

GREENBURN SURFACE MINING COMPLEX  
NEW CUMNOCK, SCOTLAND

**Kier Minerals Ltd**

**BIG Biodiversity Challenge Award category: Medium Scale Permanent Award**

**Project overview**

The project is located in a rural area on part of a surface coal mine. Mining operations had been completed and approx 5ha of land was ready for restoration. The local primary school rich task group was engaged, along with the site’s Ecological Clerk of Works (ECOW), to come up with a design to improve the habitat and biodiversity of this area. Kier Minerals staff visited the children in the classroom to explain the concept and give them some ideas of what could be included in a restoration stage of the project and they had an initial site visit to look at the area. Once a design was finalised, the area was backfilled to subsoil level and then shaped to create the design of the proposed landform ready for planting and seeding. The total project cost to date is circa £70,000 and has taken a lot of man hours from Kier staff.

**What were the biodiversity conditions on site, prior to the enhancement?**

Prior to mining the area was rough agricultural grazing consisting of rough grassland with a lot of rushes.

**Were there any specific conditions that led to you carrying out this work?**

Planning conditions in place oblige Kier to restore the site once it has been worked. The original restoration plan was for semi improved grassland across the area. The team at Greenburn decided to go the extra mile and enhance this area and get the community involved to leave a lasting legacy.



*The area after mining and prior to restoration works.*

### What were the biodiversity measures taken?

- A pond with an island and surrounding wetland area with shallow margins to encourage wildfowl;
- An area seeded to create a wildflower meadow to encourage bees and butterflies into the area which in turn leads to a feeding resource for passerine birds.
- A new area of peatland using peat dug as part of mining operations and stored during the operation life of the site, ready to be put back for restoration;
- Creation of a significant stone retaining wall using rocks from the working area which will provide increased habitat for insects, invertebrates, reptiles, amphibians and birds.
- An area of loose soils and scattered rocks which will provide an excellent habitat in the future for badger and otter foraging
- Transplanted trees from another part of site, which would otherwise have been felled further add to the biodiversity of the area for birds and bats.

Since its creation there has already been an increase in birds including Lapwing, skylark and ringed plover (not recorded on site previously) which are red listed species on the UK Red List for birds . Common gull and oystercatcher are also present which are amber listed species;

The entire area was created using materials which were present on site already including clays, soils, stones, trees and peat.

The project has been successful in educating local children about coal mining, which has been in the area for generations, and has given them a chance to witness the potential for positive impacts from a well-managed heavy industry. It aimed to give children a sense of involvement in the project and long term pride in restoration, which will benefit future generations.

Others can benefit from using simple techniques to significantly enhance the biodiversity of an area and encourage the presence of new species, while allowing the species already present to flourish. In the future, the area will be encouraged to naturally develop. When connected to the rest of the site restoration, it will deliver enhanced habitats compared to the area present pre-mining.



*Soil forming works and land shaping complete ready for planting and seeding.*

### What were the biodiversity measures taken?

The long term benefit is that the creation of a mosaic of different habitats encourages a range of wildlife species that will utilise the area as it continues to develop. Eventually, it will connect with the rest of the restored areas across the site, forming an ecological network.

### How would you best describe the project?

An enhancement

#### Further information

Work is still on going in the area. Further enhancements to be implemented before the area is complete are:

- Re-instated burn with woodland planted along the banks. This will provide a riparian corridor for species such as bats and further enhances the transplanted tree area already present;
- Construction of an artificial badger sett this summer. An active sett is present in the mining site and it is hoped that badgers will use the restoration area as part of their foraging habitat and the sett as an additional dwelling. We hope to encourage badgers to return once mining operations cease. We have already had success on the site with badgers caught on camera in a retained woodland area. They were unable to access this area during operations but have reappeared since it has been re-opened;
- Construction of an artificial otter holt alongside the re-instated burn. Surveys have recorded signs of otters on the River Nith approximately 500m south of the enhanced area. By building a holt, we hope to encourage them to the restoration post-mining; and
- Artificial barn owl box to be mounted on a pole by the area of transplanted trees. Barn owl pairs have been recorded in the area and Kier have had success with boxes in other areas of the site. These have been used for roosting and breeding. The box in this position will increase the foraging and breeding areas available for barn owl. The ecology of the enhanced restoration area will continue to be monitored; however the results from surveys completed in 2015 are encouraging. They indicate that the area has already provided suitable habitat for bird species, including several not previously recorded on the site. This is an extremely positive outcome even before the area connects with other parts of restored grassland across the wider Greenburn Surface Mine site.



*Jul 2016 following planting and seeding*

#### What was your personal motivation for carrying out the enhancement?

Restoration of the Greenburn Surface Mining site has been undertaken progressively as part of the on-going operation works. However, Kier wanted to go above and beyond the 'usual restoration' plan to create an area that included the creation of new habitats and features that offer enhanced ecological opportunities with the potential to benefit the local community and environment for years to come.