

Desford Neovia Logistics (3565 504)

Landscape and Management Plan

Client: Gulf Ventures 7 Ltd

Prepared by



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1.0 Introduction

1.1 General

TPM Landscape were commissioned by Gulf Ventures 7 Ltd to produce a Landscape Management Plan for the industrial development proposed adjacent to the existing Neovia Logistics Industrial Park in Desford, near Leicester.

This report has been produced to ensure that the future management objectives are achieved for the longevity of the project following practical completion. Once approved, this report will provide guidance for the establishment, maintenance and future management of all external landscaped areas, planting around the site and ecological features.

1.2 Aims of the report

This report has been developed to establish long-term management objectives and practices for all of the areas associated with the POS, streets, boundaries and areas detailed on the masterplan drawings.

The report presumes that all of the external elements have been built in accordance with the approved planning drawings:

- Landscape Specification Units 1 and 2 – 3565 501A
- Landscape Specification Excluding Units 1 and 2 – 3565 502-503
- Landscape Masterplan – 3565 101-109,
- Planting Plans – 3565 201-212

The management report provides 12-month schedules, which are to be applied to 5-year guidance and actions. It is considered that these actions will continue beyond the 5-year period to a minimum of 15-year period unless identified within the text of the report.

A clear understanding of the design aims and intentions will help to ensure that the landscape reaches maturity in the form in which it has been designed.

1.3 Site Maintenance and Responsibility

Gulf Ventures 7 Ltd will form an overall Management Company, responsible for maintaining the landscape, the streetscape (verges and tree planting), areas of public open spaces, and attenuation. They will be responsible for inspecting the site and for keeping a logged record of inspections, faults and rectified works. Any issues noticed by users of the site are to be reported directly to the management company.

1.4 This report should be read alongside the Ecology Solutions Biodiversity Management Plan contained at Appendix 1.

Objectives

The overall objectives for the maintenance of the landscape include the following;

- Maintain all grassed areas as healthy and biodiverse grassland;
- Allow shrubs and flowers to reach their species potential to ensure that they produce flowers and seed heads and grow in their natural shape and form to provide texture and interest;
- Ensure that proposed and retained trees maintain a healthy and safe condition and are allowed to reach their potential form and characteristics;
- Maintain wildflower meadow to support establishment and allow a diverse mix of flowers and grasses to thrive;
- Keep all hard surfaced areas and paths in a good state of repair and free from any potentially dangerous arisings that could cause a slip or trip hazard or reduce visual quality;
- Ensure that all ecological enhancement features and habitats are looked after and maintained in a good condition in line with ecologist recommendation;
- Ensure that all furniture, signage and play equipment are looked after and maintained in a good state of repair and safe condition so that they do not fail or have the potential to cause harm to users;
- Attenuation ponds to be maintained as an attractive feature with a clean and tidy appearance;
- Ensure the site is free from litter and deleterious material to maintain a clean and tidy appearance; and

2.0 General Description

2.1 Existing Context

The proposal lies immediately to the south of the village of Desford and within and north of an existing Neovia logistics industrial park.

The site currently comprises areas of hard standing, an existing dwelling and tree/ shrub planting. Mature woodland planting forms the northern boundary of the Site. The north eastern boundary along Peckleton Lane is formed by the same mature woodland planting up to the service/access road.

Thereafter, the eastern boundary is characterised by mature hedgerow planting with a large buffer of mature tree planting. The existing warehouse forms the southern boundary of the Site. Mature hedgerow planting with hedgerow trees form the western boundary towards Desford Lane.

An existing public footpath runs through the development, from Peckleton Lane, through existing scrub and woodland, to Desford Lane, adjacent to the existing industrial development.

2.2 Site Proposals

The proposed development comprises of 4 new large warehouse buildings, with associated roads and parking.

An area of woodland and scrub to the centre of the site will be removed to allow for the development. As part of the proposals an area of land to the north west of the site which is currently agricultural fields, will be planted and managed to create a landscape and ecological mitigation area to provide replacement habitat and offer opportunities to respond to and enhance the ecology of the area more broadly.

The landscape mitigation area will contain a variety of planting types and landscape features, including attenuation basins, habitat ponds, wildflower, scrub and woodland planting.

A large block of existing woodland and scrub to the north of the proposed buildings will be retained and enhanced to provide a buffer between the residential area and proposed development.

The existing footpath that runs through the site will be rerouted around the proposed building, and several new footpath links added through the landscape mitigation area.

The main industrial area of the development will be designed with a more formal character, with avenue trees and shrub planting used to define the spaces and routes, and to soften and screen the proposed buildings.

Key objectives

The landscape associated with this development and future phases of the masterplan are to be managed in line with the following key objectives:

- Improve and promote new ecological corridors
- Incorporate new buffers to site boundaries
- Support new and existing watercourses
-

Industrial Area

The landscape design within the industrial area will be fairly formal in character. Street trees will line the main roads, creating boulevard style routes. The trees, along with blocks of shrub planting will help to screen and soften the built form and areas of hard standing. The vegetation will also help to create structure and create a distinctive landscape character.

As much of the existing vegetation will be retained as possible, including the band of mature trees on Peckleton Lane to the east of the development which will help to screen the development from the nearby residential properties. The existing trees will also retain the development within a mature established landscape.

Landscape Mitigation Area

The landscape mitigation area is currently a derelict area of former industrial use and agricultural land, with some scattered field boundary vegetation.

This area will be designed and managed in a way to both benefit wildlife, local residents and workers within the new development. A variety of different vegetation types and landscape features will be introduced.

To the peripheries of the site, a UK native deciduous woodland mix will be planted. To the edges of the woodland and in the centre of the site a scrub mix will be planted, and a wildflower seed mix will be sown throughout the remaining areas.

An existing pond is present within the mitigation area, this will be retained and improved if necessary. Several new ponds will be installed, both for attenuation purposes and wildlife benefit.

The re-routed public footpath will run through the landscape mitigation area, and new footpaths will create links to the surrounding areas.

3.0 Health and Safety

The following potential hazards have been identified within the proposed development site that may have implications for maintenance operations:

- Contractors working on the site should make themselves aware of the location of underground services, defining the exact locations with the Statutory Authorities prior to commencing works below the surface;
- Working in areas used by general public and visitors; on foot, on bicycles, in wheelchairs and vehicles; ensuring surfaces are kept clear at all times and potentially dangerous tools or machinery are not left lying around.
- Working at elevated positions;
- Working adjacent to overhead power lines;
- Working adjacent to and on highways;
- Lifting heavy objects and working with heavy machinery;
- The use of chainsaws, working at height and with heavy objects during tree works;
- The possibility that hazardous material may be deposited in or inadvertently left in areas requiring cleaning (glass, etc.); and
- Working adjacent to or within water in and around the attenuation areas, swales and ponds.

Methods for reducing the potential site risks are well established and are common practice of competent contractors. The contractor is expected to identify the hazards associated with any maintenance operations, together with an assessment of the risks involved and methods for reducing the risks. The Risk Assessment should be recorded and retained for reference in the future if necessary.

3.1 Site Operations

All operations on site are to be carried out by suitably qualified operatives with appropriate safety clothing and equipment. The maintenance contractor is to adhere to the latest guidance on safe working practice, including information from the recognised industry body, the local authority and the government Health and Safety Executive. The maintenance contractor is to carry out all operations with regard to the safety and welfare of the general public, private and public property, domestic and native flora and fauna and Statutory Services.

3.2 Disposal of materials from site

All, rubbish, leaves, grass and general arisings removed from the site are to be deposited at a licensed tip and recycling facility in the appropriate section.

4.0 Hard Elements

Maintenance operations are to be carried out in order to provide a clean, inviting and safe environment for all users of the site. For the purposes of this report, it is assumed that all the works required by the planning approval have been carried out in accordance with the approved drawings.

All paving, kerbs, edges, walls and street furniture should be fit for purpose, robust and in good condition. Any damage arising from the management and maintenance works must be reinstated to the original condition and in accordance with the relevant specification of the client.

All hard works to be installed under the recommendations of the manufacturer's instructions. Hard works should not be carried out in undesirable weather conditions.

4.1 Pedestrian Surfaces and Roads

Maintenance objective

Pedestrian surfaces and roads are to be maintained in a safe and clean condition free from any defects, weeds or debris that could potentially cause injury, inaccessibility or damage to vehicles. Surfaces are to be level and free from trip or slip hazards.

Inspections

A formal visual inspection is to be carried out by the maintenance contractor at 6 monthly intervals or following reports from the client / public that surfaces require repairing, cleaning or clearing following inclement weather. A report of the inspections and rectified works should always be logged.

An annual inspection of the paving jointing and overall uniformity should be carried out to ensure the stability of the footways is maintained.

Contractors Maintenance Operations

Surfaces are to be kept free of litter, mud, arisings, deleterious material, algae, hazardous obstructions and fly tipping. Surfaces are to be uniform in appearance, a level surface and constructed from a homogenous material, free from ruts, grooves, cracks, hollows and potholes (holes greater than 75mm in diameter and 10mm depth).

Paved areas and rights of way including those with a self-compacted gravel surface are to be repaired within 1 week of a reported fault, unless the potential hazard is severe (trip hazard) in which case the area is to be cordoned off and repaired at the earliest available opportunity.

All surfaces and foundations are to be repaired to the original specification, unless otherwise agreed with the service provider.

One operation per month (within month / months specified) - **1**
 Two operations per month (within month / months specified) - **2**
 Four operation per month (within month / months specified) - **4**
 As required - **a/r**

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Litter and Fly tipping													
Visual inspection of site				1						1			Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required.
General Cleaning and clearance across site	1	1	1	1	1	1	1	1	1	1	1	1	Keep surfaces free of litter, leaves, mud, arisings and any hazardous objects. Sweep and remove any arisings.
Bin Emptying	1	1	1	2	2	2	4	4	1	1	1	1	Increased emptying of bins during summer.

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Pedestrian Surfaces and Roads													
Visual inspection of footways, roadways and paving areas				1						1			Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required.
General cleaning of paving	1	1	1	1	1	1	1	1	1	1	1	1	Keep surfaces free of litter, leaves, mud, arisings and any hazardous objects. Sweep and remove any arisings, keep all areas weed free. Any build up of moss or algae should be treated as required to ensure surfaces are not slippy or dangerous.
Clean paved areas annually by relevant washing techniques for varying materials e.g. granite/concrete						1							(acid and bleach should not be used)
Apply sealant to paving	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	(as required after cleaning)
Apply herbicide						1				1			Apply to weeds if appear between paving, when weeds have been suppressed hand hoe out and refill mortar joints
Repair	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Repair surfaces when reported or inline with faults as identified in the inspections report. Repair to original specification. Check grouting to paving and reinstate where necessary

Ensure water is drained from footways to prevent pooling				1						1			When specified or as necessary after prolonged periods of wet weather
Clear snow from pathways and roads	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Clear snow following adverse weather (a/r) and apply suitable grit to key vehicle and pedestrian access routes (avoid plant areas).

4.2 Boundaries - Gates, Fences, Railings

Maintenance objective

Gates, railings and fences are to be maintained in a secure, safe and clean condition and in good working order.

Inspections

A formal visual inspection is to be carried out at six monthly intervals or following reports from the client / users of the site that a fault or damage has occurred. A report of the inspections and rectified works should always be logged.

Maintenance Operations

Gates, railings and fences are to be kept free of litter, deleterious material and hazardous protuberances. Surfaces and finishes are to be maintained uniform in appearance and coated in a homogenous paint, stain, enamel, or plastic coating in accordance with the original specification.

All items are to be repaired within 1 month of a reported fault, unless the potential hazard is severe, in which case the area surrounding the fault should be cordoned off and the boundary made secure, the fault should be repaired at the earliest available opportunity.

Repaint/stain railings, fencing and gates as required if the paint starts to flake off and look unsightly to the same specification as the original ensuring that any rust is removed and the surface prepared and primed before the paint is applied.

These works will be the sole responsibility of the contractor and at all times the boundaries should be maintained in sound condition.

One operation per month (within month / months specified) - **1**

As required - **a/r**

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Boundaries – Gates, railings, Fences													
Visual inspection of boundaries				1						1			Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required. Repair if required
Clean metalwork						1							Carry out annually, removing dust and dirt being careful to not remove or damage surface finish.
Re-paint / Re-stain	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	As required following inspection
Strip back and repaint metalwork to match existing	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Every 5years or as required following inspection

4.3 Edges - Kerbs, Edging and Walls

Maintenance objective

All 'Edges' should be maintained in a safe and clean condition and fit for purpose. All cladding, copings kerbs should be secure and firmly in place.

Inspections

A formal visual inspection is to be carried out at six monthly intervals or following reports from the client / users of the site that a fault or damage has occurred. A report of the inspections and rectified works should always be logged.

Maintenance Operations

All 'Edges' are to be kept free of litter, deleterious material and hazardous protuberances. Surfaces are to be maintained uniform in appearance and with seamless levels vertically and horizontally for copings and cladding. Grout mortar between kerbs, cladding and copings to be inspected and topped up where necessary with matching colour. Metal and timber edging to be neat and secured firmly in place and aligned straight, or follow smooth uniform curves. Loose edging to be reinstated and secured. Any damaged edging to be removed and replaced with same specification.

Faults are to be repaired within 1 month of a reported fault, unless the potential hazard is severe, in which case the area surrounding the fault should be cordoned off, the fault should be repaired at the earliest available opportunity.

These works will be the sole responsibility of the contractor and at all times the edges should be maintained in sound condition.

One operation per month (within month / months specified) - 1

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Edges – Kerbs, Edging & Walls													
Visual inspection of edges				1						1			Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required.
Clean edges						1							Carry out annually and remove detritus / chewing gum using a stiff brush and soapy water.
Apply anti-graffiti coating to raised edges if misuse becomes apparent						1							Carry out once a year or as necessary
Apply non residual herbicide				1						1			Apply herbicide to spot treat weed problems. Hand removal after herbicide has taken effect

4.4 Street Furniture – Picnic Sets, Litter Bins, Signage, Benches

Maintenance objective

All street furniture should be maintained in a safe and clean condition. Surfaces should be smooth to the touch (avoiding potential for splinters/ injury), fixings secure and flush with the finished surface. The wood structures should be sound avoiding the potential for failure due to rot.

Inspections

A visual inspection is to be carried out at six monthly intervals or following reports from the client/ users of the site that a fault/ damage has occurred. A report of the inspection should be logged.

Maintenance Operations

Any timbers that have originally been stained should have the wood stain (or similar approved) reapplied annually in the spring to rejuvenate the appearance of the wood. The wood should be pressure treated timber, however if this is not the case then the wood should be treated with a wood preserver at least once every two years (this could be combined with the wood stain application if the colour or products matches the original specification). Repainting street furniture should be done immediately following the descaling of rust.

Clean metalwork, including signage to ensure that the face can be clearly read. Remove any rust, bird droppings, graffiti, litter, debris etc.

The street furniture should be repaired within 1 month of a reported fault. If the section of wood/metal that is damaged or rotten should be replaced with a piece of timber/metal of the original specification. Where the fault may cause a risk to the user of the site the item should be cordoned off until the fault is repaired.

One operation per month (within month / months specified) - **1**

Two operations per month (within month / months specified) - **2**

As required - **a/r**

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Street Furniture – Picnic Sets, Litter Bins, Signage													
Visual inspection of furniture				1						1			Carry out 6 monthly inspections, report to be logged; any faults reported should be rectified as required.
Clean any metalwork						1							Carry out annually and remove detritus / rust. Remove bird droppings and graffiti.
Empty litter bins	4	4	4	4	4	4	4	4	4	4	4	4	Empty litter bins on a weekly basis.
Repair	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Repair street furniture when reported or in line with faults as identified in the inspections report. Repair to original specification.
Re-paint/ re-stain as required	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Repainting street furniture should be done immediately following the descaling of rust.

5.0 Soft Elements

For the purposes of this report it is assumed that all planting and initial tree work has been carried out inline with the approved planning drawings and any failed plants or trees replaced by the original contractor at the end of the 12 months Rectification Period;

5.1 Existing Trees

Objectives

Retain all existing trees as indicated on the approved plan to preserve their contribution to the visual amenity and enclosure of areas. Ensure that the trees continue to thrive and to provide visual amenity to the area.

Ensure that trees are maintained in a safe condition and do not cause any obstructions on site or pose any health and safety risk (same applies to the off-site trees overhanging into the site).

All tree works undertaken should comply with British Standard 3998 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.

Works to trees will be carried out in accordance with British Standard BS 5837: Tree Protection Measures. All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - August inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist. No ground works or storage of materials should take place within these areas.

Inspections

The existing trees should be inspected annually by a suitably qualified arboricultural consultant for a period of 5 years post completion to ensure that they are in good health and are not hazardous to the users. Further inspections may also be required following severe winds and storms, or following a report by a member of the public.

Maintenance Operations

Any works proposed should be solely for the purpose of ensuring the health and safety of the users of the site, staff and general public and to promote longevity of the trees and hedgerows. Any works carried out on the off-site trees overhanging into the site should be with the prior consent of the landowner. Any tree works should be carried out to avoid the bird-breeding season. It is the contractor's responsibility to ascertain if any trees are covered by Tree Preservation Orders, and if so to gain the appropriate consent from the local authority. Avoid carrying out any works to hedgerows when full of berries, to preserve its ecological value and valuable food source to wildlife.

Long-term Management

Routine pruning should include the following operations:

- The removal of dead, diseased, damaged or dying branches only where they pose a risk to the health and safety of the users of the site.
- The removal of vegetation where it is obscuring lighting columns or restricting access.

- Inspection and reporting of any incidence of pests and diseases which could cause trees or limbs to fail.
- Any surgery to existing trees must maintain the natural shape of the tree, after any tree works the trees should not appear to be topped or lopped.
- No tree works should be carried out on parts of the tree which are outside of the site boundary (only overhanging branches can be cut back). If a tree appears dead/ dying or dangerous then the land owner must be contacted immediately and the appropriate action taken to prevent harm or damage to people and property.

These works will be the sole responsibility of the contractor or appointed arboriculturalist.

One operation per month (within month / months specified) - 1

Two operations per month (within month / months specified) - 2

Four operation per month (within month / months specified) – 4

As required - a/r

<u>Operation</u>	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Existing Trees													
Visual inspection of trees									1				Inspect trees for signs of disease, damage or as required following adverse weather. replant if necessary
Remove dead, diseased or damaged limbs to promote a healthy shape									1				Avoid bird nesting season
Prune to retain shape									1				Avoid bird nesting season
Remove and dispose of accumulation of winter leaves.											1	1	Check leaves for mammals before disposal as mammals may be in hibernation. Only to be carried out on areas that affect public access such as surfaced footpath routes, vehicle carriageways and car parks.

5.2 Proposed Trees

Objectives

Trees will play an important role in providing structure to the landscape proposals and will provide a valuable asset to the site, provide screening and contribute to the visual amenity of the local area. Therefore, it is important that they are given the best chance of successful establishment.

Inspections

Inspect on an annual basis when the trees are in full leaf to ensure that the trees are thriving, and record defects requiring remedial works.

Maintenance Operations

Newly planted trees take some time to establish, and until this occurs, they are subject to competition from weeds. Any weeds should be removed by hand from the base of each tree and 75mm deep mulch maintained around the trunk. For woodland areas weed growth may be removed by applying a herbicide spray to the base of saplings during autumn or early spring before trees are in leaf.

If the trees show signs of poor growth or reduced vigour an application of the appropriate fertiliser can be applied. If the trees do not improve with the fertiliser treatment, further investigations should be carried out, including the ground conditions for signs of compaction, contamination, poor quality topsoil. Remediate any problems uncovered with the soil. Should the remediation works not resolve the problem a replacement tree may need to be planted to replace the dead/dying tree.

During establishment trees will require regular watering particularly during prolonged dry periods. Mulch should also assist in retaining moisture within the soil. Water the spine road trees a minimum of once every two weeks during periods of limited rainfall over May-September (during the first full growing season) ensuring that the soil is fully saturated. Ensure all irrigation pipes are free from debris. Water shall be applied at 40litres per individual tree. Where water restrictions apply (hosepipe bans, drought orders) an alternative supply of water shall be used if possible.

Tree ties should be inspected twice annually as part of the general maintenance visits and adjusted accordingly. Damaged ties or stakes should be replaced. When the trees are established and can support themselves the ties should be carefully removed and the stakes cut down to ground level. This operation is likely to be required after 3 to 5 years dependant on establishment rates, stability and growing conditions. Underground tree guys, tree stakes and tree ties should be inspected twice annually as part of the general maintenance visits and adjusted accordingly. Damaged guys/ties should be replaced. Guys/ties will require adjusting as it is likely to take 3 to 5 years for the trees to establish dependant on stability and growing conditions.

Pruning of young trees should not generally be required unless they have dead or diseases branches, except on topiary trees. In such cases the tree branch should be pruned back (using a sharp clean knife) to an outward facing bud whilst maintaining the natural shape of the tree.

These works will be the sole responsibility of the contractor, and where required a qualified arboriculturist, and at all times trees should be maintained in good health and in a safe condition.

One operation per month - 1
Four operations every month – 4

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Trees													
Visual inspection of trees					1								Inspect trees for signs of disease, damage or as required following adverse weather. Replant if necessary.
Slow release fertiliser					1								Only when necessary.
Weeding/ mulch				1	1	1	1	1	1				Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree.
Tree stakes and ties				1					1				Check and adjust, replace or remove as required until the tree has established. Check and re-adjust after strong winds. Remove in year 3-5 or as required.
Tree guying				1					1				Repair and adjustment. Check and re-adjust after strong winds
Watering (Spine Road trees only)					2	2	2	2	2				Water once every two weeks during the growing season and as necessary in periods of drought only during the first 2 years until the trees have established.
Routine pruning		1							1				Should not be required for the first few years, except on topiary, after which pruning should only include the removal of dead or diseased branches.
Tree Replacements	1	1									1	1	Any trees that have failed should be replaced to the original specification and planted within the next planting season.

5.3 Proposed Hedges

Objectives

The hedges will help to define spaces, create division between spaces and will offer definition and boundary treatments to individual properties, gardens, roadways and streets.

Inspections

Inspect the hedges annually when they are in fully leaf to ensure that they are thriving and record any gaps that need filling with additional plants or that require pruning to encourage growth. Record if there are any areas of significant failure to thrive which may require remedial works to the soil. Ensure the shelter guards are intact, installed correctly and are not restricting growth.

Maintenance Operations

For ornamental hedges within housing areas do not trim the top of the hedges until they have achieved the desired height of 120cm. Until the desired height has been achieved trim the sides of hedges to promote dense growth. Trim on an annual basis during the spring to promote bushy growth during year 1-4.

After the hedges have established lightly trim annually back to the desired height. To prevent weed growth maintain a 75mm depth of bark mulch at the base of the hedge until the hedge has established, fertiliser application should be avoided unless there are specific localised areas of poor growth.

During establishment, hedges will require regular watering particularly during prolonged dry periods. Water the hedge a minimum of once a week during periods of limited rainfall during May - September (the first full growing season) ensuring that the soil is fully saturated. Water from rain water harvesting systems should be used (when available) using a flexible hose and attachment.

Hedges should not be allowed to exceed the height specified above to ensure visibility and safety across the site is not compromised.

These works will be the sole responsibility of the management company.

One operation per month - 1
 Four operations every month – 4
 As required – a/r

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Ornamental Hedges													
Visual Inspection of hedges				1					1				Inspect hedges for signs of disease, damage or as required following adverse weather. Replant if necessary.
Inspect hedges after strong winds (as required)					4	4	4	4	4				Water once a week during the growing season and as necessary in periods of drought only during the first 2 years until the hedge has established.
Replace dead and dying hedge plants to original specification during the next planting season	1	1									1	1	Any hedge plants that have failed should be replaced to the original specification and planted within the next planting season.
Remove and dispose of accumulations of winter leaves.											1	1	To be carried out to reduce risk of slipping and to maintain a tidy environment.
Weed control and tidying at base of hedge					1		1						Remove and dispose of weeds.
Hedge trim		1							1				Should not be required for the first few years, after which pruning should only include the removal of dead or diseased branches.
Fertiliser	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Apply an appropriate fertiliser as required to aid establishment if the hedge is showing signs of stress (i.e. defoliation, die back)

5.4 Proposed Ornamental Shrub Beds

Objectives

The shrub beds should have total vegetation cover with no gaps as they establish in order to minimise maintenance requirements, and to provide a neat and tidy appearance to the proposed landscape setting. The pruning operations should be carried out under guidance of a horticulturally qualified manager, with a view to allowing the shrubs and herbaceous plants to achieve their species potential in terms of form, flower and structure.

Inspections

Inspect the shrub beds twice annually and record gaps that need filling with additional plants, areas thinned, or pruning operations to encourage growth to fill gaps. Where there has been a significant failure of plants to thrive, carry out investigations to locate the source of the problem and consult the landscape architect prior to replacement planting.

Maintenance Operations

Newly planted areas take some time to establish. Until this occurs, young plants are subject to competition in their root zone from weeds. During this time, weeds should be removed by hand and the bark mulch should be maintained to the original specified depth (75mm) until the canopies meet. After which weed growth should be more suppressed and only localised weeding should be required.

During establishment, all the plants will require regular watering particularly during prolonged dry periods. Water the shrub beds min once every two week during periods of limited rainfall over April-September (during the first full growing season) ensuring that the soil is fully saturated. Watering should be undertaken by low-pressure hose sprinkler or evenly sprayed over the whole area at a rate of 25litres/m². Ensuring watering is not undertaken during the heat of the day to avoid scorching of the plants.

Routine annual pruning of shrubs should not be required within the first three years, although some of the herbaceous plants and flowering shrubs should be maintained in accordance with the list below to encourage new growth and longer flowering periods.

In years one to three, newly planted shrubs will be lightly trimmed to encourage dense growth. After three years, the shrubs will be maintained on a two year cycle, cutting only half of the stock within the site annually to ensure that there is a continuous supply of fruit during the winter months for birds and small mammal species.

Shrubs that grow over paths or obscure sight lines should be pruned. Should individual species grow excessively during the first five years, pruning should consist of the removal of individual branches to maintain the natural shape of the plant or selective thinning.

Herbaceous Plants General; these are the plants which generally have soft stems and will die back in the winter months. Any dead stems and leaves should be tidied up in the spring when the threat of frost has gone. Old and dead vegetation can be cut with secateurs back to the base or gently pulled by hand, to encourage the new growth to push through, arisings should be disposed of in the green waste. Allow seed heads to remain on the plants for winter interest and insect habitats. Some herbaceous plants can be spilt and replanted if they start to become open or scruffy.

Some of the more prolific early summer flowering plants will benefit from a light prune after flowering to encourage a second flowering in early autumn, prune the plants back to young new leaf growth removing all of the old flower heads.

Grasses; Seed heads on the grasses should be allowed to remain on the plants throughout the winter for visual interest. In the spring for deciduous grasses cut back old seed heads and any dead vegetation to encourage new growth.

Specimen shrubs in planting beds; allow the shrubs to establish as individual specimens, in the case of the multi stemmed woody shrubs, clear leaves from the base to allow herbaceous vegetation and shrubs to establish underneath.

Cornus; the shrubs should be reduced in height to 300mm every three years in the spring to encourage strong stem colour and vigour

One operation per month (within month / months specified) - **1**
 Two operations per month (within month / months specified) - **2**
 Four operation per month (within month / months specified) - **4**
 As required - **a/r**

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Ornamental Shrub Beds													
Visual inspection of shrubs and perennials				1					1				Inspect Plants for signs of disease, damage or as required following adverse weather. replant if necessary
Hand weed				1	2	2	2	2	1				Hand weed beds up to once a fortnight during the summer months, remove weeds and tidy up the bark mulch surface. If necessary treat prolific weeds with a non-residual glyphosate based herbicide ensure that after the weeds have died, they are removed to prevent the bed from looking unsightly.
Watering					2	2	2	2	2				Water once every two weeks during the growing season and as necessary in periods of drought only during the first two years until the shrubs have established.
Mulch				1									Top up mulch in the spring once the bed has been weeded, this should not be required after year 3-5 when the planting has established.
Plant replacement	1	1									1	1	Replace dead and dying plants to original specification during the next planting season
Remove dead foliage and old flower stems	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Remove and dispose of foliage and stems. If diseased, remove as necessary as soon as possible.
Apply slow release fertiliser				1									Only if plants have shown signs of poor health in the previous season. Apply a slow release fertiliser or well-rotted manure in the spring.
General pruning				1									Should not be required in the first 1-3 years, however remove any branches that are obstructing paths, growing into the grassed areas or taking over other plants in the bed.
Selective thinning				1									In year 5 when the plants have established, thin out plants if overcrowded in the bed.

Plant specific maintenance				1									For maintenance of Cornus and Viburnum carry out specific maintenance operations as fully described in item 5.5
Clear snow	a/r	a/r	a/r	a/r						a/r	a/r	a/r	Remove snow from foliage after excessive fall if weight of accumulation may cause damage

5.5 Native Shrub Mix

Objectives

The native shrubs should be maintained to ensure strong early establish and ongoing development to form a buffer. They will also provide important habitats for birds and mammals.

Inspections / Monitoring

Inspect the shrubs annually when they are in fully leaf to ensure that they are thriving and record defects requiring remedial works. Ensure the shelter guards are intact, installed correctly and are not restricting growth.

Management Operations

Newly planted bare rootstock take some time to establish, and until this occurs, they are subject to competition from weeds. To reduce competition, an area around the plants should be maintained with an area of bark mulch around the base and kept weed free. Herbicides should be avoided if possible unless grass and weeds are affecting the establishment of the plants. After 3-5 years or after the plants have established this should not be necessary. If they show signs of poor growth or reduced vigour an application of the appropriate fertiliser should be carried out.

Any failed shrubs should be replaced to the original specification; however, this should be carried outside of the bird nesting season.

During establishment, shrubs may require regular watering particularly during prolonged dry periods during the summer months. These areas should be watered if there has been a period of dry weather between May to September.

Shelter guards should be inspected and adjusted accordingly to ensure they are not restricting growth. Damaged guards should be replaced. When the plants are established and can support themselves the guards should be removed to avoid constricting growth. This operation is likely to be required after 3 to 5 years dependent on establishment rates, stability and growing conditions. The guards should be checked after strong winds and reaffixed where necessary.

One operation per month - 1

As required - a/r

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Native Shrub Mix													
Visual inspection of native shrub mix				1					1				Inspect shrubs for signs of disease, damage or as required following adverse weather, replant if necessary
Slow release fertiliser					1								Only when necessary
Weeding/ mulch				1	1	1	1	1	1				Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. Report any non-native invasive species and carry out process for removal in accordance with national legislation
Shrub guards				1					1				Check and adjust, replace or remove as required until the plants have established. Check and re-adjust after strong winds. Remove in year 3-5 or as required
Watering					2	2	2	2	2				Water once every two weeks during the growing season and as necessary in periods of drought only during the first growing season until the vegetation has established
Routine pruning				1					1				Pruning should only be carried out where shrubs are in close proximity to public access, or where they pose a potential safety risk.
Replacements	1	1									1	1	Any plants that have failed should be replaced to the original specification and planted within the next planting season

5.6 Proposed Woodland Mix

Objectives

The proposed woodland mix will create structure throughout the site and create visual screening against unit boundaries. They will also provide important habitats for birds and mammals. The mix should be maintained to ensure strong early establish and ongoing development.

Inspections / Monitoring

Inspect the woodland mix twice annually when they are in fully leaf to ensure that they are thriving and record defects requiring remedial works. Ensure the shelter guards are intact, installed correctly and are not restricting growth.

Short Term Management Operations (5 years)

Newly planted whips and bare rootstock take some time to establish, and until this occurs, they are subject to competition from weeds. To reduce competition, an area around the plants should be maintained with an area of bark mulch around the base and kept weed free. Herbicides should be avoided if possible unless grass and weeds are affecting the establishment of the plants. After 3-5 years or after the plants have established this should not be necessary. If they show signs of poor growth or reduced vigour an application of the appropriate fertiliser should be carried out.

Any failed whips or bare rootstock should be replaced to the original specification; however, this should be carried outside of the bird-nesting season.

During establishment, the woodland mix may require regular watering particularly during prolonged dry periods during the summer months. These areas should be watered if there has been a period of dry weather between May to September.

Shelter guards, canes and ties should be inspected and adjusted accordingly to ensure they are not restricting growth. Damaged guards, canes or ties should be replaced. When the plants are established and can support themselves the guards, canes and ties should be removed to avoid constricting growth. This operation is likely to be required after 3 to 5 years dependant on establishment rates, stability and growing conditions. The guards should be checked after strong winds and reaffixed where necessary.

Long Term Management Operations (5+ years)

Once the whips have established and their canopies begin to touch, it is important to consider thinning. This is likely to be required at around 10 years of growth. The operation must be carried out by a qualified contractor with a felling licence. Ensure thinning works are carried out outside the bird-nesting season.

More regular / routine pruning of the whip planting on establishment should only be carried out on the shrubs/trees which are close to publicly accessible areas and should include the following operations:

Remove dead, diseased, damaged or dying branches only where they pose a risk to the safety of the users of the site. (Dead wood is an important habitat for wildlife within a healthy woodland ecosystem and should not be removed unnecessarily). Large woody material (girth of over 10cm) should be collected to create log piles within the planted areas, these should be stacked neatly and safely to ensure that they do not pose a risk to the users of the site.

One operation per month (within month / months specified) - 1

As required - **a/r**

First 5 years

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Woodland Mix													
Visual				1					1				Inspect woodland mix for signs of disease, damage or as required following adverse weather. Replant if necessary
Slow release fertiliser					1								Only when necessary
Weeding/ mulch				1	1	1	1	1	1				Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. Report any non-native invasive species and carry out process for removal in accordance with National legislation.
Tree stakes, ties and guards				1					1				Check and adjust, replace or remove as required until the tree has established. Check and re-adjust after strong winds. Remove in year 3-5 or as required.
Watering					2	2	2	2	2				Water once every two weeks during the growing season and as necessary in periods of drought only during the first 2 years until the trees have established.
Routine pruning				1					1				Pruning should only be carried out where trees are in close proximity to public access, or where they pose a potential safety risk.
Tree Replacements	1	1									1	1	Any trees that have failed should be replaced to the original specification and planted within the next planting season.

One operation per month (within month / months specified) - 1

As required - **a/r**

5+ years

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Woodland Mix													
Visual				1					1				Inspect woodland mix for signs of disease, damage or as required following adverse weather. Replant if necessary
Weeding/ mulch				1					1				Remove weeds and top up mulch (mulch topped up once annually) to retain a weed free around the base of each tree. Report any non-native invasive species and carry out process for removal in accordance with National legislation.
Tree stakes, ties and guards				1					1				Check and adjust, replace or remove as required until the tree has established. Check and re-adjust after strong winds. Remove in year after 5 years or as required.
Thinning / felling trees	a/r	a/r							a/r	a/r	a/r	a/r	Thin out woodland trees once canopies begin to touch to allow sufficient sunlight to reach understorey planting. Felling to be carried out by a qualified contractor approximately every 10-15 years.
Routine pruning				1					1				Pruning should only be carried out where trees are in close proximity to public access, or where they pose a potential safety risk.
Deadwood				1					1				Large woody material (girth of over 10cm) should be collected to create log piles within the woodland areas. Other deadwood to be retained unless cause identified as being due to disease or if the deadwood poses a risk to public safety.

5.7 Proposed Flowing Meadow MixObjectives

To create and maintain a biodiverse and balanced wildflower meadow that is free from invasive weeds for the benefit of wildlife and visual amenity. A mix will include 20% flowers and 80% grasses, as requested by Environmental Agency. The proposed mix is Emorsgate – EM2 Standard General Purpose Meadow Mix or a similar approved mix, and also Hedgerow Mix for hedgerow edges EH1F to maintained as one area.

Management Operations

The condition of the meadow areas would be reviewed within 6 months of its original seeding and any areas that have failed to establish should be re-seeded. In order to encourage the growth of yellow rattle

and development of the meadow, the area should not be cut until after yellow rattle has finished flowering in late July. All arisings would be removed within a 48-hour period.

First Year

Most sown meadow wild flower and grass species are perennial; they will be slow to germinate and grow and will not usually flower in their first growing season. There will often be a flush of annual weeds from the soil in the first growing season which may grow up and obscure the meadow seedlings beneath. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year. It is important to cut back cornfield annuals before they die back, set seed or collapse: this cut will reveal the developing meadow mixture and give it the space it needs to develop.

Mow newly sown meadows from early August to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers.

Carefully dig out or spot treat any residual perennial weeds such as docks.

Once Established

Following the initial year of its creation, the condition of grassland would be reviewed for the first 2 years for any areas of pernicious weeds (i.e. docks *Rumex* spp., thistles *Cirsium* spp. Or ragwort *Senecio* spp.), which would be controlled by the application of target herbicides.

In the second year and subsequent years, management to maintain the floristic diversity of the meadow grassland would entail an annual 'hay cut' using a scythe, petrol strimmer or tractor mower to a height of c.50mm, in August or September.

Following each mechanical cut of the meadow during its establishment or longer-term management, arisings would be raked off within a 7-day period, and deposited in a designated composting area or removed from the site.

One operation per month (within month / months specified) – 1

<u>Operation</u>	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Flowering Meadow Mix													
Inspection of meadow				1									Carry out an inspection of the establishment of the sward to identify any damaged areas, excessive weed growth, poor cover etc. which may require remediation works over the coming year.
Cut year 1			1					1	1				Mow newly sown meadows regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense.
Cut once established			1						1				Once established. Annual cut ‘hay cut’ with a scythe, petrol strimmer or tractor mower to a height of c.50mm between August and September once yellow rattle has flowered, followed by an autumn or spring cut if required to a height of c.50mm. Cuttings to be deposited in a designated composting area or removed from the site following 1-7 day period.
Inspect for weed growth and hand weed where necessary				1		1		1					Hand hoe out any weeds and remove
Remove fallen leaves, debris and litter	1	1									1	1	Remove prior to cutting (do not blow or sweep into adjacent planting beds)

5.8 Proposed Meadow – Wetland Areas

Objectives

Meadow Mixture suitable for wetland (EM8F Meadow Mixture for Wetlands by Emorsgate or similar approved) areas has been proposed within the attenuation areas and nearby. This area will provide a valuable habitat for aquatic insects, foraging birds and small mammals. A mix will include 20% native wildflowers and 80% slow growing grasses. The attenuation area should be well maintained at all times, ensuring any standing water is visible for safety and in a clean condition.

Inspections

The meadow mix will require a specific maintenance regime in its first year to ensure that the swathe establishes without competition, please refer to year 1 maintenance operations for further details. Meadow Areas in general can be inspected as part of the regular maintenance operations.

Management

Remove litter before cutting. On an annual basis, ensure that all dead growth is removed before the start of the growing season and any sediment are removed from inlets/ outlets if required. The attenuation area may need to be re-seeded in areas of poor growth.

Operations should be restricted to when the attenuation area is not holding any water. Care should be taken when working on embankments.

First Year

Most sown meadow wild flower and grass species are perennial; they will be slow to germinate and grow and will not usually flower in their first growing season. There will often be a flush of annual weeds from the soil in the first growing season which may grow up and obscure the meadow seedlings beneath. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year. It is important to cut back cornfield annuals before they die back, set seed or collapse: this cut will reveal the developing meadow mixture and give it the space it needs to develop.

Mow newly sown meadows from early August to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers.

Carefully dig out or spot treat any residual perennial weeds such as docks.

Establishment on site may be patchy and may take several years to fully colonise as the area is prone to flooding.

Immediate management would require the removal of aquatic vegetation to ensure at least 70% of the water is maintained as open water, free from marginal and aquatic vegetation.

Autumn Sown (First Year)

March - Cut to 40-70mm if there is sufficient material (sward above 100mm).

May - Cut to 40-70mm.

August/September - Cut to 40mm after flowering. in all cases remove clippings.

Maintenance thereafter

April - Cut to 40-70mm.

August/September - Cut to 40mm after flowering. in all cases remove clippings.

Spring Sown (First Year)

6 weeks after sowing - Cut to 40-70mm if there is sufficient material (sward above 100mm).

May - Cut to 40-70mm if there is sufficient material (sward above 100mm).

August/September - Cut to 40mm after flowering. in all cases remove clippings.

Maintenance thereafter

April - Cut to 40-70mm.

August/September - Cut to 40mm after flowering. In all cases remove clippings.

Once Established

Following this, management will focus on maximising the nature conservation interest of the attenuation areas and require that the vegetation is cut back with removal short, wedge-like sections of vegetation every 2-3 years in rotation. Any dense stands of single species (e.g. yellow iris) will require selective thinning.

Aquatic and marginal vegetation should be checked annually and where necessary cleared to maintain 70% open water. Only 1/3 or less of marginal areas should be cleared annually on a rotational basis during autumn; arisings should be left next to the attenuation area for at least 7 days before taking to a designated composting area.

Any bankside vegetation will be strimmed annually to 150mm in 1/3 sections on rotation to maintain cover and shelter for fauna. Areas of pernicious weeds should be removed by hand only, and no fertiliser is to be applied to the banks in order to minimise the risk of algae blooms and risk of deoxygenating the water. Where the meadow areas are close to the paths maintain a minimum 1m wide regularly mown strip between the path and the meadow, incorporating this area into the amenity grass areas. Should it be too steep for the mower, then alternative grass-cutting methods need to be employed on the attenuation area.

These operations are the sole responsibility of the contractor and should be restricted to when the area is not holding any water. All inspections and maintenance tasks should comply with the all relevant Health and Safety information and include the development of risk assessments when working close to water or on an embankment.

One operation per month (within month / months specified) - **1**
 Two operations per month (within month / months specified) - **2**
 Four operation per month (within month / months specified) - **4**
 As required - **a/r**

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Meadow – Suitable for Wetland													
Inspection of Meadow				1									Carry out an inspection of the establishment of the sward to identify any damaged areas, excessive weed growth, poor cover etc. which may require remediation works over the coming year.
In the first year, annual weed growth cut back				1		1		1					Annual weed growth shall be cut back to encourage the development of a good perennial ground cover. Hand hoe out any weeds and remove.
Cut back vegetation			1						1				Vegetation is cut back and removal of short wedge-like sections of vegetation on rotation every 2-3 years in rotation with long armed exactor.
Thinning of dense stands from year 2									1				Any dense stands of single species (e.g. yellow iris) will require selective thinning from the year 2.
Remove fallen leaves, debris and litter	1	1									1	1	Remove prior to cutting (do not blow or sweep into adjacent planting beds)

5.9 Proposed Amenity Grassland

Objectives

A mixture designed to create a species rich grassland that can be kept trimmed or left longer to flower.

Grass areas should be well maintained at all times as overgrown and patchy grass can be unsightly.

Inspections

Grassed areas can be inspected as part of the regular maintenance operations, although they should be formally inspected annually to assess requirements in terms of topdressing, over seeding etc.

Maintenance Operations

Remove any litter or leaves before cutting. Arising's should be removed from site.

To provide the formal appearance desired, following the initial year of its creation, the amenity grassland would be cut regularly to a minimum height of 70mm through the growing season (up to 21 cuts a year) which may require fortnightly cuts during some months. Cutting should be suspended during April and May to allow the earlier flowing species (such as cowslip) to flower and again in late June for a 4-8 week period. All arisings would be removed within a 48-hour period.

A fertiliser application to be applied only as required, either as a spring feed for shoot growth or as an autumn feed for root growth using the appropriate feed application.

In addition, these applications should compensate for any areas of poor growth or excessive wear. An application of selective herbicide should be made during early summer to prevent any weed species from having a detrimental affect to the appearance of the sward and to prevent any infestation becoming severe.

In periods of dry weather conditions, it may be required to water the grass at a rate of 15litres/m2. Ensuring watering is not undertaken during the heat of the day to avoid scorching of the grass.

Other maintenance applications, which will be required from time to time, include the following: topdressing, overseeding, scarifying, spiking etc to alleviate common problems such as thatch, compaction, poor drainage, malnourishment etc. These items should be addressed in the annual check.

The Public Rights of Way will be maintained by the Land Trust and that will include mowing of the grass pathways and litter picking.

These works will be the sole responsibility of the contractor.

One operation per month (within month / months specified) - **1**
 Two operations per month (within month / months specified) - **2**
 Four operation per month (within month / months specified) - **4**
 As required - **a/r**

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Amenity Grassland													
Inspection				1									Carry out an inspection of the establishment of the grass sward to identify any damaged areas, excessive weed growth, poor grass cover etc which may require remediation works over the coming year.
Cut - First Year				1		1		1		1			Mow grassland when it reaches 100mm and regularly within the first year. Cut to 70mm to encourage tillering of new plants, repeat as desired. Regular topping back will encourage vegetative growth of the perennial species but will stop the sward from flowering. Once mowing or strimming ceases the plants will grow to the point of flowering. If flowering is required in the first year then one or two strims early on will suffice, alternatively a strategy of mowing throughout the first year will produce tight sward that will be more resistant to encroachment by weed species in future years. Cutting to be removed from the site following 48-hour period.
Cut- Once Established						1		1		1			Once established, cut as required to 70mm with no cuts taken during April and May and again in late June for 4-8 weeks. Cuttings to be removed from site following 48-hour period.
Cut edges				1	1	1	1	1	1	1			Edges to paths and shrub beds to be cut with a neat edge avoiding damage to the shrubs and tree trunks and the arisings removed from the beds or swept off the paths and disposed of in a licensed tip.
Reform edges				1				1					Twice a year the soft grass edges should be redefined with a half moon spade to form neat straight edges and any grass encroaching onto footpaths taken back

Apply fertiliser application in year 1 -2				1						1			Once in the spring and once in the summer as required
Topdressing, over seeding, scarifying, spiking	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	As required if identified in the annual inspection
Remove fallen leaves, debris and litter	1	1	1	1	1	1	1	1	1	1	1	1	Remove prior to cutting (do not blow or sweep into adjacent planting beds)

5.10 Native Bulb Planting

Objectives

To ensure bulbs thrive within lawned areas providing seasonal interest at key locations within the public spaces

Inspections

Bulb planting in grassed areas can be inspected as part of the regular maintenance operations associated with the lawn maintenance. They should be formally inspected annually to assess requirements in terms of gaps, flower quality, etc.

Maintenance Operations

Where grass areas are planted with naturalising bulbs, the grass will be cut 6-8 weeks after the bulbs have flowered to allow sufficient time for the bulb to regain the necessary nutrients to ensure it will flower the following season. Normal mowing will then resume until the bulbs start to reappear. Apply fertiliser if required towards the end of February if required.

One operation per month (within month / months specified) – 1

Two operations per month (within month / months specified) - 2

As required - **a/r**

<u>Operation</u>	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Bulbs													
Inspect bulbs during flowering season			1	1	1								Visual inspection to identify any issues
Cut back foliage after 6-8 weeks after flowering ends					1	1	1						Season varies depending on species and cultivar
Apply fertiliser if required		1										1	To promote healthy growth

6.0 Attenuation Area

This document outlines the maintenance schedule to be carried out upon completion of construction to ensure the continued working operation of the Attenuation Area and Natural Swales. Drainage system to be maintained in line with drainage engineer guidance.

For guidance on vegetation management within the attenuation area please see section **5.8 Proposed Meadow – Wetland Areas**

6.1 Proposed Attenuation Area

Objectives

Proposed Attenuation area are designed to assist managing water run-off on site and will have varying levels of water throughout the year, and may be dry, or boggy during the summer months. Nevertheless, they should be maintained as an attractive feature with a clean and tidy appearance. Areas with water or partial water represent a potential hazard to users of the site and should be monitored regularly to check they are performing as originally intended, are not subject to vandalism or tipping, and do not represent a hazard through lack of maintenance.

Inspections

As part of the maintenance operations, attenuation area and associated drainage system are to be formally inspected at 6-monthly intervals by the maintenance contractor (particularly during the period of vegetation establishment), following a report by users of the site or a significant storm event. A report of the inspections and rectified works should be logged.

Check for any litter, debris, deleterious or dangerous material. Inlets, outlets, culverts and control structures should be inspected to ensure the basin is in a good condition. Inspect the drainage system, including bypass separators and associated pipe work to ensure they are operating effectively and determine any remedial works that are required. Assess the vegetation in terms of density, weed growth and coverage to determine maintenance requirements. Silt levels and sediment accumulation should be monitored and managed accordingly.

Inspect area after extreme weather events. Monitor the inflow and overflow areas to make sure they are still intact and can continue to carry water into and out of the rain garden. Remove any debris or litter that may interfere with flow. Keep the inflow pipe accessible and flush out pipe if necessary. Look for areas where water may not be soaking into the ground. This may be due to fine sediment or compaction of the soil. Remove sediment that may be building up and rake the soil surface. If you suspect compaction, break up and loosen the soil when it is not saturated.

Maintenance Operations

On a monthly basis, ensure attenuation areas are cleared of debris, litter, deleterious or dangerous material. They should be free from visible or potential blockage risks to the system. Inlets, outfalls, and culverts are to be cleaned out thoroughly to maintain the free flow of water, including the removal of silt accumulation as required. Should water levels fall below 50cm, desilting may be required. This should be undertaken between November and January by a long armed excavator.

For the management of vegetation, please refer to **Section 5.8 Proposed Meadow – Wetland Areas** for mowing regimes. These operations should be restricted to when the area is not holding any water.

Any remedial works required to the infrastructure should be carried out by skilled operatives under the guidance of a qualified engineer and manufacturer of any proprietary systems. The area should be cordoned off until the problem can be resolved at the earliest opportunity.

The bypass separators and associated pipe work linking the attenuation area to the wider drainage system should be maintained by the management company in accordance with the manufacturer's recommendations.

All inspections and maintenance tasks should comply with the all relevant Health and Safety information and include the development of risk assessments when working close to water or on an embankment.

Great care should be taken if standing water is present. Clear any vegetation to prevent blockages and ensure the area is free draining. A safe and acceptable system of clearance should be developed to deal with the build-up of any litter, debris or weeds that are beginning to establish. This system should be developed and/or refined over time to ensure the screen (if applicable) does not impede flow during normal operating conditions or become a hazard in itself. Take appropriate safety measures to remove deleterious or dangerous material. Record types and amount of debris removed, frequency of cleaning and problems experienced.

One operation per month (within month / months specified) - **1**

As required - **a/r**

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Attenuation Area													
Visual inspection and monitoring of attenuation area and drainage system.				1						1			Visual inspection of operating system and infrastructure etc. - Identify areas of erosion, scour or gullies - Identify locations of silt deposits - Determine the health of the vegetation and soil - Identify areas of excessive waterlogging or other damage
Debris removal, inlet and outlet cleaning.	1	1	1	1	1	1	1	1	1	1	1	1	Remove litter/debris/dead vegetation from attenuation area and drainage system etc. Inlet and outlet cleaning if present.
Inspect water flowing within the attenuation area.				1						1			Inspect annually and remove any built up soil, debris or leaves that is blocking the inlets or outlets. Cut back or remove any vegetation or grass that is growing into inlets. Remove sediments that build inside the inlet areas. If suspect compaction, break up and loosen the soil when it is not saturated.
Inspect attenuation area after storms.	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	After heavy storms, check the inflow and overflow areas to make sure they are still intact and can continue to carry water into and out of the attenuation area. Remove any debris or litter in the swale that may interfere with flow. Keep the inflow pipe accessible and flush out pipe if necessary. Look for areas where water may not be soaking into the ground. This may be due to fine sediment or compaction of the soil.

Inspect for any exposed soil or erosion within the attenuation area.			1						1			Look for any exposed soil or erosion caused by fast or high volume water flows. Realign of rip-raps or other erosion controls. Repair or relocate of damaged barriers. Reinstate the levels and turf due to erosion by rills or gullies. If erosion persists, water may be flowing into the swale too rapidly, in this case, the slope of the pipe or swale directing water may need to be reduced, or the amount of water flowing into the swale may need to be decreased.
Removal of excess silt.	a/r									a/r	a/r	Attenuation areas accumulate silt naturally. The accumulation of silt occurs slowly, unless there is an unforeseen incident or badly managed construction site. If the silt accumulation is a problem: - Should water levels fall below 50cm, desilting should be undertaken using a long armed excavator - Remove (reuse or compost) turf - Remove accumulated silt (subject to toxicity test) and land or dispose of to tip - Cultivate remaining topsoil to levels - Reuse or re-turf area to agreed levels

7.0 Proposed Ecological Pond

For guidance on vegetation management around the ponds area please see section **5.8 Proposed Meadow – Wetland Areas**

Exact design of the ecological ponds to be advised by an ecologist. The margins of the ponds should be profiled into a shallow slope to permit amphibians and other wildlife easy access in and out of the pond and to allow the colonisation of marginal and emergent plants and the centre of the pond should have a maximum depth of 1m.

If deemed necessary, the ponds will be lined with puddling clay to ensure that it retains water throughout most of the year. The pond will be allowed to fill naturally. A small amount of deadwood will also be left in the centre of the pond, which will further enhance biodiversity.

Objectives

Proposed ecological ponds are designed to increase biodiversity on site and attract and provide a sanctuary of breeding for wildlife.

Areas with water or partial water represent a potential hazard to residents, children and pets, and should be monitored regularly to check they are performing as originally intended, are not subject to vandalism or tipping, and do not represent a hazard through lack of maintenance.

Inspections

The ponds area is to be formally inspected at 6-monthly intervals by the maintenance contractor, following a report by a resident or a significant storm event. A report of the inspections and rectified works should be logged. Assess the vegetation in terms of density, weed growth and coverage to determine maintenance requirements. Silt levels and sediment accumulation should be monitored and managed accordingly. Inspect bank stability, water depth and the presence of fish (or evidence of attempted fishing) and waterfowl.

Inspect presence of invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) e.g. New Zealand Pygmyweed (*Crassula helmsii*) and Himalayan Balsam (*Impatiens glandulifera*) Typha. If present use of a specialist contractor to eradicate the species.

Maintenance Operations

On a monthly basis, ensure pond area is cleared of debris, litter, deleterious or dangerous material.

All inspections and maintenance tasks should comply with the all relevant Health and Safety information and include the development of risk assessments when working close to water or on an embankment.

Control of Willow/Scrub Encroachment

Any willow or shrub removal should be carried out between September-February to avoid the bird nesting season (March – August inclusive). The plants will be removed by physically cutting and / or digging it out, rather than using any herbicidal treatments.

Willow encroachment within and around the pond will be controlled at no greater than 30% of the pond margins. This will be necessary to avoid willows removing water from the ground and causing the habitats to dry out.

Removed plants to be placed around the pond for two days to allow aquatic invertebrates to re-enter pond, see below.

Management of Aquatic and Emergent Vegetation

Pond should be managed to retain at least 75% of surface area as open water through the cutting back or pulling out of marginal and emergent vegetation. To ensure a diversity of aquatic species, reeds or shrubs will be cut out or pulled out if they become dominant.

Only species which are becoming dominant and choking the pond or with invasive species tendencies will be removed. E.g. Typha, Floating Pennywort, Curly Leaved Waterweed, Australian Swamp Stonecrop, Water Fern, Parrot's Feather, Himalayan Balsam.

Marginal and aquatic vegetation is only be removed from the centre of the pond as the entire margin should be vegetated. It would detrimentally impact the aesthetic and ecology of the pond if the banks are stripped bare. Marginal and emergent vegetation control will be implemented during the autumn. Cutting or pulling will be carried out by hand, arisings removed after 48 hours.

Invasive Typha will not be permitted to encroach over the pond. Removal of Typha will be carried out every three years or as required to maintain at least 75% open water at the pond. Plant removal to be conducted in winter (i.e. October to February inclusive).

Removed plants to be left alongside the pond for two days to allow aquatic invertebrates to re-enter pond.

Detection of Fish

If fish are detected it will be the Management Company's responsibility to employ the assistance of an appropriate Fish Handler. The Fish Handler will apply for and obtain the relevant Environment Agency consent forms permitting the method of fish removal (for example draining down and electro-fishing or seine netting) and the location for the receipt of the fish, as required.

Following removal of the fish, the pond will be drained and kept dry for a suitable period to ensure successful fish removal.

One operation per month (within month / months specified) – 1

As required - a/r

Operation	MONTHS												Notes
	J	F	M	A	M	J	J	A	S	O	N	D	
Proposed Ecological Pond													
Visual inspection and monitoring of Pond				1						1			Visual inspection of Ponds - Identify areas of erosion, scour or gullies - Identify locations of silt deposits - Determine the health of the vegetation and soil - Identify areas of excessive waterlogging or other damage - Identify if the pond is not drying out - Inspect if the pond is not over shade - Inspect bank stability, water depth and the presence of fish and invasive species - Inspect presence of invasive species.
Remove litter	1	1	1	1	1	1	1	1	1	1	1	1	Remove litter/debris/dead vegetation/ deleterious or dangerous material.
Inspect pond after storms.	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	a/r	Inspect pond after heavy storms. Remove any debris or litter. Inspect for any exposed soil or erosion within the ponds.
Marginal / emergent vegetation and willow / scrub control										1			Marginal and emergent vegetation control will be implemented during the autumn. Cutting or pulling will be carried out by hand, arisings removed after 48 hours. Marginal and aquatic vegetation is <u>only be removed from the centre of the pond</u> as the entire margin should be vegetated. Any willow or shrub removal should be carried out between September-February to avoid the bird nesting season (March – August inclusive). The plants will be removed by physically cutting and / or digging it out, rather than using any herbicidal treatments.

8.0 Monitoring and Review

In order to ensure that the existing and proposed landscape within the site reach and maintain their maximum value. All landscaping should be monitored every year to check establishment. It is recommended that the inspection take place in July/August. The inspection will identify any issues and future landscape management objectives.

Results of this monitoring should be used to inform annual changes to the management plan, and at the end of the five-year rolling work programme.

A programme of monitoring is to be established by appointed Maintenance Contractor that will allow the success of landscape management and maintenance operations to be assessed, and will feed into periodic reviews of this Landscape Management Strategy to ensure that management protocols remain appropriate to achieving the broad aim of conserving biodiversity on site.

If the maintenance of the approved Landscape Management Strategy is proposed to be changed, this is to be first approved in writing by the Local Authority.

9.0 Handover Procedures

The maintenance period will run concurrently with the rectification period so it may be appropriate to have the same contractor for both the construction side of the operations and the Maintenance Contractor, to help avoid disputes. After the rectification period, the management and maintenance objections need to remain in place for the following operational years of the development site.

To ensure a smooth handover between management contractor companies a clear documented record of works will be required.

APPENDIX 1

BIODIVERSITY MANAGEMENT PLAN



ECOLOGYSOLUTIONS

Part of the ES Group

PROJECT GRIFFEN, DESFORD

**BIODIVERSITY MANAGEMENT
PLAN IN PURSUANT OF
CONDITION 30
OF PLANNING PERMISSION
REF: 21/00619/FUL**

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1. INTRODUCTION

- 1.1 Ecology Solutions was commissioned by Gulf Ventures 2 Limited to undertake an ecological assessment of the land at Griffen Park, Desford (see Plan ECO1) to support the planning application which has now received planning consent (planning reference: 21/00619/FUL).
- 1.2 The planning permission was approved subject to a number of planning conditions.
- 1.3 In accordance with the planning permission, Gulf Ventures 2 Limited have commissioned Ecology Solutions to draft a report to allow the discharge of Condition 30, which requires the submission and approval of a Biodiversity Management Plan (BMP) for the site.
- 1.4 Condition 30 states:

No development other than demolition shall commence on site until an updated site wide Biodiversity Metric and a Biodiversity Management Plan for the site which shall set out the site-wide strategy for protecting and enhancing biodiversity including the detailed design of proposed biodiversity enhancements, a timetable for their implementation and completion and details of their subsequent management once the development is completed, has been submitted to the local planning authority for their approval in writing. The submitted plan shall include all retained and created habitats including SUDs and all landscaping. Development shall be implemented and thereafter maintained in accordance with the approved Management Plan. The submitted Plan shall be based on the advice and identified mitigation contained within Ecological Assessment (8786M.EcoAs.vf1) dated September 2020.

- 1.5 This BMP has been prepared by Ecology Solutions on behalf of Gulf Ventures 2 Ltd. It sets out the management of features of ecological interest due to be retained and created within and adjacent to the development and describes the wildlife enhancements and mitigation strategies to be implemented, together with a timeline for their implementation.
- 1.6 The BMP should be read in conjunction with a number of other documents being submitted as part of the reserved matters, particularly the Landscape Strategy completed by TPM Landscape.
- 1.7 The BMP has developed from sensitive design around the existing features of interest with consultation from the client team to ensure that the management plan accommodates strong green infrastructure principals and through sensitive design and planting increases the floristic diversity and biodiversity value of the site over the existing pre-development situation. It builds upon and develops the work undertaken in support of the original planning application and permission. Comments received during the consultation exercise, specifically from Leicestershire County Council (LCC), have been used to fine-tune the proposed mitigation measure, particularly around the retention and safeguarding of areas of habitat considered to be of an elevated nature conservation interest.

- 1.8 The detailed mitigation measures in Badger *Meles meles* have been drafted in the Badger Survey Report seeking the discharge of Condition 27 of the consent and, whilst a summary shall be provided within this document, the Badger Survey Report should be read in conjunction with this report for the detail mitigation measures to be provided.
- 1.9 This BMP has been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and in accordance with Natural England guidelines for protected species.
- 1.10 The landscape design strategy that has been developed has been ecologically driven and is focused on maintaining and creating habitats to increase the biodiversity value of the site and maintain wildlife links whilst incorporating wildlife features to encourage wildlife use of the site. Detailed discussions have been held between TPM Landscape and Ecology Solutions during the drafting of the various planting lists and habitat typologies for the site, whilst specific planting lists have been discussed to ensure these are correctly proportioned to offer the necessary mitigation measures.
- 1.11 This document is set out as follows:
- Biodiversity / Ecological Objectives;
 - Ecological baseline and evaluation of important features within the site;
 - Objectives of the BMP in order to maximise the ecological potential of features due to be retained within the site;
 - Details of the ecological enhancement and mitigation strategies to be employed;
 - Management prescriptions in order to achieve objectives. These include any monitoring requirements; and
 - The work programme.

2. OBJECTIVES FOR BIODIVERSITY / ECOLOGY

2.1. Defining the Objectives

- 2.1.1. Defining a set of objectives for biodiversity at the site is fundamental to the effectiveness of this strategy, given that it is intended to provide a framework that will safeguard the existing nature conservation interest and provide guidance on future enhancement and management.
- 2.1.2. Specific objectives for the conservation of particular species or groups and particular habitats of nature conservation interest are set out in the relevant sections to follow. The nature of these objectives has been guided by the principles set out in UK and European wildlife legislation, notably the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Furthermore, the formulation of these objectives has also been influenced by national and local biodiversity and conservation targets, as set out in the UK Biodiversity Action Plan (BAP) and the Leicester, Leicestershire and Rutland BAP.
- 2.1.3. The overarching objectives for nature conservation are as follows:
- To safeguard species that are important within the national and local context, and to maintain or enhance their conservation status as appropriate;
 - To ensure that the site continues to support a similar complement of species to that already existing; and
 - To enhance the biodiversity of the site; where compatible with the above objectives.

2.2. Achieving the Objectives

- 2.2.1. Information on the existing situation at Griffen Park and its environs with regard to habitats of ecological interest and the presence of protected species has been collated as part of the Ecological Assessment process. The specific enhancements and management prescriptions within this document are based upon the Ecological Assessment process, together with updated check surveys and dialogue held with Leicestershire County Council (LCC) and client team.
- 2.2.2. These initiatives fall into two categories:
- Conservation and enhancement measures for particular habitats of nature conservation interest, and measures for the creation of new habitats; and
 - Species or group specific measures designed to conserve and enhance particular species of interest.

3. ECOLOGICAL BASELINE AND EVALUATION

- 3.1. Habitat surveys were based upon an extended Phase 1 survey technique. The habitats and dominant plant species were recorded, together with conspicuous faunal activity and evidence of the presence, or potential presence, of protected species. Results from the habitat survey were then mapped (see Plan ECO2).
- 3.2. During the surveys undertaken, all obvious faunal activity such as birds or mammals observed visually or by call, was also recorded. Specific attention was paid to any potential use of the site by protected species, Biodiversity Action Plan (BAP) species, or other notable species.
- 3.3. Specific surveys for the presence of Badger, bats, Great Crested Newts *Triturus cristatus* and common reptiles have also been undertaken to establish the existing ecological intrinsic value of the site and enable suitable and appropriate mitigation and enhancement strategies to be formed.

Results

Ecological Features

- 3.4. The following main habitat / vegetation types were identified within the site:
 - Buildings;
 - Hardstanding;
 - Woodland;
 - Neutral Grassland;
 - Modified Grassland;
 - Amenity Grassland;
 - Arable;
 - Hedgerows;
 - Pond;
 - Fence;
 - Trees; and
 - Scrub.
- 3.5. The location of these habitats is shown on Plan ECO2.
- 3.6. A list of the species occurring in each of the recorded habitat types present within the site is given within the submitted material. Albeit some further species were recorded across the wet marshy grassland during the course of a walk-over survey by Ecology Solutions and LCC. Tables for the various species across habitats of a considered elevated value, namely the neutral grassland and wet / marshy grassland are provided at Appendix 1.
- 3.7. The main habitat type within the site - arable - is generally of limited nature conservation interest, being subject to regular management. The woodland blocks, species rich hedgerows, pond and mature trees are considered to be of greater ecological value within the context of the site as a whole.

- 3.8. The design of the scheme has evolved from the initial surveys, whereby those habitats of ecological interest have been retained where feasible and incorporated into the proposals. Modification to the landscape, levelling and drainage strategy have been taken to ensure the identified wet / marshy grassland, which has now been assigned as a Local Wildlife Site (LWS), status can be retained and managed *in situ*.

Wildlife Use of the Site

- 3.9. The following protected species were assessed within the Ecological Assessment that accompanied the planning application:

- Badgers;
- Bats;
- Birds;
- Common reptiles; and
- Great Crested Newts.

Badgers

- 3.10. Specific Badger surveys were undertaken in February 2021 and November 2021 in accordance with current survey guidelines.¹² These confirmed the presence of active and inactive Badger setts / entrances within the boundary of the site.
- 3.11. There are two setts within the site boundary: a main sett (S2 on Plan ECO2) with a number of active entrances, and an outlier sett (S1 on Plan ECO2) with two entrances that were active in November 2021 but have shown intermittent use across the survey period.
- 3.12. The main sett (S2) lies within an unsustainable area to accommodate the consented scheme, and hence shall need to be closed under a Natural England licence. To compensate for the loss, an artificial sett has been created on the western boundary and shall be safeguarded from future disturbance. Timing restrictions to the closure shall apply and it is also likely that a condition of the licence will be for the artificial sett to show signs of use before the main sett can be closed.
- 3.13. The artificial sett was constructed in July 2021 and was subject to the planting of woody species to deter disturbance and provide a foraging resource for the Badgers. So far there are no signs that Badgers have taken up residence in the artificial sett with further monitoring and baiting (to encourage adoption) is being undertaken.

Bats

- 3.14. Two of the buildings present within the site were considered to offer low suitability for roosting bats, while one building was considered to offer moderate suitability. Emergence / re-entry surveys at dusk and dawn on

¹ Natural England (2011). *Badgers and Development: A Guide to Best Practice and Licensing*. Interim Guidance Document. Revised 12/11.

² Natural England. (2009). *Protection of Badgers Act 1992 (as amended). Interpretation of Disturbance in relation to badgers occupying a sett*.

all three buildings recorded no emergences or re-entries to or from the buildings and only low levels of foraging and general bat activity. As such the absence of roosting from these buildings has been confirmed.

- 3.15. The majority of the mature trees across the site hold negligible roosting suitability for bats. One mature Ash *Fraxinus excelsior* tree (T1 on Plan ECO2), located in the centre of the site, presents moderate suitability for roosting bats due to a large cavity present within the centre of its trunk, approximately 4-5m high on the southern aspect and numerous areas of loose bark and split limbs where roosting would be suitable. Another mature Ash tree (T2 on Plan ECO2), located in the centre of the site slightly to the south of T1, provides low roosting suitability for bats due to the presence of loose bark around the tree on all aspects.
- 3.16. Specific bat activity surveys were undertaken alongside remote detector surveys during 2020 to establish the species utilising the site and establish any areas of importance for local bat populations for foraging or dispersal. The surveys completed recorded only low numbers of Common Pipistrelle *Pipistrellus Pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Nathusius' Pipistrelle *Pipistrellus nathusii*, Noctule Bat *Nyctalus noctule* and *Myotis* sp. bats foraging within the site, with particular activity refined to the areas of woodland and semi-improved grassland on site. It is feasible that roosts are present within the limited number of mature trees within the woodland on site, particularly woodlands W1 and W2.

Dormouse

- 3.17. Whilst no specific evidence for the presence of Dormouse *Muscardinus avellanarius* was noted during ecological surveys of the site, it is considered that the site does contain habitats at least superficially suitable for Dormouse, with a good mix of tree / shrub and other plant species present providing a food source throughout the active season for Dormice.
- 3.18. However, no records of Dormouse were returned by the data search, therefore suggesting a likely absence of this species from the local area.

Birds

- 3.19. Several species of bird were noted on the site during survey work, including Blue Tit *Cyanistes caeruleus*, Robin *Erithacus rubecula*, Dunnock *Prunella modularis* and Goldfinch *Carduelis carduelis*. A Long-tailed Tit *Aegithalos caudatus* was noted around the woodland in the north of the site.
- 3.20. In addition, a mature Ash tree (T1) contains a large cavity approximately 5m high, with Barn Owl *Tyto alba* pellets recorded on the floor on numerous occasions. Anecdotal evidence from other surveyors identified Barn Owl as being present within the tree.

Common Reptiles

- 3.21. Reptile surveys were undertaken from June to September 2020 which returned a single record of Grass Snake *Natrix helvetica* within the

southwest section of the site. This indicates a small population of Grass Snake is present on site.

- 3.22. Previous surveys completed in 2016 also recorded the presence of a small population of Grass Snake within the site.

Great Crested Newts

- 3.23. The site offers one potentially suitable waterbody in the form of an ephemeral pond (P1 on Plan ECO2). Suitable terrestrial habitat is represented by the woodland, hedgerows, scrub and semi-improved grassland around the site.
- 3.24. The pond P1 was assessed for suitability for Great Crested Newts in 2020 and assigned a Habitat Suitability Index (HSI) score of 0.56 which indicates below average suitability.
- 3.25. Three ponds were noted within 250m of the site boundary. Further inspection of these ponds during the course of the survey season found them to be dry and considered to be ephemeral and unlikely to support standing water for any prolonged periods.
- 3.26. An eDNA survey was undertaken on pond P1 in May 2020 which returned a positive result for presence of Great Crested Newt.
- 3.27. Following the positive eDNA result for pond P1, population class surveys were undertaken over four separate occasions in April and May 2021 comprised of bottle trapping, torch survey and netting. These surveys recorded no presence of Great Crested Newt within the pond. A further eDNA survey was also completed which also returned a negative result.
- 3.28. Given the comprehensive surveys that have been completed in 2021, it is possible that the 2020 eDNA positive result was a false positive or that it was associated with a pioneering individual that entered the site and which subsequently dispersed off-site.
- 3.29. To summarise: the surveys completed in 2021 have confirmed the absence of any Great Crested Newts and hence this species does not represent a material constraint to the consented development.

4. MANAGEMENT OBJECTIVES

- 4.1. The aims and objectives of the BMP are to maintain and enhance features of ecological interest retained within the development, in addition to conserving populations of protected species on site, whilst providing biodiversity enhancements within the proposed development.
- 4.2. Management represents an important component in these areas. The applicant shall establish a private management company to ensure the future sensitive management of all areas outside private ownership is secured for the long-term across the entire development site.
- 4.3. The following objectives have been identified:
 - Objective 1: Maintain and enhance retained and newly created habitats within the site;
 - Objective 2: Maintain populations of protected species identified within the site area at a favourable conservation status; and
 - Objective 3: Increase biodiversity by maximising opportunities for flora and fauna, with a linked programme of targeted ecological monitoring.

5. MANAGEMENT MEASURES

- 5.1. Management prescriptions and monitoring requirements have been described below, in relation to each of the three objectives.
- 5.2. Please note that a private management company will be responsible for all landscaped areas within the development site.

Objective 1: Maintain and Enhance Retained and Created Habitats within the Site

Woodland Blocks, Hedgerows and Trees

- 5.3. The majority of existing hedgerows within the site shall be protected and retained as part of the proposed development. The retained hedgerows will be protected from potential adverse effects during the construction phase as part of a CEMP. The loss to hedgerows shall extend to the amenity hedgerow H5 together with the species-rich hedgerow H6, and elements of hedgerows H2 and H3 (see Plan ECO2).
- 5.4. The scheme shall offset the loss of existing hedgerows through the provision of new species-rich hedgerows containing a minimum of five species and planted in a double staggered row at 450mm apart. Together with bolster planting of the retained hedgerows, this will increase their overall interest and species composition of hedgerows within the site. The provision of shade tolerant wildflower grassland adjacent to the retained and created hedgerows will also provide a gain to their interest and functionality as wildlife corridors.
- 5.5. All hedgerows shall be subject to some arboricultural management / trimming to prevent them encroaching on the development area, with several of the hedgerows having been absent from any formal management for some time.
- 5.6. The proposed development shall result in the loss of several areas of woodland blocks (WD2, WD3 and WD4), the majority of which is relatively recently planted plantation, as well as a number of stand-alone semi-mature to mature trees. Retained trees and areas of woodland shall be fully protected in accordance with BS 5837:2012 as detailed in the CEMP.
- 5.7. Arboricultural management including tree removal and hedgerow trimming will be carried out outside the bird nesting season (March – July inclusive) to avoid any potential offence, or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present.
- 5.8. Dead wood produced from clearance works or on-going arboriculture work will be retained as an ecological feature, offering new habitat for saproxylic invertebrates as well as potential hibernacula for reptiles or amphibians.
- 5.9. The ground flora (including Bluebells *Hyacinthoides non-scripta* present along certain rides but overall restricted) of the woodland habitats shall benefit from soil translocation to allow the more diverse areas of ground flora and seed bank to be retained on site, whilst new seeding and bulb

planting shall diversify the ground flora to heighten the overall interest on newly planted woodland areas.

- 5.10. New native hedgerow and woodland planting will increase the floristic diversity of the site and provide additional foraging opportunities for birds, bats and Dormouse as well as increasing nesting and roosting opportunities, with these opportunities increasing with time as specimens mature. Native species bolster planting of the existing hedgerows and retained woodland blocks will improve species diversity and structure.
- 5.11. New informal green corridors shall be created throughout the site, which will help to off-set any impacts of development from the immediate proximity of the retained woodland blocks and hedgerows. These informal green corridors will also serve to protect the roots of retained trees from development.
- 5.12. Planting of new trees or hedgerows will be undertaken during the autumn, winter or spring, with subsequent monitoring required in order to identify any potential gaps where plants have not survived. New planting shall be checked annually to ensure they are straight and upright, have no damage to their crowns or stems or any pests or diseases. Any basal or epicormic growth shall be removed. They shall only be watered in drought conditions within the first 5 years following planting and then only when necessary to avoid leaf loss or death. Any newly planted trees / hedgerows which die should be replaced in the following season with the same species to the same specification and quality. All stakes shall be removed in May when this initial support is no longer required, typically after 3 -5 years following planting. The base of the trees, for a radius of 500 mm, shall be maintained free of long grass and weeds through mechanical means or mulching during the first 3 years after planting.
- 5.13. Crown lifting of trees shall be undertaken as required so that in 5 years the crown achieves a clear height of at least 3.5 metres above ground level. Remove lower whole branches back to the stem or cut lower portions of branches back to lateral or sublateral buds or branches.
- 5.14. Crown thinning of trees shall be undertaken as required to remove inward growing, crossing, rubbing, dead or damaged branches or thinning to remove secondary and small live branch growth evenly throughout the crown.
- 5.15. Hedgerows to be cut mechanically to a minimum height of 2 metres to ensure that the structure is not significantly altered to compromise their value for associated wildlife. The aim is to produce species-rich, dense hedgerows of height approximately 2 to 2.2 metres and basal width 2 metres, which are semi-natural in appearance. Leading stems and other top growth and laterals to be trimmed back annually to an A-shaped structure, to encourage dense bushy growth, whilst maintaining the overall hedgerow structure. Pruning is to be undertaken outside of the bird breeding season.
- 5.16. Only those hedgerows backing on to development or footpaths are to be cut annually, whilst all other hedgerows shall be cut on a bi-annual

basis (once every two years) on a rotational basis to ensure sufficient habitat for birds and availability of winter foraging. No more than 50% of hedgerows to be cut in any given year. Trimming should be by hand / hedge trimmer and not by flail, unless agreed with the project ecologist / ecological clerk of works.

- 5.17. Trees in hedgerows shall be retained and allowed to develop.
- 5.18. The provision of shade tolerant wildflower grassland in the field layer at the base of hedgerows and a margin of 1 metre either side will increase floristic diversity and provide habitat for small mammals. No cutting or herbicide applications are to take place within these margins, except if required to control noxious weeds.
- 5.19. Prior to any pruning or felling works of larger trees (typically with a diameter at chest height in excess of 300 mm), the tree should be assessed for its potential to support roosting bats. Any features such as rot holes, split limbs or loose bark, which could support roosting bats, should be undertaken by an arboriculturist, in the first instance, with subsequent assessment and survey by a suitably experienced ecologist if required, with appropriate licenses obtained should this be necessary.
- 5.20. When a tree has been felled (because it has died, is diseased or has become unsafe) it should be replaced with the same species, or an appropriate alternative species, where relevant. Normally the tree should be planted in the immediate vicinity of the felled tree. If the tree was felled because it was dangerous by virtue of its location, a replacement should be planted at an acceptable nearby location. Dead wood should be retained on site, in suitable locations (marginal areas adjacent / within woodland / hedgerow) to provide opportunities for saproxylic species, such as Stag Beetle *Lucanus cervus*.
- 5.21. Where appropriate, standing dead-wood should be retained in situ to offer a resource for invertebrates and potential additional habitats for bats and birds (roosting and nesting).
- 5.22. Management as a coppice should elevate biodiversity interest through greater ground flora coverage and a more varied woodland age and structure. The woodland coppice areas will be comprised of a mixture of mature tree standards, and coppiced trees at various stages of coppicing.
- 5.23. More mature existing standards of Oak, Sycamore and Ash trees will be retained and safeguarded to allow to grow to full maturity. Further standards may be encouraged such that there are about 10 large trees per hectare or covering 25 to 30% of the woodland area.
- 5.24. Many types of deciduous trees can be coppiced, including the following:
 - Hazel;
 - Hornbeam;
 - Alder *Alnus glutinosa*;
 - Sweet Chestnut *Castanea sativa*;
 - Ash;

- Oak;
 - Sycamore *Acer pseudoplatanus*;
 - Field Maple;
 - Elder *Sambucus nigra*;
 - Beech;
 - Lime *Tilia platyphyllos x cordata*;
 - Willow *Salix spp.*,
 - Yew *Taxus baccata*; and
 - Dogwood *Cornus sanguinea*.
- 5.25. The coppicing cycle varies depending on the species and should be considered prior to management.
- 5.26. Many of the trees within the broadleaved woodland along the eastern boundary are Sycamore, Ash and Oak, which have longer coppicing cycles than other types of trees (i.e. 15-25-year cycle for Sycamore and 25-35-year cycle for Ash and Oak).
- 5.27. Any coppicing should be undertaken in late winter or early spring (i.e. February to March), immediately prior to active tree growth. Coppicing at this time of year will also help to avoid the nesting bird season (March to July inclusive).
- 5.28. To promote a range of age structure within the coppices, a total of less than 10% of the total woodland areas should be coppiced in any one year. It is much more beneficial to cut coupes (i.e. compartments of coppiced trees) in a mixed mosaic pattern to ensure a good distribution of age classes throughout the area, with areas of older and younger coppice adjacent to one another.
- 5.29. Work will be undertaken by hand, with cuts made with a chainsaw near the base of the coppice stool, leaving some 100 to 300mm of the stem being cut above where it springs from the stool. The cut is made with a gentle slope towards the outside of the stool so that water is not shed towards the middle of the stool. The brash is generally cut off the poles.
- 5.30. In the future, once managed as a woodland coppice, new woodland seed mixes such as Emorsgate EW1 or EW1F (see Appendix 4) should be seeded to promote diversity within the woodland ground flora. These seed mixes shall also be across any glade creation works.
- 5.31. It is also recommended that excessive growth of nettle and other tall ruderal vegetation is subject to annual cutting control, to prevent competitive exclusion of the shrub layer.
- 5.32. Several areas adjacent to buildings and walkways within the site will be planted with semi-ornamental trees and hedges forming avenues across the site. The under layer of these areas will be planted with a combination of ornamental shrub and hard-wearing grass mix. While these in themselves are of limited ecological interest, they will create potential dispersal routes across the site for mobile species such as bats and will also provide additional foraging and nesting opportunities for birds and invertebrates.

Location	Retained Woodland Areas	New Woodland Areas	All Areas
Objective	Develop a good structure and diverse composition, both within the understory, canopy and ground flora.	Establish native woodland with a diverse mixture of species.	To maintain a rich native woodland resource on site providing complementary habitats to the wider areas of open space to be provided. Offer benefit for birds, bats, and invertebrate in particular.
Management		Soils from existing woodland should be used where feasible to retain the woodland seed banks and specifically Bluebells	Management to be completed in winter. Coppicing and thinning as required. Coppicing of 7-10 year cycle.
Monitoring			Check on health of woodlands. Check species diversity of canopy and ground flora. Checks of any colonisation of non-native / undesired species.
Remedial Actions			Removal of unwanted species following best practice methodologies

Wildflower Meadow and Wet Grassland

- 5.33. The site currently supports a variety of grassland area from relatively species-poor modified grassland to neutral grassland containing a number of herbaceous species include those which are relatively scarce in Leicestershire. The proposed scheme has been developed to safeguard areas of neutral grassland of an elevated interest whilst creating new areas of species-rich neutral grassland to compensate for the loss of both areas of relative species-poor grassland and area of an elevated interest within unsustainable locations.
- 5.34. Overall, the scheme shall include the provision of new areas of species-rich grassland (meadow, wet and shade tolerant / woodland glade) seeking to provide native and species-rich swards to be subject to a management regime to maintain floristic diversity and long-term interest.
- 5.35. The area of wet grassland to the west of the retained (and enhanced) pond, now designated as an LWS, will be safeguarded in situ. This area will be marked out to prevent accidental encroachment as part of the wider landscape and habitat recreation works. The grassland area has formed from a cessation in arable management, likely due to inherent damp ground conditions, with a damp grassland assemblage having established over time. The management for this area shall be based against a relaxed management regime with the addition of a late

summer cut with all cuttings removed. Due to the wet nature of the soil in this area, a strimmer will be used for the cut to prevent unnecessary ground damage. No overseeding will occur within the retained grassland.

- 5.36. In respect of other neutral grassland area to be created, the first stage of wildflower meadow creation involves the preparation of favourable conditions for the species / seed mixture proposed. This involves the creation of low fertility soil conditions which shall help prohibit the dominance of coarse grass species and undesirable herbaceous / opportunistic species. To create these conditions, it is often best to remove the topsoil completely and either prepare the subsoil or introduce subsoil from another location (preferably locally sourced).
- 5.37. The surface of the subsoil should be raked to form an even tilth. The soil can then be left for a month prior to seeding. In this time the seeds of competitive species that may already be in the soil e.g., Docks *Rumex* spp., will have time to germinate. These can then be removed either manually or through the application of an appropriate non-selective herbicide (such as glyphosate) to prevent them from out-competing the new grassland plants.
- 5.38. The areas of wildflower meadow shall be sown with Emorsgate EM2 general-purpose meadow mixture (including 85% of grasses and 15% of wildflowers) (see Appendix 2). The underlying substrates in this region should allow for the correct sub-soils to be present thus preventing the need for any importation of soil to the site.
- 5.39. Shaded areas of planting, such as underneath / adjacent to hedgerows, woodland glades or between buildings shall instead be seeded with Emorsgate EH1F Wildflowers for Hedgerows (see Appendix 4). This mix contains wildflowers that are tolerant to semi-shade and is suitable for planting beneath newly planted and established hedges and on woodland edges. 100% wildflower mixtures are best sown into existing grass or combined with a suitable grass seed mix. In some areas, such as those surrounding the two raised earthen bunds on the eastern boundary of the site, this shade tolerant mix will be supplemented with the planting of native bulb species in order to increase floral diversity and attract a wider variety of invertebrate species.
- 5.40. Future management is essential to the structure, balance and diversity of wildflower meadows. The aftercare of sown meadows has two components: first year management and management of established meadows.
- 5.41. Newly sown meadows will be mown regularly throughout the first year of establishment to a height of 40-60mm. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wildflowers. Cuttings will be removed if dense. Residual perennial weeds, such as Dock sp., will be carefully dug out or spot treated for the first year to prevent dominance by weeds and allow the establishment of meadow plants.
- 5.42. In the second and subsequent years, best results are usually obtained by traditional meadow management based around a main summer hay

cut to around 50mm using a scythe or petrol trimmer, in combination with autumn or possible spring mowing. The number of cuts from late summer through to spring may depend on soil fertility, with more cuts required on more fertile soil.

- 5.43. Established meadow grassland should not be cut from spring through to July / August to give the sown species an opportunity to flower and provide nectar sources for invertebrates, and also seed.
- 5.44. Following any grassland maintenance all arisings will be left in situ for seven days to allow seed release and ensure the continued renewal of the floristic diversity of the site. The arisings will then be turned and removed from site to prevent nutrient enrichment to the detriment of floristic diversity.

Amenity Grassland

- 5.45. Small areas of amenity / modified grassland will be created across the development area and typically form road verges where it will be subjected to greater activity and so by necessity consists of harder wearing grasses such as DLF Masterline PM120 Slowgrowth or similar. This mixture is ideal for use in a variety of landscapes, including housing estates, road verges, parkland and play areas.
- 5.46. The amenity grassland areas shall be sown in autumn or spring but could be completed outside the timeframe if moisture conditions are considered adequate for successful establishment. To expedite establishment areas shall also be turfed with RowLawn Medallion Turf or similar.
- 5.47. Amenity grasslands, by the nature of the habitat, are managed regularly to maintain a short sward height.
- 5.48. As this habitat will be managed for amenity purposes, there is not considered to be a specific mowing regime required, although a varied mowing regime is preferable across the growing season (typically March to October). More formal areas of amenity grassland (i.e. within the public open space) may require more cuts. Checks will be made monthly and grass will be cut when it is considered to become too long (i.e. above 50-60mm). It is preferable that a month without any management is provided in early summer (i.e. June) across all amenity areas to allow for lower flowering herbaceous plants to establish. The borders of amenity grass areas may be cut less regularly and allowed to grow wilder to support a higher biodiversity.

Attenuation Swales / Wet Grassland

- 5.49. Attenuation swales shall be created within the site to provide additional drainage as required, but these are expected to be predominately dry save for during periods of high precipitation. The attenuation swales shall nonetheless be sown with a diverse native wet grassland seed mixture to further the floristic diversity with the site. The seed mixture that shall be used is that of Emorsgate EM8F Meadow Mixture for Wetlands (see Appendix 3) or similar. This is a 100% wildflower mixture

so is best sown into existing grass or combined with a suitable grass seed mix.

- 5.50. The inclusion of Yellow Rattle *Rhinanthus minor* within the seed mixture shall reduce the vigour of coarse grass species and other undesirable species. Given its inclusion it shall be important to sow in autumn (a cold spell is required for germination for this species) with no cut taken until late autumn allowing annuals to flower. Timing of cutting to be conscious of active reptiles and amphibians such that this is completed in later autumn.

- 5.51. After the first year the wet grassland areas shall be maintained in the same manner as the neutral grassland (see above).

Location	All Meadow and Shade Tolerant Wildflower Grassland	Wet Grassland (created)	Wet Grassland LWS (retained)
Objective	To maintain a meadow containing a diverse mixture of native grass and flower species. To ensure that suitable rough grassland areas are retained through a rotational cutting regime. Benefit to common reptiles, amphibians, birds and invertebrates.	To maintain a meadow containing a diverse mixture of native grass and flower species. To ensure that suitable rough grassland areas are retained through a rotational cutting regime. Benefit to common reptiles, amphibians, birds and invertebrates.	To retain and promote a meadow containing a diverse mixture of native grass and flower species. No additional planting / seeding to occur. To ensure that suitable rough grassland areas are retained through a rotational cutting regime. Benefit to common reptiles, amphibians, birds and invertebrates.
Management	Cut in early spring and again after mid-September and remove all arisings to prevent any nutrient encroachment. Placed within grass pile area of site. Management to be implemented on a three- year rotational cutting regime.	Cut in early spring and again after mid-November and remove all arisings to prevent any nutrient encroachment. Placed within grass pile area of site. Management to be implemented on a three- year rotational cutting regime.	Hand cut in early spring and again after mid-September and remove all arisings after seven days to prevent any nutrient encroachment. Placed within grass pile area of site. Management to be implemented on a three- year rotational cutting regime.
Monitoring	Count the number of different grass and herbaceous / flowing species during the summer. If Yellow Rattle falls to 'rare' or 'absent' within the sward then the following year it should be topped-up according to the regime below.		
Remedial Action	In years when it is necessary to 'top-up' Yellow Rattle in the sward, the cut should be taken as low as possible and the grassland harrowed in order to create suitable sowing conditions for Yellow Rattle. To increase the number of species, plug plants can be added or scarification work completed to created habitats as required.		

Ornamental Shrubs

- 5.52. New ornamental shrub and ground planting will be established throughout the built form, further increasing the species diversity of the site and providing opportunities for wildlife.
- 5.53. Whilst the shrubs may be largely comprised of non-native species and is mainly for aesthetic value, the use of a diverse range of known good pollinator species will increase opportunities for invertebrates such as butterflies and bees, which will in turn provide opportunities for other wildlife.
- 5.54. Plant species recommended on the RHS Plants for Pollinators list³ should be incorporated wherever possible. Some examples of suitable species (including both native and non-native species) are given below:
- Hawthorn;
 - Spindle;
 - Dog Rose;
 - Guelder Rose;
 - Holly;
 - Honeysuckle;
 - California Lilacs *Ceanothus* spp.;
 - Mahonia spp.;
 - Lavender *Lavandula angustifolia*;
 - Barberry *Berberis vulgaris*;
 - Rosemary *Rosmarinus officinalis*; and
 - Hebe spp.
- 5.55. Non-native invasive species, such as Butterfly Bush, Cherry Laurel *Prunus laurocerasus*, Rhododendron *Rhododendron ponticum* and Cotoneaster *Cotoneaster* spp. should not be planted as part of any ornamental planting.
- 5.56. Planting of ornamental shrubs should be undertaken during the autumn, winter or spring, with subsequent monitoring required in order to identify any potential gaps where plants have not survived.
- 5.57. Any newly planted specimen which dies should be replaced in the following season with the same species to the same specification and quality. Monitoring of the viability of any planted specimens will be undertaken on an annual basis. Any stakes shall be removed in May when initial support is no longer required, typically after three to five years following planting.
- 5.58. A weed-free ring (500 mm) should be maintained around each shrub planted for the first year or two to reduce competition from weed species for light and nutrients and help shrubs establish quicker. Weeding can be achieved with appropriate weed killers or, preferably, by maintaining

³ RHS (2019). RHS Plants for Pollinators Plants of the World <https://www.rhs.org.uk/science/pdf/conservation-and-biodiversity/wildlife/plants-for-pollinators-plants-of-the-world.pdf>

a layer of mulch around the base of the shrub or underplanting the shrubs with flowering plants. Flowering plants will provide further foraging resources for wildlife.

- 5.59. After a few years (typically three to five years), shrubs start to require cutting back. Without pruning, most shrubs revert to trees or lose their dense structure and their wildlife value. Cut and prune established shrubs over a period of a few years to create a range of ages and structures from bare ground, through young and old growth to decaying wood.
- 5.60. As with the other habitats above, any ornamental shrub management will be undertaken outside of the bird nesting season (March to July inclusive) to avoid any potential offence, or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present.

Wet Pond

- 5.61. Pond P1, currently judged to be in a poor ecological condition going through stage of succession with limited areas of open water and permanency, is to be retained as part of the landscape proposals and enhanced in order to elevate the overall ecological interest of the pond. Enhancements shall be centred around increasing the water depth of the pond and allowing for a greater diversity of aquatic, emergent and marginal species to develop which will be expedited through planting.
- 5.62. Due to the previous presence of Great Crested Newts recorded within the pond during eDNA testing, and the possibility that they may return to the pond, a precautionary check for Great Crested Newts will be conducted using eDNA analysis prior to the commencement of any enhancement works.
- 5.63. As requested during the initial consultation on the proposed development of the site, the scheme shall provide two new wet ponds in the north of the site within the area of proposed meadow grassland (see Plan ECO3).
- 5.64. All of the ponds shall be planted with a diverse range of native aquatic and emergent vegetation listed below in Table 5.1. The ponds will have a maximum depth of approximately two metres deep, with a varied profile and gently sloping sides to allow easy access of dispersing fauna, such as amphibians. Vegetation within the ponds will be managed to maintain areas of open water preferable for courtship rituals of newts. To avoid the possibility of accidental importations of invasive aquatic species from nursery-grown stocks, any aquatic plants being added should be 'quarantined' for two months and then carefully checked for the presence of invasive species before being added to the ponds.
- 5.65. To ensure the ecological value of the ponds is maximised appropriate complementary habitats shall be established and retained in the immediate vicinity of the newly created ponds. This shall create a rich habitat mosaic to the benefit of biodiversity.

- 5.66. Once established, areas of marginal aquatic planting will need little maintenance. Water plants are naturally invasive but if areas become too dense then plants shall be lifted and divided, or rhizomes dug out to reduce density of planting. Such thinning to be undertaken rotationally within 5-year cycles or as required. To prevent marginal species colonising in adjacent areas seed heads may be removed as required at the appropriate time. Pernicious weeds, such as Docks *Rumex* sp. and Thistle *Cirsium* sp., can be carefully spot treated with broad spectrum herbicides suitable for use close to water bodies.

Aquatic Planting Species
Marsh-marigold <i>Caltha palustris</i>
Lesser Pond-sedge <i>Carex acutiformis</i>
Common Spike-rush <i>Eleocharis palustris</i>
Water Avens <i>Geum rivale</i>
Yellow Iris <i>pseudacorus</i>
Jointed Rush <i>Juncus articulatus</i>
Purple-loosestrife <i>Lythrum salicaria</i>
Water Mint <i>Mentha aquatica</i>
Water Forget-me-not <i>Myosotis scorpioides</i>
Reed Canary Grass <i>Phalaris arundinacea</i>

Table 5.1 List of native aquatic planting that could be provided.

Location	Retained Pond	Created Ponds	All Wetland Ponds
Objective	To develop a well-structured aquatic habitat which will support a diverse mix of native plants and provide opportunities for aquatic fauna.	To create two new wetland ponds supporting a diverse mixture of native aquatic, emergent and marginal species.	To maintain a rich native aquatic resource on site, providing complementary habitats for species occupying the wider areas of open space. Offer benefit for amphibians, reptiles, birds, bats, and invertebrates.
Management			Management work completed in late winter to remove any litter and dominant plants as required.
Monitoring			Assess vegetation growth and diversity to ensure no single species is becoming overly dominant. Assess open water to maintain suitable display areas for amphibians. Ensure any litter is removed.

Remedial Action			Removal any dominant plants to maintain floristic diversity and areas of open water within the pond. Remove vigour of dominant species through seed head removed prior to dispersal.
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Objective 2: Maintain Populations of Protected Species at a Favourable Conservation Status

- 5.67. Within the proposed development, habitat creation and retention and the introduction of a management regime will provide for a net enhancement in the quality of habitat present on site. This is principally tied to the habitats in the north of the site that shall offer significant opportunities across a diverse mosaic of species-rich habitat types. This will be of benefit to key species, such as Badger, bats, common reptiles, Great Crested Newt and birds.

Bats

- 5.68. The woodland blocks, hedgerows and mature trees offer suitable foraging and navigational resources for bats along with potential roosting opportunities within the trees on site. Significant areas of these habitats are to be lost to accommodate the development proposals. However, the losses shall be compensated for through the provision of new species rich hedgerows, blocks of native woodland planting, native shrub / scrub planting, tree planting and creation of mosaic of grassland and wetlands across the site. Furthermore, the retained areas of woodland shall be subject to sympathetic management and as required bolster planting to enhance their suitability as a foraging resource.
- 5.69. A sympathetic lighting scheme will be incorporated into the development proposals, in order to minimise light spillage into key areas such as the hedgerows and woodland blocks. The provision of grassland margins adjacent to the retained hedgerows and woodland block shall assist with reducing illumination to habitats of interest whilst providing an enhanced eco-tone in this area. Whilst the lighting scheme within the main areas of development (through the employment of lightings 'hoods' which direct light below the horizontal plane, preferably at an angle less than 70 degrees) will also assist with limiting any detrimental effect on foraging and commuting bats. It is noted that the principal area for foraging and enhancement to the north of the development shall not be subject to any artificial lighting.
- 5.70. The creation of new areas of aquatic habitats, species-rich grassland, wooded belt, hedgerows, and the planting of new trees, centred on native species of local provenance, will diversify existing habitats at the site and encourage an increase in the invertebrate food source for

foraging bats over the existing situation.

- 5.71. Mature trees shall be retained where possible and, where removed from public risk, shall be allowed to develop features suitable for supporting roosting bats. These potential roosting resources shall be retained as part of the scheme.
- 5.72. A number of bat boxes will be placed on suitable mature trees within the site to provide additional roosting opportunities for bats.
- 5.73. A range of bat boxes are available on the market and provide options for various species, locations and also budgets (ranging from wooden to woodcrete designs).
- 5.74. The following recommendations in respect of bat boxes should be adopted and employed to maximise the chances of adoption:
 - Boxes should be located close to suitable foraging / dispersal habitat. In respect of the site this will be in locations near the retained and proposed woodland habitats, together with the wider areas of open space to be created as part of Phase 1.
 - Suitable places to erect bat boxes are mature trees and as such this policy shall be adopted as part of the scheme.
 - The flight-path leading to and from the bat box should be kept clear (no significant barriers such as Ivy *Hedera helix* or branches).
 - Boxes should be positioned such that they are sheltered from wind, rain and strong sunlight, with a typical orientation of south-west through south to south-east.
 - Placing groups of boxes on trees with varying orientations in the range above provides a variety of micro-climates.
 - Boxes should be placed over 3 metres from the ground to limit disturbance (with some boxes over 5 m where feasible to make them attractive to different species (e.g. Noctule *Nyctalus noctula*).
 - Boxes attached to trees should preferably be attached with a strap or other method to avoid damage to the tree.
- 5.75. At Griffen Park it is recommended that Schwegler bat boxes are utilised (see Appendix 5). These are woodcrete boxes and thus are highly durable and are constructed in various models to offer opportunities for various bat species. The following are considered appropriate at the site:
 - 1FF and 2FN – suitable for a variety of bat species including Pipistrelle, and also Noctules.
 - 2F (double fronted options) suitable for Pipistrelle *Pipistrellus* sp., Brown Long-Eared *Plecotus auritus* and Daubentons *Myotis daubentonii*.
 - 1FS – a large colony box suitable for a variety of species known to be the local area such as Noctule, Pipistrelle and Brown Long-eared Bat.
- 5.76. Where bat boxes are to be placed in public places, consideration to these specific locations shall be mindful of potential vandalism and potential cat access.

- 5.77. Plan ECO3 illustrates the potential locations of the bat boxes, with the precise locations to be agreed on the ground by the supervising ecological clerk of works.
- 5.78. Due to the types of bat boxes being proposed it is not considered that these shall require any on-going maintenance / cleaning. Although checks over a five-year period should ensure that the above principles remain consistent and that the bat boxes remain present. It is important to note that should any bat boxes require re-setting or repair, as this work could affect a potential roost site, this must be undertaken by a licensed bat worker.
- 5.79. In respect of the number of bat boxes to be provided throughout the scheme, guidance has been taken from recent research⁴. This notes that 9 to 12 boxes per species per 3 ha of woodland should be provided to offer enhancements for developments. The suitable woodland habitat retained and created as part of the development scheme measures 2.98ha. As such, taking the above formula as a guide (and deferring to the upper limit) a total of 8 x 1FF, 8 x 2FN and 8 x 2F shall be provided. These boxes shall be provided and positioned prior to any habitat clearance works associated existing woodland and trees.

Location	All bat boxes
Objective	To increase roosting opportunities within the site
Monitoring	Licensed bat worker to complete monitoring of use and check for damage and any reason for management (affected flight lines) etc. Provide a report to the LPA.
Remedial Actions	Replace as required and management appropriately such suitable conditions remain.

Badgers

- 5.80. The site supports a small social group of Badgers, with several setts identified throughout the site. The woodland W4 in the south of the site supports a main sett containing numerous entrance holes, with hedgerow H1 in the north of the site containing an outlier sett which was active in November 2021 but has shown intermittent use during the survey period. The survey undertaken on the site in 2016 found woodland W1 in the northern section of the site to hold a subsidiary sett however, during the 2021 survey, this area was surveyed with no evidence of Badger recorded.
- 5.81. Owing to the location of sett S2 within the site and proposed development area, it is within an unsustainable position and hence shall require closure under a Natural England licence. To compensate for the loss of the main sett, a new eight chamber artificial sett has been created along the western site boundary with landscape planting of woody species surrounding the sett to deter disturbance and provide a foraging resource for the Badgers. The closure of sett S2 will not begin

⁴ Meddings et al (2011) *Managing competition between birds and bats for roost boxes in small woodlands, north-east England*. Conservation Evidence 8: 74-80

until use by Badgers of the artificial sett has been confirmed. Any work carried out to exclude Badgers from, and destroy, any active Badger sett, must be carried out between July and November inclusive in line with current best practice and would need to adhere to any condition of the secured Natural England licence.

- 5.82. For the exclusion exercise, one-way Badger gates of an approved design will be fixed to the sett entrances. The immediate area around the sett entrance will be staked out with sturdy wire mesh in order to discourage digging around the gate.
- 5.83. Sett entrances would be monitored at least once every three days for a period of 21 days following the installation of the gates to monitor for any usage by Badgers. Only once the licensee was satisfied that Badgers were absent from the sett would works begin in the area around the sett.
- 5.84. Following completion of the works, the one-way gates would be removed, and closure of the sett would commence immediately using a small sized excavator. Tunnels will be excavated individually until the end chamber is found. The overseeing ecologist will inspect the immediate entrance of the sett prior to excavation and will place a bag of straw within the tunnel to which the excavator will work towards. Once reached, the ecologist will again check behind the bag for any evidence of Badgers. This method will continue until the end chamber is discovered.
- 5.85. Once all tunnels have been excavated the ground will be compacted and lined with wire mesh to prevent any further excavation.
- 5.86. Sett S1 is located in a location where it can be fully safeguarded in situ. This sett shall also be along the same site boundary and within the ecology / landscape area as the artificial sett and hence will remain fully connected.
- 5.87. The artificial sett will be fenced off for the duration of the construction phase, profiling and landscaping using Heras fencing or similar and a 20m consultation zone will be established around it, into which heavy machinery will not enter unless at the instruction of the Ecological Clerk of Works (ECoW). All site personnel working in the vicinity of the artificial sett will be made aware of the presence of Badgers in the locality and of the location of the sett.
- 5.88. Any works or movement of machinery that are required in this area will be discussed with the ECoW, who will advise on how to proceed.
- 5.89. Given the presence of the setts, and the signs of foraging on site it is imperative that precautionary measures are put in place throughout the construction phase of the development. These will include:
 - During the construction process all dug ground should be levelled and compacted wherever possible. This will prevent Badgers from attempting to excavate setts prior to completion of the works;
 - Planks should be left in any uncovered trenches to allow any Badger that may stray onto the site an escape route;

- Materials should be stored in a storage container in order to avoid the chance of Badgers coming onto site and potentially injuring themselves;
 - Fires and chemicals should not be used within 20 metres of the sett; and
 - Any open pipework greater than 150mm outside diameter should be blanked off at the end of each working day.
- 5.90. Badgers are an especially mobile species that often extend existing setts and excavate new ones in areas of suitable habitat. New setts may be excavated within the construction zone during the period between the survey work undertaken and the drafting of this report and the commencement of site clearance and construction works. Were construction to proceed directly, involving the use of heavy machinery, newly excavated setts or entrances may be adversely affected, leading to collapse of entrances and tunnels and possible Badger injury or mortality.
- 5.91. If any suspected Badger activity is observed during construction is recorded the project ecological consultancy should be contacted.
- 5.92. The proposed landscape scheme shall ensure that the local social group has sufficient suitable dispersal and foraging corridors to access habitat in the wider area / territory to the south and west of the site. The proposed landscaping particularly in the north of the site shall provide continued opportunities for dispersal and foraging.
- 5.93. Foraging and dispersal opportunities shall be retained on site in the form of the new wildflower meadows in the north of the site. Whilst bolster planting of the hedgerows together with new tree and shrub planting shall also offer suitable foraging and dispersal opportunities.

Location	All Site
Objective	To ensure Badger present within the site are safeguarded and not subject to harm, injury or loss of habitat as part of development works.
Management	Provision of a new artificial badger sett within an area of the site undisturbed by development and connected to other setts and areas of interest within the site. Closure of the sett S2 located in an unsustainable location within the development area. Creation and improvement of habitats suitable for dispersal and foraging activities of badger including wildflower meadows, hedgerows, woodland and scrub within the site. 20m Exclusions zones around badger setts into which heavy machinery will not enter unless at the instruction of the Ecological Clerk of Works Construction work to adopt best practice methodologies to prevent any harm arising, such as place planks of wood within any trench to allow for exit should any Badger fall within the trench.

Monitoring	Regular checks of the known use of the known active setts within the site to monitor their use. Ecological clerk of works to complete regular checks of site for any Badger activity.
Remedial Actions	Contact client's ecologist on finding of any active setts / trapped Badger outside of the setts ones already known and subject to specific protections.

Birds

- 5.94. Management of habitats will be undertaken with due consideration for potential use by birds. Any necessary management of vegetation, such as of trees, hedgerows and scrub, which will provide important nesting habitats, will be undertaken outside of the bird breeding season (March – July inclusive), or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. A 5 metre buffer will be placed around any bird nests to prevent encroachment or disturbance until the young have fledged.
- 5.95. Hedgerow management will be undertaken on a rotational basis in order to retain continuous nesting resources on site. This management will take place towards the end of winter to ensure fruit remains within the hedgerows to offer an important over wintering foraging resource.
- 5.96. The creation of swales and wet pond, new areas of grassland (native meadow and wet), woodland, native tree and hedgerow planting (including berry-bearing species) will provide suitable foraging opportunities for birds, while the new trees, woodland, shrubs / scrub and hedgerows will provide new nesting opportunities for birds over the existing situation.
- 5.97. To encourage more bird species to the site, 20 Schwegler 1B (26mm and 32mm) (x10), 2GR (x5) and 2M (x5) bird boxes (see Appendix 6) will be erected in suitable places and at sufficient height such that they are not subject to predation by cats or vandals. Furthermore, a Barn Owl (Eco Barn Owl Nest Box) (x1) nest box shall also be provided.
- 5.98. All boxes will be checked periodically (once per year in February or March) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged. No future monitoring of the boxes to determine if they are occupied is considered necessary for this site.
- 5.99. Plans ECO3 illustrates the indicative locations of the bat boxes, with the precise locations to be agreed on the ground by the supervising Ecological Clerk of Works.

Location	All bird boxes
Monitoring	Check all boxes in late winter for any damage

Remedial Action	Replace any damaged boxes prior to nesting bird season (March), or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present
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Amphibians

- 5.100. The site currently contains one shallow pond noted for its lack of overall aquatic invertebrate assemblage and considered to offer limited suitability to amphibian species, including newts. Surveys of the pond recorded no presence of newt populations. One, potentially false positive eDNA result for Great Crested Newt was recorded in 2020 albeit survey in 2021 including an updated eDNA survey returned only negative results indicating a lack of any breeding population within the pond. The site supports a number of suitable terrestrial habitat for amphibians including the woodlands, semi-improved grassland, hedgerows and scrub.
- 5.101. The scheme shall elevate the opportunities within the site for amphibians, improving the condition of the existing pond, providing new rich terrestrial habitats and creating two new suitable breeding ponds. Furthermore, the provision of further attenuation basins could provide additional opportunities for breeding amphibians, and while these might be ephemeral, they would nonetheless create valuable terrestrial habitats, boosted by the planting of native wetland species.
- 5.102. The management regime for both the existing and new ponds shall provide a variety of opportunities for several amphibian species, ensuring suitable displaying areas within the water column and suitable egg-laying material is present.
- 5.103. In addition, the connection of the ponds to suitable terrestrial habitat shall ensure any amphibian species that may colonise the site are provided with suitable foraging, refuge and hibernation opportunities. Ecological features such as hibernacula (see Appendix 7), stumperies and log piles will be incorporated into the surrounding areas to ensure ample opportunities are present, along with increasing habitat for invertebrates. These structures would be established using wood generated through maintenance of trees and hedgerows within the site.
- 5.104. Management measures, particularly in relation to the ponds shall be completed outside the amphibians breeding season (March to June), with the timing of any required work being complete during winter months.

Location	Wildlife Pond	Grassland Areas
Objective	To improve existing and create new aquatic habitats supporting a diverse range of flora species and offering suitable opportunities for amphibians.	To create suitable habitats to provide the required terrestrial requirements for a range of amphibians. Provide tussocky and suitable terrestrial habitat, ensure adequate cover and

		foraging resources.
Management	Annual checks to ensure suitable opportunities remain present – particularly areas of open water and depth of water.	Relaxed and rotational cutting / management regime.
Remedial Action	Depending on the likely reason (drought etc.) management would be address the issue and ensure adequate breeding opportunities are provided in the following season.	The habitat should be maintained by the rotation of management. If the desired sward structure is not being achieved then management frequency to be reviewed.

Reptiles

- 5.105. Reptile surveys undertaken within the site have identified the presence of a small population of Grass Snake. Given that only very low numbers of Grass Snake are present and the species' ability to climb the typically used reptile exclusion fences, it is considered that in this instance a process of habitat manipulation would be the favourable method to avoid any effect on the species present and allow for the habitats present to be removed.
- 5.106. Habitat manipulation shall displace reptiles through staggered vegetation clearance using hand-held tools to gradually lower heights e.g. 300mm, 100mm and ground level, with removal/raking of cut vegetation in between cuts to encourage Grass Snake to move from the exposed areas into adjacent cover. The work should be undertaken in a sequential manner, roughly working from the south of the site towards the north to move reptiles towards areas of retained habitat. Any potential hibernacula will be dismantled under supervision of an ecologist, using a destructive search technique.
- 5.107. The works would need to be supervised by an ecologist and undertaken at a minimum air temperature of 10°C to ensure that reptiles are active and avoid hibernation periods (typically mid-October to mid-March inclusive).
- 5.108. The provision of new habitats, particularly areas of wet grassland, wildlife ponds and new meadow grassland as part of a diverse habitat mosaic shall ensure net gains are delivered for Grass Snake and other locally present reptile species. The retained and created areas will be further enhanced through the provision of stumperies, log-piles and hibernacula to offer additional refuge and hibernation opportunities. Grass heap provision (arisings from management works) will be considered to offer suitable breeding and egg laying habitats for Grass Snake.

Invertebrates

- 5.109. The key element for enhancing the general invertebrate interest within the site is through the provision of floristically diverse habitats in a

mosaic, with these subject to a relaxed management regime that shall provide opportunities for a diverse assemblage of invertebrates.

- 5.110. The carefully designed landscape proposals and habitats creation measures within the scheme shall provide new opportunities for a range of invertebrate species, and, in particular, provide enhancements over the existing situation for invertebrate species with an aquatic life stage through the provision of new wet ponds and additional areas of wet grassland.
- 5.111. The management measures that are to be employed across the site shall be predominately relaxed and seek to ensure biodiversity gains through maintained floristic diversity; allowing plants to flower, fruit and set seed. A rotation system of management shall be completed across the site such that not all areas of a single habitat (e.g. meadow grassland) are managed in period. As a guide, a maximum of 50% of any single habitats type should be managed at any time. Contiguous grassland should have management spilt across a period of at least one month.
- 5.112. In addition to the above measures, targeted habitat creation has been considered in respect of the habitat requirements, and food sources, for saproxylic species such as Stag Beetle. This species requires the presence of dead wood which will be provided by the prioritisation of leaving standing deadwood trees in situ, where it is safe and appropriate to do so, as well as the provision of stumperies, log piles and the retention of woodland management products within the site. The required felling of areas of woodland to accommodate the proposals provides immediate opportunities for deadwood habitats to be created within the new areas of woodland and adjacent to the retained woodland.
- 5.113. The monitoring of the habitats retained and created as part of the scheme shall assess the floristic diversity and also the structure of the habitats present. Whilst no targeted invertebrate surveys shall be completed as part of the monitoring regime, where there is a significant loss (25%) in floristic loss over a minimum of three years (to avoid misinterpretation of annual variation) then this shall trigger a review of the management operation of this habitat to ensure alterations are made and as necessary replanting / re-sowing undertaken to ensure fulfilment of the sought diversity and richness.

Objective 3: Increase Biodiversity by Maximising Opportunities for Flora and Fauna

- 5.114. The enhancement and creation of wildlife ponds, new areas of species-rich grassland (wet, neutral and wildflower meadows), native hedgerows (enhanced and new), new woodland, native scrub and the planting of new trees, centred on native species of local provenance, will diversify existing habitats at the site and encourage a range of wildlife over the existing situation.
- 5.115. The provision of bat boxes and bird boxes will provide further roosting and nesting opportunities within the site.

- 5.116. Log-piles will be created during any tree management within the site, with these located as discrete piles within retained woodland blocks, at the base of hedgerows at the edges of wildflower grassland, to provide suitable hibernacula for reptiles and amphibians together with a resource for invertebrates. In addition, two hibernacula and two stumperies shall be created to further the refuge and hibernation opportunities for herptiles.

6. IMPLEMENTATION AND RESPONSIBILITIES

Habitat Management and Monitoring

- 6.1. Griffen has the ultimate responsibility for implementation of this management plan.
- 6.2. Griffen will establish a management company to manage and maintain the green space and habitats created as part of the scheme.
- 6.3. It is the responsibility of Griffen (or any future occupiers / owners in line with legal agreements) to instruct appropriate experienced contractors to establish the various features and habitats proposed, and also to instruct appropriate experienced ecologists and / or landscape contractors to check the work as set out in this management plan.
- 6.4. Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.
- 6.5. The future long-term habitat management and monitoring will be the responsibility of the appointed management company for the site.
- 6.6. All materials used during the development of the site, as well as any operations, will be in accordance with British Standards, Codes of Practice and legislation.

Funding

- 6.7. The management and monitoring of the landscaping will be subject to a service charge built into the lease of development and agreed with the occupant. The specifics of funding will be agreed prior to occupation and details provided as an addendum.

Contractor Responsibilities

- 6.8. It is the responsibility of Griffen to instruct appropriate experienced contractors to establish the various features and habitats proposed, and also to instruct appropriate experienced ecologists and / or landscape contractors to check the work as set out in this management plan.
- 6.9. All materials used during the development of the site, as well as any operations, will be in accordance with British Standards, Codes of Practice and legislation.
- 6.10. Where specific protected species surveys are required to inform future management practices, these will be undertaken by an appointed suitably qualified ecologist.
- 6.11. An experienced ecologist can assist with the installation of bat and bird boxes onto the trees and buildings. This may require assistance from the builders to access the higher walls of the buildings.
- 6.12. A suitably qualified ecologist will be appointed to undertake the following monitoring:

- Biannual monitoring of species populations during the operational phase;
- Biannual monitoring of habitats and their management;
- Biannual checks of species provisions to ensure they are fit for purpose; and
- Aiding condition monitoring, calculations and checkpoint reporting in year 5, 10, 20 and 30.

Monitoring Progress and Adaptive Management

- 6.13. Griffen and the appointed management company will be responsible to monitor and assess progress across the site at checkpoints on year 5, 10, 20 and 30, to ensure the success of the proposed creation and enhancement works. This should be accomplished as part of targeted habitat monitoring and shall be completed by an experienced ecologist. Monitoring will be based on the flora species present in each habitat and the health of the specimens in each habitat. As required, the results of the findings and monitoring shall feedback back into the management plan to ensure the sought biodiversity gains are realised.
- 6.14. The monitoring and assessment shall also be made available to the Local Planning Authority (LPA) for review. Where species or habitats are identified as being in decline or are in an unfavourable condition, discussions shall be undertaken, with the management measures altered to reverse any decline. Where necessary new planting / sowing shall be completed to raise any reduced floristic diversity. Monitoring shall be completed on an annual basis, with surveys completed during the favourable timeframe / season for that habitat or species group.
- 6.15. The monitoring of the habitats retained and created as part of the scheme shall assess the floristic diversity and also the structure of the habitats present. Where there is a significant loss (25%+) in floristic diversity over a minimum of three years (to avoid misinterpretation of annual variations) then this shall trigger a review of the management operation of that habitat to ensure alterations are made and as necessary replanting / re-sowing undertaken to ensure fulfilment of the sought diversity and richness. This monitoring will tie back to the habitat conditions detailed within the submitted and agreed Biodiversity Net Gain metric.
- 6.16. In years 5, 10, 20 and 30 a reconciliation of the BNG shall be completed and submitted to the planning authority. The reconciliation shall assess the condition elements of the retained and created habitats against those detailed in the submitted BNG and set out any requirement to adjust (increase or decrease) the forecasted condition.
- 6.17. A review of the management plan will be undertaken every five years and discussions with the management team will continue with an assigned ecologist to determine its success. Findings of the above monitoring will be considered and, where necessary, appropriate remedial actions to the management plan will be undertaken.

Objective	Receptor	Management Prescription	Timing of Works
1. MAINTAIN AND ENHANCE RETAINED AND NEWLY CREATED HABITATS WITHIN THE SITE.	Retained woodland	Protected in line with BS5837 requirements.	Woodland composition will be reviewed in first 12 months for presence of any non-native or coniferous species, then checked annually for first five years after planting (Apr-Oct), then on years 10, 20 and 30. Selective felling of these species.
		Woodland inspection including regular health checks of the trees will be undertaken.	
		Diversification of age structure.	Establish woodland clearings in first 12 months via selective felling of smaller native species or any coniferous species outside bird nesting season. Retain any mature tree standards to provide future bird nesting opportunities and bat roosting opportunities.
		Trees subject to appropriate arboriculture, to prolong life and make safe.	Annually as necessary (Sep-Oct), with any coppice work completed between Dec-Feb. Arboriculture / safety management to be carried out outside the bird nesting season (March – July inclusive) to avoid any potential offence, or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. If any features considered suitable for roosting bats advice sought from ecologist.
		Planting of native shrubs to diversify the understorey.	During autumn, winter or spring, within first 12 months of the start of the first development phase.
		Understorey inspection.	Inspection undertaken annually for the first 5 years to check for damage or disease. Replaced if failing.
		Watering of understorey planting where required.	Where required during first 5 years in periods of drought.
		Log piles / stumperies	Using felled timber from first 12 months; replenished with further woodland management.

		Sowing of woodland seed mixes, such as Emorsgate EW1 and EW1F.	Woodland seed mixtures sown in autumn or early spring in first 12 months and generally require little future management. If necessary, a single cut of woodland ground flora will be undertaken on an annual basis in late summer (August) after main flowering season. In areas with a closed tree canopy, no management will likely be required.
	Woodland Coppices	Woodland inspection	Woodland composition will be reviewed in first 12 months for presence of any non-native or coniferous species and then in years 5, 10, 20 and 30.
		Coppicing	Scrubby vegetation / young trees will be cut in first 12 months of the start of the first phase of development and managed as a coppice. Coppicing should be undertaken outside bird nesting season (March – July inclusive) to avoid any potential offence, or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. Coppice cycle will depend on the species in question, but the aim is to create a varied age of trees, with areas of younger coppiced trees adjacent to areas of older coppiced trees. A 7 year cycle is recommended. Retain any mature tree standards to provide future bird nesting opportunities and bat roosting opportunities.
		Log piles / stumperies	Using felled timber from first 12 months; replenished with further woodland management.

		New woodland seed mixes, such as Emorsgate EW1 and EW1F	Woodland seed mixtures sown in autumn or early spring following coppice establishment, and generally require little future management. If necessary, within young, coppiced areas, a single cut of woodland ground flora will be undertaken on an annual basis in late summer (August) after main flowering season. In areas with a closed tree canopy, no management will likely be required.
	Other Trees	Planting of native trees across the site. Planting of new trees in the areas of landscaping.	During autumn, winter or spring, prior to or within 12 months of the completion of the development phase during suitable planting season.
		Inspection - Regular health checks of the trees will be undertaken.	Inspection undertaken every three months for the first two years after planting, then annually for the next 5 years to check for damage and disease. Replaced if failing. Tree stakes removed after 5 years or when support is no longer required at which point inspections reduced to annual in years 10, 20 and 30.
		Watering of understorey planting where required.	Where required during first 5 years in periods of drought.
		Weeding of understorey planting where required.	Weeding around tree base for the first five years. Undertaken by maintaining a layer of mulch or by using an approved herbicide.
		Tree Pruning	Annual pruning outside the bird nesting season (only where required), or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. Best time is January to February. To be undertaken annually as necessary.
	Hedgerows	Planting of species-rich hedgerows and bolstering existing hedgerows.	During autumn, winter or spring, within first 12 months of the completion of development.

		Inspection - For the first five years after planting, regular health checks of the hedgerows will be undertaken, especially during periods of dry weather, to ensure that the hedgerows are not affected by drought.	Inspection undertaken every three months for the first two years after planting, then annually for the next 5 years to check for damage and disease. Replaced if failing. Tree stakes removed after 5 years or when support is no longer required at which point inspections reduced to Years 10, 20 and 30.
		Watering of hedgerows and understory planting where required.	Where required during first five years in periods of drought.
		Weeding of understorey hedgerow planting where required.	Weeding around shrub base for first 1-2 years. Undertaken by maintaining a layer of mulch and underplanting with flowering plants or by using an approved herbicide.
		Cutting - All hedgerow cutting is to be undertaken outside the main bird breeding season (outside March to July inclusive).	Hedgerow cutting undertaken every 1-3 years as required post inspection on a rotational basis, outside the bird nesting season. Best time is January to February.
	Ornamental Shrub Planting	Planting of native shrubs or non-native shrubs of known entomological value	During autumn, winter or spring, prior to or within 12 months of the completion of the development during suitable planting season (autumn, winter or spring).
		Inspection - Regular health checks of the shrubs will be undertaken.	Inspection undertaken annually for the first 5 years to check for damage and disease. Replaced if failing. Tree stakes, if used, removed after 5 years when support is no longer required.
		Watering	Where required during first five years in periods of drought.
		Weeding	Weeding around shrub base for first 1-2 years. Undertaken by maintaining a layer of mulch and underplanting with flowering plants or by using an approved herbicide.

		Shrub pruning to be undertaken outside of the main bird nesting season (March to July inclusive).	Pruning of shrubs undertaken every 6 months or as necessary for the first 2 years after planting and then every 3-5 years on a rotational basis, outside bird nesting season. Best time is January to February.
	Created Wildflower Meadow Grassland	New areas of wildflower grassland shall be created to increase the floristic diversity at the site by sowing of wildflower seed mix Emorsgate EM2 or similar.	Year 1: First prepare a suitable seed bed (low nutrient soil / subs-soil). Given arable land nutrient harvesting but most likely topsoil strip will be required. Undesired species to be suppressed or removed (Jun-Aug). Emorsgate EM2 seed mixture to be sown in autumn or spring in accordance with supplier's instructions in the first 12 months of development. Year 2 onwards: Summer (Jun-Aug) count of species present. Cut grassland in September / October on a yearly basis or as required. Arising to be left in situ for 7 days before removal and disposal off-site. Years following surveys of grassland habitats which identify Yellow Rattle as 'rare' or 'absent' within the sward will be subject to 'topping-up' of Yellow Rattle. This includes cutting as low as possible and harrowing to create suitable sowing conditions for Yellow Rattle.
		Weeding	Weeding for first 12 months or longer to allow for grass and wildflower establishment. Using approved herbicide or digging out where required.

	Retained Wildflower Meadow Grassland	The areas of wildflower grassland to be mown on a yearly rotational basis as necessary to ensure it remains as rough grassland and does not succeed into scrub / bramble habitat. Maximum of 50% of habitat type cut at any given time (min of one month spacing).	First 12 months: mow regularly to 40-60mm throughout growing season. Year 2 onwards: Annual summer cut to 50mm after flowering in July / August. Further cuts from then through to spring if required. No cutting from spring to July / August to allow for meadow flowering. Remove arisings from site after 7 days to prevent nutrient enrichment. Remove scrub as required (Nov-Feb). Years following surveys of grassland habitats which identify Yellow Rattle as 'rare' or 'absent' within the sward will be subject to 'topping-up' of Yellow Rattle. This includes cutting as low as possible and harrowing to create suitable sowing conditions for Yellow Rattle.
	Created Wet Grassland	New areas of native wet grassland shall be created around the attenuation basins to increase the floristic diversity at the site. Seeding with Emorsgate EM8 or similar.	Year 1: Soil Preparation; Suppress / remove undesired species (Jun-Aug); Seed sowing (Sep-Nov). Year 2 onwards: Summer (Jun-Aug) count of species present; Cut grassland in November. Remove scrub as required (Nov-Feb).

	Retained Wet Grassland	Areas of wet grassland to be retained will be managed to ensure the continued species rich sward is maintained. Annual monitoring of the habitat will be used to identify any changes to the condition of the habitat.	Year 1 onwards: This area will be subject to a late summer cut annually using a strimmer. Remove arisings from site after 7 days to prevent nutrient enrichment. Remove scrub as required (Nov-Feb).
	Amenity Grassland	Sowing of amenity grass seed mixes, such as DLF Masterline PM120 Slowgrowth or similar for main amenity areas.	Amenity grass seed mixture sown in autumn or early spring in first 12 months. The amenity grassland will be cut on a regular basis, checks will be made monthly and will be cut when it reaches 100mm long back to a length of 35mm. The grass cutting will be collected and removed, placed within habitat piles. Sinuuous margins to be allowed to develop a longer sward height and off an ecotone habitat. Year 1: Soil Preparation; Suppress / remove undesired species (Jun-Aug); Seed sowing (Sep-Nov); Years 2 onwards: Close cut on 10-14 day cycle (Mar-Oct) with one month (June) without management.

		Weeding	Weeding for first 12 months or longer to allow for grass establishment. Using approved herbicide or digging out where required.
		Mowing	No specific mowing regime required apart from leaving a month in early summer without cutting (e.g. June). Regular mowing likely required to keep grass at short length. Remove arisings from site after 3 days to prevent nutrient enrichment.

	Wetland Features	Existing pond deepened and reprofiled in winter period with two new ponds created - the wildlife ponds shall be created within the north of the site and enhanced pond shall be planted with a diverse mixture of native species. Planting to be completed during first available planting season.	Enhancement of the existing pond may only commence after and a precautionary eDNA survey for Great Crested Newts has confirmed that none are present in the pond. If recorded, works will be undertaken outside of the period of time when Great Crested Newts are present (1 Nov - 31 Jan). Any period during the first 12 months of the first phase of development or for the woodland edge pond within 12 months of that phase being commenced. Year 1: Creation prior to completion of Phase 1. Planting of diverse mixture (Jan-Apr). Years 2+ (annually) Following creation, the condition of the ponds should be monitored on a biannual basis to ensure they hold water. Check for fish, litter and dominant species. Complete species count (Apr-Aug). Complete maintenance works and fish removal (if required) during winter (Nov-Feb).
		Ponds to be maintained such that no single plant species becomes dominant to the detriment of species diversity.	Annually (winter) as necessary.
		Digging out ditches	Any period during the first 12 months. Following digging works, the condition of ditches should be monitored on a biannual basis to ensure they hold water.

		Planting of native emergent species around periphery of wetland features.	During autumn, winter or spring, within first 12 months of the completion of that phase of development.
		Sowing of pond edge seed mixes, such as Emorsgate EP1.	First prepare a suitable seed bed around ponds and removing weeds. Pond edge seed mixture sown in autumn or early spring in first 12 months of pond creation.
		Management of waterside vegetation	Manage on rotational basis every 2-3 years to provide varied structure. Cut back short sections, remove dense stands of single species. Remove vegetation between September and November.
		Invasive species management	Annual check. Using approved herbicide or digging out.
2. MAINTAIN POPULATIONS OF PROTECTED SPECIES IDENTIFIED WITHIN THE SITE AREA AT A FAVOURABLE CONSERVATION STATUS.	Bats	New tree, woodland, hedgerow and native shrub planting will provide additional foraging, as well as creating roosting opportunities in the future once trees reach maturity.	Prior to or within 12 months of the completion of the development during suitable planting season (autumn, winter or spring).
		New habitats shall heighten the foraging opportunities within the site for locally present bat species, and attractive bat species which are currently absent from the site.	Prior to the completion of the development.
		Provision of bat boxes within suitable habitats within the site.	Year 1: Install bat boxes. Year 2 onwards: Check suitability and presence of bat boxes. Assess use of bat boxes by licensed worker (Nov-Mar).

		Introduce a sensitive lighting scheme to ensure foraging and roosting bats are not deterred, particularly along adjacent suitable foraging and dispersal corridors.	Prior to completion of the associated phase of development.
	Badgers	Complete check surveys prior to commencement of any development to ensure no Badger setts have been excavated in the interim period.	Prior to commencement of each phase of the development.
		Planting of native species of local provenance to encourage food sources and provide new foraging opportunities.	See habitats above.
		Once the artificial sett is in use, undertake the exclusion of Badgers and closure of sett 2 under Natural England licence.	Exclusion and sett closure work undertaken between July and November inclusive.
	Birds	Enhanced woodland, new woodland planting, hedgerow, shrub and tree planting will provide additional nesting/foraging opportunities.	Prior to or within 12 months of the completion of the development during suitable planting season (autumn, winter or spring). Avoid undertaking management work on suitable bird nesting habitat from 1 st March to 31 st July annually.
		Provision of new bird boxes across the site to offer new nesting opportunities for a variety of bird species.	Within 12 months of the completion of the development.
	Reptiles	Exclusion of reptiles from areas to be cleared by process of habitat manipulation. Staggered vegetation removal systematically from south to north of the site.	During active reptile season prior to site clearance works associated habitat removal and during suitable weather conditions (Apr-Oct).
	Amphibians	Retention and enhancement of pond together with creation of new wildlife ponds and areas of high-quality terrestrial habitat.	Pond enhancement works completed in winter. New ponds and provision of high-quality habitats within 12 months of the completion of the development.
	Invertebrates	New planting to include native and nectar-rich species.	Prior to or within 12 months of the completion of the associated phased of the development during suitable planting season (autumn, winter or spring).

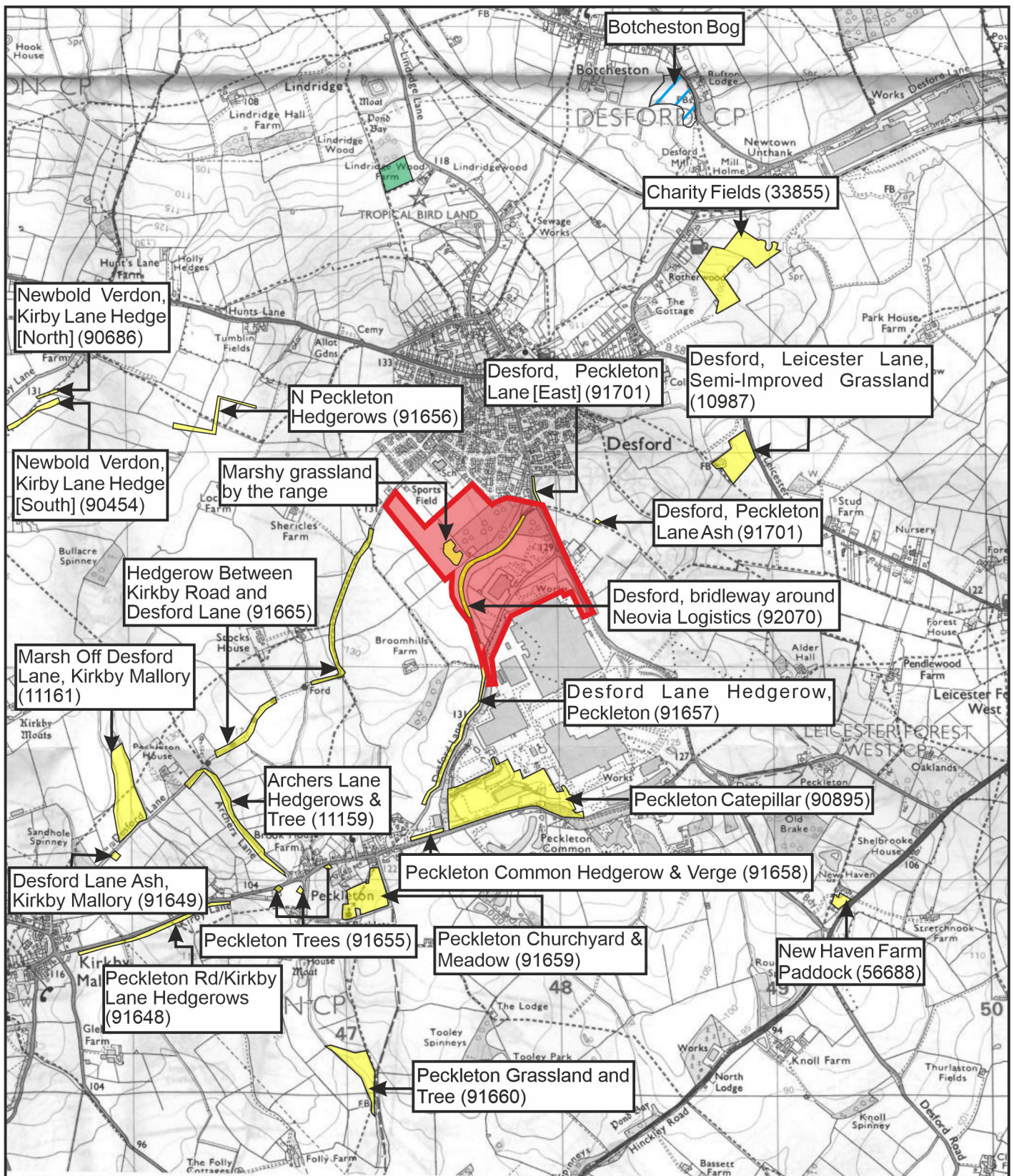
	Hedgehogs	New native planting will provide continued opportunities for dispersal and foraging.	Prior to or within 12 months of the completion of the development during suitable planting season (autumn, winter or spring).
3. INCREASE BIODIVERSITY BY MAXIMISING OPPORTUNITIES FOR FLORA AND FAUNA	Woodland, Tree, Grassland, Hedgerow and Shrub Planting	Retention and enhancement of species-rich habitats to provide enhance floristic diversity and opportunities for various fauna, including bats, birds and invertebrates.	Prior to or within 12 months of the completion of the development during suitable planting season (autumn, winter or spring).
		New native trees to be planted to increase the floristic diversity of the site.	Prior to completion of the development.
		New tree, hedgerows, and shrub planting (including berry bearing species) will provide additional opportunities for nesting and foraging birds, and foraging bats.	Prior to completion of the development.
	Wildlife Boxes	Bat and bird boxes erected on retained trees.	Prior to completion of the development.
		Checks of status of the boxes to be completed to ensure they remain present and are fit for purpose (not damaged / obscured by vegetation etc.)	Annually during winter for five years following their installation.
	Hibernacula	Log piles / hibernacula and stumperies created, particularly associated with areas surrounding wet ponds. To be created from wood sourced from within the site from arboricultural works, to provide suitable hibernacula for reptiles, amphibians and invertebrates.	Prior to completion of the development.

	Habitat Checks / Monitoring	The retained and created habitats within the site shall be subject to annual species counts to ascertain the level of floristic diversity. Should any habitat show a reduction in prescribed species-richness by more than 25% in three consecutive years it shall trigger a review of the management regime and be amended as considered necessary to reverse the species loss trend. Planting / re-sowing of any habitats that shows the above reductions shall be completed as required unless it is considered a variation and different species (or equal value) would be more successful.	Annually for a period of five years following completion of the associated phase of the development. Further monitoring will then occur on years 10, 20 and 30 to inform a review of the success of management undertaken, with remedial action taken where failure has occurred. Annual report issued to the LPA for review during first five years. BNG reconciliation assessment and reporting completed in years 5, 10, 20 and 30 after completion of the development and submitted to the LPA for review.
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PLANS

PLAN ECO1

Site Location and Ecological Designations



KEY:

- SITE LOCATION
- SITE OF SPECIAL SCIENTIFIC INTEREST
- LOCAL WILDLIFE SITE
- ANCIENT AND SEMI-NATURAL WOODLAND



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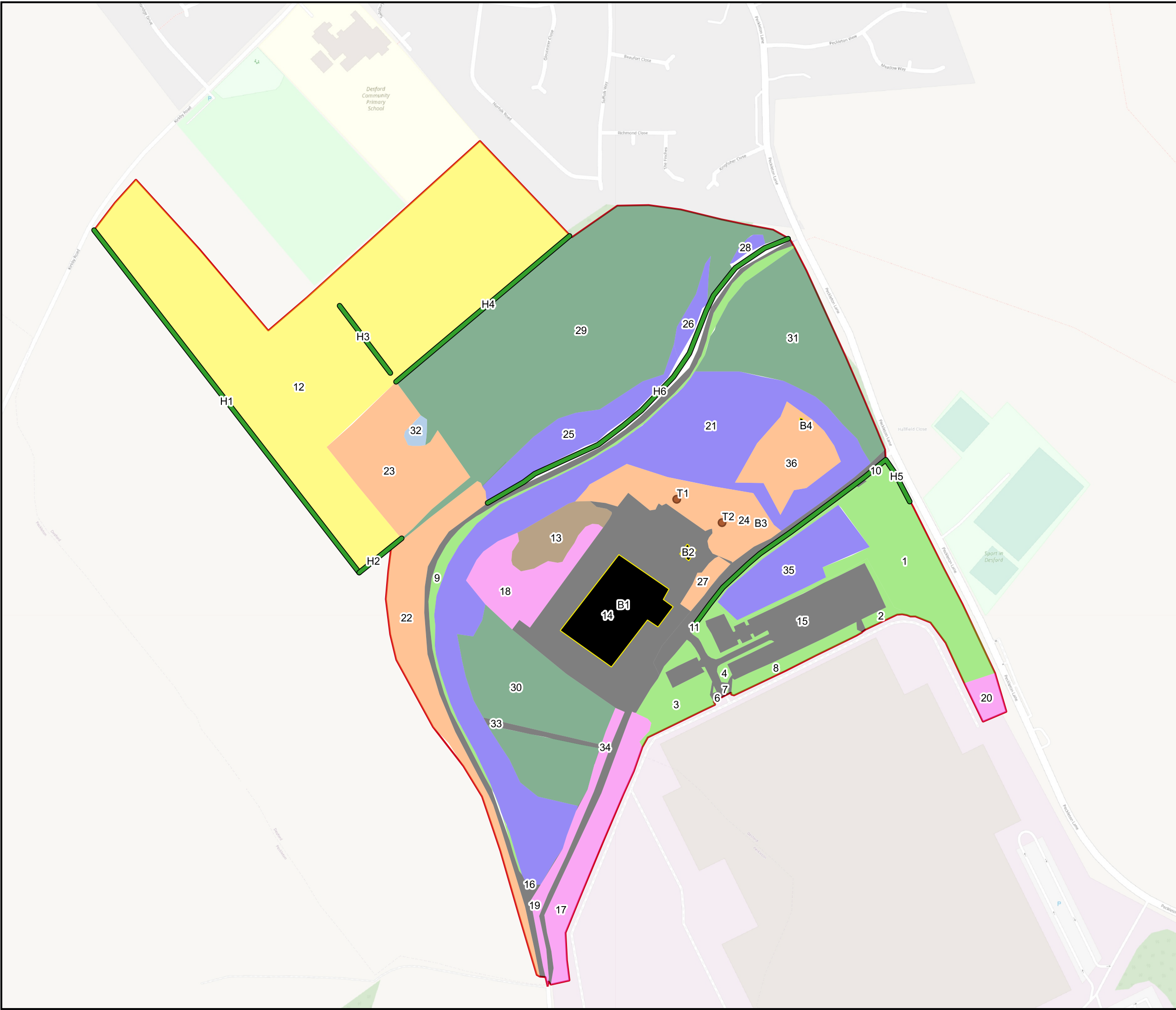
8786: PROJECT GRIFFEN, DESFORD

PLAN ECO1:
SITE LOCATION AND
ECOLOGICAL DESIGNATIONS

Rev: C
Mar 2022

PLAN ECO2

Ecological Features



- KEY:**
- SITE BOUNDARY
 - BUILDINGS
 - ARABLE
 - BARE GROUND
 - DEVELOPED LAND
 - MIXED SCRUB
 - MODIFIED GRASSLAND (MODERATE)
 - MODIFIED GRASSLAND (POOR)
 - NEUTRAL GRASSLAND (MODERATE)
 - PLANTATION
 - POND
 - BAT TREES
 - HEDGEROWS



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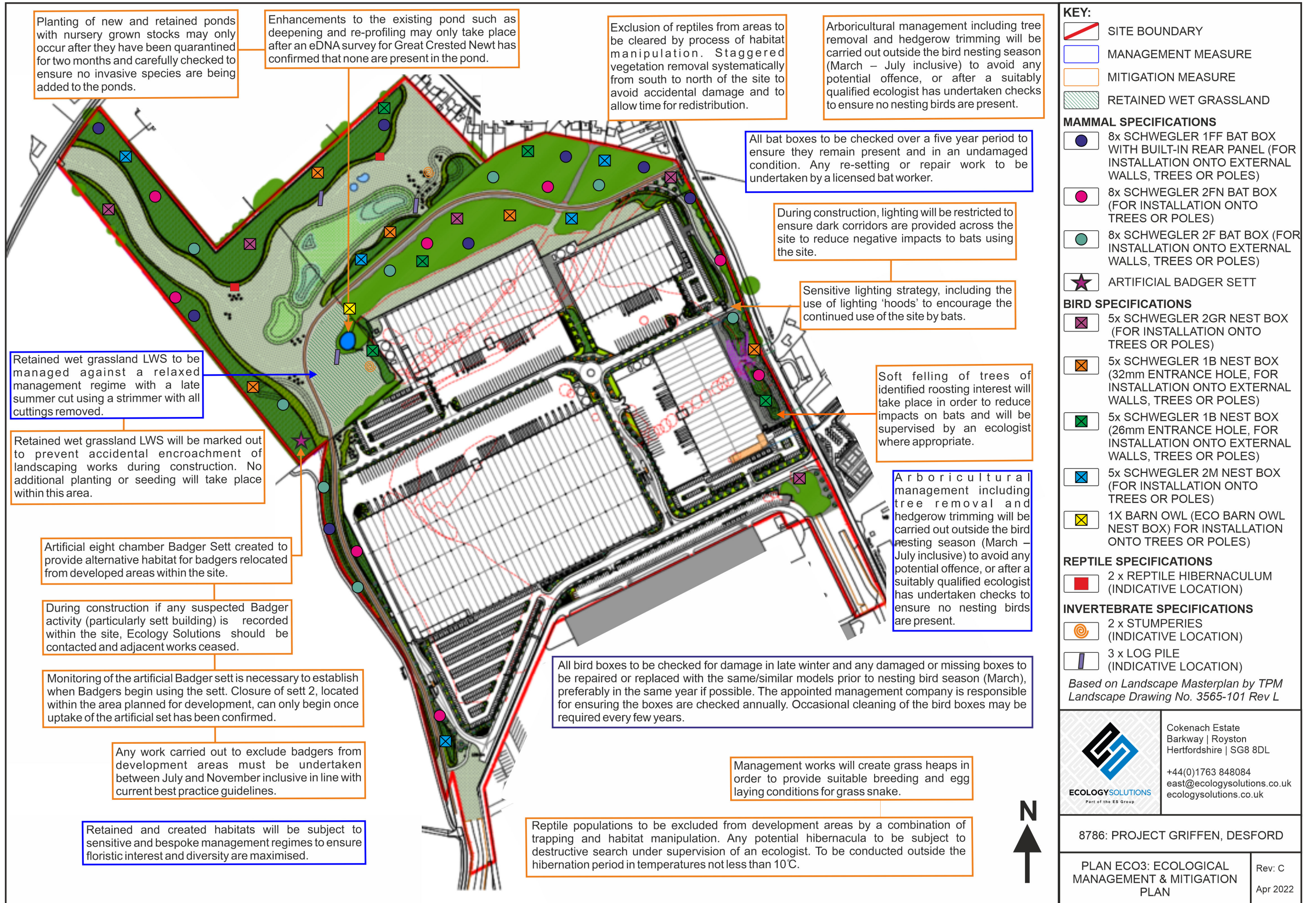
8786: GRIFFEN PARK, DESFORD

PLAN ECO2: ECOLOGICAL
FEATURES

Rev: A
Mar 2022

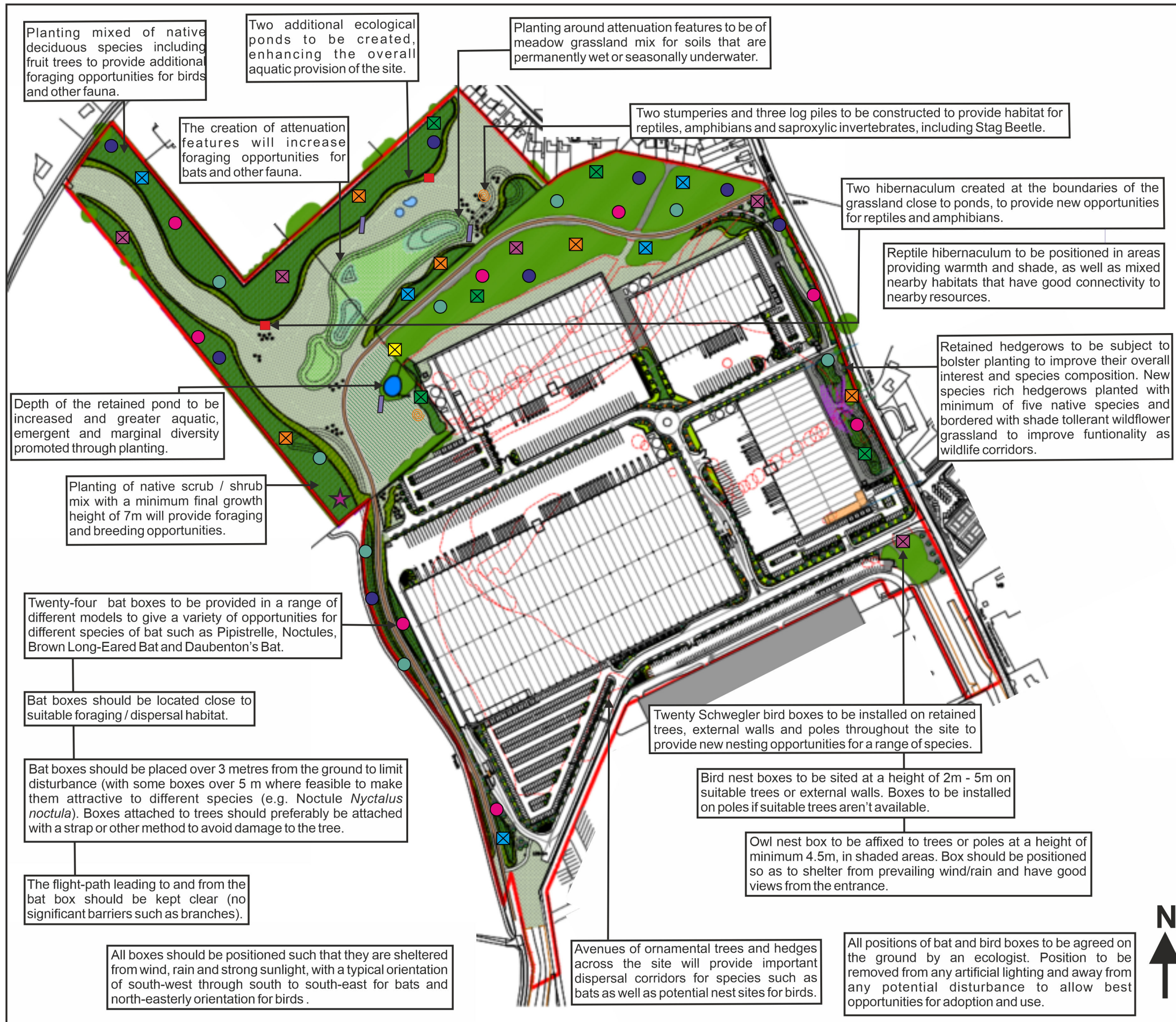
PLAN ECO3

Ecological Mitigation & Management Plan



PLAN ECO4

Ecological Enhancements Plan



KEY:

- SITE BOUNDARY
- ENHANCEMENT MEASURE
- RETAINED WET GRASSLAND

MAMMAL SPECIFICATIONS

- 8x SCHWEGLER 1FF BAT BOX WITH BUILT-IN REAR PANEL (FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
- 8x SCHWEGLER 2FN BAT BOX (FOR INSTALLATION ONTO TREES OR POLES)
- 8x SCHWEGLER 2F BAT BOX (FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
- ARTIFICIAL BADGER SETT

BIRD SPECIFICATIONS

- 5x SCHWEGLER 2GR NEST BOX (FOR INSTALLATION ONTO TREES OR POLES)
- 5x SCHWEGLER 1B NEST BOX (32mm ENTRANCE HOLE, FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
- 5x SCHWEGLER 1B NEST BOX (26mm ENTRANCE HOLE, FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
- 5x SCHWEGLER 2M NEST BOX (FOR INSTALLATION ONTO TREES OR POLES)
- 1X BARN OWL (ECO BARN OWL NEST BOX) FOR INSTALLATION ONTO TREES OR POLES)

REPTILE SPECIFICATIONS

- 2 x REPTILE HIBERNACULUM (INDICATIVE LOCATION)

INVERTEBRATE SPECIFICATIONS

- 2 x STUMPERIES (INDICATIVE LOCATION)
- 3 x LOG PILE (INDICATIVE LOCATION)

Based on Landscape Masterplan by TPM
Landscape Drawing No. 3565-101 Rev L



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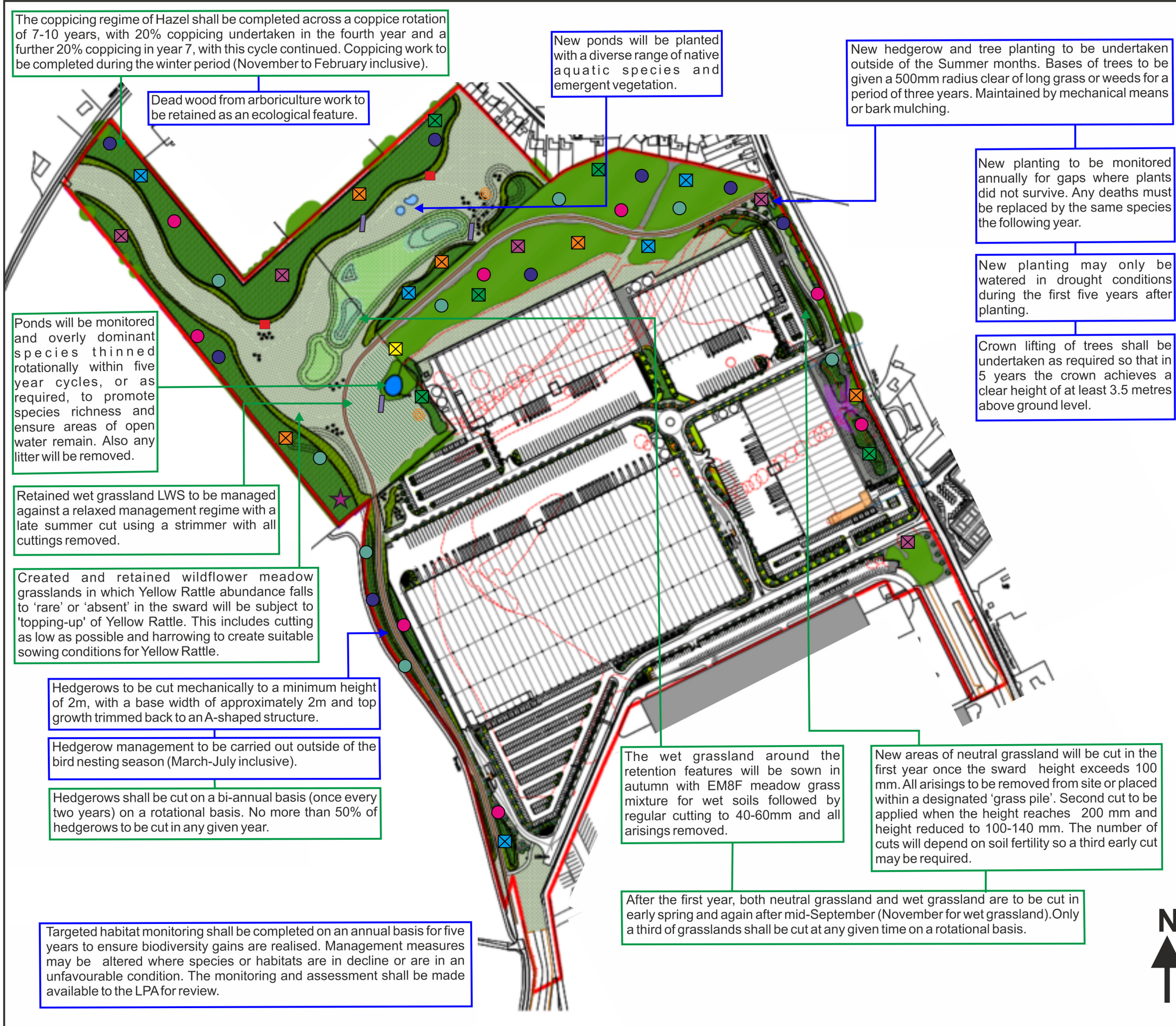
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PLAN ECO4: ECOLOGICAL
ENHANCEMENTS PLAN

Rev: C
Apr 2022

PLAN ECO5

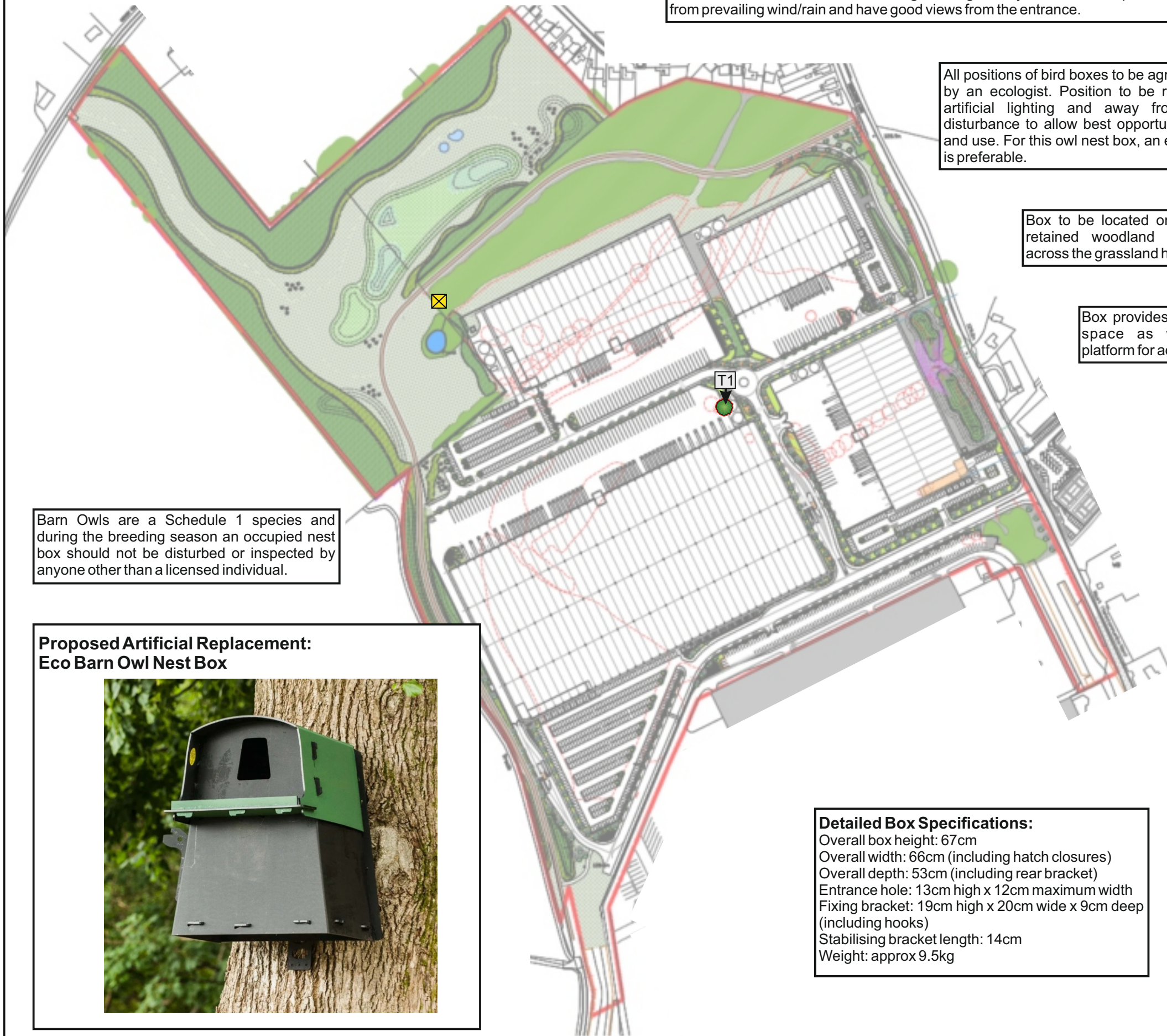
Habitat Management Prescriptions



KEY:	
	SITE BOUNDARY
	HABITAT PRESCRIPTION
	ROTATIONAL REGIME
	RETAINED WET GRASSLAND
MAMMAL SPECIFICATIONS	
	8x SCHWEGLER 1FF BAT BOX WITH BUILT-IN REAR PANEL (FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
	8x SCHWEGLER 2FN BAT BOX (FOR INSTALLATION ONTO TREES OR POLES)
	8x SCHWEGLER 2F BAT BOX (FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
	ARTIFICIAL BADGER SETT
BIRD SPECIFICATIONS	
	5x SCHWEGLER 2GR NEST BOX (FOR INSTALLATION ONTO TREES OR POLES)
	5x SCHWEGLER 1B NEST BOX (32mm ENTRANCE HOLE, FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
	5x SCHWEGLER 1B NEST BOX (26mm ENTRANCE HOLE, FOR INSTALLATION ONTO EXTERNAL WALLS, TREES OR POLES)
	5x SCHWEGLER 2M NEST BOX (FOR INSTALLATION ONTO TREES OR POLES)
	1X BARN OWL (ECO BARN OWL NEST BOX) FOR INSTALLATION ONTO TREES OR POLES)
REPTILE SPECIFICATIONS	
	2 x REPTILE HIBERNACULUM (INDICATIVE LOCATION)
INVERTEBRATE SPECIFICATIONS	
	2 x STUMPERIES (INDICATIVE LOCATION)
	3 x LOG PILE (INDICATIVE LOCATION)
Based on Landscape Masterplan by TPM Landscape Drawing No. 3565-101 Rev L	
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8786: PROJECT GRIFFEN, DESFORD	
PLAN ECO5: HABITAT MANAGEMENT PRESCRIPTIONS	Rev: C Apr 2022

PLAN ECO6

Barn Owl Mitigation Plan



Owl nest box to be affixed to a tree or pole at a height of minimum 4.5m, using secure brackets in a shaded area so as to avoid direct sunlight during the day. Box should be positioned so as to shelter from prevailing wind/rain and have good views from the entrance.

All positions of bird boxes to be agreed on the ground by an ecologist. Position to be removed from any artificial lighting and away from any potential disturbance to allow best opportunities for adoption and use. For this owl nest box, an existing sturdy tree is preferable.

Box to be located on the edge of the retained woodland with clear views across the grassland habitat.

Box provides sheltered nesting space as well as landing platform for adults.

Barn Owls are a Schedule 1 species and during the breeding season an occupied nest box should not be disturbed or inspected by anyone other than a licensed individual.

Proposed Artificial Replacement: Eco Barn Owl Nest Box



Detailed Box Specifications:
Overall box height: 67cm
Overall width: 66cm (including hatch closures)
Overall depth: 53cm (including rear bracket)
Entrance hole: 13cm high x 12cm maximum width
Fixing bracket: 19cm high x 20cm wide x 9cm deep (including hooks)
Stabilising bracket length: 14cm
Weight: approx 9.5kg

KEY:

-  SITE BOUNDARY
-  EXISTING STANDING TREE WITH NESTING BARN OWL TO BE REMOVED
-  PROPOSED REPLACEMENT NEST: ECO BARN OWL BOX (FOR INSTALLATION ON TO TREES OR POLES)

Based on Landscape Masterplan by TPM
Landscape Drawing No. 3565-101 Rev L



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PLAN ECO6: BARN OWL
MITIGATION PLAN PURSUANT
TO CONDITION 29

Rev: A
Apr 2022

APPENDICES

APPENDIX 1

Leicestershire County Council Species Tables

Site visit to land adjacent to Neovia Logistics, Peckleton Lane, Desford (SK4702).

Sue Timms, 18th June 2021, with Josef Saunders of Ecology Solutions.

The site visit was in connection with planning application 21/00619/FUL, which will cause the loss of some of the grassland, scrub and woodland habitats, but also bring opportunities for habitat creation and enhancement on land between the industrial estate and the village to the north, including conversion of some arable land to scrub/grassland.

In May, I surveyed the species-rich grassland along the bridleway verge, and found that it met LWS criteria. My notes are appended (ref cLWS 92070 and LRERC doc ref 1405-10021094) .

The main focus of the site visit was to look at grasslands and assess their status and condition to feed into the site's Biodiversity Net-gain metric. Three areas were surveyed, albeit briefly, in heavy rain.



The grassland extent is not accurately mapped; the above map is indicative only.

1. South of the northern driveway

The drive is the former Desford Lane, now closed to general traffic).

This area is between the driveway and the carpark to the main building. It is likely that it was once mown regularly, but had clearly not been maintained as such for some years; a dense thatch and springy turf had built up, and there were some tree seedlings present. The grassland was moderately species-rich, with area of fine grasses dominated by fescues.



On the strength of this survey, it did not meet LWS criteria, but came close, with 7 indicators (highlighted):

<i>Achillea millefolium</i>	Abundant
<i>Anthoxanthum odoratum</i>	Frequent
<i>Arrhenatherum elatius</i>	
<i>Bellis perennis</i>	
<i>Betula pendula</i>	
<i>Centaurea nigra</i>	Occasional
<i>Dactylis glomerata</i>	
<i>Festuca rubra</i>	Frequent
<i>Fraxinus excelsior</i>	seedling
<i>Holcus lanatus</i>	
<i>Lotus corniculatus</i>	Locally frequent
<i>Luzula campestris</i>	occasional
<i>Pilosella aurantiaca</i>	One large patch
<i>Pilosella officinarum</i>	frequent
<i>Plantago lanceolata</i>	
<i>Poa pratensis</i>	
<i>Poa trivialis</i>	
<i>Quercus robur</i>	seedling
<i>Ranunculus acris</i>	occasional
<i>Ranunculus bulbosus</i>	rare
<i>Ranunculus repens</i>	
<i>Rumex acetosa</i>	frequent
<i>Rumex acetosella</i>	One patch
<i>Stellaria graminea</i>	frequent
<i>Veronica chamaedrys</i>	Locally frequent

It had been characterised as amenity grassland. This is not correct; it should be 'modified grassland' in 'moderate' condition.

2. Grassland north of driveway

This is within a larger area of scrub/grassland mosaic between the driveway and bridleway, but outside the security fence around the buildings. The grassland was unmanaged, and patchy in nature. Part of it within and along the track visible on OS maps was moderately species-rich (2a), with finer grasses and some areas of more open ground. (Knapweed, Lady's Bedstraw and Bird's-foot trefoil in the photo below)



Scattered scrub, trees and patches of tall herbs created a good habitat.

Towards the bridleway, the grassland was species-poor and dominated by tall herbs and grasses, with just one smaller patch (2b) near the bund alongside the bridleway. The grassland on the bund was species-poor and presumably of recent origin.

The moderately species-rich grassland and scrub had the following species:

<i>Anthoxanthum odoratum</i>	Locally frequent
<i>Anthriscus sylvestris</i>	
<i>Arrhenatherum elatius</i>	
<i>Betula pendula</i>	
<i>Centaurea nigra</i>	Occasional (mainly in the smaller patch near bridleway)
<i>Chamerion angustifolium</i>	
<i>Cirsium arvense</i>	
<i>Crataegus monogyna</i>	
<i>Cytisus scoparius</i>	Frequent, including red/yellow flowered variety
<i>Dactylis glomerata</i>	
<i>Fraxinus excelsior</i>	
<i>Galium verum</i>	Rare, one patch only seen
<i>Heracleum sphondylium</i>	
<i>Holcus lanatus</i>	
<i>Hypochaeris radicata</i>	occasional

<i>Juncus effusus</i>	Rare, one plant only seen
<i>Juncus inflexus</i>	Rare, small patch only seen
<i>Leontodon autumnalis</i>	Occasional mainly along track
<i>Lotus corniculatus</i>	Frequent and locally abundant
<i>Luzula campestris</i>	Occasional
<i>Pilosella officinarum</i>	Locally frequent
<i>Plantago lanceolata</i>	
<i>Poa trivialis</i>	
<i>Quercus robur</i>	
<i>Ranunculus repens</i>	
<i>Rumex acetosa</i>	Frequent
<i>Rumex crispus</i>	
<i>Rumex obtusifolius</i>	
<i>Salix caprea</i>	
<i>Salix cinerea</i>	
<i>Senecio jacobaea</i>	
<i>Stellaria graminea</i>	occasional
<i>Taraxacum</i>	
<i>Trifolium dubium</i>	
<i>Trifolium pratense</i>	Rare, a few plants noted
<i>Urtica dioica</i>	
<i>Vicia cracca</i>	Occasional
<i>Vicia sativa</i>	Occasional

On the strength of this survey the better part of the grassland does not meet LWS criteria, but is close, with 9 indicator species recorded. It should be noted as 'other neutral grassland' of moderate quality. Other grassland in this part of the site is also Neutral grassland, but of poor quality.

3. Marshy grassland adjacent to the pond by the Range.

This square of rough marshy grassland was dominated by rushes – Soft, Conglomerate and either Jointed or Sharp-flowered rush. From aerial photos, the land appears to have been occasionally ploughed, occasionally hay-cut and occasionally neglected. It is not currently managed.

Some notable species were present – locally frequent Oval Sedge, Greater Bird's-foot Trefoil and Tormentil, several Marsh Thistle plants and a patch of Lesser Spearwort. This area will warrant further survey.

<i>Anthoxanthum odoratum</i>	occasional
<i>Arrhenatherum elatius</i>	abundant
<i>Carex leporina</i> (Oval sedge)	Locally frequent
<i>Cirsium palustre</i> (Marsh Thistle)	Rare – c. 6 plants
<i>Deschampsia caespitosa</i>	occasional
<i>Heracleum sphondylium</i>	
<i>Juncus articulatus/acutiflorus</i> (a rush)	Abundant - dominant
<i>Juncus conglomeratus</i> (Conglomerate rush)	Frequent to locally dominant
<i>Juncus effusus</i> (soft rush)	occasional
<i>Lotus pedunculatus</i> (Gtr Birdsfoot trefoil)	Frequent to locally abundant
<i>Persicaria amphibia</i>	frequent
<i>Potentilla erecta</i> (Tormentil)	Frequent to locally abundant

<i>Ranunculus flammula</i> (Lsr Spearwort)	Rare – several plants close to oak tree by pond
<i>Rumex acetosa</i> (Sorrel)	Frequent
<i>Vicia tetrasperma</i>	

This does meet LWS status, and further survey may reveal more species. This was the most interesting habitat on site, and in association with the pond I have classed it as an LWS.

The pond was not surveyed, but is noted in Ecology Solutions' report as '*The pond holds minimal water depth, and is dominated by emergent vegetation, including Reed Canary Grass Phalaris arundinacea, Soft Rush Juncus effusus and Hard Rush Juncus inflexus, with small patches of Greater Reedmace Typha latifolia and Jointed Rush Juncus articulatus*'.

The value of the marshy grassland area has not been reflected in ES' report; it is described as '*The area of grassland around the pond being slightly damper in nature was dominated by Soft Rush (D), with frequent Tufted Hairgrass also present, along with Broad-leaved Dock (O) and Bramble (O).*'

This habitat description requires revision. My advice is that it should be classed as 'other Neutral grassland' and of 'moderate quality' in the BNG metric. From aerial photos, it has clearly been subject to disturbance and inclusion in the arable field in the past, but has not been part of the arable field since at least 2011; presumably it has naturally regenerated as marshland since then. It is noted in a 1986 survey as being marshland, not arable; in 1991 it appeared to be hay-cut. The technical difference in the metric between 'modified' grassland and 'other neutral grassland' is unclear to me, but by definition, an LWS is of County-wide value and therefore must be considered to be of at least 'medium' distinctiveness. Being of LWS quality, it will also receive the weighting of 'Within area formally identified in local strategy'.

This habitat is not directly affected by the built development – the development footprint is just outside – but indirect effects and landscape changes will be damaging. On the landscape plans it is shown as having a path through it, with some planting, contouring and an attenuation area (Ref 3565/103/H):



The path is not too much of an issue, as it appears to skirt the main area, and presumably the line of it can be amended slightly, if needed. The planting should be deleted and placed elsewhere. The contouring and attenuation area is a problem, as it would (as shown) cause habitat loss. The extent of good habitat has not been accurately mapped, and it may be possible to re-site the attenuation

area and avoid habitat loss. This part of the landscape plan needs to be revisited in order to check that the plans do not harm the habitat. With care, it should be possible to enhance this habitat.

NB: Lesser Spearwort, Tormentil, Greater bird's-foot trefoil, Marsh Thistle and Oval sedge are indicators of good quality habitat. The Spearwort (*Ranunculus flammula*) was recorded when the marshland and pond was surveyed in 1986, so this is a long-standing record:

✓57 SK 475 025 Marsh, within rough grassland field, with pond, note 58, to north. Fenced off from grassland. Dominated by *Deschampsia caespitosa*, *Epilobium hirsutum*, *Juncus* sp. and *Juncus effusus*.

Agrostis tenuis
Calamagrostis epigeios
Carex flacca
Doronicum pardalianches
Festuca sp. (*pratensis*?)
Festuca rubra
Gnaphalium uliginosum
Holcus lanatus
Lotus corniculatus
Poa sp.
Polygonum amphibium
Potentilla sp.
Ranunculus flammula

Desford 2.9.86

58 SK 475 025 Pond. 15 m by 15 m, in marshy area described in note 58. Shallow edges with no distinct banks. Water very "peaty" looking. Submerged *Ranunculus* sp. and *Lemma minor*.

Callitriche sp.
Juncus effusus
Juncus sp. (*bufonius*?)
Ranunculus flammula
Ranunculus sceleratus

Agrostis stolonifera
Alopecurus pratensis
Gnaphalium uliginosum
Polygonum amphibium

Dragonfly (*Symptetrum* sp.)

1405B
Part 2

4. Other habitats.

The recent plantation woodland was briefly inspected, but not surveyed; it had not been thinned and was in poor condition, with sparse ground flora.

Of note, however, was a deep dry ditch with a row of old oaks along it, shown as a boundary on OS maps. The oak closest to the Range was a potential veteran and the others also future veterans, with a low, spreading and gnarled growth-form. Native bluebells, bracken and occasional male fern were present along the ditches. The row of oaks is a good habitat feature, and the woodland area around the Range is older than the rest of the plantation and should be categorised separately.



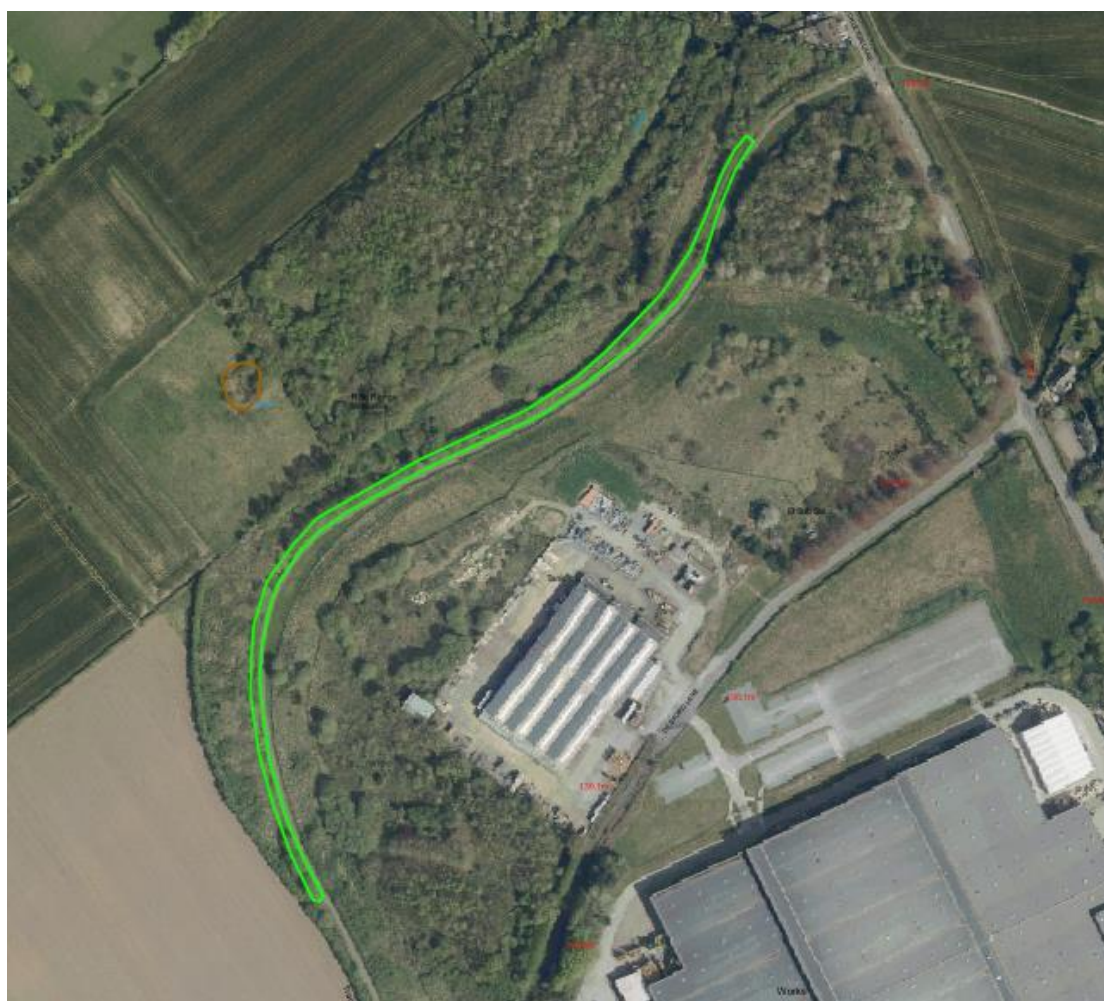
Areas of grassland between the plantation and the bridleway were fast disappearing under tall herbs and bramble, with only small patches left along desire lines.

Some area of neutral grassland within the security palisade fence were not surveyed.

Appendix: the bridleway candidate LWS:
Leicester, Leicestershire and Rutland

Site name: Desford, bridleway around Neovia Logistics <i>Candidate</i> Local Wildlife Site <i>(site that meets LWS criteria)</i>			Ref No: 92070 Local authority:
Site history: Site visit by S Timms, 17/05/2021 Subject to planning proposal to extend Neovia site, which would lead to its loss – see 20/01009/FUL			Grid ref SK4702
			Area/length: 0.41ha/610m
			Form completed by: S Timms
1	Habitat quality	Y	Main habitats: Mesotrophic grassland (est 0.3ha)
2	Habitat diversity		
3	Presence of Red Data Book species		
4	Significant assemblages of species		
5	Use by communities	Y	
Rationale <i>(List reasons for ticking each of the above)</i> 12 LWS indicators (highlighted), scattered along length, interspersed with taller herbs and scrub. Bridleway is well used and is a safe pleasant walk.			
<i>Anthocharis cardamines</i>		Orange-tip	
<i>Beris chalybata</i>		Murky-legged Black Legionnaire	
<i>Glyphipteryx fuscoviridella</i>		[micro moth]	
<i>Acer campestre</i>		Field Maple	
<i>Acer pseudoplatanus</i>		Sycamore	
<i>Achillea millefolium</i>		Yarrow	
<i>Agrimonia eupatoria</i>		Agrimony	
<i>Anthoxanthum odoratum</i>		Sweet Vernal-grass	
<i>Anthriscus sylvestris</i>		Cow Parsley	
<i>Arrhenatherum elatius</i>		False Oat-grass	
<i>Betula pendula</i>		Silver Birch	
<i>Centaurea nigra agg.</i>		Knapweed	
<i>Cerastium fontanum</i>		Common Mouse-ear	
<i>Chamerion angustifolium</i>		Rosebay Willowherb	
<i>Cirsium arvense</i>		Creeping Thistle	
<i>Corylus avellana</i>		Hazel	
<i>Crataegus monogyna</i>		Hawthorn	
<i>Cytisus scoparius</i>		Broom	
<i>Dactylis glomerata</i>		Cock's-foot	
<i>Dryopteris filix-mas</i>		Male-fern	
<i>Festuca rubra</i>		Red Fescue	

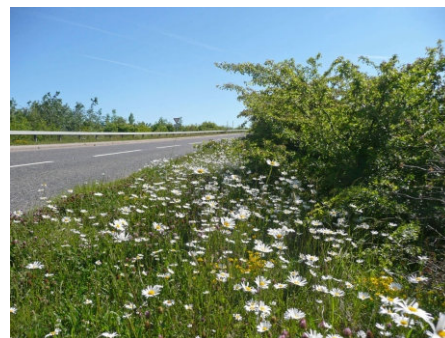
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Galium verum</i>	Lady's Bedstraw
<i>Geranium molle</i>	Dove's-foot Crane's-bill
<i>Hyacinthoides x massartiana</i>	Hybrid bluebell
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Juncus effusus</i>	Soft-rush
<i>Lamium album</i>	White Dead-nettle
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Luzula campestris</i>	Field Wood-rush
<i>Pimpinella major</i>	Greater Burnet-saxifrage
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Populus tremula</i>	Aspen
<i>Poterium sanguisorba</i>	Salad Burnet
<i>Quercus robur</i>	Pedunculate Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus bulbosus</i>	Bulbous Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rubus fruticosus agg.</i>	Bramble
<i>Rumex acetosa</i>	Common Sorrel
<i>Salix caprea</i>	Goat Willow
<i>Salix cinerea</i>	Common Sallow
<i>Senecio jacobaea</i>	Common ragwort
<i>Silene dioica</i>	Red Campion
<i>Trifolium dubium</i>	Lesser hop-trefoil
<i>Trifolium pratense</i>	Red clover
<i>Trifolium repens</i>	White clover
<i>Ulex europaeus</i>	gorse
<i>Vicia sativa</i>	Common vetch
<i>Biorhiza pallida</i>	Oak Apple Gall Causer
<i>Andricus foecundatrix</i>	Artichoke Gall
<i>Coleophora lusciniatrapennella</i>	Osier Case-bearer



APPENDIX 2

Emorsgate EM2 Standard General-Purpose Meadow
Mixture

Emorsgate EM2 Standard General Purpose Meadow Mixture



Description

This meadow mixture contains species that are characteristic of traditional meadows across a wide range of soil types. EM2 is a complete mix composed of 15% native wildflowers and 85% slow growing grasses

Usage Guide

Sowing Instructions: Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

Maintenance: Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year.

In the second and subsequent years EM2 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing.

Information from website: <https://wildseed.co.uk/mixtures/view/3/standard-general-purpose-meadow-mixture>



APPENDIX 3

Emorsgate EM8F Meadow Mixture for Wetlands

Emorsgate Em8: Meadow Mixture For Wetlands



Description

EM8 contains species suitable for seasonally wet soils and is based on the vegetation of traditional floodplain and water meadows. Soils in wet meadows may flood for short periods in winter, but are usually well drained in summer.

Usage Guide

Sowing Instructions: Sowings on ground prone to winter flooding are safest either in the early autumn or in spring once the land has drained. Most plants need time to grow mature enough to withstand flooding.

The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.

Maintenance: Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year.

In the second and subsequent years EM8 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing.

Meadow grassland is not cut or grazed from spring through to late July/August to give the own species an opportunity to flower. After flowering in July or August take a 'hay cut' : cut back with a scythe, petrol strimmer or tractor mower to c 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.

Mow or graze the re-growth through to late autumn/winter to c 50mm and again in spring if needed.

Information from website: <https://wildseed.co.uk/mixtures/view/9/meadow-mixture-for-wetlands>



APPENDIX 4

Emorsgate EH1F Wildflowers for Hedgerows

Emorsgate EH1F: Wild Flowers For Hedgerows

Description

EH1F contains wild flowers that are tolerant of semi-shade and is suitable for sowing beneath newly planted or established hedges and on woodland edges, rides and glades



Usage Guide

Sowing Instructions: Sow in the autumn using a 100% wild flower mixture. Bulk up the seed with an inert carrier such as sand to make distribution easier. The seed must be surface sown and can be applied by machine or broadcast by hand. Rolling is not usually necessary.

Maintenance: First year management: After sowing continue mowing or grazing as needed aiming to keep the grass short (30-50mm). Continue mowing/grazing through winter and early spring as needed. Stop mowing/grazing in April and leave until July/August at which time you can manage the sowing as you would established grassland.

Most of the sown meadow species are perennial and will be slow to germinate, grow and flower, particularly against the competition from established grasses.

Management once established

Hedgerows, woodland edges, rides, glades and other semi-shaded communities usually sit on the boundary between one habitat type (eg open grassland) and another (eg closed tree canopy). The management requirements of established hedgerow mixtures can be tailored to light levels and to fit in with adjacent vegetation types.

Zoned management of hedgerow margins frequently produces the best diversity of habitat structure: areas closest to the hedge or woodland boundary and those which are more shaded are left uncut in most years. Areas that are further from the margin and more open can be managed as grassland habitat. For example in a 6 metre sown margin the 2-3 metres against the boundary could be left uncut, the next 3-4 metres cut once or twice a year.

Hedgerow vegetation that is not mown or grazed each year will become rough and "tussocky" in character. It can form useful refuge habitat on corners and margins of a site. To control scrub and bramble development these tussocky areas may need cutting every 2-3 years between October and February. For wildlife this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as a undisturbed refuge.

Hedgerows and margins that are cut regularly can be managed as grassland.

Information from website: <https://wildseed.co.uk/mixtures/view/34/wild-flowers-for-hedgerows>



APPENDIX 5

Proposed Bat Boxes

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.



1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 27cm

Height: 43cm

Weight: 8.3kg

2FN Bat Box

A large bat box featuring a wide access slit at the base as well as an access hole on the underside. Particularly successful in attracting Noctule and Bechstein's bats.

Woodcrete construction, 16cm diameter, height 36cm.



2F Bat Box

A standard bat box, attractive to the smaller British bat species. Simple design with a narrow entrance slit on the front.

Woodcrete construction, 16cm diameter, height 33cm.

APPENDIX 6

Proposed Bird Boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from woodcrete. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

2GR Nest Box

Owing to the special design of the large nesting area and front panel, this box is especially well protected against predators.

Available with a single oval entrance hole or as shown with three 27mm holes for small Tits. Nesting area: 14cm x 19cm.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes (26mm for small Tits, 32mm standard size, and oval for Redstarts).

Bird Boxes



2M Bird Box

A free-hanging box offering greater protection from predators.

Supplied complete with hanger which loops and fastens around a branch.

With standard general-purpose 32mm diameter entrance hole.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

Eco Barn Owl Nest Box

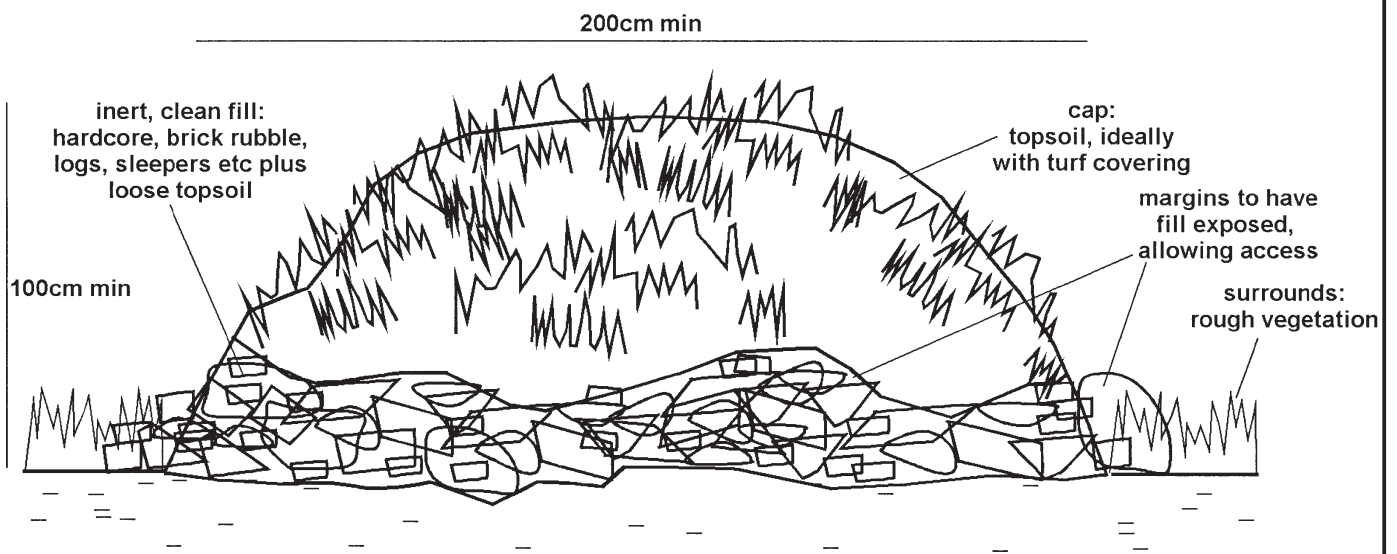
Provided by the Nest Box Company for indoor and outdoor use. This box is manufactured in UV stable 100% recycled plastic, it requires little to no maintenance and has an extremely long life expectancy.

Dimensions 660mm wide x 530mm deep x 670mm high
Weight 9.5kg



APPENDIX 7

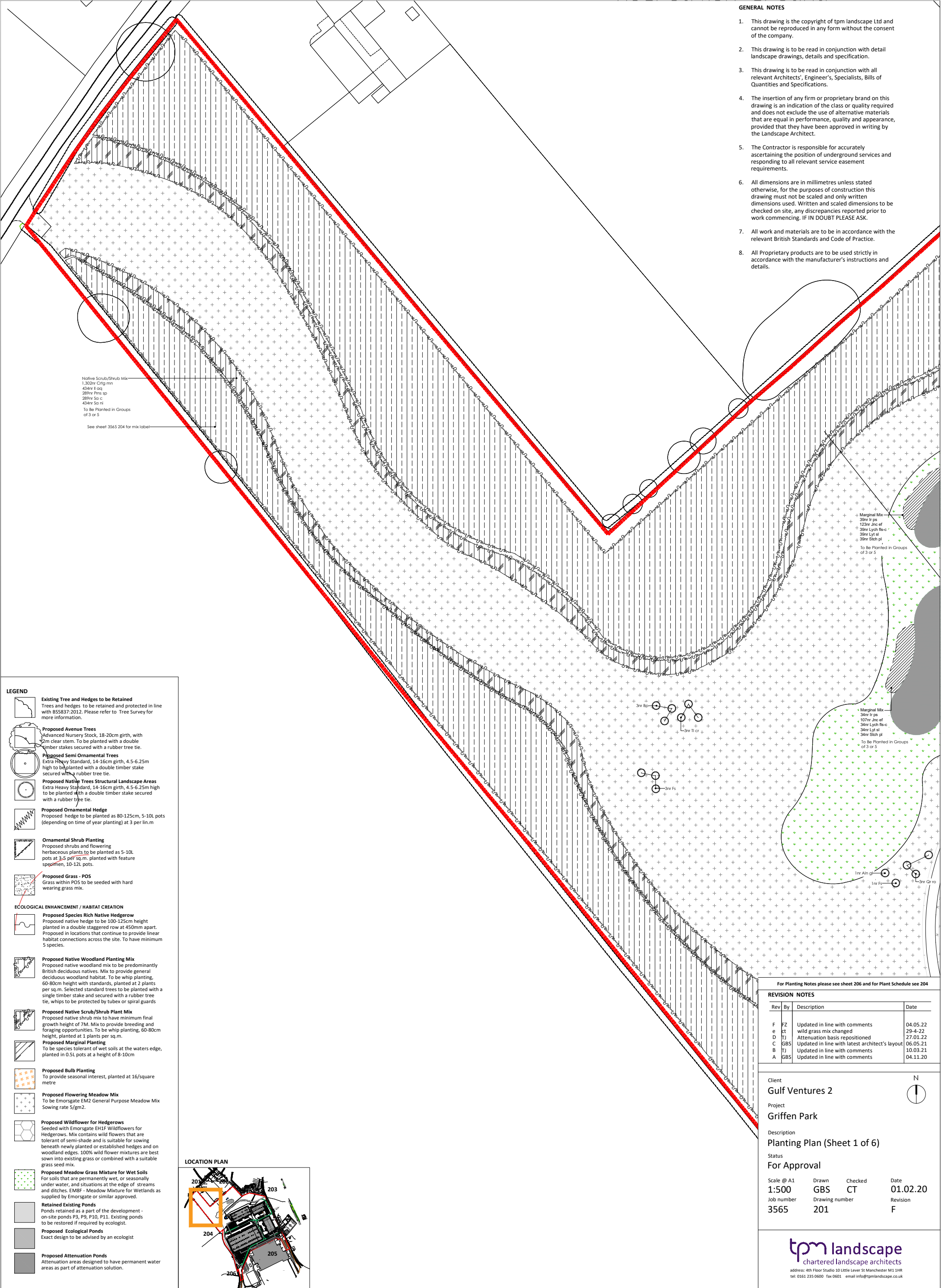
Indicative Drawing of Hibernacula



HIBERNACULA SPECIFICATION

APPENDIX 8

3565-201F Planting Plan (Sheet 1 of 6)



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3. This drawing is to be read in conjunction with all relevant Architects', Engineer's, Specialists, Bills of Quantities and Specifications.
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5. The Contractor is responsible for accurately ascertaining the position of underground services and responding to all relevant service easement requirements.
6. All dimensions are in millimetres unless stated otherwise, for the purposes of construction this drawing must not be scaled and only written dimensions used. Written and scaled dimensions to be checked on site, any discrepancies reported prior to work commencing. IF IN DOUBT PLEASE ASK.
7. All work and materials are to be in accordance with the relevant British Standards and Code of Practice.
8. All Proprietary products are to be used strictly in accordance with the manufacturer's instructions and details.

LEGEND

Existing Tree and Hedges to be Retained
Trees and hedges to be retained and protected in line with B55837:2012. Please refer to Tree Survey for more information.

Proposed Avenue Trees
Advanced Nursery Stock, 18-20cm girth, with 5m clear stem. To be planted with a double timber stakes secured with a rubber tree tie.

Proposed Semi Ornamental Trees
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.

Proposed Native Trees Structural Landscape Areas
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.

Proposed Ornamental Hedge
Proposed hedge to be planted as 80-125cm, 5-10L pots (depending on time of year planting) at 3 per lin.m

Ornamental Shrub Planting
Proposed shrubs and flowering herbaceous plants to be planted as 5-10L pots at 3-5 per sq.m. planted with feature specimen, 10-12L pots.

Proposed Grass - POS
Grass within POS to be seeded with hard wearing grass mix.

ECOLOGICAL ENHANCEMENT / HABITAT CREATION

Proposed Species Rich Native Hedgerow
Proposed native hedge to be 100-125cm height planted in a double staggered row at 450mm apart. Proposed in locations that continue to provide linear habitat connections across the site. To have minimum 5 species.

Proposed Native Woodland Planting Mix
Proposed native woodland mix to be predominantly British deciduous natives. Mix to provide general deciduous woodland habitat. To be whip planting, 60-80cm height with standards, planted at 2 plants per sq.m. Selected standard trees to be planted with a single timber stake and secured with a rubber tree tie, whips to be protected by tubex or spiral guards

Proposed Native Scrub/Shrub Plant Mix
Proposed native shrub mix to have minimum final growth height of 7M. Mix to provide breeding and foraging opportunities. To be whip planting, 60-80cm height, planted at 1 plants per sq.m.

Proposed Marginal Planting
To be species tolerant of wet soils at the waters edge, planted in 0.5L pots at a height of 8-10cm

Proposed Bulb Planting
To provide seasonal interest, planted at 16/square metre

Proposed Flowering Meadow Mix
To be Emorsgate EM2 General Purpose Meadow Mix Sowing rate 5/gm2.

Proposed Wildflower for Hedgerows
Seeded with Emorsgate EH1F Wildflowers for Hedgerows. Mix contains wild flowers that are tolerant of semi-shade and is suitable for sowing beneath newly planted or established hedges and on woodland edges. 100% wild flower mixtures are best sown into existing grass or combined with a suitable grass seed mix.

Proposed Meadow Grass Mixture for Wet Soils
For soils that are permanently wet, or seasonally under water, and situations at the edge of streams and ditches. EM8F - Meadow Mixture for Wetlands as supplied by Emorsgate or similar approved.

Retained Existing Ponds
Ponds retained as a part of the development - on-site ponds P3, P9, P10, P11. Existing ponds to be restored if required by ecologist.

Proposed Ecological Ponds
Exact design to be advised by an ecologist

Proposed Attenuation Ponds
Attenuation areas designed to have permanent water areas as part of attenuation solution.

Native Scrub/Shrub Mix
1,302nr Crtg mn
434nr l oq
289nr Pms sp
289nr Sa c
434nr Sa ni
To Be Planted in Groups of 3 or 5
See sheet 3565 204 for mix label

Marginal Mix
30nr Ir ps
120nr Jnc et
30nr Lych fls-c
30nr Lych al
30nr Stich pl
To Be Planted in Groups of 3 or 5

Marginal Mix
34nr Ir ps
107nr Jnc et
34nr Lych fls-c
34nr Lych al
34nr Stich pl
To Be Planted in Groups of 3 or 5

3nr Bp
3nr Tr Cr
3nr Fs
1nr Alm gl
1nr Fs
1nr Gr no

LOCATION PLAN

For Planting Notes please see sheet 206 and for Plant Schedule see 204

REVISION NOTES			
Rev	By	Description	Date
F	FZ	Updated in line with comments	04.05.22
e	ct	wild grass mix changed	29-4-22
D	TJ	Attenuation basis repositioned	27.01.22
C	GBS	Updated in line with latest architect's layout	06.05.21
B	TJ	Updated in line with comments	10.03.21
A	GBS	Updated in line with comments	04.11.20

Client
Gulf Ventures 2

Project
Griffen Park

Description
Planting Plan (Sheet 1 of 6)

Status
For Approval

Scale @ A1
1:500

Job number
3565

Drawn
GBS

Drawing number
201

Checked
CT

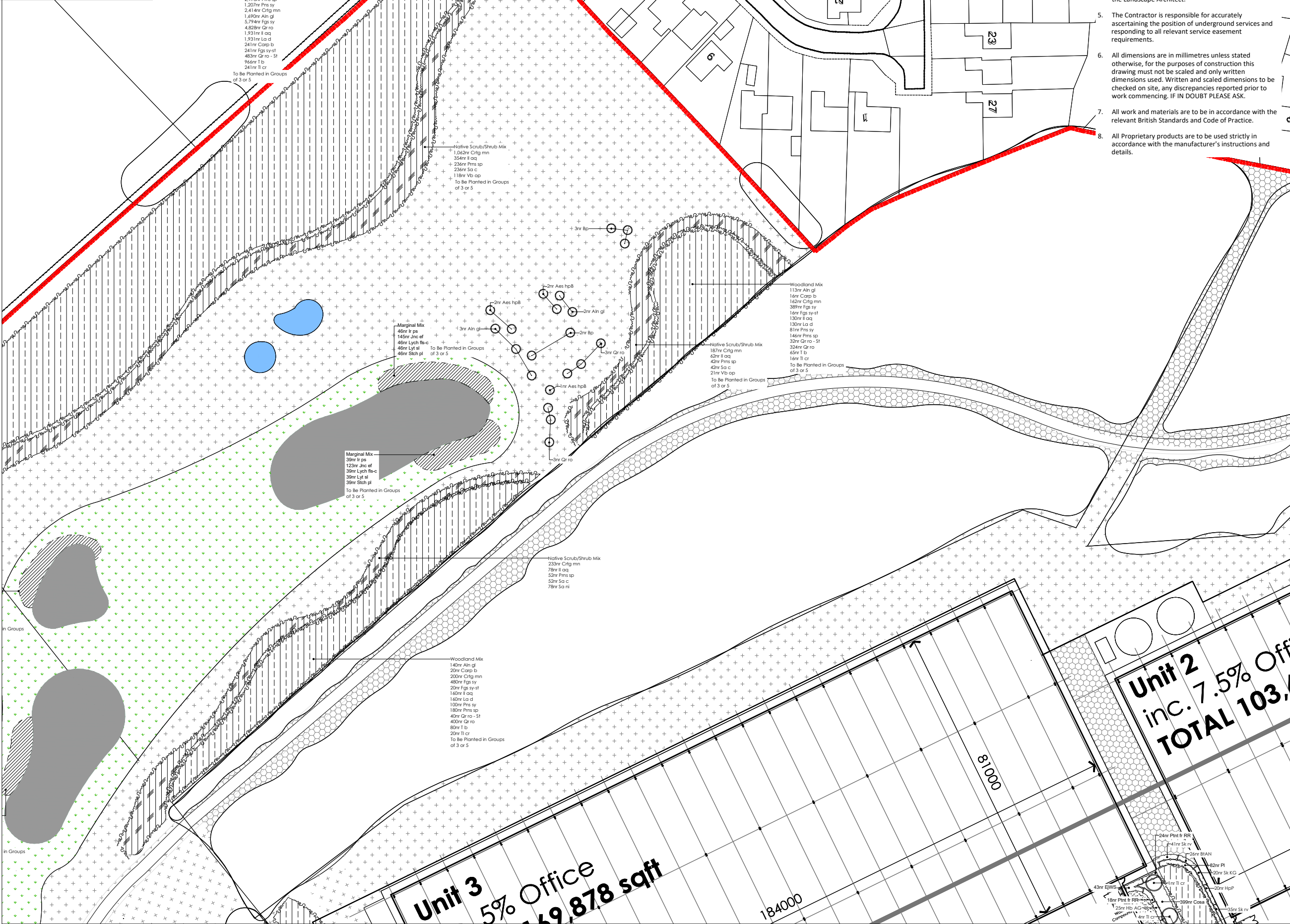
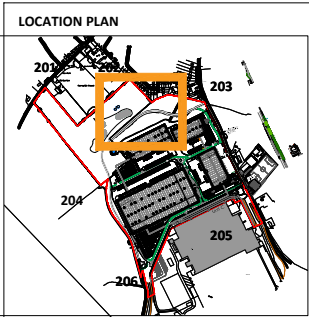
Date
01.02.20

Revision
F

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APPENDIX 9

3565-202F Planting Plan (Sheet 2 of 6)



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LEGEND

- Existing Tree and Hedges to be Retained**
Trees and hedges to be retained and protected in line with BS5837:2012. Please refer to Tree Survey for more information.
- Proposed Avenue Trees**
Advanced Nursery Stock, 18-20cm girth, with 2m clear stem. To be planted with a double timber stakes secured with a rubber tree tie.
- Proposed Semi Ornamental Trees**
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.
- Proposed Native Trees Structural Landscape Areas**
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.
- Proposed Ornamental Hedge**
Proposed hedge to be planted as 80-125cm, 5-10L pots (depending on time of year planting) at 3 per lin.m.
- Ornamental Shrub Planting**
Proposed shrubs and flowering herbaceous plants to be planted as 5-10L pots at 3-5 per sq.m. planted with feature specimen, 10-12L pots.
- Proposed Grass - POS**
Grass within POS to be seeded with hard wearing grass mix.
- ECOLOGICAL ENHANCEMENT / HABITAT CREATION**
 - Proposed Species Rich Native Hedgerow**
Proposed native hedge to be 100-125cm height planted in a double staggered row at 450mm apart. Proposed in locations that continue to provide linear habitat connections across the site. To have minimum 5 species.
 - Proposed Native Woodland Planting Mix**
Proposed native woodland mix to be predominantly British deciduous natives. Mix to provide general deciduous woodland habitat. To be whip planting, 60-80cm height with standards, planted at 2 plants per sq.m. Selected standard trees to be planted with a single timber stake and secured with a rubber tree tie, whips to be protected by tubex or spiral guards.
 - Proposed Native Scrub/Shrub Plant Mix**
Proposed native shrub mix to have minimum final growth height of 7M. Mix to provide breeding and foraging opportunities. To be whip planting, 60-80cm height, planted at 1 plants per sq.m.
 - Proposed Marginal Planting**
To be species tolerant of wet soils at the waters edge, planted in 0.5L pots at a height of 8-10cm.
 - Proposed Bulb Planting**
To provide seasonal interest, planted at 16/square metre.
 - Proposed Flowering Meadow Mix**
To be Emorsgate EM2 General Purpose Meadow Mix Sowing rate 5/gm2.
 - Proposed Wildflower for Hedgerows**
Seeded with Emorsgate EH1F Wildflowers for Hedgerows. Mix contains wild flowers that are tolerant of semi-shade and is suitable for sowing beneath newly planted or established hedges and on woodland edges. 100% wild flower mixtures are best sown into existing grass or combined with a suitable grass seed mix.
 - Proposed Meadow Grass Mixture for Wet Soils**
For soils that are permanently wet, or seasonally under water, and situations at the edge of streams and ditches. EM8F - Meadow Mixture for Wetlands as supplied by Emorsgate or similar approved.
- Retained Existing Ponds**
Ponds retained as a part of the development - on-site ponds P3, P9, P10, P11. Existing ponds to be restored if required by ecologist.
- Proposed Ecological Ponds**
Exact design to be advised by an ecologist.
- Proposed Attenuation Ponds**
Attenuation areas designed to have permanent water areas as part of attenuation solution.

For Planting Notes please see sheet 206 and for Plant Schedule see 204

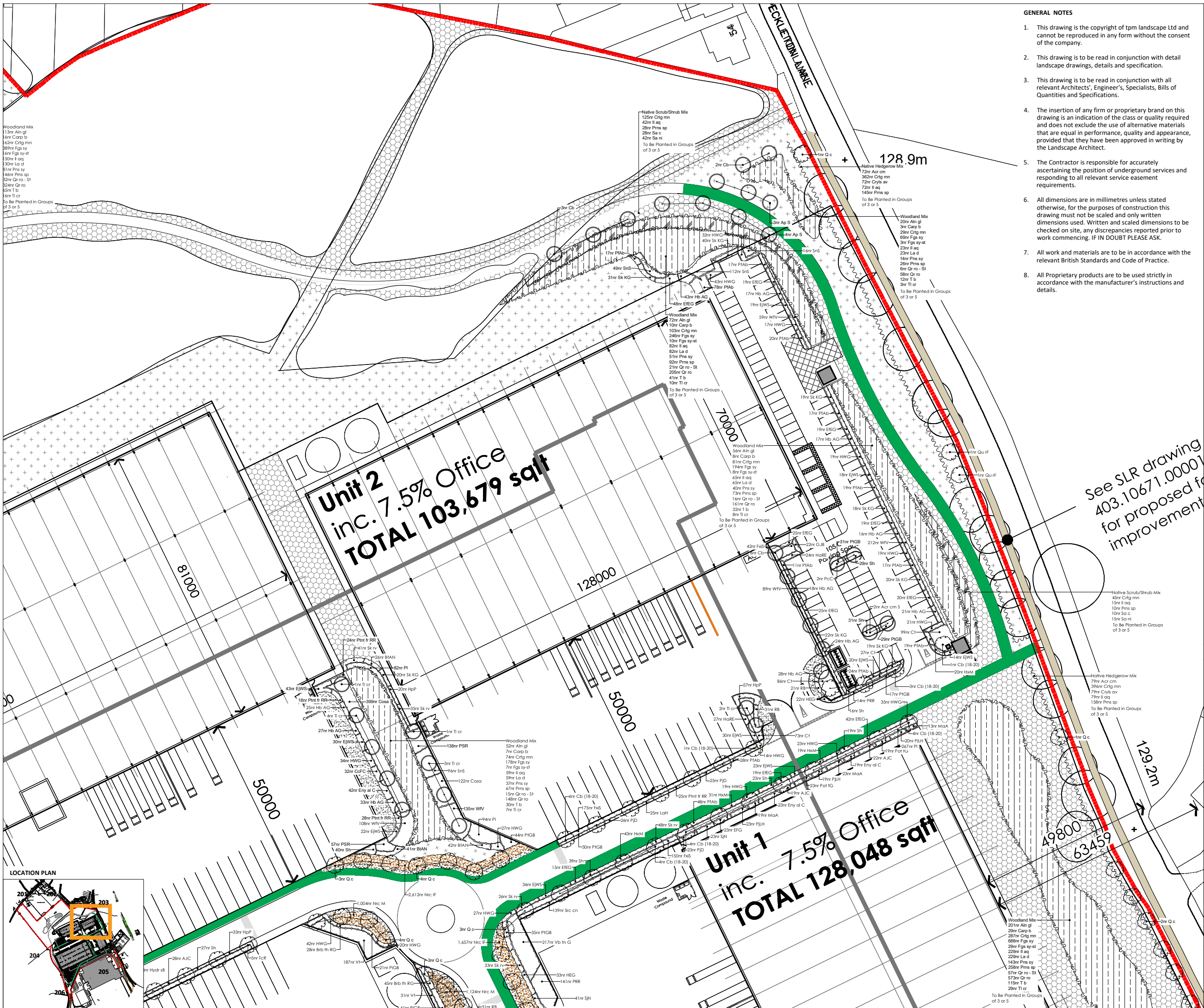
REVISION NOTES

Rev	By	Description	Date
F	FZ	Updated in line with comments	04.05.22
e	ct	wild grass mix changed	29-4-22
D	TJ	Attenuation basis repositioned	27.01.22
C	GBS	Updated in line with latest architect's layout	06.05.21
B	TJ	Updated in line with comments	10.03.21
A	GBS	Updated in line with comments	04.11.20

Client	Gulf Ventures 2
Project	Griffen Park
Description	Planting Plan (Sheet 2 of 6)
Status	For Approval
Scale @ A1	1:500
Job number	3565
Drawn	GBS
Checked	CT
Date	01.02.20
Revision	F

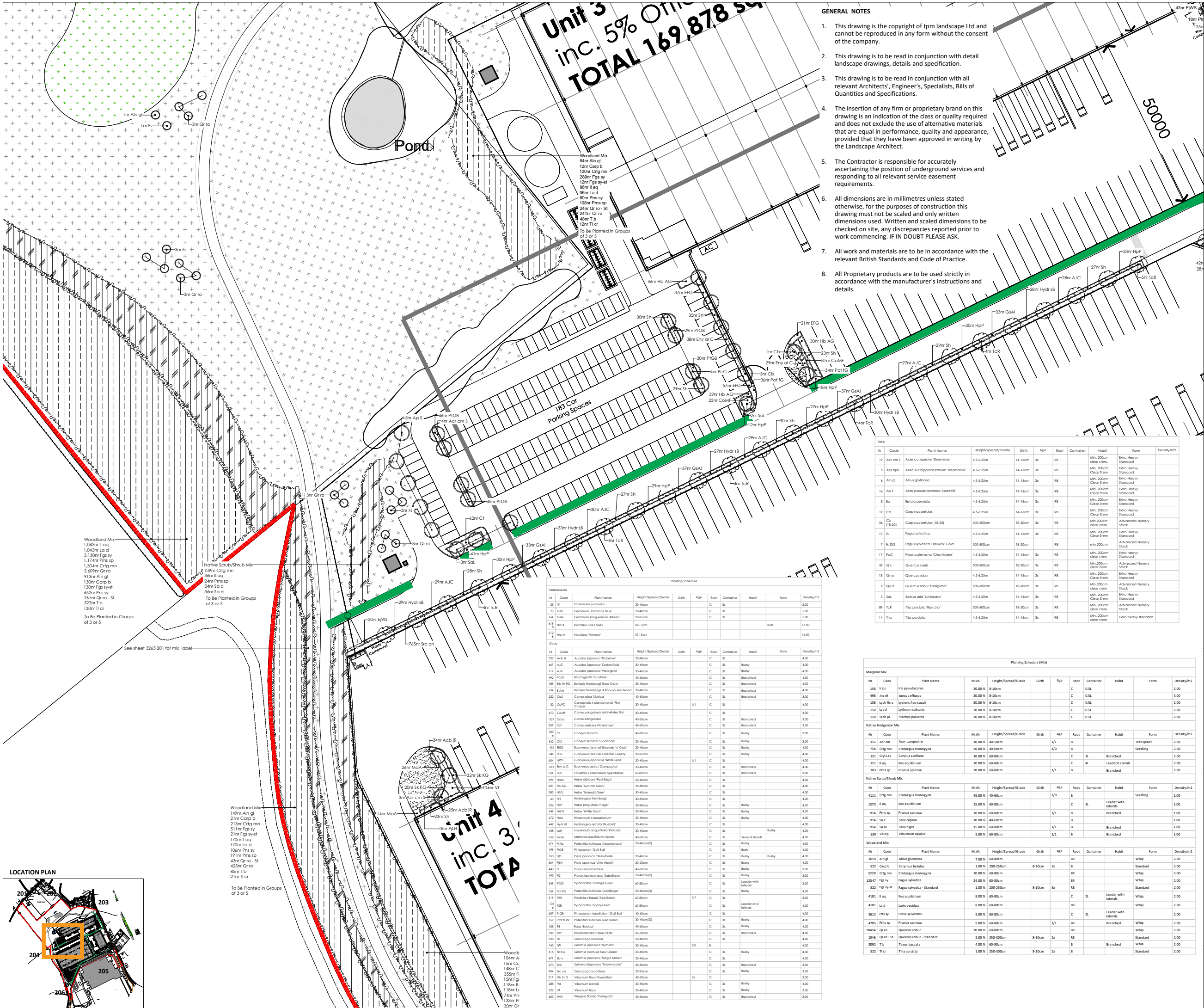
APPENDIX 10

3565-203F Planting Plan (Sheet 3 of 6)



APPENDIX 11

3565-204G Planting Plan (Sheet 4 of 6)



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LEGEND

- Existing Tree and Hedges to be Retained**
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- Proposed Avenue Trees**
Advanced Nursery Stock, 18-20cm girth, with 2m clear stem. To be planted with a double timber stakes secured with a rubber tree tie.
- Proposed Semi Ornamental Trees**
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.
- Proposed Native Trees Structural Landscape Areas**
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.
- Proposed Ornamental Hedge**
Proposed hedge to be planted as 80-125cm, 5-10L pots (depending on time of year planting) at 3 per lin.m
- Ornamental Shrub Planting**
Proposed shrubs and flowering herbaceous plants to be planted as 5-10L pots at 3.5 per sq.m, planted with feature specimen, 10-12L pots.
- Proposed Grass - POS**
Grass within POS to be seeded with hard wearing grass mix.
- ECOLOGICAL ENHANCEMENT / HABITAT CREATION**- Proposed Species Rich Native Hedgerow**
Proposed native hedge to be 100-125cm height planted in a double staggered row at 450mm apart. Proposed in locations that continue to provide linear habitat connections across the site. To have minimum 5 species.
- Proposed Native Woodland Planting Mix**
Proposed native woodland mix to be predominantly British deciduous natives. Mix to provide general deciduous woodland habitat. To be whip planting, 60-80cm height with standards, planted at 2 plants per sq.m. Selected standard trees to be planted with a single timber stake and secured with a rubber tree tie, whips to be protected by tubex or spiral guards
- Proposed Native Scrub/Shrub Plant Mix**
Proposed native shrub mix to have minimum final growth height of 7M. Mix to provide breeding and foraging opportunities. To be whip planting, 60-80cm height, planted at 1 plants per sq.m.
- Proposed Marginal Planting**
To be species tolerant of wet soils at the waters edge, planted in 0.5L pots at a height of 8-10cm
- Proposed Bulb Planting**
To provide seasonal interest, planted at 16/square metre
- Proposed Flowering Meadow Mix**
To be Emorsgate EM2 General Purpose Meadow Mix Sowing rate 5/gm2.
- Proposed Wildflower for Hedgerows**
Seeded with Emorsgate EH1F Wildflowers for Hedgerows. Mix contains wild flowers that are tolerant of semi-shade and is suitable for sowing beneath newly planted or established hedges and on woodland edges. 100% wild flower mixtures are best sown into existing grass or combined with a suitable grass seed mix.
- Proposed Meadow Grass Mixture for Wet Soils**
For soils that are permanently wet, or seasonally under water, and situations at the edge of streams and ditches. EM6F - Meadow Mixture for Wetlands as supplied by Emorsgate or similar approved.
- Retained Existing Ponds**
Ponds retained as a part of the development - on-site ponds P3, P9, P10, P11. Existing ponds to be restored if required by ecologist.
- Proposed Ecological Ponds**
Exact design to be advised by an ecologist
- Proposed Attenuation Ponds**
Attenuation areas designed to have permanent water areas as part of attenuation solution.

For Planting Notes please see sheet 206

REVISION NOTES

Rev	By	Description	Date
G	FZ	Updated in line with comments	04.05.22
F	ct	wild grass mix changed	29-4-22
E	TJ	Attenuation basin repositioned	27.01.22
D	AI	Updated in line with ecologists comments	21.12.21
C	GBS	Updated in line with latest architect's layout	06.05.21
B	TJ	Updated in line with comments	10.03.21
A	GBS	Updated in line with comments	04.11.20

Client

Gulf Ventures 2

Project

Griffen Park

Description

Planting Plan (Sheet 4 of 6)

Status

For Approval

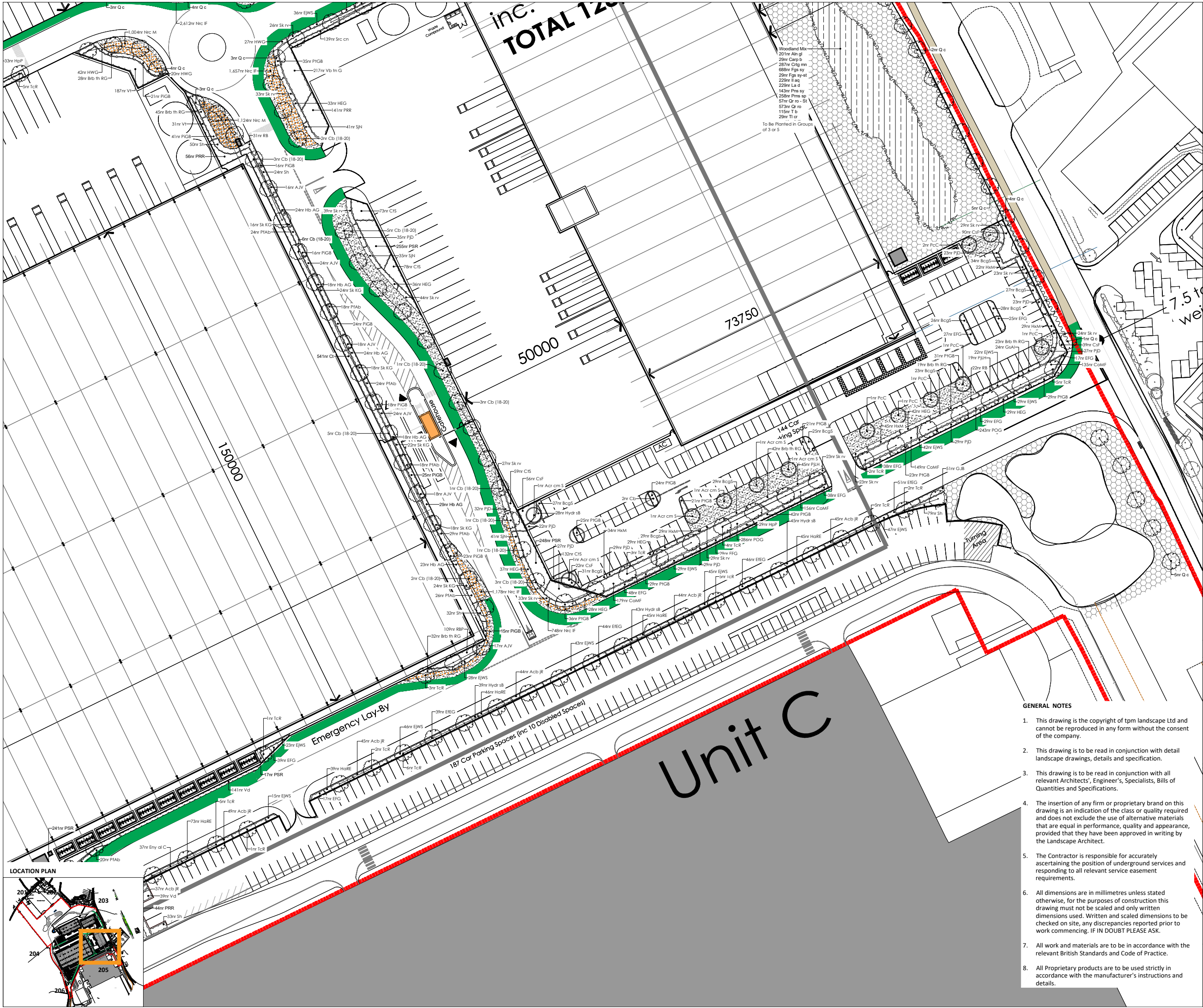
Scale @ A1	Drawn	Checked	Date
1:500	GBS	CT	01.02.20
Job number	Drawing number	Revision	
3565	204	G	

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APPENDIX 12

3565-205F Planting Plan (Sheet 5 of 6)



LEGEND

Existing Tree and Hedges to be Retained
Trees and hedges to be retained and protected in line with BS5837:2012. Please refer to Tree Survey for more information.

Proposed Avenue Trees
Advanced Nursery Stock, 18-20cm girth, with 2m clear stem. To be planted with a double timber stake secured with a rubber tree tie.

Proposed Semi Ornamental Trees
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.

Proposed Native Trees Structural Landscape Areas
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.

Proposed Ornamental Hedge
Proposed hedge to be planted as 80-125cm, 5-10L pots (depending on time of year planting) at 3 per lin.m

Ornamental Shrub Planting
Proposed shrubs and flowering herbaceous plants to be planted as 5-10L pots at 3-5 per sq.m. planted with feature spirerfen, 10-12L pots.

Proposed Grass - POS
Grass within POS to be seeded with hard wearing grass mix.

ECOLOGICAL ENHANCEMENT / HABITAT CREATION

Proposed Species Rich Native Hedgerow
Proposed native hedge to be 100-125cm height planted in a double staggered row at 450mm apart. Proposed in locations that continue to provide linear habitat connections across the site. To have minimum 5 species.

Proposed Native Woodland Planting Mix
Proposed native woodland mix to be predominantly British deciduous natives. Mix to provide general deciduous woodland habitat. To be whip planting, 60-80cm height with standards, planted at 2 plants per sq.m. Selected standard trees to be planted with a single timber stake and secured with a rubber tree tie, whips to be protected by tubex or spiral guards

Proposed Native Scrub/Shrub Plant Mix
Proposed native scrub mix to have minimum final growth height of 7M. Mix to provide breeding and foraging opportunities. To be whip planting, 60-80cm height, planted at 1 plants per sq.m.

Proposed Marginal Planting
To be species tolerant of wet soils at the waters edge, planted in 0.5L pots at a height of 8-10cm

Proposed Bulb Planting
To provide seasonal interest, planted at 16/square metre

Proposed Flowering Meadow Mix
To be Emorsgate EM2 General Purpose Meadow Mix Sowing rate 5/gm2.

Proposed Wildflower for Hedgerows
Seeded with Emorsgate EH1F Wildflowers for Hedgerows. Mix contains wild flowers that are tolerant of semi-shade and is suitable for sowing beneath newly planted or established hedges and on woodland edges. 100% wild flower mixtures are best sown into existing grass or combined with a suitable grass seed mix.

Proposed Meadow Grass Mixture for Wet Soils
For soils that are permanently wet, or seasonally under water, and situations at the edge of streams and ditches. EM8F - Meadow Mixture for Wetlands as supplied by Emorsgate or similar approved.

Retained Existing Ponds
Ponds retained as a part of the development - on-site ponds P3, P9, P10, P11. Existing ponds to be restored if required by ecologist.

Proposed Ecological Ponds
Exact design to be advised by an ecologist

Proposed Attenuation Ponds
Attenuation areas designed to have permanent water areas as part of attenuation solution.

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 - All work and materials are to be in accordance with the relevant British Standards and Code of Practice.
 - All Proprietary products are to be used strictly in accordance with the manufacturer's instructions and details.

For Planting Notes please see sheet 206 and for Plant Schedule see 204			
REVISION NOTES			
Rev	By	Description	Date
F	FZ	Updated in line with comments	04.05.22
E	CT	wildflower mix altered	29-4-22
D	TJ	Changes to eastern mound	15.07.21
C	GBS	Updated in line with latest architect's layout	06.05.21
B	TJ	Updated in line with comments	10.03.21
A	GBS	Updated in line with comments	04.11.20

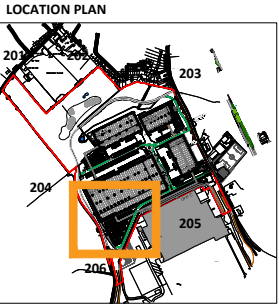
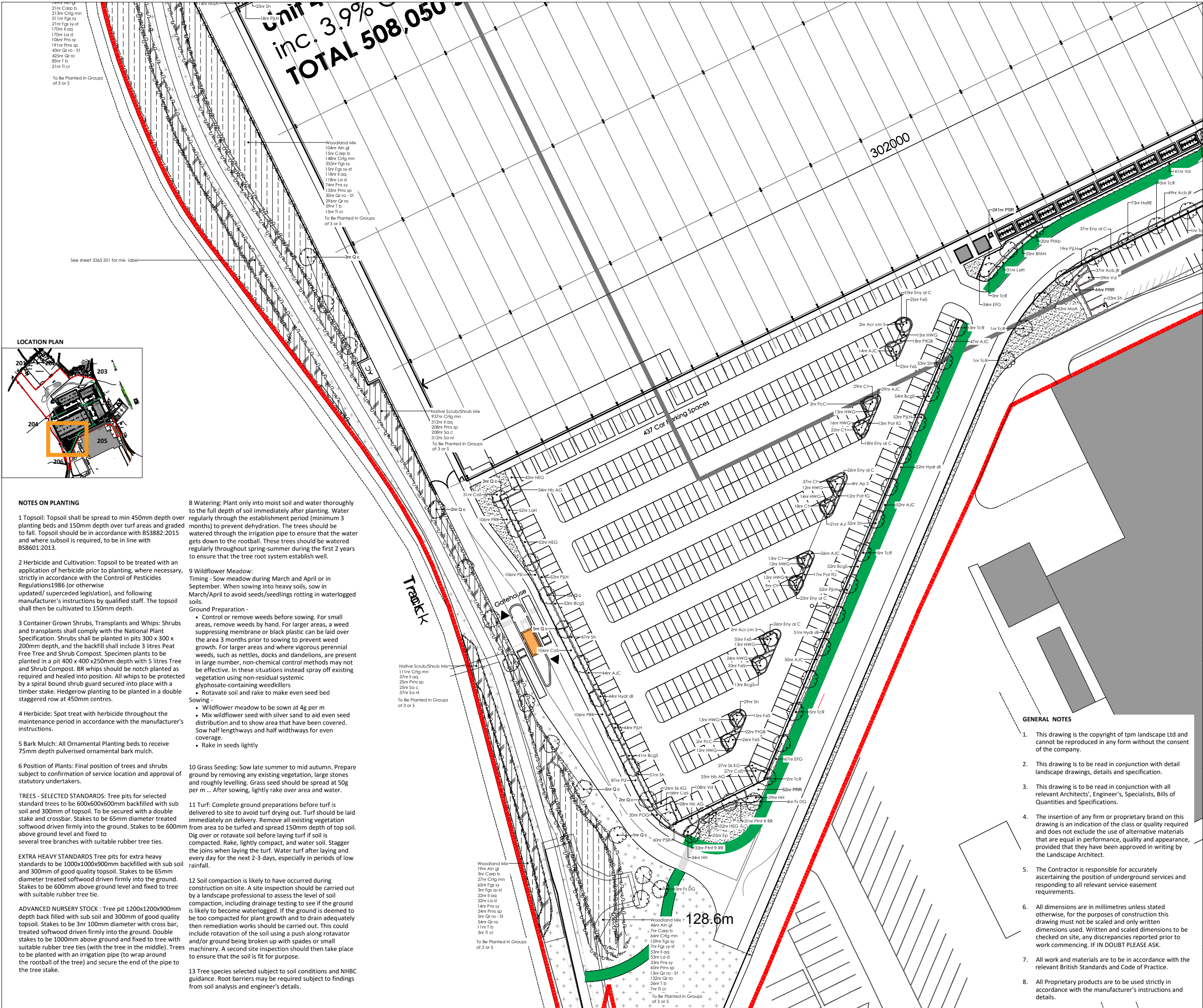
Client	Gulf Ventures 2		
Project	Griffen Park		
Description	Planting Plan (Sheet 5 of 6)		
Status	For Approval		
Scale @ A1	Drawn	Checked	Date
1:500	GBS	CT	01.02.20
Job number	Drawing number	Revision	
3565	205	F	

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APPENDIX 13

3565-206G Planting Plan (Sheet 6 of 6)



NOTES ON PLANTING

- 1 Topsoil: Topsoil shall be spread to min 450mm depth over planting beds and 150mm depth over turf areas and graded to fall. Topsoil should be in accordance with BS3882:2015 and where subsoil is required, to be in line with BS8601:2013.
- 2 Herbicide and Cultivation: Topsoil to be treated with an application of herbicide prior to planting, where necessary, strictly in accordance with the Control of Pesticides Regulations 1986 (or otherwise updated/ superseded legislation), and following manufacturer's instructions by qualified staff. The topsoil shall then be cultivated to 150mm depth.
- 3 Container Grown Shrubs, Transplants and Whips: Shrubs and transplants shall comply with the National Plant Specification. Shrubs shall be planted in pits 300 x 300 x 200mm depth, and the backfill shall include 3 litres Peat Free Tree and Shrub Compost. Specimen plants to be planted in a pit 400 x 400 x 250mm depth with 5 litres Tree and Shrub Compost. BR whips should be notch planted as required and healed into position. All whips to be protected by a spiral bound shrub guard secured into place with a timber stake. Hedgerow planting to be planted in a double staggered row at 450mm centres.
- 4 Herbicide: Spot treat with herbicide throughout the maintenance period in accordance with the manufacturer's instructions.
- 5 Bark Mulch: All Ornamental Planting beds to receive 75mm depth pulverised ornamental bark mulch.
- 6 Position of Plants: Final position of trees and shrubs subject to confirmation of service location and approval of statutory undertakers.
- TREES - SELECTED STANDARDS: Tree pits for selected standard trees to be 600x600x600mm backfilled with sub soil and 300mm of topsoil. To be secured with a double stake and crossbar. Stakes to be 65mm diameter treated softwood driven firmly into the ground. Stakes to be 600mm above ground level and fixed to several tree branches with suitable rubber tree ties.
- EXTRA HEAVY STANDARDS Tree pits for extra heavy standards to be 1000x1000x900mm backfilled with sub soil and 300mm of good quality topsoil. Stakes to be 65mm diameter treated softwood driven firmly into the ground. Stakes to be 600mm above ground level and fixed to tree with suitable rubber tree tie.
- ADVANCED NURSERY STOCK : Tree pit 1200x1200x900mm depth back filled with sub soil and 300mm of good quality topsoil. Stakes to be 3nr 100mm diameter with cross bar, treated softwood driven firmly into the ground. Double stakes to be 1000mm above ground and fixed to tree with suitable rubber tree ties (with the tree in the middle). Trees to be planted with an irrigation pipe (to wrap around the rootball of the tree) and secure the end of the pipe to the tree stake.

- 8 Watering: Plant only into moist soil and water thoroughly to the full depth of soil immediately after planting. Water regularly through the establishment period (minimum 3 months) to prevent dehydration. The trees should be watered through the irrigation pipe to ensure that the water gets down to the rootball. These trees should be watered regularly throughout spring-summer during the first 2 years to ensure that the tree root system establish well.
- 9 Wildflower Meadow: Timing - Sow meadow during March and April or in September. When sowing into heavy soils, sow in March/April to avoid seeds/seedlings rotting in waterlogged soils.
- Ground Preparation -
- Control or remove weeds before sowing. For small areas, remove weeds by hand. For larger areas, a weed suppressing membrane or black plastic can be laid over the area 3 months prior to sowing to prevent weed growth. For larger areas and where vigorous perennial weeds, such as nettles, docks and dandelions, are present in large number, non-chemical control methods may not be effective. In these situations instead spray off existing vegetation using non-residual systemic glyphosate-containing weedkillers
 - Rotavate soil and rake to make even seed bed
- Sowing -
- Wildflower meadow to be sown at 4g per m
 - Mix wildflower seed with silver sand to aid even seed distribution and to show area that have been covered. Sow half lengthways and half widthways for even coverage.
 - Rake in seeds lightly
- 10 Grass Seeding: Sow late summer to mid autumn. Prepare ground by removing any existing vegetation, large stones and roughly levelling. Grass seed should be spread at 50g per m ... After sowing, lightly rake over area and water.
- 11 Turf: Complete ground preparations before turf is delivered to site to avoid turf drying out. Turf should be laid immediately on delivery. Remove all existing vegetation from area to be turfed and spread 150mm depth of top soil. Dig over or rotavate soil before laying turf if soil is compacted. Rake, lightly compact, and water soil. Stagger the joints when laying the turf. Water turf after laying and every day for the next 2-3 days, especially in periods of low rainfall.
- 12 Soil compaction is likely to have occurred during construction on site. A site inspection should be carried out by a landscape professional to assess the level of soil compaction, including drainage testing to see if the ground is likely to become waterlogged. If the ground is deemed to be too compacted for plant growth and to drain adequately then remediation works should be carried out. This could include rotavation of the soil using a push along rotavator and/or ground being broken up with spades or small machinery. A second site inspection should then take place to ensure that the soil is fit for purpose.
- 13 Tree species selected subject to soil conditions and NHBC guidance. Root barriers may be required subject to findings from soil analysis and engineer's details.

LEGEND

Existing Tree and Hedges to be Retained
Trees and hedges to be retained and protected in line with BS5837:2012. Please refer to Tree Survey for more information.

Proposed Avenue Trees
Advanced Nursery Stock, 18-20cm girth, with 2m clear stem. To be planted with a double timber stakes secured with a rubber tree tie.

Proposed Semi Ornamental Trees
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.

Proposed Native Trees Structural Landscape Areas
Extra Heavy Standard, 14-16cm girth, 4.5-6.25m high to be planted with a double timber stake secured with a rubber tree tie.

Proposed Ornamental Hedge
Proposed hedge to be planted as 80-125cm, 5-10L pots (depending on time of year planting) at 3 per lin.m

Ornamental Shrub Planting
Proposed shrubs and flowering herbaceous plants to be planted as 5-10L pots at 3.5 per sq.m, planted with feature specimen, 10-12L pots.

Proposed Grass - POS
Grass within POS to be seeded with hard wearing grass mix.

ECOLOGICAL ENHANCEMENT / HABITAT CREATION

Proposed Species Rich Native Hedgerow
Proposed native hedge to be 100-125cm height planted in a double staggered row at 450mm apart. Proposed in locations that continue to provide linear habitat connections across the site. To have minimum 5 species.

Proposed Native Woodland Planting Mix
Proposed native woodland mix to be predominantly British deciduous natives. Mix to provide general deciduous woodland habitat. To be whip planting, 60-80cm height with standards, planted at 2 plants per sq.m. Selected standard trees to be planted with a single timber stake and secured with a rubber tree tie, whips to be protected by tubex or spiral guards

Proposed Native Scrub/Shrub Plant Mix
Proposed native shrub mix to have minimum final growth height of 7M. Mix to provide breeding and foraging opportunities. To be whip planting, 60-80cm height, planted at 1 plants per sq.m.

Proposed Marginal Planting
To be species tolerant of wet soils at the waters edge, planted in 0.5L pots at a height of 8-10cm

Proposed Bulb Planting
To provide seasonal interest, planted at 16/square metre

Proposed Flowering Meadow Mix
To be Emorsgate EM2 General Purpose Meadow Mix Sowing rate 5/gm2.

Proposed Wildflower for Hedgerows
Seeded with Emorsgate EH1F Wildflowers for Hedgerows. Mix contains wild flowers that are tolerant of semi-shade and is suitable for sowing beneath newly planted or established hedges and on woodland edges. 100% wild flower mixtures are best sown into existing grass or combined with a suitable grass seed mix.

Proposed Meadow Grass Mixture for Wet Soils
For soils that are permanently wet, or seasonally under water, and situations at the edge of streams and ditches. EM6F - Meadow Mixture for Wetlands as supplied by Emorsgate or similar approved.

Retained Existing Ponds
Ponds retained as a part of the development - on-site ponds P3, P9, P10, P11. Existing ponds to be restored if required by ecologist.

Proposed Ecological Ponds
Exact design to be advised by an ecologist

Proposed Attenuation Ponds
Attenuation areas designed to have permanent water areas as part of attenuation solution.

For Planting Notes please see sheet 204

REVISION NOTES			
Rev	By	Description	Date
G	FZ	Updated in line with comments	04.05.22
F	CT	wildflower mix revised	29-4-22
D	TK	Updated in line with latest architect's layout	07.05.21
C	GBS	Updated in line with latest architect's layout	06.05.21
B	TJ	Updated in line with comments	10.03.21
A	GBS	Updated in line with comments	04.11.20

Client
Gulf Ventures 2

Project
Griffen Park

Description
Planting Plan (Sheet 6 of 6)

Status
For Approval

Scale @ A1 1:500	Drawn GBS	Checked CT	Date 01.02.20
Job number 3565	Drawing number 206	Revision G	

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