



Biodiversity Enhancement & Management Plan

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Report	Biodiversity Enhancement & Mitigation Plan (BEMP)
Site Name	High Wood Reservoir
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Client	Portsmouth Water
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1.0 INTRODUCTION

1.1 Brief

Planning permission has been granted for a roof-top solar array at High Wood Reservoir, Allington Lane, Southampton, SO30 3HQ (under planning application reference F/23/96049). A decision is awaiting for the construction of a Battery Storage container at this same site (under planning application reference F/25/99979). This report is to address Condition 5 of the former planning application and Condition 4 of the latter application:

Condition 5: 'No development shall start on site until details of measures to enhance biodiversity have been submitted to and approved in writing by the Local Planning Authority. The biodiversity enhancement measures shall thereafter be installed / carried out in accordance with the approved details.'

Reason: To enhance biodiversity in accordance with Policy DM11 of the Eastleigh Borough Local Plan (2016-2036).

Condition 4: 'Prior to first operation of the development, a biodiversity enhancement scheme shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall identify appropriate small-scale measures such as native planting, bat or bird boxes, or invertebrate features suited to the site context. The approved measures shall be implemented prior to first operation and retained thereafter.'

Reason: To secure biodiversity enhancement in accordance with Policy DM11 of the Eastleigh Borough Local Plan 2016–2036.

1.2 Aim

The aim of this report is to devise a site-wide Biodiversity Enhancement and Mitigation Plan (BEMP) to contribute towards a net gain for biodiversity post-development. This will ensure all features of ecological value and all legally protected species are protected, that their presence on site is retained in perpetuity, and to address the comments received from the council.

1.3 Site Description

The site is comprised of a building, modified grassland, gravel, bramble and hawthorn scrub, lowland mixed deciduous woodland and a ditch located at High Wood Reservoir, Allington Lane, Southampton, SO30 3HQ (centred on OS grid reference SU464161). The site is bound by ancient woodland and mixed conifer in the national forest inventory to the south and the west. To the north, the site is bound by deciduous woodland (priority habitat inventory). Coastal and floodplain grazing marsh is present to the east and good quality semi-improved grassland to the west. The M27 is present further south and the River Itchen runs to the west of the site. Itchen Valley country park is located to the north. The wider environment is rural, being surrounded by fields and woodland.

Figure 1. Site Boundary (Portsmouth Water)

1.4 Proposed Plans

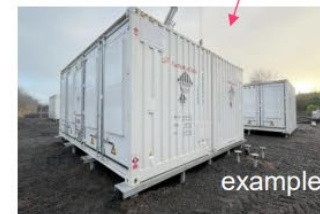
The proposals involve the installation of solar panels to the reservoir roof. Additionally, the proposals will involve the construction of a standalone container to house batteries associated with storing the solar energy from the solar panels. A PV CDM area will also be created, this including an enclosed skip, storage and drying room, toilets, a watermatic, a canteen, a generator and an office, as well as fuel storage. A turning and loading area will be provided for goods vehicles, as well as an area for materials to be kept.

Figure 2. Proposed Site Layout (Portsmouth Water).

Proposed BESS container location



- Container to be 3m away from building cladding
- Can be installed on screw foundations, as an option, so no permanent concrete foundations



- Dimensions
6058 L x 2438 W x 2896 H

Figure 3. View of the Solar Panels to be installed on the reservoir roof (Portsmouth Water)



PROJECT Highwood Reservoir	PROJECT INFORMATION Rated power: • South roof: 1.050MWp • North roof: 1.134MWp • Total: 2.184MWp	INSTALLATION ADDRESS Highwood Reservoir	Portsmouth Water West Street Havant Hampshire, PO9 1LG	 avallanra roenart intanriku
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Figure 4. Proposed PV CDM area (Ivegate Ltd – 0900-IVE-ZZ-ZZ-DR-Y-0710)

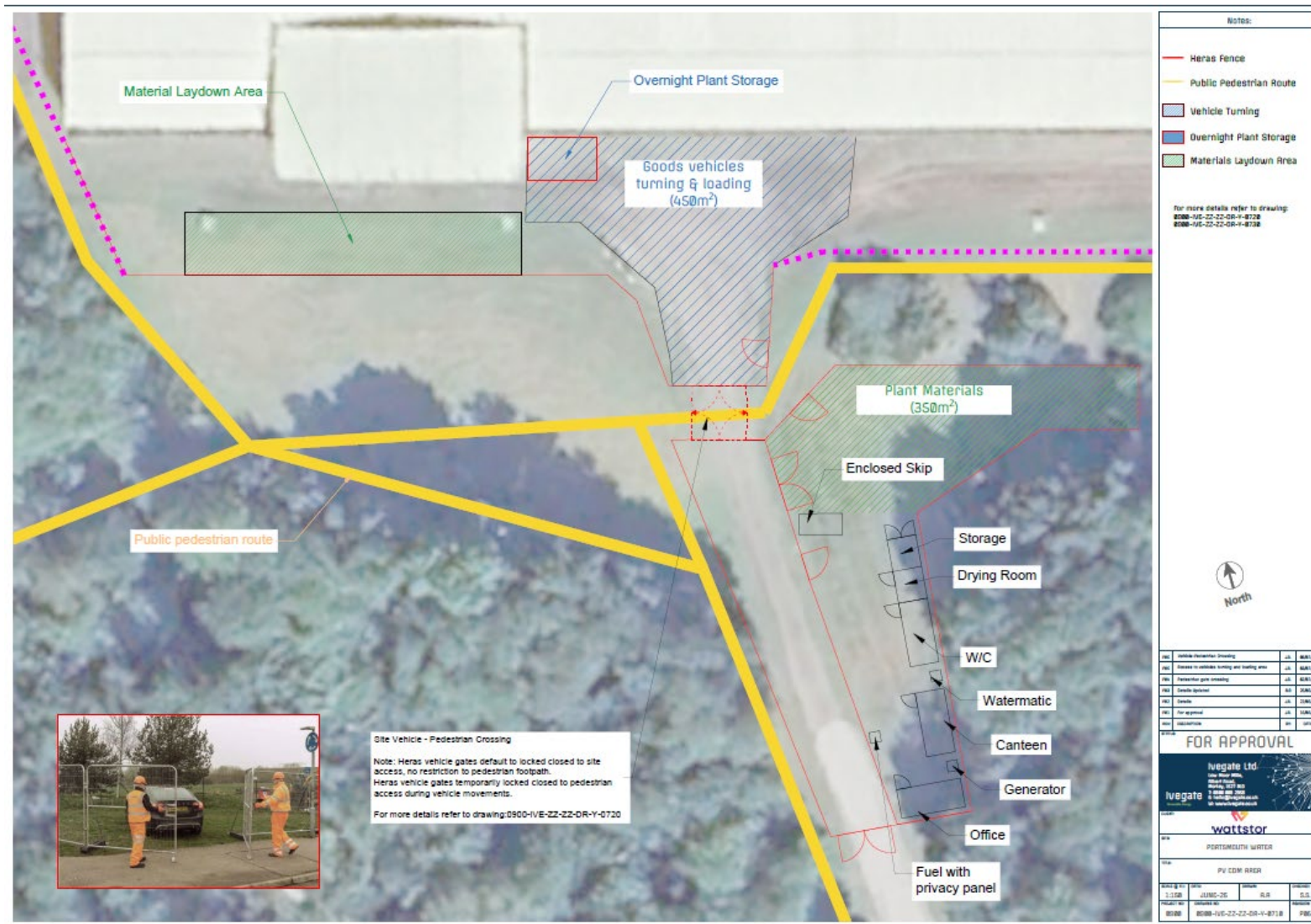
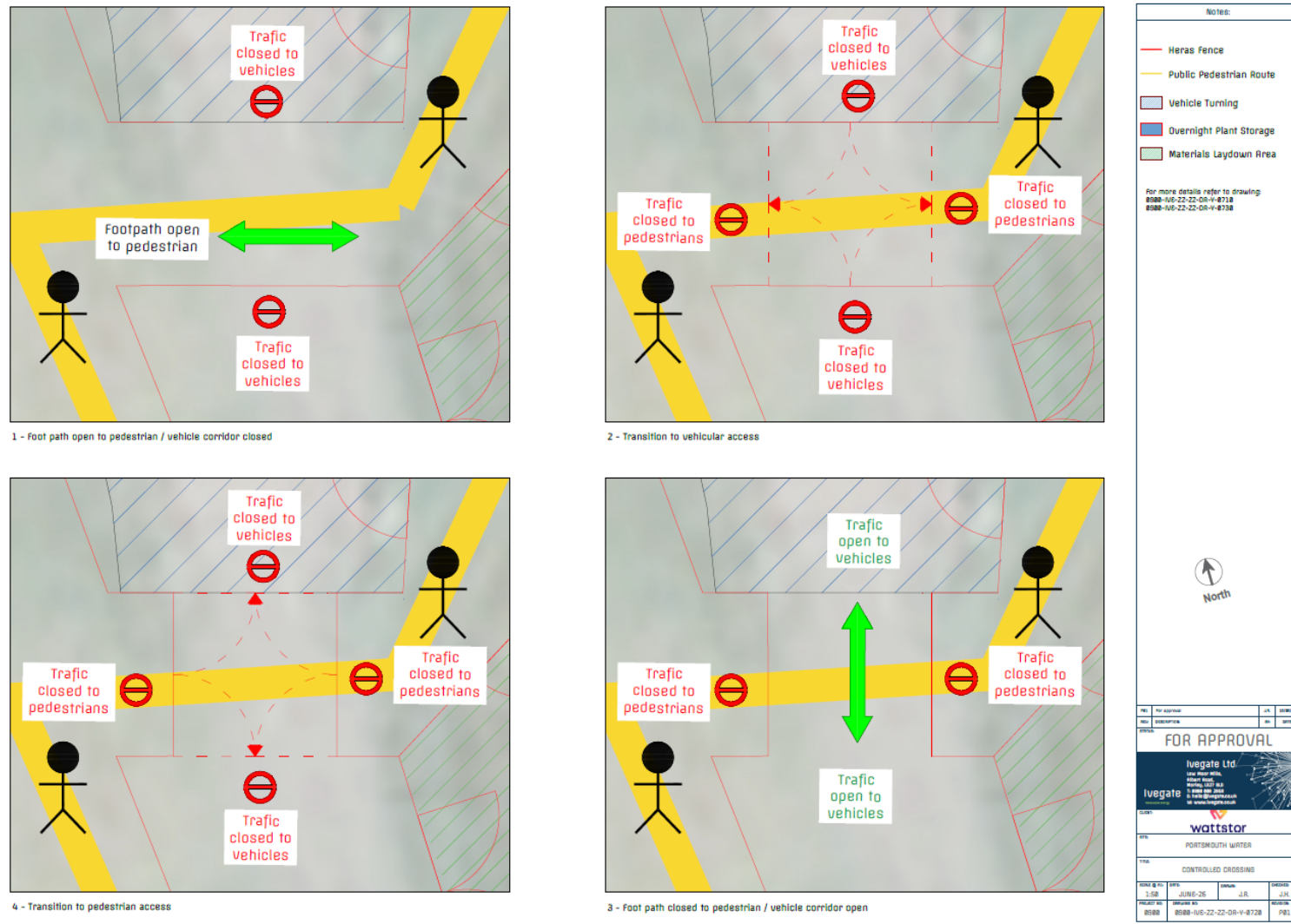


Figure 5. Controlled Crossing (0900-IVE-ZZ-ZZ-DR-Y-0720)

2.0 ECOLOGICAL BASELINE SUMMARY

The field survey work which forms the basis of the findings of this report was carried out by Joanna King DipHE on the 28th January 2026.

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey, using Habitat Definitions Version 2.01 (UKHab Ltd., 2023). Where appropriate, primary habitat codes were used although for some habitat types, the use of secondary habitat codes was necessary as well.

2.1 Habitats

The vegetation within the site has been described below using the UK Habs Habitat Definitions Version 2.01 (UKHab Ltd., 2023, updated 2024). The habitat types on site comprise:

- Modified grassland (g4)
- Buildings (u1b5)
- Artificial unvegetated; unsealed surface (u1c)
- Bramble scrub (h3d)
- Hawthorn scrub (h3f)

2.2 Bats

One building was present within the centre of the site. This building was assessed to be of **negligible suitability** for roosting bats, as a result of the building being highly sealed and thereby there being a lack of entrance and exit gaps. The building was observed to be well maintained, thereby reducing the chance of wildlife utilising it. The upper sides of the building had shallow gaps of approximately 3cm.

The woodland would be suitable for foraging and commuting bats, as well as potentially for roosting bats, within the trees. This is because the woodland not only provides a darkened corridor but also provides foraging resources. Several trees are present along the pathway within the redline boundary, which have potential roosting features (PRFs), such as knot holes. These have the potential to hold roosting bats. The Bramble and Hawthorn scrub would also provide further foraging resources, attracting a variety of invertebrates.

Figure 6. Tree with bat potential along the pathway (taken January 2026)



Figure 7. View of the tree with bat potential (taken January 2026)

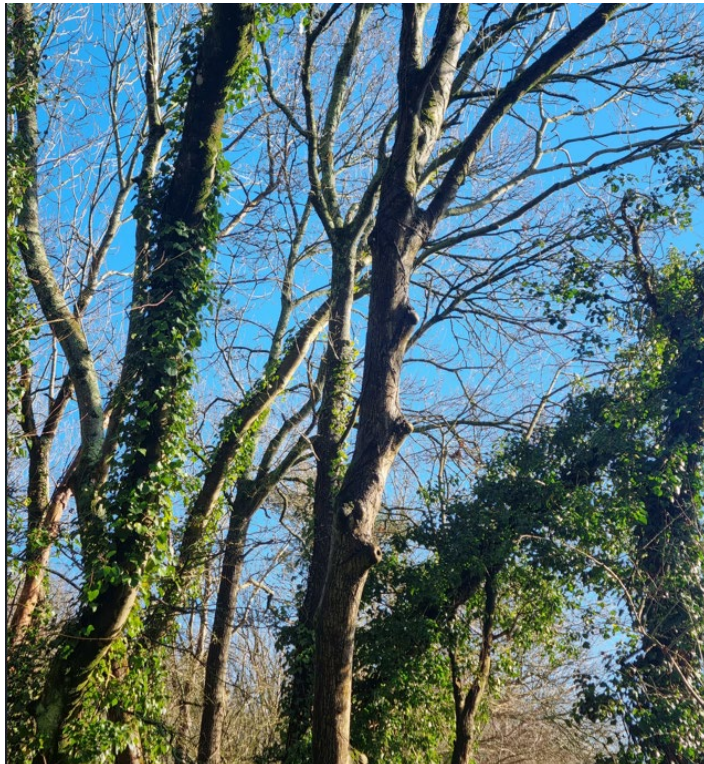


Figure 8. View of tree with bat potential along the pathway (taken January 2026)



2.3 Great Crested Newts

The woodland adjacent to the site may provide suitable habitat for hibernating and foraging GCN. One pond was shown to be present within 250m of the site, to the north, however this is on the 250m boundary and due to the scale of the works, any GCN that were to commute from this pond is not considered to be impacted. This is because the modified grassland and pathway on-site are not considered to be suitable for commuting GCN, due to the fact that the sward height is short surrounding the building, providing little protection from predation. The banks could be utilised, however these are also outside of the redline boundary. Therefore, GCN are more likely to be using the surrounding habitat, than the on-site habitat. As a result, there is considered to be **negligible potential** for GCN on-site.

2.4 Breeding Birds

The lowland mixed deciduous woodland provides highly suitable habitat for foraging, nesting and breeding. This is evidenced by the presence of Pigeon (*Columba livia*) nests in some of the Oak (*Quercus sp.*), Elm (*Ulmus sp.*), and Beech (*Fagus sp.*) trees along the pathway within the redline boundary. The bramble and hawthorn scrub on-site also present an opportunity for nesting and breeding, as well as for foraging, thereby increasing the use of the site for birds. There are locations on the building that small passerines could take advantage of for nesting purposes, however no active or old nests were seen on the building during the survey. Overall, there is **high potential** for breeding and nesting birds on-site.

Figure 9. View of Pigeon nests in the trees either side of the pathway within the redline (taken January 2026)



2.5 Reptiles

A refugia, which would be suitable for reptile hibernation and basking was present along the pathway within the redline boundary. Banks surround the building and that to the north is in a position that would be in full sun in the morning, thereby being perfect for basking. The bramble and hawthorn scrub on-site would also provide habitat for commuting, since it allows sufficient shelter. The modified grassland on-site immediately surrounding the building supported too short of a sward height to be suitable for commuting reptiles, since the predation exposure would be too great. To conclude, the bank and refugia is considered to have ***moderate potential*** for reptiles. The remainder of the site is considered to have ***low potential*** for reptiles.

Figure 10. View of the bank to the north of the building (taken January 2026)



Figure 11. View of the reptile refugia to the east of the pathway (taken January 2026)



2.6 Badgers

No evidence of Badgers was notified on site, such as bedding, mammal runs, latrines nor setts. The modified grassland on-site is unlikely to be suitable for Badger sett building, due to the fact that the base is predominantly gravel and thereby not preferred. The modified grassland banks off-site, however would provide sufficient habitat and the bramble and hawthorn scrub on-site would provide commuting pathways, as well as foraging resources. The woodland adjacent to the site holds preferable habitat for sett building, foraging and commuting Badgers. Therefore, there is **low potential** for foraging and commuting Badgers on-site, but **moderate potential** for foraging and commuting Badgers within the woodland.

2.7 Hazel Dormice

The bramble and hawthorn scrub on-site could be utilised by Hazel Dormice for nesting and foraging purposes, however it is not well connected and is regarded to be regularly managed, reducing the likelihood of its use. Hazel Dormice are more likely to utilise the woodland off-site for nesting and foraging purposes. This is especially because this woodland is well connected to linear features within fields outside of the site. In conclusion, the site is considered to be of **low potential** for Hazel Dormice.

2.8 Portsmouth Water's Management Map

Portsmouth Water's management scheme for the site is detailed in Appendix II. Habitat management will be continued as detailed.

3.0 MITIGATION, COMPENSATION AND ENHANCEMENTS

This chapter deals with mitigation, compensation and enhancement. Mitigation refers to measures that can be undertaken to avoid or reduce ecological impacts. Compensation refers to measures taken in order to offset potential significant impacts and finally enhancements contribute towards a net gain for ecology.

3.1 Bats

3.1.1 Mitigation

There are several trees with bat potential either side of the pathway leading up to the main site. These are proposed to be retained, and it has been discussed that only a few metres of a tree could be impacted by vehicles. However if this alters, further survey work will be required to ascertain if they support any bat roosts. The trees will be subject to a PRF inspection survey. This can be conducted at any time of year and entails more detailed assessment of the likely suitability of a PRF for roosting bats as well as searching for evidence of bats (e.g. droppings) within the PRF. Access equipment (such as ladders, MEWPS or scaffold towers) may be required to gain access to PRFs.

Table 1. Categorisation of PRFs (from Table 6.2, BCT 2023).

Suitability	Description
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

All of the habitats to be retained will be protected from damage during the works. All of the site boundaries, as well as the buffers outside of the impact area, will be fenced using Heras fencing or similar to prevent access by machinery. The large, mature trees will be protected using standard arboricultural tree protection measures. This includes canopy protection and prevents root compaction. These measures will also protect wildlife species utilising the site margins, such as bats, invertebrates and mammals. No vehicles will enter the protective ring fencing, and no materials will be stored within their circumference.

All protective fencing must be in place prior to any construction machinery arriving on site, before the commencement of any works, and will remain in place until all work is completed. If necessary, protective matting will be installed around the construction area for footpaths in order to prevent damage to the surrounding grassland. These measures will minimise the level of disturbance within the retained / enhanced habitat areas during the works and ensure the habitats and any wildlife species that may be using them are protected.

3.1.2 During Construction

In order to avoid any disturbance to bats (and other potential nocturnal wildlife), construction works should be limited to daylight hours and should not be undertaken 30 minutes prior to dusk through to dawn. All lighting should be sensitive to the use of the site by nocturnal wildlife, for example by including low-level downward-facing / hooded lights

that are sensor operated where possible. No lighting will be facing the boundaries of the site, since these consist of highly suitable habitats for commuting and foraging bats.

3.1.3 Bat Boxes

To enhance the site for bats, two 2F Schwegler Bat Boxes with Double Front Panel (or similar) will be installed on two of the large trees within the woodland (**Fig 12**). The second inner wooden panel creates a cavity wall, providing suitable roosting locations for bats that commonly inhabit crevices. This box is constructed of woodcrete, which does not rot, leak or crack and is breathable, whilst maintaining a stable temperature within the box. Rough surfaces are also present, which can be used by bats for climbing and clinging onto. The boxes must be placed at a height between 3m and 6m in a position which receives sunlight, but that is away from artificial light. This bat box can be found at: <https://www.nhbs.com/2f-schwegler-bat-box-with-double-front-panel>.

Figure 12. 2F Schwegler Bat Box with Double Front Panel to be installed (NHBS, 2025).



3.2 Birds

3.2.1 Mitigation

To avoid disturbing nesting birds or damaging their nests, works will be undertaken outside of the bird nesting season (March – August, dependent on weather). If this is not possible, any areas to be impacted, including the building, should be thoroughly checked by an ecologist immediately prior to works commencing. If any active nests are found, they should be left undisturbed with a suitable buffer of vegetation (5m), until the nestlings have fledged.

3.2.2 Bird boxes

To enhance the site for woodland and garden birds, two bird nest boxes will also be installed onto two trees within the woodland. One Vivara Pro Seville 32mm WoodStone Nest Boxes and one Vivara Pro Seville 28mm WoodStone Nest Boxes will be installed (**Fig 13**). Woodstone does not rot and encloses birds from predators, whilst allowing a consistent temperature to be kept within the nest box. The box must be implemented at a height of 3m. Entrance holes should be directed away from direct sunlight, preferably towards the

north and east to also avoid driving rain, whilst providing an unobstructed flight line to and from the boxes during the Autumn. These bird boxes can be found at: <https://www.nhbs.com/search?q=bird+box&qtvview=214365> and <https://www.nhbs.com/vivara-pro-seville-28mm-woodstone-nest-box>.

Figure 13. Recommended Vivara Pro Seville 32mm WoodStone Nest Box (NHBS 2026) (left) and Vivara Pro Seville 28mm Woodstone Nest Box (NHBS 2026) (right)



3.3 Badgers

Although no evidence of Badgers was recorded on site during the walkover, there remains potential for foraging and commuting Badgers on site. As a result, a walkover of the site and 30m of the surrounding habitat to the site (where access is possible) must be completed by a suitably qualified ecologist immediately prior to works commencing, in order that they can search for any newly developed holes or Badger activity. If recent Badger activity were to be identified, further survey works may be required to ensure there are no active Badger setts.

Additionally, during the construction phase, open excavations left overnight must be covered to prevent harm to commuting Badgers. Open pipework must also be checked and capped nightly. No equipment should be stored on-site and any chemicals must be stored and locked out of the reach of Badgers and other mammals.

3.4 Invertebrates

3.4.1 Glade management

The woodland to the west of the site will undergo glade management, whereby rides and openings will be implemented between the woodland and the grassland and scrub to support a variety of species. Creating a matrix between the habitats forms biodiversity corridors and allows added sunlight, encouraging plant growth and thereby enabling the habitat to support a larger variety of invertebrates. Openness also creates suitable commuting, foraging and basking spaces for mammals, reptiles and amphibians.

3.5 Reptiles & GCN

3.5.1 Mitigation

Due to the potential presence of reptiles and GCN within habitats adjacent to the site, precautionary measures will be implemented to avoid harm to protected species. The grassland on-site will continue to follow Portsmouth Water's management scheme (Appendix II).

In regard to the parcels of grassland that will be impacted (that where the building is proposed to be placed upon and those included within the designated PV CDM areas as shown in **Fig 4**), the grassland management will remain the same as present.

As the grassland that the building is to be placed upon is not proposed to be disturbed, but rather the building placed on top, a fingertip search of the grassland will be undertaken by a qualified ecologist to ensure no reptiles or amphibians are impacted.

All grassland and vegetation subject to disturbance or removal (such as within the areas outlined in **Fig 4**) will be cleared under the supervision of a suitably qualified Ecological Clerk of Works (ECoW) using a two-stage directional strimming approach. Vegetation will first be cut to a height of no lower than 10cm, and finally to ground level. This staged approach allows reptiles and amphibians to disperse into adjacent suitable habitats.

Prior to clearance, the ECoW will deliver a toolbox talk to all site personnel, outlining ecological sensitivities, working methods, and procedures to follow should protected species be encountered. A fingertip search of any vegetation to be impacted will also be undertaken by the ECoW.

Vegetation clearance will be carried out during the reptile and GCN active period (April to September), when temperatures exceed 12 °C and weather conditions are suitable (dry with sunshine). Works will not be undertaken between November and March, during the hibernation period.

Following clearance, it is recommended that the grassland is maintained at a low sward height to reduce the likelihood of reptiles re-colonising the site prior to or during construction works.

Where machinery is required to track over grassland or vegetation, the upper two inches of ground will be gradually removed using a toothed excavator bucket under ecological supervision during the reptile and GCN active period. Any reptiles that are located will be translocated into appropriate habitat to be retained within the redline boundary.

In the unlikely event that a GCN is encountered during the works, all activities in the immediate area will cease and the supervising ecologist will be consulted. Works will only recommence once appropriate mitigation has been agreed, and a licence from Natural England may be required.

3.5.2 Enhancement

As the habitats adjacent to the site are suitable for both reptiles and GCN, enhancing the site for both species would be beneficial. As a result, one log pile hibernacula will be placed within the woodland to the west whereby glade management is being undertaken. This log pile will also benefit hedgehogs and invertebrates, providing shelter and a foraging resource. This, in turn, will encourage bats and birds. The log pile will be created from a combination of logs, branches, brash and grass cuttings and it should be located within an area receiving partial sun / partial shade.

Figure 14. Example of a log pile.



3.6 Dormice

Due to the fact that the habitats adjacent to the site are suitable for Hazel Dormice, precautionary measures will be undertaken.

All habitat clearance will adopt the following methodology:

- Fingertip search of all vegetation to be disturbed, by the ECoW, immediately prior to clearance commencing (on the same day and every day clearance occurs). If any Dormice are found, works will cease and Natural England will be consulted.
- The ECoW will deliver a toolbox talk to the vegetation clearance contractors, detailing the sensitive measures required. The ecologist will then supervise all vegetation clearance. No clearance will be undertaken without the supervision of the ecologist.
- Hand tools will be utilised to sensitively cut vegetation down to ground level in a **single stage**. This will be undertaken in a directional fashion to passively encourage Dormice to move away from the works area towards the woodland. All arisings will be moved away from the cleared areas immediately, and will then be chipped and immediately removed from site.
- In the unlikely event of any Dormice being discovered (within areas where they cannot be left in situ), they will be moved (along with their nest).

- No more than 50m² of habitat will be cleared in a single day and works will take place during mid-April - mid-May or during October to avoid the breeding period (but ensure works are done during a time when Dormice are active).

4.0 CONCLUSION

This report outlines a Biodiversity Enhancement and Mitigation Plan to ensure a net gain is achieved for biodiversity and wildlife on site post-development at High Wood Reservoir, Allington Lane, Southampton, SO30 3HQ. The proposals include the installation of solar panels to the reservoir roof, as well as the construction of a standalone container to house batteries. This report satisfies conditions 4 and 5 on planning applications F/25/99979 and F/23/96049, respectively. Within this report, recommendations and enhancements have been detailed to ensure no harm is caused to protected species and to increase the site's ecological value by creating more opportunities for wildlife to utilize the site. The mitigation measures recommended include an updated walkover immediately prior to any works being undertaken to check for evidence of Badgers, the covering of excavations to ensure no mammal entrapment and the timings and precautionary measures required for vegetation disturbance. Bat and bird boxes, as well as a log pile and glade management have been recommended to further enhance the site's ecological value. It is considered that, should all aspects of this document be implemented, adequate mitigation for the potential presence of protected species can be achieved, alongside a net gain in the site's biodiversity value.

5.0 REFERENCES

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Appendix I – Enhancement Plan



Legend

- Site boundary
- Glade management
- 2F Schwegler Bat Boxes with Double Front Panel (or similar)
- ◆ Vivara Pro Seville 28mm WoodStone Nest Box
- ◆ Vivara Pro Seville 32mm WoodStone Nest Boxes
- Log pile



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Map	Enhancement Map
Site	High Wood Reservoir
Client	Portsmouth Water
Date	14/05/2026

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Appendix II – Portsmouth Water’s Management Plan

Highwood Reservoir



Maintain path sides by periodic cutting back of bramble and coppicing of hazel (every 5-7 years)

Cut back and mow grassland, bramble and other scrub on banks annually in late autumn or winter, but retain c.10-15% cover of gorse and other scrub. Remove larger oak trees.

Assess ride again in c.2025. Maintain by scrub clearance, and if possible mowing

Former pine plantations on reservoir embankments: monitor again in c.2025 to assess scope and timing of further thinning and other management (to promote gradual replacement by broadleaved semi-natural woodland).

Regularly mow around building and areas on either side of entrance track. Do not mow G2 areas between April and June.

Cut back gorse scrub on top of slope to maintain c.10% scrub cover in this area

Clear scrub and trees from marshy grassland on slope in late autumn or winter and follow up by mowing

Woodland marked as limited intervention (W5) may benefit from hazel coppicing or other management in the future

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Grassland management

- Regular mowing all year as required (G1)
- Regular mowing with one summer cut missed (G2)
- Two cuts per year, spring and late summer (G4)
- One cut per year, late summer (G5)

Scrub management

- Established scrub removal (S2)
- Scrub maintenance (S3)

Woodland management

- Thinning (W2)
- Boundary and ride maintenance (W4)
- Non-intervention or limited intervention (W5)