

**A66 Northern Trans-Pennine Project  
TR010062**

**2.7 Environmental Management Plan  
Annex C2 Working in Watercourses  
Method Statement (Rev 2) (Clean)**

**APFP Regulations 5(2)(a)**

**Planning Act 2008**

**Infrastructure Planning (Applications: Prescribed Forms and  
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**2.7 ENVIRONMENTAL MANAGEMENT PLAN  
ANNEX C2 WORKING IN WATERCOURSES METHOD  
STATEMENT**

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## C2 Working in Watercourses Method

### C2.1 Introduction

#### Purpose

- C2.1.1 This document forms Annex C2 of the Environmental Management Plan (EMP) (Application Document Reference 2.7). Annex C2 is an extended essay plan for a Method Statement for working in or near watercourses for the A66 Northern Trans-Pennine project (the Project). It will be completed on an iterative basis by the Principal Contractor (PC) as the Project progresses through the detailed design and construction planning stage, resulting in a final method statement for consultation and approval prior to construction commencing.
- C2.1.2 This Method Statement is intended to set out the detail of the methods to be employed during any piling works for the A66 NTP and describe how the key environmental controls will be implemented.
- C2.1.3 The Method Statement includes:
- Location of proposed piling works
  - Sensitivity of the local environment
  - Brief description of works to be undertaken
  - Equipment to be used
  - Step by step description of the method to be implemented
  - Key environmental control measures to be applied
  - Monitoring to be undertaken.

#### Overview of the project

- C2.1.4 The Project includes upgrading the existing single lane sections of the A66 to dual two-lane all-purpose roads with a speed limit of 70 miles per hour (mph), with the exception of a section of the A66 from the M6 junction 40 through Kemplay Bank which will have a speed limit of 50mph. The Project also includes amendments to existing junctions and accesses within these sections.
- C2.1.5 The A66 lies within three local planning authority administrative areas: Eden District, Durham County and Richmondshire District as illustrated in ES Figure 1.1: A66 Location and Overview Plan, in ES Chapter 1: Introduction (Application Document 3.2).
- C2.1.6 The Project will be delivered as a number of schemes:
- M6 Junction 40 to Kemplay Bank
  - Penrith to Temple Sowerby
  - Temple Sowerby to Appleby
  - Appleby to Brough
  - Bowes Bypass
  - Cross Lanes to Rokeby
  - Stephen Bank to Carkin Moor
  - A1(M) Junction 53 Scotch Corner.

C2.1.7 The A66 is located in a very sensitive environment, passing through the North Pennines Area of Outstanding Natural Beauty (AONB) and close to the North Pennine Moors Special Area of Conservation (SAC) and Special Protection Area (SPA) between Brough and Bowes. The Lake District National Park is approximately 2km south-west of Penrith and the Yorkshire Dales National Park is located approximately 3.5km south of the A66. The catchment of the River Eden SAC crosses several of the schemes to the western end of the route.

## C2.2 Location of works

C2.2.1 The detailed design and construction planning are not yet completed, however based on the preliminary design there are a number of locations where work will be required either within, near (within 8m of), or within the floodplain of watercourses across the Project.

C2.2.2 The elements of work that may require construction within or near watercourses include:

- Creation of discharge outfalls from the drainage system
- Construction of overbridges that cross watercourses
- Construction of culverts that cross watercourses
- Direct works to watercourses that require elements of realignment to accommodate the Project.

C2.2.3 This section will be updated by the PC to include specific details of works required within 8m of watercourses or within the floodplain of watercourses and the exact locations of those works.

C2.2.4 The naming convention for unnamed tributaries was developed for the Environmental Statement and locations are shown on ES Figure 14.1 Surface Water Features (Application Document 3.3).

### M6 J40 to Kemplay Bank

C2.2.5 The watercourse(s) in proximity to this scheme include:

- River Eamont (which forms part of the River Eden SAC)
- Unnamed tributaries of River Eamont (2.1, 3.2)
- Thacka Beck (tributary of River Eamont)
- River Lowther (which forms part of the River Eden SAC).

C2.2.6 Three ponds will be required for this scheme for the purpose of drainage of the road network and to maintain water quality before the water is discharged into the surrounding watercourses. The locations of these ponds have been selected to ensure effective drainage, and minimise environmental impacts, particularly within regards to the River Eden and its ecological designations. The discharge outfalls will require works to watercourses at a drainage ditch in the catchment of the River Eamont, Unnamed tributary 2.1 and direct to the River Eamont itself.

C2.2.7 Works pertaining to the ponds which will discharge into the surrounding watercourses should take cognisance of the controls set out in this Method Statement and in the SAC Method Statement (Annex C1 of the EMP, Application Document 2.7).

C2.2.8 An existing culvert crossing Thacka Beck will be expanded to accommodate the wider road.

### Penrith to Temple Sowerby

C2.2.9 The watercourse(s) in proximity to this scheme include:

- River Eamont (which forms part of the River Eden SAC)
- Unnamed tributaries of the River Eamont (3.3, 3.4, 3.5, 3.6, 3.7, 4.5)
- Swine Gill (Tributary of River Eden)
- Light Water (tributary of River Eamont)
- Unnamed Tributaries of Light Water (3.1 and 3.2).

C2.2.10 Seven ponds will be required for this scheme for the purpose of drainage of the road network and to maintain water quality before the water is discharged into the surrounding watercourses. The locations of these ponds have been selected to ensure effective drainage, and minimise environmental impacts, particularly within regards to the River Eden and its ecological designations. The discharge outfalls will require works to watercourses at Unnamed tributary of Light Water 3.1, Light Water, Unnamed Tributary of River Eamont 3.3, 3.5, two local drainage ditches and Swine Gill.

C2.2.11 Works pertaining to ponds which discharge to, or are in proximity to the River Eden SAC and its functionally linked watercourses / floodplains should take cognisance of the controls set out in this Method Statement and in the SAC Method Statement (Annex C1 of the EMP, Application Document Reference 2.7).

C2.2.12 Existing culverts crossing Unnamed Tributary of Light Water 3.1, Light Water, Unnamed Tributary of River Eamont 3.3, 3.5 and Swine Gill will be expanded to accommodate the wider road.

### Temple Sowerby to Appleby

C2.2.13 The watercourse(s) in proximity to this scheme include:

- Trout Beck (which forms part of the River Eden SAC)
- Unnamed Tributaries of Trout Beck (4.1, 4.2, 4.3, 4.4, 4.5, 4.6)
- Birk Sike
- Unnamed Tributaries of Birk Sike (4.1, 4.2, 4.3)
- Keld Sike
- Unnamed Tributaries of Keld Sike (4.1, 4.3)
- Unnamed Tributary of River Eden (4.0, 4.1, 4.2, 4.3).

C2.2.14 Ten new drainage outfalls are required to Trout Beck, local drainage ditches, Unnamed Tributaries of Birk Sike 4.1 and 4.2, Unnamed Tributaries of Trout Beck 4.3 and 4.4 and Unnamed Tributaries of the River Eden 4.2 and 4.3.

C2.2.15 In this scheme there is the requirement to construct a large overbridge over the Trout Beck and its associated floodplain, using a multi-span solution with multiple piers located within the floodplain of Trout Beck to cover a distance of approximately 400m in order to prevent disruption of flood flows and geomorphological processes.

C2.2.16 The Trout Beck and its floodplain form part of the River Eden SAC. Details on working in and near SACs, including the methods to be adopted whilst undertaking the works in the floodplain at this location are provided in the SAC Method Statement (Annex C1 of the EMP, Application Document Reference 2.7).

C2.2.17 Further culverts will be required crossing two local ditches and the Unnamed Tributary of Trout Beck 4.3. Four existing culverts are within the Order Limits associated with the existing A66 or local road network. No works are currently expected at these locations.

### Appleby to Brough

C2.2.18 The watercourse(s) in proximity to this scheme include:

- Moor Beck
- Cringle Beck
- Unnamed Tributaries of Cringle Beck (6.1, 6.2, 6.3)
- Hayber Beck
- Eastfield Sike
- Unnamed Tributaries of Eastfield Sike (6.1)
- Lowgill Beck
- Unnamed Tributaries of Lowgill Beck (6.1 to 6/8)
- Woodend Sike
- Yosgill Sike
- Unnamed Tributaries of Yosgill Sike (1.1)
- Mire Sike
- Unnamed Tributaries of Mire Sike (6.1 to 6.15).

C2.2.19 Eighteen new drainage outfalls are required to Unnamed Tributary of Mire Sike 6.5 and 6.12, Unnamed Tributary of Cringle Beck 6.3, Moor Beck, Lowgill Beck and Unnamed Tributary of Lowgill Beck 6.7.

C2.2.20 New viaducts will be provided in this scheme to cross over the Hayber Beck, Moor Beck and Cringle Beck which are functionally linked to the River Eden SAC and support multiple species protected by this designation. Alignments due to watercourse crossings are also proposed for Unnamed Tributary of the Lowgill Beck. These will utilise open span solutions, to prevent impacts to the flow and geomorphology of the watercourses, and construction methods are expected to be similar (albeit on a smaller scale) to the Trout Beck crossing.

C2.2.21 Details on working in and near SACs (including the functionally linked watercourses), including the methods to be adopted whilst undertaking the works in the floodplain at this location are provided in the SAC Method Statement (Annex C1 of the EMP, Application Document Reference 2.7).

C2.2.22 Further culverts will be required crossing the Unnamed Tributary of Lowgill Beck 6.6 and 6.7, Lowgill Beck (expansion of existing), Unnamed Tributary of Cringle Beck 6.1 and Unnamed Tributary of Mire Sike 6.13.

C2.2.23 A number of small sections of watercourse realignments are required to facilitate the culverts on Unnamed Tributary of the Lowgill Beck 6.1, Yosgill Sike and Woodend Sike.

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## Bowes Bypass

- C2.2.24 The watercourse(s) in proximity to this scheme include:
- River Greta
  - Unnamed Tributary of River Greta (7.1 to 7.8).
- C2.2.25 Five new drainage outfalls are required to Unnamed Tributary of River Greta 7.1, 7.3, 7.4, 7.6.
- C2.2.26 Existing culverts will need to be expanded to accommodate the wider road over the Unnamed Tributary of River Greta 7.4 and 7.3.

## Cross Lanes to Rokeby

- C2.2.27 The watercourse(s) in proximity to this scheme include:
- Tutta Beck
  - Unnamed Tributary of Tutta Beck (8.1, 8.2, 8.3, 8.4)
  - Manyfold Beck
  - Unnamed Tributary of Manyfold Beck (8.2, 8.3)
  - Punder Gill
  - Unnamed Tributary of Punder Gill (8.1)
  - Partridge Gill
  - Wellfield Strand
  - Unnamed Tributary of River Tees 1.1
- C2.2.28 Nine new drainage outfalls are required to Tutta Beck, local drainage ditches, Manyfold Beck, Unnamed Tributary of Punder Gill 8.1 and Unnamed Tributary of Manyfold Beck 8.2.
- C2.2.29 One existing culvert will need to be expanded to accommodate the wider road over the Unnamed Tributary of Manyfold Beck 8.2.
- C2.2.30 A new culvert will be required, along with minor realignment of the watercourse, to facilitate a crossing over Punder Gill.

## Stephen Bank to Carkin Moor

- C2.2.31 The watercourse(s) in proximity to this scheme include:
- Sprent Beck
  - Cottonmill Beck
  - Unnamed Tributary of Cottonmill Beck (9.1 to 9.4)
  - Smallways Beck
  - Unnamed Tributary of Smallways Beck (9.1)
  - Browson Beck
  - Unnamed Tributary of Browson Beck (9.1)
  - Holme Beck
  - Unnamed Tributary of Holme Beck (9.1 to 9.8)
  - Mains Gill
  - Unnamed Tributary of Mains Gill (9.1, 9.2, 9.3)
  - Hartforth Beck
  - Unnamed Tributary of Hartforth Beck (1.1)



C2.2.32 Nine new drainage outfalls are required to Cottonmill Beck, Unnamed Tributary of Holme Beck 9.4 and 9.6, Mains Gill, Holme Beck and Unnamed Tributary of Holme Beck 9.2.

C2.2.33 New culverts will be required to facilitate the road crossing of Cottonmill Beck, Unnamed Tributary of Holme Beck 9.3, 9.5, 9.6, Mains Gill, Unnamed Tributary of Mains Gill 9.3 and the Unnamed Tributary of Holme Beck.

### A1(M) Junction 53 Scotch Corner

C2.2.34 No watercourses are in proximity to the Order Limits of this scheme, and as a result no control measures are anticipated.

## C2.3 Baseline Conditions

### Key sensitivities

C2.3.1 When exact works locations are confirmed for any works affecting watercourses, this section will be updated to include details of specific receptors close to working locations.

C2.3.2 This will include:

- Watercourses themselves
- Sensitive habitats within the watercourses
- Fish spawning habitats
- Riparian vegetation
- Floodplains.

### Key risks

C2.3.3 The sensitive receptors potentially face the following key risks from works within watercourses:

- Damage to vegetation (aquatic or riparian)
- Siltation of gravel beds and other substrate
- Pollution through chemicals, oils or silt via runoff
- Restriction of flood flows
- Biosecurity (e.g. risk of introduction of alien species or diseases)

C2.3.4 This section of the method statement will be updated to include location and receptor specific risks once the exact locations of works within or near watercourses are confirmed.

## C2.4 Construction Methodology

### Overview

C2.4.1 This section provides indicative information on the typical elements of the Project involving working in watercourses that may be used on each of the schemes where watercourse working is anticipated.

C2.4.2 Once detailed design and construction planning is complete, this section will include detail of exact watercourse construction methods to be implemented at each location where it is required.

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## Watercourse crossings

- C2.4.3 Across the project there are several watercourse crossings required to facilitate the new A66 or the de-trunked old A66. Most crossing points involve single span structures, with abutments being constructed on either side of the watercourse, or the installation of culverts for minor watercourses. It is likely that larger structures will need to be founded on pile foundations with additional scour/ erosion protection measures installed as part of the permanent works.
- C2.4.4 To facilitate the piling works, it is likely that granular platforms will be required to be placed within floodplain areas, but outside of the direct watercourse. These will be constructed from recycled or virgin material, compacted in layers on good quality substrate. It is likely that sheet piles will be driven in to form the base of the abutments where scour is expected. For the main abutment foundations, driven piles or cast-in-situ rotary bored piles may be used. The specific type will be dependent on the location and loads being imparted on the abutment along with the ground investigation records.
- C2.4.5 For larger water course crossings such as Trout Beck in Cross Lanes to Rokeby scheme and the Crookes and Moor Beck on the Appleby to Brough scheme it is anticipated that the structures will be multi spans, with several piers being required to be constructed in the flood plain area, but outside of the direct watercourse. The construction of the piers will be similar to that noted above with granular platforms being constructed within the floodplain areas, followed by driven and or rotary bored piles to form the foundations. The key additional element will be the lift sites required to lift the bridge beams into place. These are likely to require large granular platforms being constructed to enable a sizeable crane to be situated safely.
- C2.4.6 Within the work areas where the structures are required to be located, sensitive species will need to be efficiently managed to ensure impacts are reduced, whilst enabling construction to take place efficiently and safely. It must be noted that for the larger structures, it is likely that large footprints will be required for temporary works elements needed to build the abutments and piers. In most instances, existing vegetation and soil will need to be cleared and stockpiled during the works.
- C2.4.7 With respect to flood management, water courses will be assessed based on seasonal levels and historic data to determine adequate working platform levels to construct the new structures. It is possible that the large structures may take over 12 months to construct, thus the temporary works element will need to remain during potential flood events. All temporary works will be designed so as to not cause issues with flood storage or conveyance of flood flows that could lead to an increased risk of flooding elsewhere. This will be evidenced in the Ground and Surface Water Management Plan (see REAC commitment D-RDWE-01).

## Overbridge construction

- C2.4.8 Several new overbridges are to be constructed across the Project to carry roads over the A66. Across the Project there a variety of overbridges of varying span lengths dependent on the angle the new road or access crosses over the stream, river or water course. As part of the typical construction, they will incorporate a deck supported by abutments with or without the addition of further central piers, which are all supported by foundations.
- C2.4.9 On the Project there are a number of overbridges, of different sizes, spans and lengths. In some instances, there may be a requirement to construct large overbridges over flood plains and rivers, with multi span solutions being required to cover distances of over 200m. This is likely on the Temple Sowerby to Appleby and Appleby to Brough schemes. More commonly found on the schemes, will be single or two span overbridges to cross smaller watercourses and tributaries, with spans of up to 35m each.

## Installation of outfalls

- C2.4.10 The drainage design for each of the schemes involves the collection of run-off from the road, prior to treatment through balancing ponds or swales, then discharge to local watercourses.
- C2.4.11 Where possible the drainage has been designed to tie into existing outfalls, meaning no new works to watercourses are required. In a number of locations, however, new outfalls will be required. These will be designed to either tie into existing hard structures where they exist or will be via open ditches where the banks of the watercourses are more natural.
- C2.4.12 This section will include a description of the working methods to be employed for both types of outfall.

## C2.5 Control Measures

### General principles

- C2.5.1 During construction, water flow will be maintained within watercourses and dewatering of the entire channel will be avoided. There are no locations where a full diversion of a watercourse is expected to be required and this will be avoided through the construction methodology employed (particularly in relation to watercourses associated with the River Eden SAC).
- C2.5.2 Best practice construction methods with respect to working in/near water will be employed. This will involve avoiding use of plant in-channel where possible, creation of dry working areas and the control of sediment (for example through the use of silt fencing, filtration systems and settling ponds).

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## Timing of works

- C2.5.3 Works close to watercourses (and in particular works that could cause vibration and other disturbance effects) have the potential to disturb fish and other sensitive species. This section will set out how specific measures will be implemented at each location in order to ensure impacts are minimised as far as practicable.
- C2.5.4 Installation and removal of temporary culverts and construction of permanent culverts should aim to avoid the fish spawning season (generally 1<sup>st</sup> October to 15<sup>th</sup> June).
- C2.5.5 This will include detailed construction timings and where works are associated with the SAC this will consider all programme constraints outlined in the Statement to Inform Appropriate Assessment (Application Document 3.6).

## Working hours

- C2.5.6 As a principle, no night work will be permitted in close proximity to watercourses and sensitive site lighting will be used. Methodologies and timing of works in/near water will be agreed with Natural England and the Environment Agency.

## Pollution prevention and contaminated water

- C2.5.7 This section will set out how specific pollution prevention measures will be implemented at each location in order to ensure no pollution occurs and impacts are minimised as far as practicable.
- C2.5.8 This is likely to include adhering to pollution prevention guidelines and best practice, for example measures outlined in *Pollution prevention for businesses (Department for Environment, Food and Rural Affairs, 2016)*<sup>1</sup>
- C2.5.9 Contaminated water that cannot be treated on site would, if necessary, be pumped to a suitably licenced tanker before being exported off site for treatment at an appropriately permitted facility.
- C2.5.10 Monitoring of contaminated water by suitably qualified EM and contractor.
- C2.5.11 Monitoring of site's water management and discharge by suitably qualified EM and contractor. Water quality monitoring of surface and groundwaters.

## Surface water management

- C2.5.12 This section will detail measures to manage surface water quality, in particular sediment control. When working in and in proximity to watercourses throughout the Project.
- C2.5.13 A surface water management system using measures such as temporary silt fencing, cut off ditches, settlement ponds and bunds set up early in the construction period to capture all runoff and prevent ingress of sediments and contaminants into existing drainage ditches where necessary. This will be managed by the EMP in accordance with CIRIA

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<sup>1</sup> Department for Environment, Food and Rural Affairs (2016) Pollution prevention for businesses,

Guidelines and the Environment Agency's approach to groundwater protection and groundwater protection guidelines.

- C2.5.14 This is likely to include phasing of SuDS and required drainage implementation as of pre-commencement and preparatory works ahead of main construction works to manage sediment runoff. This requirement is especially important ahead of any archaeological investigations and soil strips, which will expose large amounts of soil.
- C2.5.15 A sediment management plan will be required to be produced by the PC to determine what the appropriate controls are for the site. This may include details of additional temporary cut-off ditches to manage sediment runoff, the use of silt fences or bunds and as a worst-case precaution the use of siltbuster water processing devices.
- C2.5.16 Areas of exposed sediment deemed at risk of erosion during heavy rainfall or flood inundation should be protected using either temporary measures (e.g. sheeting) or semi-permanent measures (for example coir matting) until vegetation is able to establish on these surfaces.
- C2.5.17 During operation road runoff will be treated according to DMRB LA 113 Road drainage and the water environment (DMRB LA 113) (Highways England, 2020) guidance to ensure the water quality of discharges to surface water.

### Abstractions and dewatering

- C2.5.18 This section will detail the necessary controls required for abstractions and dewatering activities regarding construction works in and in proximity to watercourses. It will set out how the conditions of any licenses or permits that have been obtained (in accordance with the EMP, Application Document Number 2.7) will be implemented.
- C2.5.19 Discharge from dewatering activities such as earthworks, works within a floodplain or within eight metres of a watercourse will have a tailored risk assessment, consent and licences from the Environment Agency. Dewatering abstractions may also require transfer licenses from the Environment Agency.
- C2.5.20 Boreholes used for dewatering, monitoring and ground investigations may be decommissioned at different stages. The decommissioning of the boreholes should be done in a way that mimics the natural geology, or alternatively the entire well/borehole is backfilled with a low permeability material that will prevent significant movement of groundwater through/along the borehole.
- C2.5.21 Backfill materials must be clean, inert and non-polluting, and appropriate to the ground and groundwater conditions.

### Flood risk management

- C2.5.22 This section will set out how specific flood risk management measures will be implemented at each location in order to ensure impacts from flooding are minimised as far as practicable. The likely considerations

required at this stage are outlined in sections below and will be developed in full by the PC.

- C2.5.23 Construction platforms will be located in the floodplain. These will be required to be kept as low as possible in the floodplain so platforms are allowed to flood, rather than become a barrier to the flood event and risk wider area flooding.
- C2.5.24 The PC will work with the Environment Agency to ensure they are signed up to all flood alerts and are identified on the priority list of contacts for flood warnings. Given the flashy nature of the watercourses in the Project area, floods can occur with little warning and therefore ongoing management procedures will be important to prevent impacts (e.g. storage of plant and materials away from floodplains, removal of plant from floodplain each night, construction of temporary works to be flood resilient).

### Material storage and plant transfer

- C2.5.25 This section will set out how specific material storage and plant transfer measures will be implemented at each location in order to ensure impacts are minimised as far as practicable.
- C2.5.26 Strict biosecurity protocols will be followed during construction and maintenance of assets to mitigate the risks of introducing signal crayfish and other aquatic Invasive Non-native species and pathogens to watercourses. The same measures (e.g. cleaning and disinfection of vehicle wheels and any equipment to be used in watercourses) will also be required to be carried out for all plant and personnel newly arriving to site from other locations of the county/country outwith the site.
- C2.5.27 Long term material storage within Flood Zone 3 shall be avoided. Where materials are required for imminent usage, details regarding temporary material storage in flood prone areas will be developed by the PC and provided in this section.

### Bank stability

- C2.5.28 If any new or temporary structures are required that could affect bank stability, this section will set out how specific measures to assess and maintain bank stability at crossing locations will be implemented at each location in order to ensure impacts are minimised as far as practicable.

### Vehicle crossing

- C2.5.29 Temporary vehicle crossings of watercourses may be required during the works. This section will detail vehicle crossing control measures to ensure impacts are minimised.