

SUDS Biodiversity requirements (Chapter 6: Designing for Biodiversity):

The CIRIA SuDS manual, Chapter 6 is about creating opportunities for local biodiversity, habitats and species, ensuring that those habitats are resilient and beneficial to both the ecology of the local area and to the people living and using it.

There are four key biodiversity criteria to be applied in the design of SuDS:

- Support and protect natural local habitats and species;
- Contribute to the delivery of local biodiversity objectives;
- Contribute to habitat connectivity;
- Create diverse, self-sustaining and resilient ecosystems.

The design of SuDS at the Afan Lido development fully takes into account these features in relation to biodiversity but does have limitations given the small scale of development and restrictions imposed by the largely built up of high amenity land use of adjacent areas. The biodiversity objectives and their resolutions are discussed below.

Site Introduction:

The Site is dominated by hard-standing and disturbed ground and the areas of grassland are unmanaged with areas of frequently occurring bare ground, there are some neglected formal shrubberies on the former Leisure Centre site. The Site is bisected by Channel View, a small road with housing to the north of the Site. To the south lies the main seafront road beyond which is an area of formal amenity landscaping. The seafront is approximately 90 metres distant from the Site and is 'hard engineered' with stone sea walls and little natural vegetation in this area.

On the eastern, western and northern Site boundaries are large amenity areas, retail units and housing. Green corridor connectivity is limited to the gardens and formally managed open spaces however connectivity is poor to the sea-front with no vegetated cover or garden corridors in the immediate vicinity. The Afan River estuary lies approximately 700 metres to the east.

The Site was considered to be of low biodiversity value.

Support and Protect Natural Local Habitats and Species

The Site is not large but offers some potential to enhance opportunities for biodiversity by use of SuDS features provided on Site. Given the lack of suitable connectivity to the Site across the Aberafan landscape, provision of features on Site is aimed to increase the value of the Site for two groups in particular, invertebrates (particularly pollinators) and birds.

The most prominent feature of the proposal is the swale along the Site road frontage to the south eastern part of the Site (see landscape drawings). This will be in the form of a series of 'lagoons' approximately 15-20 metres in length and 3-4 metres in width. The base will be approximately 1 metre in width and the slopes will be at a gradient of around 1 in 3 from this

to ground level. Given the south westerly aspect of the development to the sea, this will produce banks in the swale that will all receive sunlight at different times of the day. The sandy soils will be permeable, so no running water is expected, and the swale will be separated into a number of individual unconnected compounds that will percolate through the ground.

As there are currently no local significant habitats immediately adjacent to the Site, it is proposed to use a seed mix that will be of value to invertebrates and pollinators and to provide increased structural diversity into a mainly two dimensional amenity area that will benefit both invertebrates, birds and offer a potential foraging area for bats.

The proposed mix is John Chambers Heritage Sandy Soils mix containing a number of species tolerant of the extremes in moisture content typical of sandy soils, being able to withstand periods of wet and drought. This 100% wildflower mix provides a number of species typical of foreshores including kidney vetch, lady's bedstraw, rough hawkbit and many other species occurring locally along the coast. The complete species list is:

Lady's Bedstraw
Common Bird's Foot Trefoil
Bladder Campion
Wild Carrot
Oxeye Daisy
Common Dandelion
Field Forget-me-not
Rough Hawkbit
Common Knapweed
Musk Mallow
Black Medick
Wild Mignonette
Hoary Plantain
Common St John's Wort
Selfheal
Kidney Vetch
Viper's bugloss
Yarrow
Yellow-Rattle
Weld

As with any seed mix, some species will succeed better than others and on-going management of the Site during establishment will be essential to prevent any competitive species, i.e. common dock, for becoming a dominant in the sward.

The remainder of the Site frontage will be down to amenity grassland and bulb plantings, offering some opportunities for invertebrates.

Shrub and tree species will be planted along the Site frontage, including in the swale, and through the Site and are selected to provide flowering and fruiting species that will attract

birds and invertebrates through the majority of the year. Many of the trees are non-native but as such fit well into the formal nature of the LPA amenity gardens across the main road from the Site. Species such as Swedish Whitebeam can fruit prolifically and provide an important food source for over-wintering birds and their dense flower heads showing around May and June provide a relatively early nectar source for invertebrates.

Contribute to the Delivery of Local Biodiversity Objectives

The Local Planning Authority has a legal duty to maintain and enhance biodiversity under the Environment (Wales) Act 2016. The use of SuDS to promote biodiversity and where possible enhance habitats and connectivity provides a powerful tool. The Neath Port Talbot Biodiversity Partnership has as an aim *‘To protect existing habitats, to restore former habitat and create new habitat. To halt the loss of biodiversity in Neath Port Talbot’* and in doing so encourage the participation of local people in enjoying and protecting biodiversity.

In a heavily built and formally managed environment such as Aberafan, the use of SuDS features to promote biodiversity and to allow close contact to the public of it, is valuable. By providing new habitats that will allow the development of flower rich swards and structural diversity with flowering and fruiting shrubs and trees, an increase in use of the Site by birds and invertebrates is to be expected, amongst which there is potential for Section 7 species to be present.

The provision of green space for both amenity and biodiversity use through the Site allows the Ecological Resilience of the Site and immediate areas to be enhanced by diversifying the habitats present. By increasing the habitat and structural diversity, creating new connectivity routes for foraging and commuting birds and bats, opportunities are provided that are currently lacking for these species. For example, eight species of bat are cited in Section 7 of the Environment (Wales) Act 2016 including three pipistrelle species of which two are known to roost locally, but currently have very few suitable commuting routes to the sea-front or foraging opportunities. The proposals will enhance the available habitats and in a heavily built and formally managed area well used by the public for recreation, provide a valuable refuge for wildlife whilst maintaining a very approachable public interface, particularly with the grassland and bulb planted road-side frontage.

Contribute to Habitat Connectivity:

The Site is relatively isolated within the Aberafan built environment with heavily managed formal gardens to the south (to the sea-front) and managed playing fields and football grounds to the north. The site is bounded either side by retail and residential development and fronts onto a main dual carriageway.

In itself, the position of the Site in the wider landscape limits the potential to connect to the wider landscape, which in itself is poor in diversity and connectivity. The provision of green space, including trees and linear features such as the swale, will help develop connectivity across the Site however. It will also allow a connection from the housing developments to the

north and the sea-front to the south, something that is largely lacking along this part of the Aberafan sea-front development.

Create Diverse, Self-Sustaining and Resilient Ecosystems:

The SuDS proposals for the Site offer the potential for the Site to develop diverse and ecologically resilient new habitats, however their small size will probably require some intervention to maintain their diversity. This may simply be monitoring to assess the success of the plantings and seeding or direct involvement in managing certain areas until established.

The provision of tough wear resistant amenity grassland with wildflower areas, shrubs and trees will enhance resilience to change, the differing hydrological conditions resulting from the use of banks and ditches will create variability across the sward with some species being more successful in certain conditions than in others. The provision of species offering nectar and fruits at varying times throughout the year will offer the potential for the site to support wildlife through the seasons even though the Site is relatively limited in size.

The provision of varying habitats and greater diversity will assist in resisting climate change. The swale will store the increased waters expected from increasing storm events and the ground habitats will enjoy protection from storms coming in from the sea, in turn offering protection to invertebrates.

Conclusions:

The SUDS proposals for this Site offer opportunities to enhance local biodiversity and increase the variety of life locally, improving on the current areas of formally managed amenity grasslands surrounding the Site. They hold the potential to create commuting routes for species of wildlife that are not currently available and connect the sea-front gardens to the built environment behind.

The proposals offer opportunities for birds and invertebrates in particular, and by doing so, with the increase in structural diversity, will prove attractive for bats whose access to the frontage is currently limited by the lack of suitable commuting routes.

The proposals will also help give the Site for a greater resistance to climate change by offering a diversification of habitats that does not currently exist in the immediate locality.