

Environmental Standard Operating Procedure

ESOP Name	Routine Dyke Maintenance
ESOP Number	5
Revision Date	22/02/2024
Related ESOPs	2 Biosecurity 10 Working with Water Voles



Aim

Water channels within the Broads have unique and important plant communities supporting a valuable freshwater ecosystem. Removal of sediment on rotation is vital to conserve the open water, retain water flow and provide habitat for a range of Broads wildlife, including protected species such as the water vole.

Standard procedures aim to avoid damage & limit disturbance, ensuring that water voles & other animals are retained in situ & unaffected as much as possible.

This ESOP must be read in conjunction with ESOP 10 Working with Water Voles

Standard Methodology

- Routine dyke maintenance should not take place more than once every 5 years and in most cases will be required on a 7-10-year rotation. Pre-works survey will identify rotation according to need.
- Works to be undertaken between October and February.

- To be carried out using 360 excavators; 13t with an 8m reach should be suitable for most sites, however an extendable digger arm will ensure the digger can reach the dyke centre and still be located 3 metres from the bank edge.
- Excavator to be supported on flotation mats where substrate is soft peat to avoid damage to ground
- Access routes planned to minimise tracking of machinery.
- Dykes to be maintained from one side only, focusing on removal of sediment from the centre of the dyke
- Alternative options include amphibious vehicles, such as the Truxor
- Where dykes are mainly affected by rapid plant growth, an excavator-mounted weed bucket, or where dyke width allows, a floating harvester can be used to target plant growth only.
- **See ESOP 10 for additional requirements where water voles are present**

Procedure

Pre-works

- Ecologists to forward plan all dyke maintenance so that dyke sections within each site are managed on different rotations; ensuring works are spaced both spatially and temporally.
- Ecologists to undertake site assessment during the spring/summer of the year preceding planned works to identify species of interest/concern, confirm standard methodology is suitable considering water vole presence & identify any access improvements required, e.g. tree management.
- Assessment to include water vole raft surveys to determine presence & the identification & location of burrows.
- If assessment results indicate that the standard methodology will not be possible without impacting water voles or their habitat, works will need to be re-designed or a wildlife licence applied for through Natural England.
- Results of assessment will be mapped & used to form a site specific Method Statement to guide the excavator operator, alongside a pre-works site visit.

Operational

- Access routes can be strimmed to knee height to assist excavator movements & visibility; where water voles are present, vegetation must be retained to ensure cover and food remains. Strimming to be undertaken by hand.
- Excavator works to take place from one side of the dyke only; optimal side to be determined through Ecologist site assessment.
- Sediment to be removed from the centre of the channel only, leaving a narrow margin of undisturbed vegetation and sediment on both banks; both sides of dyke to be left untouched, under & out of the water.
- Where rare/protected plant species have been identified, avoid removing all the sediment & plant material from the centre of the channel.
- Sediment removed from the dyke to be placed in an adjacent area; exact location to be provided in Method Statement.

Consultation

The following must be confirmed by the Ecology team before works commence:

- Natural England assent if site is designated & works are not agreed within an agri-environment agreement, or if works deviate from agreement prescriptions.
- Wildlife licence application for protected species – to be determined by Ecology team through pre-works site assessment and survey.
- Environment Agency Flood Risk Activity Permit (FRAP) assessment if works are within 16m of a main river
- Internal Drainage Board permission if works impact a main drain

Risk Assessment

Hazard	Initial Risk			Controls / Safeguards / Precautions	Revised Risk		
	S	L	R		S	L	R
Disturbance/damage to water voles and/or their habitat	4	5	C	Utilise timing & methods to remove impacts to water voles and their habitat (see Operational Procedure) Follow procedure outlined in ESOP 10a	1	4	A
Removal of aquatic invertebrates	3	3	B	Operational method ensures only a proportion of the dyke network is managed at any one time and only the centre of the managed dyke is de-silted. This ensures retention of some plant material as well as both banks remaining untouched, resulting in refuges for aquatic invertebrates.	3	2	A
Spread of non-native invasive species	3	3	B	Undertake pre-works survey Follow biosecurity measures (see ESOP 2)	3	2	B
Removal and/or damage to rare/protected aquatic plants	2	5	B	Identification of key plant species prior to works Removal of sediment (& dense plant growth) from centre of channel only Where rare plant species are located, ensure proportion of population is retained within the dyke	1	3	A

Matrix

		LIKELIHOOD				
		Very unlikely	Unlikely	Moderately likely	Likely	Very likely
SEVERITY		1	2	3	4	5
Low (minimal, short-term disturbance levels and negligible damage to native habitats.)	1	A	A	A	A	A
Medium (moderate, short-term disturbance levels, some damage to native habitats/species. Regenerates quickly.)	2	A	A	A	B	B
High (high disturbance levels over a longer period and displacement of species. Damage to native habitats. Significant time to regenerate)	3	A	B	B	C	C
Very High (Long-term disturbance with displacement/death of species. Significant damage to native habitats that takes a significant time to regenerate.)	4	B	B	C	C	C

RISK	
A	OK. Work to provisions in risk assessment
B	Proceed with caution. Dynamically review risks.
C	Cancel task. Approach project in a different way.