

Northern Gateway (JPA1.1)

Outline Planning Application

Water Framework Directive Screening Report



Northern Gateway, JPA1.1
784-B048805

Water Framework Directive Assessment - Screening

Final

Version 005

Northern Gateway Development Vehicle

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

- 1.1.1 Tetra Tech Ltd has been commissioned by Northern Gateway Development Vehicle (the 'Client') to prepare a Water Framework Directive (WFD) Assessment to support the environmental impact assessment (EIA) for the Project for Assessment and Application Boundary.
- 1.1.2 The Project for Assessment is the comprehensive project considered for EIA purposes only and the planning application and associated Application Boundary for which planning consent is sought is much smaller and is defined in Appendix A.
- 1.1.3 The report has been prepared for the stated purpose only. Due to the need to ensure that the WFD and EIA processes are coordinated, the WFD Screening has considered the Project for Assessment only. The Project for Assessment Boundary includes for all potential temporary and permanent works which may take place within the boundary. By assessing the Project for Assessment, all issues associated with the Application Boundary have been fully addressed as part of this.
- 1.1.4 The Assessment Boundary extends to 570.05 ha, is situated north of Manchester, north of the M62, Heywood, M25 2RS. The EIA Assessment plan can be seen in Appendix A.

1.2 REQUIREMENT FOR THIS REPORT

- 1.2.1 The purpose of a Water Framework Directive (WFD) Assessment is to ensure that compliance with the objectives set out in the Water Framework Directive are considered for any proposed development that has the potential to impact a water body. A WFD assessment will assess the risk to impact on waterbodies with regards to specific elements and objectives. This assessment will also review the opportunities for the proposed development to enhance the river environment and work with BNG requirements to contribute to the achievement of the environmental objectives to meet 'Good Status'..
- 1.2.2 A WFD assessment is required only where there are activities proposed that have the potential to impact the status of the waterbody. Due to the size of the Project for Assessment, and the proximity of some development plots to watercourses, it is likely that a WFD assessment will be required for certain areas/activities. This report aims to provide a high-level screening of the waterbodies, activities and receptors that would require further consideration and screen out prior to Reserved Matters those that are not relevant within any area of the Project for Assessment. Thereby reducing the assessment required within the Reserved Matters applications and highlighting those impacts that will be required to be assessed within each of the Reserved Matters applications for the plots.

1.3 SCOPE OF THE REPORT

- 1.3.1 This report will screen the appropriate waterbodies, activities and receptors within the Project for Assessment boundary to be carried forward for potential inclusion within the plot specific WFD Assessments that will be produced for the Reserved Matters applications.

1.3.2 This WFD screening report will:

- Outline the proposed development and present the current baseline data for the water bodies that may be impacted.
- Consider potential activities and the potential receptors for impacts across the Project for Assessment.

1.3.3 To address the compliance of the site with the WFD, the resultant plot site specific WFD assessments, to be delivered at reserved matters stage, will:

- Consider impact of activities within the proposed development on the environmental receptors within the water body.
- Propose mitigation where detrimental impacts are identified.
- Evaluate the proposed development against the mitigation measures and environmental objectives set out for the water body in the river basin management plan (RBMP).
- Assess the compliance of the proposed development with the environmental objectives of the Water Framework Directive.

1.3.4 The assessment will be undertaken in accordance with The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

1.3.5 Assessments will consider the commitments and contributing actions of The Irwell Catchment Partnership as outlined within The Irwell Catchment Plan¹.

1.4 LIMITATIONS OF THIS REPORT

1.4.1 This report has been prepared by Tetra Tech Ltd on behalf of the Client in connection with the scope of the report as described in Section 1.3 above and taking into account the particular instructions and requirements set out in Tetra Tech's fee proposal and the Client's acceptance. It is not intended for and should not be relied on by any third party and no responsibility is undertaken to any third party.

1.4.2 Tetra Tech Ltd accepts no duty or responsibility (including in negligence) to any party other than the client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

1.4.3 This report cannot be reproduced without Tetra Tech's written consent.

¹ <https://catchmentbasedapproach.org/wp-content/uploads/2019/09/Irwell-Catchment-Plan-2019-2027.pdf>

2.0 ASSESSMENT APPROACH

2.1.1 The Water Framework Directive requires that environmental objectives be set for all water bodies (surface and ground).

2.1.2 The environmental objectives are outlined in Article 4 of the EU Directive 2000/60/EC (The Water Framework Directive) and are enforced in UK law under Article 13 of UK The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. These objectives are defined as:

- Prevention of deterioration of the status of all waterbodies.
- Protection, enhancement and restoration of all waterbodies with the aim of achieving good surface water status.
- Reversing any significant and sustained upward trends in pollutant concentrations in groundwater.
- Cessation of discharges, emissions and losses of priority hazardous substances into surface waters.
- Progressively reducing the pollution of groundwater and preventing or limiting the entry of pollutants.

2.1.3 The WFD aims for all waterbodies to achieve at least ‘good ecological status’ (or for heavily modified waterbodies, to achieve ‘potential for good status’) within a specific timeframe. The progress is monitored through the biological, chemical and hydromorphological quality elements listed in Table 2-1. The status of the biological and hydromorphological elements are determined to be either ‘Poor’, ‘Moderate’, ‘Good’ or ‘High’ and the chemical status is classed as either ‘Good’ or ‘Fail’. The overall status of a water body is determined by the lowest element status.

2.1.4 RBMPs produced by the Environment Agency (EA) lay out the measures to be followed for each water body within the river basin to achieve the environmental objectives and attain good status.

2.1.5 Any proposed development that has the potential to impact environmental quality elements (‘receptors’) in the water body must be assessed to determine whether it will prevent or delay the achievement of the environmental objectives. If any detrimental impacts are identified mitigation options should be proposed.

2.2 ASSESSMENT STAGES

2.2.1 The WFD assessment process is undertaken in four sections: Screening, Scoping, Impact Assessment and Compliance Assessment². The processes within each stage are detailed in Figure 2-1 below.

2.2.2 The first stage, Screening, has been carried out at the Outline Application stage, to provide an overview of the potential impacts that could occur over the development of the Project for Assessment. This stage will allow for activities and receptors to be screened out early on in the

² The assessment process stated within the guidance for NSIP projects has been considered as an appropriate methodology to apply to this large scale project. Accessed from: [Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive - GOV.UK](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/614442/Nationally_Significant_Infrastructure_Projects_Advice_on_the_Water_Framework_Directive.pdf)

process where the principles enshrined in the Development Specification (Chapters 4 and 5 of the ES) will mitigate any impacts across the Project for Assessment.

2.2.3 The subsequent stages will be carried out on a plot-by-plot basis and will retain only the activities and receptors that are relevant to the plots within the Reserved Matters application.

2.2.4 The following legislation and guidance has informed this assessment:

- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017³
- Water Framework Directive risk assessment (Environment Agency 2016)⁴
- Nationally Significant Infrastructure Projects: Advice on the Water Framework Directive (Planning Inspectorate 2024)⁵

³ <https://www.legislation.gov.uk/uksi/2017/407/contents>

⁴ https://assets.publishing.service.gov.uk/media/5a819cd7ed915d74e33ff25a/LIT_10445.pdf

⁵ <https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-the-water-framework-directive#overview-of-the-wfd-assessment-process>

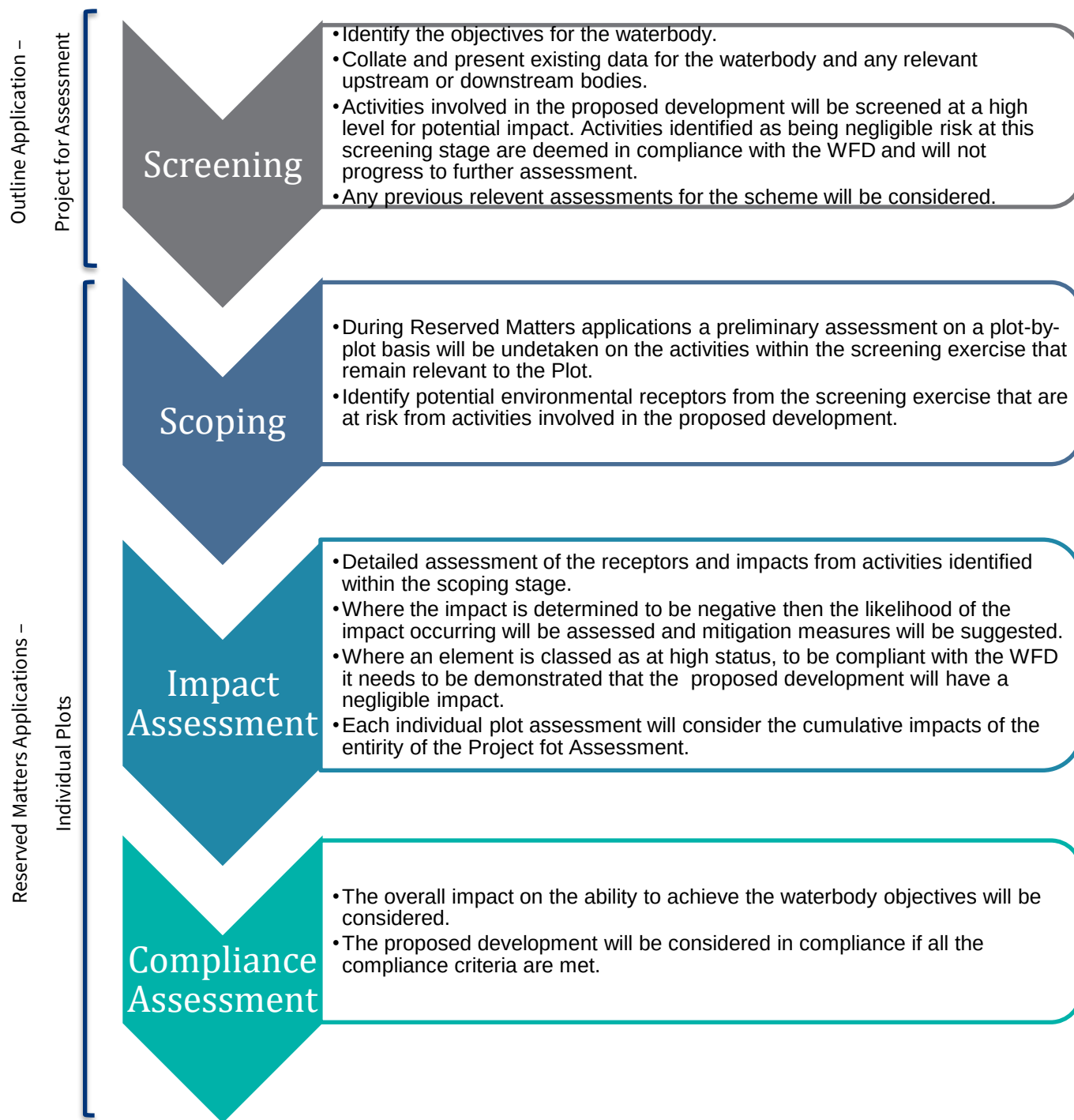


Figure 2-1: Assessment process

2.2.5 The environmental receptors included in a WFD Assessment are shown in Table 2-1.

Table 2-1: Environmental quality receptors

Biological	
Fish	
Phytoplankton	
Benthic Macroinvertebrates	
Macrophytes and phytobenthos	
Invasive Non-Native Species (INNS)	
Hydromorphological	
Hydrological regime:	
▪ Quantity and dynamics of flow ▪ Connection to groundwater	
River continuity	
Morphological conditions:	
▪ River depth and width variation ▪ Structure and substrate of riverbed ▪ Riparian zone structure and condition	
Physico-chemical	
General conditions	
▪ pH ▪ Temperature ▪ Dissolved oxygen ▪ Phosphate ▪ Ammonia	
Chemical	
Priority substances and priority hazardous substances	
Pollutants	

2.2.6 The decision to screen out any receptors from the impact assessment will be clearly justified.

2.2.7 Within the Impact Assessment the potential effects to the receptors will be classified as in Table 2-2 below. The impact magnitude will be based on expert judgement and the classifications have been determined based on their alignment to the WFD compliance objectives.

Table 2-2: Magnitude of effects on waterbody

Effect	Criteria
Substantial positive	Substantial improvement in the waterbody's existing physico-chemical elements and increase in number of passing chemical elements resulting in a substantial change in current WFD physico-chemical status at a waterbody scale. A substantial beneficial change in biological and hydromorphological characteristics of the water feature which would affect the water body's existing WFD ecological status. Project contributes to the delivery of one or more RBMP mitigation measures on a WFD waterbody and therefore substantially contributes to meeting target status.
Moderate positive	Localised beneficial impact on the waterbody's physico-chemical, biological or hydromorphological elements resulting in a moderate localised improvement to current WFD status but insufficient to affect status at a waterbody scale. Project aligns with the delivery of one RBMP mitigation measure on a WFD waterbody and therefore moderately contributes to meeting target status.
Negligible	No discernible change in the waterbody's chemical, biological and hydromorphological elements. No discernible movement towards or away from the target WFD status. No discernible cause and effect between the project and RBMP mitigation measures.
Moderate negative	Localised adverse impact on the waterbody's physico-chemical, biological or hydromorphological elements resulting in a moderate localised reduction to current WFD status but insufficient to affect status at a waterbody scale. Project conflicts with the delivery of one RBMP mitigation measure on a WFD waterbody and/or therefore moderately increases pressure in meeting target status.
Substantial negative	Substantial reduction in the waterbody's existing failing physico-chemical elements and the addition of new failing chemical elements resulting in a substantial change in current WFD physico-chemical status at a waterbody scale. A substantial adverse change in biological and hydromorphological characteristics of the water feature which would affect the water body's existing WFD ecological status. Project conflicts with the delivery of more than one RBMP mitigation measures on a WFD waterbody and/or substantially increases pressure in meeting target status.

2.2.8 The proposed development will be considered in compliance if all the compliance criteria in Table 2-3, which are aligned with the environmental objectives set out in The Water Environment Regulations 2017, are met to a high level of confidence:

Table 2-3: WFD compliance criteria

A. The proposed development does not cause a deterioration in status for an environmental quality element
B. The proposed development will not negatively affect any elements of high status.
C. The proposed development does not cause a significant localised impact on an element
D. The proposed development does not prevent the water body from achieving good surface water or groundwater status.
E. The proposed development does not contribute to the pollution of surface waters or groundwater.
F. As required, the proposed development will reduce pollutant impacts upon WFD designated waterbodies. Whereby the presence of priority hazardous substances is identified these will be controlled, removed and / or prevented from discharging to surface or ground.
G. The proposed development will not include changes that will permanently prevent the environmental objectives being met in other waterbodies.
H. The proposed development complies with the RBMP objectives.
I. There are no residual risks following the implementation of the mitigation measures.

2.3 SUPPORTING INFORMATION AND DATA USED

2.3.1 The status classifications are obtained from the Environment Agency Catchment Data Explorer latest data from 2022. This is considered to be the current best estimate. This data will be used as the baseline in assessing the potential for status deterioration.

2.3.2 Cycle 3 RBMPs are aligned with the UK guidance: The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, following the end of the transition period of UK's withdrawal from the EU in January 2021. This assessment has considered the objectives set in the UK guidance.

2.3.3 The following reports and figures have been used to inform this assessment and will inform the forthcoming Induvial Plot assessments and should be read in conjunction with these accordingly:

- EIA Assessment Plan 1: Uses, Fig. 4.2 Rev D, Turley, 2024
- Flood Risk Assessment P01, Tetra Tech, 2024
- Fluvial Modelling Report P01, Tetra Tech, 2024
- Phase 1 Geological Desk Study, Tetra Tech, 2025
- Ecological Studies, Tyler Grange, 2025
- Drainage Strategy, Tetra Tech, 2025

3.0 SCREENING

3.1 BASELINE CONDITIONS

3.1.1 The Project for Assessment lies within the Northwest River basin in the Roch Irk Medlock Operational Catchment as shown in Figure 3-1.

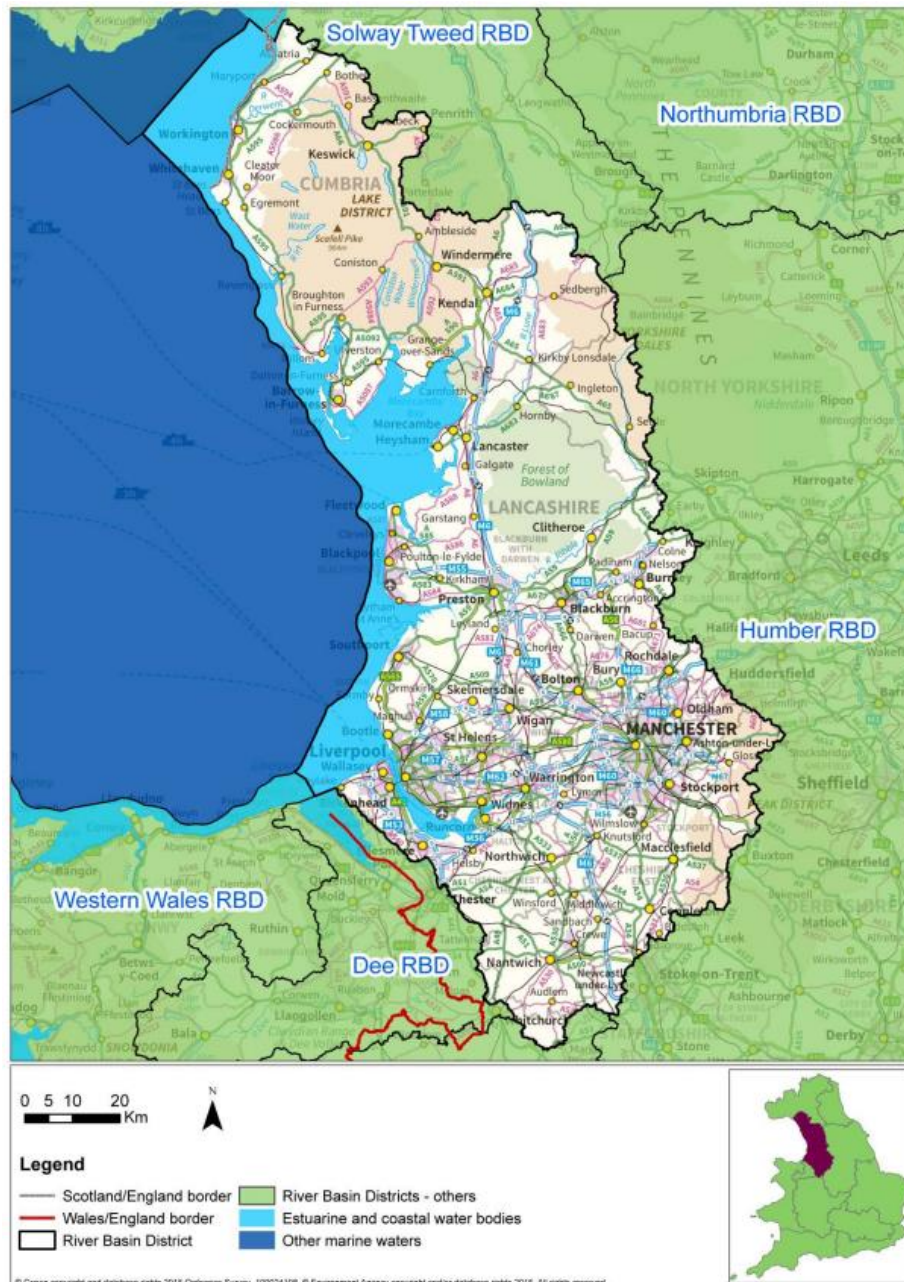


Figure 3-1: North West River Basin District

3.1.2 The Project for Assessment is situated within the Whittle Brook water body, with the catchment flowing into the downstream water body, Roch (Spodden to Irwell) as defined by Environment Agency's Catchment Data Explorer (Figure 3-2). The site falls within the Whittle Brook water body. There are no upstream waterbodies.

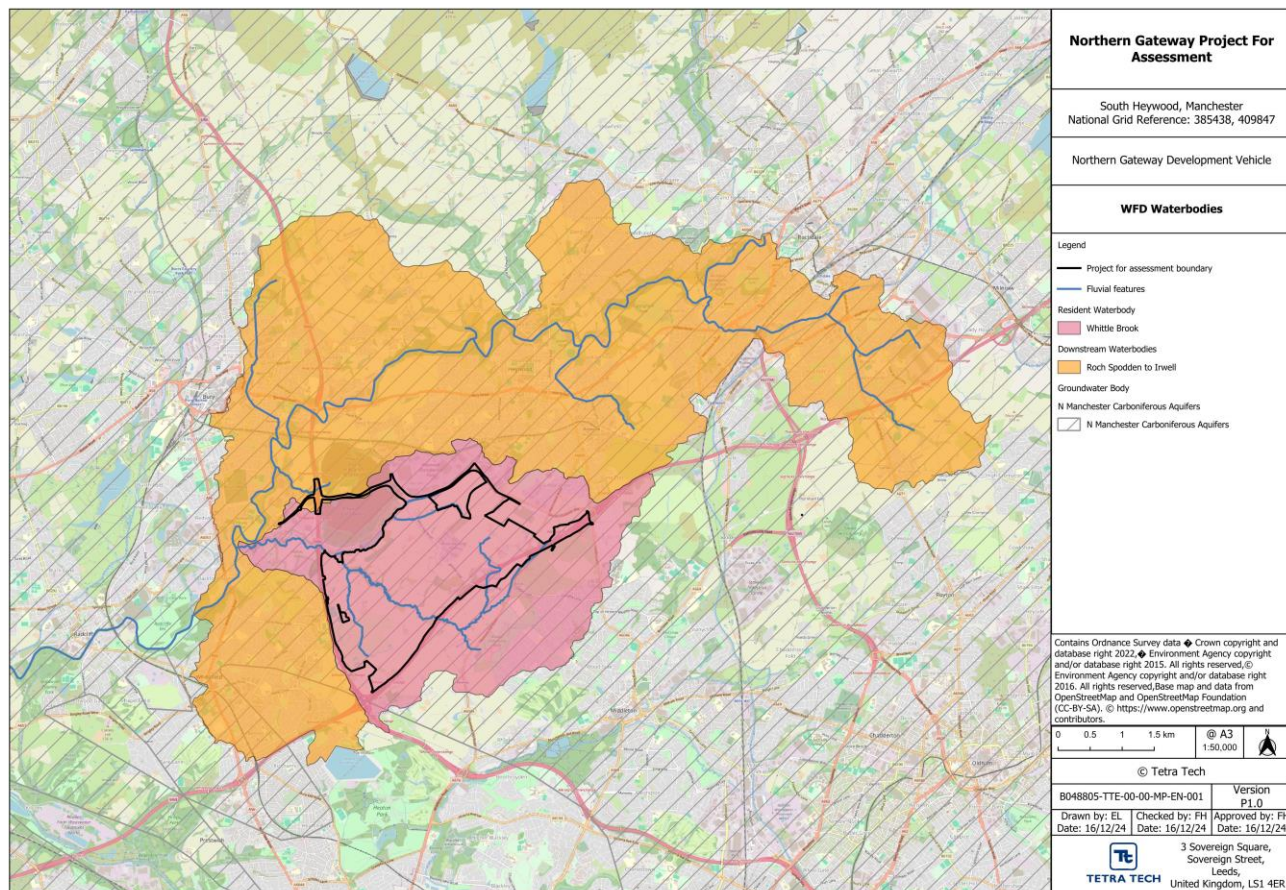


Figure 3-2: WFD Waterbodies

3.1.3 This catchment is managed by the North West RBMP, which sets out measures at a river basin level and local level to achieve good status for the water bodies within the catchment.

3.1.4 The North West RBMP produced in 2022 provides a broad overview of environmental objectives to be achieved within the catchment. Cycle 3 is the most current RBMP, this sets out specific objectives for improvement up until 2027⁶. These measures identify the more localised objectives that can be applied and therefore will inform the compliance assessment.

⁶ [Summary of the measures planned for each river basin district.xlsx \(live.com\)](https://www.live.com)

Resident Waterbody

3.1.5 The waterbody that the site will reside within is the Whittle Brook (Irwell)⁷ as summarised in Table 3-1.

Table 3-1: Whittle (Irwell) attributes.

Attribute	Description
Water Body name	Whittle Brook (Irwell)
Water Body ID	GB112069061250
Water Body Type	River
Hydromorphological designation	Not designated artificial or heavily modified
Length	8.25 km
Catchment area	15.766 km ²
Current overall status	Moderate ecological status
Overall status objective	Good ecological status (2027)
Reasons for not achieving good potential	- Diffuse source pollution - Riparian/in-river activities (including bankside erosion), - Poor nutrient management, - Poor soil management, - Urbanisation - urban development, - Poor Livestock Management)

3.1.6 The most recent classifications for environmental receptors in the Whittle Brook (Irwell) water body from 2022 are shown in Table 3-2.

Table 3-2: Whittle Brook (Irwell) classifications

		Current Status	Objective
Ecological	Biological quality elements	Moderate	Good by 2027
	Hydromorphological supporting elements	Supports Good	Supports good
	Physico-chemical quality Elements	Good	Good by 2027
Chemical	Chemical excluding uPBTs	Good	Good by 2063
	Chemical including uPBTs	Fail	

3.1.2 Elements that are currently classified as being at 'High' status are:

- Dissolved oxygen

⁷ <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061250>

- Temperature
- pH

3.1.3 It should be noted that the hydromorphological classification defaults to ‘Supports Good’ as the watercourse has been subject to historic modification.

Downstream Waterbodies

3.1.7 The downstream catchment is the Roch (Spodden to Irwell) Water Body⁸ beginning approximately 1.6 km downstream from the site with the relevant attributes summarised in Table 3-3.

Table 3-3: Roch (Spodden to Irwell) attributes

Attribute	Description
Water Body name	Roch (Spodden to Irwell)
Water Body ID	GB112069064600
Water Body Type	River
Hydromorphological designation	Heavily modified
Length	21.658 km
Catchment area	4257.36 ha
Current overall status	Moderate ecological status
Overall status objective	Moderate ecological status (2015)
Reasons for not achieving good potential	• Point source (Continuous sewage discharge) • Diffuse source (Urbanisation) • Physical modification

3.1.8 The most recent classifications for environmental receptors in the Roch (Spodden to Irwell) water body from 2022 are shown in Table 3-2.

Table 3-4: Roch (Spodden to Irwell) classifications

		Current Status	Objective
Ecological	Biological quality elements	Moderate	Good by 2027
	Physico-chemical quality Elements	Good	Moderate by 2015
Chemical	Chemical excluding uPBTs	Fail	Good by 2063
	Chemical including uPBTs	Fail	

Groundwater Body

⁸ <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069064600>

3.1.9 The groundwater catchment beneath the site is the Northern Manchester Carboniferous Aquifers⁹. The relevant attributes summarised in Table 3-5.

Table 3-5: Northern Manchester Carboniferous Aquifers attributes

Attribute	Description
Water Body name	Northern Manchester Carboniferous Aquifers
Water Body ID	GB41202G101800
Water Body Type	Groundwater
Groundwater area	62920.439 ha
Current overall status	Poor status
Overall status objective	Good status by 2027

3.1.10 The most recent classifications for receptors in the Northern Manchester Carboniferous Aquifers water body from 2019 are shown in Table 3-6.

Table 3-6: Northern Manchester Carboniferous Aquifers classifications

		Current Status	Objective
Quantitative		Good	
Chemical	Chemical Dependant Surface Water Body Status	Poor	Good by 2027
	Chemical Drinking Water Protected Area	Good	
	Chemical GWDTEs test	Good	
	Chemical Saline Intrusion	Good	
	General Chemical Test	Good	

3.1.11 The reason for not achieving good status is defined as point source pollution from Abandoned mine workings from dependant surface water bodies.

3.1.12 A review of the British Geological Survey (BGS)¹⁰ online geological mapping (1:50,000 scale) indicates the Application Boundary is underlain by varied superficial deposits including:

- Head which is described as comprising clay, silt and gravel aligned with Pilsworth Clough, Brightley Brook and Whittle Brook;
- Lacustrine deposits which are described as comprising sand and gravel within most of Plot F and a small area of Plot E;

⁹ <https://environment.data.gov.uk/catchment-planning/WaterBody/GB41202G101800>

¹⁰ British Geological Survey (2019), Geology of Britain Viewer, https://geologyviewer.bgs.ac.uk/?_ga=2.182714982.1561700490.1700054154-1558315947.1700054154

- Glaciofluvial ice contact deposits, Devensian which is described as comprising sand and gravel within areas of Plot C, D and E;
- Till, Devensian described as comprising Diamitcon within the majority of the Application Boundary.

3.1.13 The Application Boundary is shown to be further underlain varied bedrock deposits including:

- Pennine Lowe Coal Measures which are described as comprising mudstone, siltstone and sandstone across almost the entire Application Boundary;
- Wood Head Hill Rock which is described as comprising sandstone in a small area of Plot A and B;
- Rough Rock which is described as comprising sandstone in a small area of Plot A and B.

3.1.14 A review of Defra's online 'MAGIC' website indicates that superficial geology beneath central areas of the Application Boundary is classified as a Secondary A aquifer. These comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers.

3.1.15 Superficial geology beneath the rest of the Application Boundary is classified as a Secondary Undifferentiated aquifer. These are aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. The value of the aquifer has not been quantified at this time.

3.1.16 The Application Boundary is further underlain by bedrock deposits which are classified as Secondary A. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

3.1.17 Ground investigations are scheduled to be undertaken by Tetra Tech to establish the groundwater conditions within the Application Boundary in Spring 2025. This will provide site-specific information for the plots on the groundwater levels.

3.1.18 There are no Groundwater Dependant Terrestrial Ecosystems (GDTW) within 1km of the site.

3.2 PREVIOUS STUDIES

3.2.1 In 2021, Greater Manchester Combined Authority commissioned JBA to undertake a River Corridor Study¹¹ of the Whittle Brook Catchment. This included a hydromorphological and Biodiversity assessment of the Whittle Brook, Brightley Brook and Castle Brook. Within this desk-based study, the geomorphological features of the brooks were catalogued providing an understanding of the baseline hydromorphology of the Assessment Boundary.

3.2.2 It was concluded that three watercourses are predominantly single thread, meandering channels and historic mapping showed that certain parts of the watercourse have been modified for industry. Fine sediment was common across the three brook catchments. The sediment input was determined to be largely fine silts for the Brightley brook, and the Castle brook was a result of

¹¹ Natural Course River Corridor Study: Whittle Brook Catchment, May 2021, JBA on behalf of Greater Manchester Combined Authority (Appendix B)

anthropogenic sources. The Whittle brook was concluded to have a greater degree of activity with erosional processes dominant in the lower reaches providing the main source of sediment into the watercourse.

3.2.3 The report also identified poor floodplain connectivity, culverting, pollution and invasive non-native species (INNS) including Himalayan Balsam being present throughout with occasional patches of Rhododendron and a single area of Japanese Knotweed.

3.2.4 The report provided recommendations for the improvement of the WFD status of the waterbody. These recommendations included the following:

Whittle Brook	• Increased floodplain connectivity • Channel narrowing and bed raising • Formation of backwater habitat • INNS management • Riparian buffer planting • Wet woodland enhancement • Weir removal • Removal of brick channel lining
Brightley Brook	• Riparian Buffer planting • Culvert removal and replacement with single span bridge • Introduction of natural processes (such as woody debris introduction) • Fill in flood relief channel • Weir removal • Winter crop cover • Bank regrading, stability and planting • Woodland planting • INNS management
Castle Brook	• Two-stage channel and regrading of banks • Channel narrowing and bed raising

3.2.5 Further details on the recommendation highlighted above can be found in the River Corridor Study¹² which is presented in Appendix B. This provides details on specific interventions within each watercourse.

3.2.6 The Natural Course River Corridor Study also produced an Ecosystem Services Assessment Scoping Report¹³. This concluded that the opportunities above would support the following ecosystem services across all three watercourses:

- Food
- Water Supply
- Fish
- Air Pollutant Removal
- Carbon Reduction
- Flood Regulation
- Noise Reduction
- Temperature Regulation
- Recreation
- Amenity and Landscape
- Biodiversity
- Soil
- Water Quality

3.2.7 The Natural Course baseline study is considered to remain relevant to support the Project for Assessment, and therefore, no additional baseline morphology surveys are proposed at this time. Further plot-specific hydromorphological studies may be required to support the WFD Impact Assessments for individual plots at the reserved matters stage.

3.2.8 Further to the above, the Natural Flood Management: Initial Assessment prepared by Norbury, 2021¹⁴ will inform this screening. This report identifies areas where potential NFM measures can be implemented to provide a level of mitigation against flood risk at downstream properties. Some measures presented within this report are contradictory to those within the Natural Course Study (namely, Norbury suggests the removal of trees and vegetation to allow for multiple braided channels to emerge, whereas Natural Course suggests the addition of riparian planting to secure banks and prevent erosion). It should be noted that the aim of the two studies differ and that Natural Course was produced to identify opportunities to improve the WFD status of the waterbody. Some

¹² Natural Course River Corridor Study: Whittle Brook Catchment, May 2021, JBA on behalf of Greater Manchester Combined Authority (Appendix B)

¹³ Natural Course River Corridor Study: Ecosystem Services Assessment Scoping Report, June 2021, JBA on behalf of Greater Manchester Combined Authority (Appendix C)

¹⁴ Natural Flood Management: Initial Assessment, August 2021, Michael Norbury (Appendix D)

suggestions within the Norbury report align with the Natural Course suggestions, such as the introduction of woody debris within Whittle Brook and the principle of not culverting watercourses.

3.3 PROPOSED DEVELOPMENT

Scheme Design

- 3.3.1 The scheme will include enhancement of the open space to the north including the Brightley Brook corridor, enhancement of other brook corridors including Whittle Brook corridor and further ecological mitigation.
- 3.3.2 The alignments of Hollins Brook, Whittle Brook, Castle Brook, Brightly Brook / Pilsworth Clough and parts of the un-named water course will be retained in their existing alignments within the Assessment Boundary. Their retention is accommodated within the following two areas:
- Wetland Habitat Corridor – there will be limited development within this Corridor. This reflects the necessary flood risk mitigation. Some works will be required within this Corridor, albeit limited to structural interventions to enable access across brooks (bridges). This allows the retention of the majority of the ecological habitats within this Corridor.
 - Landscape Mitigation – This is beyond the Wetland Habitat Corridor on either side. No buildings will be built within this Zone. However, changes in ground levels, parts of the overall drainage strategy, active travel, highways and new landscaping will be required in this area.
- 3.3.3 The existing agricultural drainage ditches / tributaries of brooks may require removal but as their purpose will be replaced by a new surface water drainage strategy, their existing purpose will be removed. Most other linear water features will be removed to allow for reprofiling of the Assessment Boundary.
- 3.3.4 It is noted that these features may have an ecological value or being serving a habitat purpose. Therefore, appropriate survey work to establish the ecological value of these ditches and tributaries will be undertaken as required. The results of these surveys will inform any appropriate mitigation to be implemented.
- 3.3.5 The implementation of the new surface water drainage strategy may result in minor changes to the catchments within the Assessment Boundary as the plots will be designed to discharge to the closest watercourse where possible. It is expected that these will be small and the overall quantity of flows within the main watercourses in the catchment will have no substantial change.
- 3.3.6 Much of the habitat across the Assessment Boundary is of very limited botanical diversity and intensively farmed with insecticides, thus reducing the importance of the Site for aquatic ecological receptors such as invertebrate populations.
- 3.3.7 To allow primary and secondary access routes across the Assessment Boundary it is intended that bridge spans/crossings will be implemented on a section(s) of all Brook(s). There is no intention to culvert the Main Rivers within the project for assessment in the interests of flood management and biodiversity.

- 3.3.8 Where water features are to be retained, they will be afforded protection throughout the construction stage with adherence to best practice measures set out by Pollution Prevention Guidance (PPG), the EA permitting system and the LLFA section 23 Land Drainage Act 1991.
- 3.3.9 A temporary surface water drainage will be installed as necessary during construction to mitigate flood risk and sediment loading and, where possible will align with the permanent drainage solution.
- 3.3.10 The surface water strategy has, where possible, attempted to maintain the existing catchment regimes, however due to the scale and topography complexities, this hasn't been possible but changes to watersheds will be mitigated through Sustainable Drainage Design and water management.
- 3.3.11 The surface water drainage strategy provides space within the Landscape Mitigation for some attenuation and for further attenuation within the Developable Areas.
- 3.3.12 Ground investigations will be undertaken for some of the Application Plots to determine the absence/presence, type and distribution of any forms of ground contamination and to establish the groundwater conditions. Preliminary findings suggest that there is likely to be contamination within the Project for Assessment linked to the abandoned mine workings within the area. This has the potential to impact the baseline soil and water quality at the site.
- 3.3.13 The principal SuDS attenuation features are likely to be located close to the brook corridors but outside the extent of the current and future flood zones (Wetland Habitat Corridors). Additional attenuation and SuDS treatment for water quality is likely to be required within the Plots and this has been considered during the development of the Plans. Further to this, the proposed SuDS features are not likely to be designed to infiltrate due to the presence of mine workings within the Project for Assessment, however this will be determined on a Plot-by-Plot basis at the Reserved Matters stage.
- 3.3.14 The Plots will provide a suitable level of water quantity and quality management, the principles of which will be agreed with the contributing statutory undertakers.
- 3.3.15 The opportunities for enhancements to improve the status of the waterbody discussed in Section 3.2 will be further considered on a plot-by-plot basis at the reserved matters stage where appropriate. A review of the interventions recommended within the Natural Course River Corridor Study will be undertaken at the detailed design stage to ensure that delivery of enhancement can be maximised. These enhancements would only apply to plots adjacent to a watercourse and will be dependant on the existing and proposed conditions within the plot. The following are examples of measures that may be appropriate and could be considered at the design stage:
- Riparian buffer planting – There is potential for this to occur within the Landscape Mitigation. This will improve bank stability and reduce the erosion risk during times of high energy flow. This will also improve the quality of runoff through infiltration, thereby limiting diffuse pollution entering the watercourse. This presents an opportunity for wildlife corridors to be established and improved.
 - Introduction of natural processes – there is potential to add woody debris to the watercourses at strategic locations which can capture gravels and silts, aiding the development of pool riffle sequences within the watercourse thus creating improved habitats for fish and invertebrates

- Bank stability and planting – there is potential to plant native species within the Wetland Habitat Corridor where the river bank has become unstable. This will improve the condition of the bank and reduce the fine sediment input into the watercourse improving the water quality and hydromorphic condition.
- Invasive species management – The removal of Himalayan Balsam, Japanese Knotweed and Rhododendron is part of the proposed development. This will reduce the areas of loose soils which can lead to point source pollution and also allow for native plant species to replace these INNS.
- Backwater habitat creation and wet woodland – Where wet woodland is already located on site near to a watercourse, there is the potential to re-connect these to the watercourse, forming a backwater habitat. There is also an option of encouraging high flows onto areas of wet woodland located on river terraces. This will provide additional diverse habitats for fish, invertebrates and macrophytes and increase the biodiversity value of the site.

3.4 SCREENING CONCLUSIONS

3.4.1 The following waterbodies are in the vicinity of the Assessment Boundary and are screened for inclusion within the impact assessment.

Table 3-7: Waterbody screening

Waterbody	Screened In/Out
Whittle Brook (Irwell)	IN. This is the resident waterbody, and the watercourse bounds the Application Boundary. This waterbody encompasses all watercourses within and adjacent to the Application Boundary.
Roch (Shodden to Irwell)	OUT. The downstream waterbody is approximately 2km downstream. Any potential effects from activities screened in below will be dispersed by this point.
Northern Manchester Carboniferous Aquifers Groundwater body	IN. The presence of Secondary A aquifers beneath the site means there is the potential for activities to interface with groundwater, and therefore this water body should be screened in. .

3.4.2 The following activities have been identified as having the potential to interact with the waterbody and therefore will be screened for inclusion within the impact assessment.

Table 3-8: Activity screening

Activity	Screened In/Out
Construction	
Construction of outfall pipes into onsite watercourses	IN
Construction of crossings/bridges within Wetland Habitat Corridor and/or Landscape Mitigation	IN
Construction of drainage features including attenuation features within the Landscape Mitigation	IN
Temporary storage of materials	OUT. All substantial storage of all materials is assumed to be outside of both the Wetland Habitat Corridors and Landscape Mitigation.
Dewatering	IN. Dewatering of excavations may be required during development either due to the presence of groundwater or due to rainwater ponding. There is potential for impact on the water quantity within the underlying aquifer and potential impacts on water quality from contamination.
Foundation and Stabilisation works	IN. PLOT DEPENDANT. There is potential of mobilisation of contamination related to the shallow mine workings.
Operation	
Crossings/bridges within Wetland Habitat Corridor and/or Landscape Mitigation	IN
Drainage features within the Landscape Mitigation	IN
Enhancements of the brook corridors	IN
Discharge of surface water to a surface waterbody	IN. This applies to discharges of all surface waters, including from outfalls and overland flows.

Discharge of surface water to ground	IN. PLOT DEPENDANT. Proposed SuDS features are not likely to be designed to infiltrate and therefore would not interface with groundwater, however this will be determined on a Plot-by-Plot basis in the Reserved Matters stage.
Removal of agricultural drainage ditches	IN. Appropriate surveys will be undertaken to establish the ecological value of these linear features, if required as part of the ecological assessment.
Changes to the hydrological regime due to the delineation of catchments through the surface water drainage strategy	IN. Catchments will be identified to mimic natural hydrological regimes as closely as possible. Further studies will be carried out where required if this is not possible.
Presence of foundation structures	IN. Potential impacts groundwater flow.
Additional activities that may physically modify the watercourse	IN. Any activities that have not been identified at this stage but have the potential to result in modifications to the watercourse will be considered.
Proposed enhancements	IN. The enhancements discussed within Section 3.3 have the potential to alter the status of the waterbody. This is expected to be a beneficial change and will be assessed.

Table 3-9: Receptor screening

Receptor	In/Out
Biological	
Fish	IN. PLOT DEPENDANT. Some activities may have potential impacts on aquatic biological receptors during construction or operation. These activities will not occur all plots and not all plots will have ecological value that requires assessment. Therefore, these receptors may be required to be considered within plot-specific assessments.
Phytoplankton	
Benthic Macroinvertebrates	
Macrophytes and phytobenthos	
Invasive Non-Native Species (INNS)	IN. The construction activities have the potential to have an impact on the spread of INNS and instances of INNS were noted in previous baseline studies undertaken. Therefore, this receptor has been screened in.

Hydromorphological	
Quantity and dynamics of flow	IN. PLOT DEPENDANT. Designed mitigation includes discharge rates set at greenfield rates for all plots. For some plots there is the potential for activities involved in the construction of crossings to have an impact on the quantity of flows entering the waterbody should there be structures within the channel.
Connection to groundwater	IN. PLOT DEPENDANT. Where there are activities proposed that will interface with groundwater .
River continuity	IN. PLOT DEPENDANT. Screened activities have the potential to cause impacts on longitudinal or latitudinal continuity of the waterbody in plots where there are construction activities associated with structures within the channel.
River depth and width variation	IN. PLOT DEPENDANT. Screened activities, such as the construction of bridges/crossings or structures within the channel, have the potential to cause changes to the river depth and variation within the waterbody.
Structure and substrate of riverbed	IN. PLOT DEPENDANT. Bridges/crossings or structures within the channel can have the potential to cause changes to the structure and substrate of the waterbody from changes to the flow regime.
Riparian zone structure and condition	IN. Screened in as the proposed enhancements will have impacts on the riparian zone.
Physico-chemical	
General conditions pH Temperature Dissolved oxygen Phosphate Ammonia	IN. Screened in for both surface water and groundwater bodies as the proposed activities have the potential to have impacts on physico-chemical receptors.
Chemical	
Priority substances and priority hazardous substances	IN. Screened in for both surface water and groundwater bodies as construction and operational activities have the potential to impact the Chemical status of waterbodies.
Pollutants	

4.0 CONCLUSION

4.1.1 In conclusion, due to the nature of the development, a WFD assessment is not appropriate for the whole Project for Assessment. It is proposed that the following are screened in and will require consideration within plot-by-plot WFD assessments for the Reserved Matters application where appropriate:

- Waterbody:
 - Whittle Brook (Irwell)
 - Northern Manchester Carboniferous Aquifers Groundwater body
- Activities:
 - Construction of outfall pipes into onsite watercourses;
 - Construction of crossings/bridges within Wetland Habitat Corridor and/or Landscape Mitigation;
 - Construction of drainage features including attenuation features within the Landscape Mitigation;
 - Dewatering during construction;
 - Foundation and Stabilisation works during construction;
 - Operation of crossings/bridges within Wetland Habitat Corridor and/or Landscape Mitigation;
 - Operation of drainage features within the Landscape Mitigation;
 - Operation of enhancements of the brook corridors;
 - Discharge of surface water to a surface waterbody during operation;
 - Discharge of surface water to ground;
 - Removal of agricultural drainage ditches;
 - Changes to the hydrological regime due to the delineation of catchments through the surface water drainage strategy
 - Presence of foundation structures;
 - Additional activities that may physically modify the watercourse;
 - Proposed enhancements.
- All Receptors have been screened in. Many of these will be plot dependant based on the activities proposed on plot and the receptors present.

4.1.2 Previous studies undertaken within the catchment provide a suitable baseline for hydromorphological features and therefore, no further studies are required at this time. Further plot-specific hydromorphological studies may be required to support the WFD Impact Assessments for individual plots at the reserved matters stage. Additionally, appropriate survey work to establish the ecological value of these ditches and tributaries will be undertaken as required. The results of these surveys will inform any appropriate mitigation to be implemented.

4.1.3 The plot-by-plot WFD Assessments will take into consideration the impacts and effects of other plots within the Assessment Boundary to ensure that cumulative impacts are taken into account. Thereby ensuring enhancements work cohesively and cumulative adverse impacts are mitigated across the Project for Assessment as a whole.

APPENDIX A – EIA ASSESSMENT PLAN

APPENDIX B – NATURAL COURSE RIVER CORRIDOR STUDY: WHITTLE BROOK CATCHMENT, JBA

APPENDIX C – NATURAL COURSE RIVER CORRIDOR STUDY: ECOSYSTEM SERVICES ASSESSMENT SCOPING REPORT, JBA

APPENDIX D – NATURAL FLOOD MAANGEMENT: INITIALASSESSMENT SCOPING, MICHAEL NORBURY

