





Sustainability Report 15-16

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 UoNSustainability

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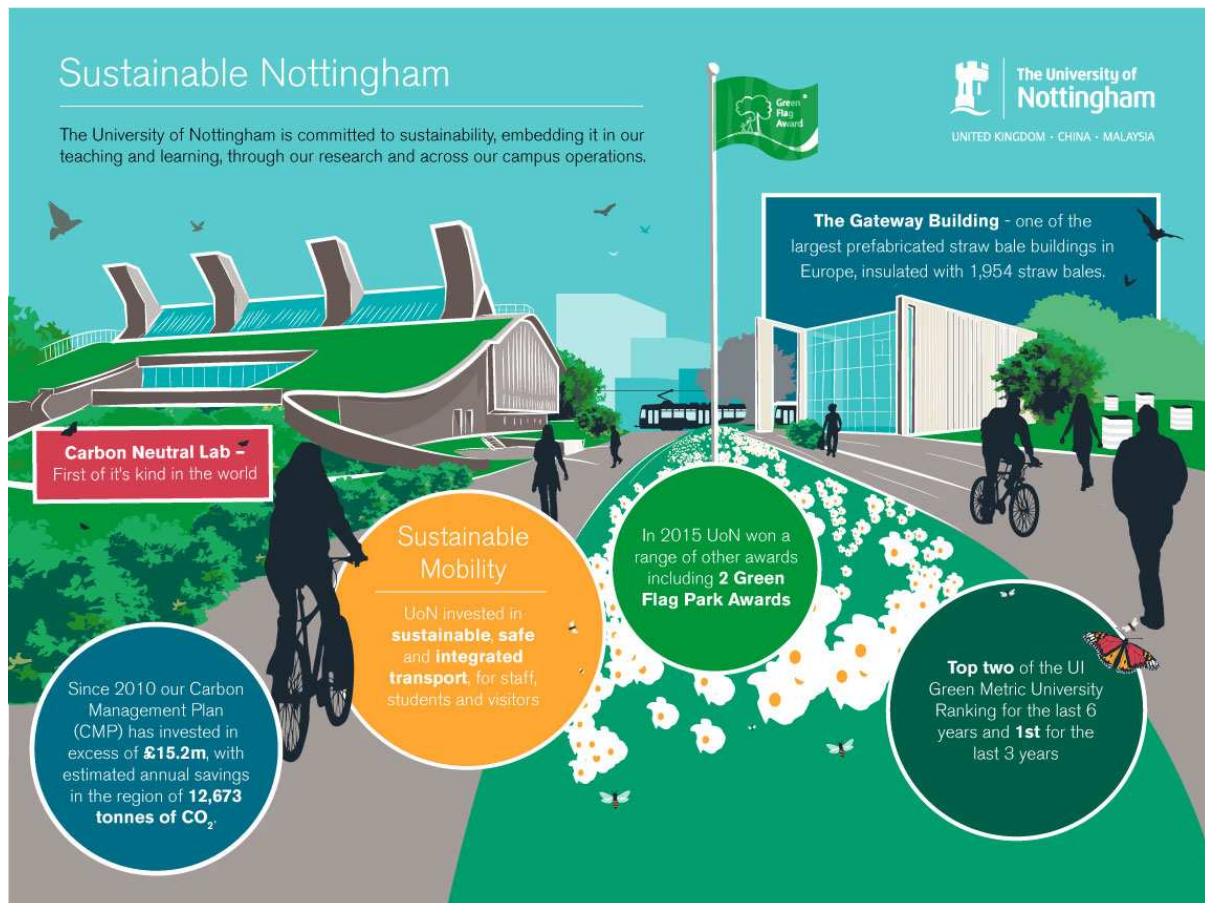
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1. Introduction

The University of Nottingham is well known for its commitment to sustainability and, increasingly, we are successfully demonstrating how we are embedding this in our teaching and learning, through our research and across our campus operations. This report highlights some of our progress over the last twelve months and together with our new Sustainability Strategy sets in place our direction over coming years.

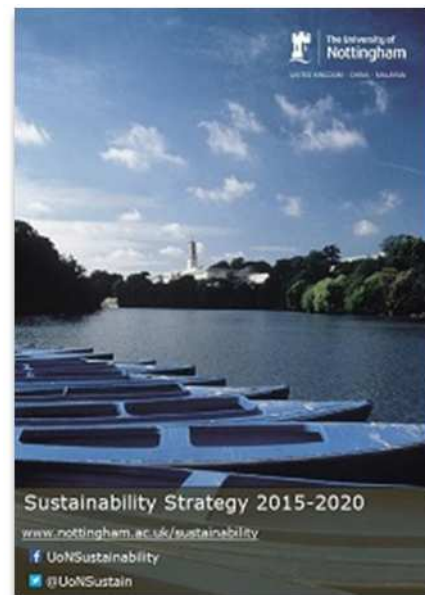
In 2016 -17 we will continue to deliver against our Sustainability Strategy that progresses the ambitions set out in the University's Strategy 2020 with a programme including further investment in our energy and carbon management plan that will see a step change in our performance; continued investment in our waste management, transport and procurement as well as strengthening the links between our teaching, research and operational activities.



2. Corporate Governance

The University continues to ensure that sustainability is embedded within its teaching, research and operations. In recognition of this, the University's Global Strategy 2020 sees a clear commitment towards sustainability and social responsibility that considers a wider social, economic and environmental commitment. In line with this we have launched a new Sustainability Strategy that sets the framework for activity to 2020. This strategy builds upon our successes and sets out a framework focusing on six strategic areas:

1. Student Experience
2. Education for Sustainability
3. Research for Sustainability
4. Partnership and Engagement
5. Operations for Sustainability
6. Governance and Quality Assurance



Our sustainability agenda is supported by a formal Environment Committee which is chaired by a member of the University Executive Board and includes representatives from a range of faculties, professional services, functions and campuses (see Appendix 1). As well as measuring our own internal progress we utilise a number of external benchmarks to measure our progress and performance.

The University has continued to be placed in the top two of the UI Green Metric World University Ranking carried out by the University of Indonesia and was awarded a 2.1 in the annual People and Planet Green League in 2015. This league is an independent league table of UK universities ranked by environmental and ethical performance.



This last year also saw the establishment of a new toolkit by The Association of University Directors of Estates (AUDE) green scorecard which the University's sustainability team contributed to throughout the consultation and development. It focuses on of the estate-specific areas of:

1. Energy and emissions
2. Water
3. Waste
4. Climate adaptation
5. Procurement
6. Biodiversity



This tool can be used to better target our own specific priority areas and benchmark performance against our own targets and objectives. It shows where we are relatively strong in our performance and enables us to identify where there is scope for improvement. One notable area is that of climate adaptation and, over the next 12 months, we intend to commission work to better understand the risks and opportunities afforded to us.

3. Teaching and learning

Environmental sustainability has always been a strong element within Nottingham's teaching programs at both undergraduate and postgraduate level across a range of disciplines that reflect the future global challenges. In total, 22% of all modules offered within our curricula included content around sustainability.



Online learning continues to be a growth area with the Massive Open Online course *Sustainability, Society and You* running again this last year attracting more than 4,000 active learners. The course

team includes academics and postgraduates from many disciplines and is led by Professor Sarah Speight, from Nottingham's School of Education. Through videos, readings, activities and discussions, you will explore sustainability from the perspective of the environment, the economy, health, politics, society and culture, education and community.

The University of Nottingham is an education partner of IEMA, the Institute of Environmental Management & Assessment. IEMA's role is to support individuals and organisations to set, recognise and achieve global sustainability standards and practice. Nottingham and IEMA are pleased to be working collaboratively on this course and further developing ideas around employability and careers development for undergraduate and postgraduate students.

4. Waste and Recycling

We continue to see our overall landfill diversion rates increase with more than 99% of the total waste generated through our main waste contract being diverted from landfill, with just under 40% of that waste segregated at source through our comprehensive bin provision for recyclable material and food waste.



Spend by Period



Further recovery and recycling by the waste contractor ensures that a very small amount of waste, around 8 tonnes out of total of 3,100 tonnes in 2015/16, is sent to landfill, resulting in a very low carbon waste disposal process.

We have seen a continued year-on-year increase in the amount of food waste that is being diverted from general waste to dedicated food waste collection, which not only cleans up the general waste but also allows the waste to be processed and its energy recovered via anaerobic digestion thereby creating usable energy.



At the end of each term we set up a number of both on-campus and off-campus clear-out schemes in conjunction with the British Heart Foundation, our waste services provider and local authorities. These schemes attract lots of support from the student population and this last year saw expanded media coverage through using a traditional horse and dray to support the collection through the streets of Nottingham.

We have continued to roll out more on-street and internal recycling infrastructure to further enhance the opportunities for the University community to recycle.

It hasn't all been about recycling and recovery, we have been working with suppliers to reduce waste associated with products and goods we receive and also reuse more items. Our on line waste exchange facility continues to attract more and more users and now has over 300 active members.



It facilitates the reuse of furniture and other equipment across all five faculties, our campuses and professional services and over the last year it has helped divert over 27 tonnes of material from landfill and save more than £141,000 in avoided costs.

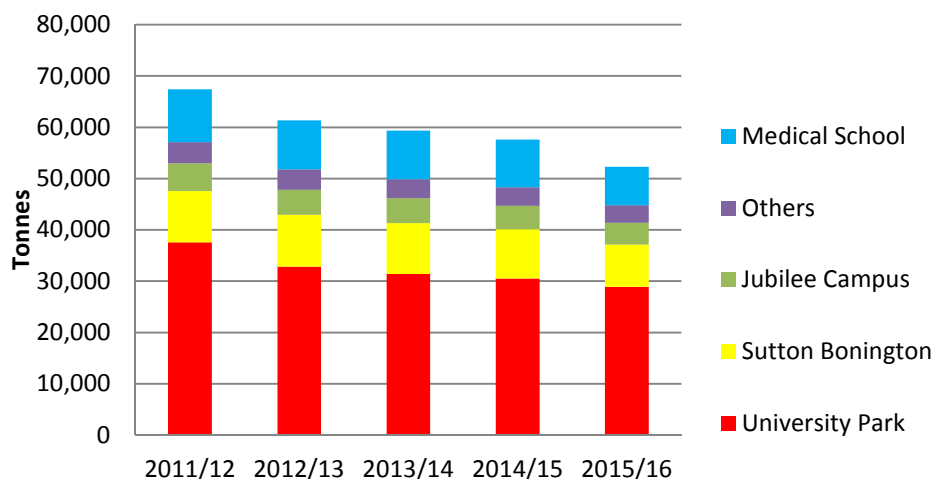
Over the next year we shall be focusing on a number of key areas to try to increase reuse and the overall volume of waste arising at the University linking with our major refurbishment and capital programmes.

5. Carbon Management

The University's carbon management plan (CMP) was refreshed in 2015/16 and includes targets for reductions in emissions of CO₂ from energy consumption. It identifies the principal areas of energy use and our investment programmes to improve energy efficiency, reduce consumption and generate energy from lower carbon and renewable energy sources.

In 2015/16 our Scope 1 and 2¹ carbon dioxide emissions have shown an absolute reduction of 9% (5,312t) from 2014/15 and down 15,714 t from 2009/10 baseline of 67,998 t CO₂.

Carbon Dioxide Emissions



In the programme's sixth year The University made its biggest annual investment to date with £4.4m in projects across all areas of the CMP. This included our single biggest project (Sutton Bonington CHP and district heating scheme) with predicted annual savings totalling £400k and 1,616 tonnes of CO₂. Since 2010 our CMP has invested in excess of £15.2m, with estimated annual savings in the region of 12,673 tonnes of CO₂.

¹ Scope 1 combustion of Natural Gas. Scope 2 'Grid' supplied Electricity consumption

Over the past year investments have continued to focus on energy and carbon intensive buildings and processes across our campuses. These have covered a range of areas, including boilers and chillers upgrades and replacement, lighting upgrades and the continuation of insulation and double glazing projects along with energy saving fume cupboard upgrades. Targeted action at energy intensive locations, such as the Medical School continues where projects to replace the large centralised chilled water production which achieved carbon reductions this summer of 460t CO₂.



With the investment in energy efficient equipment and subsequent investment in CHP the University was able, for the first time in recorded history, reduce its consumption of grid-delivered electricity by just over 3%.

Since the publication of the first CMP in 2010 the University has continued to grow in size and the carbon associated with the University's development exceeded its projected additional carbon of 3,000 tonnes by the end of 2012. This trend has continued though to 2016 and can be explained by the impact of increased activity especially in areas of energy intensive research.

6. Travel and Transport

Over the last academic year we have further enhanced our sustainable transport provision, both directly and through working with key partners. We have seen increased connectivity between our campuses with improvements to our hopper bus services, which carry more than 1.2 million passengers per year.



Cycling continues to be a well utilised travel choice for staff and students and we have continued to support this through a range of measures. We continue to run events and provide advice to staff and students including our annual 'Brighten up!'



campaign that helps to promote safe and bright cycling when the clocks change each autumn and our staff and students are more likely to be travelling in the dark at the beginning and end of the working day.

We continue to invest in our cycling infrastructure to support those who choose active travel. The availability of cycling parking continues to grow with there being 4,907 cycle parking spaces, a growth of 24% since 2009/2010.

The provision of season tickets through payroll continues to be very popular and this year has seen the introduction of a full integrated travel pass for students and staff providing enhanced connectivity. We continue to work closely with the Nottingham City Council to develop products that meet the needs of staff and students and in 2016 the City launched the Robin Hood Card to enable travel across cycle-hire schemes, the tram and buses across the city. We have installed top up stations on both the University Park and Jubilee Campuses to give our users ease of access to these services.

Significant research around alternative fuels is on-going throughout the University with one of the first hydrogen refuelling stations in the UK in operation on the Jubilee Campus. Over the last year the University welcomed nine electric vehicles to its fleet. These vehicles used by the Estates office and catering teams on a daily basis and have many benefits over vehicles which run on fossil fuels like petrol and diesel including:

- zero CO2 emissions, resulting in cleaner air and cutting the University's carbon footprint
- cost-effectiveness
- quiet running, reducing noise pollution



Colin Harley, Maintenance Operations Manager, Building Services and driver of one of the new vehicles, said: "These electric vehicles are ideal for our needs at the University. They have power in abundance, are even easier to drive than a petrol or diesel automatic, and with the normal distances we


drive around campus they only require charging once a week."

The installed electric charge points are free to use by all members of staff and visitors. Anyone with a valid parking permit or a Pay and Display ticket can charge their vehicles at charging points located at the rear of the Mathematics Building, University Park and at Innovation Park, Jubilee Campus, Sutton Bonington and King's Meadow Campuses.

7. Capital Development

The University has one of the most expansive capital development programmes in the UK Higher Education sector. This last year has seen a number of large scale projects completed and a number start on site. The University continues with its commitment to minimising the environmental impact of its capital program through passive design and environmental accreditation through the use the Building Research Establishment Environmental Assessment Methodology (BREEAM) to assess our progress.

We have seen the completion of a number of capital projects over this last year including:

- The completion of the George Green Library development
 - Enhancements to the chemistry façade and windows
 - Phase II of the remodeling of the Portland Building
 - The completion of the David Ross Sports Village
 - The completion of the Ingenuity Centre, Jubilee Campus
- 
- The GlaxoSmithKline Centre for Sustainable Chemistry

All of these developments have sustainability engrained within them, but the GlaxoSmithKline Centre for Sustainable Chemistry is one the University's most ambitious projects and has set the sustainability bar much higher.

Discovering new medicines is a resource and carbon intensive activity. The design, even of modern laboratories, can reinforce and embed poor practice as chemists work to tackle life-threatening disease as quickly as possible.

The University of Nottingham, in partnership with GlaxoSmithKline (GSK), set about to deliver a carbon neutral laboratory building. In order for the carbon neutral concept to be achieved the building needed to make no overall contribution to greenhouse gases or the acceleration of climate change throughout the entire carbon footprint of the design, from offsite procurement, site construction, occupation and to eventual demolition.



The building has been constructed to achieve both LEED 'Platinum' and BREEAM 'Outstanding' status, as a result of which high standards of construction and site management must be achieved. Throughout every stage of the project, from its inception to completion, great care was taken to minimize the impact of the building on its environment (both in the local and wider contexts).

'This is bigger than just a building – it's a whole philosophy. It's the way that we will process and deliver the science, and the way that we will target our science to sustainability-driven challenges,' Centre Director, Prof Peter Licence.

The nature of the carbon neutral target of the building has led to careful consideration of each element of the building and its construction. From the selection of local and reclaimed materials and a modular basis to the design throughout, to the use of off-site manufacturing, every effort has been made to ensure waste was minimized throughout construction. This also ensured the site itself was a safer working environment, reducing manual handling and limiting the risks of working in hazardous situations. The efficiencies in construction resulting from the kit-of-parts form of the building have not only led to reduced construction time but reduced energy consumption while doing so.

To obtain an accurate carbon cost, every aspect of construction was evaluated, including not only the embedded carbon in the materials used (such as the 'sequestered' or trapped carbon in the timber frames), but also their

transportation to site and construction. In addition, by generating more energy each year than it consumes, the building gradually pays back the carbon cost of construction, becoming climate neutral within 25 years

The energy supply for the building is met from over 1000m² of photo-voltaic panels to provide energy for running the building during its operational life. A Combined Heat and Power (CHP) engine has also been installed to operate on low-carbon fuel (fish oil) to heat the laboratory building and the nearby Romax and Ingenuity buildings. The building is a naturally ventilated laboratory and is seen as a landmark development and the first of its kind.



Determining appropriate materials involved detailed analysis of products readily available and ideally produced locally to the site. Information available through Environmental Product Declarations has been assessed to assist in material selection. Where EPD's have not been available, manufacturers have been required to provide detailed data before their use has been permitted. Detailed studies determining embodied carbon and recycled content have been a fundamental aspect in developing proposals prior to construction.

The new GlaxoSmithKline Centre for Sustainable Chemistry provides unrivalled facilities for chemistry. The focus on sustainability is reflected in the building itself, which incorporates the latest technologies to allow it to be carbon neutral over its lifetime. The centre has already attracted significant interest not just for its striking architecture, but for the world-leading research it hosts. In 2016 we hosted a national S-Lab conference welcoming over 200 guests from the higher education and private sectors to see the facilities first hand.

This building is already winning regional and national accolades including:

- Nottingham Evening Post, Environmental Development Award
- Best Sustainable Building on a Brownfield site

8. Landscape & Campus Grounds

The University is renowned for its attractive campuses worldwide and it's something that is cherished by the University. Both University Park and Jubilee campus have retained their Green Flag status and the University has been a key component of the Nottingham in bloom success.



We have seen significant investments to the campus environment and the beginnings of realising our ambition to develop University Park into an arboretum of national importance. Following the creation of the Trent Parterre in 2014, in 2016 a new centre piece Theatre Garden was opened between the Trent Building and Hallward Library adjacent to the walled garden. This project has created an inspiring and useable space for outdoor performance and socialising and has significantly enhanced the external environment of the centre of Campus. Similarly the central landscape enhancements at Sutton Bonington have created a central boulevard of both hard and soft landscaping that enhances the centre of campus creating a social space that is used for events such as the award winning farmer's market held monthly on the campus.



In addition to the Theatre Garden, numerous projects have been completed over the last year that enhance the environment of the University including:

- A fitness trail at University Park
- A trim trail at Sutton Bonington Diamond Wood
- Working with the conservation society on habitat clearance works
- Landscaping works along the newly opened tram line
- Enhancements to the Science and Engineering areas of the campus

The creation of the Campus wildlife calendar 2016 was inspired by Grounds staff member Ian Chetwynd. Ian, a keen amateur photographer with an eye for wildlife, had captured an amazing array of images taken across the campuses both during working hours and in his spare time. His pictures inspired the creation of a Campus Wildlife Calendar, using the now familiar #beastsOfUoN, which was sold with funds going to support the Impact Campaign. The calendar is again being created for 2017.



Operationally we continue to minimise our environmental impact through a variety of gardening practises and manage our grounds and gardens to encourage biodiversity and in keeping with the rich and diverse habitats we have. The campuses continue to provide safe, secure and sustainable habitats for a wide range of common and rare species including the Nottingham Crocus, hornet moth, foxes, badgers, kestrels, owls, peregrine falcons, bats, butterflies and the ubiquitous squirrels and geese. In summer 2016 it was heartening to see our nesting swans nurture 5 cygnets on Highfields Lake and, for the first time, a nesting pair on the lakes at Jubilee Campus.

The Friends of University Park continue to organise and support a wide range of events in the grounds, these include educational and interest guided tours, which are open to the wider community. Over this last year this has included:



- The Highfields Estate, The Creation of University Park
- Medicinal Plant walk
- The annual 'Picnic in the Park' celebration event
- 'Summer Spectacular' – National Garden Society
- Fungus Foray

The University is committed to informal learning programmes and working with community groups. To that end we have offer a range of Wildlife Tours, Winter Walks, and Heritage tours around our campuses, as well as numerous events that have attracted significant numbers of visitors or our grounds and gardens.

9. Engagement & Partnership

As well as supporting many events of the last year we have been actively increasing use of our social media channels to engage and communicate with the wider University community.

The @UoNSustain Twitter account now has 1200 followers, increasing over 20% in 6 months. Twitter continues to be a good medium for promoting events and short updates of campus upgrades and investment. Twitter sees an engaged staff audience and good links to other organisations across the University, including Off Campus Affairs, Enactus Notts and various Schools. Tweets picked up by the @UniofNottingham account and retweeted continue to have the most engagement.



Facebook has seen a more modest 5% growth in page audience with 751 likes, however activity on the page has increased greatly with original Twitter posts being shared on the UoN Sustainability Facebook page. Facebook posts are most effective with stories students can relate to being the most popular

The University of Nottingham
Sustainable Nottingham July 2016



This is Sustainable Nottingham – a monthly bulletin all about some of the key activities happening across UoN to make the University a more sustainable place to work and study. If you want to receive the bulletin at the start of every month then [please subscribe](#) and circulate it to your colleagues. And if you're involved in any "green" initiatives, then tell us about them via sustainability@nottingham.ac.uk.

events are popular with subscribers.

The Sustainable Nottingham Newsletter now has a direct distribution list of 814, which will increase with a new influx of students who wish to sign up. News items on reducing the University's carbon footprint and campus related biodiversity



In conjunction with University of Nottingham Student's Union and the Environment and Social Justice network, the University hosted a panel debate concluding with a question and answer session exploring whether the University of Nottingham should divest from fossil fuels.

The event, held in April 2016, attracted several hundred attendees saw introductions from the chair of the student led Environment and Social Justice Network and the Chief Financial Officer. Both spoke on the issue of fossil fuel divestment and its relevance for higher education institutions, following the national movement which saw University of Glasgow and University of Southampton amongst institutions who have committed to remove assets invested in fossil fuels. The panel consisted of speakers both for and against divestment and the outputs from the debate will be used to further inform the University's Investment Committee in the coming year.

Our work with Enactus Nottingham continues with us working closely with them on the U cycle bike hire scheme which they began to deliver on our behalf in 2104 and their Recovered furniture refurbishing and reuse scheme. Both of these projects are based at The University's Woolpack House on Triumph Rd on Jubilee Campus.



Appendix 1

Environment Committee Membership

Chris Jagger	Chief Estates and Facilities Officer
Andy Nolan	Director of Sustainability
Gavin Scott	Environmental Manager
Tim Rudge	Energy Management Engineer
Dr John Sutherland	Safety Office
Emory Cunnington	Students' Union Environment & Social Justice Officer
Philip Smith	Students' Union staff member
John Saunders	Member of University Council
Nicola Penn	Commercial Services representative
Lucy Burrow	Information Services representative
Tim Utton	Marketing/Communications representative
Prof Sarah Speight	Teaching and Learning representative
Prof Pete Licence	Research representative
Caroline Blackman-Edney	Procurement representative
Rachel Greatrix	Campus representative
Dr Mandy Roshier	Campus representative
Prof Sally Hibbert	Campus representative
Sue Law	Campus representative

Further detail on the committee can be found at:

www.nottingham.ac.uk/sustainability/strategy/environmentcommittee.aspx

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Sustainability

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<u>Serena Brown</u>	0115 951 3568	Environment Officer

Grounds Management

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<u>David Beadle</u>	0115 951 3605	Grounds Maintenance Manager - Arboriculture Landscape
<u>Gregory Smith</u>	0115 951 3656	Grounds Maintenance Manager - Sport
<u>David Parkhouse</u>	0115 951 3637	Assistant Grounds Maintenance Manager
<u>Lee Reed</u>	0115 748 4547	Assistant Grounds Maintenance Manager

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The Sustainability Team

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