Standard Maintenance Operations Policy Document

Kings' Lynn Internal Drainage Board

Version 1

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Training and Revision Register

Date	Revision Details	Version Number

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STANDARD MAINTENANCE OPERATIONS POLICY DOCUMENT

1.0 INTRODUCTION

The drainage district of the King's Lynn Internal Drainage Board (KLIDB) covers an area of 650 km^2 and contains 598 km of watercourse. These watercourses are regulated by 12 pumping stations, 10 tidal sluices and 13 other structures. Much of the drainage district is bounded by sea defenses although some abuts the Wash SSSI at Snettisham and Heacham.

The area runs south from Hunstanton and west to Wisbech, being bisected by the River Great Ouse. To the west the KLIDB drains agricultural land but also the large villages of Terrington St Clements, Clenchwarton and West Lynn. To the east, the KLIDB removes water from the easterly uplands including Dersingham, and Gayton and also the town of King's Lynn.

The KLIDB can be divided into two geological areas. West of the Great Ouse are the flat peat landscapes of the Fens. To the east, the land rises to form rolling hills with chalk and deposits of, among others, Lower Greensand and clays. This influences the watercourses. To the west are pump drained catchments of the low-lying fens which accounts for the greater area. In contrast, to the east, in addition to pump drained catchments, are the watercourses from the uplands, including the Ingol, Babingly and Heacham which are gravity driven, in the upper reaches, before becoming tide locked in the lower reaches which are then primarily controlled by gravity outfalls.

The KLIDB district holds or is adjacent to 3 National Nature Reserves, 3 areas with multiple international designations, 6 Sites of Special Scientific Interest and 39 County Wildlife Sites.

The pump drained system comprises heavily modified and artificial channels draining towards the respective pumping stations.

The rivers are more natural in the upper reaches, becoming heavily modified in the lower reaches where their outfall is controlled. Where they are naturally draining, they exhibit a greater variety of physical characteristics including riffles, pools, wet berms and meanders.

Maintenance of the drainage infrastructure has always been achieved by the regular weed cutting of stretches of watercourses. However, some desilting has always had a place in the maintenance schedule, to allow for the capacity of drains to be retained and ensure conveyance to pumping stations.

This is the second Standard Maintenance Operations Document and its aim is to allow a uniform maintenance procedure to be carried out to a consistently high standard in designated wildlife sites and in Board-maintained ordinary watercourses alike. There is also a necessity to recognise the growing evidence of climate change predictions and consider the potential this has to adversely impact on future operations and flood risk of the catchment served. It builds upon the document 'Standard Maintenance Operations for the Fens' produced by the KLIDB in 2008.

This document has been aligned with the ADA guidelines and relevant sections of the Environment Agency document, "Guide to Management Strategies and Mitigation Measures for Achieving Good Ecological Potential in Fenland Waterbodies" (2017) where the core function of the watercourses of ensuring efficient conveyance and flow to the pumps.is balanced with ensuring opportunities to enhance and achieve good ecological potential (as defined within the Water Framework Directive) are undertaken. It also draws on the Environment Agency's document 'Delivering consistent standards for sustainable asset management'.

The document recognises the importance of the sustainable management of drainage catchments as natural environmental systems and as an ecosystem service and acknowledges the importance of managing the Board's drains appropriately in helping the UK Governments aim to halt decline in biodiversity by 2020. The KLIDB Standard Maintenance Document aligns itself naturally alongside the KLIDB Biodiversity Action Plan (BAP), whereby the Board seeks to maintain and enhance Species and Habitats of Principal Importance whilst carrying out its statutory function.

A sustainable and well planned maintenance programme is key to this ambition.

2.0 LEGISLATION

As a Statutory Risk Management Authority, the KLIDB operates under the powers of the Land Drainage Act (1991). As a Drainage Authority it must comply with a number of national and international legislative duties, regarding the aquatic environment, biodiversity and wildlife sites within the District. It should be noted that failure to comply with any of these statutory obligations, has the potential to result in both personal and corporate liability being brought about to both individual Board Members and the Board, by the enforcement body. As a result, a Court may issue a fine dependent on the severity of the offence and insist on restorative works being carried out and paid for by the

offender, including unlimited fines. Furthermore some offences may attract a custodial sentence.

The main legislative drivers are as follows:

2.1 European Legislation

- The Water Environment (Water Framework Directive) (2017) – a statutory duty to ensure that reasonable actions are taken to improve the physical and chemical nature of the waterbodies under their management, with the aim of achieving good ecological status or potential of surface waters by 2027. This can be achieved by putting in place environmental improvements or mitigation measures where applicable and undertaking sensitive management of watercourses.

- The Conservation of Habitats and Species Regulations (2017) - a statutory duty in the exercise of any functions, to have regard to this EC Habitats Directive which provides for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

2.2 National Legislation

- Wildlife and Countryside Act (WCA Act) (1981) imposes a statutory duty to protect native species (especially those at threat), control the release of non-native species and protect SSSIs.

- The Countryside and Rights of Way Act (CROW Act) (2000) – this act amends the WCA Act and enforces a duty for Statutory Authorities to be responsible for conservation and enhancement of SSSIs. It also enhances Natural England's enforcement power.

- Natural Environment and Rural Communities Act (NERC) Act (2006) - a statutory duty to maintain and enhance the natural environment (Habitats and Species set down in Section 41 of the NERC Act (2006)) when carrying out flood risk management activities and meet objectives and targets set out in the KLIDB Biodiversity Action Plan.

- Flood and Water Management Act (2010) – requires flood and coastal erosion risk management authorities to contribute towards

the achievement of sustainable development when exercising their flood and coastal erosion risk management functions.

2.3 Protected Species and Habitats and Other Considerations

There are networks of protected species and habits across the UK. Some of these species such as water voles, breeding birds, otters and bats are given full protection under the law for both the individual species and their habitats. Some habitats and species are identified in Section 41 of the NERC Act (2006) and classified as Habitats and Species of Principal Importance, which require specific consideration by the IDB to ensure these habitats or species are maintained or enhanced, whilst carrying out our duties as a public body.

Some habitats and species are covered by separate and specific legislation; such as the Badgers Act (1992), the Salmon and Freshwater Fisheries Act (1975), Hedgerow Regulations 1997 and The Town and Country Planning (Tree Preservation) (England) Regulations 2012. We need to ensure that this legislation is considered and complied with when undertaking our works.

2.4 Non Native Invasive Species and Biosecurity

The spread of Non-Native Invasive Species has the potential to cost the KLIDB dearly, both in economic terms and in the loss of biodiversity interests. Allowing the spread of non-native species which may include Japanese knotweed, floating pennywort and Australian swamp stonecrop or signal crayfish is illegal under Schedule 9 of the Wildlife and Countryside Act (1981) (as amended). It is therefore unlawful to cause any non-native species to spread as a result of any IDB operational activity.

Biosecurity is key to preventing the spread of these organisms into and around the KLIDB watercourses. The KLIDB staff currently do all they can to help prevent the spread of non-native invasive species whilst undertaking operations. Staff will undergo training on Non Native Species and sightings will to be reported to the NNNSI. Training is reviewed and undertaken regularly.

The KLIDB has also prepared a biosecurity policy which can be viewed at the following link:
https://www.wlma.org.uk/uploads/BIDB_Biosecurity_Policy.pdf

Where feasible, machinery is cleaned prior to being moved between catchments using a portable cleaner system.

2.5 Conservation Sites – Statutory and Non- Statutory

Where operational activities are to be carried out within or adjacent to statutory designated conservation sites such as SSSIs, SACs, RAMSARs or SPAs, assent is required from Natural England before any work can start.

Non-statutory sites such County Wildlife Sites (CWS) do not require any formal written permission; however these sites are noted for their habitats and species, some of which may be protected. These sites have a significant value within the county and it is within everybody's interest to ensure that work does not impact on these sites. Where KLIDB are required to work on or near a CWS, then we will liaise with the Norfolk Wildlife Trust prior to starting works.

2.6 Emergency Works

Emergency works may be required during exceptional or unmitigated circumstances; such as in the event of structural failure, pump seizure or during periods of extreme weather conditions, such as a tidal surge or flood event. In many of these circumstances, third parties and their property may be put at risk. However, these emergency procedures may have the potential to impact on a SSSI or European Protected site. In an emergency, it is reasonable to carry out operations in or near the protected site. However, Natural England must be informed of the operation as soon as practicable.

Reporting the emergency operation to Natural England is key to determining a satisfactory outcome to the emergency situation and prevents the deterioration of the site and the well being of species. Reporting the operation will prevent legal action being taken against the Board.

2.7 Cultural and Heritage Sites

Landscape, cultural and heritage sites may be present within work areas or adjacent land; some of these such as Scheduled Ancient Monuments and Conservation areas require permission to undertake work on or adjacent to them and Historic England should be contacted.

3.0 MEETING GOOD ECOLOGICAL POTENTIAL IN KLIDB WATERCOURSES

Meeting good ecological potential within the KLIDB watercourses is of course a goal for the Board. However, this can only achieved effectively where mitigation measures are selected that do not have a significant adverse impact on the use that the watercourse is designated for, such as flood protection or land drainage.

Some of the KLIDB catchment falls below sea level and relies on water flowing to a pumping station to where the water is evacuated to a higher level, a river or an estuary. As such, the majority of these watercourses have historically been artificially created or heavily modified, with the purpose of conveying water to a pumping station in times of high flow. These watercourses are not dynamic or fast flowing like those of a gravitational system and their purpose must be recognised prior to seeking opportunities to improve their ecological potential. The appropriate balance between conveyance and good ecological potential must be met. The KLIDB will however seek to conserve or enhance the physical and ecological parameters of the waterbodies where this is either achievable to do so without inhibiting the dedicated function of the watercourse. The recently published ADA and Environment Agency “Guide to Management Strategies and Mitigation Measures for Achieving Good Ecological Potential in Fenland Waterbodies” is a useful guide and should be consulted on a case by case basis for guidance in determining mitigation and identifying opportunities for WFD designated watercourses.

Detailed consideration has been given to ascertaining whether the maintenance operations should be different for gravity and pump drained watercourses in the KLIDB district. It has been concluded however that the principles of management to maintain biodiversity are the same for all watercourses. These standard maintenance operations are given in the following sections and may include:
Retention of any pools and riffles;
Retention of meanders;
Retention of backwaters which provide refuges in times of flood;
Retention channel form with no overdeepening;
Retention of hard bed;
Retention of natural berms;
Consideration of retention of natural woody debris;
Creation of variation in the riverbank where feasible.

Accordingly it has been concluded that the suite of management proposals are suitable for all types of channel.

3.1 Maintaining Successional Processes within Watercourses

Sensitive maintenance of a watercourse, retaining important features, will benefit many species and communities within the drainage channel network. The key to maintaining significant ecological interest is to maintain watercourses at differing stages of the successional process. For example a newly desilted drain will exhibit an array of early colonisers such as charophyes or certain pondweed species. Drains left for a longer rotational periods prior to vegetation cutting or desilting may exhibit a larger abundance or diversity of macrophytes, while those that are unmanaged may be dominated by common reed to the near exclusion of other species. Many non-IDB drains may not be maintained for several years but the regular and rotational maintenance of IDB watercourses ensures a small percentage of the entire drainage network in the catchment retains areas of open water, which is so important to many animal and plant species.

Differing successional stages, water depths and maintenance cycles maximises ecological diversity. The other important factor which is key to maintaining this diversity, is good water quality.

4.0 HOW THE STANDARD MAINTENANCE OPERATIONS DOCUMENT WILL WORK IN PRACTICE

This document will be called the Standard Maintenance Operations Policy Document and will be used to inform outside bodies of the way in which the KLIDB intends to carry out all regular maintenance practices. The document will be subject to review on a regular basis. Version control will allow any changes to be recorded. Should there be proposals to change the regimes then the practices will be reviewed.

All Operatives, Contractors and Supervisors asked to carry out maintenance for KLIDB now and in the future, will undertake a Training session based on the Standard Maintenance Operations Policy Document. Training needs will be reviewed regularly, in line with any amendments made to this document.

Prior to initiating any maintenance activity, contractors will receive a job specific tool box talk. Watercourse maintenance will receive close supervision by a trained Supervisor.

4.1 Mowing of Bankside Vegetation

The aim of mowing is threefold:
1. It allows unimpeded visibility for the driver.
2. It improves the conveyance of a watercourse.
3. It prevents the establishment of woody vegetation along the water's edge.

Mowing of bankside vegetation will be carried out by a tractor and flail. Where there is no suitable access, then strimmers and hand tools will be utilised.

Mowing of bankside vegetation may be undertaken throughout the year. If works are necessary in the bird breeding season (mid-March - mid-July) then pre-work checks will take place prior to maintenance to ensure nesting birds are not present and the KLIDB's statutory responsibilities set out in the Wildlife and Countryside Act 1981 (as amended) are fully met.

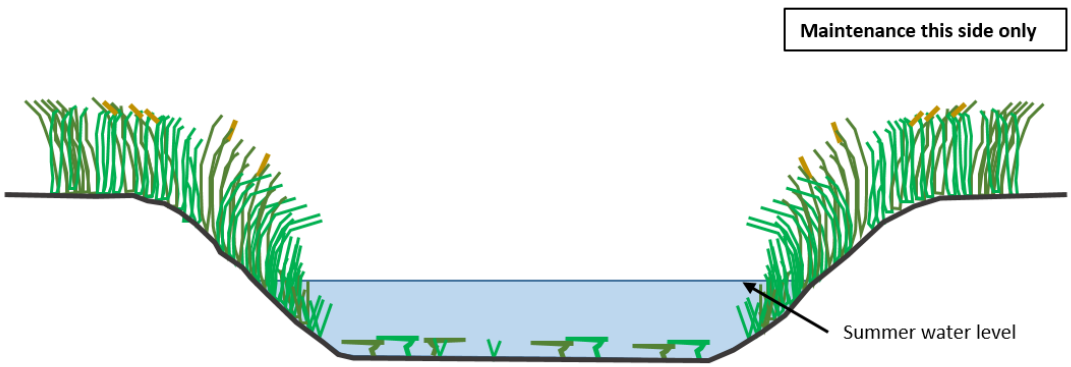
Where breeding birds are found, then effective mitigation will be put in place to ensure compliance with the law. This may mean delaying works or leaving a buffer zone of 5m on either side of a nest.

4.1.1 Mowing Method

Two methods of working may be used which are width dependent.

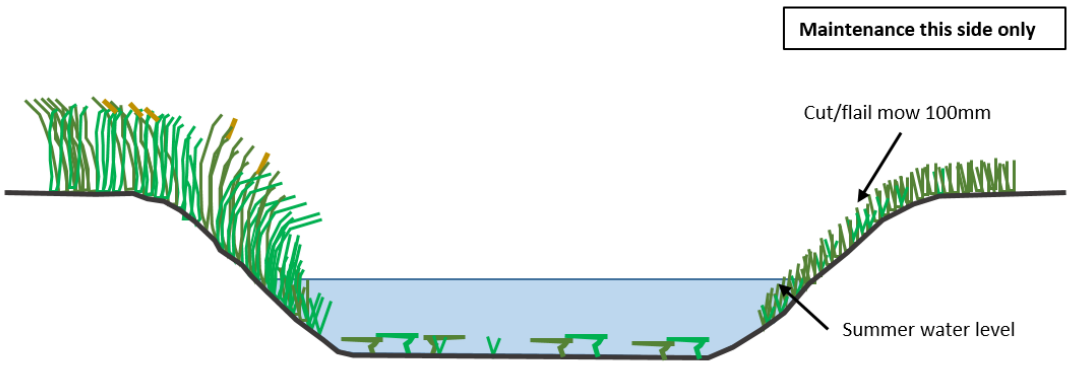
The first, (Environment Agency M4) will be used on watercourses which are more than 2 metres wet width wide, mowing taking place from down the nearside batter to the water's edge and one cut along the top of the nearside bank top. The flail height should be set to 100mm to ensure water vole are not disturbed or displaced by the mowing activity. No WFD assessment is required prior to using this method.

<u>Before works</u>



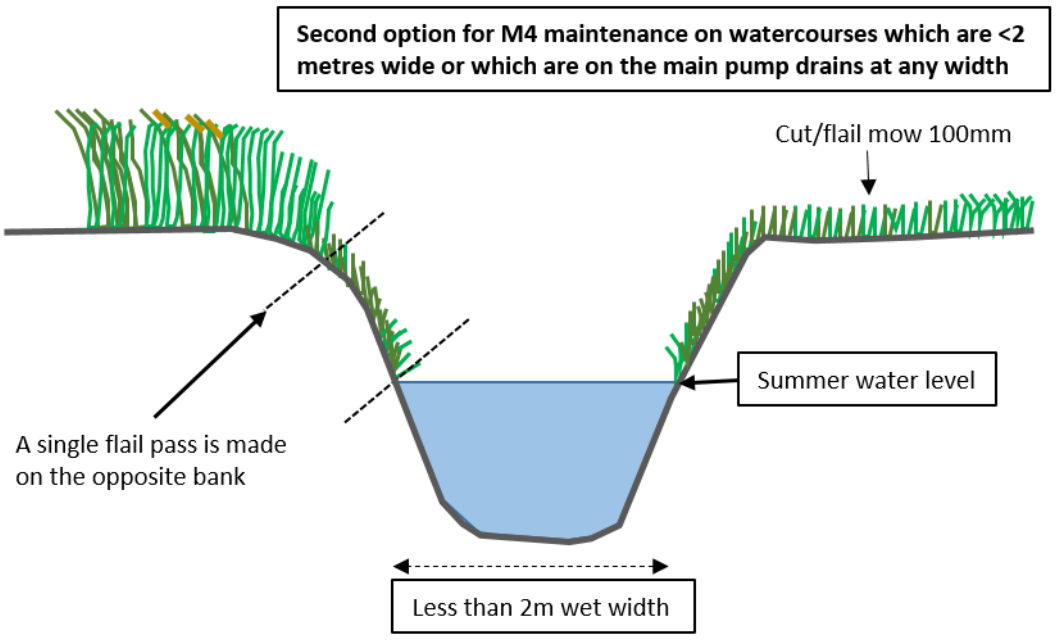
After works

Greater than 2m wet width



The second is a modification of this and is used on watercourses which are less than 2 metres wet width wide or which are on the main pump drains at any width where additionally a single flail pass is made on the opposite bank

Less than 2 metres wet width



4.2 Emergent and Instream Weed Control

The Board removes vegetation from watercourses mechanically, using a weed cutting basket. Where this is not practical, due to the size of the watercourse or impeded access, then manual clearance may be undertaken using hand tools, such as a chrome.

Emergent and instream vegetation clearance will be undertaken throughout the year. If works are necessary in the bird breeding season (mid-March - mid-July) then pre-work checks will take place prior to maintenance to ensure nesting birds are not present and the KLIDB's statutory responsibilities set out in the Wildlife and Countryside Act 1981 (as amended) are fully met.

Emergent and instream weed control is essential to allow unimpeded water flow within the banks of the watercourse. Weed cutting will take place cyclically as part of a regular rolling programme.

To accommodate access to growing crops and in order to satisfy conservation interests, wherever possible alternate banks will be maintained from one clearing cycle to the next.

Some important pumped drains may require maintenance more than once in one year. Wherever possible the work will be carried out on one side of the drain in any one-year cycle.

The weed-cutting basket should always be set to ensure that no deepening of the watercourse or removal of gravels occurs during the process of weed cutting. In most instances in drains greater than 2m wet width, a margin of emergent vegetation will be left uncut at the water's edge as specified below.

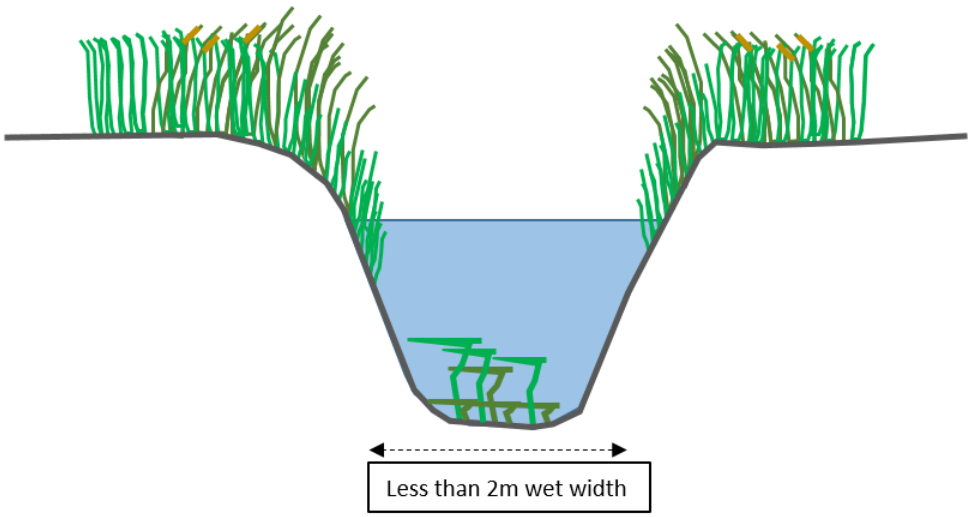
Instream weed control will work in conjunction with the mowing regime specified in Section 4.1.1.

Weedcutting will be carried out using one of a series of options and no WFD assessment is required prior to using this operation.

4.2.1 Management of drains less that 2m wet width

In narrow drains, all instream emergent vegetation will be removed and no fringe will be left. Cut material should be set back behind the machine as far as possible or, as a second choice, placed on the opposite bank top. Care will be taken not to place material on floristically rich areas, wet flushes or block grips. No wet vegetation or mud will be placed on the face. The front edge of the drain should remain clean

Before



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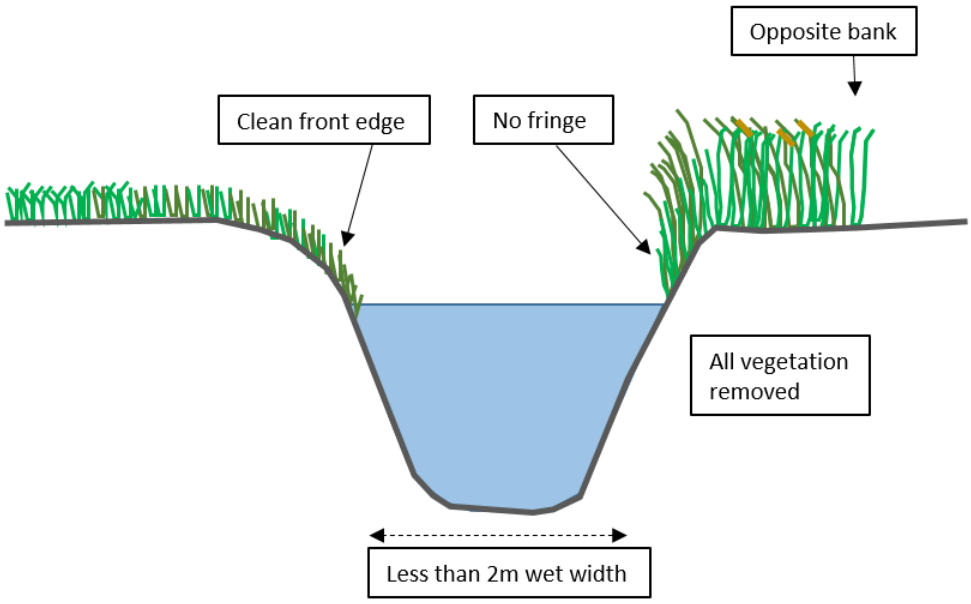


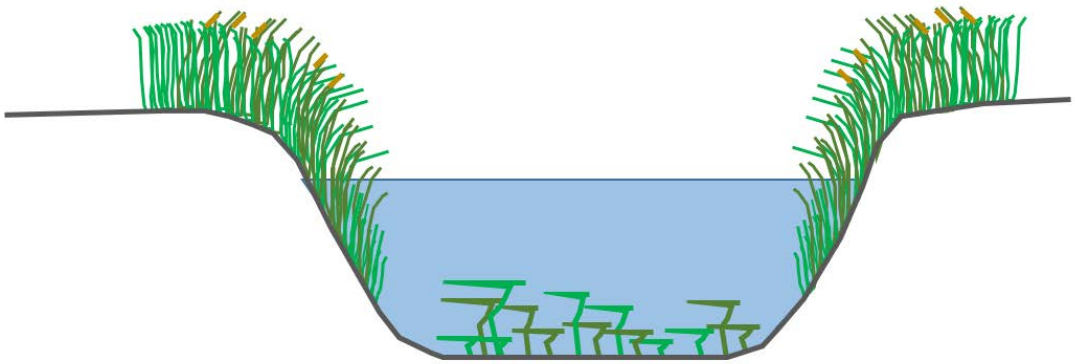
4.4.2 Management of drains greater than 2m wet width – Leave opposite margin

This practice allows for a margin to be created on the opposite bank. The margin consists of leaving as much wet width vegetation *in situ*, as far as is

practicable for the size of drain (approx. 10-20% remaining.) The nearside toe will not be exposed or touched by the weedcutting basket.

Cut material should be set back behind the machine as far as possible or, as a second choice, placed on the opposite bank top. Care will be taken not to place material on floristically rich areas, wet flushes or block grips No wet vegetation or mud will be placed on the bank face.

Before



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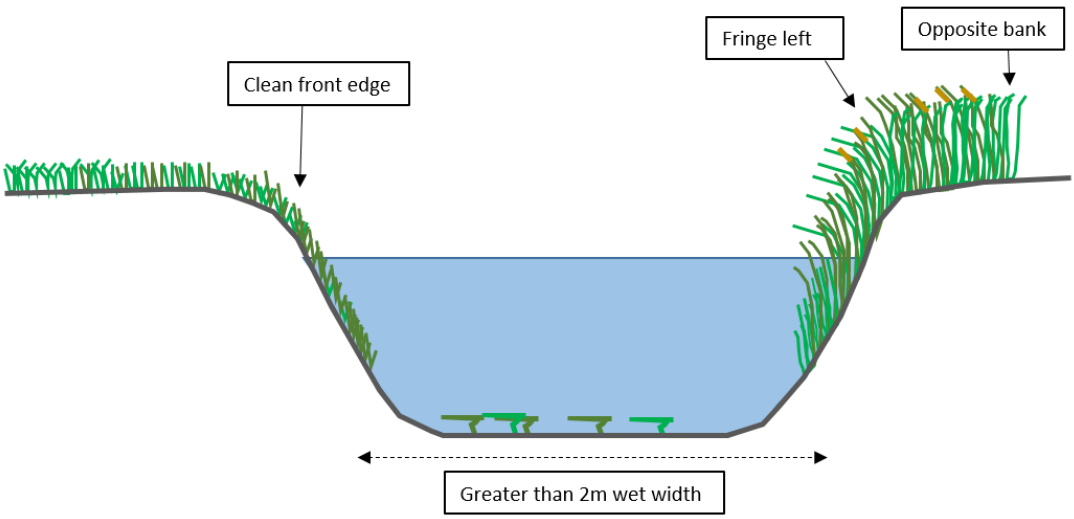
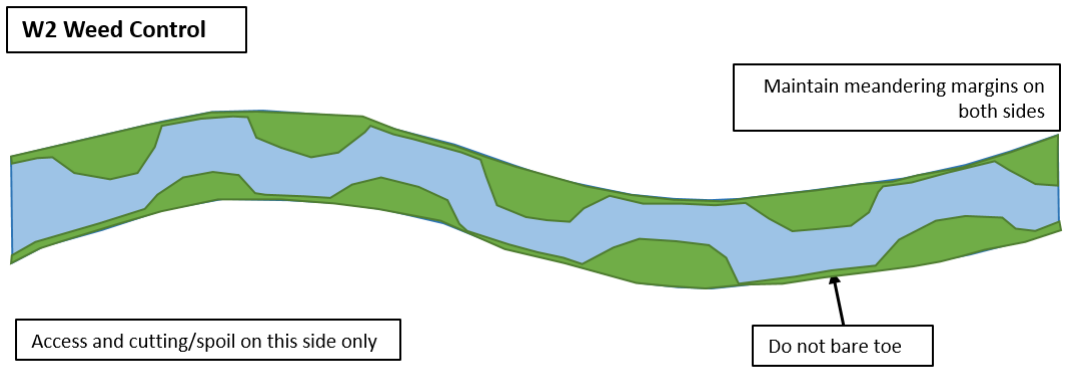


4.4.3 Management of drains greater than 2m wet width – Leave opposite and nearside margin in sequence

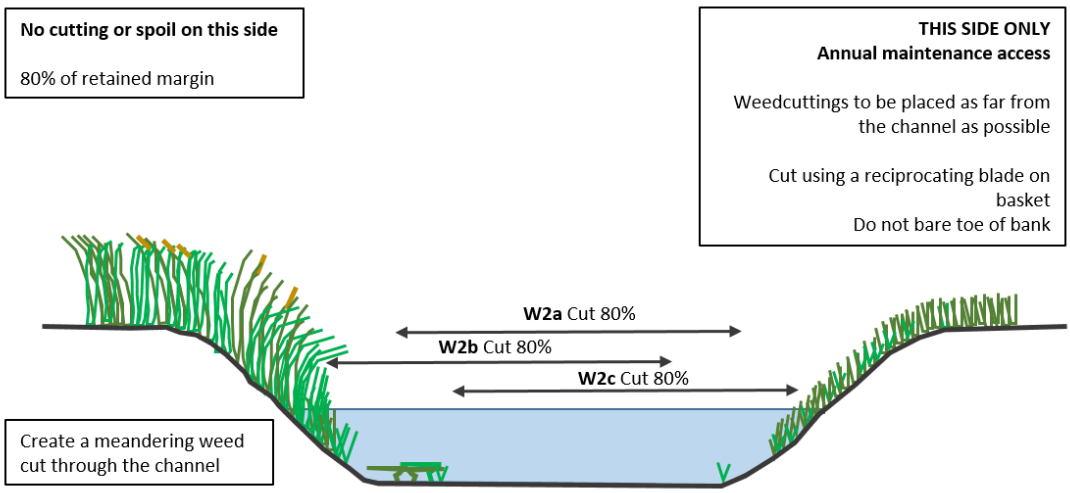
This practice allows for a sinusoidal channel to be created within the watercourse to allow instream diversity to be maintained. Vegetation is removed so as to alternately retain 10-20% of the marginal vegetation to be removed centrally. Where vegetation is retained, then the toe of the opposite bank should not be exposed or touched by the weed-cutting basket.

Cut material should be set back behind the machine as far as possible or, as a second choice, placed on the opposite bank top. Care will be taken not to place material on floristically rich areas, wet flushes or block grips No wet vegetation or mud will be placed on the bank face.

Long section



Cross section



5.0 TREE AND BUSH MANAGEMENT

Bankside trees and shrubs provide shade and keep water cool. Instream branches improve the ecology of the watercourse by providing food and substrate for invertebrates and cover and food for fish. Over time, instream branches add natural diversity by altering the physical hydraulic function of the watercourse, which may result in scours and pool and shoal formation.

With the high ecological benefits attributed to the aquatic environment by trees, the first consideration, prior to any tree, bush or branch removal, should be to consider whether removal is necessary.

The aim of tree management is threefold:

- To allow unimpeded access for machinery into a site and prevent damage to the machine e.g. hydraulic pipework becoming caught up in branches.
- To prevent the sides of watercourses becoming overgrown and in some instances, over shaded.
- To prevent instream blockages occurring in areas of high flood risk.

Due to the open landscape throughout much of the KLIDB district, mature tree management will be considered on a case by case basis by the Environmental Team except immediately up or downstream of a pumping station where flow is compromised. The aim will be to strike a balance between the ecological benefits to the watercourse and conveyance.

In pump drained areas woody material will not be installed or left in the channel as this will impede the conveyance of water to the pumping station. However, consideration should be paid to retaining overhanging branches as shelter and shade for fish and the opportunity to improve instream ecological diversity by other means.

Tree and bush work can be undertaken between August – March. Prework checks are recommended between August to September and mid-February to March to ensure nesting birds are not present so as to ensure compliance with the Wildlife and Countryside Act (1981). Any tree work required during bird breeding season may only be undertaken following consultation with the Environmental Team.

Old trees may be subject to a Tree Preservation Order and/or may provide roosting sites for bats and birds in cavities or splits. Fallen trees or root systems may also act as couches or holts for Otter. It is essential therefore, that trees

are not cleared without prior investigation by the Environmental Team so as to avoid an offence under the Conservation of Habitats and Species Regulations (2017).

Dead trees should be left in *situ* as ecologically they can provide niches for a rich diversity of species, ranging from invertebrates to birds and bats. These should be left and not be touched without prior investigation by the Environmental Team as this may constitute an offence under the Conservation of Habitats and Species Regulations (2017)

5.1 Disposal of Waste Timber

Where KLIDB operators have removed or trimmed overhanging trees or shrubs, these arisings can be removed or cut up as wood piles or left on the bank top to enhance the terrestrial habitat. Material can be left only where the there is no risk of material being washed back instream, where it may result in culverts becoming blocked.

Waste timber may be chipped and spread where the landowner is happy for this to occur and where no detriment will be caused to the surrounding environment. Where chipping is required in a designated site, then consultation with Natural England will be undertaken first.

Alternatively the chippings or waste timber can be removed from site. No mulching will take place on grazing marsh.

It may be necessary for some timber to be burned. As far as practicable, fires should be no larger than a conventional domestic bonfire and will be situated only in areas where spoil has been deposited during previous maintenance activities. Care will be taken when burning on peat to avoid the underground spreading of fire and this should only be undertaken following review on a case by case basis. Under the Environmental Permitting Regulations (England and Wales) 2016 a Waste Exemption licence (D7) permits the burning of 10 tonnes of untreated wood in the open during a 24 hour period. Where burning is proposed in a designated wildlife site, prior consultation with Natural England will be undertaken.

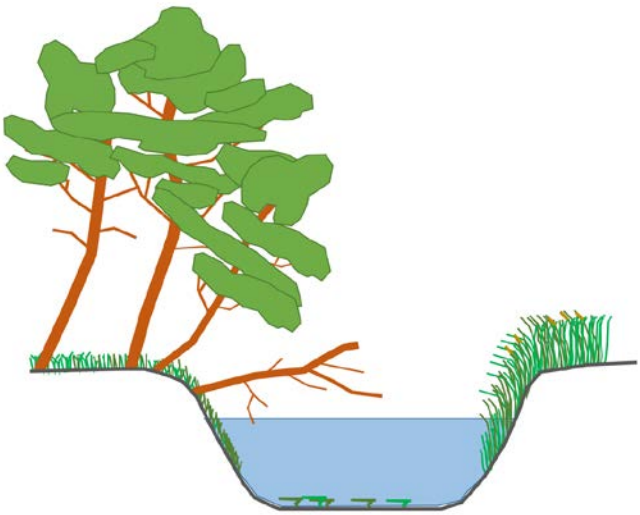
Burning and chipping is expensive and will therefore only be undertaken upon request and where no detriment to the surrounding environment will take place.

5.2 Options for tree work

Where a tree or bush has a trunk growing in the water and there are trees behind, then the tree can be removed. Trees away from the watercourse should only be felled where they constitute a flood risk or where access is required.

Where a tree or bush either has branches trailing in the water or overhanging the watercourse then these limbs can be removed up to bank top and the remainder of the tree left in *situ.*

Before



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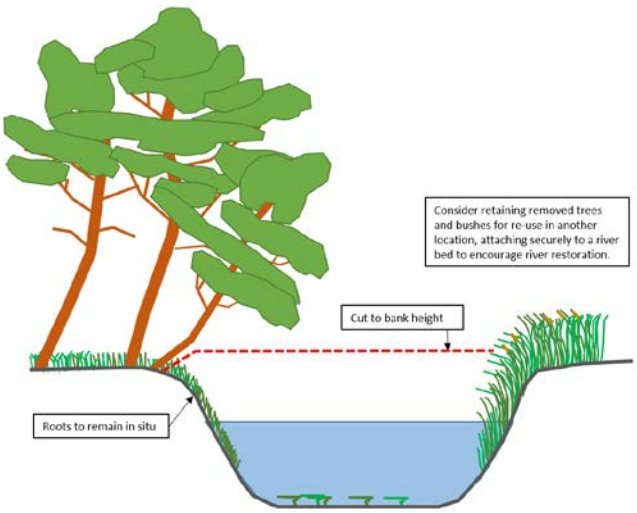


6.0 INSTREAM SILT REMOVAL

This is not a routine operation in the KLIDB district. The environmental risk involved in silt removal in the catchments, is deemed to be high and as such, every such operation will be looked at on a case by case basis. Every proposed desilting operation will have a WFD assessment carried out prior to undertaking the maintenance and mitigation measures put in place as required. However, the low energy nature of the pumped system of much of the KLIDB district will be prone to having silts accrete within its systems. The frequency of silt removal will depend upon the characteristics and locations of the watercourse and some will require attention more frequently than others. However, channels will usually be desilted, only when the depth of silt affects the hydraulic capacity and conveyance of the drain and where it affects pumping efficiency.

Where there is the need to remove silts from the beds of watercourses the minimum of channel de-silting will be undertaken in order to promote good aquatic communities.

The KLIDB currently uses hydraulic excavators which can operate through 360^{o} to desilt watercourses although suction pumps can also be used. The Board has powers under Section 15 of the Land Drainage Act, 1991 to deposit material arising from the maintenance of a watercourse on the banks and within 9m of the watercourse.

De-silting is a planned activity and should normally only be undertaken between October and February. A methodology for operators to walk the drain and undertake regular dissolved oxygen monitoring will be put in place, to ensure that silt loading and temperatures does not impact upon dissolved oxygen levels. During a period of high environmental stress caused by increased temperatures and high suspended organic matter there is the potential for a fish kill.

Where protected species are present, then effective mitigation programmes will be put in place to ensure compliance with the law. This may require a delay to the works depending on the species involved.

Desilting operations will be carried out in conjunction with the mowing regime specified in Section 4.1.

No dredging will take place during the desilting process as this will result in the deepening of a watercourse. The difference between silt removal (desilting) and dredging is fully described in Section 6.1. By preferentially placing slubbings on an historic spoil bank, away from the bank top, spoil will not be washed back into the water, preventing any additional nutrient enrichment of

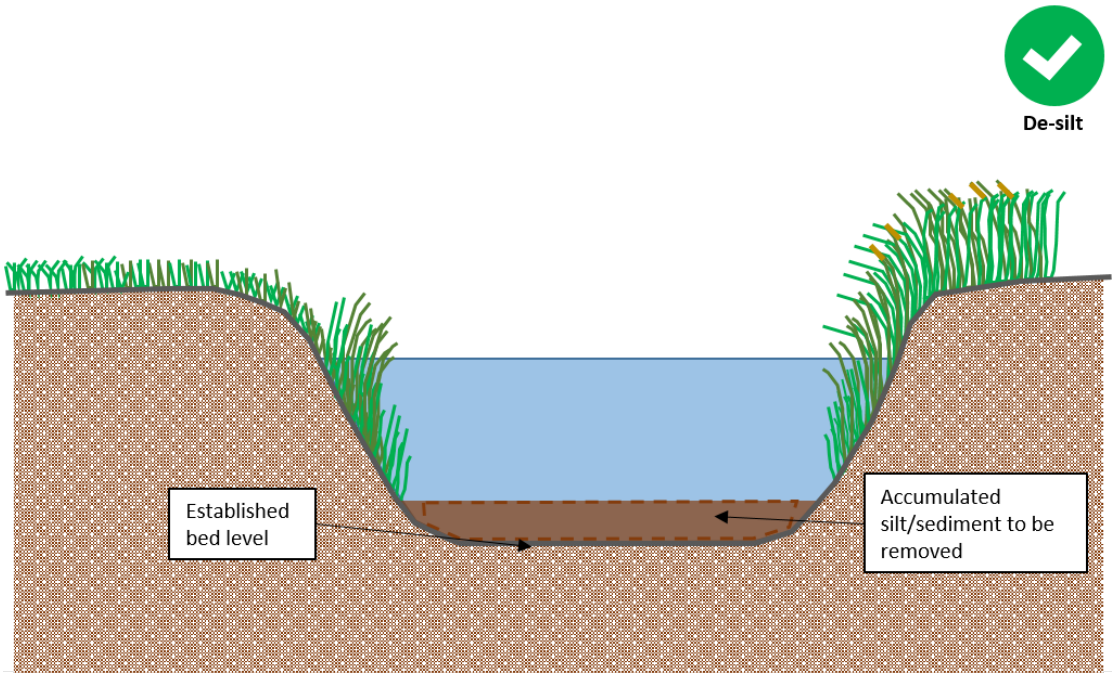
the watercourse.

Leaving a fringe of marginal vegetation will minimise risks of environmental harm, maintain the seed bank and leave cover and food for invertebrates and other aquatic animals. However, there may be situations, where the watercourses are narrow, where a drain will need to be desilted from bank to bank. All the options will be considered very carefully in relation to conveyance, prior to undertaking a desilting exercise.

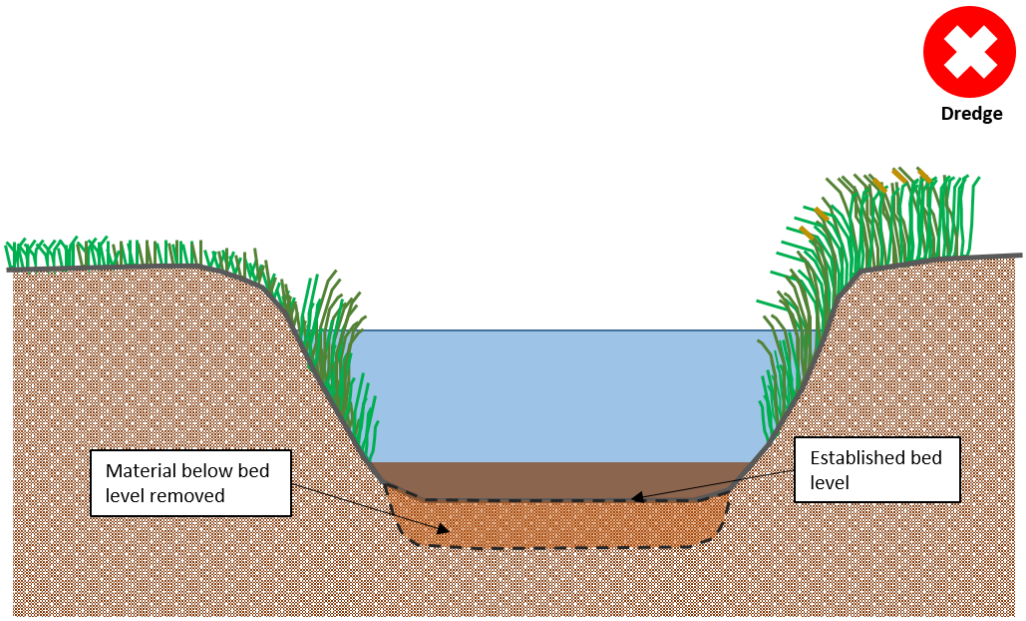
6.1 The difference between desilting and dredging:

Desilting is when only silts that have accumulated in the water channel are removed. **No deepening or over widening will occur during desilting**. Dredging is where material below bed level is removed and is likely to lead to overdeepening of the channel, the slowing of flows and a continuous need for further maintenance.

Good practice



Bad practice

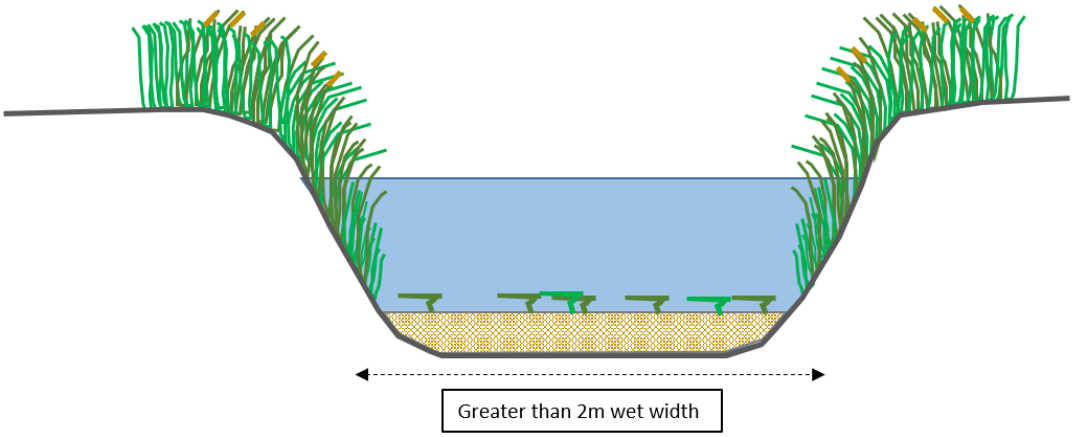


6.2 In drains greater than 2m wet width – Leave opposite margin

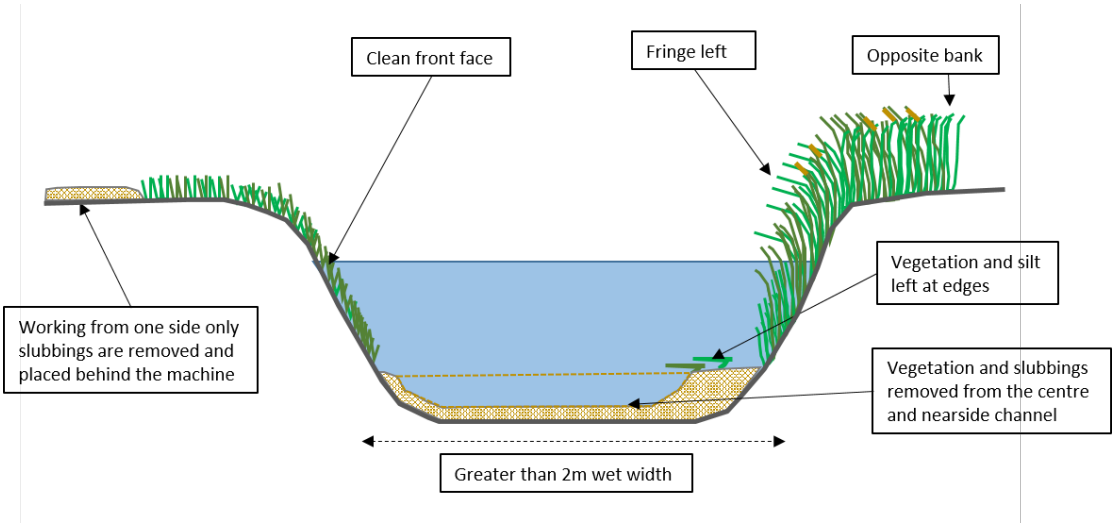
This practice allows for a margin to be created on the opposite bank with the drain to be desilted across the majority of the width. The margin consists of leaving as much wet width vegetation *in situ*, as far as is practicable for the size of drain (approx. 10-20% remaining.) The nearside toe will not be exposed or touched by the slubbing bucket.

Slubbings will be placed behind the machine as far as possible or, as a second choice, placed on the opposite bank top. Care will be taken not to place material on floristically rich areas, wet flushes or block grips No wet vegetation or mud will be placed on the bank face.

Before



After



6.3 In drains greater than 6m wet width – Leave opposite and nearside margin

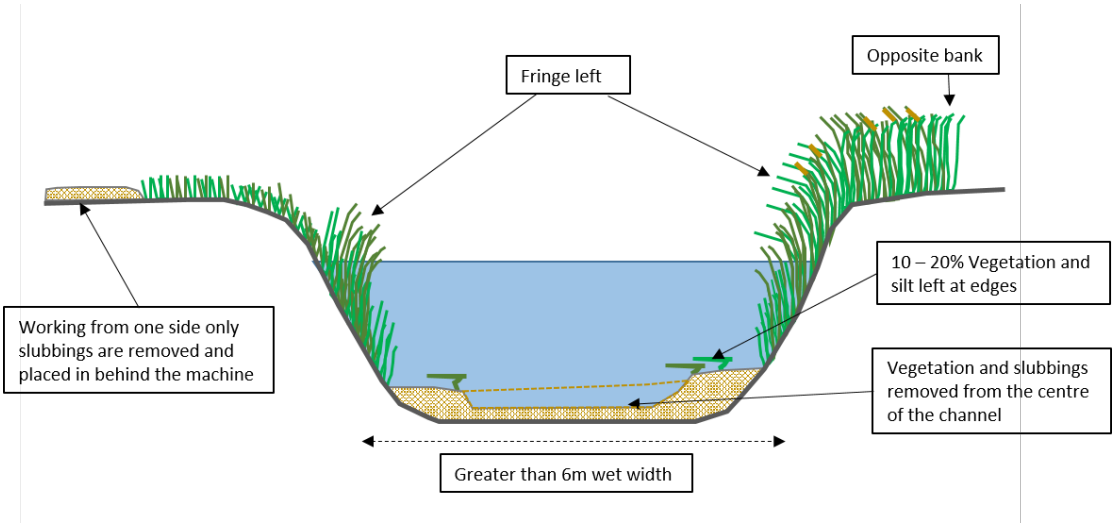
In drains greater than 6m wet width, a fringe of emergent vegetation and slubbings can be left on the nearside and opposite emergent margins which will help protect the toe of the bank.

This practice allows material to be removed from the central section of the watercourse and is particularly suited to the Truxor. Both opposite and nearside margins should be left untouched to act as a seed bank and encourage recolonization by plants and invertebrates etc.

An appropriate margin of silt and vegetation, for the size of the drain (20% approx.), should be left *in situ* as far as is practicable. The nearside toe should not be exposed or touched by the slubbing bucket.

Where a slubbing bucket is used, all slubbings will be set back behind the machine, preferably on an historic deposition pile or where circumstances dictate, across the drain as far as possible on the opposite bank top. Care will be taken not to place material on floristically rich areas, wet flushes or block grips. No wet vegetation or mud will be placed on the bank face. Wet material or mud should not be allowed to slip down the bank face and should not be placed on floristically diverse areas, wet flushes or fill in grips. The front face of the bank should remain clean.

<u>After</u>



7.0 HERBICIDE USE FOR WEED CONTROL

Chemicals are rarely used to control growth in the KLIDB District. Chemical control will be considered where weed growth cannot be effectively controlled by mechanical means, in inaccessible areas or in the case of alien invasive species. No WFD assessment is required prior to using this method.

Before any herbicides can be used in or near watercourses, written consent must be obtained from the Environment Agency in the way of an Herbicide Licence.

If chemicals are to be used, then only herbicides and adjuvants cleared for aquatic use will be used in or beside water i.e. Glyphosate (Roundup BiActive) and Topfilm. Only suitably qualified operatives with an NPTC certificate in the Safe Use of Pesticides (PA1) and the application of pesticides in or near water,

using a hand held applicator (PA6W) will be permitted to carry out any herbicide application on behalf of the KLIDB.

Herbicides will only be used in accordance with the Control of Pesticide Regulations 1986 and the Food and Environment Protection Act 1985. The storage and use of these substances will also comply with the Control of Substances Hazardous to Health Regulations 1988.

8.0 BANK REPROFILING

The bed and banks of watercourses may require re-profiling to ensure their efficient use as land drainage channels and to accommodate and store flood flows.

However, the environmental risk involved in bank reprofiling in the KLIDB catchments is deemed high, particularly to water vole whose habitat and welfare, falls under the Wildlife and Countryside Act 1981 (as amended).

No bank reprofiling should be undertaken without first assessing the drain for the presence of this species and receiving instruction from the Environmental Team. Appropriate mitigation measures and timing may be required prior to any reprofiling work and the provisions of an IDB water vole class licence may apply.

Consideration should be given where practicable and where landowners are in agreement, to reshaping of banks to create marginal wetland habitats (berms), however, capital grant in aid may be required in this instance.

A WFD assessment will be required for large sections of reprofiling work. Minor repairs will not require a full WFD assessment but consideration must still be paid to ensuring no impact will be made on protected species.

9.0 CULVERT INSTALLATION OR REPAIR

Any culvert installation or repair will need prior assessment by the Environmental Team as a WFD assessment may be required depending on the location and the length of the culvert to be installed. The IDB water vole class licence may apply.

10.0 REFERENCES

Environment Agency (2012). Delivering consistent standards for sustainable asset management. Maintenance Standards Version 3, March 2012.

Environment Agency (2015). Channel Management Handbook. Report-SC110002

KLIDB (2017) Biodiversity Action Plan

Mayer, L., Moodie, I., Carson, C., Vines, K., Nunns, M., Hall, K., Redding, M., Sharman, P. & Bonney, S. (2017). Good Ecological Potential in Fenland Waterbodies: A Guide to Management Strategies and Mitigation. Measures for achieving Good Ecological Potential in Fenland Waterbodies.

Natural England (2016) CLASS LICENCE- Intentional disturbance of water voles and damage/destruction of water vole burrows by means of 'Displacement' (Internal Drainage Boards).