A47 Wansford to Sutton Dualling

Scheme Number: TR010039

Volume 9
9.29 Outline Water Management and Monitoring Plan

The Infrastructure Planning (Examination Procedure) Rules 2010
Rule 8(1)(c)

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The A47 Wansford to Sutton Development Consent Order 202[x]

9.29 OUTLINE WATER MANAGEMENT AND MONITORING PLAN

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CONTENTS

1 Introduction

1.1 Purpose of this document

1.1.1 This document is the Outline Water Management and Monitoring Plan, (hereafter referred to as WMMP) for the A47 - Wansford to Sutton Scheme (hereafter referred to as the Scheme).

1.1.2 This Plan has been prepared by Galliford Try, National Highways' Delivery Integration Partner (DIP), appointed to the A47 east under the Regional Delivery Partnership (RDP) Framework.

1.1.3 Galliford Try have appointed Sweco to undertake the preliminary design and application for a Development Consent Order (DCO).

1.1.4 Galliford Try are the appointed Principal Designer (PD) and Principal Contractor (PC) for the Scheme, as defined under the Construction (Design and Management) Regulations 2015.

1.1.5 This WMMP has been produced to an appropriate level of detail to supplement the DCO submission in May 2022.

1.2 Purpose of this Outline Water Management and Monitoring Plan

1.2.1 The purpose of this WMMP is to set out the construction measures to prevent the risk of pollution and contamination to ground and surface water.

1.2.2 This WMMP has been prepared following an application for the Scheme made by National Highways for a Development Consent Order (DCO) under section 37 of the Planning Act 2008 (PA 2008).

1.2.3 This WMMP takes into consideration groundwater and surface water management, permitting and monitoring requirements set out in the DCO application documents, such as the Environmental Statement and Environmental Management Plan (EMP) (**REP6-001**), plus Statements of Common Ground with the Environment Agency (**TR010039/EXAM/8.5**) and Peterborough City Council (**TR010039/EXAM/8.3**) (as Lead Local Flood Authority).

1.2.4 The contractor will manage risk in accordance with best practicable means which include general site management procedures, and control and measures to mitigate any effects of potential adverse effects caused by the construction works.

1.3 Structure and scope of the Outline Water Management and Monitoring Plan

1.3.1 This WMMP is based on the preliminary design of the Scheme, at the time of the submission of the DCO in May 2022.

1.3.2 This WMMP will remain a live document throughout construction of the Scheme and will be reviewed and updated at regular intervals.

1.3.3 The final WMMP will consider all drainage required during the construction phase and will reference all industry and regulatory pollution prevention guidelines. It shall describe the design of each element of surface water management system required to manage surface water runoff during construction and potential risks to surface waters. This shall include consideration of temporary storage and settlement requirements to manage sediment load of waters. The Plan will also include a monitoring plan for groundwater and surface waters.

1.3.4 The final WMMP shall be developed prior to construction by using Early Contractor Involvement from specialist supply chain providers and appointed sub-contractors, as the works programme and methodology is further enhanced throughout the detailed design stage. The WMMP forms an annex to the Environmental Management Plan, which will be secured through draft DCO Requirement 4 'Environmental Management Plan'.

1.3.5 Towards the end of the construction phase, Galliford Try will prepare a final version of the WMMP for the operational and maintenance phase of the Scheme. This will be included within the Handover Environmental Management Plan (HEMP). The HEMP will be implemented by the maintenance authority responsible for the maintenance of the Scheme during its operational phase.

1.3.6 The Environment Agency, Peterborough City Council will be consulted on this Plan.

1.4 Scheme Description

1.4.1 The A47 forms part of the strategic road network and facilitates a variety of local, medium and long-distance journeys between the A1 and the eastern Coastline. The corridor connects the cities of Peterborough and Norwich, the towns of Wisbech, Kings Lynn, Dereham, Great Yarmouth and Lowestoft and a succession of villages in what is a largely rural environment.

1.4.2 The Scheme will upgrade the current single carriageway section of A47 from Wansford to Sutton, to dual carriageway. The Scheme aims to relieve congestion, reduce journey times, improve safety, support regional housing and economic growth.

1.4.3 The Scheme is made up from a multitude of construction/engineering elements. In summary, the Scheme comprises:

- Dualling a 2.5km section of single carriageway section of the A47 between the A1 and Peterborough, and detrunking local roads
- dedicated south bound slip road from A1 to A47

1.4.4 The key elements of the Scheme include:

- approximately 2.6km of new dual carriageway constructed partially offline of the existing A47, including the construction of two new underpasses
- a new free-flow link road connecting the existing A1 southbound carriageway to the new A47 eastbound carriageway
- a new link road from the Wansford eastern roundabout to provide access to Sacrewell Farm, the petrol filling station and the Anglian Water pumping station
- closure of the existing access to Sacrewell Farm with a new underpass connecting to the farm from the link road provided
- a new slip road from the new A47 westbound carriageway also providing access to the petrol filling station
- a link road from the new A47 Sutton Heath roundabout, linking into Sutton Heath Road and Langley Bush Road
- new passing places and limited widening along Upton Drift Road (also referenced as Main Road)
- a new walking and cycling route connecting Wansford to Sutton. This includes a new underpass at the disused railway to connect to Sutton Heath Road
- new safer access to the properties on the A1, north of Windgate Way
- installation of boundary fencing, safety barriers and signage.
- new drainage systems including:
  - two new outfalls to the River Nene
  - a new outfall to Wittering Brook
  - extension of the A1 culvert at the Mill Stream
  - realignment and extension of the A47 Wansford sluice
  - drainage ditch interceptors
  - new attenuation basins, with pollution control devices, to control discharges to local watercourses
- River Nene compensatory flood storage area
- works to alter or divert utilities infrastructure along the route of the new A47, such as, electricity lines, water pipelines and telecommunications lines
- temporary compounds, material storage areas and vehicle parking required during construction
- environmental mitigation measures.

1.4.5 A full description of the Scheme is provided in ES Chapter 2 (**REP2-008**).

2 Project team roles and responsibilities

2.1.1 Competent managers and key team members will be appointed to work on this Plan and support it along the project duration. Additional roles and responsibilities will be developed as the detailed design progresses.

2.1.2 The site-based roles and the organisation of responsibilities in relation to environmental management are summarised in the table below.

2.1.3 Galliford Try will delegate responsibilities to personnel within key areas of the construction site and compounds. The delegation of responsibility will be clearly identified within relevant documents and site files.

2.1.4 The key Scheme contacts for National Highways and Galliford Try are listed in Table 1 below.

Table 1: Key Contacts

Role	Contact	Organisation	Email
Senior Project Manager	Jonathon Donlevy	National Highways	[redacted]
Project Manager	Craig Stirzaker	National Highways	[redacted]
Senior Project Manager	Mark Saunders	Galliford Try	[redacted]
Project Manager	Jonathon Pitt	Galliford Try	[redacted]
SHE Advisor	Mark Roberts	Galliford Try	[redacted]
Group Environmental Manager	Carol Hardingham	Galliford Try	[redacted]
Ecological / Environmental Clerk of Works (ECOW)	TBC	Galliford Try	TBC
Environmental Manager	Patience Orebowale	Galliford Try	[redacted]
Environmental Specialist	TBC	Galliford Try	TBC
Stakeholder and Communications Lead	Keeley Russell	Galliford Try	[redacted]

3 Consents and permissions

3.1.1 The treatment of waters arising from construction activities, including point source discharges resulting from the treatment of materials regulated by mobile plant licence will require regulation by the Environment Agency. An application for an environmental permit (Discharge Consent) will be submitted prior to works commencing. The permit will regulate the discharge of treated contaminated waters to surface water or ground, via re-injection. A separate environmental permit will be required for each location.

3.1.2 An Ordinary Watercourse Consent is required for all works carried out over, under or near an ordinary watercourse (Wittering Brook, Mill Stream, Wansford sluice). Ordinary watercourses include non-main rivers and all ditches, drains, cuts, culverts, dikes, sewers (other than public sewers) and passages through which water flows. The consenting authority for this scheme will be Peterborough City Council.

3.1.3 An abstraction licence will be in place for any de-watering operations on site. A separate licence may be required for each location or activity.

3.1.4 An impoundment of water in any watercourse or abstraction exceeding 20 cubic metres a day will be controlled by means of an Environment Agency consent (Abstraction Licence). A water abstraction (transfer) and impoundment may be required for the works associated with the construction and re-wetting of the Wansford Sluice watercourse diversion.

3.1.5 Construction works carried out over, under or near a main river (River Nene), or in a flood plain or flood defence (including a sea defence) will require a Flood Risk Activity Permit. A permit will be required for each location.

3.1.6 The principal consent for the Scheme will be the DCO.

3.1.7 The requirements of the DCO including, where appropriate, the named consultees are set out in the draft DCO. The environmental obligations of the PC and PD are set out in the Environmental Management Plan.

3.1.8 The DCO process provides development consent for the works and enables land acquisition, along with many consents and powers to be dealt with at the same time.

3.1.9 Some additional consents and permissions may need to be sought separately from the DCO. These are outlined in the EMP and those relevant to water management and monitoring are listed in Table 2 below.

Table 2: Consents and Permissions

Consent / Permission	Issuing Authority	Requirement
Lead Local Flood Authority (LLFA) Approval	Lead Local Flood Authority (LLFA)	A Sustainable Drainage Strategy (surface water) is a Local List Planning Application Requirement. It should include the detailed design, management and maintenance of the surface water management system including Sustainable Drainage Systems (SuDS).
Water Discharge Permit	Environment Agency	Must be obtained if there is a need to discharge to surface or groundwater.
Water abstraction and impounding license	Environment Agency	Required for the works associated with the construction and re-wetting of the Wansford Sluice watercourse diversion. PC to confirm whether required and PC or subcontractor to apply for consent prior to works starting.
Ordinary Watercourse Consent (temporary and permanent works affecting ordinary watercourses)	Lead Local Flood Authority (Peterborough City Council)	Construction activities are planned adjacent to and over ordinary watercourses and adjacent to a watercourse managed by a Peterborough City Council. PC to confirm whether required and PC or subcontractor to apply for consent prior to works starting.
Flood Risk Activity Permit (temporary and permanent works affecting a main rivers)	Environment Agency	Construction activities are planned within 8m of the River Nene and its floodplain (a main river)
Abstraction licence for construction dewatering	Environment Agency	Works within the saturated aquifer may require dewatering. Dewatering volumes above 100m^3/day require a transfer or abstraction license. A licensing exemption limit may be reduced to 50m^3/day, depending on whether there are conservation sites within 500m or springs, wells or boreholes used to supply water for any lawful use within 250m of the proposed abstraction. If the

Consent / Permission	Issuing Authority	Requirement
		dewatering works for the whole scheme will last for a period of longer than 6 consecutive months, the maximum rate at which dewatering can be undertaken without an abstraction is 20 m^3/d. Licensing will be subject to further impact assessments on any identified receptors. PC to confirm whether required and PC or subcontractor to apply for consent prior to works starting.

3.1.10 The above consents and permissions are largely dependent on finalisation of the detailed design, the construction site setup and methodology, and discussions with affected stakeholders.

4 Mitigation measures

4.1 Introduction

4.1.1 On commencement of site mobilisation, Galliford Try will be the site owner and will be responsible for site inductions and ensuring compliance with any required training, of all personnel including visitors, full time staff and supply chain.

4.1.2 The following sections describe the proposed Water Management Plan during scheme construction in the context of the proposed drainage strategy for the operational phase of the scheme. The proposed Drainage Strategy is described in ES Chapter 13 Appendix 13.2 Drainage strategy report (**REP3-011**).

4.1.3 The drainage strategy for temporary works will be further developed at the detailed design and construction stages in line with updates to the Environment Management Plan.

4.1.4 Galliford Try will work in accordance with their Business Management System to ensure compliance with the International Organisation for Standardisation (ISO) 14001 requirements.

4.2 General mitigation measures

4.2.1 General mitigation measures will be fully developed along with the construction programme and future input from specialist supply chain members. An outline of the main work activities to be carried out throughout the scheme as well as relevant water management proposals currently being considered are described in Annex 1. These commitments will be included in Table 3.1 of the EMP (**REP6-001**).

4.2.2 Options that are currently being developed with the programme are discussed below.

- Where possible, the permanent surface water management systems that are part of the final design, will be installed early in the construction sequencing. If there are areas where this is not feasible then temporary surface water management systems will be considered. These will be carefully managed to prevent localised flooding or pollution of surface and groundwater from silt and other contaminants.
- In areas where potentially contaminated land has been identified, specific mitigation measures will be designed to manage and contain potential contamination. Detailed method statements will be prepared for works in these areas.

4.2.3 Permanent drainage is naturally one of the first activities to be installed, so as the construction of the scheme progresses, more of the permanent drainage can be utilised to continually reduce the impact of surface and ground water on the surrounding areas.

4.2.4 An outline of the main work activities to be carried out throughout the scheme as well as relevant water management proposals currently being considered are described in Annex 1.

4.3 Emergency response planning

4.3.1 An Emergency Response Plan will be developed in accordance with EA Guidance PPG21- Pollution Incidence Response Planning. The Plan will be communicated to all personnel. Emergency spill control equipment such as spill kits, oil booms and absorbent materials, will be held at appropriate locations on site and within site compounds.

4.4 Climate change resilience planning

4.4.1 Galliford Try will consider the potential impacts of extreme weather events during construction. To ensure resilience of the Scheme to such extreme weather events, Galliford Try will use a short to medium-range weather forecasting service from the Met Office or other approved weather forecast provider to manage climate-related risks and inform programme management and impact mitigation measures. Galliford Try will also register with the Environment Agency's Floodline Warnings Direct service.

4.4.2 Galliford Try will implement an Environmental Management System (EMS) which will consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements detailed within the EMP (**REP6-001**).

4.5 Environmental competencies

4.5.1 Galliford Try will ensure that all personnel conducting environmental tasks are suitably qualified and experienced for the roles and responsibilities that they are employed to undertake.

4.6 Training and site inductions

4.6.1 On commencement of site mobilisation, Galliford Try will be the site owner and will be responsible for site inductions and ensuring compliance with any required training, of all personnel including visitors, full time staff and supply chain.

4.6.2 Prior to commencing work on site, all personnel will be required to attend a site induction where Galliford Try will communicate the environmental objectives and requirements of the Scheme, as well as the responsibilities of the workforce.

4.6.3 The site induction will cover the topics relating to the environment to a level of sufficient detail for the workforce and appropriate to the work being undertaken and will emphasise the sensitivity of the watercourses, surrounding habitat and methods and working practices employed to protect the water environment.

4.6.4 Those undertaking any activities that could result in an adverse environmental impact will receive additional training, to be led by the Environmental Manager or Environmental/Ecological Clerk of Works.

4.6.5 This training will include reference to the importance of adhering to the contents of this WMMP, and the potential consequences of departure from any specified method statements.

4.7 Toolbox talks and induction supporting materials

4.7.1 Galliford Try will establish a regime of toolbox talks in agreement with the supply chain. GT will target a minimum of one toolbox talk on an environmental topic per month, records of attendance to monitor compliance will be kept.

4.7.2 An indicative list of appropriate toolbox talks, relevant to managing ground and surface water, is provided in the table below, more topics will likely be added to this list as construction of the Scheme progresses.

Table 3: List of Toolbox Talk

BMS Reference	Toolbox Talk Title
HS&S-TBT-W01-302	Storage of Waste
HS&S-TBT-W01-303	Waste Segregation
HS&S-TBT-W05-301	Water Pollution Prevention
HS&S-TBT-W05-302	Water Pollution – Silt
HS&S-TBT-W05-303	Water Pollution – Cement and Concrete
HS&S-TBT-W05-304	Pumping and Overpumping
HS&S-TBT-W05-305	Washing Down Plant and Machinery

5 Water Management Plan

5.1 Water Management Plan development

5.1.1 The Water Management Plan will be developed at detail design stage as stipulated in the EMP (**REP6-001**).

5.1.2 This will include:

- A water features survey to inform monitoring and sampling
- Groundwater level monitoring
- Surface water level and flow gauging
- Surface water and groundwater water quality sampling
- Borehole decommissioning

5.1.3 The Environment Agency and Peterborough City Council will be consulted on the Plan.

Annex 1 Water Management Proposals

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
1	Minimise impact of Site Compound Facilities (including Car Parks)	Site compounds will be located away from all surface water features and watercourses and outside of the flood plain. A site Drainage Plan will be prepared in advance of construction works to identify the location of all watercourses and drains/drainage paths. All drainage on site will be identified and colour coding will be used to distinguish between surface water, foul sewer and combined drainage. This will ensure that all those working on site are aware of the type of drain in the event of a pollution incident. Appropriate pollution control measures such as the use of oil interceptors, the placement of bunds or silt traps will be used to prevent silt run-off entering drains.		Impact of long term presence of site compounds on local environment.	Installation and use of control measures. SHE audits. Planned compound layouts.	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Construction
2	Aquatic Protection	Any instream works or works close to any watercourse may result in a change of aquatic conditions downstream. Advice will be sought from all specialists involved in the project and will be entered		Not applicable	Consultation with the Environment Agency	Contractual responsibilities between National Highways and	Galliford Try	Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		into control documents and issued through to the workforce and management ahead of works affecting watercourses. Appropriate precautions will be taken when working instream, or adjacent to, watercourses; to appropriately manage the potential for deposition of silt or release of other forms of suspended material or pollution within the water column. Appropriate instream prevention and control measures to reduce or avoid sediment ingress into the watercourse, may include (but not exclusively): • Avoiding instream activity during wet weather, • Stilling ponds, • Sediment absorbent matting, and • Bank reinstatement / stabilisation. The use of construction materials on site will be free from contaminated material to avoid potential contamination of the watercourse.				Galliford Try		
3	Protection of the	Wheel washing facilities will be installed		The local	Installation	Contractual	Galliford Try	Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
	local network	at all compounds and material storage areas to mitigate the risk of construction material fouling the local network. This may involve a simple coarse gravel running surface or jet wash, or in the case of a heavily used exit point, wheel washers.		road network is used regularly	and use of facilities	responsibilities between National Highways and Galliford Try		
4	The protection of controlled waters during excavation and foundation works	No materials or topsoil will be stockpiled within the floodplain or near any watercourse. Where piling or penetrative ground improvement is required, the works will be carried out in accordance with the Environment Agency guidance. If contaminated land is identified in areas of piling or penetrative ground improvement, a foundation works risk assessment will need to be undertaken to determine the likely effects relating to the driving of piles through any contaminated made ground or landfill materials, and to identify what mitigation measures are appropriate for the site. The requirement not to change the existing hydraulic continuity should also be considered when designing piling. The batching of concrete to only be undertaken in designated impermeable areas with a segregated drainage system, placement of temporary bunds		Not applicable	Consultation with the Environment Agency	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		down-slope to contain any spillages, and the development of a spill response protocol. The discharge of potentially contaminated groundwater will be appropriately managed by Galliford Try, using appropriate treatment prior to discharge.						
5	The protection of site soil and groundwater quality with respect to plant and working methods	Working method statements to be in place during construction, to ensure environmentally safe working practices on site with respect to the underlying ground and groundwaters. These may include (but not be limited to): • The storage of oil, fuel and other potentially hazardous substances will be within a secure site compound located on an impermeable area. Storage of these substances will be within an appropriately bunded area (110% of total capacity volume). • There will be designated refueling and maintenance areas and concrete batching areas located on impermeable with drainage treated appropriately. Placement of temporary bunds		Absence of GI data.	Production of working method statements. Daily site audits	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Pre-construction and Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		down-slope of potentially polluting activities will contain any spillages. A spill response procedure will be developed. • Regular inspections of site plant will be carried out and the use of drip trays and training in the location and use of spill kits and emergency spillage procedures will be provided for site workers. Action Plans will be in place to effectively deal with any contamination issues during construction for example for spillages and leaks from construction plant; and • Haul routes will be regularly inspected and maintained to minimise silty run-off.						
6	Obtain Land Drainage Consent for excavations and dewatering activities	Discharge to surface waters will require a Land Drainage Consent for activities such as the following examples: • Renewal of any existing gateway crossing by means of a culvert or bridge;		Excavations and dewatering would be required for certain aspects of the	Consultation with the relevant Drainage Board.	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		• Creation of any new gateway crossing by means of a culvert or bridge; • Piping a watercourse for a length of 8 metres or less; • All structures or modifications in or within 9 metres of a watercourse (Headwalls, Sluices and Fencing); and • Any Temporary Works in or within 9 metres of a watercourse, that will be in place for less than 6 months.		Scheme				
7	Surface water run-off/Silt from earthworks and drainage installation	Where possible permanent drainage will be incorporated into the works at the earliest opportunity in preference to temporary drainage systems. Oil interceptors, bunds or silt traps will be used to prevent polluted run-off entering drains, additional guidance from PPGs will also be followed. Areas of exposed sediment deemed at risk of erosion during heavy rainfall or flood inundation should be protected		Certain construction activities have potential to create increased water run off and silt.	Daily site audits	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		using either temporary measures (e.g. sheeting) or semi-permanent measures (for example coir matting) until vegetation is able to establish on these surfaces. If appropriate, the use of cut-off drains or ditches to channel water around the site and/or prevent silty water entering excavations and watercourses. These should discharge to settling ponds/tanks. Silty water treated to allow suspended solids to settle out before disposal. Settling ponds or tanks should be constructed to promote the removal of silt from site runoff. Ponds should be designed for the maximum predicted site runoff using a 1 in 100 year event and should be large enough to ensure sufficient residence time for particulates to settle out, prior to discharge of the water. All water pumped from excavations would be pumped via a pipe and gravel sump in order to prevent silt being agitated from the base of the excavation and to provide rudimentary filtration to the water prior to abstraction. For low volume pumping, water would either be pumped into a vegetated area						

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		remote from surface water drainage or into a small attenuation lagoon prior to being directed into the drainage system. For high volume pumping (100mm or above) water would be passed through an attenuation tank with a capacity of not less than 8m3. The outlet from the tank could be placed directly into site drainage, provided the water is free from silt contamination.						
8	Topsoil Stripping and Storage	Wherever possible, topsoil will be left in place to minimise the amount of unprotected ground exposed to runoff. Where topsoil removal is required, it would take place as late as possible prior to other works in the area. Topsoil will be stored outside of the floodplain. In advance of vegetation clearance and soil stripping operations commencing within 10m of a watercourse, appropriate control measures would be implemented to prevent contamination. Topsoil stockpiles would be created and managed in accordance with best practice guidance. The sides of stockpiles would be graded to prevent ponding and to help shed rainwater. Silt fencing would be installed around the		Removal of topsoil and formation of topsoil stockpiles may create surface water management challenges.	Daily site audits	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		margins of topsoil mounds to minimise the risk of sediment-laden runoff reaching watercourses.						
11	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Construction activities must be managed in accordance with CIRIA Guidelines. Guidance on best practice in relation to pollution prevention and water management is set out in the following documents: • CIRIA's Environmental good practice on site; • CIRIA's Control of water pollution from linear construction projects; Technical Guidance; and • Environment Agency's Protect groundwater and prevent groundwater pollution.		Watercourses and sensitive ecological sites within the vicinity of the Scheme	Daily site audits	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Construction
12	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	All construction workers to be briefed on the importance of maintaining water quality, the location of surface water features, and the location and use of spill kits as part of the site induction. The construction drainage network to incorporate measures (for example interceptors) to prevent the discharge of hydrocarbons to surface or groundwater		Watercourses and sensitive ecological sites within the vicinity of the Scheme	Daily site audits TBT's Briefing records Plant maintenance records	Contractual responsibilities between National Highways and Galliford Try	Galliford Try	Construction

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		systems.; In areas where there is increased risk of hydrocarbon / chemical spillage and around hazardous substance stores, additional precautions to be taken. These include bunding, impermeable bases, suitable drainage systems, and siting away from any open drainage channels. Any stockpiled materials to be stored within enclosed areas to enable the runoff to be stored and treated where required. It is advised that soil storage is kept a minimum of 12 metres away from a watercourse to avoid unnecessary pollution run-off into the watercourses. Any concrete works to be carefully controlled and where required, any concrete tankers will be washed out in controlled areas. Plant and machinery to be maintained in a good condition and any maintenance required will be undertaken within safe areas. Pollution prevention and spill response procedures (in the form of an Incident Control Plan) to be developed by the contractor and a spill kit and clean up equipment maintained on site. Wheel washers and dust suppression measures to be used to prevent the migration of pollutants.						

Item	Objectives	Action (including specific location and any monitoring required)		Assumptions (on which the action is based)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible organisation	When (Pre-construction, Construction or Operation)
		Monitoring of the surface watercourses and groundwater quality to be carried out before, during, and after construction to ensure no adverse impact on water quality; and Manually operated penstocks to be provided immediately prior to all outfalls leading to a watercourse and upstream of attenuation pond flow control devices.						