

Hive Aggregates

Retford Circular Economy Project (RCEP)

Fact Check – April 2023

The table below sets out Hive Aggregates' responses to objections received.

Objections	Related Point in Objection	Hive Aggregates' Response
<p>1 – A waste of public funds: the restoration of the Lound, Sutton and Bellmoor gravel pits benefitted from funding from a variety of public sources including £1 million of lottery money. It seems perverse to dig it all up again.</p>	<p>They say: "We can confirm that no part of the PFA proposed for extraction by the RCEP is located within the nature reserve" . . . and then say . . . "only a very small section of the Site of Special Scientific Interest ('SSSI'), the nationally protected part of the nature reserve, falls within the RCEP site boundary." Which is it? None, or only a small part? On their admission, the extraction site DOES impinge onto the SSSI.</p>	<p>The restoration of the sand and gravel workings to the south of the Retford Circular Economy Project (RCEP) site led to creation of the Sutton and Lound Gravel Pits Site of Special Scientific Interest (SSSI). We understand that the restoration benefitted from some public money, and from a significant amount of funding from the historic quarry operator, Tarmac. The Natural England citation for the SSSI describes it as a low-lying gravel pit complex containing extensive areas of shallow and deep open water resulting from mineral extraction.</p> <p>In comparison, the RCEP site located to the north has for the most part been restored to low quality grazing land, not the wetland habitats found in the SSSI. Furthermore, a large part of the RCEP site comprises artificially raised lagoons, which the Nottinghamshire Minerals Local Plan (2005) confirms "<i>visually have not proved to be a success</i>" (Planning Statement, paragraph 6.114). By excavating PFA from the RCEP site there is an opportunity to replace the existing low-quality grazing land and artificial landform with much improved habitats, progressively in tandem with the extraction.</p> <p>We have committed to a restoration scheme that would provide in excess of 10% Biodiversity Net Gain, along with a long-term period of aftercare. The detail of the restoration proposals is set out in the Environmental Statement (ES) Volume 3, Technical Appendix 8.5: Outline Restoration Strategy.</p> <p>If there is concern around the Sutton and Lound Gravel Pits SSSI then we would emphasise that:</p> <ul style="list-style-type: none"> - none of the PFA to be extracted is located within the SSSI; and - this is clearly illustrated in Plan 4092-PUB-048 'SSSI Details' at the end of this document, which shows the location of the PFA resource relative to the SSSI. <p>The only overlap between the wider RCEP site and the SSSI is a small section of lagoon embankment where no PFA extraction would take place. This area totals approximately 1.47 hectares in size,</p>



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		<p>equalling less than 0.5% of the SSSI land area. The habitat here is primarily raised plantation woodland and grass, which is different to that within the adjacent parcel of the SSSI. Features of the SSSI are entirely or primarily associated with wetland habitats and therefore habitats within the overlapping section do not directly support these features.</p> <p>It is proposed to lower the aforementioned section of lagoon embankment following PFA extraction to the north. It is estimated that this exercise would require a matter of weeks, after which the land would be restored to a combination of wet grassland and species-rich grassland to complement the SSSI. It follows that there would be no adverse effects on SSSI features from direct habitat loss.</p> <p>Please refer to Environmental Statement (ES) Volume 1, Chapter 8 Ecology and Ornithology submitted as part of the planning application for more detail.</p>
<p>2 – Risks to nature and rare species: the Idle Valley wetlands are one of England's most important birding sites with rare species, passage migrants and large flocks of over-wintering wildfowl.</p>	<p>But in any case, nature doesn't recognise artificial boundaries. It is the entire ecosystem that is of concern.</p>	<p>The Idle Valley Nature Reserve, Sutton and Lound Gravel Pits SSSI, and associated habitats are a regionally important site for birds, wildlife and people, and has been recognised as such in our planning application. As part of the planning application process for the project an extensive range of detailed surveys, including but not limited to breeding and wintering birds, reptiles, great crested newts and bats have been carried out to ensure information is available for officers at Nottinghamshire County Council to make a robust and informed judgement on any potential effects of the RCEP on nature and rare species in the area.</p> <p>If planning permission is granted, these surveys would continue throughout the extraction process to enable us to respond to any changes and to check that safeguards are appropriate. The key wetland habitats that support important populations of wildfowl are some distance from the RCEP site, but precautionary mitigation is in place to further reduce or avoid any potential direct and indirect effects. All ecological features are considered based on their conservation status and presence in the area and are assessed accordingly with a range of mitigation measures recommended where relevant.</p> <p>The ES (Volume 1, Chapter 8 Ecology and Ornithology) presents the assessment, which follows prevailing guidance and best practice. The various statutory designations (e.g. the Sutton and Lound Gravel pits SSSI) and non-statutory Sutton and Lound Gravel Pits Local Wildlife Site have different physical extents on the ground. As stated previously, a very small area of the SSSI overlaps the RCEP site in an area where no PFA is located and is not habitat that supports features of the designated site</p>



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		<p>(i.e. the reason for its legal protection). The 'nature reserve', as managed by the Nottinghamshire Wildlife Trust (NWT), is entirely outside the RCEP site boundary. All details are clearly presented and given due consideration where relevant throughout the ES. The boundaries reflect where habitats are located, and habitats outside the designated areas differ markedly across the area, with the farmland within the RCEP site not being comparable to those managed expressly for wildlife elsewhere.</p> <p>Although adjacent to the nature reserve, the RCEP site itself is of lower ecological value, with intensive sheep grazing limiting opportunities for wildlife. The nature reserve and wetland complex praised as <i>"one of England's most important birding sites"</i>, is a result of historic quarrying, as are other similar reserves in Nottinghamshire, and aptly demonstrates the possibilities for restoration and how such sites can thrive into areas of great value. The RCEP offers through its restoration proposals, opportunities to expand on this good work, by creating a network of new habitats that complement those nearby within the Idle Valley Nature Reserve, replacing low-quality grazing land and an artificial landform to bring long-term value.</p>
<p>3 – Flood risk and water pollution: the site abuts a flood risk zone. A single flood or leak could contaminate the river and lakes including the beaver dam.</p>	<p>Toxic flood risk They don't say that fly ash is typically laced with toxic contaminants and that the site abuts a flood zone. They make no reference to climate change resulting in more frequent and more severe rain storms, and that rising sea levels affecting the Humber and Trent will affect flood patterns during the lifetime of the project. Lying in the midst of wetlands and an ancient flood plain, the Idle Valley is already a flood zone. The applicant's own site map, prepared by Arcus,</p>	<p>We acknowledge that there are concerns around flooding and contamination of PFA into local water sources. It is an extremely important point we have taken very seriously which is why the RCEP has been designed so that flood water would not be able to come into direct contact with exposed PFA.</p> <p>A Flood Risk Assessment addressing all potential sources of flooding has been undertaken, and is included in Volume 3, Appendix 9.2 of the ES. In 2020 the Environment Agency updated their hydraulic model of the River Idle so that it now takes into account the effects of climate change on the river flow and the flood levels. This model simulates the likely water levels for a range of scenarios including the 1 in 100 year and 1 in 1000 year events. i.e. intense storms that are only likely to occur once in 100 or once in 1000 years; very much a worst-case scenario. These water levels have then been used to inform the Flood Risk Assessment that forms part of our planning application.</p> <p>The Flood Risk Assessment shows that there is the potential for floodwater to abut the RCEP site along two small sections of the site boundary, to the north east and south west. At these locations, the strategy we have developed is to purposefully retain the existing lagoon embankment levels above the simulated peak water level for the 1 in 100 year flood event plus a 20% allowance for climate change, with a further added 300 millimetre allowance to safeguard against any residual uncertainty in</p>



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	<p>clearly shows the immediate proximity of flood risk zones 2 and 3 (even without global warming induced sea level rise). A spill or a flood could contaminate a vast area of agricultural land, enter waterways and contaminate water sources. It would take only one flood/leak event to subject the River Idle and downstream lakes, including the site of the beaver relocation, to ash contamination and possible poisoning.</p>	<p>predicted flood levels. Based on the peak flood levels generated by the updated Environment Agency model this would ensure that even if a 1 in 1000 year flood event were to occur during operation of the RCEP site there would be no hydraulic pathway for flood water to come into direct contact with exposed PFA.</p>
<p>4 – Loss of amenity: disruption of customary walking trails and leisure pursuits, with associated loss of physical and mental health benefits.</p>	<p>They say there's already industrial development round here so one more doesn't make much difference. The truth is the exact opposite: their mining operation in the centre of the wetlands complex, coupled with aggregate and cement block production at both northern and southern ends, would have the effect of turning the essential nature of the area from one of England's most important wildlife reserves into an extended industrial park. The proposed West Burton nuclear</p>	<p>Paragraphs 6.19 to 6.38 of the Planning Statement describe the effects of the RCEP on the amenity of public rights of way (PRoWs) with regards to changes in noise, air quality, dust, traffic and the landscape, as well the mitigation measures to reduce adverse impacts as much as possible, such as locating noisier plant away from PRoWs and measures to control dust and other potential emissions being secured by planning condition.</p> <p>It is acknowledged that the RCEP would temporarily change the character of parts of the site. This is an essentially unavoidable effect of minerals related development, which by its very nature is predominantly located in semi-rural and countryside areas. This is why the National Planning Policy Framework acknowledges that mineral resources are finite and can only be worked where they are found.</p> <p>It should equally be acknowledged that the RCEP extraction is proposed on a phased basis and would move around the site, therefore the interaction and impact on amenity would vary. The parts of the RCEP that have the potential to be most visually prominent would be largely screened by the existing lagoon embankments and planting, thereby minimising the perceived change in landscape along the nearby PRoWs.</p>



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	fusion laboratory is also only 6 miles away due east.	Most importantly, the planning application proposes a comprehensive restoration strategy, which would improve amenity along all PRowS in the area. Initially, these benefits would be realised partially as restoration phases are completed, with the greatest benefits realised when it is complete.
5 – An environmental hazard: In addition to its properties when dry as a very fine dust, and when wet as a sludge, fly ash is known to contain dangerous contaminants. That's why they went to such lengths to bury it.	N/A	<p>The Environment Agency classes PFA as non-hazardous and the constituents of the material are well known. PFA is used as a product for engineering and building purposes, and it has its own well-established market and Quality Protocol developed by WRAP (Waste & Resources Action Programme) and the Environment Agency in consultation with industry and other regulatory stakeholders in England, Wales and Northern Ireland. The UK Quality Ash Association (UKQAA) is a Trade Body that represents members involved in the supply or use of PFA from pulverised coal fired power stations to safeguard these strategic reserves, as well as funding research into understanding the properties of landfilled PFA.</p> <p>The RCEP site contains PFA that was piped from Cottam Power Station between the 1970s to the early 2000s. The PFA was sent as a waste product because at the time it was produced there was simply too much of it available in the UK for all of it to be used productively. It follows that there are PFA landfills in other parts of the UK where coal-fired power stations were located; purely because, like at the RCEP site, too much was produced to recycle or reuse. However, in recent years the demand for PFA has increased significantly, primarily because government policy and industry are demanding more sustainable building materials.</p> <p>There have been numerous studies over a number of years which have undertaken analysis of the constituent components of PFA such that it is now a well understood and characterised material that is in terms of its composition, very similar in some respects to Portland cement. PFA has been used on many engineering development projects around the UK, and for example, was used successfully at Celtic Resort in preparation for the 2010 Ryder Cup to landscape areas of the course. Best Practice Guidance has been produced by the UKQAA for the placement and compaction of fly ash as structural fill and there are many other technical information resources on PFA available for public view on the UKQAA website.</p> <p>PFA does contain trace element components that are recognised as a potential hazard to human health and the environment at high concentrations, exposure frequencies and durations. As such, PFA is a</p>



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		<p>product that has COSHH (Control of Substances Hazardous to Health) and REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) information sheets available for the safe handling of the material.</p> <p>It has been shown from previous case studies that when PFA reclamation is managed and controlled in an appropriate way there are no increased exposure risk to human health or the environment. The reclamation of the PFA is a waste recovery process and therefore it is regulated by very stringent Environment Agency permit requirements undertaken in accordance with The Environmental Permitting (England & Wales) Regulations 2016 (as amended).</p> <p>The RCEP will require a permit, which would include the following:</p> <ul style="list-style-type: none">- dust management plan in accordance with Environment Agency guidance;- Waste Recovery Plan (WRP) and permit for the restoration of the void;- water abstraction license for dewatering of the PFA during extraction where it is at or below the water table;- permit for any water discharged from the site;- water treatment requirements; and- Hydrogeological and hydrological risk assessment. <p>For planning purposes, the activities would also be managed under a Construction Environmental Management Plan (CEMP), Drainage Management Plan (DMP) and Water Environmental Management Plan (WEMP). These are all included as part of the planning application.</p> <p>In summary, PFA contains low levels of components that may pose a human health or environmental hazard, but concentrations of such exposure would need to be significantly elevated to result in an adverse effect. Given the control and mitigation mechanisms that are to be put in place, such potential environmental exposure release from the RCEP site is not considered significant.</p>
6 – Toxic dust pollution:	N/A	The planning application includes consideration of the potential impacts of dust on air quality and local amenity. The potential impact associated with the dust emissions on human and ecological receptor locations within the area have been assessed using methodologies as outlined in the Institute of Air



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<p>there is a high risk of 'fugitive' dust affecting nearby lakes, properties and people.</p>		<p>Quality Management (IAQM) Minerals Dust Guidance. The conclusions of the assessment are that the proposed operations would result in a 'not significant' effect with respect to dust at sensitive receptors, in consideration of the designed-in and recommended mitigation measures as described in the Dust Management Plan in ES Volume 3.</p> <p>The PFA to be extracted would be wet/moist when taken from the ground and transported to a temporary processing area located more than 250 metres from any residential receptors and therefore, even without mitigation, the risk of dust migration is small. However, dust mitigation measures have been built into the site operations, including:</p> <ul style="list-style-type: none">- Water availability at all times on site with a dust suppression system utilising a tractor and bowser for all internal roads, stockpiles and surfaces, where practicable;- Finley Screen (or similar) supplied with canvas dust covers on mains and fines conveyor;- No stockpiles of PFA to remain at the end of each working day;- Enclosed material storage building, kept under negative pressure with extraction system fitted with filters;- All processing plant at the Main Processing Site to be fully enclosed, with the exhaust from the dryers passing through cyclone and fabric filters prior to release to atmosphere/condensation;- Vehicles exiting site to utilise wheel-wash located adjacent to weighbridge; and- All material transferred off site contained either by powder tankers or sheeted wagons. <p>The ES concludes that with the implementation of the Dust Management Plan the impact would be negligible at all sensitive receptors which include human receptors and the adjacent Idle Valley Nature Reserve.</p> <p>Importantly, it is our professional opinion that the workplace exposure limits identified in <i>EH40/2005 - Workplace Exposure Limits</i> (updated 2020) would not be exceeded for inhalable or respirable dust either on the site or at locations off site, subject to the identified mitigation measures being implemented. Accordingly, there is no reason to consider that the dust is toxic.</p>



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<p>7 – A huge volume of traffic: 26,000 extra HGV movements every year for 25 years. That's one every seven and a half minutes through our rural villages.</p>	<p>They say: "We can provide assurances that traffic would not significantly impact the villages of Lound or Sutton-cum-Lound. Importantly, this is because it is now intended that construction and operational traffic would use the A638." This is disingenuous since they avoid mentioning that the forecast 96 HGV movements per day (26,000 per year, one every 7.5 minutes) would pass through Barnby Moor and Blyth using the A634. And that this would add massively to air pollution, an acknowledged killer.</p>	<p>The full details of vehicle movements during both construction and operation are set out in ES Volume 1, Chapter 14 Traffic and Transport.</p> <p>We have carried out a detailed assessment of traffic levels, including with other proposed developments in the area. Overall, the traffic generated by the RCEP, including up to eight HGV movements per hour during operation, is expected to increase traffic by only 2%. The assessment concludes that this small increase would not lead to any significant impacts. Operational hours for HGV traffic would be confined to 07:00 to 19:00 Monday to Friday and 7:00 to 13:00 on Saturday meaning that there would be no HGV traffic outside of these hours or on Sundays and Bank Holidays. Moreover, the majority of HGV movements would occur outside of the peak morning and evening rush hours to avoid any undue strain on the highway network at these times.</p> <p>HGVs associated with RCEP would use the A638 to access the site, thereby not needing to use minor roads through any local villages. It is correct that some HGVs would pass through Barnby Moor, but only on the A638, not minor roads. We appreciate that some concerns remain regarding use of the A638 itself; however, our transport specialists have confirmed that the A638 is a major transport corridor constructed to accommodate significant HGV traffic and would remain well below its design capacity.</p> <p>The RCEP would use two designated routes to the A1(M), which are detailed in ES Volume 3, Appendix 14.1, Transport Statement. One route travels north and the other travels south, neither using minor roads. It is expected that trips would be spread out between the routes. We can confirm that neither of these routes passes through the village of Blyth. The route north from the RCEP site travels along the A638 to the junction with the A614, then uses the A614 southbound to access to A1(M). All return vehicles would use the same route.</p> <p>The Air Quality effects of traffic emissions is addressed below.</p>
<p>8 – More air pollution: Exhaust fumes are a</p>	<p>Transport emissions and pollution Assuming the transport route might entail a return trip via the A1M to Selby</p>	<p>ES Volume 1, Chapter 13 Air Quality includes consideration of emissions from vehicles associated with the RCEP. CO₂ emissions are not toxic but contribute to the greenhouse effect. The standards and objectives related to air quality were set by the Expert Panel on Air Quality Standards and CO₂ has never been considered as one of the pollutants that could have a health impact. With respect to health impacts</p>



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<p>known killer and these trucks will generate 2,224 tonnes of additional emissions every year.</p>	<p>and return, it is possible to calculate quite precisely that 26,000 round trips of 80 miles would generate pollutant emissions of 2,224 tonnes CO₂e every year for 25 years using DEFRA's most recent published conversion factors. That totals 55,600 tonnes of emissions from the project's traffic alone. This is not an abstract figure: it is a measure of actual toxic air pollution which would directly affect residents in the villages and towns passed.</p>	<p>from vehicle movements, this is principally related to concentrations of NO₂ and particulates (PM₁₀ & PM_{2.5}).</p> <p>In order to determine the extent to which pollutant concentrations are acceptable or not, predictions have been carried out in the ES at sensitive receptor locations and those pollutant concentration levels are then compared against the National Air Quality Objective (NAQO) levels. As a very worst-case scenario the air quality assessment we carried out assumed that all HGV movements from the RCEP would travel equally on all local roads along the defined routes to the site, rather than being spread out. In all cases the predicted pollutant concentrations are significantly below the NAQOs. What this means in practical terms is that adverse health impacts from HGVs travelling to and from the RCEP would not occur as the predicted pollutant concentrations due to RCEP traffic would be negligible. Over the lifetime of the development it is likely that the number of HGVS running biomethane, electricity and hydrogen would increase and therefore vehicle pollutants would decrease.</p>
<p>9 – False green claims: it's not in Retford and it's not 'circular economy'.</p>	<p>They call the project 'Retford Circular Economy Project'. The Green Claims Code administered by the Competition and Markets Authority explicitly prohibits false or misleading statements which suggest a product or service has unprovable environmental benefits. The present proposal does just that. It is described as a circular economy project, which it is not. The definition of 'circular'</p>	<p>Retford is used in the project's name because it is the nearest major town and therefore a practical geographic reference.</p> <p>A circular economy is one in which materials are 'recycled, repaired or reused rather than thrown away, and in which waste from one process becomes an input into other processes'¹. The RCEP ticks both of these boxes by clearing supporting the transition to a more circular economy:</p> <ul style="list-style-type: none"> • The RCEP would beneficially use an industrial by-product (PFA) that was 'thrown away' as a waste by reusing it as a building product. In doing so the RCEP makes efficient use of a waste product in accordance with UK Government's interpretations of the circular economy. • Using the example of PFA as a replacement for traditional Portland cement; the RCEP would reduce the need to extract virgin minerals (e.g. limestone) because the PFA, a waste from the burning of coal, would form a replacement input into the cement making process.

¹ <https://www.chathamhouse.org/2018/06/making-concrete-change-innovation-low-carbon-cement-and-concrete>



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	<p>given on the project website is also inaccurate. Circular implies unlimited recycling or reuse of a material or product, with the potential to eliminate raw material extraction. Glass bottles or aluminium cans are good examples, both being recyclable indefinitely and saving significant amounts of energy and emissions compared with virgin raw materials.</p> <p>The Green Claims Code goes further in that claiming a product or material is recyclable in principle is insufficient: it must actually be part of an operational circular system. While a high proportion of demolition rubble is actually recycled, buildings have a life span measured in decades or centuries. The probability is therefore extremely low that any particular building might be demolished and its construction materials recycled. The project promoters cannot give any</p>	<p>The RCEP introduces circular economy practices within the wider cement and concrete production process, much like recycling bottles and cans does for virgin silica and aluminium resources. It follows that the RCEP supports the circular economy by the very fact that PFA replaces virgin minerals, in the same way that recycling or reusing cans or bottles does.</p> <p>Beyond the above, there could be further support for the circular economy in the future when any structure or building that contains PFA from the RCEP site is demolished. The recycling of construction and demolition waste in the UK is common practice and the industry continues to grow. This includes a growing interest around concrete recycling. Concrete structures can be broken down into aggregate and mixed back into new concrete. Such recycling can reduce the amount of virgin minerals needed and it reduces the amount of waste materials in landfill². We can by no means guarantee that every single particle of PFA from the RCEP site would eventually be recycled in this way, but it is reasonable to consider that there is an increasingly high probability that it would be recycled or reused in the future.</p>

² <https://www.chathamhouse.org/2018/06/making-concrete-change-innovation-low-carbon-cement-and-concrete>

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	<p>undertaking that any of their product would actually be recycled. PFA extraction is thus a linear process: waste ash is mined from the ground, blended with cement into concrete, and put into buildings, which is its de facto end of life.</p> <p>The project is also labelled 'Retford'. It is not located in Retford.</p>	
<p>10 – Misleading claims: fly ash is not used as a one-to-one substitute for cement but in a ratio of 6-35%.</p>	<p>N/A</p>	<p>The objection here appears to be referring to a particular blended product containing PFA. We have always been clear that PFA, otherwise known as 'fly ash', can be used in a range of building products, including as a partial replacement for Portland cement in concrete mixes.</p> <p>It is correct that PFA replaces Portland cement at around 35-40% in some mixes; however, there are new products entering the market that are pushing the amount of PFA and other by-products that can be used significantly higher, and others that remove the need for Portland cement entirely.</p> <p>These products include geopolymers and alkali activated cements that can be made almost entirely using industrial by-products such as PFA, which are activated using an alkali solution rather than Portland cement. Studies have shown that these alternative cements products can have embodied energy and carbon footprints that are up to 80-90% lower than those for Portland cement³.</p>
<p>11 – Misleading emissions data:</p>	<p>They say: "It is estimated that this process (cement manufacture) can produce up to 1 tonne of carbon for every</p>	<p>We can confirm that 'carbon' is recognised shorthand for 'carbon dioxide'. This is what we mean when referring to 'carbon' here.</p>

³ <https://www.chathamhouse.org/2018/06/making-concrete-change-innovation-low-carbon-cement-and-concrete>



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<p>potential emissions reductions are 170kgCO₂e per tonne of PFA, not 1,000kg as claimed.</p>	<p>tonne of cement made.” The actual figure is 860kg, as published by the Mineral Products Association (MPA). And it’s carbon dioxide, not ‘carbon’.</p> <p>They say: “On the other hand, PFA can save close to 1 tonne of carbon for every tonne used in place of traditional cement.” This is misleading since fly ash is not used one for one, but as a blend of 6-35%. An average blend generates 690 kgCO₂e of emissions against raw cement of 860, ie a saving of 170 kgCO₂e, quite different from their claim of ‘one tonne’.</p> <p>They say: We plan to “extract up to 6.7 million tonnes of PFA which it is estimated could save around 5.3 million tonnes of carbon.” The potential saving would be a lot less than claimed, as shown above, and reduced further by the actual emissions from the operation and traffic flow, and from a loss</p>	<p>The RCEP is focussed on the carbon emissions of 1 tonne of PFA versus the same amount of Portland cement, on the basis that every tonne of PFA from the RCEP site could replace/displace 1 tonne of Portland cement production at source in the UK cement industry. In short, the aim is that cement plants no longer need to produce the same amount of Portland cement as the amount of PFA produced at the RCEP site.</p> <p>PFA can save close to 1 tonne of carbon for every tonne that replaces a tonne of Portland cement. This is well documented and is primarily because PFA has already been through a thermal process in the power plant furnace where it was produced (it is the ash by-product from coal-fired power generation), whereas the raw ingredients required to create Portland cement (e.g. limestone) need to be kilned at around 1,500 degrees centigrade, in addition to other processing that PFA does not require. The production of a tonne of cement emits around 0.8-1 tonne of carbon for every tonne that is produced. This is confirmed in general literature available on the internet.</p> <p>For the planning application we commissioned our own greenhouse gases (GHG) and carbon assessment for the RCEP, carried out by specialist consultants (see ES Volume 1, Chapter 15 Climate Change), to consider, amongst other things:</p> <ul style="list-style-type: none">• all construction and operational emissions from the project; and• draw conclusions regarding the performance of PFA from the RCEP site versus traditional Portland cement. <p>The assessment uses official emissions figures from the Mineral Products Association, amongst other, and concludes that the RCEP could save in excess of 5 million tonnes of carbon over its lifetime, equating to a saving of around 0.8 tonnes of carbon per tonne of PFA relative to Portland cement. The savings therefore remain close to 1 tonne of carbon even when all construction and operational emissions are considered. To put this into perspective, the assessment shows that RCEP has the potential to release substantially fewer GHGs over its entire lifetime than the production of an equal annual amount of Portland cement would in only a single year.</p>



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	<p>of carbon sequestration from the destroyed fields.</p> <p>They further claim that: “The material can save close to 1 tonne of carbon for every tonne used, therefore saving a colossal amount of carbon, and helping the UK to meet its climate change targets.” This is untrue, as shown above. Any export of the product would fail to contribute to UK targets.</p> <p>Emissions calculations Considering that a reduction in emissions is the most fundamental – the only – justification for the proposal, it might reasonably to expect the company to have carried out or commissioned a full and proper Life Cycle Analysis (LCA), a detailed ‘carbon footprint’ or a GHG emissions calculation. But they haven’t. Their claims are based on generic data published by the MPA which is several years old. For these claims to be valid, they would need to be</p>	



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	<p>calculated based on actual data of the proposed operational process including machinery employed, forecasts of energy used, precise transport routes, and loss of carbon sequestration consequential on the destruction of the existing fields, as well as the exact end use of the fly ash product and the proportion used in the concrete mix. None of this information has been made available.</p>	
<p>12 – It's not just the SSSI: the risks are to the entire wetlands ecosystem not just the formal nature reserve.</p>	<p>They say: "We can confirm that no part of the PFA proposed for extraction by the RCEP is located within the nature reserve" . . . and then say . . . "only a very small section of the Site of Special Scientific Interest ('SSSI'), the nationally protected part of the nature reserve, falls within the RCEP site boundary." Which is it? None, or only a small part? On their admission, the extraction site DOES impinge onto the SSSI. But in any case, nature doesn't recognise artificial boundaries.</p>	<p>See the response to objection 2 above with regards to impacts on the wider wetland ecosystem. With regards to the quoted statements, both are correct:</p> <p><i>"We can confirm that no part of the PFA proposed for extraction by the RCEP is located within the nature reserve"</i> – Extraction would occur within the lagoons on the areas shown on the accompanying plan 'SSSI Details' (Drawing ref. 4092-PUB-048) all of which lie outside the Idle Valley Nature Reserve and Sutton and Lound Gravel Pits SSSI boundary.</p> <p><i>"only a very small section of the Site of Special Scientific Interest ('SSSI'), the nationally protected part of the nature reserve, falls within the RCEP site boundary."</i> A small section of the SSSI covering 1.47 hectares in size, falls within the red line boundary for the planning application. This area does not contain PFA.</p>



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	It is the entire ecosystem that is of concern	
13 – The experimental nature of the project: means that having disrupted the ecosystem and the neighbourhood, it may not proceed anyway.	N/A	The project is not experimental. PFA has been used in a range of building products in the UK and internationally for many decades, including as a replacement for Portland cement. This is well documented. However, we are proposing to use innovative technology to dry the material (a component of the processing that is proposed), which itself would lead to further carbon savings for the project.
14 – Uncertain future: it's hard to hold anyone to account for restoration plans 25-40 years in the future.	They say the site: "would be worked on a phased basis and progressively restored following each extraction phase. This means that early phases of the site would be fully restored . . . before later phases are subject to extraction, bringing benefits forward by many years." But they don't say how large such phases might be and that, having restored one, it could take another 20 years to mature while other phases continue to be mined over an extended	<p>It is correct that the RCEP takes a phased approach to extraction and restoration, with restoration of a phase typically occurring after extraction. The phasing plans submitted as part of the planning application (Drawing ref. 403.000007.00001.12.020-030.0) illustrate how the extraction and progressive restoration would occur. The size of each phase is displayed in Table 4.1 and Table 4.2 of the Planning Statement. The areas range from 3-8 hectares.</p> <p>It is estimated that the simultaneous extraction and restoration activities would span a 22–25-year period. By the end of this period, it is anticipated that the restored landscape, with the exception of the last phases, would have sufficiently matured to provide new habitat and visual screening. This would be achieved through the selection and establishment of a range indigenous plant species of different sizes. In addition to this, we would retain as much existing planting as possible, only removing that which is strictly necessary to enable construction and operational activities. Further details on this are provided in ES Volume 1, Chapter 7 Landscape and Visual Impact Assessment.</p> <p>As each phase is restored, and as part of the operational works, the landscape contractor would provide continued management and monitoring as part of a long-term period of aftercare. It is</p>



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	<p>period of up to 45 years from the present for full restoration maturity.</p>	<p>anticipated that the overall design, detailed design, and longer-term management would be secured through a planning condition(s)/legal agreement. The outline restoration strategy and indicative landscape restoration masterplan (submitted as Appendix 8.5 and Figure 7.12 of the ES Volume 3 respectively) provide the overall approach to restoration.</p> <p>On this basis, it is considered that there would be sufficient legally binding mechanisms in place to secure the management of restoration over the lifetime of the RCEP.</p>
<p>15 – Alternatives exist: there are alternatives to fly ash, alternatives ways of reducing emissions in cement production, and alternatives to this particular site. There is not alternative to nature: it's our life</p>	<p>They describe the project as “An innovative project helping to solve a global problem.” Actually, the PFA market, including mining from landfill dumps, is well established with supply reckoned to be around 3M tonnes per year. The so-called global problem of emissions in the construction industry is being actively addressed in many other ways, even as the sector continues to expand</p>	<p>It is true that PFA, otherwise known as ‘fly ash’, is not the only solution to reducing emissions in cement production. In fact, there is no single ‘silver bullet’; rather a range of measures are going to be required, including:</p> <ul style="list-style-type: none"> • Energy efficiency; • Using alternatives to fossil fuels; • Carbon capture and storage; and • Replacing Portland cement, as is proposed by the RCEP. <p>Energy efficiency and using alternatives to fossil fuels save carbon, but do not solve the problem of needing a significant amount of energy and heat to manufacture Portland cement, along with the carbon released when the raw materials are heated and kilned.</p> <p>Carbon capture and storage is many years away from being implemented at any significant scale, which includes massive investment in infrastructure such as pipelines and storage facilities. Indeed, the recent ‘Skidmore Review’⁴ noted that connecting ‘dispersed’ cement production plants to the future carbon capture network, such as the five plants located in the Peak District which collectively emit around 2 million tonnes of greenhouse gas emissions annually, will be very challenging.</p> <p>Specifically, the document states that:</p> <p><i>“At an evidence roundtable for the Review, we heard that it was, and will continue to be, very challenging for dispersed sites to connect into the CCUS network, exacerbated by a lack of non-pipeline transport options such as shipping of CO2.”</i></p>

⁴ <https://www.gov.uk/government/publications/review-of-net-zero>

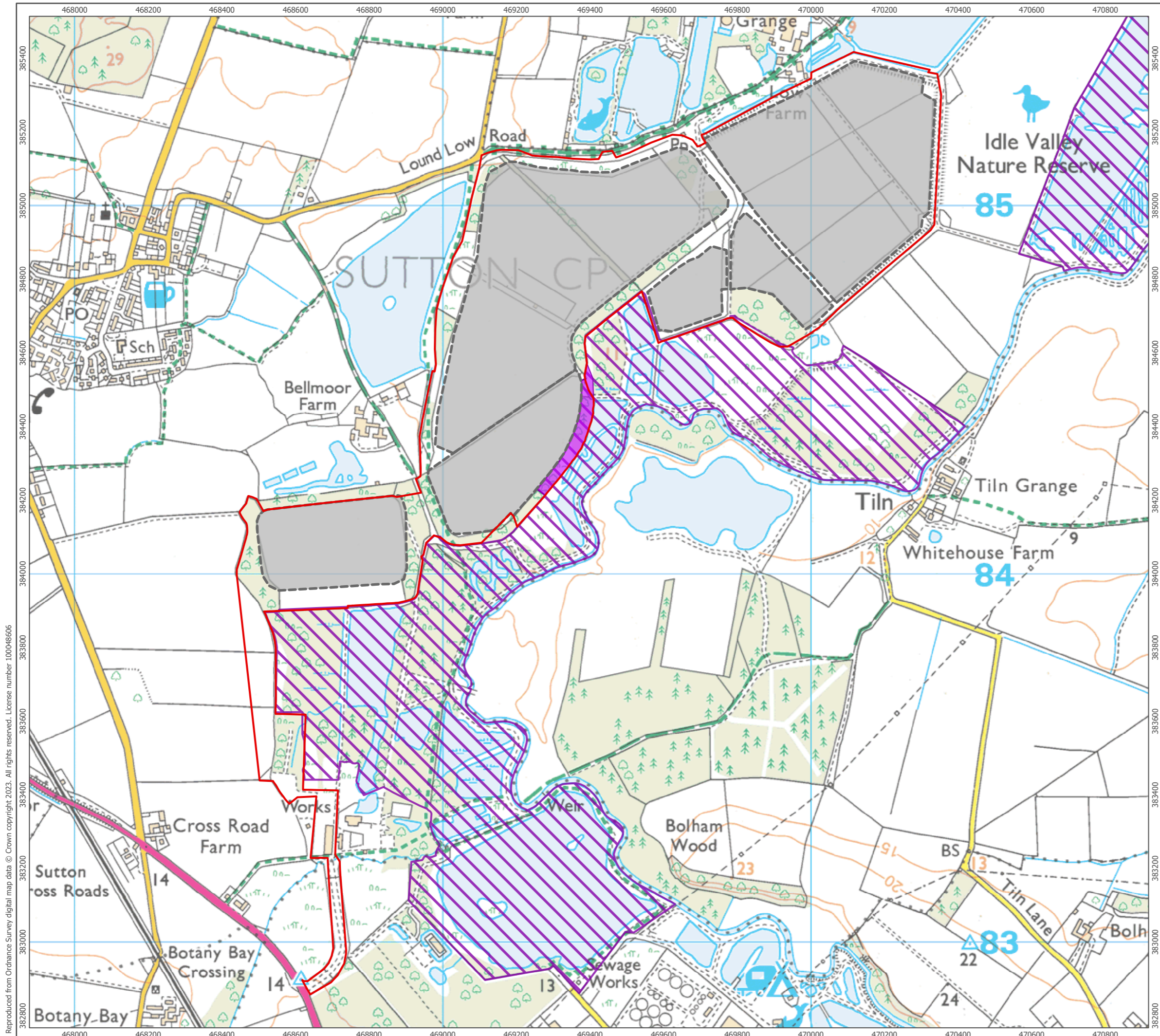


Objections	Related Point in Objection	Hive Aggregates' Response
support system.		<p>It is also worth noting that we should aim to not generate the carbon in the first place, which is where partially or fully replacing Portland cement with by-products like PFA comes in. This can be achieved not only by PFA, but by materials such as blast furnace slag as well.</p> <p>A 2018 study⁵ by Chatham House notes the following regarding replacing Portland cement with alternative materials like PFA:</p> <ul style="list-style-type: none">• Portland cement replacement is not only a very effective solution, but also one that can be deployed cheaply today, as it does not generally require investments in new equipment or changes in fuel sources.• It is, therefore, especially important to scale up Portland cement replacement in the near term while more radical options are still under development.• It is estimated that 0.83 tonnes of carbon can be saved per tonne of Portland cement/clinker displaced.• Geopolymer or alkali-activated cements, which use by-products like PFA and/or blast furnace slag, and do not require Portland Cement, can have embodied energy and carbon footprints that are up to 80-90% lower than those for Portland cement/clinker. <p>The above goes some way to demonstrating why PFA and other by-products are viewed as sustainable building product and why the Government's National Planning Policy Framework classes PFA from deposits like RCEP as a mineral resource of local and national importance.</p> <p>In terms of alternatives to the RCEP site, the planning application includes consideration of potential alternative sites in ES Volume 1, Chapter 5 Project Description. The opportunities for a similar development at an alternative location are limited by the availability and quality of PFA deposits. It has been estimated by the UK Quality Ash Association (UKQAA) that there could be up to 100 million tonnes of PFA from coal-fired power stations that has previously been deposited. However, a significant proportion of this is not deemed extractable/accessible, due to being sterilised by other development, amongst other things. Furthermore, the quality of PFA available at some of the</p>

⁵ <https://www.chathamhouse.org/2018/06/making-concrete-change-innovation-low-carbon-cement-and-concrete>

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		<p>alternative sites does not meet the high-quality standards required for use of PFA as a cement replacement.</p> <p>It is reasonable to consider that every viable PFA deposit of high enough quality should be used to meet the significant demand for the material and to allow for a meaningful shift away from production and consumption of Portland cement. This is particularly relevant when considering that the UK uses around 15 million tonnes of cement every year.</p> <p>It should also be noted that we have received numerous enquiries about taking PFA from the site, which would in combination more than account for the proposed maximum 300,000 tonne per year production figure proposed by RCEP. The interested parties include multinational cement production companies with plants in the region.</p>
<p>16 – Lack of experience: the project promoter has no previous experience in this type of operation.</p>		<p>Hive Aggregates forms part of the Hive Energy Group, an internationally respected developer and operator in the renewable energy and circular economy sectors. Hive is leading multiple complex projects in the UK and around the globe, including projects relating to solar, green hydrogen, green ammonia, wind, recycling and many more.</p> <p>Hive Aggregates has built a team specifically for the RCEP, including an array of technical specialists, consultants, and contractors to design and deliver all aspects of the project. This includes support from Fox Owmbly (Fox) in preparing the extraction and restoration scheme. Fox is a nationally recognised civil engineering, earthworks, and quarrying contractor with its head offices only 45 minutes from the RCEP site. Fox operates nationwide, benefiting from a dedicated and skilled workforce of over 150 people, comprising of plant operatives, mechanics, engineers, surveyors, site managers, health and safety managers, contract managers and head office staff.</p> <p>Fox's quarrying division operates nationwide, undertaking both large and small bespoke extraction and restoration schemes, utilising the services of its own large, modern plant fleet which is complemented by a highly trained team. Fox brings a wealth of experience to the RCEP, including across the full lifecycle of project development, from construction and operation, through to restoration. The Fox teams includes specific experience in extracting, managing, processing, and transporting PFA.</p>

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		<p>It is not a prerequisite for the planning process that the applicant has previous examples of such projects to refer to. In this instance Hive Aggregates has carefully assessed the environmental characteristics of the area and proposed comprehensive mitigations. If planning permission is awarded it would contain a wide range of controls applicable to the operator of the PFA extraction site. The planning process would establish the suitability of the proposed land use and the planning permission would attach to the land.</p>

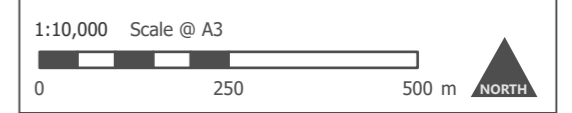


- Site Boundary
- PFA Area
- SSSI Overlap with Site Boundary
- Site of Special Scientific Interest

Areas:

Site of Special Scientific Interest = 316.77 ha
SSSI Overlap with Site Boundary = 1.17 ha

Percentage of SSSI within Site Boundary = approximately 0.37%



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SSSI Details

Retford Circular Economy Project

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