NATURE & BIODIVERSITY

TOOLKIT FOR BUSINESS

GROUNDWORK CHANGING PLACES CHANGING LIVES

SUSTAINABLE BUSINESS

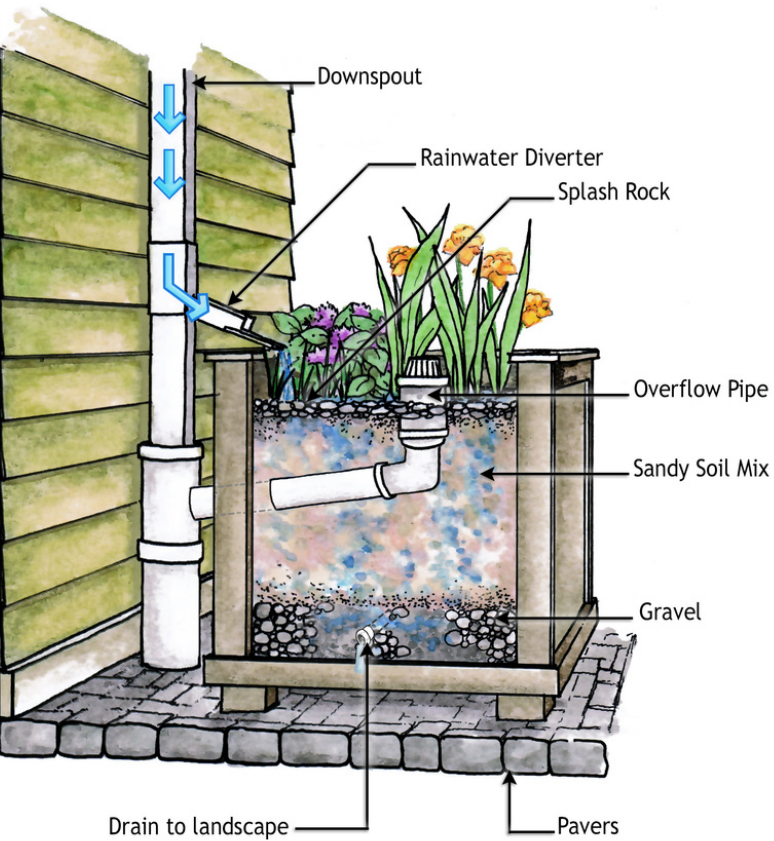
Rain gardens are, at their simplest, shallow hollows that collect rainwater. What makes them different from a pond is that the water is allowed to drain away into the soil. More complex rain gardens can be constructed in hard paving and connect to drainage systems but they all have the purpose to soak up or store rainwater to reduce the risk of flooding.

Requirements	Suitable ground and space to dig out and install. They are often connected to existing surface water/roof drainage systems.
Pro's	• Intercepts and stores rainwater to reduce amount going into sewer system. • Remove pollutants from rainwater run-off. • Increases biodiversity through planting. • Provides an attractive green feature which is both visual and sensory.
Con's	• Additional maintenance of planting
Installation	Recommended to use an experienced contractor.
Maintenance	Maintenance of planting required.
Timings	Any time.
Costs	To broad a range and type to specify.
Additional resources	https://www.rhs.org.uk/garden-features/rain-gardens

Permeable paving provides a hard surface for pedestrians and vehicles but allows rainwater to pass through the surface and soak into the structure or ground underneath, rather than running off into drains. It is increasingly used as part of sustainable drainage systems.

Requirements	Existing paving or car parking areas that can be renewed. A need for additional parking or pathways on site.
Pro's	• Surface water is absorbed into ground or stored underground which reduces rainwater run-off going into sewer system alleviating flood risk. • Cellular grass system provides greening.
Con's	• Increased maintenance with cellular grass system.
Installation	A suitable and experienced contractor is required to install permeable paving and can provide advice on feasibility, type of paving and aftercare.
Maintenance	A cellular product that includes grass will require some maintenance of the height of the grass through strimming/mowing. Otherwise low maintenance with periodic control of weeds.
Timings	Any time.
Costs	Typically £75-150 per square metre
Additional resources	https://www.paving.org.uk/home/permeable-paving/

Rain water planters are designed to capture rainwater run-off from roofs like a water butt but they are also a planting feature and provide the dual purpose of managing storm water and increasing biodiversity.



Requirements	A roof with guttering system and down water pipes along with suitable flat location for placing planters.
Pro's	• Intercepts and stores rainwater to reduce amount going into sewer system. • Remove pollutants from rainwater run-off. • Increases biodiversity through planting. • Provides an attractive green feature.
Con's	• Will require some basic maintenance.
Installation	Recommended to use an experienced contractor.
Maintenance	Watering during extended hot and dry periods. Weeding and general care of plants.
Timings	Any time.
Costs	Typically £500 - £2,000 depending on size.
Additional resources	https://www.groundwork.org.uk/how-to-create-a-rain-garden-planter/

Green roofs are a great way for businesses to support nature and increase biodiversity, utilizing an area which is typically underutilized.

There are two main types of green roof: intensive and extensive.

Intensive green roofs are essentially roof gardens, spaces that are regularly accessed and used for recreation. They often include seating, trees and large shrubs and as such, have significant structural weight. They are typically only suited to modern buildings and require an engineer to structurally assess the building ahead of install.

Extensive green roofs on the other hand, are more common and more accessible. They are lightweight and shallow (50-200mm depth) meaning they can be retrofit onto most existing roofs. Extensive green roofs are naturally low maintenance, typically consisting of sedum, grasses or native wildflowers.

Requirements	Requires flat or low pitch roof spaces on buildings. Existing roofs would require assessing by specialists for feasibility. Small outbuildings, sheds, smoking shelters, bin stores & cycle stores provide opportunities for small scale green roofs.
Pro's	• Increases habitat and promotes biodiversity • Improves air quality • Helps to cool air and reduce 'urban heat island' effect • Slows rainwater run-off to reduce flood risk • Provides temperature regulation: cooling buildings in summer, reducing heat loss in winter • Helps reduce energy consumption • Extends lifespan of roof due to protection from weathering • Improves sound insulation • Embellishes urban environment with visible green space
Con's	• Specialist maintenance needed, leading to ongoing costs • Access required to roofs for ongoing maintenance • Limited opportunities for staff engagement for install and maintenance
Installation	A specialist contractor is required to design and install a green roof system and can provide advice on feasibility, type of system and aftercare.
Maintenance	A specialist contractor is required to help maintain green roofs, what is required will depend on the type of green
Timings	Can be installed at any time.
Costs	Medium to High, £75-500 per square metre depending on scope of work and building.
Additional resources	http://ignitiongreenroofbenefitscalculator.greatermanchester-ca.gov.uk/inputPage.cshtml

Living walls refer to growing vegetation on or against a vertical surface. They can include 'green facades', where climbing plants are grown up from the ground at the bottom or ‘green walls’ where vegetation is actually planted into the structure of the wall itself using an attached modular structure.

Requirements	Requires a suitable wall and installation can vary in size from a small DIY kit to large commercial systems.
Pro's	• Increases habitat and promotes biodiversity. • Improves air quality. • Helps to cool air and reduce 'urban heat island' effect. • Provides temperature regulation: cooling buildings in summer, reducing heat loss in winter. • Helps reduce energy consumption. • Improves sound insulation.
Con's	• Specialist maintenance costs. • Access required to walls for ongoing maintenance.
Installation	A specialist contractor is required to design and install a living wall system and can provide advice on feasibility, type of system and aftercare.
Maintenance	High level of maintenance; will require watering and some plant replacement over time.
Timings	Any time.
Costs	Realistic minimum starting cost would be £500.
Additional resources	https://www.rhs.org.uk/garden-features/green-walls

Planting a native tree is recognised as one of the most straightforward and universally known means of improving our environment with multiple benefits for wildlife, climate and health.

Requirements	Suitable space and ground to plant in.
Pro's	• Trees remove CO2 from the atmosphere and also help store it. • Improves biodiversity and air quality. • Provide shade and help with urban cooling. • Research shows trees boost both physical and mental health.
Con's	• Once fully grown trees can cause structural damage due to roots and falling branches. Ensure adequate space for tree and right choice of tree for location.
Installation	Depending on size at planting either DIY or for larger trees use a contractor. Avoid planting in frozen or waterlogged soil.
Maintenance	Newly planted trees require watering in dry spells to ensure establishment. If trees have been planted with a stake & rubber tree ties they need adjusting as the tree grows and removal once tree is established.
Timings	Plant trees between November and March.
Costs	Typically £30-200 per tree depending on size and method of planting.
Additional resources	https://www.woodlandtrust.org.uk/plant-trees/advice/

Planting a native hedge provides a living boundary on a site with a number of environmental benefits and contribution to supporting nature and wildlife.

Requirements	Requires suitable space for planting along with adequate soft ground conditions. Planting trenches can be constructed in hard surfaced areas e.g. car parks.
Pro's	• Increases habitat and promotes biodiversity • Supports and encourages local wildlife with increased shelter, food sources, movement corridors and nesting sites • Improves air quality • Helps to cool air and reduce 'urban heat island' effect • Slows rainwater run-off to reduce flood risk • Screening benefits e.g. privacy, noise mitigation, hiding unsightly views • Opportunity to involve staff in planting hedgerow plants
Con's	• Regular maintenance required
Installation	Ground will need to be cleared and prepared. Plant bare root native species in a double staggered row. Seek advice on species, planting numbers and spacing.
Maintenance	Hedges will require trimming once or twice a year depending on species
Timings	Plant hedge between November and March avoiding planting when ground is waterlogged or frozen.
Costs	Relatively low and prices vary, roughly £200 per 10m of mixed native planting, 60cm high.
Additional resources	The RHS provide a good guide to hedge planting.

Ponds are an oasis for wildlife supporting a wealth of species. They provide a diverse habitat that is often lacking in urban areas and even the smallest mini-pond such as a repurposed ceramic kitchen sink will boost local nature.

Requirements	Larger ponds will require suitable ground and space to dig out and install. Ideally they need to be located where they will get sunlight and it is important to have one shallow sloping edge for wildlife to access. Mini-ponds require much less space and can be created using small containers like a washing up bowl, a sink or barrel.
Pro's	• Provides a habitat and food source for wide range of insects, amphibians, birds and mammals. • Provides drinking and bathing water for birds and mammals. • Significantly improves site biodiversity.
Con's	• Require regular maintenance. • H&S concerns with open water.
Installation	Mini-pond features can usually be constructed as DIY but larger wildlife ponds may require a suitable contractor.
Maintenance	Maintenance requirements will depend on size but all ponds will periodically require removal of weeds, fallen leaves and any algae. Cutting back of surrounding invasive plants is helpful and ponds may require topping up with water after hot and dry periods but some fluctuation on water level is OK. In winter breaking any ice that forms or providing a hole is also good for certain wildlife.
Timings	Any time but autumn and winter are ideal.
Costs	Unable to specify
Additional resources	https://freshwaterhabitats.org.uk/ https://www.rspb.org.uk/birds-and-wildlife/advice/gardening-for-wildlife/water-for-wildlife/

Reducing or stopping mowing in selected grass areas is beneficial to wildlife, increases biodiversity, allowing wildflowers to flourish and can save your business money.

Requirements	Requires areas of mown grassland. Areas of reduced mowing can be determined by size of site but it is good to create a mix of short and long grass where possible.
Pro's	• Improves existing habitat and promotes biodiversity • Increases the overall floral diversity of the grassland which provides more resources for a greater variety of wildlife • Varying heights of grass provides different micro habitats and micro climates which supports a wider variety of wildlife dependant on different conditions • Reduced management costs
Con's	• There may be a perception of 'neglect' or 'untidiness' - communicating the reasons/benefits of reduced mowing is important (often done with information boards)
Installation	N/A
Maintenance	Cut selected areas, 2 or 3 times per year and remove the cuttings. It is recommended to mow path edges or a margin area around longer grass more frequently. This helps show that the site is maintained and the longer grass is deliberate.
Timings	A spring cut in March, a summer cut in late July and an autumn cut in October.
Costs	No costs - cost savings typically!

An area of wildflowers is a wonderful opportunity to improve the biodiversity of a mown grass area. The nectar rich plants help support important insects and pollinators including butterflies, moths and bees. Longer vegetation creates resting places for wildlife and even nesting material. With colour, textures and seasonal interest they are also a joy to our senses.

Requirements	Sufficient areas of existing grass on site.
Pro's	• Great for biodiversity. • Important food source for pollinating insects. • Can help sequester carbon.
Con's	• N/A
Installation	Remove existing grass, prepare bare soil and then seed or turf. If turfing important to water regularly for first two weeks if there is no rainfall. Alternatively, plant wildflower plugs into existing grass.
Maintenance	Areas of wildflowers only need to be cut once every autumn but it is important to remove the cuttings as they can increase soil fertility.
Timings	Seed sowing: Oct/Nov or Feb/March Plug Planting: April/May Turf laying: Any time but will require watering to establish in dry periods.
Costs	Typically £5-30 per square metre depending on area and method of planting.
Additional resources	https://www.rhs.org.uk/lawns/creating-wildflower-meadows https://www.wildflower.co.uk/advice/how-to-establish-a-wildflower-meadow-or-garden

Bird nesting boxes can be easily purchased or self-built and installed on mature trees or selected locations on buildings.

They contribute to nature conservation and provide opportunities to observe and appreciate wildlife.

Requirements	Requires suitable sized mature trees on site or carefully selected location on a building. There is a wide variety of different bird boxes that attract and are suitable for a range of species.
Pro's	• Supports and encourages local wildlife • Provides much needed nesting sites in urban environments • Helps ensure species survival and increases bird populations • Attracts different species of birds • Installing a nest box camera can engage staff and site visitors in observing bird activity
Con's	• Periodic inspect and clean out.
Installation	Relatively simple for DIY installation particular care should be taken on location, direction they face, height above ground and to provide a safe and comfortable environment for nesting.
Maintenance	Low and can be done in-house. Nest boxes should be cleaned out annually between 1st September and 31st January (Bird Protection Laws) and unhatched eggs disposed of.
Timings	Ideally in Autumn
Costs	Low, less than £50 per box
Additional resources	The RSPB and British Trust for Ornithology provide good information on bird boxes.

A bug hotel is a man-made structure created to provide shelter for insects, mini beasts and even larger wildlife such as toads and hedgehogs.

They can be home made using natural materials or you can buy purpose built ones in a variety of sizes.

Requirements	Suitable locations around site. Size varies and preferable to use a number of different smaller ones spaced around site.
Pro's	• Increases nesting sites, overwintering sites and refuge from predators for range of insects and invertebrates. • Encourages and Increases diversity of insects, invertebrates and all important pollinator species.
Con's	• N/A
Installation	Not required, simply place in a suitable area.
Maintenance	Low maintenance requirement. Periodic changing of nesting material may be beneficial.
Timings	Any time.
Costs	Low. Typically £10-300 for purpose made retail models. You can also make you own from timber pallets and suitable infill materials.
Additional resources	https://www.rspb.org.uk/get-involved/activities/nature-on-your-doorstep/garden-activities/build-a-bug-hotel/

A water butt captures rainfall from a roof which can then be used for watering flowers, plants and kitchen gardens.

Rainwater is better than tap water for this purpose and also helps reduce consumption of mains supplied tap water.

Requirements	A roof with guttering system and down water pipes along with suitable flat location for placing containers.
Pro's	• Harvests and stores a natural resource for re-use. • Can help reduce flooding • Can reduce use of mains tap water. • Provides better water for plants than treated tap water.
Con's	• If watering of plants is not required/applicable to site then minimal benefit from this option.
Installation	Installation is straightforward and could be carried out by someone competent in DIY.
Maintenance	Periodically empty water butt and scrub interior to remove algae and build up of grime. Water butt should be emptied regularly over winter to prevent ice forming, expanding and cracking the container. There are products available to buy that are specifically for cleaning water butts and enhancing the quality of water.
Timings	Any time.
Costs	Low cost solution. Typically £70-100 for domestic size. Plus installation cost if not installed yourself.
Additional resources	www.waterbutt.org.uk

Compost bins provide a place to dispose of grass cuttings, other green waste and some food waste.

An ideal compost heap consists of a mix of materials.

Requirements	A site that provides a source of suitable green waste and to make it beneficial a site that requires compost. For example, vegetable growing, a kitchen garden, raised flower beds.
Pro's	• Diverting green waste from landfill. • Free compost to use on site as a soil improver or mulch.
Con's	• May attract flies and vermin if not managed and maintained. • May result in bad odours if not managed and maintained.
Installation	The best location for a compost bin is a sheltered area in partial or full shade. Set on bare ground/grass is good for drainage and access for soil organisms.
Maintenance	Will require turning/mixing compost several times a year.
Timings	Any time.
Costs	Low. Typically £50-300 for recycled plastic bin or slatted timber. You can also make you own from timber pallets.
Additional resources	https://www.rhs.org.uk/soil-composts-mulches/composting

The kitchen garden is a small-scale version of a vegetable garden or allotment that enables you to experience growing and enjoying some of your own herbs, salads, and vegetables. They can be picked and added to the lunch there and then and staff can even get involved in watering and planting the garden.

Requirements	Suitable space that will receive sufficient sunlight and ideally close to a watering source (water butt or access to tap). Raised beds allow you to provide the most ideal growing conditions. It could range from small container herb garden to a full kitchen garden with a number of raised beds.
Pro's	• Source of fresh, organic, low cost food that can benefit staff. • Fruit and vegetable plants are good for biodiversity. • Opportunity to create staff gardening group with associated social benefits.
Con's	• Requires some knowledge of growing and maintaining food source plants. • Will need regular watering.
Installation	Raised beds or containers can be purchased or built by skilled staff or contractor. Growing media and plants can then be added.
Maintenance	Regular planting, watering, feeding and harvesting.
Timings	Any time for constructing and follow advice regarding growing seasons for plants.
Costs	Realistic minimum starting cost would be £500.
Additional resources	https://www.rhsplants.co.uk/rhs-grow-your-own/