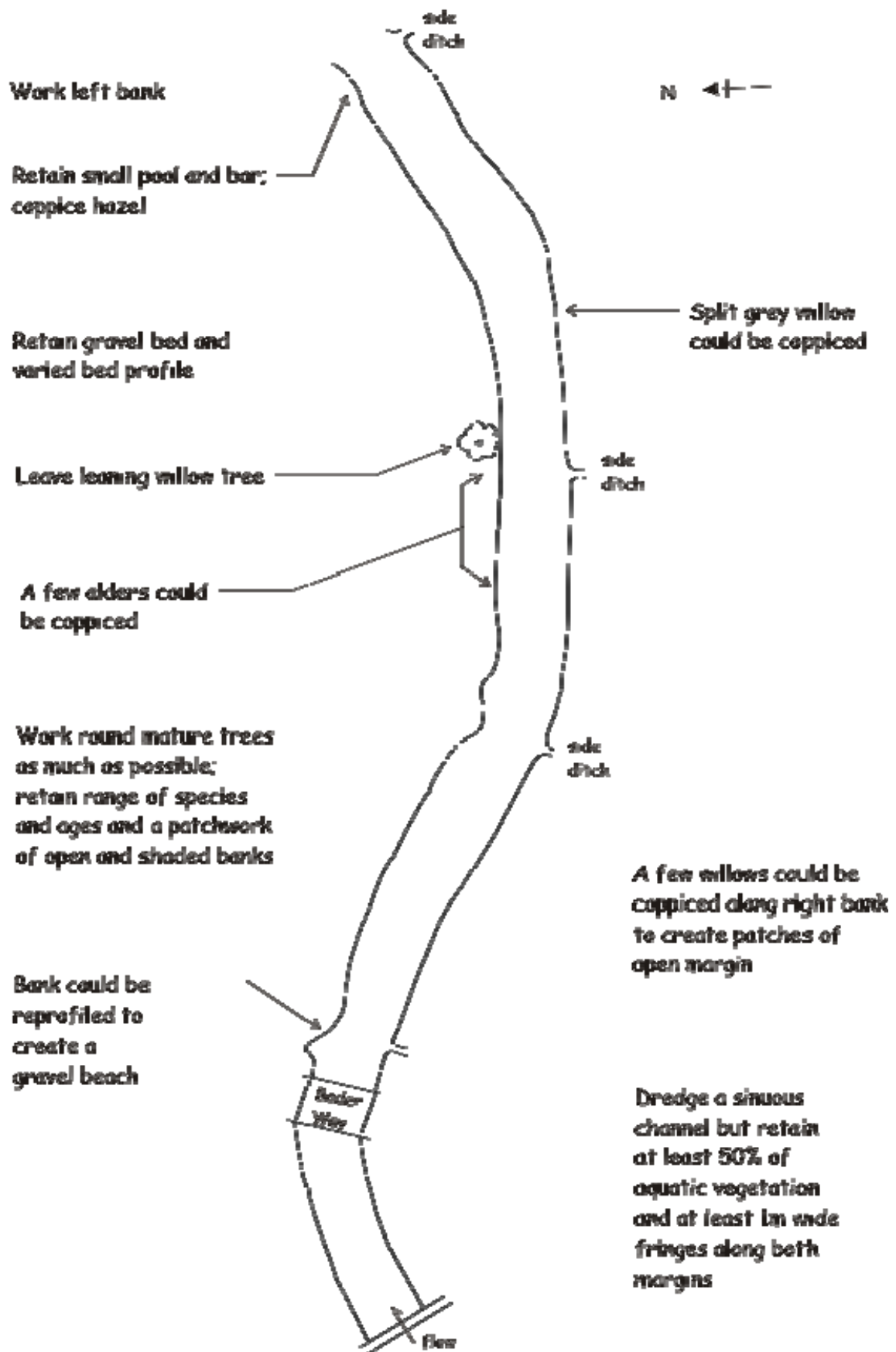
1. There are numerous fallen trees and branches in the channel. Some of these, such as the one creating severe bank erosion at Luckley Farm Stables (LOD 010) will need to be removed. Ideally some fallen trees should be retained to retain cover for fish in winter and to provide a habitat for invertebrates.
2. Several alders and willows could be re-coppiced or pollarded to encourage re-growth and structural diversity. These are indicated on the working maps.
3. Some grey willow and osier bushes could be coppiced to create more structural diversity and provide areas of open bank, encouraging the development of more extensive marginal vegetation.
4. Other than the above tree works care should be taken to work round mature trees, particularly those with crevices, hollows and standing dead wood and those highlighted on the working maps.
5. Retain the range of ages of trees and shrubs and the diversity of species present.
6. Retain some shade and overhanging branches to provide perches for kingfisher and food for fish.
7. Along Copperbridge Brook avoid removing the shade over the channel as this will encourage growth of vegetation which will block this narrow channel.

WORKING MAPS

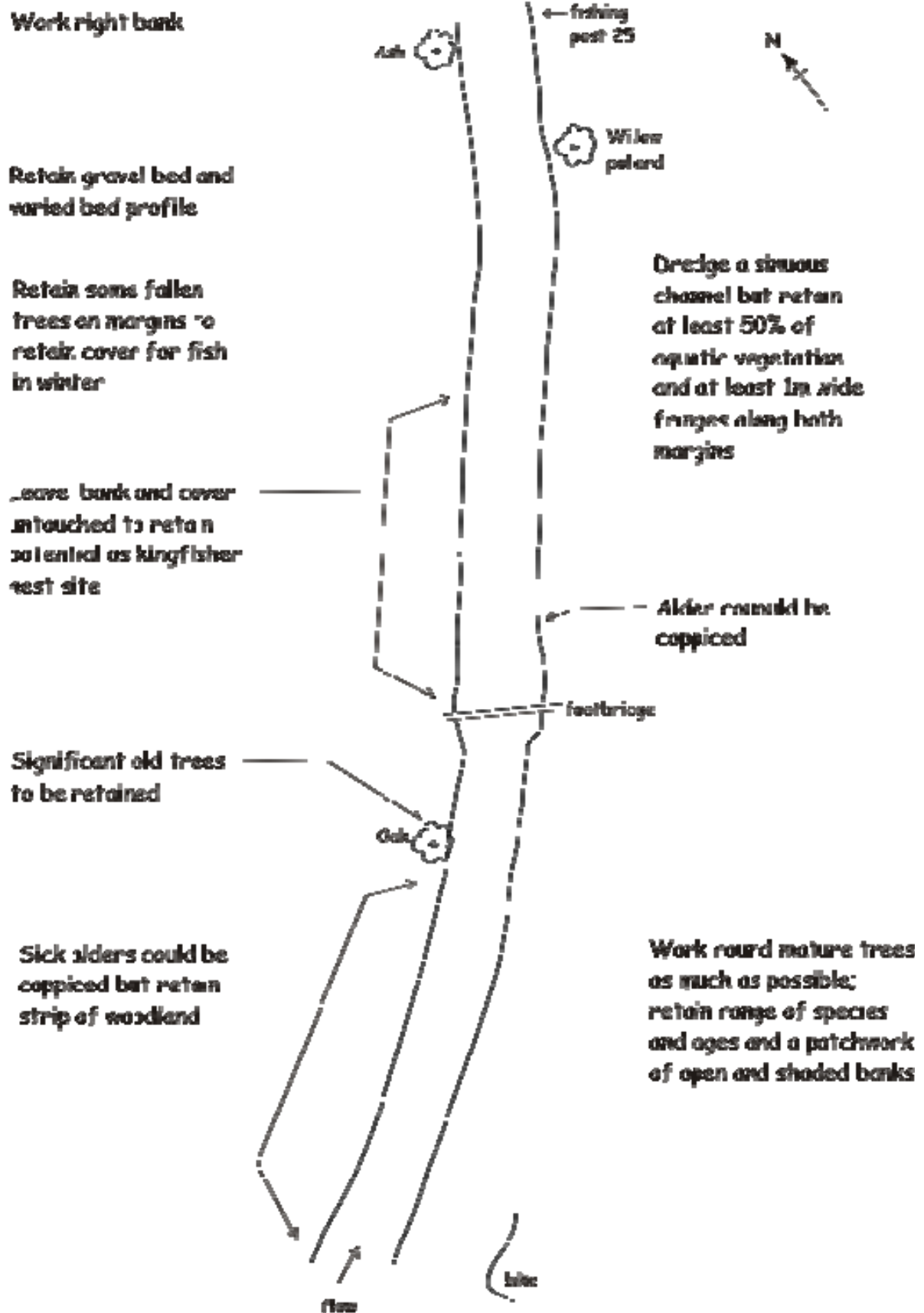
RIVER LODDON LOD 001 - DREDGING RECOMMENDATIONS



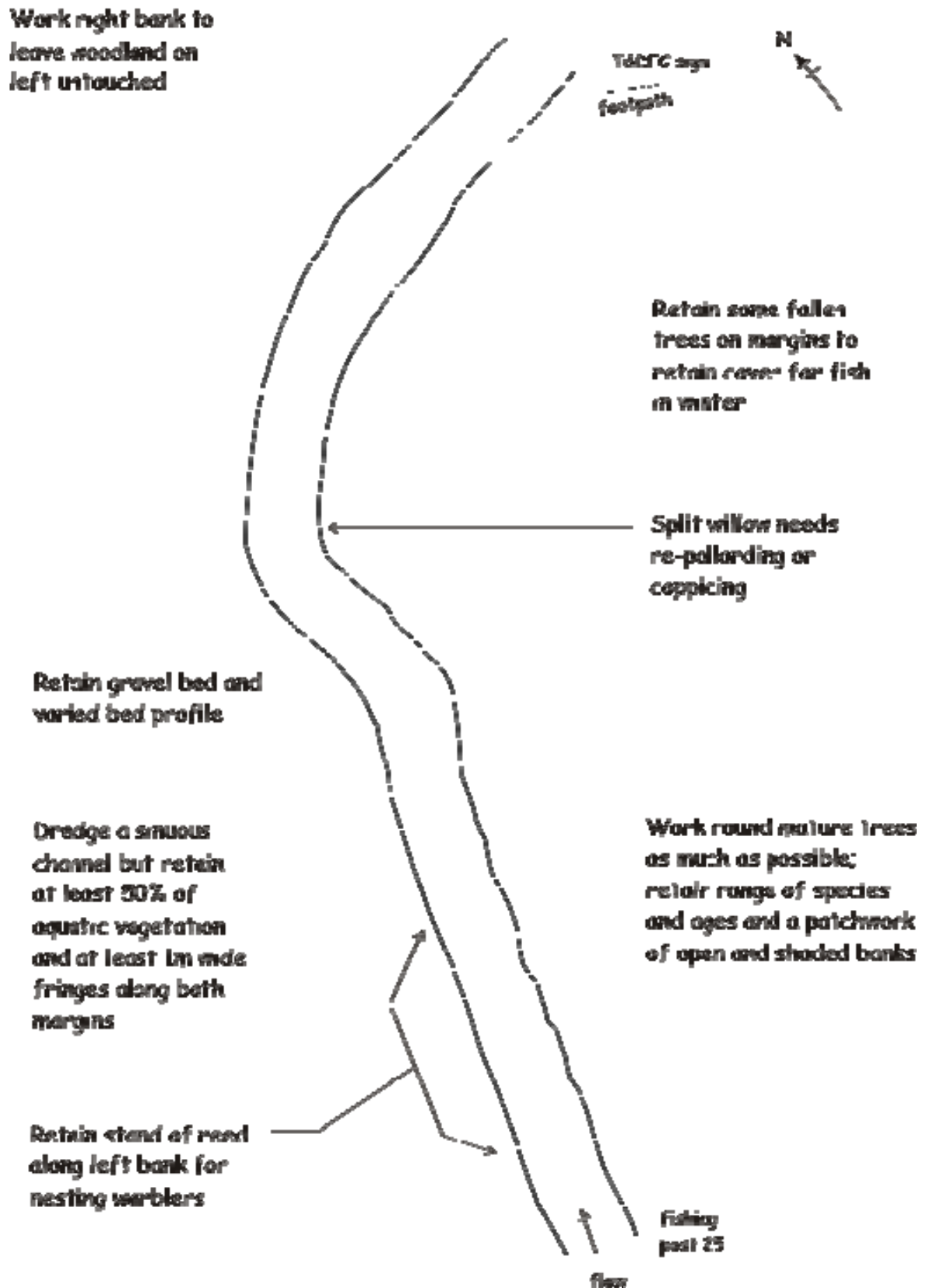
RIVER LODDON LOD 002 - DREDGING RECOMMENDATIONS



RIVER LODDON LOD 003 - DREDGING RECOMMENDATIONS



RIVER LODDON LOD 004 - DREDGING RECOMMENDATIONS



RIVER LODDON LOD 005 - DREDGING RECOMMENDATIONS

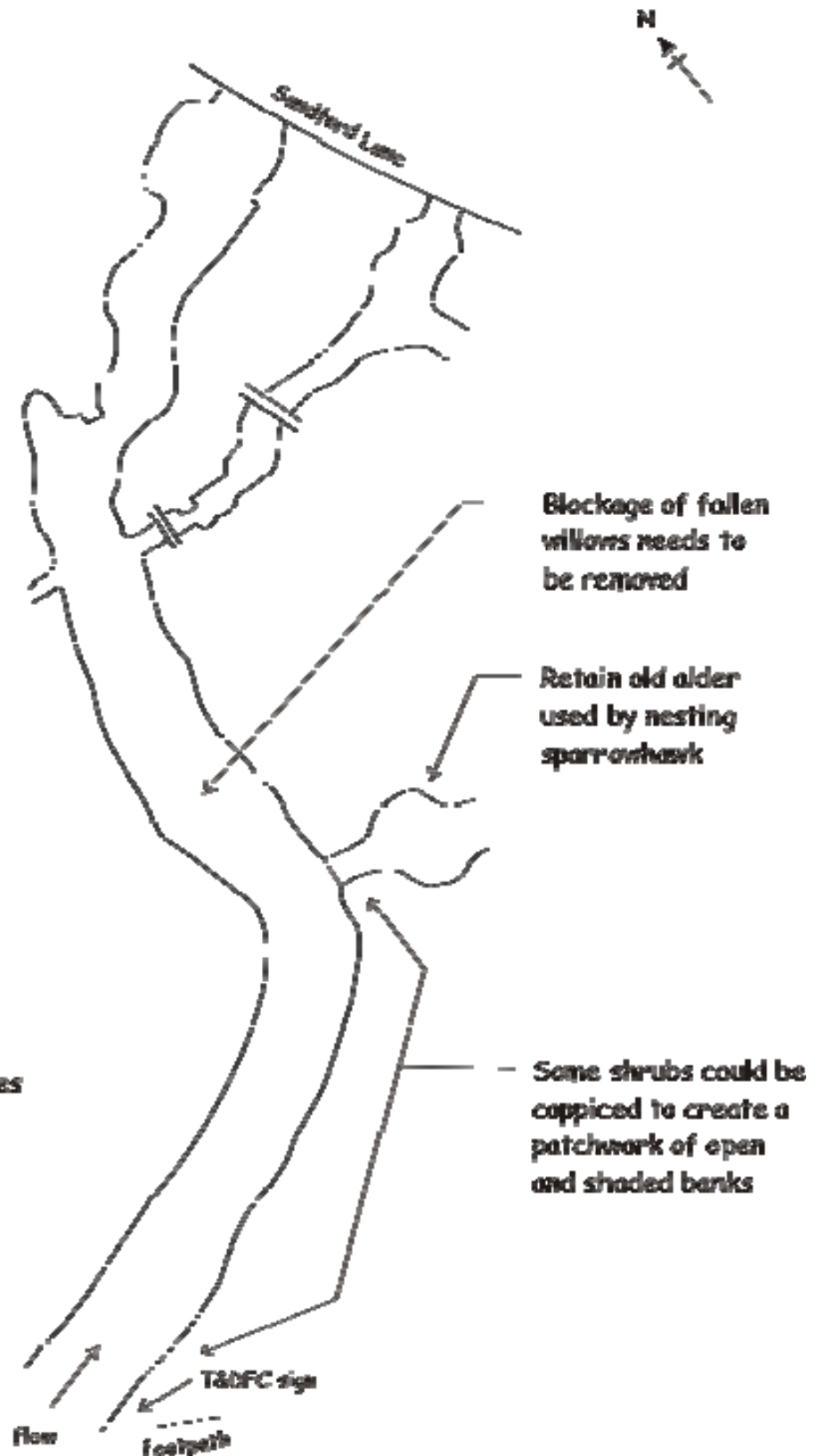
Work right bank

Retain gravel bed and varied bed profile

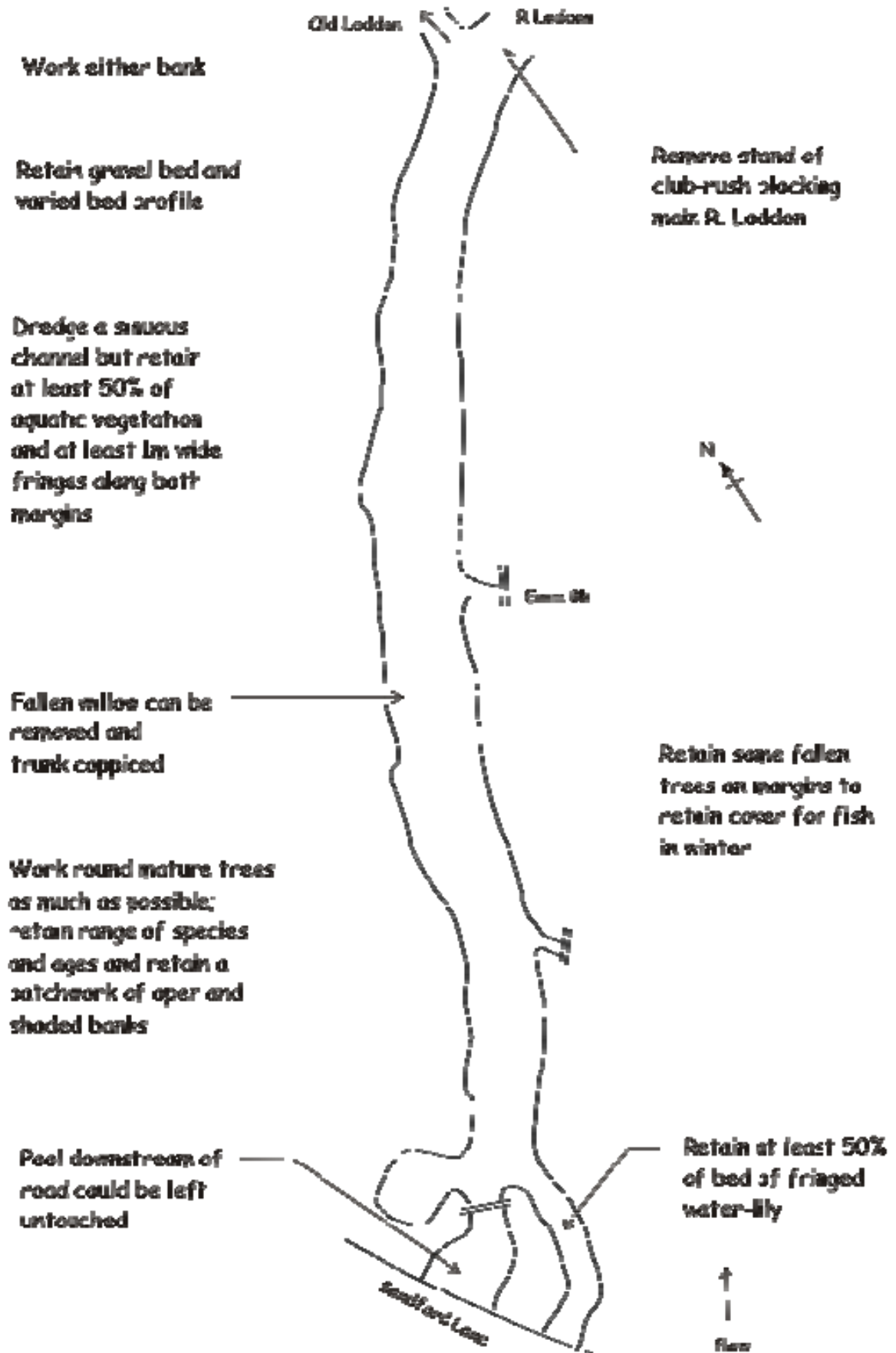
Dredge a sinuous channel but retain at least 50% of aquatic vegetation and at least 1m wide fringes along both margins

Retain some fallen trees on margins to retain cover for fish in winter

Work round mature trees as much as possible; retain range of species and ages



RIVER LODDON LOD 006 - DREDGING RECOMMENDATIONS

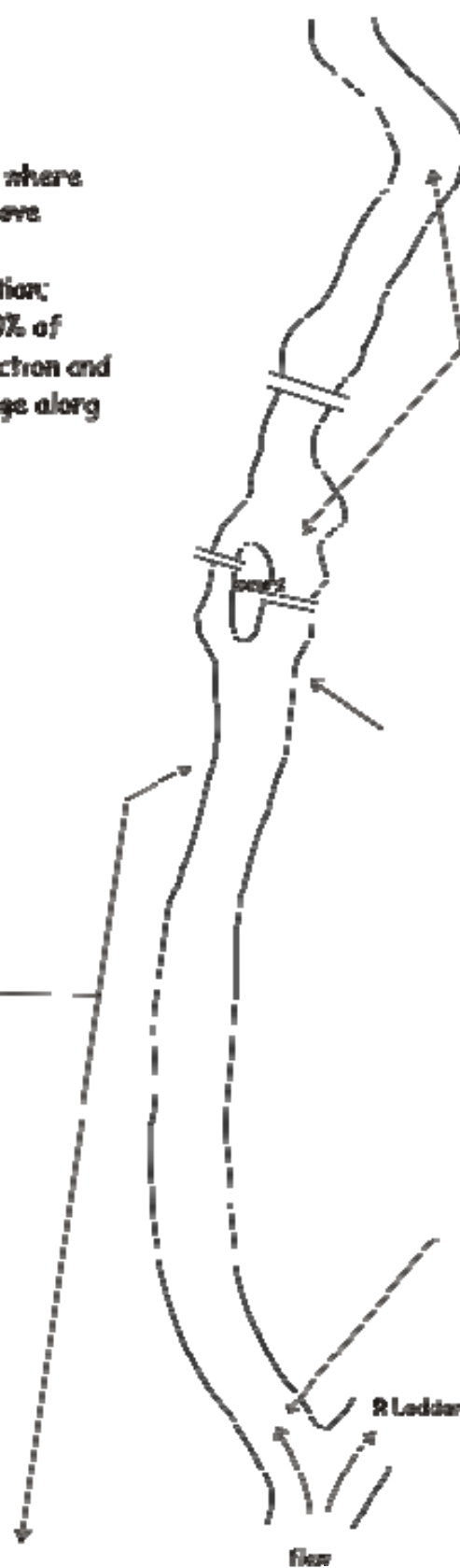


RIVER LODDON LOD 007 - DREDGING RECOMMENDATIONS

Work right bank

Spot dredge only where necessary to remove larger stands of emergent vegetation; retain at least 50% of submerged vegetation and 1m widths of fringe along both margins

Leave wood on left untouched



N

Retain pools

Retain gravel bed and varied bed profile

Retain shallow bank and margin with varied flora

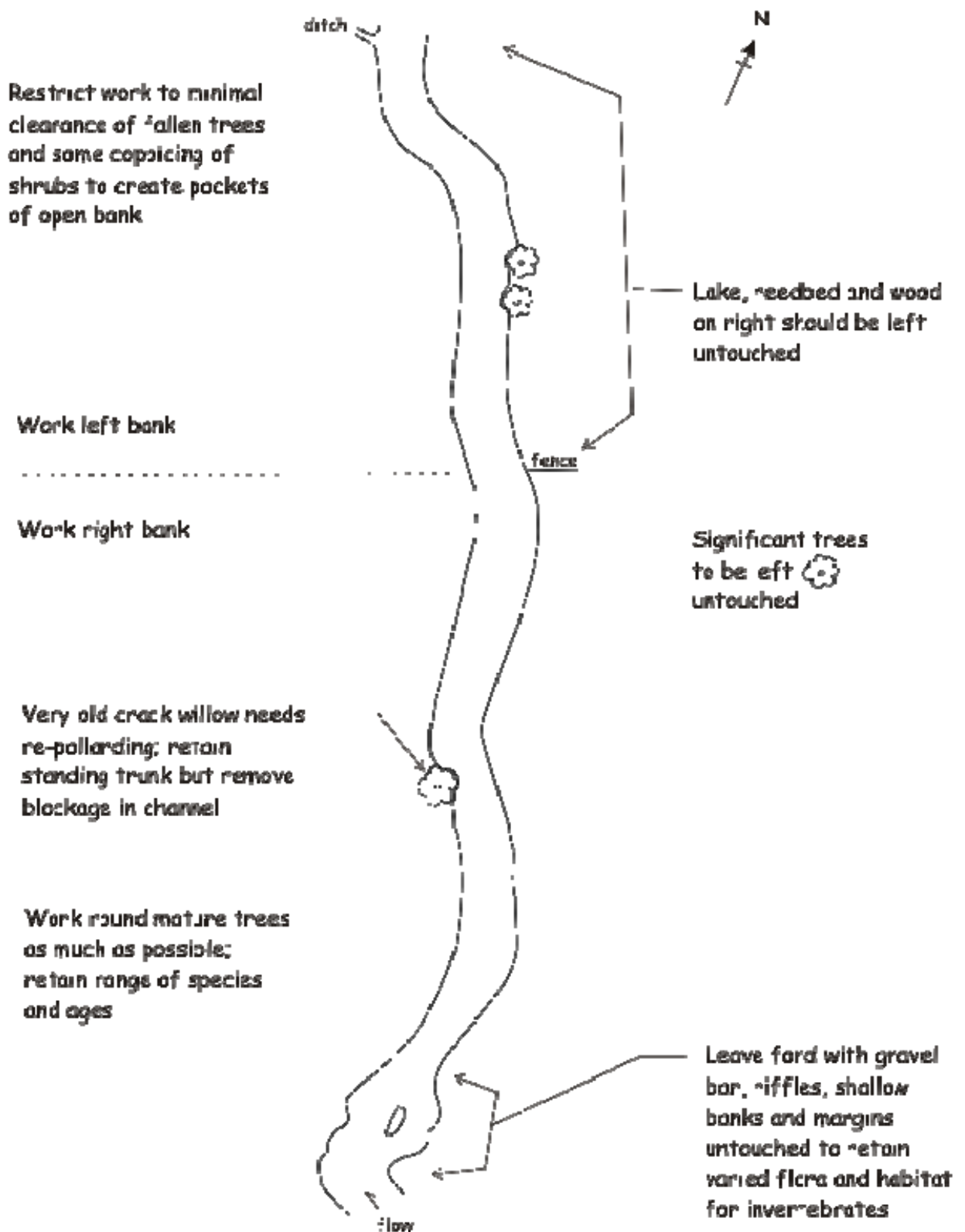
Work round mature trees as much as possible; retain range of species and ages and retain a patchwork of open and shaded banks

Retain gravel shoul at upstream end

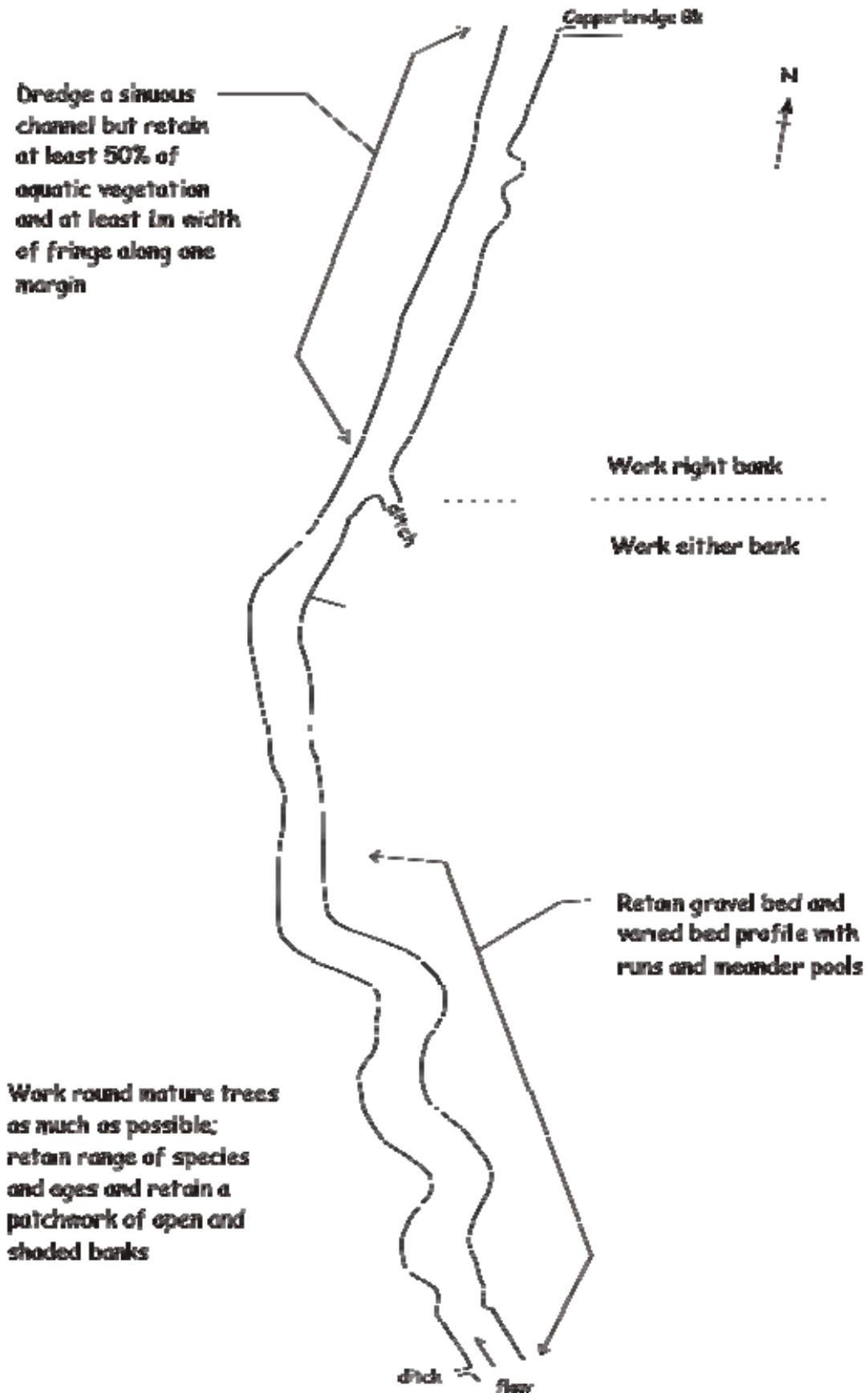
R Ladder

flow

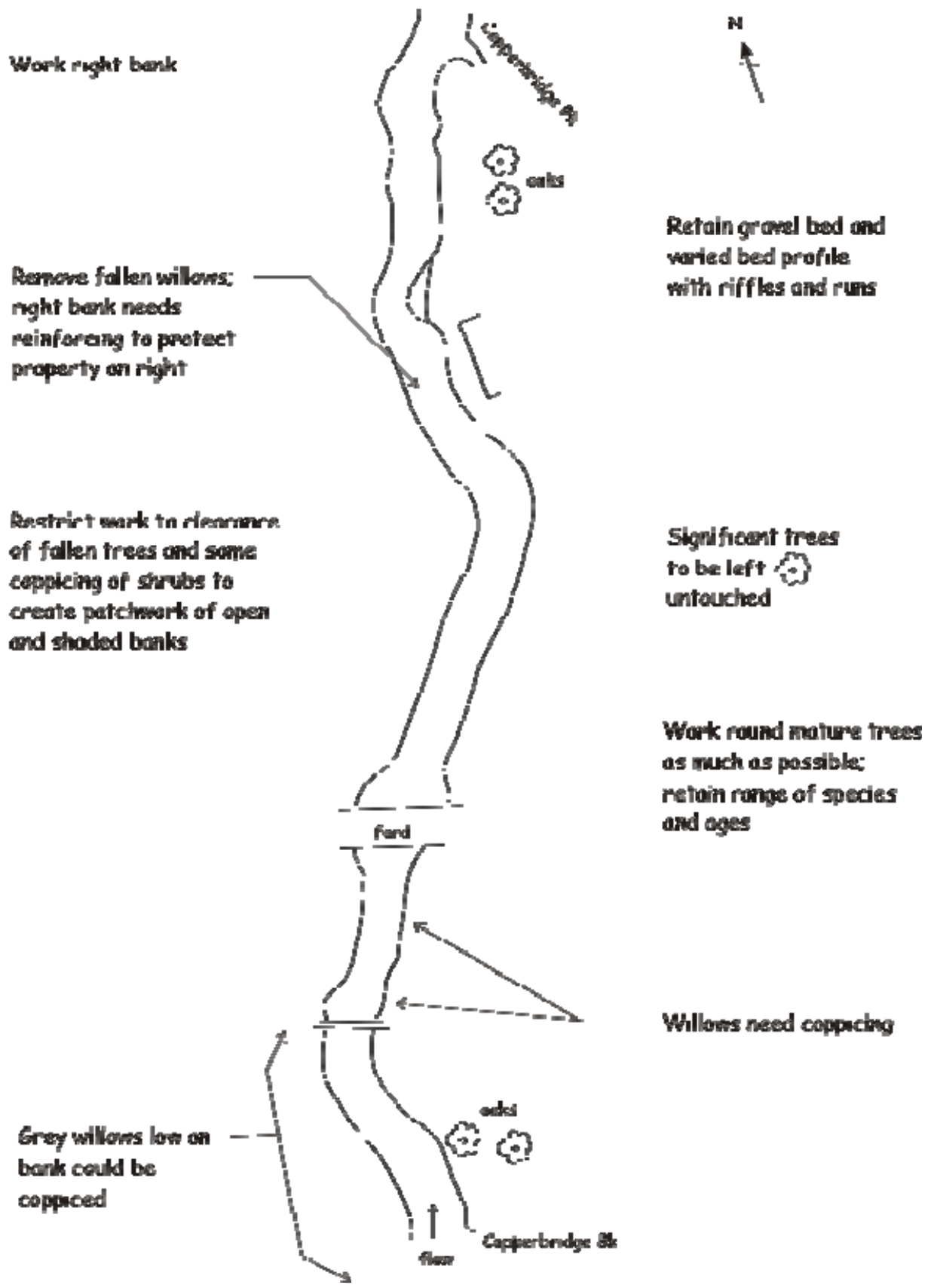
RIVER LODDON LOD 008 - DREDGING RECOMMENDATIONS



RIVER LODDON LOD 009 - DREDGING RECOMMENDATIONS



RIVER LODDON LOD 010 - DREDGING RECOMMENDATIONS



RIVER LODDON LOD 011 - DREDGING RECOMMENDATIONS

Work right bank



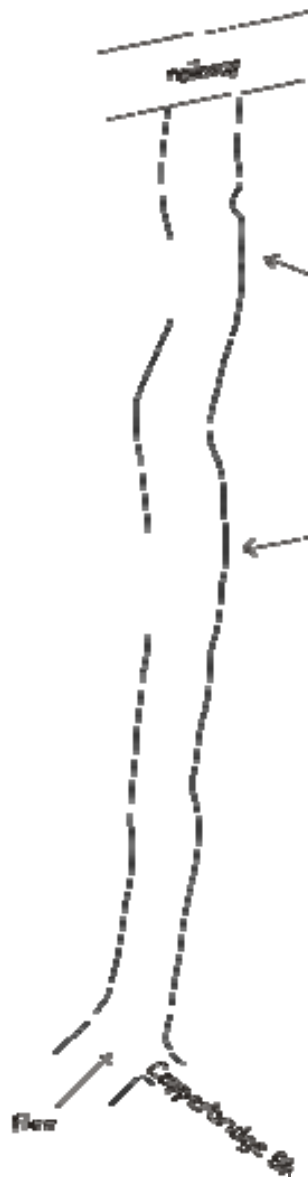
Dredge a sinuous channel but retain at least 50% of submerged vegetation and 1m widths of fringe along both margins

Retain gravel bed and varied bed profile

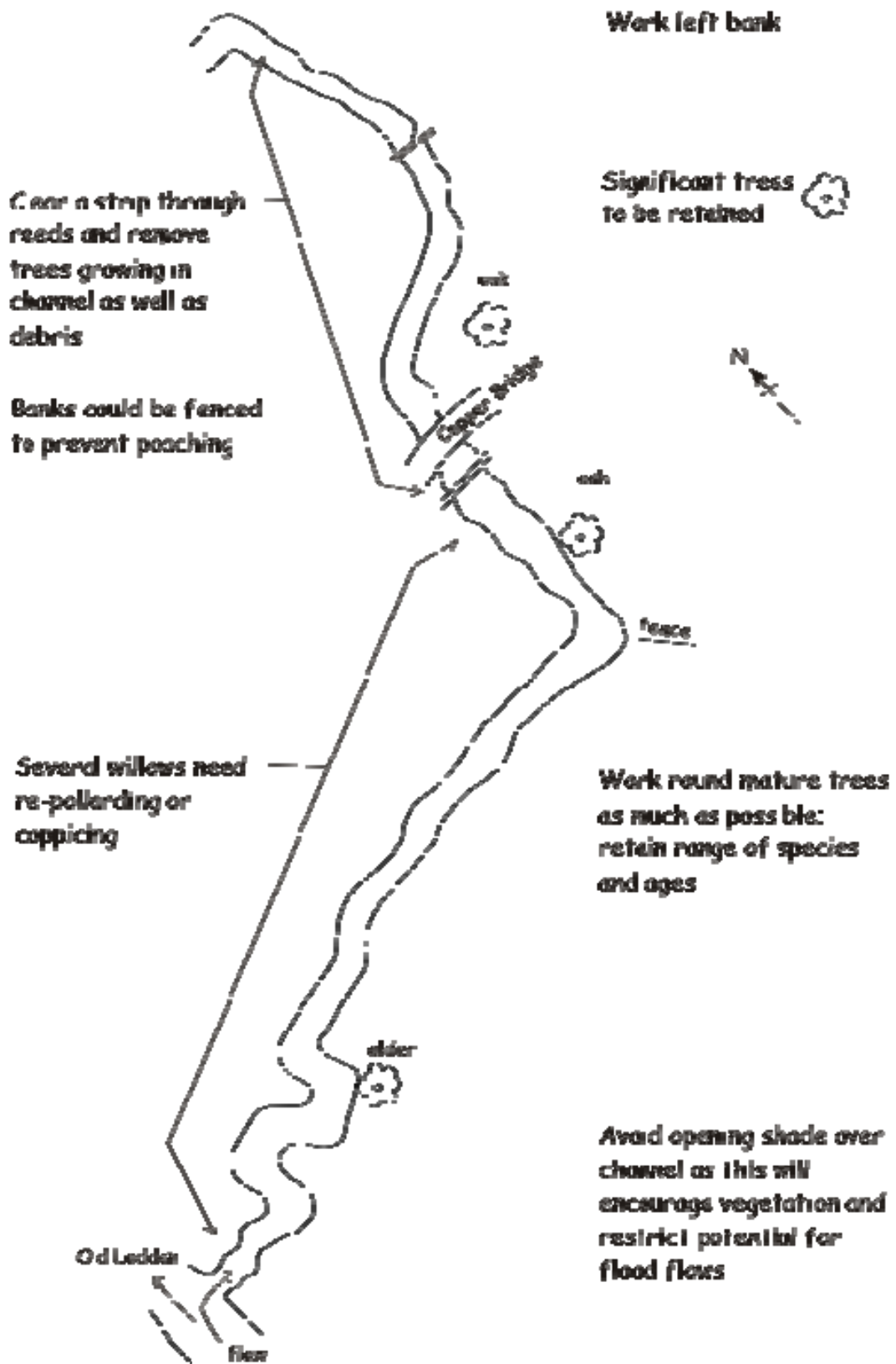
Leave wood on left untouched

Three willows need re-pollarding

Work round nature trees as much as possible; retain range of species and ages and retain a patchwork of open and shaded banks



COPPERBRIDGE BROOK CBB 001 - DREDGING RECOMMENDATIONS



COPPERBRIDGE BROOK CBB 002 - DREDGING RECOMMENDATIONS

Work left bank to avoid damage to lakes and wood on right



Retain at least 0.5m of channel vegetation at outfall

Clear a strip through reeds at upstream end; remove Indian balsam and trees growing in channel as well as debris and rubbish



Work round mature trees on left bank; retain trees and shrubs on right bank

Avoid opening shade over channel as this will encourage vegetation and restrict potential for flood flows

Banks could be fenced to prevent poaching

KEY to the COMMONER SPECIES & CODES USED ON RCS MAPS

<u>Scientific Name</u>	<u>Common Name</u>	<u>Abbreviation</u>
<i>Acer campestre</i>	Field maple	Acam
<i>Acer pseudoplatanus</i>	Sycamore	A pse
<i>Agrostis stolonifera</i>	Creeping bent	A sto
<i>Alisma plantago-aquatica</i>	Water plantain	A pla (63)
<i>Alnus glutinosa</i>	Alder	A glu
<i>Angelica sylvestris</i>	Wild angelica	A syl (109)
<i>Anthriscus sylvestris</i>	Cow parsley	A syl (125)
<i>Apium nodiflorum</i>	Fool's water-cress	A nod
<i>Arrhenatherum elatius</i>	False oat-grass	A ela
<i>Berula erecta</i>	Lesser water-parsnip	B ere
<i>Bidens tripartita</i>	Trifid bur-marigold	B tri
<i>Butomus umbellatus</i>	Flowering rush	B umb
<i>Callitriche obtusangula</i>	Blunt-fruited water-starwort	C obt
<i>Callitriche platycarpa</i>	Various-leaved water-starwort	C pla
<i>Callitriche sp.</i>	Water-starwort species	Call sp.
<i>Caltha palustris</i>	Marsh-marigold	C pal (310)
<i>Calystegia sepium</i>	Hedge bindweed	C sep
<i>Cardamine pratensis</i>	Cuckooflower	C pra
<i>Carex acutiformis</i>	Lesser pond-sedge	C acu (341)
<i>Carex hirta</i>	Hairy sedge	C hir
<i>Carex pendula</i>	Pendulous sedge	C pen
<i>Carex remota</i>	Remote sedge	C rem
<i>Carex riparia</i>	Greater pond-sedge	C rip
<i>Carex sp.</i>	Sedge species	Cx sp
<i>Catabrosa aquatica</i>	Whorl-grass	C aqu
<i>Cirsium palustre</i>	Marsh thistle	C pal 520
<i>Conium maculatum</i>	Hemlock	C mac
<i>Cornus sanguinea</i>	Dogwood	C san
<i>Crataegus monogyna</i>	Hawthorn	C mon
<i>Deschampsia cespitosa</i>	Tufted hair-grass	D ces
<i>Dipsacus fullonum</i>	Teasel	D ful
<i>Eleocharis palustris</i>	Common spike-rush	E pal (675)
<i>Elodea canadensis</i>	Canadian waterweed	E can (681)
<i>Elodea nuttallii</i>	Nuttall's waterweed	E nut
<i>Epilobium hirsutum</i>	Great willow-herb	E hir
<i>Equisetum fluviatile</i>	Water horsetail	E flu
<i>Euonymus europaeus</i>	Spindle	E eur
<i>Eupatorium cannabinum</i>	Hemp-agrimony	E can (763)
<i>Fallopia japonica</i>	Japanese knotweed	F jap
<i>Filipendula ulmaria</i>	Meadowsweet	F ulm
<i>Fontinalis antipyretica</i>	Willow-moss	F ant
<i>Fraxinus excelsior</i>	Ash	F exc
<i>Galium aparine</i>	Cleavers	G apa
<i>Galeopsis tetrahit</i>	Common hemp-nettle	G tet
<i>Galium palustre</i>	Common marsh bedstraw	G pal
<i>Glyceria fluitans</i>	Floating sweet-grass	G flu
<i>Glyceria maxima</i>	Reed sweet-grass	G max
<i>Glyceria notata</i>	Plicate sweet-grass	G not
<i>Ilex aquifolium</i>	Holly	I aqu
<i>Impatiens glandulifera</i>	Indian balsam	I gla
<i>Impatiens capensis</i>	Orange balsam	I cap
<i>Iris pseudacorus</i>	Yellow iris	I pse
<i>Juncus effusus</i>	Soft rush	J eff
<i>Juncus inflexus</i>	Hard rush	J inf

<u>Scientific Name</u>	<u>Common Name</u>	<u>Abbreviation</u>
<i>Lemna minor</i>	Common duckweed	L min
<i>Lycopus europaeus</i>	Gypsywort	L eur
<i>Lysimachia nummularia</i>	Creeping-Jenny	L num
<i>Lythrum salicaria</i>	Purple-loosestrife	L sal
<i>Mentha aquatica</i>	Water mint	M aqu (1271)
<i>Mimulus guttatus</i>	Monkeyflower	M gut
<i>Myosotis scorpioides</i>	Water forget-me-not	M sco
<i>Myosoton aquaticum</i>	Water chickweed	M aqu (1326)
<i>Myriophyllum spicatum</i>	Spiked water-milfoil	M spi
<i>Nuphar lutea</i>	Yellow water-lily	N lut
<i>Persicaria amphibia</i>	Amphibious bistort	P amp
<i>Persicaria hydropiper</i>	Water-pepper	P hyd
<i>Persicaria maculosa</i>	Redshank	P mac
<i>Petasites hybridus</i>	Butterbur	P hyb
<i>Phalaris arundinacea</i>	Reed canary-grass	P aru
<i>Phragmites australis</i>	Common reed	P aus
<i>Populus nigra</i>	Native black poplar	P nig
<i>Populus x nigra</i>	Hybrid black poplar	P nig (1550)
<i>Populus x canescens</i>	Grey poplar	P can
<i>Potamogeton crispus</i>	Curled pondweed	P cri
<i>Potamogeton natans</i>	Broad-leaved pondweed	P nat
<i>Potamogeton pectinatus</i>	Fennel pondweed	P pec
<i>Prunus spinosa</i>	Blackthorn	P spi
<i>Pulicaria dysenterica</i>	Common fleabane	P dys
<i>Quercus robur</i>	Pedunculate oak	Q rob
<i>Ranunculus penicillatus ssp. pseudofluitans</i>	Stream water-crowfoot	R pse
<i>Ranunculus sp.</i>	Water-crowfoot species	Ran sp
<i>Rorippa amphibia</i>	Great yellow-cress	R amp
<i>Rorippa nasturtium-aquaticum</i>	Water-cress	R nas
<i>Rosa canina agg.</i>	Dog rose	R can
<i>Rubus fruticosus agg.</i>	Bramble	R fru
<i>Rumex hydrolapathum</i>	Water dock	R hyd
<i>Sagittaria sagittifolia</i>	Arrowhead	S sag
<i>Salix alba</i>	White willow	S alb 1784
<i>Salix alba var caerulea</i>	Cricket-bat willow	S alb vc
<i>Salix caprea</i>	Goat willow	S cap
<i>Salix cinerea</i>	Grey willow	S cin
<i>Salix fragilis</i>	Crack willow	S fra
<i>Salix viminalis</i>	Osier	S vim
<i>Salix x sepulcralis</i>	Weeping willow	S sep
<i>Sambucus nigra</i>	Elder	S nig
<i>Schoenoplectus lacustris</i>	Common club-rush	S lac
<i>Scrophularia auriculata</i>	Water figwort	S aur
<i>Solanum dulcamara</i>	Bittersweet	S dul
<i>Sparganium emersum</i>	Unbranched bur-reed	S eme
<i>Sparganium erectum</i>	Branched bur-reed	S ere
<i>Stachys palustris</i>	Marsh woundwort	S pal
<i>Symphytum officinale</i>	Common comfrey	S off (2024)
<i>Typha latifolia</i>	Bulrush	T lat
<i>Ulmus procera</i>	English elm	U pro
<i>Urtica dioica</i>	Nettle	U dio
<i>Veronica anagallis-aquatica</i>	Blue water-speedwell	V ana
<i>Veronica beccabunga</i>	Brooklime	V bec
<i>Veronica catenata</i>	Pink water-speedwell	V cat
<i>Viburnum opulus</i>	Guelder-rose	V opu
<i>Zannichellia palustris</i>	Horned pondweed	Z pal

HABITAT and LAND USE CODES

Woodland and Scrub			Mire		
Broad-leaved	semi-natural	BW	Flush/spring	acid/neutral	AF
	plantation	PBW		basic	BF
Coniferous	semi-natural	CW	Fen (B where basic)	valley mire	VM
	plantation	PCW		basin mire	BM
Mixed	semi-natural	MW		flood-plain	FPM
	plantation	PMW	Swamp		SP
Scrub	dense/continuous	DS	Marginal Vegetation		MV
	scattered	SS	Inundation Vegetation		IV
Parkland/scattered trees	broad-leaved	SBW	Artificial	quarry	Q
	coniferous	SCW		spoil	S
	mixed	SMW		mine	MI
Grassland and Marsh				refuse tip	R
Acid grassland	unimproved	AG	Miscellaneous		
	semi-improved	SAG	Cultivated/disturbed land	arable	A
Neutral grassland	unimproved	NG		amenity grass	AM
	semi-improved	SNG		ephemeral/short perennial	SP
Calcareous grassland	unimproved	CG		introduced shrub	IS
	semi-improved	SCG	Bare Ground		BG
Improved grassland		I	Industrial Site		IND
Species poor semi-improved grassland		SI	Housing		HSG
Marsh/marshy grassland		MG	Caravan Site		CS
Tall Herb and Fern	tall ruderal	TR	Boundaries		
	non-ruderal	NR	Hedges - intact	species-rich	RH
Open Water				species-poor	PH
Standing Water	eutrophic	SWE	- defunct	species-rich	RH-
	mesotrophic	SWM		species-poor	PH-
	oligotrophic	SWO	- with trees	species-rich	RHT
Running Water	eutrophic	RWE		species-poor	PHT
	mesotrophic	RWM	Boundary removed		X
	oligotrophic	RWO	Earth bank		EB
			Dry Ditch		DD