

16 SUSTAINABILITY

16.1 INTRODUCTION

The concept of sustainability as reported by IEMA¹ in is defined by the United Nations as *'meeting the needs of the present without compromising the ability of future generations to meet their own needs.'* Sustainability can be defined according to three core pillars: environmental, social, and economic. All three elements need to be balanced and considered to achieve sustainability.

- Environmental – this refers to maintaining a healthy environment by using natural resources at a rate where they can be replenished and reducing environmental damage through human activities, with growing recognition of the additional need to conserve and enhance nature.
- Social – social sustainability refers to reducing negative impacts on people by ensuring that basic necessities (water, shelter, food etc) can be attainable to all people to create healthy, liveable, and thriving communities.
- Economic – refers to sustaining and safeguarding human and natural resources through financial systems and structures, to ensure long-term sustainability of, communities, the environment, and the economy.

The United Nations (UN)² developed the Sustainable development Goals (SDGs) in 2015 to provide global goals and an associated framework of targets for a *'peaceful and prosperous future for people and planet by 2030'*. These goals provide a planetary framework for sustainability. They were adopted by all UN member states, including the UK. The SDGs split sustainable development into 17 goals which cover key environmental, social, and economic drivers for a more sustainable society.

16.2 UK SUSTAINABILITY COMMITMENTS

Further to the UN SDGs, there are several commitments to which the UK Government has signed up:

- The Paris Agreement, a global, legally binding international treaty on climate change adopted in 2015 with a goal of limiting global temperature increases to below 2°C compared to pre-industrial levels.
- Net Zero by 2050, a binding target for government, local government, regulators, businesses, and consumers to bring all UK greenhouse gas emissions to net zero by 2050, set in 2019. This was an update to the UK's 2008 Climate Change Act, increasing the ambition set by the original targets. In 2021, the United Kingdom committed to reducing national emissions by 78% by 2035 compared to 1990 levels. A recent report 'Mission Zero. Independent Review of Net Zero' chaired by the Rt Hon Chris Skidmore MP, highlights the urgent need for the UK to enable and maximise the growth potential from net zero in light of wider geopolitical instability.
- The Environment Act (2021), focusses on improving air and water quality, restoring biodiversity, and reducing waste. These changes will be driven by legally binding environmental targets and enforced by the independent Office for Environmental Protection (OEP) which will hold government and public bodies to account on their environmental obligations.

¹ IEMA, sources providing Sustainability Policy Background, 2022.

² United nations Sustainable Goals - <https://sdgs.un.org/goals>

16.2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)³ was published in March 2012 and last updated in July 2021. The NPPF sets out the Government's planning policies for England and how these are to be applied. Key policy relates to facilitating the sustainable use of minerals:

- 210. (b) *'so far as practicable, take account of the contribution that substitute, or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously';*
- (h) *'ensure that worked land is reclaimed at the earliest opportunity, taking account of aviation safety, and that high quality restoration and aftercare of mineral sites takes place'.*
- 211. *'When determining planning applications, great weight should be given to the benefits of mineral extraction, including to the economy'.*

16.2.2 National Planning Policy for Waste

The National Planning Policy for Waste (NPPW)⁴ document was published in October 2014 (Department for Communities and Local Government, 2014). It sets out the Government's planning policies relating specifically to waste management and should be read in conjunction with the NPPF.

The overarching ambition of the NPPW and Waste Management Plan for England⁵ to work towards a more sustainable and efficient approach to resource use and management. To deliver this ambition they seek to help secure the re-use, recovery or disposal of waste without endangering human health and without harming the environment.

16.2.3 Clean Growth Strategy

The Clean Growth Strategy⁶ published in 2017 sets out the Government's proposals for achieving economic growth while simultaneously reducing emissions and pollutants that result from economic activity. Chapter 4 identifies economic sectors where clean growth can be achieved. Within this section the UK Government commits to encouraging resource efficiency, preventing waste and supporting innovation and processes for reusing and recycling waste. By providing specific case studies of good practice across the UK, the Strategy acknowledges the reduction in emissions and economic benefits provided by waste recovery in the product supply chain.

16.2.4 Nottinghamshire Minerals Local Plan: Adopted 2021

The Nottinghamshire Mineral Local Plan⁷ (NMLP) supports the extraction of minerals *'that strikes the right balance between providing the essential minerals for the county's*

³ The National Planning Policy Framework (2021). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf [Accessed February 2023]

⁴ The National Planning Policy for Waste (NPPW) (2014). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/364759/141015_National_Planning_Policy_for_Waste.pdf [Accessed February 2023]

⁵ The Waste Management Plan for England (2021). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/955897/waste-management-plan-for-england-2021.pdf [Accessed February 2023]

⁶ The Clean Growth Strategy Leading the way to a low carbon future (2017). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf [Accessed February 2023]

⁷ [adoptedmineralslocalplancompressed.pdf \(nottinghamshire.gov.uk\)](https://www.nottinghamshire.gov.uk/adoptedmineralslocalplancompressed.pdf)

prosperity and supporting future economic growth, whilst protecting and improving our environment and the quality of life for those living and working in Nottinghamshire’.

The Plans overarching vision states:

‘Mineral development will be designed, located, operated and restored to ensure that environmental harm and impacts on climate change are minimised

Sites will be available to support the economic, social and environmental benefits of sustainable growth. Minerals resources, and associated minerals infrastructure will be identified and safeguarded against inappropriate development. Consumption will be minimised, by promoting the use of secondary and recycled minerals’

All mineral workings will contribute towards ‘a greener Nottinghamshire’ by ensuring that the County’s diverse environmental assets are protected, maintained and enhanced through appropriate working, restoration and afteruse and by ensuring that proposals have regard to Nottinghamshire’s historic environment, townscape and landscape character, biodiversity, geodiversity, agricultural land quality and public rights of way. This will result in improvements to the environment, contribute to landscape-scale biodiversity delivery, including through the improvements to existing habitats, the creation of large areas of new priority habitat, and the re-connection of ecological networks, with sensitivity to surrounding land uses’.

Relevant strategic objectives and policies include:

SO1: *‘Improving the sustainability of minerals development Ensure more efficient exploitation and use of primary mineral resources by minimising waste, increasing levels of aggregate recycling and the use of alternatives from secondary and recycled sources’.*

SO2: *‘Providing an adequate supply of minerals Assist in creating a prosperous, environmentally sustainable and economically vibrant County through an adequate supply of all minerals to assist in economic growth both locally and nationally.’*

SO3: *Addressing climate change. Minimise and mitigate the impact of mineral developments on climate change and support the transition towards a low carbon economy by encouraging efficient ways of working including reductions in transport and onsite machinery emissions. Reduce existing and future flood risks linked to, and aid in adaptation to, climate change through good quarry design and operation, water management, location of plant and appropriate restoration,Contribute to climate change adaptation by relinking fragmented habitats and creating new areas of habitat to allow the migration and dispersal of species’.*

NMLP Strategic Policies

Strategic Policy Presumption in favour of sustainable development

‘3.2. National planning policy is clear that the purpose of the planning system is to contribute to the achievement of sustainable development through the three overarching objectives of securing overall economic, social and environmental gains. Planning policies and decisions should actively guide development towards sustainable solutions that reflect the local character, needs and opportunities of each area’

3.3 When considering development proposals, the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. The Council will work proactively with applicants to jointly find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area’.

Policy SP2 – Biodiversity-Led Restoration

- 1. Restoration schemes that seek to maximise biodiversity gains and achieve a net gain in biodiversity, in accordance with the targets and opportunities identified within the Nottinghamshire Local Biodiversity Action Plan, will be supported.*
- 2. Where appropriate, schemes will be expected to demonstrate how restoration will contribute to the delivery of Water Framework Directive objectives.*

Policy SP3 – Climate Change

1. All minerals development, including site preparation, operational practices and restoration proposals should minimise impacts on the causes of climate change for the lifetime of the development by being located, designed and operated to help reduce greenhouse gas emissions, and move towards a low-carbon economy. 2. Where applicable, development should assist in the reduction of vulnerability and provide resilience to the impacts of climate change by: a) Avoiding areas of vulnerability to climate change and flood risk. Where avoidance is not possible, impacts should be fully mitigated; b) Developing restoration schemes which will contribute to addressing future climate change adaptation, including through biodiversity and habitat creation, carbon storage and flood alleviation.

'Policy MP5: Secondary and Recycled Aggregates Development proposals which will increase the supply of secondary and/or recycled aggregates will be supported where it can be demonstrated that there are no significant environmental, transport or other unacceptable impacts'.

16.2.5 Bassetlaw Local Plan 2020-2037: Publication Version: August 2021

The Bassetlaw Core Strategy and Development Management Policies Development Plan Document (DPD) is underpinned by the Sustainability Appraisal. This sets out fourteen key objectives of which, those relevant to the Proposed Development are listed below:

- 2. 'To promote and support the development and growth of social capital across the District*
- 3. To protect the natural environment and increase biodiversity levels across the District*
- 4. To protect and enhance the historic built environment and cultural heritage assets in Bassetlaw*
- 5. To protect and manage prudently the natural resources of the district including water, air quality, soils, and minerals*
- 6. To minimise waste and increase the re-use and recycling of waste materials*
- 7. To minimise energy usage and to develop the district's renewable energy resource, reducing dependency on non-renewable sources*
- 8. To make efficient use of the existing transport infrastructure, help reduce the need to travel by car, improve accessibility to jobs and services for all and to ensure that all journeys are undertaken by the most sustainable mode available*
- 9. To create high quality employment opportunities*
- 10. To develop a strong culture of enterprise and innovation*
- 11. To provide the physical conditions for a modern economic structure, including infrastructure to support the use of new technologies.'*

Also, of relevance in the local plan is:

- Strategic Objective 6 (SO6) aims 'To ensure that all new development addresses the causes and effects of climate change by, as appropriate, reducing or mitigating flood risk; realising opportunities to utilise renewable and low carbon energy sources and/or infrastructure, alongside sustainable design and construction; taking

opportunities to achieve sustainable transport solutions; and making use of Sustainable Drainage Systems.’

- DM10: Renewable and Low Carbon Energy – ‘C. Major development proposals will be expected to deliver specific low-carbon and renewable energy infrastructure in line with assessments of feasibility and overall viability’.

These objectives have been saved and are included in the emerging Local Plan under the relevant key headings of biodiversity, economy and skills, transport, land use and soils, water, flood risk, air quality, climate change, resource use, waste, landscape, and townscape.

16.2.6 Emerging Plans and Policies

The Council is in the process of adopting a new local plan, entitled **Bassetlaw Local Plan 2020-2038**, which will eventually replace the existing Core Strategy and Development Management Policies DPD. The emerging local plan has recently been examined by Inspectors as part of the Examination in Public process, the Inspectors have requested follow-up work from the Council in certain policy areas, including renewable energy generation. Emerging draft policies ST50 (Reducing Carbon Emissions, Climate Change Mitigation and Adaptation) and ST51 (Renewable Energy Generation) support proposals that reduce carbon and energy impacts, and which improve resilience to the anticipated effects of climate change.

16.3 EFFECTS OF THE PROPOSED DEVELOPMENT ON SUSTAINABILITY POLICIES

The environmental assessment of the Proposed Development provides an in-depth analysis of its key attributes and its environmental impact in terms of significant effects and the measures taken through the design process to embed mitigation and provide further enhancement. Taking this into account and measuring the overall findings in terms of the three core pillars of sustainability, it is considered that the Proposed Development would meet the criteria provided for the three core pillars which define sustainability by contributing to reducing environmental damage through the extraction of the PFA and the restoration of the landscape with measures in place to balance a range of ecological, farming and landscape interests and the provision of new job opportunities over 25 years to support local economy.

In addition, the Proposed Development would also meet 6 of the 17 UN Sustainable Goals. These are:

- **8. Decent work and Economic Growth** - It is estimated that around 20 direct jobs would be created including site processing and handling staff, admin & welfare, construction machine operators, landscape construction and forestry workers, Also, a number of the direct jobs would be skilled jobs such as project managers and engineers. There would also be indirect job creation, including in the local supply chain and haulage contracts.
- **9. Industry, Innovation, and Infrastructure** - Reusing PFA in the concrete and cement industries presents an important example of the circular economy where the waste output of one process can be used as a material component to another; reducing the need to extract primary resources. Additionally, unless stockpiled PFA deposits, like those derived from the Proposed Development are utilised, manufacturers who currently use PFA would have to revert to Portland cement or import PFA from abroad. Other benefits PFA can bring to sustainable construction are that:

- PFA also has a considerably lower density than sand, which, combined with the cost per tonne of PFA, considerably reduces the cost of a grout mix; and,
 - Concrete containing PFA also reduces permeability and improves the long-term strength and durability of the concrete when compared with ordinary Portland cement concrete (UKQAA, 2004)
- **11. Sustainable Cities and Communities** – Allied to nine above, the use of PFA from the Proposed Development would contribute overall to the development of sustainable development through its application as a cement substitute. Also, the Proposed Development as demonstrated in **Chapter 15, Climate Change** would provide an overall beneficial significance in terms of GHG emissions.
 - **12. Responsible Consumption and Production** - The use of PFA extracted from the Site would contribute to the overall need to avoid the extraction of primary aggregates from natural and protected habitats and landscapes, such as National Parks and Areas of Outstanding Natural Beauty (AONBs), which could result in adverse environmental impacts. In 2014, in England and Wales, 9.3% and 4.8% of total crushed rock sales were supplied from National Parks and AONBs respectively, and 0.5% and 3.3%, respectively for land-won sand and gravel (British Geological Society, 2014).
 - **13. Climate Action** – The Proposed Development would produce on average approximately 300,000 tonnes per annum of PFA for use as a replacement for Portland Cement in concrete manufacture, which would result in substantial reductions in lifecycle GHG emissions compared to the use of conventional Portland Cement. The Proposed Development has potential to release fewer GHGs over its entire lifetime than the production of an equal annual quantum of Portland Cement (95% of the extracted PFA) would in only a single year. In addition, the use of the proposed low energy and low carbon drying plant would consume 75%-80% less natural gas than conventional thermal drying equivalents. Studies have shown that each tonne of PFA used in cementitious applications can save up to around the equivalent CO₂.
 - **15. Life on Land** – The restoration scheme for the Proposed Development is biodiversity led. Over the proposed 25-year period the land would be gradually restored following extraction in each phase; reinstating some of the existing farming activities, including grazing of the Site and habitat management using sheep. The proposed habitats include wet grassland, species-rich grassland, reed beds, woodland, and water bodies to buffer and compliment the adjacent Sutton and Lound Gravel Pits SSSI. It is anticipated that there would be a significant improvement on the current habitats at the Site with a biodiversity net gain of approximately 13%.

At a National and local level, the Proposed Development would also accord with the sustainable objectives in the NPPF, NMLP and Bassetlaw Local Plan and emerging Local Plan.

16.4 SUMMARY

The Proposed Development presents a unique and beneficial opportunity to recycle and use waste PFA by-products derived from the burning of coal in power stations in a highly innovative and sustainable way to significantly reduce or replace some of the current carbon-intensive construction materials, such as Portland Cement. The Proposed Development has also come forward at a time where the UK construction industries are facing real and urgent shortages of materials due in part to geopolitical conflicts but also to a lack of available and dwindling supply of aggregates. The use of PFA presents the construction industry with a viable and also sustainable alternative. The use of PFA as

discussed above also provides tremendous savings in terms of net zero and GHG emissions.

In terms of local sustainability, the extensive biodiversity led restoration of the Site post extraction would provide an opportunity to restore the landscape and to redress some of the former industrial activities on the Site. The restoration proposals would also be balanced to conserve existing farming activities by simultaneous extraction and restoration which would lessen economic pressures on the local farmers by enabling them to have access to the land in stages. The life span of the Proposed Development over approximately 25 years would also provide guaranteed jobs to support the local economy.