

Reduce erosion caused by land drainage

Project Summary

Title: Greener surface water outfalls

Location: Anywhere

Technique: Greener surface water outfalls

Cost of technique: £

Overall cost of scheme: £

Benefits: ££

Dates: Any

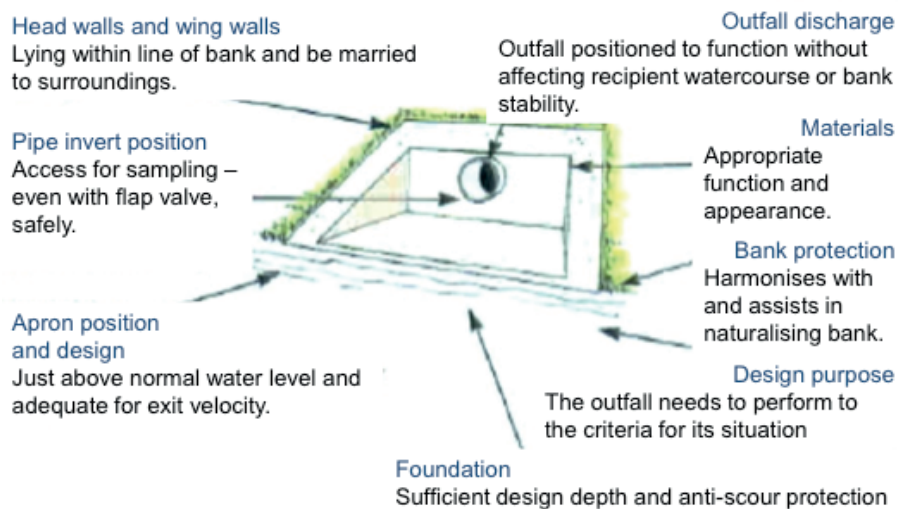
Mitigation Measure(s)

Reduce erosion caused by land drainage

How it was delivered

Delivered by: Riparian owners

Partners: Partners relevant to watercourse in question



Outline of principles for outfall design to minimise environmental and aesthetic impact All images © Environment Agency copyright and database rights 2013

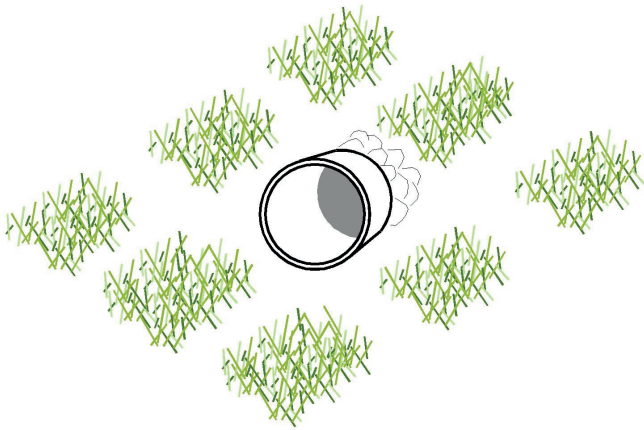
Background / Issues & Step-by-step

When not designed sensitively, surface water outfall pipes which discharge into watercourses can:

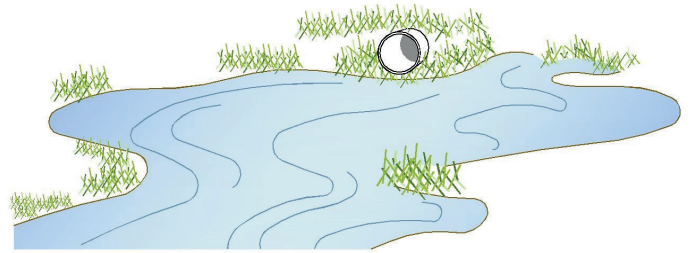
- Cause bed and bank erosion.
- Disrupt the connectivity of a river corridor.
- Destroy river bank habitat.
- Discharge pollutants.

It is possible to design outfalls so that they blend-in with the local environment and minimise their impact on the water environment. Outfall design should follow the principles set out (see image 1). However, the materials used in outfall design can be altered to suit the site and provide greater amenity and habitat benefit. Images 2 and 3 are examples where an outfall has been encapsulated within a river bank using geotextiles and minimising its environmental and aesthetic impact.

Where flow control structures are causing bed or bank erosion, erosion control mechanisms can be retrofitted. Outfalls can include a geotextile mattress to dissipate flow and prevent erosion and scour. However, any erosion control methods should start with the principle of using natural materials if possible. Reed beds can be planted next to outfalls to control erosion, create habitat and improve water quality. The rate of flow from the outfall should as far as is possible be controlled to the rate of drainage from an undeveloped greenfield site in order to minimise erosion locally and reduce flood risk.



2) Encapsulating an outfall within watercourse bank using geotextiles



3) A naturally designed outfall with minimal impact on the watercourse

Benefits & Lessons Learnt

- Preserves riparian habitat.
- Reduces bed and bank erosion.
- Helps manage sediment by trapping runoff and reducing its input to a watercourse.
- Can improve water quality by intercepting point source pollution.

Project contact: Partnerships & Strategic Overview Teams, Environment Agency,