The Living Planet Centre for WWF-UK in Woking, UK, is a new stimulating, multi-purpose building that combines the charity's offices with a public education and exhibition space that has been built in the air rights of a public car park.

As a champion for ‘one planet living’ the client’s requirements for a sustainable development were ambitious, with their reputation closely tied with the building’s success. Given this, it was essential that the project’s objectives were defined early on in the design process. These included building strong links to the community; creation of an accessible and open building; establishing an educational outreach to support WWF-UK’s goals; enhancing local biodiversity; incorporating long-term flexibility and adaptability; ensuring low operational costs; responsible use of resources in both the building’s construction and operation; and going beyond industry-accepted sustainability standards. The Living Planet Centre is testament to the success of the collaborative effort of all those who were involved in delivering an outstanding building. This paper describes the holistic approach taken to sustainable development, from concept design through the tender process and on to the construction and post-construction phases, including the ongoing monitoring and auditing of the building’s real performance.

1. Introduction

After being headquartered for a number of years at a rented, outdated facility in a rural business park, WWF-UK wanted to create a sustainable new building to house their offices and enable the organisation to more actively engage with the public and local community. Following a generous donation, made explicitly for such a relocation, the client embarked on a project-specific fundraising campaign, and in parallel ran a design competition prior to the selection of a site. Hopkins Architects were selected as the winners of the competition in 2009.

After considering several possible locations for their new home, with the help of the architects, WWF-UK accepted Woking Borough Council’s gift of a site next to the Basingstoke Canal on the northern edge of the town centre, which, at the same time, housed an open-air public car park for 202 cars.

The design team’s challenge was to deliver an exemplar office environment and exhibition space which was consistent with the client’s ambitions and values, all within the limited budget of an environmental charity (project value was circa £12.5 million). The new facility also needed to retain the car park underneath. The resulting building, the Living Planet Centre (LPC) is a testament to sustainable development and features a public outreach component where visitors can learn more about WWF-UK’s work and initiatives around the world.

This paper describes the holistic approach taken to sustainable development, from concept design through to the tender process and on to the construction and post-construction phases, including the ongoing monitoring and auditing of the building’s performance. Of equal importance is the fact that this process has been extended to include the ongoing monitoring and auditing of the building’s real performance.

2. The brief

The client’s brief for the LPC was set out in a series of clear and considered objectives developed in conjunction with the architect. The project aimed to build an exemplar new sustainable headquarters for the organisation, which would provide an enhanced and more efficient working environment for their 300+ staff and connect more effectively with the public. The building needed to embrace their mission and support their ‘One Planet Future’ campaign. As such, the LPC was created as a pedagogical environment that would showcase their global agenda and engage
with the local community and its surroundings, while providing the organisation with a socially inclusive and inspirational place in which to meet and work.

At the centre of the brief was the client’s sustainability agenda that saw the building approach ‘zero carbon dioxide’ and target the ambitious Breeam ‘outstanding’ rating. The building attempted to have the smallest planetary impact possible and strove to reduce its whole-life carbon footprint through the careful selection of natural materials, the sensitive positioning on a difficult site, a dramatic reduction in energy consumption, the use of low-carbon-dioxide technologies, the increase of biodiversity on the site and the active encouragement of the use of cycling and public transport by both visitors and employees.

A space audit conducted by AMA Alexi Marmot Associates determined that a building two-thirds of the size that the client thought they would need, based purely on staff numbers, would provide them with sufficient space. In other words, when the client’s day-to-day working practices were interrogated it was found that, with staff out at meetings, working from home and so on, they could reduce the size of the building they might otherwise have needed; this was excellent news when considering the beneficial carbon and budget implications that this had for the project.

The brief also called for a restructuring of the client’s operational practice to help bring their organisation to the forefront of modern and efficient sustainable working methods.

The resulting flexible and adaptable workspace included a reduction of necessary office space thanks to hot-desk working; decreased paper storage and filing areas; and increased technology to provide the organisation increased working flexibility.

3. Integrated design approach

Hopkin’s experience designing some of the most sustainable buildings in the world has taught them that an integrated and flexible design approach, where consultants are incorporated early into the design process and where these consultants remain involved in a collaborative manner throughout the project, helps ensure effective and efficient delivery of a building that is more robust, inclusive and, ultimately, successful. This is combined with frequent and open communication between the team and the client and other stakeholders to ensure feedback is effectively managed and distributed to the necessary parties.

As the first design consultant appointed, the architects identified the disciplines and like-minded companies required to work with them to deliver the project. The design process ensured not only that sustainability was considered from the outset but that all choices concerning sustainability were made with reference to the client’s business case and required programme.

The team worked in very close collaboration to ensure the individual assumptions and requirements of each consultant were addressed and incorporated whenever and wherever appropriate. This avoided the need for redundant work and significant redesign or reworking later on in the design process, when the implications of more fundamental changes have the potential to become more pronounced and amplified and therefore have a greater effect on cost and programme (Paulson, 1976) (Figure 1).

The LPC houses 300 staff over two storeys in an open-plan environment together with conference, educational facilities and the new WWF Experience exhibition space. Work space is arranged around a double-height internal street. The open-span nature of the building’s structure allows for easy future adjustment of internal partitions and layout to thoroughly future-proof the building.

4. Structural design

The structural engineers’ role in Breeam (BRE Global Ltd, 2011) is limited, with very few credits being attributable to the work for which they are responsible. Typically, points may be awarded for the specification of recycled aggregates, but
opportunities for additional points are rare. The engineer’s contribution to the project’s sustainability objectives therefore takes on a wider approach (Thirion, 2010), including

- the design of efficient structural forms
- the careful assessment, selection and specification of structural materials throughout the building
- the creation of as efficient a design as possible – working the structure as hard as possible – or lean design
- using the structure for more than ‘holding the building up’ (e.g. multifunctional elements, thermal mass and aesthetics).

4.1 Design choices

The use of exposed structure was an early decision made by the team. This avoided the need for secondary finishes, reducing the building’s embodied energy, and decreased the potential ongoing maintenance issues. Utilising the structure as a multifunctional element was an essential part of minimising the use of resources throughout the building. The adoption of this approach, in combination with the ambition to create a very high-quality building, indicated that it was vital for this structure to be beautifully detailed. The finely detailed timber diagrid which has been constructed is a result of the close collaboration between the engineer, architect and contractor (Figure 3).

Initial attempts to hide the existing car park in a basement were discarded when it became impossible to justify. The volume of excavated material that would result from burying the car park and the additional space required for ramp access were not feasible within the project’s objectives.

The structural form and architectural layout of the building were therefore developed to

- sit over the car park and to touch the ground lightly
- coordinate the grid spacing with standard parking bay sizes
- avoid expensive (and material-intensive) transfer structures.

Having investigated a number of options for materials and considering architectural and servicing requirements, the engineer recommended that an in situ concrete frame should be selected for the podium slab, with supporting columns rising up from the car park and the internal mezzanine structure.
This relatively simple, structurally optimised, exposed concrete frame was selected to provide a balance of robustness, durability, future flexibility and inherent acoustic, fire resistance and thermal mass. All structural concrete has 50% of the Portland cement (OPC) replaced with the by-product ground granulated blast furnace slag, and 31% locally recycled concrete aggregates (RCA) instead of virgin materials, giving significant savings in greenhouse gas emissions (quantified as carbon dioxide equivalent (CO₂e)). The percentage of RCA used, in the in situ concrete, could have been marginally higher, but these aggregates could not be used at car park level without specialist testing to demonstrate compliance with the specified exposure class (i.e. considering the use of de-icing salts). The level and type of testing necessary to achieve compliance in this situation are not clearly defined in standard codes of practice and, unfortunately, on this occasion the team did not have time to investigate further. It would be useful for the concrete industry to define how concrete mixes using RCA can be certified for compliance with all exposure classes.

Creating the airy, open feel inside the building that the client and design team wanted led towards a clear span roof structure (Figure 4). At concept stage the engineer presented various options for the structural arrangement that ranged from highly efficient double-curved structures to simple (but less efficient) long-span bending elements.

The roof structure had a number of different drivers which had to be considered, including an orientation to suit environmental performance, an efficient structural form, the planning envelope and of course its aesthetic appearance from both the inside and outside of the building. A simple glulam timber diagrid solution was agreed upon, which was a structurally efficient and aesthetically pleasing form composed of a simple series of repeated elements. The resulting form demonstrates the ability of the team to compromise and work through the issues to realise a sensitive design which embraces the project brief (Figure 5).

The design at the LPC responded to the sustainability objectives in the following ways
short pre-cast concrete-driven piles have been used – minimising spoil removal and embodied carbon dioxide
all aspects of the structure have been designed to be an efficient form, which is particularly evident in the arched timber roof
each element of the structure’s material has been optimised to minimise material consumption
wastage reduced through repetition and off-site fabrication
materials have been carefully specified to minimise their environmental impact
exposed concrete has been used as part of the building’s ventilation and cooling strategy
void space at podium level has been utilised as part of the surface water attenuation strategy – minimising the extent of buried tanks
the structural design has been coordinated to integrate building technologies (e.g. Energain in roof panels).

5. Servicing strategy

It was clear from the outset that the project would need to achieve exceptional standards of environmental performance. The building also needed to comply with British Council for Offices (BCO) guidelines (Guide to Specification; BCO, 2009) in terms of environmental conditions and lighting; to demonstrate what is possible in a modern integrated building (Figure 6).

The sustainable agenda was based around the following subsets

- zero regulated operational carbon dioxide
- waste
- transport
- procurement
- food
- water
- biodiversity
- social
- equity
- health and well-being
- BREEAM.

Each of these categories set up specific design challenges that were managed through the service engineer’s bespoke sustainability management plan. In practice, the team endeavoured to solve multiple briefing requirements with particular design strategies. Thus, the decision to adopt a mixed-mode approach to the ventilation, for example, assisted with the ‘low-carbon’
ambitions, is a key part of the health and well-being strategy, and links to air quality and social issues as well.

The heating and cooling strategy adds ‘de-coupled’ or separated thermal mass by placing earth ducts in the ground, approximately 1-2 m beneath the car park, where the incoming air is cooled in summer by the relatively cooler temperature of the earth. The reverse occurs on the coldest winter days where the ground is warm relative to the external air. In addition, the mechanical ventilation strategy allows the thermal energy extracted from the exhaust air to be used to heat the supply air, thus dramatically minimising the need for additional heating in winter.

A lack of integrated thinking can complicate site works, increasing project duration and complexity unnecessarily. Early dialogue between disciplines facilitates informed decisions, resulting in a coherent design. For example, the array of earth ducts was influential in the adopted foundation solution – discrete pile groups were used, which left clear zones for the ducts to run in, simplifying the construction sequencing on site.

The mezzanine floor soffit is exposed in situ concrete. This thermal mass is activated using a mechanical night cooling strategy. A phase change material (Energain) has been used in the roof to give an equivalent thermal mass (equivalent to 50–70 mm of concrete as a diurnal heat store) but at a fraction of the weight. This design choice allowed the servicing strategy to be followed without impact on the structural design of the roof (Figure 7).

The shape of the building was restricted, as it is located over the public car park. A detailed daylighting design analysis was therefore carried out to show that the natural light adequately covers the deep floor plan areas. Findings from the daylight models resulted in the architect changing the orientation of the building by 9°, as this increased the minimum annual solar...
radiation fivefold and reduced overshadowing by the surrounding trees. The result was more natural light and more exposure for the 410 building-integrated photovoltaic panels on the roof, creating comfort and green energy (generating a peak output of 99.96 kWp). The daylighting strategy was also fundamental in helping the architect determine the internal layout: areas that promote the well-being of staff (break-out areas and cafes) and visitors (the WWF Experience) were placed in the best-lit areas and have the highest daylight factors.

Measures to control glare now form an inherent part of the distinctive architecture of the building. External shading louvres at the ends of the buildings were carefully designed and orientated. The eaves were extended to help to create overshadowing from sunlight during the summer, as well as protecting the terraces at either end from the rain (Figure 8).

For the completed project and assuming a 60-year design life the operational emissions (regulated and unregulated) indicated energy in use data as being 3410 tCO₂e. The embodied emissions from construction and design life, analysed as per BS EN 15978 (BSI, 2001), were 7510 tCO₂e. Both assessments assume grid decarbonisation as per the government’s low-carbon transition plan (HM Government, 2009). The embodied emissions are therefore double the operational emissions over 60 years.

Overall the combined whole-life total means this building, in carbon dioxide performance terms, is hugely efficient, with a whole-life/m² footprint about half that of a typical Part L compliant, Breeam ‘excellent’ office building of the time.

6. Carbon dioxide emissions analysis
The ambition for the building was to break new ground in carbon dioxide emissions reduction, and to ensure that the LPC would be an exemplar of low-carbon office design.

Sturgis Carbon Profiling undertook carbon dioxide emissions analysis from the point where the building received planning consent through to practical completion. The scope was to analyse embodied CO₂e emissions of all materials, including furniture, during the design, tender and construction processes, and also the whole-life emissions over the building’s 60-year design life. This included understanding the relationship between embodied carbon dioxide emissions costs against operational emissions savings (i.e. capital carbon dioxide as opposed to operational carbon dioxide). This meant first working closely with the design team and client/project manager, second with the contractor team, and finally with the client as occupier.

An initial ‘carbon budget’ was calculated, of 1884 kgCO₂e/m², based on the planning consent, and this was used as a baseline position. In addition, a range of carbon dioxide reduction design options was produced. These options were promoting more carbon-dioxide-efficient materials, higher recycled content and longer lifespans. The design team was also targeting local sourcing (i.e. reduced diesel use), efficient procurement and reducing waste throughout the fabrication and assembly processes.

The next stage for the carbon profiler was to work with the design team to examine the use of materials, and content, for example, maximising the use of cement replacement and recycled aggregate in concrete; the omission of artificial glues in glulam timber; and the use of double not triple glazing (as this had a better ‘capcarb’ to ‘opcarb’ ratio). Sturgis were also looking at built systems and identifying the ‘weakest links’ that would reduce system lifespans.

During the tender process the carbon dioxide consultant produced an ‘employer’s requirements’ to help define what information was required from subcontractors for them to assess how carbon dioxide emissions were being expended down through the supply chain. The carbon dioxide requirements include raw material sourcing, fabrication and the
relative emissions costs of, for example, heavy goods vehicle
delivery from Aberdeen at 0.375 kgCO2/kg of material
transported when compared to ship delivery from coastal
China at 0.336 kgCO2/kg – the ship is better!

To minimise increases in environmental impact during
construction the carbon dioxide consultant provided a pre-
construction ‘contract carbon budget’, and monitored this
during the construction process, producing a post-completion
final assessment. It is unusual to do this, but it does not need to
be. The actual embodied carbon dioxide in the completed
building is 1082 kgCO2e/m2, a 42% reduction on the initial
baseline.

Key achievements for the LPC were as follows

- The LPC has achieved significant whole-life carbon dioxide
  reductions (from RIBA Stage C to practical completion).
- The LPC was designed in response to predicted climate
  change to the end of the century (RICS, 2011).
- A Breeam ‘innovation point’ was secured for this, and the
  buildings final assessment was Breeam ‘outstanding’ with a
  score of 90.6.
- The LPC was unusual (if not unique) in being procured
  using both price and embodied carbon dioxide criteria
- The embodied whole-life carbon dioxide emissions were
  reduced over the duration of the project, which was
  achieved for no additional cost.
- These cost-free emissions reductions amounted to over
  5400 tCO2e.
- Changes during construction were assessed on both carbon
dioxide and cost criteria.
- Monitoring of the carbon dioxide budget was carried out
during construction, including deliveries, waste and energy
use.
- Extensive use was made of recycled aggregates and cement
  substitutes in concrete.
- There was over 80% of recycled content in the aluminium
  cladding.
- Extensive use was made of Forest Stewardship Council
  (FSC) rated timber; artificial glues in laminating were
  omitted (e.g. glulam structure).
- The designed systems had improved lifespan characteristics.
- Furniture procurement involved testing for carbon dioxide
  efficiency, including materials, packaging and waste.

The LPC has set new standards in ‘carbon-efficient’ design.
The finished building has whole-life carbon dioxide emissions
of 1620 kgCO2e/m2 (including regulated and unregulated
operational emissions), which is less than one-third of the
average modern office building (BCO guidelines range from
4970 to 6900 kgCO2e/m2 for air-conditioned offices).

7. Tender process
The project procurement process was a single-stage design and
build, with the contractor being sought by way of a competitive
tender. The tender process had a strong slant towards
sustainability, with all tenderers being required to demonstrate
clearly how they planned not only to manage the processes but
to ensure opportunities were maximised.

This related particularly to the delivery of Breeam ‘out-
standing’ and the embodied carbon dioxide targets. The
tenderers were therefore issued with a set of employer’s
requirements that related directly to both these targets, within
which strict procurement rules were set on what the expecta-
tions were.

8. Procurement and construction
The procurement and construction process for the LPC was
critical to deliver the targets set during the tender process.
Given the nature of the procurement route (i.e. design and
build) the responsibility for delivery ultimately sat with the
contractor. The primary targets that related to this process were

- Breeam ‘outstanding’
- embodied carbon dioxide analysis.

The link between these two targets was ensuring correct and
controlled procurement of goods and materials through the
contractor’s existing supply chain. The procurement process in
general offered an opportunity to better these targets by
procuring all materials with responsible sourcing certification.
On this project the responsibility for compliance with the
project’s sustainability objectives was successfully passed down
from the client to the designers, then on to the contractor, their
subcontractors and ultimately the product suppliers.

This process began with the development of a project-specific
responsible procurement policy (RPP) detailing the expecta-
tions in the following areas to the supply chain

- responsible procurement accreditations
- waste
- full FSC certification (required by WWF-UK as key
  supporters of the scheme)
- recycled content
- volatile organic compounds.

The RPP provided the team with a good communication
document but also ensured that subcontractors were contract-
tually obliged to deliver on the targets. Further collaboration
allowed for targets to be exceeded where possible and issues
worked through including
utilising ‘post-consumer reclaimed’ screed board in place of a wet screed by undertaking a risk assessment on the waste paper sources in Germany

- using a joiner based on their proven track record by setting up an FSC certified workshop on the site premises
- using 100% recycled rebar with the concrete frame
- delivering a fair-faced-finish concrete frame with 35% recycled aggregate.

A particular challenge to achieving full FSC certification was the formwork for the in situ concrete works. The architects, using their experience, specified a particular formwork board for the extensive exposed concrete works, as they knew it helped achieve a high-quality finish. However, the contractor discovered that this particular board was not FSC certified (although it was sustainably certified by another organisation). The contractor managed to source an alternative FSC-certified formwork board and consequently prepared samples and benchmarks which were agreed.

The contractor proposed a change from the specified traditional sand cement screed to a screed board – with the benefits of reducing the construction programme and realising a carbon saving. However, it was discovered that the screed board contained a small proportion of recycled paper, which meant tracing the source of the recycled paper to ensure FSC compliance; this was an unusual task for the contractor and the supply chain, but ultimately worthwhile and beneficial to the project.

Overall the process realised a high level of performance, with full FSC certification being achieved in addition to a further 98.9% of the major building elements being sourced with a Building Research Establishment (BRE) recognised level of responsible sourcing (BRE Global, 2014). (It was typically the ancillary components, such as rubber movement joints, that could not be certified as being responsibly sourced.) Further work is needed by the industry to increase the number of building products that can be certified as responsibly sourced.

With specific regard to the construction process, the contractor was wholly responsible for the scope of emissions that related to the energy used to construct the building. As such, various processes were implemented to reduce site-based emissions, which included the following.

### 8.1 Low-energy site set-up
Eco-cabins were utilised, providing low-energy light fittings throughout, better U values and improved air tightness. In addition the site staff drying rooms were fitted with dehumidifiers, drastically reducing the energy load during a very wet year.

### 8.2 Energy monitoring
Real-time energy monitoring was an essential part of the process, as it offered the opportunity for initiatives to be trialled and improvements logged. It also visualised energy use, providing a useful tool to encourage behavioural change.

### 8.3 Cabin zoning
Non-essential areas of the site set-up were automatically switched off out of hours.

In addition to reducing the energy load applied to the construction process, reducing waste was a fundamental principle to the approach. These reduction techniques started during the design stage, where opportunities for pre-fabrication were maximised. This included pre-cast planks and the glulam diagrid structure.

### 8.4 Waste
In the construction process, the primary approach was to reduce waste through tighter controls and behavioural change. Simplification of targets into skip numbers allowed easy understanding throughout the site and subcontractor teams of what their requirements were. Incentives were then applied to these targets and different trades were made responsible for their own waste. Take-back schemes were maximised and most items were delivered with reduced packaging. Critically the procurement to construction process was linked up by the same sustainability targets, which placed responsibility on delivery down through the supply chain, ultimately ensuring success.

All timber waste, as well as some other unused materials, were donated to a local charity who utilised it in community projects. Overall the site saw a 30% reduction in waste (compared to industry standard wastage rates), with 99% of all waste diverted from landfill.
Construction of the LPC started on site in March 2012. WWF-UK relocated to their new offices in October 2013 (Figure 9).

9. Ongoing monitoring
User training and controls were identified at the concept stage as key issues that will affect the operation and operational carbon dioxide savings of the building: that is, the building has been designed to be efficient but would the client know how to use it, so that it would perform as designed (Bordass, 2001)? Therefore the controls philosophy was discussed with the user group at various project milestones to ensure that the operation and level of user interaction was correctly understood and could be implemented at handover. A building log book and building user guide were compiled and handed over to the client during the commissioning and witnessing stages to reference and reinforce understanding of the installed systems and the modes of operation.

The contractor is currently leading the post-occupancy evaluation (POE) process (Federal Facilities Council, 2001) to ensure that the building is operating (and being used) as designed; in particular this is looking at both the technical (hard) and people (soft) sides of sustainability. The POE process has initially set out baseline information in two ways

- energy performance: the baseline has been set by the design stage information
- social performance: an early questionnaire has been completed by users of the LPC where they have provided their initial thoughts on the building; in particular, this looks at the health and well-being of the building occupants and how the internal environment has improved their ability to complete their jobs.

The monitoring will last in the region of 15 months (from occupation) and during this time energy and building performance will be continually monitored, with any outliers or times of high use being immediately investigated and resolved. Ultimately this pro-active approach will ensure that the building is properly and effectively commissioned for all seasons and functioning as designed.

With specific regard to the social sides, initial feedback has been taken on board by WWF-UK staff and consultation has begun to resolve any immediate concerns. The POE process will be completed with a measure of a change in occupants’ opinions over their first 15 months in the building.

The POE process will provide an effective document for the building’s occupants on possible improvements, but importantly it will also provide a reference document to the wider document on lessons learnt.

10. Lessons learnt

- The team’s fundamental belief is that successful projects are the result of a collaborative team effort.
- A clear brief had to be established for all aspects of the design, space planning, materials, sustainability and Breeam.
- At the outset, the building’s design was developed to minimise its environmental impact on the site.
- Having enthusiastic, knowledgeable and experienced people around the table early in the design process sets the course for a successful project, as this is typically when full advantage can be taken of each discipline’s expertise.
- Listening to the key drivers of each party (i.e. client, stakeholders, architect, service engineer, structural engineer and contractor) and then discussing how they can be integrated, is key to attain low environmental impacts.
- Negotiation as the design proceeds will inevitably be required as items vie for priority.
- A space audit had beneficial carbon dioxide and budget implications for the project.
- Aligned thinking is essential: it is important to ensure the contractor is proactive and reactive and has a strong knowledge of sustainability.
- Carbon dioxide profiling should be considered for inclusion in the project, to ensure efficient use of materials.
- All parties involved need to proactively listen to each other.
- Design should be holistically integrated wherever possible.
- When appropriate, building elements should be multifunctional.
- Post-occupancy monitoring should be included to ensure the building functions as anticipated.
- It is thought a more generous programme would have given the contractor more time to explore cost proposals and influence the development of the building’s design.

The holistic approach taken by the design team and active engagement with the client has enabled the building to go beyond the Breeam ‘outstanding’ rating (with a score of 90-6), the highest benchmarking standard for building design and construction.

Breeam ‘outstanding’ is certainly a good measure of certain aspects of sustainability. As yet, however, Breeam does not take proper account of the significant embodied carbon dioxide savings that were achieved on this project. A Breeam ‘outstanding’ score is undoubtedly better in operational carbon dioxide emissions terms compared to a lower score. Increasing, for example, the amount of insulation has an embodied carbon dioxide emissions cost. This is a capital expenditure against operational expenditure issue. What is important is to ensure that adding material to reduce operational emissions is not outweighed by the capital carbon cost of installation. This type
of holistic thinking is vital to ensure that the lowest overall carbon dioxide emissions outcomes are achieved.

The LPC demonstrates that a Breeam ‘outstanding’ sustainable building can be delivered to budget when clients, design teams and contractors work closely together towards a common goal. This collaboration has created an inspiring working environment for a charity raising awareness of the issues that affect our natural world.

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