



Yeargate Limited

BIRCH BUSINESS PARK

Environmental Statement Volume I Chapter 12 –
Water Environment

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ABBREVIATIONS

AEP	Annual Exceedance Probability
BGS	British Geological Survey
CC	Climate Change
CIRIA	Construction Industry Research and Information Association
DCG	Design and Construction Guidance
EA	Environment Agency
FRA	Flood Risk Assessment
GMCA	Greater Manchester Combined Authority
LPA	Local Planning Authority
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
QBAR	Mean annual flood (greenfield runoff rate)
RMBC	Rochdale Metropolitan Borough Council
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
TSS	Total Suspended Solids
WFD	Water Framework Directive

GLOSSARY

Annual Exceedance Probability (AEP)	The probability that a flood event of a given magnitude will be equalled or exceeded in any given year, expressed as a percentage (e.g. 1% AEP = 1 in 100 year event).
Flood Zone 1	Land assessed by the Environment Agency as having a less than 1 in 1,000 annual probability of river or sea flooding. Defined in the NPPF as low probability.
Fluvial Flooding	Flooding caused by watercourses (rivers or streams) exceeding their channel capacity and overflowing their banks.
Geocellular Storage Tank	A modular, below-ground plastic cellular structure providing attenuation and temporary storage of surface water runoff.
Greenfield Runoff Rate	The rate at which surface water runoff occurs from an undeveloped (pre-development) site.
Ordinary Watercourse	Any watercourse that is not designated as a Main River. Maintenance responsibilities rest with the Lead Local Flood Authority or riparian landowner.
Main River	A watercourse designated by the Environment Agency as a Main River, subject to the permissive powers of the EA to maintain and improve.
QBAR	Mean annual flood peak runoff rate from a greenfield catchment.
Sequential Test	A risk-based planning tool used to steer development to areas with the lowest probability of flooding before considering development in higher risk zones.
SuDS Management Train	A hierarchy of drainage management techniques designed to incrementally reduce pollution, flow rates and volumes of stormwater discharge.
Water Framework Directive (WFD)	EU Directive 2000/60/EC (retained in UK law) requiring Member States to achieve good ecological and chemical status in all water bodies.
Water Quality	The chemical, physical and biological characteristics of water in relation to its suitability for a designated use or the health of aquatic ecosystems.

12 WATER ENVIRONMENT

12.1 INTRODUCTION

- 12.1.1. This chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Development upon hydrology, flood risk and drainage. This chapter has been produced by Ridge and Partners LLP on behalf of Yeagate Limited.
- 12.1.2. The assessment of hydrology, flood risk and drainage has established that the following additional mitigation measures are required:
- Implementation of a Construction Environmental Management Plan (CEMP) inclusive of a Construction Surface Water Management Plan (CSWMP) to manage surface water runoff and pollution risks during construction
 - Securing Environment Agency Environmental Permit consent for the proposed package treatment works prior to discharge of treated foul water to the unnamed Ordinary Watercourse.
- 12.1.3. The following residual effects have been identified:
- there is likely to be a direct, temporary, short-term **Minor Adverse** residual effect on the Ordinary Watercourse from construction surface water runoff, following implementation of the CSWMP (not significant).
 - there is likely to be a direct, permanent, long-term **Negligible Adverse** residual effect on the proposed buildings from all sources of flood risk, following implementation of the drainage strategy (not significant).
 - there is likely to be a direct, permanent, long-term **Minor Beneficial** residual effect on the Ordinary Watercourse and downstream Main River from reduced post-development surface water runoff rates (not significant).
 - there is likely to be a direct, permanent, long-term **Negligible Adverse** residual effect on the water quality of the Ordinary Watercourse from operational surface water runoff, following SuDS treatment train measures (not significant).
 - there is likely to be a direct, permanent, long-term **Negligible Adverse** residual effect on the Ordinary Watercourse from foul water discharge, following implementation of a consented package treatment works (not significant).
- 12.1.4. The following monitoring requirements have been identified:
- Standard CEMP compliance inspections during construction to verify implementation of pollution prevention and surface water management measures.
 - Routine maintenance inspections of SuDS features (polishing swale, catchpit manholes, trapped gullies, etc.) during operation, carried out by Yeagate Ltd or the appointed management company.
 - Compliance monitoring in accordance with the conditions of the EA Environmental Permit for the package treatment works foul water discharge.
- 12.1.5. The following environmental enhancement opportunities have been identified:
- Inclusion of a polishing swale prior to surface water outfall to Ordinary Watercourse, providing biodiversity and amenity value alongside water quality treatment.

- Use of porous surfacing in car park parking bays to provide source-level water quality and minor flow attenuation benefits.
- Post-development surface water runoff rates restricted to below pre-development greenfield rates for events above the 1:1 year return period, providing a net reduction in flood risk to downstream receptors.

12.1.6. The remainder of this chapter describes the assessment methodology and the baseline conditions relevant to the assessment, which have been used to reach these conclusions, as well as a summary of the likely significant effects leading to the additional mitigation measures required to avoid, prevent, reduce or, if possible, offset any likely significant adverse effects, and the likely residual effects and any required monitoring after these measures have been employed. Opportunities for environmental enhancement, where such opportunities exist, are also discussed.

12.1.7. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES, with particular reference to **Chapter 2: Description of the Proposed Development** and **Chapter 5: Approach to EIA**. The following Appendix supports this Chapter:

- Appendix 12.1 – Flood Risk Assessment and Drainage Strategy Report (Ridge and Partners LLP, FINAL 2.0, August 2025).
- Appendix 12.2 – Sensitive Receptors Plan (Ridge and Partners LLP, 5029705-RDG-XX-00-DR-C-00590-P01, July 2026).

12.2 CONSULTATION, SCOPE, METHODOLOGY AND SIGNIFICANCE CRITERIA

CONSULTATION UNDERTAKEN TO DATE

12.2.1. **Table 12-1** provides a summary of the consultation activities undertaken in support of the preparation of this assessment.

Table 12-1 – Summary of Consultation Undertaken

Body / Organisation	Individual / Stat Body / Organisation	Meeting Dates and Other FORMS of consultation	Summary of Outcome of Discussions
Environment Agency (EA)	EA Planning Liaison	Review of EA Flood Zone Maps and indicative Surface Water Flood Risk maps (pre-application)	Site confirmed within Flood Zone 1 (low probability of fluvial flooding). Indicative surface water mapping reviewed – small areas of potential ponding identified at site periphery only.
Rochdale Metropolitan Borough Council (RMBC) / LLFA	Lead Local Flood Authority	Review of Greater Manchester SFRA (JBA Consulting, August 2017)	Heywood identified as a Critical Drainage Area. Development to be designed so no flooding in a 1:30-year event and no property flooding in a 1:100-year + CC event. SuDS required where possible.
United Utilities (UU)	Drainage Statutory Undertaker	Review of UU sewer records	No public surface water or foul water sewers crossing or in close proximity to the development site.

Body / Organisation	Individual / Stat Body / Organisation	Meeting Dates and Other FORMS of consultation	Summary of Outcome of Discussions
Environment Agency (EA)	Consenting Authority – Environmental Permit	Pre-application engagement regarding proposed foul water discharge to Ordinary Watercourse	EA Environmental Permit required for discharge of treated effluent from package treatment works to the Ordinary Watercourse.

SCOPE OF THE ASSESSMENT

- 12.2.2. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 5: Approach to EIA**.
- 12.2.3. This section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following further iterative assessment.
- 12.2.4. The assessment scope for hydrology, flood risk, drainage and water quality was established with reference to: the NPPF Sequential and Exception Tests; EA Flood Zone and surface water flood mapping; the Rochdale/Greater Manchester SFRA; United Utilities sewer records; BGS geological data; and CIRIA C753. The assessment covers all relevant flood risk sources (fluvial, surface water/overland flow, sewer, groundwater, and artificial sources) and considers surface water quality and foul water disposal.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

- 12.2.5. The elements shown in **Table 12-2** are not considered to give rise to likely significant effects as a result of the Proposed Development and have therefore not been considered within this assessment:

Table 12-2 – Elements Scoped Out of the Assessment

Element Scoped Out	Justification
Tidal flooding	The site is located approximately 2.3 km southwest of Heywood town centre and is not subject to any tidal influence.
Flooding from groundwater	The SFRA records very few incidents of groundwater flooding in the Rochdale/Heywood area. No basement or below-ground occupied structures are proposed.
Flooding from artificial sources	No ponds, reservoirs or canals are in the vicinity of the site.
Flooding from public sewers	United Utilities records confirm no public sewers cross through or are near the site. The SFRA does not identify sewer flooding at or near the site.

ELEMENTS SCOPED INTO THE ASSESSMENT

Construction Phase

- 12.2.6. The following elements are considered to have the potential to give rise to likely significant effects during construction of the Proposed Development and have therefore been considered within this assessment:
- Temporary surface water runoff management from disturbed and bare ground during earthworks and construction;
 - Temporary alteration to existing drainage pathways and overland flow routes; and
 - Risk of pollution from construction activities (sediment, hydrocarbons, concrete washout) to the adjacent Ordinary Watercourse – water quality during construction.

Operation Phase

- 12.2.7. The following elements are considered to have the potential to give rise to likely significant effects during operation of the Proposed Development and have therefore been considered within this assessment:
- Post-development surface water runoff rates, volumes, and flood risk to the proposed buildings and site from all retained flood risk sources;
 - Adequacy of the proposed SuDS strategy and surface water attenuation to restrict post-development runoff to greenfield rates;
 - Surface water quality – treatment of runoff prior to discharge to the Ordinary Watercourse;
 - Foul water drainage and treated effluent quality from the proposed package treatment works; and
 - Exceedance flood risk to external hardstanding areas during extreme events.

EXTENT OF THE STUDY AREA

- 12.2.8. The primary study area for this assessment is the application site boundary (4.106 ha) and the immediate hydrological catchment, comprising the unnamed Ordinary Watercourse forming the eastern site boundary and the Main River (unnamed tributary of Brightley Brook) located approximately 35 m to the north of the development boundary. The wider study area extends to the Irwell Management Catchment for climate change allowances.

METHOD OF BASELINE DATA COLLATION

DESK STUDY

- 12.2.9. The desk-based assessment drew upon the following sources of baseline information:
- Environment Agency Flood Zone Maps and indicative Surface Water Flood Risk Maps;
 - Greater Manchester SFRA Level 1 (JBA Consulting, August 2017);
 - United Utilities sewer records;
 - British Geological Survey (BGS) digital geological map data;
 - Infodrainage Rural Runoff tool – greenfield runoff rate calculations;
 - CIRIA C753 SuDS Manual (2015); and
 - EA Climate Change Allowances (updated 2021) for the Irwell Management Catchment.

SITE VISIT AND SURVEYS

- 12.2.10. A site visit walkover by Ridge and Partners LLP was undertaken on 27/04/2026 to appreciate existing topography, constraints and confirm the presence of the Ordinary Watercourse to the east within the development site. The walkover also gave confidence that the Ordinary Watercourse was the source of the designated Main River, adjacent the site to the north, with flowing water and outfalls visible in each feature.
- 12.2.11. For this assessment, no watercourse survey is required due to hydraulic modelling of the watercourse not being consideration.

ASSESSMENT METHODOLOGY

- 12.2.12. The assessment of flood risk has been undertaken in accordance with the NPPF (2023) and the NPPG Flood Risk and Coastal Change guidance, applying the sequential approach to consideration of flood risk from all sources. The NPPF Sequential Test has been applied and passed (Less Vulnerable use in Flood Zone 1). The Exception Test is not required.
- 12.2.13. The drainage strategy has been assessed using Infodrainage software to calculate greenfield runoff rates (QBAR and return period rates) and to demonstrate restriction of post-development runoff. Climate change allowances for the Irwell Management Catchment (upper end, 2070s) have been applied: 40% increase to the 3.3% AEP event; 45% increase to the 1% AEP event.
- 12.2.14. Surface water quality has been assessed using the Simplified Index Approach set out in CIRIA C753 (The SuDS Manual). The foul water quality assessment draws upon EA Environmental Permit requirements for small sewage discharges to watercourses.

SIGNIFICANCE CRITERIA

- 12.2.15. The significance level attributed to each effect has been assessed based on the sensitivity/value of the affected receptor(s) and the magnitude of change arising from the Proposed Development, as well as a number of other factors that are outlined in more detail in **Chapter 5: Approach to EIA**. The sensitivity of the affected receptor is assessed on a scale of high, medium, low and negligible, and the magnitude of change is assessed on a scale of large, medium, small, negligible and no change, as set out in **Chapter 5: Approach to EIA**.

EFFECT SIGNIFICANCE

- 12.2.16. The following terms have been used to define the significance of the effects identified and apply to both beneficial and adverse effects:
- **Major effect:** where the Proposed Development could be expected to have a substantial improvement or deterioration on receptors flood risk and hydrological receptors including watercourses and water quality;
 - **Moderate effect:** where the Proposed Development could be expected to have a noticeable improvement or deterioration on receptors;
 - **Minor effect:** where the Proposed Development could be expected to result in a perceptible improvement or deterioration on receptors; and
 - **Negligible:** where no discernible improvement or deterioration is expected as a result of the Proposed Development on receptors, including instances where no change is confirmed.

12.2.17. As set out in **Chapter 5: Approach to EIA**, effects that are classified as **moderate or above** are considered to be **significant**. Effects classified as below **moderate** are considered to be **not significant**.

12.3 LEGISLATIVE FRAMEWORK, POLICY AND GUIDANCE

LEGISLATIVE FRAMEWORK

12.3.1. The applicable legislative framework is summarised as follows:

- Water Resources Act 1991 (Ref. 12.2) – establishes the legal framework for management of water resources, flood risk and controlled water quality protection in England;
- Flood and Water Management Act 2010 (Ref. 12.3) – establishes Lead Local Flood Authorities and their responsibilities for managing surface water, groundwater and ordinary watercourse flood risk;
- Land Drainage Act 1991 (Ref. 12.4) – governs drainage and the management of ordinary watercourses;
- Environmental Permitting (England and Wales) Regulations 2016 (Ref. 12.5) – establish the Environmental Permit regime for discharges to controlled waters; and
- Water Framework Directive (2000/60/EC), retained in UK law (Ref. 12.6) – requires water bodies to achieve or maintain Good Ecological Status/Potential.

POLICY

- National Planning Policy Framework (NPPF, 2023), Chapter 14: Meeting the Challenge of Climate Change, Flooding and Coastal Change (Ref. 12.7);
- Rochdale Metropolitan Borough Council Local Plan – relevant policies relating to flood risk, surface water drainage, and water quality; and
- Greater Manchester Spatial Framework / Places for Everyone – strategic planning framework including policies on climate change resilience and sustainable drainage.

12.3.2. In addition, this chapter has been prepared in accordance with the Government's National Planning Practice Guidance (Ref. 12.8).

GUIDANCE

12.3.3. The following guidance documents have been used during the preparation of this chapter:

- CIRIA C753 – The SuDS Manual (2015) (Ref. 12.9) – primary guidance for SuDS assessment and design;
- Environment Agency – Flood Risk Assessments: Climate Change Allowances (2016, updated 2021) (Ref. 12.10);
- BS EN 752:2008 – Drain and Sewer Systems Outside Buildings (Ref. 12.11);
- Building Regulations Approved Document H: Drainage and Waste Disposal (2015) (Ref. 12.12);
- Design and Construction Guidance (DCG) for gravity drainage (Ref. 12.13);
- JBA Consulting – Greater Manchester Strategic Flood Risk Assessment Level 1 (August 2017) (Ref. 12.14); and
- Environment Agency – Regulatory Position Statement RPS 097: Small Sewage Discharges to Surface Water (Ref. 12.15).

12.1 BASELINE CONDITIONS

SITE LOCATION AND SETTING

- 12.3.4. Birch Business Park is located at Whittle Lane, Heywood, OL10 2SX, approximately 2.3 km to the southwest of Heywood town centre. The application site boundary covers 4.106 ha; the net development area is 3.80 ha. The site is wholly greenfield. The existing commercial units of Birch Business Park border the site to the west and southwest; an unnamed Ordinary Watercourse defines the eastern boundary; and agricultural land extends to the north and south.

HYDROLOGY AND WATERCOURSES

- 12.3.5. Two watercourses are relevant to the site:

- **Unnamed Ordinary Watercourse (eastern boundary):** This watercourse forms the eastern site boundary. The existing private drainage from Birch Business Park discharges into this watercourse. A brick-sided, flag-stone topped culverted section has been identified within the red-edged application boundary; its full extent requires survey confirmation.
- **Unnamed Main River (tributary of Brightley Brook):** Designated as a Main River by the EA, located approximately 35 m to the north of the development boundary in adjacent land. Below-ground connectivity between the Ordinary Watercourse and the Main River is likely given the culverted section within the site.

FLOOD ZONES

- 12.3.6. The EA Flood Zone mapping confirms that the entire application site lies within Flood Zone 1: land having an annual probability of fluvial flooding of less than 1 in 1,000 in any year (<0.1%). The site is not within Flood Zone 2 or 3 extents. Under the NPPF, B2/B8 industrial use ('Less Vulnerable') in Flood Zone 1 is 'Appropriate'. The Sequential Test is passed; the Exception Test is not required.

FLOODING FROM RIVERS (FLUVIAL)

- 12.3.7. The site lies within Flood Zone 1. The nearest Main River is approximately 35 m to the north in separate adjacent land, with no EA modelled flood outline affecting the application site. Fluvial flood risk is low.

FLOODING FROM SURFACE WATER / OVERLAND FLOW

- 12.3.8. The EA indicative surface water flood risk mapping (worst-case 1:1,000 AEP, including climate change) identifies small areas of potential ponding at the north corner (associated with the Main River), east corner (Ordinary Watercourse), and southeast corner (topographic low point). Proposed building footprints lie entirely within an area of very low surface water flood risk.

EXISTING SURFACE WATER DRAINAGE

- 12.3.9. The development area (3.80 ha) is classified as greenfield. Greenfield runoff rates calculated using the Infodrainage Rural Runoff tool are:

Table 12-3 – Existing Greenfield Runoff Rates

Development Area (m ²)	1 in 1 Year (l/s)	QBAR (l/s)	1 in 30 Year (l/s)	1 in 100 Year (l/s)
38,000	26.4	30.3	51.4	63.1

GEOLOGY AND INFILTRATION POTENTIAL

12.3.10. BGS data confirms underlying Glacial Till (cohesive boulder clay) over Pennine Lower Coal Measures Formation (mudstone, siltstone and sandstone – Secondary A Aquifers). The cohesive nature of the boulder clay means infiltration-based drainage is not viable at this site.

EXISTING WATER QUALITY

12.3.11. The unnamed Ordinary Watercourse to the east receives existing drainage discharges from Birch Business Park. No baseline water quality data has been collected; the watercourse is considered a sensitive receptor given its connectivity to the downstream Main River. WFD objectives of achieving/maintaining Good Ecological Status must be respected.

FUTURE BASELINE

12.3.12. In the absence of the Proposed Development, no significant change to the hydrological baseline is anticipated. EA climate change allowances for the Irwell Management Catchment (upper end, 2070s) have been applied: 40% increase for the 3.3% AEP event and 45% increase for the 1% AEP event.

12.4 SENSITIVE RECEPTORS

12.1.1 The following sensitive receptors have been assessed:

Table 12-4 – Sensitivity of Receptors

Sensitive Receptor	Nature of Sensitivity	Assessment Topic	Sensitivity
Proposed industrial buildings (Units 1 & 2)	Risk of direct flooding to structures from all sources during construction and operation.	Flood Risk	High
Future occupants and operational users of the site	Risk of harm to persons from flooding within the site.	Flood Risk	High
Unnamed Ordinary Watercourse (eastern site boundary)	Risk of increased runoff rates causing downstream flooding; degradation of water quality from surface water and foul water discharges; and WFD status deterioration.	Hydrology / Water Quality	High
Main River – tributary of Brightley Brook (~35 m north)	Risk of cumulative increase in downstream flow rates and associated flood risk; indirect water quality effects.	Hydrology / Flood Risk	Medium
Adjacent agricultural land and existing Birch Business Park	Risk of increased surface water runoff overtopping the site boundary during extreme events.	Flood Risk	Low

Sensitive Receptor	Nature of Sensitivity	Assessment Topic	Sensitivity
External hardstanding, car parks and access roads	Risk of surface water ponding during exceedance events above the 1:30-year design standard.	Flood Risk / Drainage	Low
Underlying Secondary A Aquifer (Pennine Lower Coal Measures)	Risk of water quality contamination from surface water or foul water infiltration.	Water Quality	Medium

- 12.4.1. All key sensitive receptor locations in relation to Hydrology, Flood Risk and Drainage are shown on **Drawing 5029705/RDG/00/00/DR/C/000590** in Appendix 12.2.

12.5 ASSESSMENT OF POTENTIAL EFFECTS, MITIGATION AND RESIDUAL EFFECTS

CONSTRUCTION PHASE

- 12.5.1. During construction, the primary risks to the hydrological environment arise from: (a) temporary increases in surface water runoff from bare, disturbed ground; (b) the potential for sediment, hydrocarbon and cement-contaminated runoff to reach the adjacent Ordinary Watercourse; and (c) temporary disturbance to the existing culverted watercourse alignment during earthworks.
- 12.5.2. The additional mitigation identified over and above that embedded within the development design is implementation of a CEMP inclusive of a CSWMP, to be secured by planning condition prior to commencement.
- 12.5.3. **Table 12-5** summarises the assessment of potential effects, additional mitigation and residual effects during construction.

Table 12-5 – Assessment of Potential Effects, Additional Mitigation, Residual Effects and Monitoring during Construction

Sensitive Receptor	Proposed buildings and site users – flood risk from surface water runoff during construction
Potential Effects	During earthworks and construction, areas of disturbed and bare ground will temporarily increase the rate and volume of surface water runoff relative to the existing vegetated greenfield condition. The sensitivity of the proposed buildings/site as a receptor during construction is considered Low (structures are not yet occupied; temporary and reversible). The magnitude of change in runoff without controls is Small. Therefore, there is likely to be a direct, temporary, short-term Minor Adverse effect on flood risk to the development during construction (not significant).
Additional Mitigation	Implementation of a CSWMP secured by planning condition, to include: temporary silt fencing and earth bunding; phased earthworks to minimise areas of exposed ground; temporary attenuation and settlement lagoons if required; and regular inspection of all temporary controls. Responsible party: Principal Contractor.

Residual Effects and Monitoring	Following implementation of the CSWMP, the sensitivity of the receptor remains Low and the magnitude of change reduces to Negligible. There is likely to be a direct, temporary, short-term Negligible Adverse residual effect on flood risk to the development during construction (not significant). Monitoring: Weekly CEMP compliance inspections; post-storm inspections following rainfall events exceeding 10 mm.
Sensitive Receptor	Unnamed Ordinary Watercourse (eastern boundary) – surface water quality / pollution risk during construction
Potential Effects	Construction activities present a risk of sediment-laden and hydrocarbon-contaminated runoff reaching the unnamed Ordinary Watercourse. Potential pollution sources include: disturbed topsoil and subsoil; concrete and cement washout; diesel and fuel storage; and vehicle wash-off. The Ordinary Watercourse is a sensitive receptor due to its direct connectivity to the downstream Main River and its role in supporting WFD objectives. Sensitivity: High. Magnitude of change without controls: Medium. Therefore, there is likely to be a direct, temporary, short-term Moderate Adverse effect on the water quality of the Ordinary Watercourse during construction (significant).
Additional Mitigation	5 m minimum buffer zone between all construction activity and the top of bank of the Ordinary Watercourse; Concrete and cement washout in bunded areas a minimum of 20 m from the watercourse; Fuel and chemical storage in self-bunded containers away from watercourse drainage routes; Silt traps or settlement ponds on all temporary drainage connections; Wheel wash facility at the site access; Site Pollution Incident Response Plan including EA and RMBC notification procedures; and Regular de-silting of silt traps during prolonged wet weather. Secured by planning condition within the CEMP. Responsible party: Principal Contractor.
Residual Effects and Monitoring	Following implementation of pollution prevention measures, sensitivity of the Ordinary Watercourse remains High; magnitude of change reduces to Negligible. There is likely to be a direct, temporary, short-term Negligible Adverse residual effect on the water quality of the Ordinary Watercourse during construction (not significant). Monitoring: CEMP compliance inspections weekly and after significant rainfall events. Water quality spot-checks of the Ordinary Watercourse upstream and downstream of the site boundary at intervals agreed with RMBC LLFA.

OPERATIONAL PHASE

- 12.5.4. During operation, the assessment addresses: post-development surface water runoff rates and volumes; flood risk to buildings from all retained sources; performance of the SuDS treatment train for surface water quality; the proposed foul water strategy; and exceedance flood management.
- 12.5.5. The proposed drainage strategy comprises geocellular storage tanks and oversized pipes on each development parcel, a flow control device restricting discharge to the 1-year greenfield rate of 26.4 l/s, and a polishing swale as the final treatment stage prior to outfall to the unnamed Ordinary Watercourse. Foul water will be treated through a package treatment works with discharge of treated effluent to the Ordinary Watercourse, subject to EA Environmental Permit consent.
- 12.5.6. **Table 12-6** summarises the assessment of potential effects, additional mitigation and residual effects during operation.

Table 12-6 – Assessment of Potential Effects, Additional Mitigation, Residual Effects and Monitoring During Operation

Sensitive Receptor	Proposed buildings (Units 1 & 2) and site users – flood risk from all sources (operational)
Potential Effects	The site lies entirely within Flood Zone 1. All other sources of flood risk (groundwater, sewers, artificial sources) have been scoped out as low risk. The drainage strategy is designed to: contain flows during the 1:30-year storm (no flooding); safely manage exceedance flows during events up to the 1:100-year + 45% CC event without flooding buildings; and restrict post-development runoff to 26.4 l/s (below QBAR of 30.3 l/s). Sensitivity of the buildings: High. Magnitude of change with drainage strategy in place: Negligible. Therefore, there is likely to be a direct, permanent, long-term Negligible Adverse effect on flood risk to buildings (not significant).
Additional Mitigation	No additional secondary mitigation beyond the embedded primary drainage design is required. The attenuation system (geocellular storage 1,517 m ³ – 2,312 m ³ , oversized pipes, and flow control device set at 26.4 l/s) is embedded within the development design and described in Chapter 2: Description of the Proposed Development.
Residual Effects and Monitoring	Sensitivity of the buildings remains High; magnitude of change Negligible. There is likely to be a direct, permanent, long-term Negligible Adverse residual effect on flood risk to the proposed buildings (not significant). Monitoring: Yeagate Ltd to undertake routine maintenance of all drainage infrastructure including gully emptying, drain cleansing, and inspection of the flow control device. A Drainage Maintenance Plan to be secured by planning condition.
Sensitive Receptor	Unnamed Ordinary Watercourse and Main River – hydrological impact from post-development runoff
Potential Effects	Post-development surface water runoff is restricted to 26.4 l/s (the 1-year greenfield rate), which is less than the QBAR greenfield rate of 30.3 l/s for events above the 1-year return period. This represents a reduction in peak runoff compared to the pre-development greenfield baseline.

	Sensitivity of the Ordinary Watercourse: High. Sensitivity of the Main River: Medium. Magnitude of change: Small Beneficial. Therefore, there is likely to be a direct, permanent, long-term Minor Beneficial effect on the Ordinary Watercourse and downstream Main River (not significant).
Additional Mitigation	No additional mitigation is required. The drainage strategy achieves runoff rates at or below greenfield levels, providing inherent hydrological benefit to downstream watercourses.
Residual Effects and Monitoring	Sensitivity of the Ordinary Watercourse: High; magnitude of change: Small Beneficial. There is likely to be a direct, permanent, long-term Minor Beneficial residual effect on the Ordinary Watercourse and Main River (not significant). Monitoring: Annual maintenance inspections of the flow control device and attenuation storage by Yeargate Ltd.
Sensitive Receptor	Unnamed Ordinary Watercourse – surface water quality from operational runoff
Potential Effects	Operational surface water runoff from hardstanding areas will carry suspended sediments, hydrocarbons and other diffuse pollutants. The pollution hazard for B2/B8 use is assessed as Very Low under the CIRIA C753 Simplified Index Approach. Sensitivity of the Ordinary Watercourse as a water quality receptor: High (WFD obligations). Magnitude of change without treatment: Small. Therefore, in the absence of water quality mitigation, there is likely to be a direct, permanent, long-term Minor Adverse effect on the water quality of the Ordinary Watercourse (not significant).
Additional Mitigation	SuDS treatment train in accordance with CIRIA C753: trapped gullies; silt traps and catchpit manholes; channel drains with integral silt collection sumps in service yard areas; and a polishing swale as the final treatment stage prior to discharge to the Ordinary Watercourse. Secured as part of the drainage design with maintenance responsibilities assigned to Yeargate Ltd. A SuDS Maintenance and Management Plan to be secured by planning condition.
Residual Effects and Monitoring	Sensitivity of the Ordinary Watercourse remains High; magnitude of change reduces to Negligible. There is likely to be a direct, permanent, long-term Negligible Adverse residual effect on the water quality of the Ordinary Watercourse from operational surface water runoff (not significant). Monitoring: Annual maintenance inspections of all SuDS features by Yeargate Ltd. Desludging of silt traps and catchpit manholes at intervals specified in the SuDS Maintenance Plan.
Sensitive Receptor	Unnamed Ordinary Watercourse – water quality from proposed foul water discharge
Potential Effects	Due to site topography (the proposed development sits up to 6 m lower than the existing Business Park), gravity connection to the public sewer is not feasible. The

	proposed strategy is to treat foul water through a package treatment works and discharge treated effluent to the Ordinary Watercourse. In the absence of a properly consented and designed treatment system, untreated foul water discharge would constitute a serious risk to water quality and WFD status, with potential for ammonia and BOD loading causing ecological harm. Sensitivity of the Ordinary Watercourse: High. Magnitude of change without adequate treatment: Large. Therefore, in the absence of additional mitigation, there is likely to be a direct, permanent, long-term Major Adverse effect on the water quality of the Ordinary Watercourse from foul water discharge (significant).
Additional Mitigation	Pre-application engagement with the Environment Agency to agree EA Environmental Permit conditions (already initiated); Design of the package treatment works to meet EA effluent quality standards as specified in the Environmental Permit; The Environmental Permit to be obtained prior to commencement of foul water discharge, secured by planning condition; A Maintenance and Inspection Plan for the package treatment works to be prepared and implemented by Yeagate Ltd; and Provision for emergency procedures in the event of treatment works failure. Responsible party: Yeagate Ltd. Secured by planning condition.
Residual Effects and Monitoring	Following implementation of a properly designed, consented and maintained package treatment works, sensitivity of the Ordinary Watercourse remains High; magnitude of change reduces to Negligible. There is likely to be a direct, permanent, long-term Negligible Adverse residual effect on the water quality of the Ordinary Watercourse from treated foul water discharge (not significant). Monitoring: Compliance monitoring in accordance with EA Environmental Permit conditions, including effluent quality sampling at the discharge point.
Sensitive Receptor	External hardstanding areas and access roads – exceedance flood risk
Potential Effects	For storm events exceeding the 1:30-year design standard up to the 1:100-year + 45% CC critical event, exceedance flows may temporarily pond on external hardstanding and access roads. These flows are contained within the application site boundary. Sensitivity of external hardstanding: Low. Magnitude of change: Small. Therefore, there is likely to be a direct, permanent, long-term Minor Adverse effect on external hardstanding areas during exceedance events (not significant).
Additional Mitigation	No additional secondary mitigation is required. Exceedance flow management is embedded within the site design through controlled site levels and grading, ensuring all exceedance flows are safely conveyed away from buildings. Described in Chapter 2: Description of the Proposed Development.
Residual Effects and Monitoring	Sensitivity of external hardstanding remains Low; magnitude of change reduces to Negligible. There is likely to be a direct, permanent, long-term Negligible Adverse residual effect on external hardstanding areas from exceedance flooding (not significant). Monitoring: No specific monitoring required.

ASSESSMENT AGAINST FUTURE BASELINE

- 12.5.7. The proposed drainage strategy has been designed to accommodate the EA upper end climate change allowances for the Irwell Management Catchment for the 2070s horizon (40% increase to the 3.3% AEP event; 45% increase to the 1% AEP event). The strategy is therefore robust against projected future increases in rainfall intensity over the design life of the development. No increase in flood risk is anticipated compared to the future baseline.

CUMULATIVE EFFECTS

- 12.5.8. Heywood is identified as a Critical Drainage Area in the Greater Manchester SFRA. The proposed drainage strategy restricts post-development runoff to 26.4 l/s (the 1-year greenfield rate), which is below the QBAR greenfield rate of 30.3 l/s, making a neutral to beneficial contribution to the cumulative hydrological situation.

OPPORTUNITIES FOR ENVIRONMENTAL ENHANCEMENT

- **Polishing swale (eastern boundary):** The proposed polishing swale provides water quality treatment as the final stage of the SuDS treatment train. Designed and planted with native marginal and wetland species, it can additionally deliver ecological corridor and habitat creation benefits along the eastern site boundary.
- **Permeable surfacing in car parking areas:** Private parking bays proposed to be surfaced with permeable paving, providing source-level attenuation, reduction in first-flush runoff, and improved TSS removal.
- **Net reduction in downstream flood risk:** Restriction of post-development runoff to 26.4 l/s (1-year greenfield rate) results in a reduction in peak runoff to the Ordinary Watercourse for return periods above 1:1 year, directly benefiting downstream receptors.
- **De-culverting opportunity:** Subject to detailed survey findings for the culverted section within the red-edged boundary, there may be an opportunity to partially or fully open-channel this section, enhancing ecological and hydrological value and reducing culvert blockage risk.

12.6 DIFFICULTIES AND UNCERTAINTIES

- **Culverted watercourse alignment and extent:** A culverted section of the Ordinary Watercourse was identified within the red-edged application boundary. Its precise alignment, extent and condition had not been fully surveyed at the time of preparing the FRA (Final rev 2.0, July 2026). This must be resolved at the detailed design stage.
- **Attenuation volume range:** The attenuation calculations are in the form of a required storage volume range of 1,517 m³ to 2,312 m³, reflecting outline-level design uncertainty. Detailed hydraulic modelling is required at the detailed design stage.
- **Baseline water quality data:** No baseline water quality monitoring data is available for the Ordinary Watercourse. The assessment is based on desk-based assessment and CIRIA C753 methodology.
- **EA Environmental Permit:** The foul water strategy is subject to EA Environmental Permit consent, the application of such does not form part of this stage scope of work or assessment. Precise effluent quality standards will be confirmed through the permit application process.

12.7 SUMMARY

12.7.1. **Table 12-7** provides a summary of the findings of the assessment.

Table 12-7 – Summary of Hydrology, Flood Risk, Drainage and Water Quality Effects

Receptor	Potential Effects	Significance Prior to Mitigation	Additional Mitigation	Residual Effects	Monitoring
CONSTRUCTION PHASE					
Proposed buildings – flood risk during construction	Temporary runoff increase from disturbed ground.	Minor Adverse (not significant) T / D / ST	CSWMP secured by planning condition.	Negligible Adverse (not significant) T / D / ST	Weekly CEMP inspections.
Ordinary Watercourse – water quality during construction	Risk of sediment and pollutant runoff from construction activities.	Moderate Adverse (significant) T / D / ST	CEMP pollution prevention: buffer zone, bunded storage, silt traps, spill response – secured by planning condition.	Negligible Adverse (not significant) T / D / ST	CEMP compliance & watercourse spot-checks.
OPERATIONAL PHASE					
Proposed buildings – flood risk from all sources	Flood Zone 1. All other sources low/scoped out. Drainage designed to 1:100yr + 45% CC.	Negligible Adverse (not significant) P / D / LT	None required (embedded primary mitigation sufficient).	Negligible Adverse (not significant) P / D / LT	Routine drainage maintenance by Yeagate Ltd.
Ordinary Watercourse & Main River – hydrology/runoff rates	Post-development runoff restricted to 26.4 l/s < QBAR 30.3 l/s – net reduction.	Minor Beneficial (not significant) P / D / LT	None required.	Minor Beneficial (not significant) P / D / LT	Annual flow control inspection.
Ordinary Watercourse – surface water quality	Diffuse runoff from hardstanding. Pollution hazard Very Low (CIRIA C753).	Minor Adverse (not significant) P / D / LT	SuDS treatment train: trapped gullies, silt traps, catchpit manholes, polishing swale – secured by planning condition.	Negligible Adverse (not significant) P / D / LT	Annual SuDS inspection and desludging.

Receptor	Potential Effects	Significance Prior to Mitigation	Additional Mitigation	Residual Effects	Monitoring
Ordinary Watercourse – foul water quality	Package treatment works required due to site levels. Untreated discharge would cause WFD deterioration.	Major Adverse (significant) P / D / LT	EA Environmental Permit for package treatment works; secured by planning condition prior to commencement.	Negligible Adverse (not significant) P / D / LT	EA permit compliance; effluent quality sampling.
External hardstanding – exceedance flooding	Exceedance flows above 1:30yr directed to hardstanding; contained on site.	Minor Adverse (not significant) P / D / LT	Embedded: exceedance flow management through site levels.	Negligible Adverse (not significant) P / D / LT	No additional monitoring required.

Key: P = Permanent; T = Temporary; D = Direct; I = Indirect; ST = Short Term; MT = Medium Term; LT = Long Term.

12.8 REFERENCES

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Reference 12.2: Water Resources Act 1991. Her Majesty's Stationery Office, London.

Reference 12.3: Flood and Water Management Act 2010. Her Majesty's Stationery Office, London.

Reference 12.4: Land Drainage Act 1991. Her Majesty's Stationery Office, London.

Reference 12.5: Environmental Permitting (England and Wales) Regulations 2016 (SI 2016/1154). HMSO, London.

Reference 12.6: Water Framework Directive (2000/60/EC). Retained in UK law post-Brexit.

Reference 12.7: Ministry of Housing, Communities and Local Government (2023). National Planning Policy Framework. HMSO, London.

Reference 12.8: Planning Practice Guidance. [Online] accessed via <https://www.gov.uk/government/collections/planning-practice-guidance>

Reference 12.9: CIRIA (2015). The SuDS Manual, C753. CIRIA, London.

Reference 12.10: Environment Agency (2021). Flood Risk Assessments: Climate Change Allowances. Environment Agency, Bristol.

Reference 12.11: BSI (2008). BS EN 752:2008 Drain and Sewer Systems Outside Buildings. BSI, London.

Reference 12.12: HM Government (2015). Building Regulations 2010: Approved Document H – Drainage and Waste Disposal. HMSO, London.

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Reference 12.15: Environment Agency (2020). Regulatory Position Statement RPS 097: Small Sewage Discharges to Surface Water. Environment Agency, Bristol.

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