

# HyNet North West

## OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

### Appendix 10: Outline Surface Water Management and Monitoring Plan (Tracked)

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 –  
Regulations 8(1)(c)

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# 1. INTRODUCTION

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## 1.1. PROJECT OVERVIEW

- 1.1.1. This document has been prepared on behalf of Liverpool Bay CCS Limited ('the Applicant') and relates to an application ('the Application') for a Development Consent Order (DCO) that has been submitted to the Secretary of State (SoS) Department for Energy Security and Net Zero (DESNZ) under Section 37 of the Planning Act 2008 ('the PA 2008'). The Application relates to the Carbon Dioxide (CO<sub>2</sub>) pipeline which constitutes the DCO Proposed Development.
- 1.1.2. The DCO Proposed Development will form part of HyNet North West ('the Project'), which is a hydrogen supply and Carbon Capture and Storage ('CCS') Project. The goal of the Project is to reduce carbon dioxide (CO<sub>2</sub>) emissions from industry, homes and transport and support economic growth in the North West of England and North Wales. The wider Project is based on the production of low-carbon hydrogen from natural gas. It includes the development of a new hydrogen production plant, pipelines, and the creation of CCS infrastructure. CCS prevents CO<sub>2</sub> entering the atmosphere by capturing it, compressing it and transporting it for safe, permanent storage.
- 1.1.3. The DCO Proposed Development is a critical component of the Project which, by facilitating the transportation of carbon dioxide, enables the rest of the Project to be low carbon. The hydrogen production and CO<sub>2</sub> capture and storage elements of the Project do not form part of the DCO Proposed Development and will be delivered under separate consenting processes.
- 1.1.4. A full description of the DCO Proposed Development is detailed in **Chapter 3 – Description of the DCO Proposed Development (Volume II Document Reference: D.6.2.3)**.

## 1.2. PURPOSE OF THE DOCUMENT

- 1.2.1. This Outline Surface Water Management and Monitoring Plan (OSWMMP) sets out indicative methods to avoid, minimise and mitigate likely environmental effects during the construction stages of the DCO Proposed Development, as reported in the **ES Chapter 18 Water Resources and Flood Risk (Volume II Document Reference: D.6.2.18) and the Register of Environmental Actions and Commitments (REAC) (Document Reference D.6.5.1)** submitted with the DCO Application. It includes the minimum protocols to be followed in implementing these measures in accordance with environmental commitments during the design, pre-construction and construction stages. The REAC commitments relevant to this plan can be found in Annex B.
- 1.2.2. The **Outline Surface Water Drainage Strategy (OSWDS) (Document Reference: D.6.5.13)** provides surface water management and mitigation measures for the permanent works associated with the DCO Proposed Development.
- 1.2.3. This OSWMMP covers all the areas affected by the DCO Proposed Development construction works, including temporary construction compounds.

- 1.2.4. The detailed Surface Water Management and Monitoring Plan (SWMMP) will be produced by the Construction Contractor(s) in accordance with this outline plan and Requirement 5(2) of the draft DCO (**Document Reference: D.3.1**) to ensure appropriate monitoring of water quality is carried out before, during and after construction works, and that adaptive mitigation is implemented, in compliance with **D-WR-070** of the **REAC (Document Reference: D.6.5.1)**.
- 1.2.5. This document should be read in conjunction with Outline Construction Environmental Management Plan (OCEMP) (**Document Reference: D.6.5.4**) and its associated appendices in particular the Outline Dewatering Management Plan (**Document Reference: D.7.44**); the Outline Groundwater Management and Monitoring Plan (**Document Reference: D.7.41**); and the Outline Soil Management Plan (**Document Reference: D.6.5.4**).

## 2. ROLES AND RESPONSIBILITIES

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- 2.1.1. The Construction Contractor(s) will be responsible for developing and implementing the SWMMP based on the principles set out in this document. Roles and Responsibilities will be defined within the SWMMP, including, but not limited to, the personnel responsible for:
- Providing relevant training to staff and to ensure that procedures are being implemented to achieve compliance with the SWMMP;
  - Site maintenance / inspections;
  - Record keeping; and
  - Emergency action plans.
- 2.1.2. The Construction Contractor(s) will provide all detail of accreditations held and the relevant qualifications of key personnel in the management of water and environmental matters on the site.
- 2.1.3. The Construction Contractor(s) and the Applicant will ensure -all training for personnel on site, including ensuring all construction and operation staff are made aware and trained in the procedures of the Flood Action Plans discussed in Section 8 (**D-WR-042** of the **REAC, Document Reference: D.6.5.1**).

### 3. LOCAL SENSITIVE RECEPTORS

- 3.1.1. This section provides a summary of the local sensitive receptors that may be impacted by the DCO Proposed Development during the construction stage.
- 3.1.2. Sensitive receptors relating to the DCO are identified in the Environmental Statement (Volume II) Chapter 18 Water Resources and Flood Risk [REP4-059] and associated appendices.
- 3.1.3. Any works will take into account the sensitivity of these receptors, as well as any associated assets such as flood defences.
- 3.1.4. **Appendix 18.1 Baseline Information (Document Reference: D.6.3.18.1)** describes the baseline information for surface water bodies within the Study Area, highlighting the size, location, and interaction with the DCO Proposed Development.
- 3.1.5. A summary of potential sensitive receptors is described below in Table 3-1 and Table 3-2. These describe the river crossings as either Open Cut Crossing (OC) or Trenchless Crossing (TC) with the exception of the Alltami Brook, for which an option to cross via an embedded pipe bridge is included. Further details of the crossings can be found in **Chapter 18 Water Resources and Flood Risk (Volume II Document Reference: D.6.2.18)**.
- 3.1.6. The DCO Proposed Development from Ince AGI to the England/Wales Border, crosses a total of 27 watercourses, this includes 17 ordinary watercourses and 10 main rivers. These crossings are presented in Table 3-1 below.

**Table 3-1 – Sensitive Receptors (Ince AGI to the England/Wales Border)**

Watercourse	Designation	Proposed Crossing Type
Elton Lane Ditch 1	Ordinary	OC
Elton Lane Ditch 4	Ordinary	OC
Elton Marsh 1	Ordinary	OC
Elton Marsh 2	Ordinary	OC
West Central Drain	Main	OC
Elton Marsh Brook 13	Ordinary	OC
Hapsford Brook	Main	OC
Elton Brook Trib 2	Ordinary	OC
Elton Brook Trib 3	Ordinary	OC
Gale Brook	Main	OC
Thornton Uplands	Main	OC
Hall Green Lane Brook	Ordinary	OC
Thornton Main Drain	Main	OC
River Gowy	Main	TC
Thornton Ditch 1	Ordinary	OC
Thornton Ditch 2	Ordinary	OC
Stanney Main Drain	Main	OC
Stanney Mill Brook	Main	OC



<b>Watercourse</b>	<b>Designation</b>	<b>Proposed Crossing Type</b>
Wervin Hall Ditch Trib	Ordinary	OC
Shropshire Union Canal	Ordinary	TC
Rake Lane Brook	Ordinary	OC
Backford Brook	Main	OC
Friars Park Ditch	Ordinary	OC
Gypsy Lane Brook	Ordinary	OC
Finchetts Gutter Trib	Ordinary	OC
Seahill Trib	Ordinary	OC
Seahill Drain	Main	OC

\*TC – Trenchless Crossing

\*OC – Open Cut Crossing

3.1.7. The DCO Proposed Development from the England/Wales border to the Babell Block Valve Station (BVS) in Wales, crosses a total of 18 watercourses, consisting of 6 ordinary watercourses and 12 main rivers in Wales. These crossings are presented in Table 3-2 below.

**Table 3-2 – Sensitive Receptors (England/Wales border to the Babell Block Valve Station)**

<b>Watercourse</b>	<b>Designation</b>	<b>Proposed Crossing Type</b>
<b>Sealand Main Drain</b>	Main	OC
<b>River Dee</b>	Main	TC
<b>Railway Ditch 2</b>	Ordinary	TC
<b>Railway Ditch 3</b>	Ordinary	TC
<b>Broughton Brook</b>	Main	TC
<b>Sandycroft Drain 1</b>	Main	TC
<b>Sandycroft Drain 2</b>	Main	OC
<b>Sandycroft Tributary</b>	Ordinary	OC
<b>Mancot Brook 1</b>	Ordinary	OC
<b>Mancot Brook 2</b>	Ordinary	OC
<b>Mancot Brook 3</b>	Ordinary	OC
<b>Chester Road Brook</b>	Main	TC

<b>Watercourse</b>	<b>Designation</b>	<b>Proposed Crossing Type</b>
<b>Willow Park Brook</b>	Ordinary	OC
<b>New Inn Brook</b>	Ordinary	OC
<b>Alltami Brook</b>	Ordinary	OC or Embedded Pipe Bridge (to be confirmed)
<b>Wepre Brook</b>	Ordinary	OC
<b>Northop Hall Brook</b>	Ordinary	TC
<b>Northop Hall Brook Tributary</b>	Ordinary	OC

\*TC – Trenchless Crossing

\*OC – Open Cut Crossing

- 3.1.8. The criteria used to determine the sensitivity of each receptor can be found in Table 18.3 in **Chapter 18 Water Resources and Flood Risk of the Environmental Statement (Volume II Document Reference: D.6.2.18)**.
- 3.1.9. **Figure 18.1 Watercourses of Chapter 18 (Document Reference: D.6.4.18.1)**, shows all watercourses associated with the DCO Proposed Development. **Figure 3.2 - DCO Proposed Development Overview from Chapter 3 (Volume II Document Reference: D.6.2.3)** shows the locations of all Trenchless Crossing Compounds, as well as Above Ground Installations (AGIs) and Centralised Compounds.

## 4. RELEVANT LEGISLATION, GUIDANCE AND POLICY

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4.1.1. Construction works have the potential to impact land and watercourses therefore, works shall operate in accordance with the following environmental legislation:

### LEGISLATION

- Water Framework Directive (WFD) England and Wales Regulations 2017
- Land Drainage Act 1991 (in so far as it applies under the DCO)
- Environmental Permitting (England and Wales) Regulations 2016
- National Planning Policy Framework (NPPF) 2021
- Construction Design and Management (CDM) Regulations 2015
- COSHH Regulations 2002
- Wildlife and Countryside Act 1981
- Salmon and Freshwater Fisheries Act 1975
- The Eel Regulations (England and Wales) 2009

### GUIDANCE

- The SuDS Manual (C753)
- Environmental Good Practice – Site Guide (C650)
- Building Regulations Part H 2010
- BS 8582:2013 Code of Practice for surface water management for development sites
- Control of Water Pollution from Construction Sites – Technical Guidance (C648)
- Control of Water Pollution from Construction Sites – Site Guide (C649)
- Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (C649)
- Control of Water Pollution from Construction Sites – Guide to Good Practice (SP156)

### SURFACE WATER DRAINAGE DISCHARGE GUIDANCE

4.1.2. Surface water runoff discharge locations shall be in accordance with all documents listed above and follow the hierarchy of control described in the following:

- The SuDS Manual, CIRIA, 2015
- Non-Statutory Technical Standards for Sustainable Drainage Systems, England, 2015
- Welsh Government Guidance: Statutory Standards for Sustainable Drainage Systems – Designing, Constructing, Operating and Maintaining Surface Water Drainage Systems, 2018

4.1.3. These documents aim to discharge surface water run-off as high up the drainage hierarchy, as reasonably practicable. The hierarchy is as follows:

- into the ground (infiltration);
- to a surface water body;
- to a surface water sewer, highway drain, or another drainage system;
- to a combined sewer

4.1.4. Construction surface water discharge requirement and locations and should also discussed with any relevant statutory consultees including the Environment Agency (EA), Natural Resources Wales (NRW), Lead Local Flood Authorities (LLFAs), Local Water Company (United Utilities/ Dŵr Cymru Welsh Water) and the Canal and River Trust. Contact details for these bodies can be found in Section 9.

## 5. METHOD AND SCHEDULE FOR WATER QUALITY MONITORING

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- 5.1.1. Water quality monitoring is required for construction works to provide assurance of compliance with regulatory requirements and to ensure that environmental degradation does not occur because of the works.
- 5.1.2. This section of the SWMMP will provide the inspection, monitoring and maintenance requirements to be included for the proposed surface water control system.
- 5.1.3. This will be communicated to the Construction Contractor(s) Environment Manager to ensure that this is in general accordance with any similar requirements of the CEMP.
- 5.1.4. The measures will be tailored to meet the site-specific requirements (e.g., scale and duration of proposed works, methods employed, and site sensitivity).
- 5.1.5. The following requirements should be included as a minimum:
- Surface water monitoring regime for pre-construction, construction and post-construction stages
  - Site Inspection regime
  - Formal Inspections with the Environment Agency / NRW / LLFA
  - Audits
  - Performance monitoring of the surface water management system
  - Systems maintenance requirements
- 5.1.6. Turbidity monitoring will be undertaken by an Ecological Clerk of Works (ECoW) during the construction phase where deemed required by the Construction Contractor's Environmental Manager due to the sensitivity of aquatic species receptors (**D-WR-044** of the **REAC, Document Reference: D.6.5.1**).
- 5.1.7. The water quality monitoring network will cover the upstream and downstream reaches of watercourses where trenched crossings and nearby site compounds are proposed.

## 6. GEOMORPHOLOGICAL ASSESSMENT AND MONITORING REGIME

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- 6.1.1. Geomorphological assessment and monitoring are required for construction works to provide assurance of compliance with regulatory requirements and to ensure that environmental degradation does not occur because of the works.
- 6.1.2. This section of the SWMMP will provide the design, monitoring and adaptive mitigation requirements to be included for the location and reinstatement of the proposed trenched crossings.
- 6.1.3. This will be communicated to the Construction Contractor(s) Environment Manager to ensure that this is in general accordance with any similar requirements of the Detailed CEMP.
- 6.1.4. The following requirements should be included as a minimum:
- Consultation with NRW, the Environment Agency and the LLFA for detailed design
  - Pre-construction survey to establish a detailed baseline
  - Monitoring of permanent works at Alltami Brook and adaptive mitigation
- 6.1.5. The above requirements are outlined as for the various stages of detail design, pre-construction and post construction as follows:

### DETAILED DESIGN

- 6.1.6. The Construction Contractor(s) will undertake further engagement with the Environment Agency Planning and Geomorphology Technical Specialists during the detailed design process to determine the required floodplain extent for pipeline burial depth below the existing river bed level of the River Gowy. This will determine the potential distance for setting bank of the embankments (to a maximum distance of 100m) along the River Gowy to allow for the WFD Mitigation Measure to be achieved. This mitigation is required to enable the re-naturalisation of a sinuous planform of the River Gowy, as depicted in historical mapping records, without the risk of the pipeline becoming exposed (**D-WR-055** of the **REAC, Document Reference: D.6.5.1**). The proposed 100m extent across the western bank of the River Gowy is based upon evidence-based assessment -using historical mapping records as a source- to determine the historical sinuous planform of the River Gowy. Therefore by taking into account the historical sinuous planform of the River Gowy, the future achievement of the WFD Mitigation Measure will not be prevented by the DCO Proposed Development.
- 6.1.7. The Construction Contractor(s) will also ensure that the pipeline depth is sufficient so as not to prevent the future removal of the Withy Beds weir, or that the pipeline becomes at risk of exposure following the removal of the Withy Beds weir.
- 6.1.8. Once detailed design is available, the Applicant will undertake a confirmatory review to ensure it does not undermine WFD objectives or compromise delivery of WFD Mitigation Measures.

~~6.1.6.~~

~~6.1.7-6.1.9.~~ The Construction Contractor(s) will undertake further consultation with NRW and the LLFA Planning and Geomorphology Technical Specialists to determine the appropriate depth and extent of the pipeline placement so as not to prevent the future re-naturalisation of the Alltami Brook to a sinuous planform (**D-WR-056**).

~~6.1.8-6.1.10.~~ The width within which the works for the Alltami Brook Crossing will be contained will not exceed 16 metres within the riparian zone. Maximum width of bedrock channel permanently impacted from removal of bedrock will be no more than 4m. The depth of cut would be at least 2.5m below bed level, but the depth would be confirmed during detailed design and with further consultation with NRW (**D-WR-063**).

~~6.1.9-6.1.11.~~ Regarding the Alltami Brook, a bespoke geomorphological assessment will be carried out by the Construction Contractor(s) to inform:

- micro-siting the crossing location of the pipe so that the least sensitive section of river bed is permanently impacted, where practicable,
- the detailed design of the permanent works installed as part of the reinstatement of the watercourse after pipe is laid.

~~6.1.12.~~ Further engagement with NRW and the LLFA Planning would be undertaken to inform the methodology of this bespoke geomorphological assessment (**D-WR-064**).

~~6.1.10-6.1.13.~~ A commitment relating to micro-siting is provided in **D-BD-009**.

## PRE-CONSTRUCTION

~~6.1.11-6.1.14.~~ For all watercourses where a trenched crossing is proposed, a pre-works crossing point survey will be carried out to record the channel and bank morphology and features, riparian zone structure, and collect photographic record, so that reinstatement is as close to baseline as practicable. Reinstatement works will be supervised by an appropriately qualified ECoW (**D-WR-052**). Opportunities for mitigation and enhancements has already been considered for all watercourse crossings and used to inform the reinstatement, impact assessment and proposed enhancements. These will be validated with the updated baseline collected.

## POST-CONSTRUCTION

~~6.1.15.~~ Regarding the Alltami Brook, geomorphological and ecological monitoring of the permanent works would be carried out, post construction, to ensure the integrity of the reinstated channel and to identify any early intervention that may be required to ensure no deterioration in WFD status. Type, duration and frequency of monitoring is to be determined through the development of the geomorphological assessment and detailed design, and in consultation with NRW and Flintshire County Council LLFA. Adaptive mitigation would be implemented to maintain the integrity of the reinstated channel (**D-WR-065**).

~~6.1.16.~~ Further commitments secured within the DCO Proposed Development relating to monitoring and adaptive management at watercourses are:

- D-WR-070;
- D-WR-065; and
- D-BD-068.



## 7. CONTAMINATION CONTROL OF WATERCOURSES

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7.1.1. The construction sites will be managed and maintained to minimise pollution of watercourses in the instance of contamination from various potential sources in accordance with any appropriate guidance and these are outlined in the following sections.

### 7.2. GENERAL

7.2.1. Providing temporary SuDS, for new impermeable surfaces at construction compounds, to manage surface water discharge and prevent pollution from operations.

7.2.2. Where works are within 10m of watercourses, sediment barriers will be provided between earth works and the construction zone and the watercourse to prevent sediment from washing into the river. Silt management will be considered not only for areas adjacent to the watercourse, but also up the valley sides to minimise fine sediment input to the watercourse. Where practicable, there will be no works within 8m of watercourses. This extends to 16m for transitional waters and tidal defences **(D-WR-023)**

7.2.3. Sewage generated from site welfare facilities will be disposed of appropriately. This may be by discharge to the foul sewer network or by collection in cesspool for disposal off-site **(D-WR-025)**

7.2.4. Works will be undertaken in compliance with the relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009) with respect to protection of water quality and control of Site drainage including washings, dewatering, abstractions, and surface water **(D-WR-026)**

7.2.5. Identify what consents are required from the Environment Agency and/or NRW for temporary discharge and in watercourses affecting Main Rivers **(D-WR-033)**

7.2.6. Ensure all surface water drainage solutions and discharge rates from construction compounds will be discussed with the LLFA **(D-WR-043)**.

### 7.3. OILS AND HYDROCARBONS

7.3.1. In line with the REAC (**Document Reference: D.6.5.1**) and OCEMP (**Document Reference: D.6.5.4**) the Construction Contractor(s) will:

- Provide an emergency incident response plan and make spill kits available on site **(D-WR-011)**.
- Measures to be put in place to prevent pollution from construction plant, vehicles and machinery including refuelling and lubricating in designated areas, over an impermeable surface, with appropriate cut-off drainage located away from watercourses; plant to be maintained in a good condition with wheel washing in place (avoiding vehicle cleaning near to existing watercourses), all refuelling would be supervised and carried out in a designated area. In the event of plant breakdown, drip trays would be used

during any emergency maintenance and spill kits would be available on-site **(D-WR-012)**

- All drains within the construction works areas will be identified and labelled and measures implemented to those considered most at risk of polluting substances from entering them **(D-WR-008)**
- Areas with a greater risk of spillage (for example, vehicle maintenance and storage areas for hazardous materials) will be carefully sited (for example, away from drains or areas where surface waters may pond) and on an impermeable surface **(D-WR-010)**
- Fuels and potentially hazardous construction materials would be stored in bunds that have areas with external cut-off drainage; fuel would be stored in double skinned tanks with 110% capacity **(D-WR-013)**
- Construction plant will be checked regularly for oil and fuel leaks, particularly when construction works are undertaken in or near the existing waterbodies **(D-WR-014)**
- Waste fuels and other fluid contaminants will be collected in leak-proof containers prior to removal from the construction area to an approved recycling processing facility **(D-WR-015)**
- Oil absorbent booms will be made available at construction compounds and works areas and will be deployed as soon as possible in the event of a significant spillage **(D-WR-016)**
- Measures implemented to control spillage or pollution risks for site runoff or works within watercourses will be regularly inspected to ensure they are working effectively **(D-WR-018)**
- Surface water run-off and excavation dewatering will be captured and settled out prior to disposal where practicable. The Construction Contractor(s) will ensure that any contaminants are to be suitably removed prior to disposal **(D-WR-021)**

## 7.4. STOCKPILE MITIGATION

7.4.1. To avoid the leaching of any potential contaminants and increased sediment loading, the Construction Contractor(s) will comply with the following, in line with the **REAC (Document Reference: D.6.5.1)**:

- Ensure works will avoid the positioning of temporary material stockpiles and arisings near to watercourses and will ensure material stockpiles and arisings are located outside of the flood zone (where not benefitting from flood defences) where practicable. Welfare facilities and stored equipment and materials are to be located within the compounds so that areas of high flood risk are avoided **(D-WR-001)**.
- Temporary stockpiles will be located at a minimum of 10m from the top of the bank of any watercourses, where practicable **(D-WR-003)**
- Where necessary, temporary stockpiles will be protected by silt netting when not in use **(D-WR-004)**.

## 7.5. CONCRETE WASH OUT

7.5.1. To avoid concrete wash out polluting the surface water, groundwater and impacting the flood risk the following measures may be adopted in line with the **REAC (Document Reference: D.6.5.1)**:

- Ensure concrete wash out only takes place at designated concrete washout areas **(D-WR-019)**
- Ensure pumping or similar processes of concrete is avoided over or adjacent to open water where possible and such works will be closely observed to ensure the swift shut off any pumps if a spillage occurs **(D-WR-020)**.

## 7.6. METHOD AND SCHEDULE FOR SPILL KITS

7.6.1. During construction stage, the Construction Contractor(s) will ensure the creation of an emergency response plan **(D-WR-011)** to manage leakages or spillages containing contaminating substances and measures will be put in place to prevent pollution from construction plant, vehicles and machinery **(D-WR-012)**. The following measures should be implemented by the Construction Contractor(s):

- Measures implemented to control spillage or pollution risks for site runoff or works within watercourses will be regularly inspected to ensure they are working effectively **(D-WR-018)**
- Ensure maintenance vehicles are equipped with a spill kit in case of emergency and have spill kits stored in the kiosks at AGIs and BVSs **(D-WR-057)**
- Make oil absorbent booms available at construction compounds and work areas to ensure they can be deployed in the event of significant spillage **(D-WR-016)**.
- Emergency response plans will be developed, and spill kits made available on site **(D-WR-011)**.

## 7.7. SILT AND SOIL MANAGEMENT MEASURES

7.7.1. During construction, the likelihood of silt and soil disturbance is high. The Construction Contractor(s) will implement the following silt and soil management measures during construction.

### SILT MANAGEMENT MEASURES

- A sufficient work area, as agreed by the Construction Contractor, is made available for effective sediment management for works within watercourses **(D-WR-002)**
- Surface water runoff from construction works within 10m of watercourses will be treated by use of a sediment trap where required **(D-WR-005)**
- Silt fences, silt traps, filter bunds, settlement basins and/or proprietary units will be used to treat sediment laden water generated on-site before discharge **(D-WR-024)**

- Temporary drainage systems will be implemented near sensitive receptors to control surface water runoff, to alleviate both flood risk and help to prevent sediment laden runoff entering the watercourse (**D-WR-006**).
- Temporary cut-off drains will be used uphill and downhill of the Construction Compounds to prevent clean runoff entering and dirty water leaving the working area without appropriate treatment (**D-WR-007**)
- Temporary cofferdams will be used to exclude work areas from waterbodies reducing risk of increased sediment load entering the main water flow (**D-WR-022**)
- Where practicable, construction works will avoid works on watercourses during high flow events to reduce the risk of fine sediment release and minimise the increase to flood risk from dewatering / hydrostatic testing discharges. The Detailed Design construction programme will seek to target the construction activities involving watercourses for the drier summer months to reduce this risk, whilst taking into account the window for construction activities in relation to aquatic ecology and, in particular, the fish migratory season (**D-WR-030**)
- Production of a Dewatering Management Plan providing a general framework for assessing the potential risks arising from dewatering **Outline Dewatering Management Plan (Document Reference: D.7.44)**

## **SOIL MANAGEMENT MEASURES**

7.7.2. Additional information on Land and Soil Management is available in the **Outline Soil Management Plan (Document Reference: D.6.5.4)**.

## **7.8. TEMPORARY CULVERTING**

7.8.1. Temporary culverting and storm water outfall construction may be required to allow construction traffic to cross the watercourses. Any temporary culverting of the watercourses needs to be agreed in advance through relevant consents (for main rivers only) and methodologies discussed with the Environment Agency / Natural Resource Wales and the LLFA demonstrating that this will not increase the risk of flooding elsewhere and also manage water quality for these watercourses.

7.8.2. As a result the watercourse may be temporarily blocked and pumped over where practicable whilst the temporary crossing is constructed (**D-WR-029**). Therefore, the construction contractor(s) will allow for the following pollution mitigation measures to be implemented:

- If temporary culverting is required for any duration of works, pollution measures will be put in place to protect watercourses. It will be identified if any works are being carried out near a main river ordinary watercourse, ditch or other watercourse that measures are implemented to reduce pollution, silting and erosion.
- If work is to be carried out on, or near a foul sewer, (the Construction Contractor(s) should be aware of any trunk sewers in the vicinity), electricity cables or oil/chemical pipes, the Environment Agency / Natural Resource

Wales shall be notified 7 days prior to allow agreement of pollution prevention measures.

## 8. OUTLINE FLOOD ACTION PLAN

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- 8.1.1. This section presents the key requirements which will be developed into a Flood Action Plan by the appointed Construction Contractor(s) during the construction stage in line with **D-WR-040 and D-WR-041** of the **REAC (Document Reference: D.6.5.1)**.
- 8.1.2. A Flood Action Plan will be developed and implemented for all construction compounds and temporary works areas. The Flood Action Plan will contain procedures to minimise the risk to construction workers and the measures will be reflective of the flood risk of each area. The minimum requirements in **REAC** item (**D-WR-041**) include:
- Where applicable the Construction Contractor(s) will sign up to a flood warning service to obtain information related to the area of the DCO Proposed Development and will check online warnings regularly in areas at risk of fluvial/coastal flooding
  - Construction works will seek to minimise working in the floodplain, where practicable and
  - Weather forecasts will be regularly monitored so to avoid working in peak flows or when flooding is possible. If a flood warning is received from the Environment Agency or Natural Resource Wales move all machinery and equipment out of any undefended floodplain. If this cannot be completed in a safe time, secure equipment to prevent it being washed away.
- 8.1.3. Weather conditions will be monitored and the Construction Contractor(s) will sign up for the flood warning service. Where appropriate, action will be taken to halt works when information indicates a flood event or peak flows may occur, in line with **D-WR-32** of the **REAC (Document Reference: D.6.5.1)**.
- 8.1.4. The Construction Contractor(s) will be responsible for instructing workers and for monitoring the effectiveness and accuracy of any Flood Action Plan documentation. They will also be responsible for following the recommendations in this section in order to place any temporary sites in areas that are at as low a risk as is reasonably possible. If temporary sites must be placed in areas that are at risk of flooding, they must follow the recommendations for a Flood Action Plan later in this section, along with appointing appropriate people to manage and update the Flood Action Plan.
- 8.1.5. To mitigate the impact of flooding, it is crucial to prioritise the selection of areas with the least flood risk for temporary works and compounds. If the best available area falls within a higher flood zone (2 or 3) or is located in any area deemed at risk of flooding, a comprehensive Flood Action Plan will be developed, specific to the factors identified on that individual site.
- 8.1.6. A strategy for exceedance flows during pumping or pump malfunction will be implemented during peak flows. This will need to assess where the water would naturally flow in those instances and include appropriate control measures if a potential impact on third parties is possible e.g. in case of flows potentially affecting

developed areas, in line with **D-WR-54** of the **REAC (Document Reference: D.6.5.1)**.

8.1.7. The Flood Action Plan will review flood risk from all potential sources and ensure that there is no increase in flood risk to the construction compounds or third parties.

## **8.2. FLOOD ACTION PLAN REQUIREMENTS**

8.2.1. A Flood Action Plan will outline the necessary steps and protocols to be followed in the event of a flood emergency scenario. The objective of the plan is to raise awareness of the risk of flooding to staff members on site, detail the Flood Warnings and estimated lead time available, detail how the Plan is triggered by who and when, and what actions are required by those people in the area. The Plan should also describe any evacuation procedure and need for safe refuge on the site, in the event that an evacuation cannot be carried out. Further detail on the structure and scope of Flood Action Plans will be presented in the SWMMP where required.

8.2.2. The following key points should be addressed in any Flood Action Plan:

- Introduction, Scope & Objective
- Flood risk sources
- Flood warning services and forecasting mechanisms
- Floodline registration and point contact
- Details of low lying areas designed to flood and mitigation
- Site Evacuation Procedures & Route
- Safe Refuge Locations
- Deploying Flood Protection
- Training and Exercise
- Document Control

## **8.3. FLOOD WARNING LEVELS**

8.3.1. Information on the different levels of flood warnings in place and actions required In England can be found on the Environment Agency website – <https://check-for-flooding.service.gov.uk/>

8.3.2. Information on the different levels of flood warnings in place and actions required in Wales can be found on the Natural Resources Wales website <https://flood-warning.naturalresources.wales/>

8.3.3. As an additional step, the Construction Contractor(s) should sign up to the Met Office weather warning system found at: <https://www.metoffice.gov.uk/weather/warnings-and-advice>. These will advise site members of potential weather alerts that may have the potential to cause local flooding. Details of the Met Office Warning levels can be found on their website and will be included in the Flood Action Plan.

## **8.4. UPDATING A FLOOD ACTION PLAN**

- 8.4.1. The Flood Action Plan should be reviewed by the Construction Contractor(s) to ensure that any changes in local flood risk, for example in flood risk mapping and predicted flood depths, are taken into consideration.



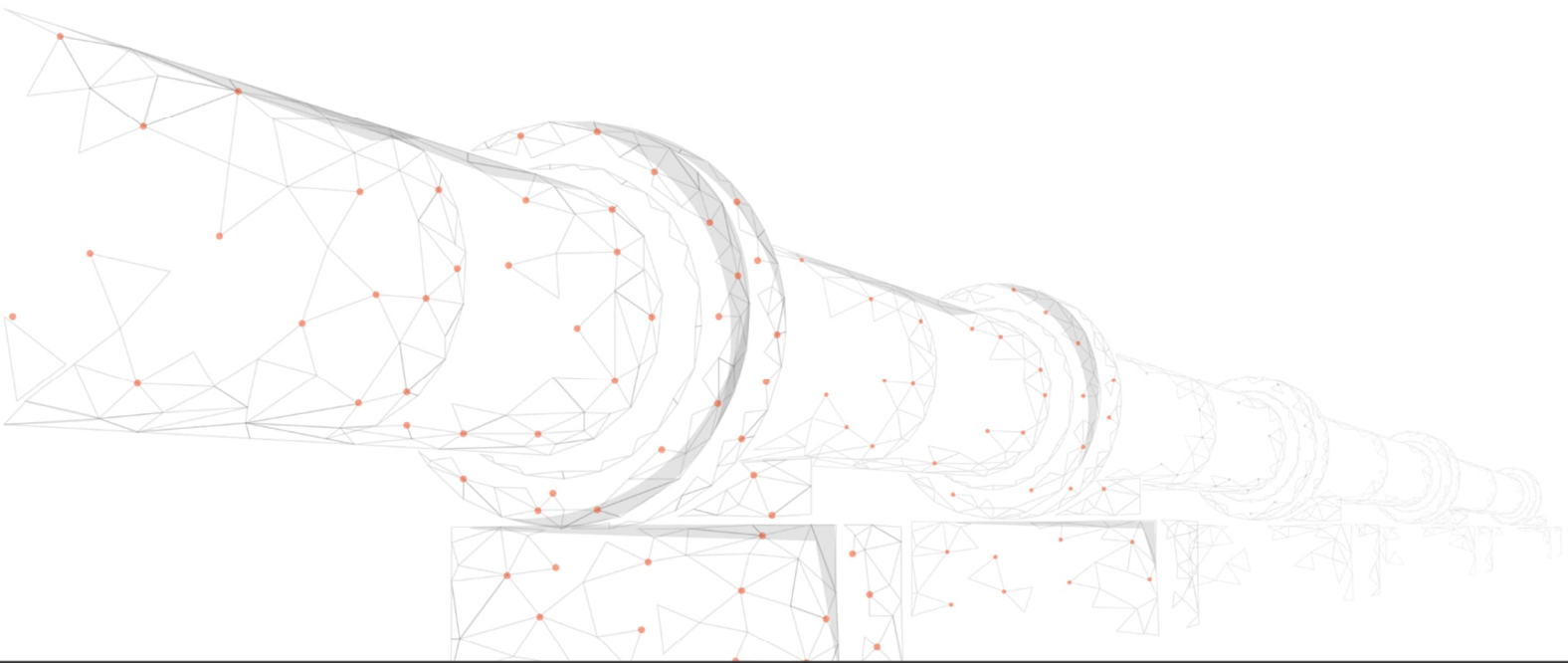
## 9. STAKEHOLDER COMMUNICATION

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### 9.1. COMMUNICATION

- 9.1.1. Stakeholder communication and engagement will be undertaken regularly throughout the course of the DCO Proposed Development construction period. This will be detailed in the Stakeholder Communications Plan which will be in accordance with the Outline Stakeholder Communications Plan (**Document Reference: D.7.45**).
- 9.1.2. Technical engagement requirements and emergency/incident management procedures relevant to surface water works will be incorporated into the SWMMP.
- 9.1.3. The following regulating authorities and stakeholders will be engaged with during the production of the SWMMP, when in the locality of their assets:
- Environment Agency
  - Natural Resources Wales
  - Cheshire West and Chester Borough Council
  - Flintshire County Council
  - Canal and River Trust
  - Dwr Cymru Welsh Water
  - United Utilities
- 9.1.4. Contact details for the regulating authorities are:
- |  |               |
|--|---------------|
| • Environment Agency Incident (Hotline)      | 0800 80 70 60 |
| • Natural Resources Wales Incident (Hotline) | 0300 065 3000 |
| • Cheshire West and Chester Borough Council  | 0300 123 8123 |
| • Flintshire County Council                  | 01352 701 234 |

# Annexures



# Annex A

## MONITORING DATA SHEETS

## MONITORING DATA SHEETS

To define the baseline conditions that exist at the site, it is necessary to measure a series of key geomorphological parameters. ~~To understand how a realigned reach responds to new channel conditions, particularly the flow and sediment regime, it is important to evaluate how geomorphological parameters at a site change through time to determine its success in meeting the objectives for the channel diversion design (Ref A-1).~~

The proposed geomorphology data sheet is provided in Table A-1 and is split into four sections (1. General Information, 2. Banks, 3. Channel, and 4. Channel Dimensions). A table of acronym descriptions is also provided. The form is designed so that field data may be collected by non-specialists following on-site training.

**Table A-1 – Geomorphology Data Sheet**

**Section 1: General Information**

<b>Project number</b>		<b>Project Name</b>	
<b>Watercourse name</b>		Monitoring Station Ref.	
<b>Date</b>		Time	
<b>Surveyor(s)</b>		Weather conditions	
<b>W3W</b>			
<b>Channel boundary conditions</b>			
<b>Bed of watercourse visible? (circle)</b>	Barely or not	Partially	Entirely
<b>Site surveyed from (circle)</b>	Left Bank	Right Bank	Channel
<b>General description of channel, banks and features</b>			
<b>Physical modifications (e.g. outfalls, weirs, bridges, culverts)</b>			

**Section 2: Banks**

<b>Fixed-point station-specific observations</b>		
	<b>Left Bank</b>	<b>Right Bank</b>
<b>Bank erosion (A / P/ E)</b>		
<b>Bank toe sediment accumulation (A / P/ E)</b>		
<b>Bank features (NO, NV, EC, SC, PB, VP, SB, VS, NB)</b>		
<b>Bank profile (vertical/undercut, vertical &amp; toe, steep, gentle, composite, natural berm, RS, RI whole bank, RI top only, RI bottom only, artificial two-stage, poached, EM, set-back EM)</b>		
<b>Bank modification (NO, NV, RS, RI, PC, BM, EM)</b>		
<b>Bank face vegetation structure (bare /uniform /simple /complex)</b>		
<b>Bank top vegetation structure (bare /uniform /simple /complex)</b>		

**Section 3: Channel**

<b>Channel</b>			
<b>Dominant channel status (laterally adjusting / stable /incising /widening /narrowing /aggrading)</b>			
<b>Channel deposition* (mid-channel bar / silt deposition etc)</b>			
<b>Channel substrate (NV, BE, BO, CO, GP, SA, SI, PE, EA, AR)</b>			
<b>Evidence of sediment transport (erosion, deposition, transport zone)</b>			
<b>Flow type (FF, CH, BW, UW, CF, RP, UP, SM, NP, DR)</b>			
<b>Channel vegetation</b>			
<b>Dominant biotope (Rapid / riffle / run / glide / pool)</b>			
<b>Gradient (e.g. evidence of knick point formation)</b>			
<b>Riffle (P /A)</b>		<b>Pool (P /A)</b>	
<b>Point bar (P /A)</b>		<b>Side bar (P /A)</b>	

**Section 4: Channel Dimensions**

<b>Channel dimensions</b>			
	<b>Left Bank</b>		<b>Right Bank</b>
<b>Left bank height (m)</b>		Right bank height (m)	
<b>Is banktop height also bankfull height? (Y/N)</b>		Is banktop height also bankfull height? (Y/N)	
<b>Embanked height (m)</b>		Embanked height (m)	
<b>Bankfull width (m)</b>			
<b>Water width (m)</b>			
<b>Water depth (m)</b>			
<b>If trashline lower than banktop, indicate height above water (m)</b>			
<b>Bed material at site (circle)</b>	Consolidated	Unknown	Unconsolidated (loose)

## ACRONYMS

<b>A</b>	Absent		
<b>P</b>	Present <=33% cover		
<b>E</b>	Extensive >33% cover		
<b>BANK FEATURES</b>		<b>BANK MODIFICATIONS</b>	
<b>NO</b>	None	NO	None
<b>NV</b>	Not visible	NV	Not visible
<b>EC</b>	Eroding cliff	RS	Resectioned
<b>SC</b>	Stable cliff	RI	Reinforced
<b>PB</b>	Point bar (unvegetated <50% vegetation cover)	PC	Poached
<b>VP</b>	Vegetated point bar (>50% vegetation cover)	BM	Berm (artificial)
<b>SB</b>	Side bar (unvegetated, as above)	EM	Embankment (note if set-back EM)
<b>VS</b>	Vegetated side bar (as above)		
<b>NB</b>	Natural berm		
<b>CHANNEL SUBSTRATE</b>		<b>FLOW TYPE</b>	
<b>NV</b>	Not visible	FF	Free fall
<b>BE</b>	Bedrock	CH	Chute
<b>BO</b>	Boulder	BW	Broken standing-wave
<b>CO</b>	Cobble	UW	Unbroken standing-wave
<b>GP</b>	Gravel/pebble	CF	Chaotic flow
<b>SA</b>	Sand	RP	Rippled
<b>SI</b>	Silt	UP	Upwelling
<b>PE</b>	Peat	SM	Smooth
<b>EA</b>	Earth	NP	No-perceptible flow
<b>AR</b>	Artificial	DR	Dry





# Annex B

## SURFACE WATER MANAGEMENT AND MONITORING REAC COMMITMENTS



<b>Unique ES Reference</b>	<b>Action/Commitment/Mitigation (including Monitoring Requirements)</b>	<b>Objective</b>	<b>Organisation/Individual Delivering Measure</b>
<b>D-WR-001</b>	Construction works will avoid the positioning of temporary material stockpiles and arisings near to watercourses and will ensure material stockpiles and arisings are located outside of the flood zone (where not benefitting from flood defences) where practicable. Welfare facilities and stored equipment and materials to be located within the compounds so that areas of high flood risk are avoided.	To minimise the impacts on surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-002</b>	Construction works will ensure that a sufficient working area, as agreed by the Construction Contractor, is made available for effective sediment management for works within watercourses.	To minimise the impacts on surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-003</b>	Temporary stockpiles will be located a minimum of 10m from the top of bank of any watercourse, where practicable.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-004</b>	Where necessary temporary stockpiles will be protected by silt netting when not in use.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-005</b>	Surface water runoff from construction works within 10m of watercourses will be treated by use of a sediment trap where required.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-006</b>	Temporary drainage systems will be implemented near sensitive receptors to control surface water runoff, to alleviate both flood risk and help to prevent sediment laden runoff entering the watercourse.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-007</b>	Temporary cut-off drains will be used uphill and downhill of the Construction Compounds to prevent clean runoff entering and dirty water leaving the working area without appropriate treatment.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-008</b>	All drains within the construction works areas will be identified and	To minimise the impacts of surface	Construction Contractor(s)

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	labelled and measures implemented to those considered most at risk of polluting substances from entering them.	water quality, groundwater and flood risk.	
<b>D-WR-009</b>	All new permanent connections of open drainage channels to receiving watercourses, as part of the detailed AGI/BVS surface water drainage strategy, will be constructed to reduce the impact on the geomorphology of the relevant watercourses.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-010</b>	Areas with a greater risk of spillage (for example, vehicle maintenance and storage areas for hazardous materials) will be carefully sited (for example, away from drains or areas where surface waters may pond) and on an impermeable surface.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-011</b>	Emergency response plans will be developed, and spill kits made available on-site.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-012</b>	Measures to be put in place to prevent pollution from construction plant, vehicles and machinery including refuelling and lubricating in designated areas, on an impermeable surface, with appropriate cut-off drainage located away from watercourses; plant to be maintained in a good condition with wheel washing in place (avoiding vehicle cleaning near to existing watercourses), all refuelling would be supervised and carried out in a designated area. In the event of plant breakdown, drip trays would be used during any emergency maintenance and spill kits would be available on-site.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-013</b>	Fuels and potentially hazardous construction materials would be stored in bunds that have areas with external cut-off drainage; fuel would be stored in double skinned tanks with 110% capacity.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-014</b>	Construction plant will be checked regularly for oil and fuel leaks,	To minimise the impacts of surface	Construction Contractor(s)

<b>Unique ES Reference</b>	<b>Action/Commitment/Mitigation (including Monitoring Requirements)</b>	<b>Objective</b>	<b>Organisation/Individual Delivering Measure</b>
	particularly when construction works are undertaken in or near the existing waterbodies.	water quality, groundwater and flood risk.	
<b>D-WR-015</b>	Waste fuels and other fluid contaminants will be collected in leak-proof containers prior to removal from the construction area to an approved recycling processing facility.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-016</b>	Oil absorbent booms will be made available at construction compounds and works areas and will be deployed as soon as possible in the event of a significant spillage.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-018</b>	Measures implemented to control spillage or pollution risks for site runoff or works within watercourses will be regularly inspected to ensure they are working effectively.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-019</b>	Concrete wash out will only take place at designated concrete washout areas.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-020</b>	Avoid pumping or similar processes of concrete over or adjacent to open water where possible and such works will be closely observed to ensure the swift shut off of any pumps if a spillage occurs.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-021</b>	Surface water run-off and excavation dewatering will be captured and settled out prior to disposal where practicable. The Construction Contractor(s) will ensure that any contaminants are to be suitably removed prior to disposal.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-022</b>	Temporary cofferdams will be used to exclude work areas from the waterbodies, thus reducing the risk of increased sediment loads or hazardous substances entering the main water flow.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-023</b>	Where works are within 10m of watercourses, sediment barriers will be provided between earth works and the watercourse to prevent sediment from washing into the river. Silt	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	management will be considered not only for areas adjacent to the watercourse, but also up the valley sides to minimise fine sediment input to the watercourse. Where practicable, there will be no works within 8m of watercourses. This extends to 16m for transitional waters and tidal defences.		
<b>D-WR-024</b>	Silt fences, silt traps, filter bunds, settlement basins and/or proprietary units' will be used to treat sediment laden water generated on-site before discharge.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-025</b>	Sewage generated from site welfare facilities will be disposed of appropriately. This may be by discharge to the foul sewer network or by collection in septic tank for disposal off-site.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-026</b>	Works will be undertaken in compliance with the relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009) with respect to protection of water quality and control of Site drainage including washings, dewatering, abstractions, and surface water.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-029</b>	The watercourse will be temporarily blocked and pumped over where practicable whilst the temporary crossing is constructed.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-030</b>	Where practicable, construction works will avoid works on watercourses during high flow events to reduce the risk of fine sediment release and minimise the increase to flood risk from dewatering / hydrostatic testing discharges. The Detailed Design construction programme will seek to target the construction activities involving watercourses for the drier summer months to reduce this risk, whilst taking into account the window for construction activities in relation to aquatic ecology and, in particular, the fish migratory season.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
<b>D-WR-033</b>	All relevant consents will be sought from the Environment Agency and/or NRW for temporary discharges and in-stream works affecting Main Rivers.	To minimise the impacts of surface water quality, groundwater and flood risk.	The Applicant / Construction Contractor(s)
<b>D-WR-037</b>	Construction works will seek to minimise the loss of groundwater quantity from the water environment. Where practicable, water recycling practices, including re-use of hydrotest water, will be considered.	To minimise the impacts of surface water quality, groundwater and flood risk.	Construction Contractor(s)
<b>D-WR-040</b>	A Flood Action Plan will be prepared and implemented for all AGIs and BVSs. This will include a list of key stakeholders (e.g. site managers, Environment Agency, NRW) and actions to be taken for ongoing weather monitoring (e.g. subscription to flood warning service in areas at risk of fluvial/coastal flooding), in case of expected flooding and/or when flooding is happening. E.g. early closure of the premises, evacuation procedures, reinstatement after flooding. Level of detail of the Flood Action Plan to reflect level of flood risk in the area	Flood Risk Management	The Applicant
<b>D-WR-041</b>	A Flood Action Plan will be developed and implemented for all construction compounds The Flood Action Plan will contain procedures to minimise the risk to construction workers and the measures will be reflective of the flood risk of each area but will include as a minimum a requirement for: <ul style="list-style-type: none"> <li>- Where applicable the Construction Contractor/s will sign up to flood warning service to obtain information related to the area of the DCO Proposed Development and will check online warnings regularly in areas at risk of fluvial/coastal flooding.</li> <li>- Construction works will avoid working in the floodplain, where practicable</li> <li>- Weather forecasts will be regularly monitored so to avoid working in peak flows or when flooding is</li> </ul>	Flood Risk Management	Construction Contractor(s)



Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	possible. If a flood warning is received from the Environment Agency or NRW, move all machinery and equipment out of any undefended floodplain. If this cannot be completed in a safe time, secure equipment to prevent it being washed away.		
<b>D-WR-042</b>	The Construction Contractor(s) and the Applicant will ensure that all construction staff are made aware and trained in the procedures of the Flood Action Plans	Flood Risk Management	The Applicant/Construction Contractor(s)
<b>D-WR-043</b>	Surface water drainage solutions and discharge rates from construction compounds will be discussed with the LLFA.	Flood Risk Management	Construction Contractor(s)
<b>D-WR-044</b>	Turbidity monitoring will be undertaken by an Ecological Clerk of Works (ECoW) during the construction phase where deemed required by the Construction Contractor's Environmental Manager due to the sensitivity of aquatic species receptors. The need and frequency of turbidity monitoring would be determined by the regulatory authority and detailed in any required permits for undertaking work within or near watercourses	Water quality protection	Construction Contractor(s)
<b>D-WR-050</b>	Where practicable, the alignment of the pipeline to be developed during detailed design will seek to minimise potential environmental impacts as far as practicable	To minimise the impacts on surface water quality, groundwater, hydromorphology and flood risk	Construction Contractor(s)
<b>D-WR-052</b>	A pre-works crossing point survey will be carried out to record channel and bank morphology and features, riparian zone structure, and collect photographic record, so that reinstatement is as close to baseline as practicable. Re-instatement works should be supervised by an appropriately qualified ECoW.	To minimise the impacts on surface water quality, groundwater, hydromorphology and flood risk	Construction Contractor(s)
<b>D-WR-054</b>	A strategy for exceedance flows during pumping or pump malfunction will be implemented during peak flows. This will need to assess where the water would naturally flow	Flood risk management	Construction Contractor(s)

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	in those instances and include appropriate control measures if a potential impact on third parties is possible e.g. in case of flows potentially affecting developed areas		
<b>D-WR-055</b>	The Construction Contractor(s) will undertake further engagement with the Environment Agency Planning and Geomorphology Technical Specialists during the detailed design process to determine the required floodplain extent for pipeline burial depth below the existing river bed level of the River Gowy. This will determine the potential distance for setting back of the embankments (to a maximum distance of 100m) along the River Gowy to allow for the WFD Mitigation Measure to be achieved. This mitigation is required to enable the re-naturalisation of a sinuous planform of the River Gowy, as depicted in historical mapping records, without the risk of the pipeline becoming exposed	To minimise the impacts to geomorphology of watercourses. To ensure the DCO Proposed Development is WFD compliant	Construction Contractor(s)
<b>D-WR-056</b>	The Construction Contractor(s) will undertake further consultation with Natural Resources Wales and the Lead Local Flood Authority Planning and Geomorphology Technical Specialists to determine the appropriate depth and extent of the pipeline placement so as not to prevent the future re-naturalisation of the Alltami Brook to a sinuous planform.	To minimise the impacts to geomorphology of watercourses. To ensure the DCO Proposed Development is WFD compliant	Construction Contractor(s)
<b>D-WR-057</b>	Maintenance vehicles will be equipped with a spill kit in case of emergency (if one is not already available on board these vehicles) and spill kits will be stored in the kiosks at AGIs and BVSSs.	To reduce the risk of spillage impacting water quality of surface water and groundwater receptors	The Applicant
<b>D-WR-058</b>	Within construction compounds, the location of temporary structures and material avoid being sited in areas of medium or high surface water flood risk, as identified in the ES	To minimise risk of surface water flooding	Construction Contractor(s)

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
<b>D-WR-061</b>	The need for localised profiling of the Mollington BVS and Aston Hill BVS and Northop Hall AGI permanent access tracks as a result of local topography leading surface water accumulation along the adjacent roads to naturally flow into the access road will be explored further at detailed design.	To minimise risk of flooding of BV through access route	Construction Contractor(s)
<b>D-WR-063</b>	The width within which the works for the Alltami Brook Crossing will be contained will not exceed 16 metres within the riparian zone. Maximum width of bedrock channel permanently impacted from removal of bedrock will be no more than 4m. The depth of cut would be at least 2.5m below bed level, but the depth would be confirmed during detailed design and with further consultation with NRW.	To minimise the impacts to geomorphology of watercourses. To ensure the DCO Proposed Development is WFD compliant	Construction Contractor(s)
<b>D-WR-064</b>	A bespoke geomorphological assessment will be carried out by the Construction Contractor(s) to inform: <ul style="list-style-type: none"> <li>• micro-siting the crossing location of the pipe so that the least sensitive section of river bed is permanently impacted, where practicable,</li> <li>• the detailed design of the permanent works installed as part of the reinstatement of the watercourse after pipe is laid</li> </ul> Further engagement with Natural Resources Wales and the Lead Local Flood Authority Planning would be undertaken to inform the methodology of this bespoke geomorphological assessment.	To minimise the impacts to geomorphology of watercourses. To ensure the DCO Proposed Development is WFD compliant	Construction Contractor(s)
<b>D-WR-065</b>	Geomorphological and ecological monitoring of the permanent works would be carried out, post construction, to ensure the integrity of the reinstated channel and to identify any early intervention that may be required to ensure no deterioration in WFD status. Type, duration and frequency of monitoring is to be determined through the development of the	To minimise the impacts to geomorphology of watercourses. To ensure the DCO Proposed Development is WFD compliant	The Applicant

Unique ES Reference	Action/Commitment/Mitigation (including Monitoring Requirements)	Objective	Organisation/Individual Delivering Measure
	geomorphological assessment and detailed design, and in consultation with NRW and FCC LLFA. Adaptive mitigation would be implemented to maintain the integrity of the reinstated channel		
<b>D-WR-070</b>	The contractor will develop and implement a Surface Water Management and Monitoring Plan to ensure appropriate monitoring of water quality is carried out before, during and after the construction works and that adaptive mitigation is implemented if monitoring shows that existing mitigation measures are not deemed sufficient.	To minimise the impact to surface water bodies during the construction stage	The Applicant / Construction Contractor(s)
<b>D-WR-077</b>	A schedule of general inspections and principal inspections of the Alltami Brook crossing will be carried out to determine condition and identify any potential maintenance requirements. Inspections will be undertaken following an intense rainfall event or heatwave to monitor any damage and implement appropriate mitigation as necessary as stated within the DMRB BD 63/17 guidance	To assess the condition of assets and watercourses, and to minimise risk and impact of intense rainfall events or heatwaves.	The Applicant

