

## Appendix 7.8

# Ascerta

Landscape, Arboricultural & Ecological Solutions  
for the Built Environment

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## Habitat Regulations Assessment (HRA)

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Land at Stakehill

Ref: P.1172.19

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February 2023

(see revision dates below)

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**P.1172.19**

**Habitats Regulation Assessment (HRA)**

**Of**

Land at Stakehill

**For**

Redrow Ltd, Valerie Drake, Robert Allen & John Thomas Allen, June Greenwood, Willie Green & Mark Greenwood, David Andrew Tetlow and Amanda Jane Tetlow

**28 February 2023**

|                                 |                                   |
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Appendix 1                      *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Rochdale Canal Special Area of Conservation (SAC)*

*European Site Conservation Objectives for Rochdale Canal Special Area of Conservation Site code: UK0030266*

Appendix 2                      *Drawing 33961 Concept Masterplan*

*Drawing 4159/Eng/100 Preliminary Regrade Contours and Ponds*

# 1.0 Introduction

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Ascerta has been instructed by Redrow Ltd, Valerie Drake, Robert Allen & John Thomas Allen, June Greenwood, Willie Green & Mark Greenwood, David Andrew Tetlow and Amanda Jane Tetlow to produce a Habitats Regulation Assessment (HRA) in compliance with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended); hereafter referred to as the 'Habitats Regulations' for the Land at Stakehill (hereafter referred to as the site). The site OS grid reference is OS Grid Reference is SD 89167 09404 and the What3Words reference is tuck.hotel.feel.

This document has been prepared to detail any significant impacts caused by the proposals on Rochdale Canal Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC), as required by Regulation 63 of the Habitats Regulations.

Our client proposes the construction of residential dwellings with associated access roads and public open space provision.

## 1.1 The HRA Process

Regulation 63 of the Habitats Regulations requires a competent authority to make an 'Appropriate Assessment' of the implications of the plan or project for that site in view of its Conservation Objectives, before deciding to undertake or give consent for a plan or project which (a) is likely to have a significant effect on a European Site (either alone or in-combination with other plans or project), and (b) is not directly connected with or necessary to the management of that site. In light of the conclusions of the assessment, the competent authority may proceed with or consent to the plan or project only after having ascertained that it will not adversely affect the integrity of the European Site.

All plans and projects should identify any possible effects early in the process and then either alter the plan or project to avoid them or introduce mitigation measures to the point where no adverse effects remain. The 'competent authority' shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned, and if appropriate, having obtained the opinion of the general public.

The assessment of a project under the Habitats Regulations can be split into four stages as shown in Table 1.

Table 1: Stages of HRA

| Stage                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Screening (Stage 1)                                                                        | Assessment of the likelihood of a plan or project, alone or in-combination, having a significant effect on a European Site or its features. If a significant effect is likely, an Appropriate Assessment is required as set out in Regulation 63.                                                                                                                                                                                                                                                                             |
| Appropriate Assessment (Stage 2)                                                           | A detailed consideration of the potential effects of the plan or project in relation to the Conservation Objectives for the European Site(s) to determine if there is likely to be an adverse effect on the integrity of the site (i.e. an effect that would compromise the site meeting its Conservation Objectives). If it can be demonstrated that with appropriate mitigation measures the plan or project would not give rise to an adverse effect on the integrity of a European Site, the plan or project can proceed. |
| Assessment of Alternative Solutions (Stage 3)                                              | Where it cannot be demonstrated that there is no adverse effect, or there is uncertainty, the assessment would then need to consider if there were any other alternatives to the plan or project that would not give rise to adverse effects on the integrity of the European Site.                                                                                                                                                                                                                                           |
| Assessment where no alternative solutions exist and where adverse impacts remain (Stage 4) | If adverse effects are still likely then the competent authority would then consider if there are any Imperative Reasons of Overriding Public Interest (IROPI), only at this stage can Compensatory Measures be considered. It is very unusual for plans or projects to be considered in Stages 3 or 4.                                                                                                                                                                                                                       |

## 2.0 Guidance and policy when assessing the potential effects of a plan or project

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The following guidance and policy must be followed when assessing the potential effects of the plan or project:

- The Habitats Regulations Assessment Handbook, DTA Publications Ltd; which includes analysis of relevant recent caselaw; and
- Gov.uk website.

Professional advice should be sought when required in order to ensure a thorough and scientific assessment of the plan or project and its potential effects on a European Site.

In addition to the guidance noted above, a number of websites has been used in February 2023 to gather information on the European Sites in order to inform the assessment,

- Natural England (NE) website;
- MAGIC (Multi-Agency Geographic Information for the Countryside) website; and
- Joint Nature Conservation Committee (JNCC) website.

## 3.0 Project Location

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### 3.1 Desk Study

The site lies south of junction 20 on the M62 carriageway, located south of Rochdale and is bound by Thornton New Road to the north, the A672 to the east, Manchester Road (A664) to the west and Slattocks Link Road (A664) to the south. The habitats on site comprise semi-improved grassland of varying species richness, improved grassland, hedgerows, waterbodies and watercourses, scrub, scattered trees and tall ruderal vegetation. The Rochdale Canal SSSI/SAC lies approximately 200m west of the site and is hydrologically to the onsite water courses.

The Rochdale Canal SSSI/SAC is of particular priority for biodiversity and geodiversity (Policy G7 – Increasing the value of biodiversity and geodiversity, Rochdale Local Plan).

*The Rochdale Canal - our focus is to ensure that the Rochdale Canal Special Area of Conservation and the wider biodiversity interest of the canal is given full and appropriate protection and ensure that development which delivers the economic and recreational value of the Rochdale Canal and its wider corridor supports and does not harm its biodiversity value (Policy G7 – Increasing the value of biodiversity and geodiversity, Rochdale Local Plan).*

The current indicative masterplan of the site (drawing 33961 *Concept Masterplan*) is shown in Appendix 2.

The site was visited on 22<sup>nd</sup>, 29<sup>th</sup> and 30<sup>th</sup> May 2019 by Neil Everett BSc (Hons) Grad CIEEM and Tosha Allen BSc (Hons) when a Preliminary Ecological Appraisal of the site was carried out.

An updated Preliminary Ecological Appraisal was carried out on 17<sup>th</sup> March 2022 by Lizzie Atkinson MSc CIEEM and Liz Kenyon BSc (Hons).

Further site visits have been carried out between November 2021 and November 2022 to undertake brown hare surveys, nocturnal bat activity surveys, badger activity surveys and a water vole survey. The site location is shown below:



## 3.2 Limitations

The proposals are illustrative at this stage (Drawing 33961 *Concept Masterplan*, Appendix 2) and there is limited information on the efficacy of mitigation measures that may be already in place on the proposed site.

## 4.0 European Site conservation objectives and qualifying features

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The site lies at its closest point, approximately 200m east of Rochdale Canal SAC/SSSI. The features and the conservation objectives of the Rochdale Canal SAC/SSSI and the potential vulnerability of the features to any effects that might arise from the plan or project are as follows;

*Situated within the Greater Manchester area, the Rochdale Canal contains important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of the nationally scarce floating water-plantain *Luronium natans*. The site also supports a diverse assemblage of aquatic flora, in particular nine species of pondweed *Potamogeton* spp. The plant communities found in the Rochdale Canal are characteristic of mesotrophic water bodies, i.e. those which are moderately nutrient-rich.*

*Opened in 1804, the Rochdale Canal became the first of Manchester's three trans-Pennine canals and principal cargoes included coal, agricultural produce and materials for the textiles industry (Canal & River Trust, ND).*

*The canal is situated within the Manchester conurbation National Character Area (NCA) which is a predominantly urban area, bringing together a number of large settlements. The Manchester Pennine Fringe NCA wraps around the conurbation to the east and to the north. The Mersey Valley NCA lies to the west of the area, while the Shropshire, Cheshire and Staffordshire Plain NCA extends to the south. The high-rise buildings of Manchester city centre serve as a visual orientation point within the surrounding urban context, and can be seen from many viewpoints in the conurbation and in surrounding NCAs. (European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Rochdale Canal Special Area of Conservation (SAC), Appendix 1)*

The Rochdale Canal SAC/SSSI is designated for the following feature (with European site features code);

- S1831 Floating water-plantain, *Luronium natans*

*Floating water-plantain *Luronium natans* occurs in a range of freshwater situations, including nutrient poor lakes in the uplands, slowly-flowing lowland rivers, pools, ditches and canals that are moderately nutrient-rich. The floating water-plantain is an aquatic plant endemic to Europe. It has a complex life history and ecology and is notoriously difficult to identify. Rochdale Canal supports a significant population of floating water-plantain*

*Luronium natans* in a botanically diverse water-plant community. This population of *Luronium* is representative of the formerly more widespread canal populations of north-west England.

*Luronium natans* occurs as two forms: in shallow water with floating oval leaves, and in deep water with submerged rosettes of narrow leaves. The plant thrives best in open situations with a moderate degree of disturbance, where the growth of emergent vegetation is held in check. Populations fluctuate greatly in size, often increasing when water levels drop to expose the bottom of the water body. Populations fluctuate from year to year, and at many sites records of *L. natans* have been infrequent, suggesting that only small populations occur, in some cases possibly as transitory colonists of the habitat. Populations tend to be more stable at natural sites than artificial ones, but approximately half of recent (post-1980) records are from canals and similar artificial habitats. Its habitat in rivers has been greatly reduced by channel-straightening, dredging and pollution, especially in lowland situations. (European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Rochdale Canal Special Area of Conservation (SAC), Appendix 1).

With regards to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed previously), and subject to natural change;

*Ensure the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;*

- *The extent and distribution of the habitats of qualifying species*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which the habitats of qualifying species rely*
- *The populations of the qualifying species; and*
- *The distribution of the qualifying species within the site.*

## 5.0 Stage 1 - Screening for likely significant effects

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### 5.1 Likelihood of Significant Effects

Stage 1 of the HRA, the screening, is a test of Likely Significant Effect (LSE) to determine whether an Appropriate Assessment is required against all impact pathways identified. The screening is done considering the proposal in isolation and therefore not in-combination with any other plans or projects. It is also done in the absence of avoidance or other mitigation measures. Note that the assessment is made with awareness of the conservation objectives for the features of the European Site, however the actual assessment of the plan or project against the conservation objectives is not required until the Appropriate Assessment (Stage 2).

### 5.2 Potential Impacts

#### Recreation

European sites can be adversely affected by recreational activities such as dog walking which can cause harassment of local wildlife, damage to sensitive habitats as well as impacts to soil nutrients from potential dog fouling. Other activities such as walking, running and biking can lead to soil compaction and erosion.

#### Habitat Fragmentation/Loss

Habitat fragmentation can occur directly or indirectly in close proximity to European sites, with development result in either direct or indirect habitat loss as a consequence of the development. Loss of off-site, functional habitat outside of European site boundary can lead to habitat fragmentation/loss of connectivity. Species mortality can increase due to potential collision risks due to habitat fragmentation.

#### Air quality

Air pollution, particularly associated with increased vehicular traffic, has been identified as a direct threat to biodiversity. Pollution created during construction can significantly contribute to air pollution and can carry for large distances. Oxides of Nitrogen (NOx) emissions are predominately related to vehicular exhaust and NOx has been found to have a directly toxic effect upon vegetation. Nature England has previously advised the effects of vehicular atmospheric emissions should be considered if roads are within 200m of a European site.

## Water quality

An increase in development can result in reduced water quality of rivers and surrounding habitats. Sewage and industrial effluent discharges can contribute to nutrient changes within European sites, leading to unfavourable conditions. Additionally, a loss of permeable surfaces, due to development, can lead to an increase in surface run off and flooding, which can lead to contamination of watercourse links and reduced water quality.

## Urbanisation effects

Urbanisation impacts are closely linked with recreational impacts but anti-social impacts such as vandalism, littering and fly tipping can cause damaging impacts to European Sites. Additionally, an increase in residents will often lead to an increase in domestic animals such as cats and dogs, that may disturb and predate on wildlife. Other urbanisation effects include light and noise pollution, which adversely effects bat and bird species.

## 5.2 Likely Significant Effects

### Recreation

The proposals are for the development of up to 1,500 dwellings and this will indirectly impact Rochdale Canal SSSI/SAC through an increase in recreational pressure and disturbance from new residents. New residential will likely frequent Rochdale Canal SSSI/SAC due to proximity.

A footpath is present adjacent to the eastern bank of Rochdale Canal SSSI/SAC, this will reduce the impacts such as soil compression/erosion relating to recreational activity such running/walking and biking that will likely increase due to the proposals.

Whilst plans are ongoing, the current indicative masterplan includes areas of public open space (POS) to be provided within the proposals (see drawing 33961 *Concept Masterplan*, Appendix 2). With the pre-existing footpaths that already lead through the site, it is likely that these future areas of POS will be frequented on a more regular basis. Other local sites such as Hopwood Woodlands Local Nature Reserve (LNR), approximately 380m south-west, and Tandle Hill Site of Biological Importance (SBI), approximately 700m east lie within the vicinity of the proposals and are also likely to share the increased recreational impact that the proposals will produce.

## Habitat Fragmentation/Loss

The proposals will not result in a loss of land within the designated site as the proposals lie over 200m east of the site. The loss of habitats within the site have yet to be finalised as plans are ongoing and are illustrative (drawing 33961 *Concept Masterplan*, Appendix 2), however it is considered that the loss of habitats within the site will not adversely impact the qualifying feature of Rochdale Canal SSSI/SAC, Floating water-plantain *Luronium natans*, as it provides limited habitat for the species within the site.

## Air quality

Rochdale Canal SSSI/SAC lies within 200m of the site, therefore the proposals of the construction of up to 1,500 residential dwellings will likely adversely impact the air quality due to an increase in vehicular pollution. NOx has been found to have a directly toxic effect upon vegetation, which may adversely impact species and habitats within Rochdale Canal SSSI/SAC including, Floating water-plantain *Luronium natans*, which is particularly sensitive to pollution.

## Water quality

Rochdale Canal is hydrologically to the current onsite water courses. The proposals are illustrative at this stage (see drawing 33961 *Concept Masterplan*, Appendix 2) and the proposed drainage scheme indicates the surface water outfall will link to the existing culverted watercourse (see drawing 4159/Eng/100 Preliminary Regrade Contours and Ponds, Appendix 2) which will likely result in an increase in nutrient loading within the hydrological catchment of the SAC/SSSI, through the production of wastewater during construction or operation, potentially leading to degradation of habitat or changes in water quality. A loss of permeable surfaces, due to the development, will also likely lead to an increase in surface run off and flooding.

The proposed development could result in species mortalities and injuries e.g. through pollution incidents during wet weather to the adjacent watercourses. The increased input could lead to eutrophication of the watercourse and connected waterbodies during construction or operation. The surface water run-off from the development will be treated prior to the proposed outfall that will directly outfall into Rochdale Canal SSSI/SAC through a Sustainable Drainage System (SuDs) as indicated on the Preliminary Regrade Contours and Ponds plan (Appendix 2). The SuDs will remove pollutants from the wastewater discharged from the proposals, which will minimise the impact where possible to the Rochdale Canal SSSI/SAC.

## Urbanisation effects

Urbanisation impacts are closely linked with recreational impacts but anti-social impacts such as vandalism, littering and fly tipping can cause damaging impacts to European Sites. Additionally, an increase in residents will often lead to an increase in domestic animals such as cats and dogs, that may predate on wildlife. Other urbanisation effects include light and noise pollution, which adversely affect bat and bird species.

Rochdale Canal SSSI/SAC contains vitally important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of the nationally scarce Floating water-plantain *Luronium natans*, which Rochdale Canal SSSI/SAC designated for, as well as Water violet *Hottonia palustris*, and a diverse assemblage of pond weeds *Potamogeton spp.* Urbanisation impacts such as littering, fly tipping and vandalism can adversely impact these species, particularly Floating water-plantain *Luronium natans*, as it particularly sensitive to pollution.

## 6.0 Stage 2 - Appropriate Assessment

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### 6.1 Assessment of potentially adverse effects without additional mitigation measures

#### Recreation

When considered alone, without suitable mitigation, the proposed development cannot be determined to have no adverse impact on the integrity of the Rochdale Canal SSSI/SAC due to an increase in recreational pressure.

The proposals will likely result in increase in visitors frequenting the Rochdale Canal SSSI/SAC due to the proximity of the European site to the proposals. An increase in visitors will impact the Rochdale Canal SSSI/SAC due associated activities such as dog walking which can cause harassment of local wildlife, damage to sensitive habitats as well as impacts to soil nutrients from potential dog fouling. Other activities such as walking, running, biking can lead to soil compaction and erosion.

#### Habitat Fragmentation/Loss

The proposals will not result in a loss of land within the designated site as the proposals lie over 200m east of the site. The loss of habitats within the site have yet to be finalised as plans are ongoing and are illustrative (drawing 33961 *Concept Masterplan*, Appendix 2), however is it considered that the loss of habitats within the site will not adversely impact the qualifying feature of Rochdale Canal SSSI/SAC, Floating water-plantain *Luronium natans*, as it provides limited habitat for the species within the site.

## Air quality

Without suitable mitigation, the impacts on air quality will likely adversely impact the Rochdale Canal SSSI/SAC as the proposals are for the construction of up to 1,500 residential dwellings which will lead to an increase in vehicular pollution within the local area. The site lies within 200m of Rochdale Canal SSSI/SAC and emissions related to vehicular exhaust have been found to have a directly toxic effect upon vegetation. This additional pollution produced as a consequence of the proposals will likely adversely impact species and habitats within Rochdale Canal SSSI/SAC including, Floating water-plantain *Luronium natans*, which is particularly sensitive to pollution.

Pollution, dust and debris will be generated during the construction phase of the site proposals, and these may adversely impact the designated site without suitable mitigation, however the Rochdale Road (A664) and existing residential dwellings lies between the proposals and Rochdale Canal SSSI/SAC, and it is considered that these will likely absorb the majority of pollution created by the proposals during the construction phase.

Additionally, dust emissions during the construction phase will be kept to a minimum during the construction phase with the implementation of a Construction Ecology Management Plan (CEMP), however there will be an increase in dust emissions during the operation stage of the site from the residential use. Dust particles and emissions adjacent to the Rochdale Canal SAC/SSSI can enter the water body and increased turbidity with limited the biodiversity of the European site.

## Water quality

When considered alone, without suitable mitigation, the proposed development cannot be determined to have no adverse impact on the integrity of the Rochdale Canal SSSI/SAC due to existing onsite watercourses that are hydrologically linked to Rochdale Canal SSSI/SAC.

Assuming any future drainage networks are to be linked to the existing watercourses within the site, these drains will also discharge into the Rochdale Canal SSSI/SAC. This would likely lead to an increase in nutrients that will be treated within the catchment and ultimately discharged into the Rochdale Canal SSSI/SAC. Additionally, a loss of permeable surfaces, due to the development, will also likely lead to an increase in surface run off and flooding, which will also likely discharge pollution into the Rochdale Canal SSSI/SAC.

Any nutrient changes and pollution that will be produced by the proposals could cause degradation and changes to the water quality of Rochdale Canal SSSI/SAC, which may adversely impact vitally important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of the nationally scarce Floating water-plantain *Luronium natans*, which Rochdale Canal SSSI/SAC designated for, as well as Water violet *Hottonia palustris*, and a diverse assemblage of pond weeds *Potamogeton spp.*

## Urbanisation effects

When considered alone, without suitable mitigation, the proposed development will likely have an adverse impact of Rochdale Canal SSSI/SAC in relation to urbanisation effects.

The proposals are for the construction of up to 1,500 dwellings, urbanisation impacts such as littering, vandalism, fly tipping and an increase in domesticated animals such as cats and dogs, will also likely increase within the local area. This will likely indirectly impact species and habitats within Rochdale Canal including, Floating water-plantain *Luronium natans*, which is particularly sensitive to pollution.

## 6.2 Assessment of potentially adverse effects with additional mitigation measures

### Recreation

Currently, no additional mitigation measures have been proposed to relieve the impact that the proposals will have on the Rochdale Canal SSSI/SAC. Whilst areas of POS and local wildlife areas have been proposed within the site (Drawing 33961 *Concept Masterplan*, Appendix 2) and the Rochdale area has additional areas of open space (including Hopwood Woodlands LNR and Tandle Hill SBI), Rochdale Canal SSSI/SAC will likely receive an increase in recreational pressure due to the proposals. The proposals are currently for up to 1,500 dwellings and without additional mitigation measures, the potential adverse impacts due to an increase in recreational pressure, on Rochdale Canal SSSI/SAC cannot be fully assessed.

### Habitat Fragmentation/Loss

The proposals will not result in a loss of land within the designated site as the proposals lie over 200m east of the site. The loss of habitats within the site have yet to be finalised as plans are ongoing and are illustrative (drawing 33961 *Concept Masterplan*, Appendix 2), however it is considered that the loss of habitats within the site will not adversely impact the qualifying feature of Rochdale Canal SSSI/SAC, Floating water-plantain *Luronium natans*, as it provides limited habitat for the species within the site.

### Air quality

The Rochdale Road (A664) and existing residential dwellings lies between the proposals and Rochdale Canal SSSI/SAC, and it is considered that these will likely absorb the majority of pollution created by the proposals during the construction phase. Additionally, dust emissions during the construction phase will be kept to a minimum during the construction phase with the implementation of a Construction Ecology Management Plan (CEMP).

No other mitigation measures have been proposed or finalised to mitigate for the increased vehicular pollution that will increase due to the proposals, therefore potential adverse impacts on air quality cannot be fully assessed in relation to Rochdale Canal SSSI/SAC.

## Water quality

Rochdale Canal is hydrologically to the current onsite water courses. The proposals are illustrative at this stage (see drawing 33961 *Concept Masterplan*, Appendix 2) and the proposed drainage scheme indicates the surface water outfall will link to the existing culverted watercourse (see drawing 4159/Eng/100 Preliminary Regrade Contours and Ponds, Appendix 2) which will likely result in an increase in nutrient loading within the hydrological catchment of the SAC/SSSI, through the production of wastewater during construction or operation, potentially leading to degradation of habitat or changes in water quality. A loss of permeable surfaces, due to the development, will also likely lead to an increase in surface run off and flooding.

The surface water run-off from the development will be treated prior to the proposed outfall that will directly outfall into Rochdale Canal SSSI/SAC through a Sustainable Drainage System (SuDs) as indicated on the Preliminary Regrade Contours and Ponds plan (Appendix 2). The SuDs will remove pollutants from the wastewater discharged from the proposals, which will minimise the impact where possible to the Rochdale Canal SSSI/SAC.

## Urbanisation effects

Currently no methods, such as lighting plans that may mitigate for industrial impacts for protected species have been finalised. The Rochdale Canal SSSI/SAC lies approximately 200m west of the proposals, with existing residential dwellings and the road which will likely absorb the majority of light pollution produced by the proposals. Urbanisation effects such as noise and lighting will not adversely impact the qualifying feature of Rochdale Canal SSSI/SAC, Floating water-plantain *Luronium natans*.

The other potential adverse impacts of urbanisation, such as an increase in littering and domestic animals, on the Rochdale Canal SSSI/SAC cannot be fully assessed as potential mitigation methods to alleviate these impacts have not yet been finalised.

## 9.0 Conclusions on site integrity

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The screening assessment identified a number of key impacts that would likely arise as a consequence of the proposals and adversely impact the integrity of the Rochdale Canal SSSI/SAC and its conservation objectives described in section 4.0. Based on the information gathered from the screening process, an assessment of the significant adverse effects that have been identified, without alternative options or mitigation provided, cannot yet be concluded. The appropriate assessment (section 6.0) of the significant impacts will require more detailed information, including potential mitigation and avoidance, to assess whether an adverse impact on the integrity of the European Site will arise as a consequence of the proposals.

If suitable mitigation measures for these impacts, which when applied are capable of reducing the effects to a level where they are negligible and will not adversely affect the integrity of the site, then the integrity of the European Site will be maintained.

Where it cannot be demonstrated that there is no adverse effect, or there is uncertainty, the assessment would then need to consider if there were any other alternatives to the plan or project that would not give rise to adverse effects on the integrity of the European Site. If adverse effects are still likely then the competent authority would then consider if there are any Imperative Reasons of Overriding Public Interest (IROPI), only at this stage can Compensatory Measures be considered.

## 10.0 References

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<https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>

Ministry of Housing, Communities and Local Government (2021), *National Planning Policy Framework (NPPF)*

Multi Agency Geographic Information for the Countryside (MAGIC) [online]

Natural England Access to Evidence <http://publications.naturalengland.org.uk>

Natural England *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features Rochdale Canal Special Area of Conservation (SAC)* [Accessed 20/02/2023]

South East Wales Strategic Planning Group Habitat Regulations Assessment (HRA): A toolkit to support HRA Screening and Appropriate Assessment Of Plans, [online, assessed 20.02.2023]

Tyldesley, D. and Chapman, C. (2013) *The Habitats Regulations Assessment Handbook*. Nov 2019 edition. UK, DTA Publications Ltd <https://www.dtapublications.co.uk/>

# Appendix 1



## **European Site Conservation Objectives: Supplementary advice on conserving and restoring site features**

**Rochdale Canal Special Area of Conservation (SAC)  
UK0030266**

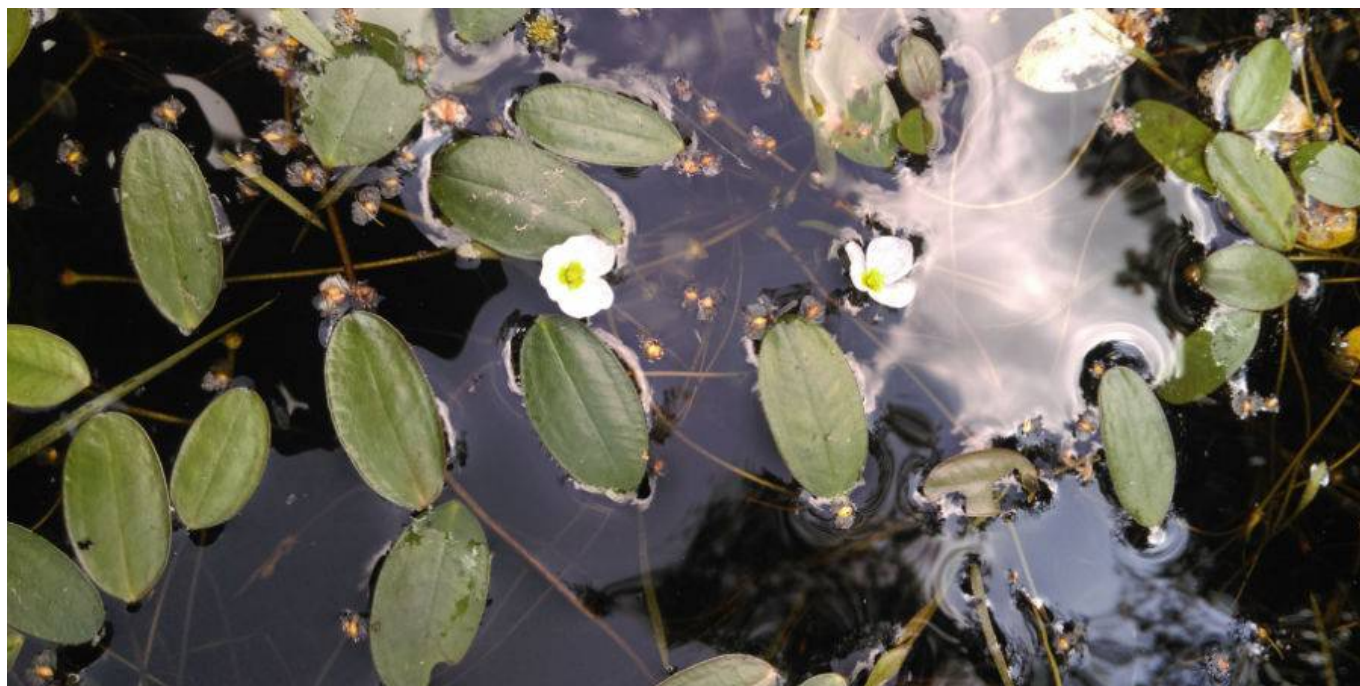


Image taken from Canal and Rivers Trust

**Date of Publication:** 25 January 2019

## **About this document**

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Rochdale Canal SAC. This advice should therefore be read together with the SAC Conservation Objectives available [here](#).

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England when developing, proposing or assessing an activity, plan or project that may affect this site'

This Supplementary Advice to the Conservation Objectives presents attributes which are ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to be those that best describe the site's ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Each attribute has a target which is either quantified or qualitative depending on the available evidence. The target identifies as far as possible the desired state to be achieved for the attribute.

The tables provided below bring together the findings of the best available scientific evidence relating to the site's qualifying features, which may be updated or supplemented in further publications from Natural England and other sources. The local evidence used in preparing this supplementary advice has been cited. The references to the national evidence used are available on request. Where evidence and references have not been indicated, Natural England has applied ecological knowledge and expert judgement. You may decide to use other additional sources of information.

In many cases, the attribute targets shown in the tables indicate whether the current objective is to 'maintain' or 'restore' the attribute. This is based on the best available information, including that gathered during monitoring of the feature's current condition. As new information on feature condition becomes available, this will be added so that the advice remains up to date.

The targets given for each attribute do not represent thresholds to assess the significance of any given impact in Habitats Regulations Assessments. You will need to assess this on a case-by-case basis using the most current information available.

Some, but not all, of these attributes can also be used for regular monitoring of the actual condition of the designated features. The attributes selected for monitoring the features, and the standards used to assess their condition, are listed in separate monitoring documents, which will be available from Natural England.

These tables do not give advice about SSSI features or other legally protected species which may also be present within the European Site.

**If you have any comments or queries about this Supplementary Advice document please contact your local Natural England adviser or email**

**[HDIRConservationObjectivesNE@naturalengland.org.uk](mailto:HDIRConservationObjectivesNE@naturalengland.org.uk)**

## About this site

### European Site information

|                                                                            |                                                                                                                                             |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name of European Site</b>                                               | Rochdale Canal Special Area of Conservation (SAC)                                                                                           |
| <b>Location</b>                                                            | Greater Manchester                                                                                                                          |
| <b>Site Map</b>                                                            | The designated boundary of this site can be viewed <a href="#">here</a> on the MAGIC website                                                |
| <b>Designation Date</b>                                                    | 1 <sup>st</sup> April 2005                                                                                                                  |
| <b>Qualifying Features</b>                                                 | See section below                                                                                                                           |
| <b>Designation Area</b>                                                    | 25.55ha                                                                                                                                     |
| <b>Designation Changes</b>                                                 | N/A                                                                                                                                         |
| <b>Feature Condition Status</b>                                            | Details of the feature condition assessments made at this site can be found using Natural England's <a href="#">Designated Sites System</a> |
| <b>Names of component Sites of Special Scientific Interest (SSSIs)</b>     | <i>Rochdale Canal SSSI</i>                                                                                                                  |
| <b>Relationship with other European or International Site designations</b> | N/A                                                                                                                                         |

### Site background and geography

Situated within the Greater Manchester area, the Rochdale Canal contains important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of the nationally scarce floating water-plantain *Luronium natans*. The site also supports a diverse assemblage of aquatic flora, in particular nine species of pondweed *Potamogeton* spp. The plant communities found in the Rochdale Canal are characteristic of mesotrophic water bodies, i.e. those which are moderately nutrient-rich.

Opened in 1804, the Rochdale Canal became the first of Manchester's three trans-Pennine canals and principal cargoes included coal, agricultural produce and materials for the textiles industry (Canal & River Trust, ND).

The canal is situated within the Manchester conurbation National Character Area (NCA) which is a predominantly urban area, bringing together a number of large settlements. The Manchester Pennine Fringe NCA wraps around the conurbation to the east and to the north. The Mersey Valley NCA lies to the west of the area, while the Shropshire, Cheshire and Staffordshire Plain NCA extends to the south. The high-rise buildings of Manchester city centre serve as a visual orientation point within the surrounding urban context, and can be seen from many viewpoints in the conurbation and in surrounding NCAs. Further information on this NCA can be found [here](#)

## **About the qualifying features of the SAC**

The following section gives you additional, site-specific information about this SAC's qualifying features. These are the natural habitats and/or species for which this SAC has been designated.

### **Qualifying Species:**

- **S1831 Floating water-plantain *Luronium natans***

Floating water-plantain *Luronium natans* occurs in a range of freshwater situations, including nutrient-poor lakes in the uplands, slowly-flowing lowland rivers, pools, ditches and canals that are moderately nutrient-rich. The floating water-plantain is an aquatic plant endemic to Europe. It has a complex life history and ecology and is notoriously difficult to identify. Rochdale Canal supports a significant population of floating water-plantain *Luronium natans* in a botanically diverse water-plant community. This population of *Luronium* is representative of the formerly more widespread canal populations of north-west England.

*Luronium natans* occurs as two forms: in shallow water with floating oval leaves, and in deep water with submerged rosettes of narrow leaves. The plant thrives best in open situations with a moderate degree of disturbance, where the growth of emergent vegetation is held in check. Populations fluctuate greatly in size, often increasing when water levels drop to expose the bottom of the water body. Populations fluctuate from year to year, and at many sites records of *L. natans* have been infrequent, suggesting that only small populations occur, in some cases possibly as transitory colonists of the habitat. Populations tend to be more stable at natural sites than artificial ones, but approximately half of recent (post-1980) records are from canals and similar artificial habitats. Its habitat in rivers has been greatly reduced by channel-straightening, dredging and pollution, especially in lowland situations.

**Table 1: Supplementary Advice for Qualifying Features: S1831. *Luronium natans*; Floating water-plantain**

| Attributes                         |                             | Targets                                                                                                                                                                                                                                                                                                                                                         | Supporting and Explanatory Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Sources of site-based evidence (where available)                                                                            |
|------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Population (of the feature)</b> | <b>Population abundance</b> | Maintain the abundance of the population where there is no decline >50 % in cover of <i>Luronium natans</i> within an occupied habitat area and within occupied habitat areas >2/3 of site open water cover provided by <i>Luronium natans</i> , whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent. | <p>This will ensure there is a viable population of the feature which is being maintained at or increased to a level that contributes as appropriate to its Favourable Conservation Status across its natural range in the UK. Due to the dynamic nature of population change, the target-value given for the population size or presence of this feature is considered to be the minimum standard for conservation/restoration measures to achieve. This minimum-value may be revised where there is evidence to show that a population's size or presence has significantly changed as a result of natural factors or management measures and has been stable at or above a new level over a considerable period (generally at least 10 years). The values given here may also be updated in future to reflect any strategic objectives which may be set at a national level for this feature.</p> <p>Given the likely fluctuations in numbers over time, any impact-assessments should focus on the current size of the site's population, as derived from the latest known or estimated level established using the best available data. This advice accords with the obligation to avoid deterioration of the site or significant disturbance of the species for which the site is designated, and seeks to avoid plans or projects that may affect the site giving rise to the risk of deterioration. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher levels in future should also be taken into account in any assessment.</p> <p>Unless otherwise stated, the population size or presence will be that measured using standard methods, such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise that the figures</p> | Natural England (2012) Definition of Favourable Condition – Rochdale Canal SSSI (Available on request from Natural England) |

| Attributes                                         |                                           | Targets                                                                                                                                                                                                     | Supporting and Explanatory Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Sources of site-based evidence (where available)                                                                            |
|----------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|                                                    |                                           |                                                                                                                                                                                                             | <p>stated are the best available.</p> <p>Many annual species undergo significant population fluctuations, unless there are fewer than 100 individuals (when an individual count is generally possible) counting is not going to be simple, partly as it is difficult to define functional individuals with a stoloniferous plant producing many plantlets.</p> <p>Discrete populations of <i>L. natans</i> must be greater than 50 m apart. Many habitats where <i>L. natans</i> is present may be subject to periodic major disturbance events and these may be important in enabling populations to persist at a site. Thus, there may naturally be considerable fluctuations in population size at a given site between monitoring visits and so only major fluctuations should be noted.</p> |                                                                                                                             |
| <b>Supporting habitat: extent and distribution</b> | <b>Distribution of supporting habitat</b> | Maintain the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site | A contraction in the range, or geographic spread, of the feature (and its component vegetation) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. Contraction may also reduce and break up the continuity of a habitat within a site and how well the species feature is able to occupy and use habitat within the site. Such fragmentation may have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for this feature and this may affect its viability.                                           |                                                                                                                             |
| <b>Supporting habitat: extent and distribution</b> | <b>Extent of supporting habitat</b>       | Maintain] the total extent of the habitats which support the feature to: 25.7ha of canal                                                                                                                    | In order to contribute towards the objective of achieving an overall favourable conservation status of the feature at a UK level, it is important to maintain or if appropriate restore the extent of supporting habitats and their range within this SAC. The information available on the extent and distribution of supporting habitat used by the feature may be approximate depending on the nature, age and accuracy of data collection, and may be subject to periodic review in light of improvements in data.                                                                                                                                                                                                                                                                           | Natural England (2012) Definition of Favourable Condition – Rochdale Canal SSSI (Available on request from Natural England) |
| <b>Supporting habitat: structure/</b>              | <b>Habitat structure</b>                  | Ensure the supporting water bodies are sufficiently free of other competing vegetation to                                                                                                                   | Luronium is intolerant of competition and occurs in a range of freshwater habitats – oligotrophic and mesotrophic lakes, slow flowing rivers and associated floodplain pools and small pools                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                             |

| Attributes                              |                                                     | Targets                                                                                                                                                                                                                                                                            | Supporting and Explanatory Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sources of site-based evidence (where available)                                                                                                                    |
|-----------------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| function                                |                                                     | allow space for this early successional species to thrive.                                                                                                                                                                                                                         | in heathland. There are also large populations in a number of disused or recently restored canals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                     |
| Supporting habitat: structure/ function | Substrate                                           | <p>Maintain a habitat substrate characterised by cohesive sediments which are not too coarse</p> <p>In areas of <i>L. natans</i>: Sediments cohesive and not coarser than 50/50 silt/sand.</p>                                                                                     | <p>Fine unconsolidated sediments are an unsuitable rooting medium and plants may be subject to uprooting. Conversely, where sediment is too coarse and mineral there may be scouring and poor root anchorage.</p> <p>Soft mineral sediments may support diverse vegetation provided boat traffic is low or absent. When boat traffic increases, fine unconsolidated sediments are an unsuitable rooting medium and plants may be subject to uprooting. Furthermore, under high boat traffic levels fine sediments are readily re-suspended leading to high turbidity levels and smothering of plant surfaces. Large quantities of leaf litter may lead to highly anoxic conditions unsuitable for plants and other organisms.</p> <p>Actual sediments are dependent on input of suspended solids in canal water supply, erosion within the canal and navigational requirements.</p>                                                                  | Natural England (2012) Definition of Favourable Condition – Rochdale Canal SSSI (Available on request from Natural England)                                         |
| Supporting habitat: structure/ function | Vegetation composition: invasive non-native species | Ensure the following invasive non-native species are absent from the site or being contained at a level which does not significantly affect the feature; <i>Crassula helmsii</i> , <i>Hydrocotyle ranunculoides</i> , <i>Myriophyllum aquaticum</i> , <i>Azolla filiculoides</i> , | <p>These alien plant species are highly competitive and will impact negatively on <i>Luronium</i>, which is not competitive. Other introduced species may have effects on ecosystem functioning through the food web or via direct effects on the plant community, e.g. artificially large waterfowl populations or non-native crayfish species.</p> <p><i>Luronium natans</i> is particularly sensitive to competition from other species. Whilst competitive interactions are very difficult to measure, a simple judgement on the height of associated vegetation can give an indication of the likelihood of competitive exclusion.</p> <p>Other introduced species may have effects on ecosystem functioning through the food web or via direct effects on the plant community, e.g. large waterfowl populations or non-native crayfish species. Further negative indicators which should cause concern if present are bottom-feeding fish.</p> | <p>Natural England (2012), Rochdale Canal Favourable Condition Table. Data may be available from Natural England upon request</p> <p>Lansdown &amp; Wade (2003)</p> |

| Attributes                              |                         | Targets                                                                                                                                                                                                                                                                                                              | Supporting and Explanatory Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Sources of site-based evidence (where available)                                                                            |
|-----------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Supporting habitat: structure/ function | Vegetation structure    | Ensure supporting habitat is free of shade or competitive vegetation; taller species associated with <i>Luronium</i> patches should be no more than occasional.                                                                                                                                                      | Excessive overhanging vegetation both results in shading of aquatic vegetation and large inputs of organic matter in the form of leaf litter.<br><br>Over-shading and leaf drop from developing bank-side trees denies opportunity for Floating water plantain to establish on large and growing sections of the canal. Bankside tree removal is often required to reduce shading effects and leaf litter input.                                                                                                                                                                                                                                     | Natural England (2014), Site Improvement Plan                                                                               |
| Supporting habitat: structure/ function | Water clarity           | Maintain a high degree of water clarity, typically the canal bed should be clearly visible in water 1m deep in summer (where depth of canal allows).                                                                                                                                                                 | Elevated turbidity levels as a result of, for example, high boat traffic densities, high phytoplankton densities, or the presence of benthic-feeding fish will have adverse impacts on submerged plant communities. Although <i>Luronium</i> may occur in naturally dystrophic waters with humic staining, this may be exacerbated by acidification, reducing water clarity further.                                                                                                                                                                                                                                                                 | Natural England (2012) Definition of Favourable Condition – Rochdale Canal SSSI (Available on request from Natural England) |
| Supporting habitat: structure/ function | Water levels/ hydrology | Maintain water levels which are sufficient to maintain or restore populations; in shallow pools natural fluctuations in water level should be allowed to occur.<br><br>There should be no drop in overall depth of more than 10% throughout the canal and water level fluctuations minimised during April to October | In shallow pools and similar sites plants often flower and fruit on draw-down zones as summer water levels recede. These processes should not be artificially interrupted, but will vary greatly from year to year depending on weather.<br><br>Canals have small flows of water due to leakage and boat movements through locks. These flows can be essential elements in maintaining good water quality. Consistently low water levels may stress emergent and aquatic vegetation. High levels of lock usage on navigated canals can result in large fluctuations in water levels and associated scouring of bed sediments and aquatic vegetation. | Natural England (2012) Definition of Favourable Condition – Rochdale Canal SSSI (Available on request from Natural England) |
| Supporting habitat: structure/ function | Water quality/ quantity | Maintain water quality and quantity to a standard which provides the necessary conditions to support the feature                                                                                                                                                                                                     | For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year during key stages of their life cycle. Poor water quality and inadequate quantities of water can adversely affect the availability and suitability of breeding, rearing and feeding habitats.<br><br>Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework                                                                                                                  |                                                                                                                             |

| Attributes                                                                              |                                  | Targets                                                                                                                                                                                                                                                                    | Supporting and Explanatory Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Sources of site-based evidence (where available)                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                         |                                  |                                                                                                                                                                                                                                                                            | Directive (WFD 2000/60/EC) will also be sufficient to support the SAC Conservation Objectives but in some cases more stringent standards may be needed to support the SAC feature. Further site-specific investigations may be required to establish appropriate standards for the SAC. L.uronium populations are present across a wide range of habitats with a corresponding range of water chemistry. This suggests that its tolerances to most water chemistry parameters are not especially demanding although links between presence/persistence and water quality are not yet understood. As such the water quality targets set out for freshwater habitats should be sufficient to protect populations from adverse impacts.                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                      |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Adaptation and resilience</b> | Restore the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site                                                                                                                 | The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being high, taking into account the sensitivity, fragmentation, topography and management of this habitat. This means that this site is considered to be the most vulnerable sites overall and are likely to require the most adaptation action, most urgently. A site based assessment should be carried out as a priority. This means that action to address specific issues is likely. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.                                                                                                                                                                                                                                                                                                                | NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England [Available at <a href="http://publications.naturalengland.org.uk/publication/4954594591375360">http://publications.naturalengland.org.uk/publication/4954594591375360</a> ]. |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Air quality</b>               | Restore as necessary the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ). | <p>The supporting habitat of this feature is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition (including food-plants) and reducing supporting habitat quality and population viability of this feature.</p> <p>Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a</p> | <p>More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (<a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).</p> <p>Natural England (2014), Site Improvement Plan</p>                                                               |

| Attributes                                                                              |                                        | Targets                                                                                                                                                                                                                                        | Supporting and Explanatory Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Sources of site-based evidence (where available)                                                          |
|-----------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
|                                                                                         |                                        |                                                                                                                                                                                                                                                | <p>case-by-case basis.</p> <p>Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales.</p>                                                                                                                     |                                                                                                           |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Conservation measures</b>           | Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain the structure, functions and supporting processes associated with the feature and/or its supporting habitats. | Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, site management strategies or plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.                                        | <p>English Nature (2004), Views About Management</p> <p>Natural England (2014), Site Improvement Plan</p> |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Disturbance from human activity</b> | The duration, intensity and/or frequency of disturbance events should not affect the environmental conditions necessary to support the feature                                                                                                 | The loss or reduction in the disturbance regime (for example, grazing, water-level fluctuations, flood scouring, dredging and boat traffic) that would normally arrest succession is particularly significant.                                                                                                                                                                                                                                                                                                                                     |                                                                                                           |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Regeneration</b>                    | Maintain the regenerative ability of the population, indicated by a range of different plant sizes being present.                                                                                                                              | This implies effective ageing and recruitment of plants.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                           |
| <b>Supporting processes (on which the feature and/or its supporting habitat relies)</b> | <b>Regeneration (sexual)</b>           | Ensure that, in shallow pools, there is a sufficient number of flowering and seeding plants each year                                                                                                                                          | An increase in the presence of perennial vegetative plants may be associated with prolonged wetness or site permanence. In the case of populations of annual plants in shallow pools it is important to obtain evidence of sexual reproduction. The mere presence of plants only confirms the quality of seed set from previous generations. However, the degree of seed dormancy in <i>L. natans</i> is unknown and repeated recruitment from the seedbank without effective replenishment will reduce the long-term stability of the population. |                                                                                                           |

| Attributes                                                                                                                                                                       |                           | Targets                                                                                                                                                                                                        | Supporting and Explanatory Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Sources of site-based evidence (where available) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Supporting processes (on which the feature and/or its supporting habitat relies)                                                                                                 | Regeneration (vegetative) | Maintain sufficient areas of shallow and still water for the development of ascending stolons bearing chains of plantlets, and for the production of floating leaves.                                          | Canal populations are sterile clones that only reproduce vegetatively. Floating water-plantain has a number of apparently discrete reproductive strategies, annual flowering, perennial flowering, and perennial vegetative. It also occurs in dynamic metapopulations that contain different populations with different reproductive strategies. Any monitoring or conservation programme that does not take account of the dynamics of metapopulations and the requirements of the different reproductive strategies will not adequately represent the requirements of the species. Monitoring will provide a means by which data can be fed back into the system to refine conservation action. Further research is needed to explain the ecological requirements of some populations.                                  | Lansdown & Wade (2003)                           |
| Supporting processes (on which the feature and/or its supporting habitat relies)                                                                                                 | Water quantity/ quality   | Where the feature or its supporting habitat is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the feature | <p>For many SAC features which are dependent on wetland habitats supported by surface and/or ground water, maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type.</p> <p>Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed to reflect the ecological needs of the species feature. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.</p> |                                                  |
| <b>Version Control</b><br>Advice last updated: N/A                                                                                                                               |                           |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |
| <b>Variations from national feature-framework of integrity-guidance:</b> Attribute relating to soils and nutrients have been removed as not considered relative to this feature. |                           |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |

## References

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Natural England (2014), Site Improvement Plan, Rochdale Canal SAC. Available from: <http://publications.naturalengland.org.uk/publication/6227629417955328>

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# European Site Conservation Objectives for Rochdale Canal Special Area of Conservation

Site code: UK0030266



With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

**Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;**

- The extent and distribution of the habitats of qualifying species
- The structure and function of the habitats of qualifying species
- The supporting processes on which the habitats of qualifying species rely
- The populations of the qualifying species, and,
- The distribution of the qualifying species within the site.

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

## **Qualifying Features:**

S1831. *Luronium natans*; Floating water-plantain

## Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 as amended from time to time (the “Habitats Regulations”). They must be considered when a competent authority is required to make a ‘Habitats Regulations Assessment’, including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where available) will also provide a framework to inform the measures needed to conserve or restore the European Site and the prevention of deterioration or significant disturbance of its qualifying features.

These Conservation Objectives are set for each habitat or species of a [Special Area of Conservation \(SAC\)](#). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving Favourable Conservation Status for that species or habitat type at a UK level. The term ‘favourable conservation status’ is defined in regulation 3 of the Habitats Regulations.

**Publication date:** 27 November 2018 (version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect the consolidation of the Habitats Regulations in 2017.

## Appendix 2



- |                                                                                    |                                                                                                      |                                                                                     |                                                                                                                    |                                                                                     |                                                                             |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
|  | Site Boundary                                                                                        |  | Primary Avenue (incl. shared pedestrian/ cycle route, and grass verge with street trees on both sides of the road) |  | Existing Pond to be Retained/ Enhanced (x 4)                                |
|  | Manchester Road                                                                                      |  | Secondary Avenue (incl. grass verge with street trees on one side of the road)                                     |  | Proposed SuDS/ Attenuation Area                                             |
|  | Thornham New Road (Adopted)                                                                          |  | Existing Public Right of Way (to include enhanced pedestrian and cycle paths)                                      |  | Pedestrian Access Points from Existing Urban Area                           |
|  | Thornham New Road (Unadopted/ Farm Track)                                                            |  | Off Road Active Travel Route Providing Pedestrian and Cycle Connectivity                                           |  | St John's Thornham CE Primary School                                        |
|  | Residential Development Blocks (c.39ha/ 1170 homes at 30dph)                                         |  | 1 x NEAP (incl. MUGA)                                                                                              |  | St John's Thornham Church                                                   |
|  | Phase 1 Residential Development Blocks                                                               |  | 2 x LEAP (1 x LEAP to be delivered within Phase 1)                                                                 |  | Thornham Cricket Club                                                       |
|  | Local Centre and Primary Sub Location (within Phase 1) (c.0.7ha)                                     |  | Potential Teenager Play (i.e. BMX track)                                                                           |  | Richard Bentley Smalley Memorial Hall                                       |
|  | Land for Potential School Extension                                                                  |  | Potential Church Car Parking Area and Orchard                                                                      |  | Existing Farm (with potential for future residential development, as shown) |
|  | Green Infrastructure (incl. POS, SuDS, Retained landscape and Planting, and Ecological Enhancements) |  | High Point with Potential to Include Seating                                                                       |  | M627(M)                                                                     |
|  | Primary Point of Highway Access                                                                      |  | Indicative Planting                                                                                                |  | M62                                                                         |
|  | Secondary Point of Highway Access (c.100 homes only)                                                 |                                                                                     |                                                                                                                    |  | Petrol station and local shop                                               |



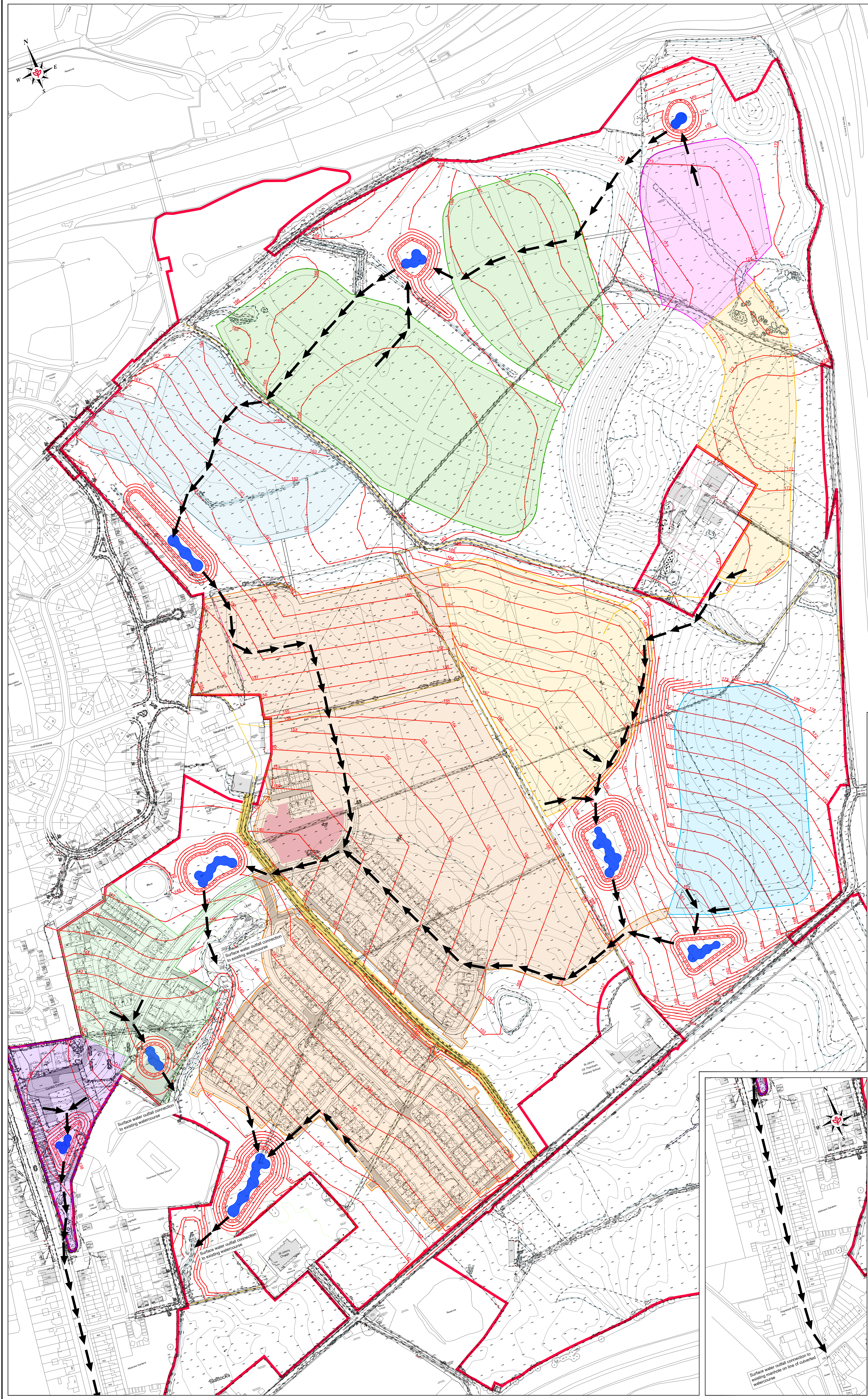
Stakehill

# Concept Masterplan

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AT SW



**KEY**

- 172 Indicative Regrade Contour
- Surface Water Drainage Strategy
- Development Areas
- Ponds / Permanent bodies of Water (Indicative)

**Designers' Risk Assessment**

| Comment | By | Check |
|---------|----|-------|
| 1. -    |    |       |
| 2. -    |    |       |
| 3. -    |    |       |

**Stakehill**

Location: Manchester Road, Middleton

Marketing Name: -

Drawing Title: Preliminary Regrade Contours & Ponds

Drawing Number: 4159 / Eng / 100

Drawn By: JGM

Scale: 1:1250

Checked By: AB

Field Issue: 23.02.2023

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