

Swansea University Bay Campus Grounds Management Plan

2020



P Edwards

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Swansea University Bay Campus Grounds Management Plan 2020 - 2021

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Swansea University Bay Campus History

In 2009 Swansea University acquired the site of a former petroleum and chemical storage facility located within the administrative area of Neath Port Talbot County Borough Council (NPT CBC) from BP. The Bay Campus is situated on a 65 acre former BP Transit site in Neath Port Talbot on the eastern approach into Swansea and now has the distinction of being one of the few global universities with direct access onto a beach and its own seafront promenade. The Campus provides academic, student accommodation and research space, the latter being in a series of agreements with international and national companies.

The next phase of 543 en suite Bay Campus student residences has been completed by St. Modwen bringing the total number of student residences to 2,005 ready for undergraduates to start their studies.

Colleges based at the Bay Campus include the College of Engineering, The Computational Foundry, The Energy Safety Research Institute and the School of Management.

Facilities include:

- The Tower Information Centre, home to central support services for students.
- A state of the art Bay Library.
- The Students' Union.
- Facilities and meeting rooms.
- The Great Hall which houses an auditorium for 700, lecture theatres and a cafe offering magnificent views across the Swansea Bay towards Gower and Baglan Bay.

Extensive catering provision runs throughout the campus including cafes, bars, a restaurant, retail units, a laundrette and cash points plus recreational sporting facilities.

This multi-partner, public/private project is funded through a combination of University, Welsh Government, European Regional Development Fund, Welsh Government, The Department for Business, Innovation & Skills, European Investment Bank and M&G Investments with St Modwen.

Bay Campus Location

Figure 1: Bay Campus Location



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Bay Campus Terrain

The 27.9 hectare site is situated approximately 3.5 kilometres east of Swansea city centre and 4 kilometres southwest of Neath (See Figure 1) and comprises of an expanse of bare ground free of any notable features measuring approximately 800m in length and 250-300m in width.

The site itself is bound from the north by a trunk road the A483 'Fabian Way'. To the east by Crymlyn Burrows a Site of Special Scientific Interest (SSSI). To the south by the mean high water mark leading to mudflats, beach and finally the sea and to the west the administrative boundaries of NPT CBC and the City and County of Swansea (CCS) of which beyond is the remnants of the former storage facility and near to that is the Queens Dock (approximately 1 kilometre to the west).

Swansea University Grounds Department

The grounds of Swansea University's Bay Campus (with the exception of the residential areas) are maintained and developed by in-house grounds staff. The maintenance work includes mowing, weeding, shrub and tree pruning, summer bedding displays, litter picking, irrigation, 'living wall' maintenance and landscaping.

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The Bay grounds are maintained in an environmentally friendly manner by ensuring that:

- No residual weed control is applied to landscaped areas.
- Wood chip mulch is sourced and produced on site where practical and is then applied to shrub beds to avoid herbicide usage and save watering during the summer months by retaining moisture beneath it.
- Green waste produced from grass clippings, trimmings and hedge cuttings are composted and re-used around the Bay Campus.
- Where possible locally sourced materials are used on all landscaping projects.
- Priority is given to the preservation and enhancement of existing valuable habitats.
- Informative signage is located by valuable habitats.
- Natural habitats are encouraged by leaving wildlife corridors such as fence lines and ditches.
- Non-urgent maintenance is not carried out during the bird nesting season.
- Habitat piles are left in appropriate areas to provide sources of food, shelter and hibernation sites.
- Bird and bat boxes are installed at suitable locations throughout the campus.
- Planting schemes incorporate a variety of plants, trees and shrubs, with varying flowering times to encourage year round wildlife activity.

Image 1: Ditch frozen over adjacent to Fabian Way.



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Crymlyn Burrows Site of Special Scientific Interest (SSSI)

Adjacent to Swansea University's Bay Campus lies over 600 acres of protected saltmarsh, sand dune, and beach. This expansive coastal wilderness is in the care of the University and is a spectacular landscape for staff, students and the public alike to unwind. The dunes themselves have an extensive array of wild flowers including some very rare plants such as sea stock and field wormwood, they in turn are equally important for reptiles and ground nesting birds. The beach is vitally important for wading birds such as oystercatchers, sanderlings, and ringed plovers, the site also supports a rich variety of invertebrates such as the very rare strandline beetle which is only found on beaches that are backed by sand dunes and hides under wood on the beach by day and hunts at night and has not been positively identified in the area for many years. Beach debris, essential for their survival, is left in situ for that very reason.

Image: 2 Strandline Beetle *Eurynebria Complanata*.



© www.anabam.org 2015

Image 3: Dune Tiger Beetle *Cicindela campestris*.



© M McCabe NRW 2010

An equally important invertebrate resident of the site is the Dune Tiger beetle, a species that seeks out bare ground to inhabit, bare sandy spaces provide a habitat for it to hunt and live in. Bright iridescent green with yellowish spots on the elytra or wing cases, the beetle is an aggressive and nimble predator equipped with long legs and powerful toothed mandibles.

Capable of a fair turn of speed across the sand it catches its prey such as ants, caterpillars and any other similar sized invertebrates that it may come across. Although capable of swift flight the beetle only does so if disturbed and even then only over short distances.

Breeding takes place during the summer months with eggs being laid individually in small burrows. After hatching the beetle larvae stay in their burrows over winter where they patiently wait for any oblivious insects to tumble into their lairs and then bite down on their prey using jaws just as unmerciful and efficient as those of the adult beetles. Throughout this time the larvae need to enlarge their burrows as they grow in order to accommodate their increasing size, with their skins moulting three times in the process.

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Image 4: Green tiger beetle larva in its burrow positioned ready for catching prey.



© gettyimages.com 2008

The University has its own Biodiversity Officer who looks after the SSSI ensuring that everyone plays their part in looking after this special place. Along with access management, the officer is responsible for managing non-native invasive plants such as Sea Buckthorn and Japanese Rose.

Image 5: Sea buckthorn (*Hippophae rhamnoides*) re-encroaching at Crymlyn SSSI.



Paul Edwards 2016

Image 6: Japanese Rose *Rosa rugosa*.



©Nonnativespecies.org 2016

There is public access to Crymlyn Burrows, and all users must observe the following to minimise any disturbance or damage:

- No fires or barbecues to be lit light in the SSSI.
- All driftwood to be left and not collected for fires.
- No excavation in any area, including the dunes.
- No litter to be left use the bins provided.
- Extra care to be taken not to leave any broken glass.
- No disturbance or removal of any flowers/animals.
- No collection any marine life (including cockles and mussels) from the beach area.
- No disturbance of groups of birds on the beach.
- No introduction of any species through seeding or planting without prior consent from NRW (Natural Resources Wales).
- No waste material to be dumped on the site.
- All dogs must be kept under strict control.
- Dog faeces must be placed in the appropriate waste bins.
- No shooting.
- Keep to the paths.
- Vehicles are strictly prohibited.
- Extensive beach cleaning can damage the strandline habitats therefore beach cleans are to be carried out only under the supervision of the Biodiversity Officer.

Although a natural environment, the SSSI still requires management to keep it intact. Large grazing animals such as deer that would have kept the vegetation in check are now long gone (however bones of aurochs and other prehistoric animals do occasionally wash ashore!).

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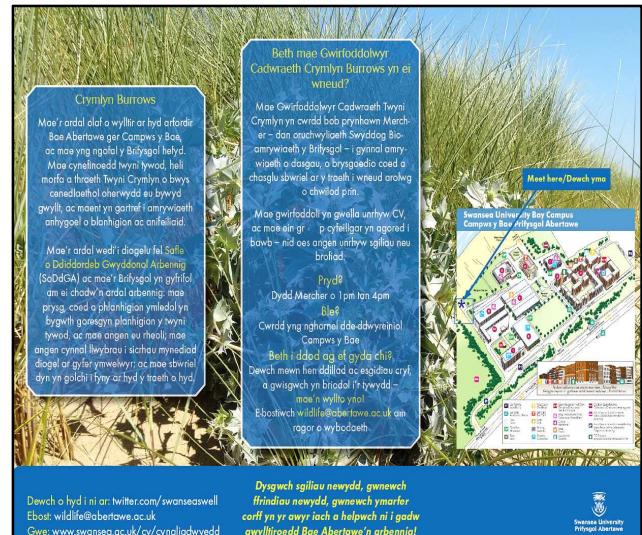
Dozens of sacks of rubbish, car tyres and netting etc are removed from the beach annually by student and staff volunteers. As well as the beach litter picks, invasive cotoneaster bushes, pine and holm oak saplings have been dug out, and paths cleared of encroaching vegetation by the volunteers.

Figure 2: Volunteer web ‘Flyer’ (English).



©Swansea University 2016

Figure 3: Volunteer web ‘Flyer’ (Welsh).



©Swansea University 2016

Image 7: Volunteer group litter picking the beach in front of the Great Hall.



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Manmade Features

Active Classroom

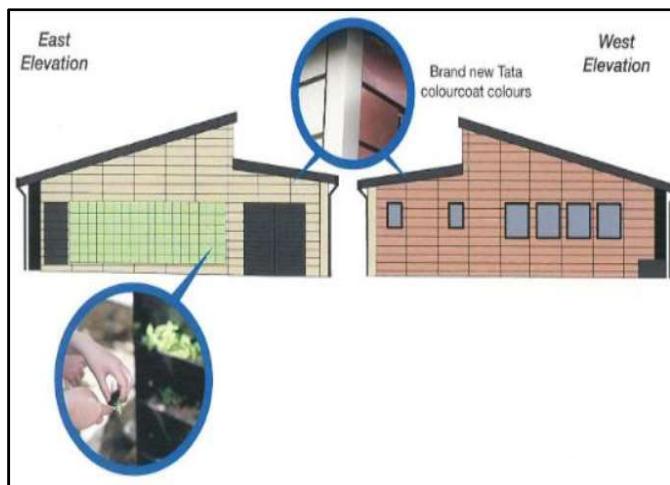
The Active Classroom is a full-scale building demonstration project containing a laboratory and classroom and will be used for teaching students. It will also be monitored closely, enabling researchers to test and validate building performance in an education facility and to see how users interact with technology.

A living wall has been planted on the east elevation of the Active Classroom with the help of local school children.

Living walls have a number of benefits:

- Improve aesthetics.
- Regulate temperature and reduce carbon footprint.
- Protect building facades.
- Provide wildlife habitats.
- Improve air quality.
- Deter graffiti.
- Reduce noise.

Figure 4: Active Classroom East / West



©Swansea University 2016

Image 8: Active Classroom living wall.



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The Oracle 2 ('Outdoor Research and Community Learning Environment')

Image 9: 'The Oracle 2'

Named 'Oracle 2' this 8m x 6m outdoor classroom / pavilion was constructed by a university sin out company called 'Down to Earth' using ecologically low impact locally sourced materials utilising skills such as dry stone walling and timber frame forming. Located South/East of the Campus and adjacent to the SSSI it is hoped that the resulting structure will be used as a doorway to the natural world for children, university staff and members of the community for group discussions, as an opportunity for hands-on engagement with natural elements and as a setting for relaxation and restoration



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The 'Green Roof' Bike Shelter

Image 10: 'Green Roof' Bike Shelter

Constructed opposite Oracle 2 at the same time by Down to Earth using the same methods and materials the Green Roof Bike Shelter is used by staff and visitors alike. This facility has proven to be very popular and well used especially during the summer months.



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Bay Campus Grounds Maintenance

The Grounds Team develop and adapt their working practices at the Bay Campus to support and encourage biodiversity. Around the residential and academic buildings; extensive tree planting into the embankments formed along the south side of the campus adjacent to the busy dual carriage way have formed valuable wildlife ‘corridors’ and have helped reduce traffic noise. Residual herbicide is not used at all, contact biodegradable herbicide is used but its use has been greatly reduced by strictly adhering to a minimal ‘spot’ spraying programme lessening the impact upon the environment by specifically targeting weeds rather than ‘blanket’ spraying. This regime aids the increase in specie/invertebrate abundance which would otherwise be adversely affected by indiscriminate spraying. Herbicide application is not carried out among any of the shrub beds on campus instead woodchip, cardboard and leaf-mould produced from material generated by the campus is used as a mulch to both restrict the growth of weeds and retain moisture during dry periods. Sheets of cardboard are first laid down then leaf mould or woodchip is then placed on top, completely cutting out the light. This method has been a really successful alternative to using herbicide and reduces labour resources which can instead be redeployed to concentrate on landscape development projects.

The Grounds Team’s sustainability ethos has extended into only using “peat-free” growing medium and to create composting bays with a view to ultimately move away from the purchase of pre-packaged growing medium altogether to reduce the demand for carbon-rich planting materials subsequently supporting the use of peat as a carbon sink. Ninety per cent of the smaller lawns of the campus are cut using ‘mulching’ type mowers which are designed to macerate the clippings depositing them directly onto the area being mowed. This self-fertilizing system reduces the demand on the grounds budget while at the same time eliminating the impact of artificial nitrate run-off on the environment. Where lawn clippings are bagged the clippings are composted for use on the flower beds and planters.

Image 11: Library lawn south / seaward facing with dune system in the foreground.



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Bay Campus Environments

The Grounds Team maintains and creates various environments on the Campus to encourage and increase a wide variety of flora and fauna; these include woodlands, grasslands, flower borders, planters, hedgerows and wildflower areas. The wildflower areas are cut once a year leaving cut material in situ to dry out and disperse their seed heads.

Bird boxes have also been strategically installed on the campus to encourage the re-establishment of fauna displaced during construction.

Image 12: Bay Campus Nest Box Locations.



© Swansea University 2018

Bay Campus Landscaping Projects

8.1 Landscape Project: ‘Grow Wild’

The Bay Campus was awarded funding from Grow Wild Wales for a project it created for community groups brought together through activities to connect their community and celebrate UK native wild flowers, plants and fungi. The application was based on the originality of the idea and the creative use of funding to connect with communities. Grow Wild is aimed at community projects to work with one or more of the following target



- Young people aged 12-18.
- Students and young people aged 18-25.
- People living in urban areas.
- People experiencing disadvantage and reduced access to services.
- Adults that are less engaged with their community and environmental activities.
- Led by the community directly or by an organisation that addresses an identified issue or need.
- Will encourage large-scale involvement, with the potential to reach at least 300 people through direct participation or as wider beneficiaries.
- Focuses on UK native wild flowers, plants and/or fungi, and furthers understanding of the importance of these native species for the environment and our lives.
- Has a space to deliver the project that is accessible to the general-public.

Project Draft Title: ‘Flora Industria’.

Remit: Exploring the history of Swansea Bay through plants.

Area Timeline:

- Un-colonised wilderness: Sand dunes, saltmarsh and woodland.
- Pre-industrial: Foraging and woodcrafts, willow weaving, farming.
- Industrial: Charcoal making, smelting, oil industry.
- Post-industrial: Recovery, regeneration, future research.

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Outputs:

- A virtual tour of the wildlife habitats of Crymlyn Burrows SSSI.
- Creation of a post-industrial garden at the Bay Campus, with a time-lapse video showing how the plants colonise and ‘take back’ the area.
- Public open days including guided walks looking at the wild plants, invertebrates, birds and mammals of Crymlyn Burrows SSSI as well as the new industrial garden.
- Plant crafts: Willow weaving, bodging, charcoal making, copper smelting.
- Walks/talks by researchers into the modern benefits of plants: Medicine, wellbeing and their place in the ecosystem.

The project called the ‘Flora Industria Wildflower Garden’ opened in September 2018. The garden is located alongside the ORACLE to the east of Bay Campus. A ‘post-industrial wildflower garden’ it is designed to show how man and wildflowers can live alongside each other even amongst the silos, chimneys, towers and furnaces of the most harsh, uncompromisingly manmade landscapes. The garden’s “weeds” have a fragile beauty that belies their resilient nature, bringing colour and life into our urban landscapes to provide a vital refuge and food source for bees, butterflies and other pollinating insects. Along with other wildlife friendly planting across Bay and Singleton campuses, Flora Industria goes some way to bridge the gap to connect wildlife across Swansea and beyond.

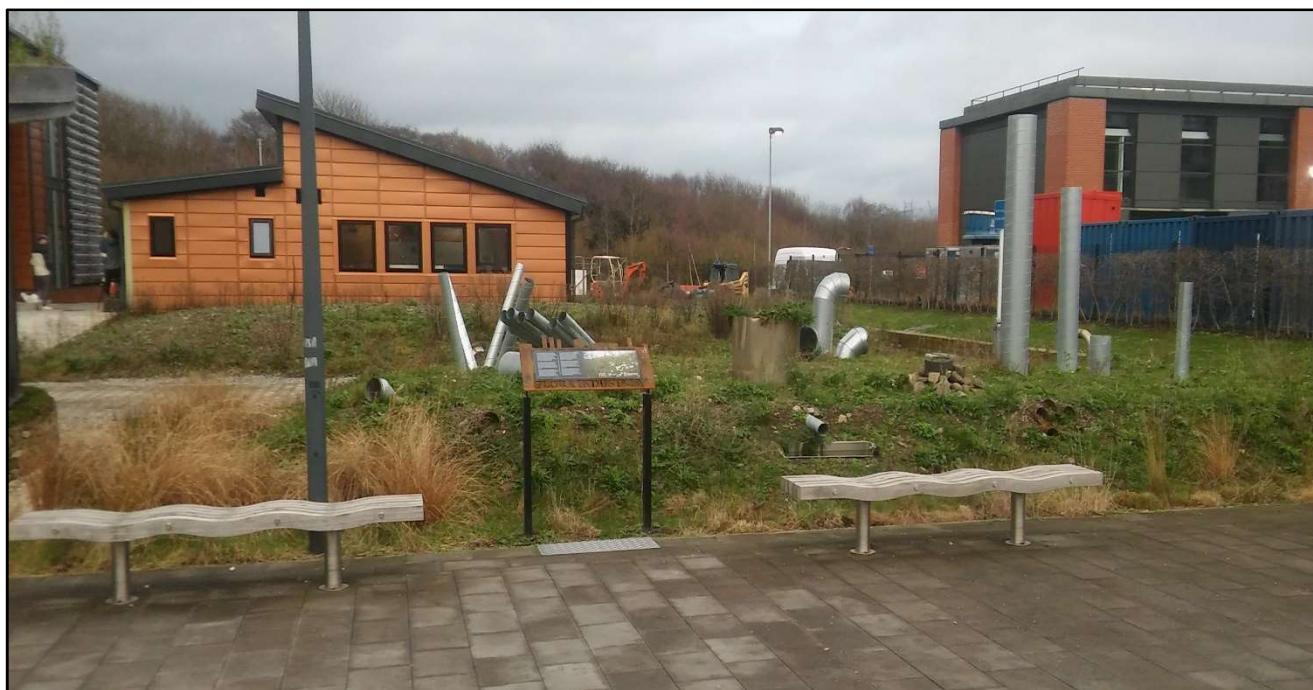
Image 13: Flora Industria information point



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Image 14: Flora Industria Garden



Paul Edwards 2019

Image 15: Sea Holly *Eryngium maritimum* at Crymlyn SSSI



Paul Edwards 2015

8.1.2 Landscape Project: Habitat Piles

Surplus woody material from the Singleton Campus that cannot be processed into wood-chip or reutilised as tree stakes is instead relocated in unobtrusive areas around the Bay Campus to form 'Habitat Piles'. These piles typically consist of tree stumps, rocks, rotting 'log bollards', cut brambles and grasses etc all of which quickly become host to an abundance of invertebrates and shelter for small mammals and a source of nest building material. As the piles weather and deteriorate, they are periodically topped up with fresh inert organic material.

Image 16: Fabian Way extended tree line.



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8.1.3 Landscape Project: Barbeque Area

In 2017 a large Oak at the Singleton Campus unfortunately had to be felled due to its unstable condition and location to the highly pedestrianized area of the Halls of Residence; however the resulting timber was used to create a circular seating area at the end of the Bay Campus board walk. The project has succeeded on two main levels to firstly localise any resulting litter and secondly during peak demand times firewood sourced from the SSSI and Singleton is stacked there to offset the temptation to gather and burn drift wood. The only challenging aspect of maintaining the log seating area has been the ever moving dune sand which periodically completely covers the area entirely only to re expose it again days later!

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Image 17: Example of oak log barbecue seating covered by dune encroachment.



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Image 18: A very frosty morning at the Bay Boardwalk.



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Image 19: SSSI Signage



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8.1.4 Landscape Project: ‘Wildlife House’

Following the success of Bug Hotels placed around the Singleton Campus they have now begun to be installed at the Bay Campus starting at the new Computational Foundry Building which also includes a purpose built new marsh / pond area.

Image 20: Wildlife House located at the Computational Foundry



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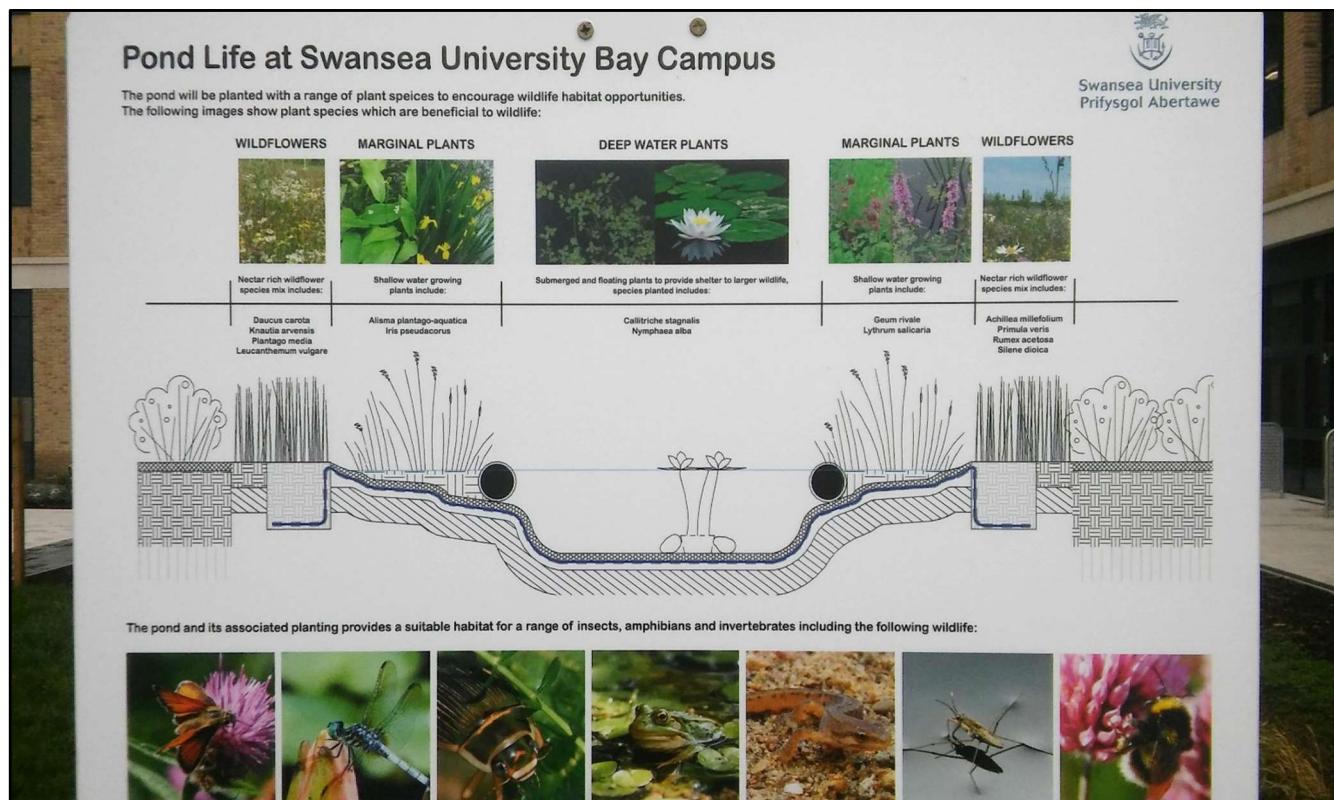
Image 21: Wildlife House next to the SSSI constructed during the 2019 Staff Welfare Conference



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Image 22: Computational Foundry Pond information board.



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Image 23: Computational Foundry Pond early stages



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Swansea University Biodiversity Group

The Biodiversity Group formed in 2012 has achieved a great deal with limited resources. This has been achieved by embracing the recycling/up cycling ethos of utilising the natural by-products that result from the day to day maintenance of the grounds. As is so often the case with habitats subject to frequent footfalls and high usage, a balance must struck so that the open spaces can be preserved and yet enjoyed at the same time. The beach and SSSI in particular fulfil two key roles as valued habitats and as a ‘time out’ area for students, staff, visitors and the general public alike.

Figure 4: Human threat to SSI and Dunes.

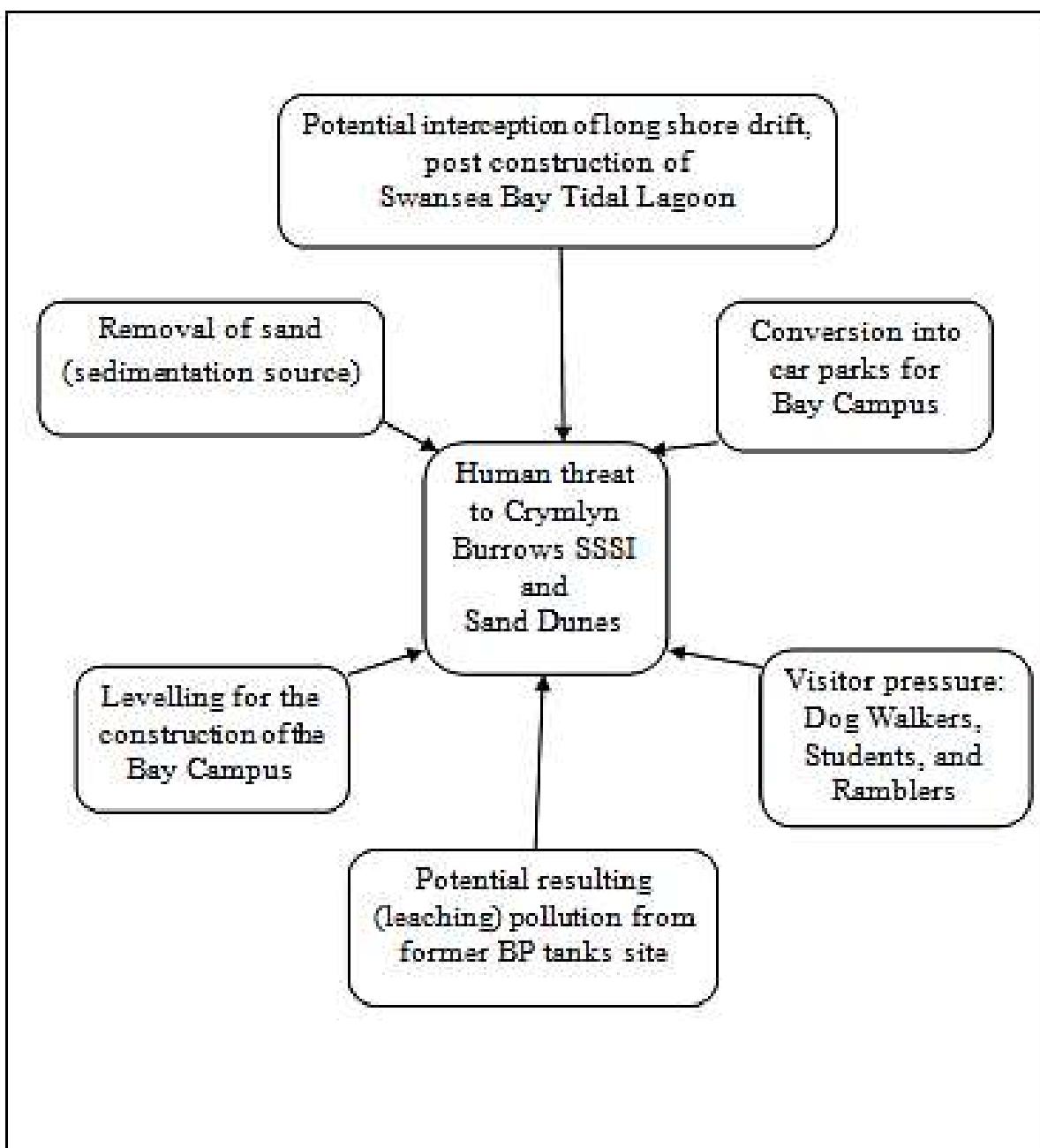
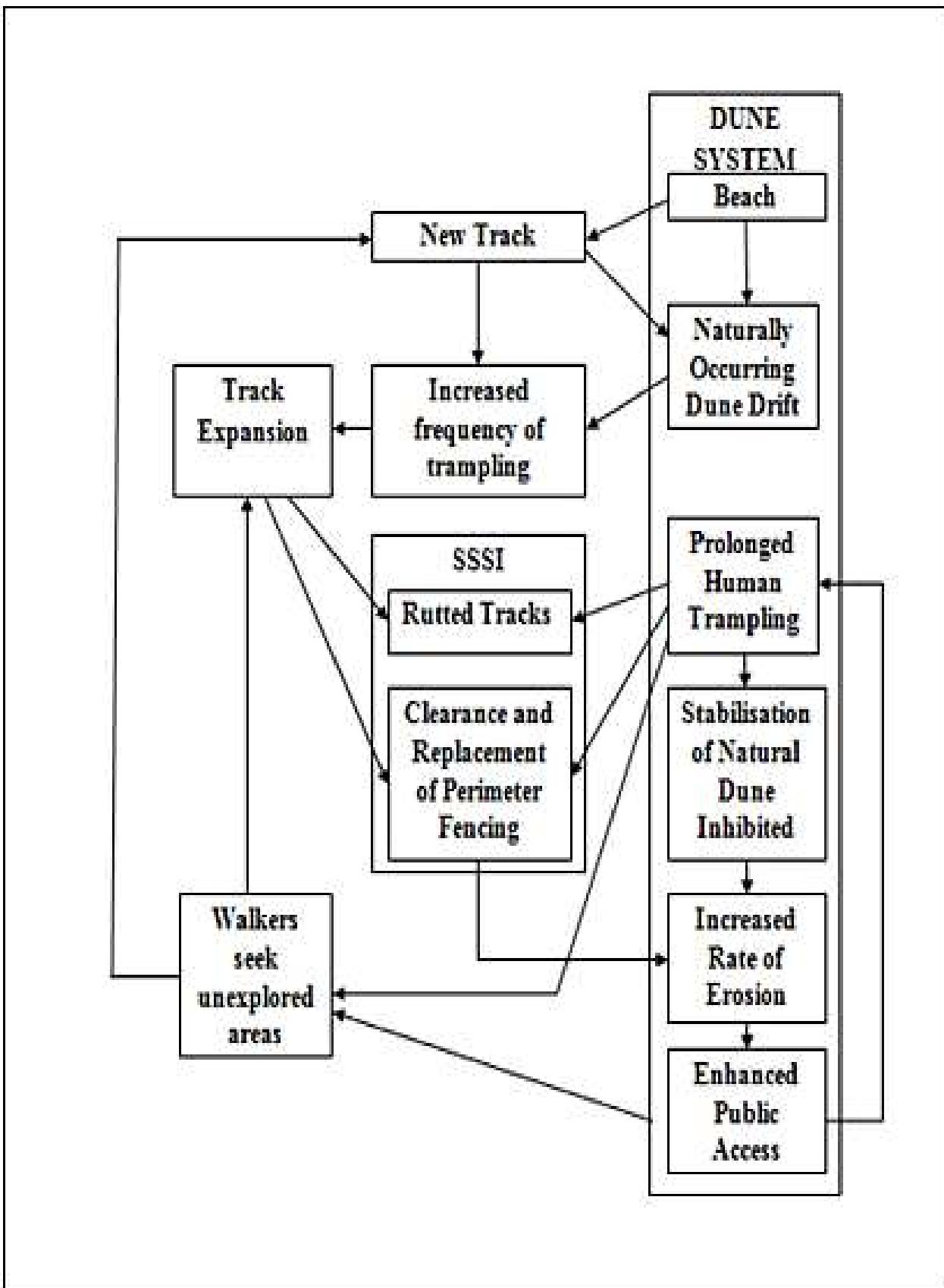


Figure 5: Human Dune Trampling Flow Chart



Bay Campus Horticultural Projects

10.1 Horticultural Project: Student Conservation Volunteer Group

The Student Volunteer Group established in 2016 have practised and learnt conservation skills and management techniques while assisting in landscaping projects initially around the Singleton Campus. In this time the Grounds Team facilitated the students in these endeavours by working alongside them offering tuition and guidance. This ethos will now be cascaded onto the Bay Campus to commence the numerous projects and re-developments from soft landscaping like creating woodchip paths to reduce erosion and tree planting to totally re-designing areas in order to accommodate the changing needs of the Universities stake-holders.

10.1.2 Horticultural Project: Reducing the use of pesticides and artificial fertilisers

The use of pesticides within the Grounds of the Bay Campus is kept to an absolute minimum and inorganic ‘artificial’ fertilisers are not used at all; ironically, seaweed based organic fertilizers are used!

Activities and Facilities

Some of the Ecology courses directly benefit from having the SSSI and beach right on their doorstep as it literally becomes an outdoor classroom for students offering tangible subjects that cannot be duplicated by a computer monitor.

The wide open spaces around the Bay Campus are enjoyed for leisure activities throughout the year from cycling, football to beach volley ball and of course as a place to relax and reflect.

11.1 Activities and Facilities: Amenities

Bay Campus amenities are situated within buildings with the exception of outdoor beach front showers. Toilet facilities and rest areas are within buildings, including areas with disabled access. Other amenities on Campus include a mini supermarket, the Library, MUGA (Multi Use Games Area), numerous eateries and the Great Hall providing opportunities for public engagement and a performance area.

11.1.2 Activities and Facilities: Signs and Information Boards

Campus signage indicates the locations of buildings and areas of interest providing a welcoming atmosphere to ensure users of the Bay Campus all feel comfortable and safe walking around the site. Maps of the site are also readily available from reception areas.

Figure 6: Bay Campus Volunteer Activity Schedule 2020

	Bay / SSSI
January 8 th 1pm	Beach Clean
January 29 th 12.30pm	Winter Wildlife Walk
February 4 th 12.30pm	Centenary Oaks meet in front of Great Hall
February 5 th 1pm	Beach Clean
February 20 th 4.30pm	The shore birds of Swansea Bay (1 hour beach walk) * fairtrade refreshments
February 27/28 9.30am-4pm	Staff volunteer days – habitat management at the SSSI meet at ORACLE * fairtrade refreshments
March 4 th 1pm	Beach Clean
April 1 st 1pm	Beach Clean – go green week * fair trade refreshments
April 8 th 6am	Dawn chorus walk
April 9 th 1pm	Low tide walk
May 6 th 1pm	Beach Clean
June 3 rd 1pm	Beach Clean
June 17 th 12.30pm	SSSI walk - Butterflies of the Burrows
July 1 st 1pm	Beach Clean (staff picnic before)
July 25 th 10am	SSSI strandline walk for the Wildlife Trust meet in SSSI car park
August 5 th 1pm	Beach Clean
September 2 nd 1pm	Beach Clean
September 18 th 12.30pm	Low tide walk
October 7 th 1pm	Beach Clean
November 4 th 1pm	Beach Clean
November 16th 12.30pm	SSSI walk - Beachcombing
December 2 nd 1pm	Beach Clean

Safety, Security and Cleanliness

12.1 Safety, Security and Cleanliness: Security

Swansea University Bay Campus Site Security operates 24/7, every day of the year, and is available to offer assistance and advice to students, staff and members of the public alike on any security related matters. To this end their remit is to maintain a secure academic and business environment by protecting people, information and property as well as safeguarding the University's professional standing. Swansea is one of the safest places in the UK to study or visit and boasts one of the lowest crime rates in the country.

The Security team patrol in liveried vehicles and on foot, around the clock, and monitor the roadways paths and car parks. They also report accidents, incidents and equipment failings such as defective street lighting at the earliest opportunity through the appropriate channels.

CCTV is prevalent throughout the campus, with intruder alarms providing an additional layer of security at a number of potentially vulnerable locations.

Reception at the campus is manned 24/7 to provide a central point of contact for staff, students and members of the public who seek advice, parking information or to report lost items. Visitors are also provided with Campus and town maps, prospectuses, bus timetables, taxi numbers and other relevant useful literature.

12.1.2 Safety, Security and Cleanliness: Street Lighting

Providing adequate street lighting throughout the Campus is an essential as safety requirement and adds to a welcoming environment. Up to date low energy LED street lighting supports the University's Environmental Policy.

12.1.3 Safety, Security, Cleanliness and Accessibility

The Bay Campus has few gradients therefore accessibility, especially wheelchair access is not generally an issue. The Universities obligations are to provide all students, staff and visitors with an experience of the highest quality and to make facilities across the campus as available as possible for everyone. Swansea University is committed to the Equality Act 2010 by implementing this commitment the Campus is being frequently being adapted with disabled access in mind, with access ramps, accessible toilets and automated lifts. There are also allocated parking areas for disabled blue badge holders throughout the campus.

12.1.4 Safety, Security and Cleanliness: Gritting and Snow Clearance

During the winter months the gritting of the Bay Campus is outsourced however the Grounds and Security Teams work together to monitor any forecast adverse weather and are equipped to carry out the gritting and the snow clearing of the University should the need arise.

12.1.5 Safety, Security and Cleanliness: Litter Removal Provision

The emptying of all external litter bins is outsourced however the Grounds Team are responsible for litter collection. Fly tipping does not occur as opposed to the regular clearance of some builder's debris that has been 'overlooked'.

12.1.6 Safety, Security and Cleanliness: Water usage

Rainwater harvesting is being instigated by initially installing a water butt to collect rainwater from the Active Classroom to irrigate the summer bedding planting schemes that require additional irrigation during the summer months.

12.1.7 Safety, Security and Cleanliness: Dog Fouling Policy

The Bay Campus operates a 'no dog' policy (except from assistance dogs), this can be problematic to enforce as the campus is situated next to the SSSI itself so members of the public do occasionally walk their dogs through the Campus.

12.1.8 Safety, Security and Cleanliness: Vandalism and Anti-social Behaviour

Vandalism and anti-social behaviour is not a common issue. Graffiti has not appeared to date.

Maintenance and Resources

13.1.1 Maintenance and Resources: Staffing

There are currently nine Grounds staff consisting of the Grounds Manager, Grounds Assistant Manager, Grounds Team Leader, five Grounds Assistants and one Waste Operative. The Grounds Team are utilised on the Singleton Campus, Bay Campus and other small facilities leased or owned by the University. The Grounds Team interact with students, visitors and other staff daily and are always

approachable, friendly and happy to help, particularly offering horticultural advice or indeed helping anyone in difficulty.

There is also a Sports Team working at the MUGA that looks after all the external sports facilities. These include five-a-side football pitches and a beach volley ball pitch. Although under different departments, both work closely together to assist each other and share resources as and when needed.

Due to the ever expanding areas that are maintained by the Grounds Team alternative ways have been looked to save both time and manpower. For example, a self-propelled Road-Sweeping machine is now used to sweep the vast amount of pedestrianised areas around the Bay Campus which as well as saving time also frees up team members to carry out other grounds related tasks. Another labour saving piece of equipment was the purchase of a panel van which has assisted greatly in transporting staff and materials quickly around and between campuses increasing the efficiency and response time for the Grounds Team.

To address the unsightly problem of discarded chewing gum two environmentally friendly steam powered gum removal machines were purchased and have made an impact on the appearance of the campus in a relatively short time. They can be used at peak times or even during exams as they are silent, highly portable, safe and environmentally friendly as the cleaning solution is manufactured from renewable sources that are based on a sugar surfactant rather than oil based making it completely bio-degradable.

Image 24: EcoGum Maxi



© Eco Removal Systems Ltd

13.1.2 Maintenance and Resources: Machinery and Machinery Maintenance Procedure

Major machinery servicing and repairs are carried out by the relative original dealers. Smaller routine machinery maintenance is carried out 'in house' by their respective operators within the Grounds Team. Tool-box talks in the safe operation, pre-checks and daily maintenance of the relative machinery they are expected to use are given to the Grounds Team annually.

13.1.3 Maintenance and Resources: Arboriculture

A small number of the Grounds Team are qualified in chainsaw use at different levels. At present, a combination of the Grounds Team and contractors are used to deal with the more challenging tree work. The aim is to continue to develop the in-house team in order to be able to internally undertake most if not all of the tree maintenance in the future.

Tree surveys are carried out annually by the Grounds Manager and the appointed Arboriculturalist to highlight and address any defects in trees on campus that are in close proximity to buildings, pedestrianised areas or car parks

Image 25: New tree planting Bay Campus / Fabian Way (east)



Paul Edwards 2019

13.1.4 Maintenance and Resources: Buildings

There are a variety of different types of buildings across the Bay Campus used for a range of purposes including teaching, research, administration, and sport / leisure activities. The buildings are predominantly sited within a grid layout running through the site. Landscaping and the inclusion of green-space throughout the site remains a major priority when considering further development of the campus.

13.1.5 Maintenance and Resources: Footpaths

The majority of the footpaths are either constructed from concrete slabs, brick pavia or tarmac. The installation of new paths are undertaken by the Estates Department and are then maintained by the Grounds Team. Potholes, loose slabs etc. are reported via the helpdesk, an automated system then tracks the progress of each hazard recorded.

The Grounds Team occasionally create wood-chip paths and repair the edges of some of the paths where erosion is a problem. However, the chief role of the Grounds Team is to trim any shrubbery likely to encroach on pathways and roads to ensure that a clear line of sight and light levels are maintained. This process is either carried out by hedge-trimmer, hard pruning or re-profiling footpaths by taking out overgrown specimens and replacing them with lower growing alternatives.

13.1.6 Maintenance and Resources: Street Furniture

There are several marine grade stainless steel benches dotted around the Bay Campus to cope with the corrosion brought on by the sea air as well as wooden bench / tables, a percentage of which are adapted for wheelchair access. Older concrete litter bins from the Singleton Campus have been filled with soil and re-purposed to form traffic control planters. Multi waste stream bins have been sited to aid the level of recycling.

Environmental Sustainability

14.1. Sustainability Policy and Management

The University has a number of sustainability policies, which highlight its commitment to sustainability and environmental management. The Sustainability Policy outlines the University's key commitments as part of its ISO 14001 (2015) Environmental Management System, of which the grounds are a key component. Other aspects mentioned in the Sustainability Policy include the need to:

- Minimise greenhouse gas emissions from University operations.
- Reduce the consumption of primary raw materials (including fossil fuels, water and energy).
- Promote biological diversity on sites that the University manages or owns.
- Minimise waste production and divert waste from landfill through increasing re-use, recycling and recovery.

- Promote and support environmentally responsible behaviours throughout the University community.
- Work with the Students Union and other partners to enhance the sustainability of the University.
- Ensure that the University builds resilience to climate change risks.

The University's Carbon Management Plan sets out Swansea University's commitment to manage and reduce its carbon emissions. The carbon reduction agenda is increasingly being reflected in both legislative and fiscal UK policy, and at a pragmatic level, there is a need to manage carbon emissions to reduce operational costs as fuel prices and associated taxes rise, and to protect our institutional reputation. In 2019 the University declared that there is a state of Climate Emergency. By late 2020 the University will publish its first Climate Emergency Plan - this will supersede the existing Carbon Management Plan and will also contain the University's first climate adaptation actions, and in which grounds management will be a key stakeholder. The University also has a Biodiversity Action Plan for both campuses, which sets out a range of activities that are designed to protect, enhance and promote biological diversity on University land.

As part of the EMS, every area has their own Sustainability Action Plan (SAP). The Grounds team's actions are incorporated into the SAP for Estates and Facilities Management (E&FM). The plan has assessed the aspects and impacts associated with E&FM and seeks to manage, mitigate and minimise the most significant impacts. Grounds aspects and impacts identified during the assessment and associated mitigation include:

- **Water consumption:** No further action, best practice employed.
- **Interference with biodiversity:** No further action, best practice employed.
- **Use of resources (chemicals):** No further action, best practice employed.
- **Localised nuisance (noise):** No further action, best practice employed.
- **Use of resources (other) emissions of GHG and noise (noise, visual emissions on start-up):** No further action, best practice employed.
- **Use of resources (other) purchase and consumption of raw materials (soil):** Action: Formulate composting/chipping etc. practices under the EMS in line with exemption requirements and to standardise practice and minimise risk of contamination.

The SAP is reviewed periodically with the E&FM Environment Officer and through the annual ISO14001 internal audit schedule, of which Campus Operational Services (COS) is included.

14.1.2 Environmental Sustainability: Water Strategy

New buildings and major refurbishments must comply with the strict requirements of the Water Section in BREEAM standards and must be fitted with audible leak detection facilities, dual-flush low flow toilets, low flow urinals and low flow showers.

Rainwater harvesting for flushing toilets and irrigation of garden features plus the potential for grey water recycling and waterless urinals will always be considered for future developments.

14.1.3 Environmental Sustainability: Transport and Cycling

The University has recently invested to improve the Campus infrastructure for walking and cycling to and from Campus. This has included secure bike shelters and accessible showers in the majority of buildings. The University also offers its cycle-to-work scheme, where it is possible to pay a lease payment for a bicycle and road safety (lighting) equipment. We also have a number of Santander bikes available at both Campuses which can be hired ad hoc or on an annual membership basis. There are 6 hubs available between the Bay Campus and Mumbles with further ones planned for 2020.

The bus links have been improved on and between Campuses and student bus passes have been arranged at a discounted rate with free ones made available to staff working between campuses. It is hoped that this incentive will encourage students and staff to utilise public transport more frequently. The University has put together and promoted a travel survey to assess travel habits of students and staff with the aim of highlighting areas for concern and action.

14.1.4 Environmental Sustainability: Grounds Waste and Composting

Waste is kept to a minimum by mulching the majority of the lawns. This process virtually eliminates the need to deal with grass clippings while at the same time eliminating the need for any fertilisers or selective herbicides.

All suitably sized green material is processed through the wood chipper and the woodchip is then used both as mulch around established shrubs beds to offset the frequency of weeding and irrigation. Pre-used potting compost, leaf mould and composted material are also used as a soil improver before and after planting.

Herbicide use is kept to a minimum by using leaf-mould and woodchip as both a mulch and weed suppressant aided by ‘spot’ application of bio degradable Glyphosate such as ‘Roundup Pro-Biactive’ on the larger planting schemes.

14.1.5 Environmental Sustainability: Construction Site Waste Management

The University's aim is to reduce to an absolute minimum the environmental impact caused by any construction works. Project teams will consider means to minimise construction waste from the inception to the completion of the project, through the initial brief, design process, materials selected, construction techniques and operational methods.

14.1.6 Environmental Sustainability: Recycling

Waste is segregated and recycled as much as is possible; there are separate skips for metal, processed wood, rubble and general waste. However, other waste is also dealt with separately, such as waste oil, old batteries, old gas bottles, cardboard, old chemical containers and electrical / electronic equipment.

Recycling bins on Campus are displayed clearly around the site to ensure waste is segregated into their relevant waste-streams.

14.1.7 Environmental Sustainability: Pesticides and Insecticides

Insecticides are applied by an external service provider to control nuisance pests such as wasps.

14.1.8 Environmental Sustainability: Fertilisers

No artificial fertilisers are used on the lawns. Fertiliser purchases have been of an organic nature such as liquid sea weed.

14.1.9 Environmental Sustainability: Herbicides

Herbicide use is kept to a minimum by using leaf-mould and wood chip as both mulch and weed suppressant, regular 'wire brush-head' strimming of the roads has also resulted in a marked reduction in kerb-side weeds.

14.1.10 Environmental Sustainability: Peat

Peat based compost is not used.

14.1.11 Environmental Sustainability: Biomass Production

Currently no biomass for renewable energy generation is produced on the Bay Campus. However, a feasibility study will be carried out to assess and investigate the potential biomass resource available and ways to manage this appropriately.

Heritage and Conservation

15.1 Heritage and Conservation: Wildlife Corridor Development

During the construction of the Bay Campus wildlife corridors were preserved. After consultation, existing wildlife corridors have now been enhanced and continue to be expanded upon.

Image 26: Habitat pile created along Fabian Way wildlife corridor



Paul Edwards 2019

15.1.2 Heritage and Conservation: Tree Preservation Orders

There are currently no Tree Preservation Orders on the Bay Campus, however steps are being taken to ensure that native tree species will be firmly established for future generations through the Universities Centenary Oaks project. The project aims to plant 50 oaks across both campuses in January 2020 to enhance health, wellbeing and wildlife and to mark notable visits to the University.

Although the trees planted will take 100 years to reach maturity no other tree hosts such diversity of life, and none is as important in our culture as the Welsh Oak, *Quercus petraea*. Although both campuses have had many trees planted in recent times providing wide-ranging environmental benefits, most are relatively short-lived species when compared to oaks.

The Bay Campus itself is a more challenging environment for planting compared to Singleton but the presence of numerous oaks in the dunes of Crymlyn Burrows demonstrates that they have the hardiness and salt-tolerance to withstand the conditions there. The Bay campus is relatively exposed with poor and compacted terrain, and even though it would take time for oak trees to develop they would in time provide much needed shade and shelter.

The more prominent locations on the Bay Campus will be reserved for commemorative planting to mark notable visits. The trees themselves will be supplied as container-grown specimens to give them the best possible start and planted during an official ceremony by the individuals commemorated or after the event by the Grounds team. The remaining trees will be planted in conjunction with the NUS's *Students for Trees* campaign and the Woodland Trust's Tree Charter to deliver the project and use staff and student volunteers to plant the trees (under supervision).

The Woodland Trust will supply the trees as part of their Trees for the Community project, but if these gratis trees become unavailable, the opportunity will then arise for individuals and teams within the University community to sponsor a tree and even plant it themselves if they so wish. The initial aftercare of the trees will be carried out by the Grounds team and continuing into maintaining the trees for the future.

To ensure suitable locations for commemorative trees are reserved for the future, all campus development will include suitably marked locations for long-term planting, and future campus masterplans will incorporate such areas as part of the landscape strategy.

It should be noted that this is not the only tree planting that will be carried out across both campuses as good practise dictates that diversity of tree species is required to create a biodiverse and resilient environment and will continue to be planted as they are at present.

Community and Marketing

16.1. Community and Marketing: Community Access and Involvement

The Bay Campus attracts a wide variety of users throughout the year from students and staff to members of the local community, and visitors to the area. Whilst their reasons for visiting the Campus vary, every effort is made to instil a welcoming and community orientated atmosphere. The safety and enjoyment for users is paramount and enhanced at every opportunity. The condition and standard of all the varied green spaces of the Universities grounds is vital. The University acknowledges the important role it plays as part of the community and continues to be dedicated to creating a vibrant, healthy, and above all welcoming Campus.

16.1.2 Community and Marketing: The Great Hall

The Great Hall is located right in the heart of the Bay Campus and is a popular part of the University and local community. The Great Hall has become a focal point as it brings together all users of the Bay Campus in a welcoming and inclusive way.

16.1.3 Community and Marketing: Primary School Grounds Activity Days

Local school visits are held to give schoolchildren the opportunity to have a hands-on wildlife experience from guided walks to making bird boxes and ‘bug hotels’

16.1.4 Community and Marketing: Partnerships

The Universities Campus Services Teams have been working collaboratively with the Grounds Team in recent years. Although the departments provide different services, often they support each other especially at busy times of the year.

16.1.5 Community and Marketing: Accreditations

Work to encourage wildlife to thrive on the campus has earned the University the Bee Friendly status award. Bee Friendly is a Welsh Government initiative which aims to encourage people to help pollinators like bees and butterflies. We are very proud to be the first official Bee Friendly University in Wales.

16.1.6 Community and Marketing: ISO 20121

Swansea University has been awarded the Eco-Campus PLATINUM award and the international standard ISO 14001 for its environmental management systems. Swansea is the first University in Wales to achieve the top Platinum award, and only the thirteenth organisation in the UK as a whole. This helps the University with its legal compliance, Green League score, Sustainability Strategy, and represents the first international standard that the University has achieved across all Colleges and administrative functions. Eco-Campus is the leading national Environmental Management System (EMS) and award scheme for the higher and further education sectors. The scheme enables universities to systematically identify, evaluate, manage and improve their environmental performance and practices. Swansea University now hopes to be the first UK University to achieve ISO 20121.

16.1.7 Sustainability and Wellbeing rewards scheme

Figure 7: Swell Logo



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Swell is a staff engagement programme that rewards staff for their sustainability and wellbeing actions whilst at work. Once signed up sustainability activities can be completed or events attended to earn 'Swell' points, which then help staff to climb the leader board to win prizes.

16.1.8 Community and Marketing: Corporate Health Standard Award

The Corporate Health Standard, run by the Welsh Government, is the quality mark for workplace health promotion in Wales. It is presented in bronze, silver, gold and platinum categories to public, private and third sector organisations implementing practices to promote the health and well-being of their employees. The campus grounds play an important part of this by encouraging staff to spend time in the outdoor environment essential for physical and mental health. University staff have bought into this ethos by aiming to green their workplaces through working on different themes such as water, energy, waste and recycling, procurement, travel, health and wellbeing, biodiversity and community.

In 2016, Swansea University was presented with the highly recognised Corporate Health Standard Bronze Award for its unifying and caring approach to staff health and wellbeing provision.

16.1.9 Community and Marketing: Swansea in Bloom Award

Swansea University first entered Swansea in Bloom in 2009 and was awarded Bronze in the best newcomer category. Since then it has been a regular contender in the competition, which aims to encourage Swansea businesses and the local community to invest in floral displays in order to make Swansea a more beautiful place for both its residents and visitors to the City. In 2016, Swansea University once again won the Gold award for its Singleton Campus floral displays and was awarded ‘Highly Commended’ in 2017. The competition dissolved in 2018 after Swansea City Council withdrew their sponsorship however due to local volunteers it has returned so the University will once again aim to gain further accolades.

Image 27: Swansea in Bloom Award



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Swansea University Bay Campus Grounds Management Plan 2020 - 2021

Image 28: The Grounds Team



©Swansea University 2017

Image 29: Bay Campus Green Flag Award Winner 2018-19



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Engagement Projects

17.1 Engagement Projects: Volunteering

Volunteering continues to be essential to community and University life and the Bay Campus is committed to providing a variety of volunteering opportunities such as beach litter picks and tree planting. The Bay Campus offers students, staff and the local community opportunities to get involved in our work to improve practices and help us continue to lead the way in developing a more sustainable future for all. Working groups are regularly held throughout the year on a variety of sustainability topics including carbon management, Fairtrade, environmental management and waste.

17.1.2 Bay Engagement Projects Update Example

Event	Date	Time	Open to
Planting Centenary Oaks	4/2/20	12:30pm - 1:30pm	Staff & Students
Monthly Beach Clean	5/2/20	1pm - 4pm	Staff, Students & Public
SSSI Walk - Shorebirds of Swansea Bay	20/2/20	4:30pm - 6pm	Staff & Students
Staff Volunteering Day - Habitat Management at the SSSI	28/2/20	9:30am - 4pm	Staff

17.1.3 Engagement Projects: Publications, Guides and Website

A wide range of publications and guides are available for users of the Bay Campus. The majority of these documents are also available on the University website.

The publications and guides, including maps and leaflets, can be picked up for free at various locations across the site, including departmental receptions and other public-facing buildings. This compliments signage on site to ensure users and visitors feel welcome and are able to find their way across the Campus in a safe relaxed manner.

The University's website is also used as a key marketing tool showcasing up-and -coming events and activities for both members of the University and the surrounding community. For example, in addition to the main University website Great Hall webpages also contain news and events sections highlighting opportunities to get involved. In addition, the Sustainability website provides information on the latest campaigns and events, which directly relate to users of the Bay Campus grounds.

Bay Campus Action Plan 2020 - 2021

18.1 Bay Campus Action Plan 2020 - 2021: Introduction

The aforementioned grounds projects have been based around the Green Flag criteria to ensure that they can feasibly and realistically applied. These actions encompass existing building projects planned on and around the Bay Campus. The Action Plan has been developed to cover the period from 2020 to 2021 in the first instance as the University departments could be undergoing some structural changes in the near future. However, it will be reviewed regularly to ensure compatibility with both outside organisations and University direction. This will be achieved via meetings to detail future requirements and methods and to ensure that they concur with the overall University Master Plans.