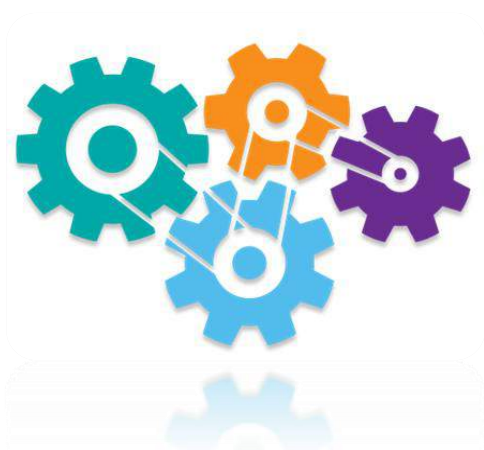




Former Mepal
Outdoor Centre,
Chatteris Road,
Mepal, Ely,
Cambridgeshire
CB6 2AZ

Ecological Impact Assessment

August 2021



Ref: 19-6364

V7

QUALITY STANDARDS CONTROL

The signatories below verify that this document has been prepared in accordance with our quality control requirements. These procedures do not affect the content and views expressed by the originator.

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Note

The advice which we have prepared and provided within this report is in accordance with the CIEEM Code of Professional Conduct. We confirm that the opinions expressed are our true and professional opinions. Opinions and information provided in the report are based on Syntegra Group Ltd using reasonable skill, care and diligence in the preparation of the same in compliance with the CIEEM Code of Professional Conduct.

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The methodology adopted and the sources of information used by SC in providing its services are outlined in this report. The work described in this report was undertaken in **2020** and is based on the conditions encountered and the information available during the said period of time. The scope of this report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

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Forecast cost estimates do not include such costs associated with any negotiations, appeals or other non-technical actions associated with the agreement on measures to meet the requirements of the authorities, nor are potential business loss and interruption costs considered that may be incurred as part of any technical measures.

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1. Introduction

- 1.1. This report has been prepared by Syntegra Group on behalf of The CDS Group. It sets out the findings of an Ecological Impact Assessment (EclA) of proposals for Former Mepal Outdoor Centre, Chatteris Road, Mepal, Ely, Cambridgeshire CB6 2AZ (Grid Ref: TL 42274 82982).
- 1.2. The scope of this assessment has been determined with due consideration for best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2016) and the Biodiversity: Code of practice for planning and development published by the British Standards Institute (BS 42020:2013).
- 1.3. The site is situated near Chatteris, an area characterised by low density-built form and surrounded by agricultural land, main and minor roads, and treatment facility. The site is approximately 20 hectares in size. The site is located off the A142.
- 1.4. Historically the Mepal Outdoor Centre site was a former gravel pit and then was used as an outdoor centre, is now in the ownership of East Cambridgeshire District and has been left for 4 years plus without any comprehensive management arrangements. The two pits on either side of the A142 are designated as County Wildlife Site No 7034 in the East Cambridgeshire District County Wildlife Site Register (Anon, 2010) on the basis of the pondweeds present in the water bodies.
- 1.5. The proposals include the demolition of the existing buildings on site and the construction of a crematorium and associated service and administration building, function building, memorial garden, natural burial areas, pet cemetery, car parking, new vehicular access from the A142 and landscaping. Recreational activities have been proposed and were considered from the onset, and it has been concluded from the additional Phase II surveys that only certain activities would be suitable given the overall site constraints, refer to Appendix VI for activities that were not deemed suitable for the site.
- 1.6. From the outset, the Applicant has fully explored opportunities for maximising shared use at the site, in this case facilitating a range of recreational activities in addition to the principal use of the site as a crematorium. The proposed recreational usage for the site can only be facilitated with a separate means of vehicular access and associated parking area. This area will be situated within the northern-eastern site boundary. The EclA will determine the impacts of these activities upon the notable ecological features and scope out activities that even with proposed mitigation in place would result in unacceptable direct and indirect impacts. stating that all recreational activities have been considered and conclude
- 1.7. This EclA aims to:
 - Establish baseline ecological conditions at the site.
 - Identify any likely significant effects of the proposed scheme, in the absence of mitigation.
 - Set out any ecological measures necessary to effectively avoid or mitigate likely significant effects and identify residual impacts.
 - Identify any compensation measures required to offset residual impacts.

- Set out potential ecological enhancement measures that may be delivered by the proposed scheme.
- Confirm how proposed mitigation, compensation and enhancement measures will be secured.
- Provide sufficient information to determine whether the project accords with relevant nature conservation policies and legislation, and where appropriate, to allow conditions or obligations to be proposed by the relevant authority.

2. Methodology

2.1. Ecological Scoping and Baseline Data Collection

Ecological surveys for the Site were reviewed to inform the current assessment. These comprised of Preliminary Ecological Appraisal undertaken by Syntegra Group (2019), a record was also undertaken by the Cambridgeshire and Peterborough Environmental Records Centre, CPERC.

The following detailed field survey work was carried out between December 2019 until September 2020, with full methodology and results presented within each report. Phase II surveys on site included botanical surveys, entomological surveys, otter and water vole, dusk echolocation activity survey, winter bird surveys (WBS) and breeding bird surveys (BBS).

2.2. Baseline Evaluation and Impact Assessment

The evaluation and assessment were undertaken in accordance with the Chartered Institute of Ecology and Environmental Management’s Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018). Measures are described to ensure that any impacts can be avoided, minimised or compensated for by applying the mitigation hierarchy in accordance with NPPF paragraph 175 (a) which states: *If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused’.*

3. Baseline Conditions and Assessment

3.1. Study Area

- 3.1.1. The study area for an EclA should cover not only the Site, but also areas over which the Proposed Development will potentially cause biophysical changes, both direct and indirect impacts, that might result in an effect upon valued ecological features i.e. the zone of influence. For this assessment, a ZoL of 2km was used.
- 3.1.2. The desktop study extended to 2km from the site boundary to account for any designated sites for nature conservation. The record search undertaken by the CPERC included known records along with statutory and non-statutory designated sites for nature conservation within 2km from the central grid reference.

3.2. Summary of Findings

- 3.2.1. Table 1 below summarises the ecological baseline conditions and evaluates their importance in accordance with CIEEM’s geographic frame of reference (CIEEM, 2018), considering the previous survey work and record search.

Table 1: Identified Ecological Features with the Zone of Influence and Value (CIEEM, 2018)

Ecological Feature	Value	Summary of Findings
Ouse Washes SAC, RAMSAR, SSSI and SPA	International	Located within 2km of the site boundary. Extensive wetland habitat. Designated for its international and national importance for hosting a range of wildfowl and wader species including overwintering species including: <i>Bewick's swan, Cygnus columbianus bewickii, Pintail, Anas acuta, Shoveler, Anas clypeata, Teal, Anas crecca, Wigeon, Mareca Penelope Whooper swan, Cygnus cygnus</i> Also noted for its Wetland invertebrate assemblage and Wetland plant assemblage
Mepal Gravel Pits CWS	County	The site itself forms part of the Mepal Gravel Pits; this site makes up the western side of the pits. The site is noted for hosting pondweeds, including the nationally scarce species, <i>Potamogeton trichoides</i> . The 2005 survey undertaken by Alastair Ross, states that pits

		had/have some ornithological (species include Great Crested Grebe, Cormorants and Kingfishers) and amphibian interest; however further investigation is required to quantify this.
Botanical	County	<p>The marginal habitat around the lake, the lake itself and the open sandy areas are the most important parts of the site from the botanical perspective. Open sandy ground is generally rare in the county, so this is important habitat. The open sandy areas support seven species of county significance, whilst the lake and its margins support six. It is clearly worth retaining the CWS designation for the Mepal Outdoor Centre part of the overall Mepal Gravel Pits CWS</p> <p>The site is also classed as a s41 habitat of principal importance: open mosaic habitats on previously developed land.</p> <p>Appendix I details the areas of notable botanical interest</p>
Bats -roosting	Local	<p>The buildings were deemed as Low to Moderate potential for use by roosting bats. No active roosts were noted and vandalism during the summer has reduced potential to low to negligible. A series of trees providing potential roosting features have been identified during the PEAR.</p> <p>Appendix II details the PRF trees</p>
Bats – foraging and commuting	Local	<p>The site itself offers high value for use by foraging bats. The site has a lake, mature tree</p>

		<p>line boundaries, scattered semi-mature and mature trees along with denser pockets of scrub that would be of higher value for commuting and foraging bats. Traversing and foraging noctule, common pipistrelle, myotis, and soprano pipistrelle were recorded and observed during the dusk activity survey.</p>
<p>Birds</p>	<p>Local</p>	<p>The WBS identified thirty-two species of birds, thirty of which were present onsite, two of which flew over the site.</p> <p>The lake and shoreline which supports reeds and shrub is an important feature for wintering waterfowl species, for foraging and shelter. The areas of teasels provided foraging areas for finches and small passerine birds.</p> <p>Three bird species identified as using the site are listed on the Birds of Conservation Concern 'Red' List. These species are fieldfare, song thrush and the herring gull.</p> <p>The five bird species recorded that are listed on the Birds of Conservation Concern 'Amber' List, which includes the mallard, mute swan, black headed gull, kestrel and marsh harrier, were all recorded on the site itself.</p> <p>The site does not meet the 'Site of Biological Importance' criteria for overwintering birds in Cambridgeshire and Peterborough.</p> <p>The birds identified during the breeding bird survey were predominantly common species, both at a national and local level.</p>

		<p>Seven amber listed species were recorded using habitats within the site boundary: kestrel, swift, arctic tern, black-headed gull, mallard, mute swan, and dunnock.</p> <p>Two red listed species were recorded during the survey visits. The Herring Gull and the Song Thrush, which used habitats within the site boundary.</p> <p>The site also hosts a rookery. Appendix III details the areas of notable bird interest</p>
Invertebrates	Regional	<p>Within the Mepal Gravel Pits County Wildlife Site, the western pit evidently provides virtually all the high-quality open habitat mosaic with Breck-like characteristics and invertebrate fauna.</p> <p>The open habitat 'rich flower resource' and 'bare sand & chalk' Species Assemblage Types are both in favourable SSSI condition. It is judged that the open habitat mosaic at the southern end of the site, shelving lake edge at the southern end of the lake and the plentiful dead wood resource should qualify the site as a County Wildlife Site on the invertebrate data alone.</p> <p>Appendix V details the areas of notable entomological interest</p>
Otters	Local	<p>Evidence of otter field signs were found and recorded on the south-eastern banks of the lake.</p> <p>Appendix IV details the areas of notable otter interest</p>

- 3.2.2. The results of the CPERC Record search of known records within 2km of the site have returned the following species: 12 records of at least four bat species from within the search area: Nathusius's Pipistrelle (*Pipistrellus nathusii*), Noctule Bat (*Nyctalus noctule*), Daubenton's Bat (*Myotis daubentonii*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*) the closest of which was 900m to the South-west of site.
- 3.2.3. It is very important to also mention that the site is within 2km of a RAMSAR. CPERC provided 45227 records of 91 bird species from within the 2km -radius search area these have been mostly recorded within the Ouse Washes. Species that have been recorded on site include; Cetti's Warbler (*Cettia cetti*), Goldeneye (*Bucephala clangula*), Black-necked Grebe (*Podiceps nigricollis*), Common Tern (*Sterna hirundo*), Arctic Tern (*Sterna paradisaea*), Cuckoo (*Cuculus canorus*) Redwing (*Turdus iliacus*), Bittern (*Botaurus stellaris*), Scaup (*Aythya marila*), Kingfishers (*Alcedo atthis*), owls and Turtle doves (*Streptopelia turtur*) which are vulnerable to global extinction (IUCN Red List of Endangered Species). CPERC provided 5 records of the species from within the 2km search and shows a record of an adult female dating 09/01/2018 on site.
- 3.2.4. The July 2005 survey on the site identified the following plant species: *Elodea canadensis*, *Potamogeton perfoliatus*, *Phragmites australis*, *Lycopus europaeus*, *Epilobium hirsutum*, *Scrophularia auriculata*, *Lythrum salicaria*, *Eupatorium cannabinum*, *Juncus articulatus*, *Samolus valerandi*, *Myosotis scorpioides*, *Cyperus longus*, *Typha angustifolia*, *Salix alba*, and *Crataegus monogyna*.
- 3.2.5. Invertebrates within close proximity of the site include: *Berosus luridus*, *Chaetarthria seminulum*, *Donacia clavipes*, *Halipilus mucronatus*, *Hydrochus crenatus*, *Aromia moschata*, *Oulimnius major*, *Oulimnius rivularis*, *Coenonympha pamphilus*, *Lasiommata megera*, *Libellula fulva*, *Coenagrion pulchellum*.

4. Limitations

- 4.1. Consideration has been taken to ensure that balanced advice is provided on the information available and collected during the study periods. It is possible that ecological features could have been missed due to survey timings or the absence of individuals during surveys. In addition, the lack of evidence or records of protected species on the site does not rule out their presence from the Site. It is considered that there were no specific limitations to the field work.
- 4.2. The assessment is based on baseline survey results that are accurate at the time of survey. However, the baseline can change over time due to the mobility of some species, and natural processes of vegetation succession.
- 4.3. The site has undergone notable changes from the initial Preliminary Ecological Appraisal undertaken in December 2019. The site has had multiple incidents of anti-social behaviour, including arson, theft of materials, raves, fly tipping and damage to buildings. Whereas the additional protected species surveys have highlighted local to regional value, a balanced approach to developing this site will need to be sought in the best interest of the site moving forward due to the level of public disorder and anti-social behaviour.

5. Impact Assessment and Mitigation Strategy

5.1. Proposals

- 5.1.1. The proposals include the demolition of the existing building on site and the development of construction of a crematorium and associated service and administration building, function building, memorial garden, natural burial areas, pet cemetery, car parking, new vehicular access from the A142 and landscaping.
- 5.1.2. The proposals will include additional lighting that will reside within the site itself and within the boundaries of the site. The hours of operation are 9:00 to 17:00. Proposed external lighting will consist of security lighting that is motion triggered along with bollard style lighting. Proposed lighting will comply with ILP and BCT Guidance Note 8 to minimise light pollution.
- 5.1.3. The proposal will include soft and hard landscaping.

5.2. Assessment of Likely Significant Effects and Proposed Mitigation

Ouse Washes RAMSAR

The WBS undertaken at the proposed site during December 2019 to February 2020 have concluded the likely absence of notable species utilising the Mepal Site. The results of the WBS found that the site does not meet the 'Site of Biological Importance' criteria for overwintering birds in Cambridgeshire and Peterborough. It is noted that the 2019/2020 WBS are snapshots of three days over the winter months. The individual bird species utilising the lake are used to certain levels of disturbance given the sites regular use by recreational fishermen.

The proposals include a north-eastern access to include a car park, designated proposed walkways, bird hide, and picnic benches, and will result in recreational usage within the north-eastern and northern section of the site. The southern section of the site for use as a crematorium will result in more localised presence of the public, with one small section of the southern lake area to have access by the crematorium visitors with a fenced walkway.

For the construction phase the risks include the direct impact of site avoidance by notable overwintering species utilising the site for additional foraging and shelter.

For the operational phase, the risks include the direct impact of site avoidance by notable species breeding, foraging, and sheltering due to increased public presence.

In the *absence* of mitigation, a significant adverse impact at the International Level is predicted for the Ouse Washes RAMSAR.

Mitigation for the construction phase risk will be minimised through the adoption of a robust Construction Environmental Management Plan (CEMP). The construction phase will

be overseen by a suitability qualified ecologist to ensure implementation of the CEMP. Buffer zones will be set up around the lake should works extend into the winter season. No machinery or materials will be stored within 10 metres of the lake side to reduce potential disturbance.

Access to the lake within the southern section by crematorium visitors will be accommodated by a raised and railed boardwalk with a short platform overlooking the lake. Within the boardwalk a series of educational boards with notable bird species identification guides will be available for public view. Given the usage of the site by mourners' noise disturbance is considered to be minimal and the level of disturbance is seen as comparable with the existing lake usage. With the remainder of the southern crematorium lakeside having no public access as well as having natural buffer vegetation in place, it is *not* considered the remainder of the lake will have unpredicted levels of disturbance.

For the north-eastern section, the proposals will include a car park with low impact recreational usage including proposed walkways and picnic areas. To reduce public disturbance there will be proposed a bird hide and educational boards to reduce any disturbance. Dog walking within the proposed public areas are not recommended given the inability to enforce lead usage and the overall direct impact upon individuals birds utilising the lake. Within the car park educational signs will be in place to highlight the sites ecology, along with guidance on reducing disturbance and the prohibiting dogs entering the lake and lakeside habitats.

Mepal Gravel Pits County Wildlife Site

For the construction phase the risks to the lake include the direct and indirect risk of materials, dust, and runoff entering the waterbody.

For the operational phase there is a risk of increased water pollution and increased run-off. There is also an increased pressure to wildlife utilising the lake due to the proximity of the site and increased human presence and presence of dogs.

Any proposed water-based activities have the risk of increased turbidity, damage to the notable pondweed, and increased disturbance to wildlife utilising the lake and lakeside habitats.

In the *absence* of mitigation, a significant adverse impact at the County Level is predicted for the Mepal Gravel Pits CWS.

Mitigation for the construction phase risk will be minimised through the adoption of a robust CEMP. The construction phase will be overseen by a suitability qualified ecologist to ensure implementation of the CEMP and clerk of works (ECoW) of sensitive site works. Any works required within 10m of the lake will need to ensure specific pollution measures are put in place, to be detailed in the CEMP. No materials or machinery, or storage compounds will be permitted within 10 metres of the lake boundary to prevent contaminated runoff entering the watercourse. No works vehicles will be permitted to enter the lake or lakeside.

Pollution prevention measures will always be adhered to in accordance with best practice guidance.

Water pollution and increased run-off during operation will be controlled via a Sustainable Drainage System (SuDS). The proposals introduce more permeable areas than are currently on the site, reducing surface water run-off.

Access to the lake by the public will also be managed to prevent widespread access and disturbance to the bankside vegetation and lake itself. This will be achieved through the creation of set proposed footpaths through the Public Open Space and fencing off sensitive areas to prevent access by the public. These measures will allow access to some sections of the lake and lakeside, but not all the lake and will reduce uncontrolled access by public. Recreational activities such as sailing, canoeing, swimming, and paddle boarding are considered even with mitigation measures in place will have an overall direct negative impact upon the CWS. These activities will not be suitable at the site due to the direct and indirect impacts that they will pose on the CWS and the pondweeds present within the lake. Suitable recreational activities advised for the norther-eastern include nature walks, bird watching, and picnicking by the public. Limiting the number of visitors within this area will be facilitated by the proposed small number of parking bays within the layby pull in. Control measures due to safety will also ensure that car parking does not occur along the A142, and this will also aid in maintaining low visitor numbers.

Within the crematorium no dogs are allowed based on respect to the mourners. The northern section of the site will be opened for public usage, and dog walking is not advised due to the inability to enforce lead use. Educational signs will be in place within the public access areas to highlight the sites ecological interest.

To further provide an additional buffer and reduce impacts during the operational phase it is recommended that additional landscaping areas around the lake are a balance of the recommendations of the botanical, otter, and entomology reports are incorporated. As otters require access to the lake fencing is not advised in all areas however sensitive locations that host pond weed will require fencing to restrict public access.

With the prescribed mitigation measures in place, it is considered that there will be a neutral impact at the County Level predicted for the Mepal Gravel Pits CWS.

On-Site Habitats

Under the do-nothing approach, natural succession would inevitably lead to degradation of the site. So, whilst the development will have a negative impact on the site as it is now, it has the potential for a positive impact moving forward, especially if appropriate management is required perpetuity. With the lack of enforcement on site, this has the potential for identified important key habitats and species damaged or lost from vandalism, fly-tipping, and trespassing with vehicles.

The proposed development footprint will result in the direct loss of scrub, scattered trees, hard standing areas, select open sandy areas, and select lakeside marginal vegetation. The site is a section 41 habitat, open mosaic habitats on previously developed land.

In the *absence* of mitigation, this is a significant adverse effect at the county level, given the diversity of plant species identified on site and their conservation status. The open sandy areas support seven species of county significance, whilst the lake and its margins support six species. The scrub areas not considered of particularly high ecological value in relation to botanical interest. Refer to Appendix I on the location of these notable areas of botanical interest.

The design includes proposed new landscaped open space areas. To ensure no net loss of biodiversity, recommendations with the aim of maintaining significant areas of bare or lightly vegetated have been agreed with bund areas and section F maintained. Maintaining these areas will retain sections of the s41 habitat. The ongoing management of these bare areas will need to ensure that emergent vegetation is not overwhelmed by reed growth. Whereas the bare grounds within areas A will be developed, a balanced approach will be sought with the translocation of notable species from these areas to a suitable location under the direction of a suitably qualified and experienced botanist. Within the previous A area, the new development will incorporate new open space areas to be naturally colonised. An ongoing management plan will be designed by The Wildlife Trust for Bedfordshire, Cambridgeshire & Northamptonshire (later referred to as The Wildlife Trust) with regular site visits to monitor the sites notable open bare ground areas. The management plan will designate the responsibility of carrying out the site management.

Within the lakeside, these areas can be enhanced by clearance of areas of scrub that in turn will provide more habitat for emergent species. Management of the higher ground that is nutrient rich will be required to reduce nettle beds. The nature walk and car park area has been advised through previous discussions best placed in the north-eastern section of the site. It is advised that the nature walk construction is along the north-eastern lake shore with a return on the high ground. Management of the higher ground that is nutrient rich will be required to reduce nettle beds. The new car park is advised to have additional educational boards, covered litter bins, and regular monitoring to determine the level of impacts occur from usage.

Development of the bankside areas within areas B, C, and D are not recommended due to the overall botanical interest and these areas will be fenced off to the public. The ongoing management of these areas will be designed with a suitably qualified and experienced botanist and The Wildlife Trust to ensure that the long-term management of these areas maintain the botanical interest.

Mature and veteran trees, along with hedgerows are being retained as part of the development. A few select grade C trees within the development footprint will be removed.

The removal of these trees will be guided by the CEMP to ensure any adjacent sensitive areas are not impacted by any machinery that could be used for the tree removal. For the retained A and B category trees within the footprint these trees will be incorporated into open space design. During the construction phase retained trees and hedgerows will be protected in accordance with the Arboricultural Method Statement.

The onsite hedgerow will be buffered with a minimum of 2m wide strip of long/ rough grassland/forbs. Hedgerows will be managed in accordance with the LEMP to maintain dense, bushy structures a minimum of 3-metres on a rotational programme.

A Landscape and Ecology Management Plan (LEMP) developed with input from a suitably qualified and experienced botanist and The Wildlife Trust will be adhered to in perpetuity.

With the prescribed mitigation and enhancement measures in place, it is considered that there will be an overall neutral impact at the County Level predicted.

Protected Species

Badgers, Hedgehogs, and Hare

Although no direct evidence noted on site, the site provides potential use for these species.

In the *absence* of mitigation, a significant adverse impact at the Site Level is predicted for small mammals.

There is potential for mammals to become trapped in holes, ditches, and trenches during the construction phase. To prevent this, any ditches, holes, or trenches must provide a means of escape in a form of a mammal ladder.

For the operational phase nocturnal mammals have the disturbance to traversing routes by changes in lighting onsite.

Enhancements for small mammals will include a sensitively designed landscape and lighting plan that will retain dark corridors wherever possible, use of motion sensed lighting where possible, fixtures that will provide direct and low level lighting, in line with ILP and BCT Guidance Note 8, along with enhancing and maintain boundary treelines and hedgerows.

The mitigation measures recommended will be secured by means of a robust CEMP, lighting plan, and LEMP.

With the prescribed mitigation and enhancement measures in place, it is considered that there will be a neutral impact at the Site Level predicted for small mammals.

Nesting Birds and Overwintering Birds

Under the do-nothing approach, with the lack of enforcement on site has led to the loss of three buildings with known evidence of nesting birds. Vandalism could continue resulting in further damage or destruction of key habitats used by breeding and overwintering birds.

The WBS and BBS noted a rookery within the north-eastern section of the site. This area will need to be maintained and protected during the construction and operational phase.

The site provides overwintering for a variety of species, construction and operational impacts will need to be reduced.

The use of water-based sports and lakeside recreational activities including dog walking has the direct and indirect impact to breeding, foraging, and over wintering birds.

The increase presence of crematorium visitors has both direct and indirect impact to breeding, foraging, and over wintering birds.

Disturbance to wintering waterfowl can result in the reduction in foraging, change in behaviour, avoidance of areas, and increased stress on individuals.

In the *absence* of mitigation, a significant adverse impact at the Local Level is predicted for Birds.

During the nesting bird season (March to August, inclusive) there is the risk of killing and injuring nesting birds, damaging their nests or eggs, as a result of vegetation and building clearance.

Given the small amounts trees to be lost, vegetation removal is unlikely to have significant adverse effects on breeding birds.

It is advised that all clearance on site, including buildings are carried outside of the nesting bird season unless first checked by a suitably qualified ecologist.

Exclusion areas in place for the construction and operational phases have been recommended within the lake boundaries to reduce disturbance to breeding and wetland birds and can be viewed in Appendix III. These areas will also provide areas of reduced disturbance to overwintering bird species. Whereas management to lakeside areas have been recommended by the botanist, and the southern zone to be developed, these approved activities in the set areas are best overseen by an ECoW.

Water based activities during the breeding and overwintering season has the potential to cause changes in the usage of the site by waterfowl and directly resulting in the loss of the site usage by waterfowl. It is considered that due to lack of mitigation measures to ensure the reduced risk of proposed activities such as paddle boarding, canoeing, kayaking, and swimming on nesting and wintering birds will not be favourable for this site and have been scoped out as a viable option on the site.

To reduce the risk of disturbance by the public, the proposed measures to be implemented for the CWS will reduce potential impacts to the breeding and overwintering birds. Additionally, creation of a bird hide with educational signs within the north-eastern section of the lake can be used for educational purposes and highlight the importance of decreased disturbance when used by the public. The southern section of the site will also implement educational signs as these will highlight the importance of decreased disturbance when used by the public.

To compensate for the loss of any nesting habitat within the buildings it is recommended that a variety of nesting boxes suited for swallow and house sparrow are incorporated into the design of the new buildings. Use of further nesting boxes suited for a variety of species is recommended within retained mature trees.

To compensate for the loss of foraging habitat it is recommended that hedgerows are infilled with native nut and fruit bearing species including hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), wild cherry plum (*Prunus cerasifera*), guelder rose (*Viburnum opulus*), blackthorn (*Prunus spinosa*) and field maple (*Acer campestre*). Hedgerows will be maintained and managed on a rotational programme to allow areas to recover and produce berries/fruit as to maintain foraging sources. A small section of teasel area will be rotationally maintained within the southern boundary of the site in line with a balance from the entomology mitigation.

These recommendations will be secured by a robust CEMP, LEMP, and landscape plan.

With the prescribed mitigation and enhancement measures in place, it is considered that there will be a positive impact at the Local Level predicted for overwintering and breeding birds.

Bats

Under the do-nothing approach, the site with lack of enforcement of anti-social behaviour, has resulted in two potential roosting sites damaged and/or destroyed by theft and fire. These activities could extend to the remaining buildings on the site that could in future host roosting bats. Key foraging activities could also be lost due to further vandalism and fly-tipping.

Following the dusk activities surveys there is a likely absence of roosting bats within the buildings. Standard precautionary measures are required for the demolition of the buildings onsite.

Several trees have been found to host potential for roosting bats (Refer to Appendix II). The trees with roosting potential will be retained and protected during the construction works. Loss of any category C trees with roosting potential will have additional surveys in line with BCT guidelines. Grounds for carrying out these surveys after planning is due to the level of anti-social behaviour on site during 2020. Lighting will not be directed at any trees within identified roosting potential.

The dusk activity survey identified that the site and boundaries provide foraging and commuting habitat for local bats. Within the site there will be small amounts of habitat loss as well as impacts from light-spill.

Light-spill in particular during both the construction and operation phase is likely to have adverse effects on commuting bats which are sensitive to light, including *Myotis* species, that have been recorded utilising the site. Lighting schemes can damage bat foraging habitat directly through loss of land and spatial exclusion of bats due to high illuminance, or indirectly by severing commuting routes from roosts, through light spillage polluting

hedgerows, tree lines and watercourses (Racey 2006). In addition, increased lighting can cause for increased prey (i.e. moths) to be attracted to the lights drawing them away from dark areas causing a decreased in prey availability to light sensitive species such as *Myotis*. Limited research has been undertaken on impacts of lighting on swarming bats, in absence of known impacts precautionary principal must be applied (Stone, 2013).

In the *absence* of mitigation, a significant adverse impact at the Local Level is predicted for Bats.

To minimise impacts from lighting during the construction phase no lighting is to be directed or within close proximity to the lake (within 10 metres). Lighting is to be directed downwards only and of hooded design. Lighting during the construction phase must avoid peak commuting and foraging times and or swarming times during the late summer and autumn periods. This lighting scheme can be secured within the robust CEMP.

For the operational phase, although the site will be used between the hours of 9:00 to 17:00, security lighting will be required. The direct illumination will need to avoid peak use times of the bats upon the lake. As *Myotis spp* have been recorded on site, the use of LED white light is a known to reduce activity and spatial avoidance of commuting routes, so must be avoided.

All lighting will need to have directional downlights - illuminating below the horizontal plane which avoid light trespass into the environment (Stone, 2013). Ensure a low beam angle of the lights, less than 70° above the horizontal. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats. Variable Lighting Regimes (VLR) are recommended for the site. VLR involve switching off or dimming lights for periods of the night. The lighting units must also reduce the height with the aim of keeping units as close to the ground as possible to reduce the overall illuminated space. Use of handrail LED lights are to be used for any footpaths to direct the light at a low level with no horizontal or upward spill. Use of hooded bollards rather than pole lighting is recommended wherever possible.

Lights near the lake can also be fitted with movement sensors and use of this will reduce the overall lit time for the environment, potentially reducing the impact on bat. Bespoke dimming regimes can be implemented or dimmed below 0.5 lux during periods of low pedestrian use.

For the carpark low level lighting and bollard style light fixtures it to be used with the light directed to the ground below the horizontal with fixtures to use full cut off lights, cowls, and/or hoods.

Proposed enhancement measures for use by local foraging bats will be accommodated by a landscape design that retains the hedgerows and tree line boundaries and further enhances these areas by correct management regime and incorporates infilling with native and wildlife friendly plant species. Within the proposed building footprint areas landscaped areas that incorporate native species will in turn be attractive for insects providing additional foraging opportunities for local bats.

To provide additional roosting spaces three bat boxes, 1 Vincent Pro Bat Box, 1 Schwegler 2FN Bat Box, and 1 Schwegler 2F will be erected on site. These boxes will be erected under the guidance of the ECoW.

These features will be secured by an approved landscape plan, LEMP, and lighting proposal.

With the prescribed mitigation and enhancement measures in place, it is considered that there will be a neutral impact at the Local Level predicted for bats.

Invertebrates

Within the Mepal Gravel Pits County Wildlife Site, the western pit evidently provides virtually all the high-quality open habitat mosaic with Breck-like characteristics and invertebrate fauna.

The most important invertebrate habitats at the former Mepal Outdoor Centre are south of the main buildings, with the old car parking areas, sand areas, and sand mounds.

The open habitat 'rich flower resource' and 'bare sand & chalk' Species Assemblage Types are both in favourable SSSI condition. It is judged that the open habitat mosaic at the southern end of the site, shelving lake edge at the southern end of the lake and the plentiful dead wood resource should qualify the site as a County Wildlife Site on the invertebrate data alone.

Under the do-nothing approach, the site in its current state with the continuation and lack of management regime will undergo natural succession. This natural succession will lead to key invertebrate areas lost from scrub invasion, negatively impacting upon the identified species recorded on site. With the evidence of vandalism and fly-tipping on site, this could lead to additional key areas damaged or lost.

Within the site there will be habitat loss as well as impacts from light-spill.

The recommendations of the Invertebrate Survey Report are that the development of the site should focus on the existing footprint of the derelict buildings and retain the important invertebrate habitat areas and features. Refer to Appendix V that identifies the areas of importance.

Light-spill in particular during both the construction and operation phase is likely to have adverse effects on terrestrial and aquatic invertebrates. Lighting can impact upon invertebrate's mate selection, navigation, and foraging. Lighting can also impact upon egg-laying, emergence, and hibernation. Artificial lighting also attracts nocturnal insects including beetles, lacewings, aphids, caddisflies, craneflies, midges, hoverflies, true flies, scorpionflies, damselflies and dragonflies, termites, butterflies, some diurnal jumping spiders, ant-lions, bush crickets and wasps (Bruce-White and Shardlow 2011). UV, green and blue light which have short wavelengths and high frequencies are best discriminated by most insects and are highly attractive to them. Light pollution has been determined as a potential contributing factor in the declines in populations of moth species in the UK (Bruce-White and Shardlow 2011). Aquatic invertebrates such as stoneflies and mayflies are also impacted by artificial lighting. Polarised light pollution can also impact on nocturnal invertebrates.

In *absence* of mitigation a significant adverse impact at the Regional Level is predicted for Invertebrates.

The current proposals show that select areas of the important habitat areas and features will be lost which will result in a loss at the regional level. Whereas the proposed exclusion zones will result in the retention of some of the key locations of entomological interest of the site, the majority will be lost due to the footprint of the development. The proposals will include retainment of the bunds and it is considered that these with the input of a suitably qualified and experienced entomologist can be managed with the aim to provide conditions suitable for the notable invertebrates recorded on site. The bunds aim will be to manage and maintain bare earth, important habitat for ground nesting Aculeate Hymenoptera. Sections south of these bunds, south and north-east of the proposed crematorium are to have no development and a management plan with input by a suitably qualified and experienced entomologist can be designed to enhance and retain these areas for notable species. Encouraging these areas with Viper's bugloss, Biting stonecrop *Sedum acre*, and forget-me-not will ensure retainment of the site for use by the Nationally Scarce weevil *Mogulones geographicus*, Red Data Book (RDB3) ground-dwelling bug *Chlamydatius evanescens*, rare parasitic fly (RDBK) *Eliozeta pellucens*.

The site will maintain standing dead wood within the southern end of the site that provides an important invertebrate resource for saproxylic (dead wood) species.

For the construction phase, the lighting mitigation mentioned within the bat section above is to be used and implemented.

For the operational phase lamps with longer wavelengths are likely to have less effect on insects (Bruce-White and Shardlow 2011). Lights that emit a broad spectrum of light with a high UV component should be avoided. Use of narrow spectrum LED lights that incorporate full cut-off shielding are preferred. Light fixtures and fixtures are to be as advised in the bat section above. Lighting must ensure no sideways or upwards to minimise attractiveness to flying invertebrates. Within the lake side windows are to be fitted with blinds or shields and closed at night.

Proposed enhancement measures for use by local foraging invertebrates will be accommodated by a landscape design that maintains a balance of the existing habitats on site and creates additional native and wildlife friendly species within the proposed landscaped grounds of the carpark and building. Maintaining areas of bare ground on site with scattered forget-me-not, *Sedum acre*, and viper's bugloss is key to retain the entomological interest and features on site. The management plan produced by the Wildlife Trust with input by a suitably qualified and experienced entomologist will secure the select entomological areas and oversee the creation of additional suitable areas.

These measures can be secured by an approved lighting scheme, LEMP, and landscape design proposals.

With the prescribed mitigation and enhancement measures in place, it is considered that there will be a minor negative impact at the Regional Level predicted for invertebrates.

Otters

Most of the banksides surrounding the lake provide suitable habitat for otter where an intermittent fringe of marginal vegetation is present, particularly along the western and south-eastern sides of the lake.

Otters using the lake could be subject to disturbance effects (noise, lighting, and human disturbance) during both construction and operation phases. Placement of set pathways within close proximity of areas suitable for use by otters would cause a direct impact resulting in avoidance by otters and could result in abandonment by the current individuals on site.

In the *absence* of mitigation, a significant adverse impact at the Local Level is predicted for Otters.

Works to areas within 10 metres of known otter areas are not recommended due to the high disturbance and requirement of a licence.

The presence of ash and sycamore trees have been cited as particularly important in providing potential den sites as well as oak and elm trees. If mature specimens of these species are present on the banks of the lake, then they should be left as they have ecological value for otters present. Fallen trees in and around the lake boundaries are also key habitat and should be retained.

To mitigate, during the construction phase, construction works must only take place in daylight hours and no lighting must be directed at the lake. No construction vehicles or machinery will be allowed to access the banks or lake. These mitigation measures will be secured in the CEMP, with any works within close proximity to the lake overseen by a suitably qualified ecologist by means of ECOW.

For the operational phase, a large buffer zone and exclusion zone has been incorporated into the design which will reduce adverse effects. The zone of undeveloped land surrounding the lake is to be retained for otters with management of the habitat to retain areas of tall grasses, reed beds, trees, scrub, and rock piles.

Set pathways should avoid the key areas that otter signs have been found (Refer to Appendix IV). Within any set areas allowing access within close proximity to the lake, educational signs will be erected to inform and educate the public on the presence of otters and the importance of sticking to set paths within the lakeside habitats.

These measures will be secured by the robust CEMP, LEMP, and landscape plan.

With the prescribed mitigation and enhancement measures in place, it is considered that there will be a neutral impact at the Local Level predicted for otters.

Table 2: Summary of Impact Assessment, Mitigation, Compensation and Residual Impacts

<i>Ecological Feature</i>	<i>Value</i>	<i>Likely Impacts Construction and Operational</i>	<i>Avoidance and Mitigation</i>	<i>Compensation</i>	<i>Residual Impact</i>
RAMSAR	International	Disturbance of key species during construction and operational phases	<ul style="list-style-type: none"> CEMP written and adhered too Exclusion zones set up and maintained Education boards 	LEMP to manage the lakeside boundaries for good foraging, breeding, and shelter areas	Neutral
Locally designated sites	County	Waterborne pollution during construction and operational phase	<ul style="list-style-type: none"> CEMP written and adhered to Drainage design to ensure reduced run off Maintain lakeside vegetation to provide additional buffer Exclusion zones set up and maintained 	LEMP to manage the site for its botanical interest	Neutral
Botany	County	Loss of key areas hosting notable plant species	<ul style="list-style-type: none"> Pollution prevention measures in place to avoid impacts to lake and lakeside margins Retention of open sandy areas and set up of exclusion zones Retention and protection of hedgerow and treeline boundaries 	Clearance of scrub around lakeside with LEMP to manage the site for its botanical interest	Neutral
Nesting Birds and Overwintering Birds	Local	Loss of nesting sites, disturbance from increased human presence	<ul style="list-style-type: none"> Avoidance of works during nesting season unless first checked by suitably qualified ecologist Protection of rookery on site Retention of treeline and hedgerow boundaries Exclusion zone set up and maintained Education boards 	<p>Incorporation of nesting boxes on site. Use of native and wildlife friendly plant species on site to provide new foraging opportunities</p> <p>LEMP to manage and enhance hedgerows and banksides for wildlife</p>	Neutral
Bats	Local	Loss of foraging and commuting routes associated with artificial illumination	<ul style="list-style-type: none"> Lighting scheme to incorporate recommendations of report Retention of treeline and hedgerow boundaries Retention and protection of trees with bat roosting potential 	<p>Use of native and wildlife friendly plant species on site to provide new foraging opportunities and traversing grounds</p> <p>Placement of bat boxes in suitable mature trees</p>	Positive

Invertebrate	Regional	Impacts due to loss of habitat and artificial illumination	<ul style="list-style-type: none"> • Retainment of key habitats with compensation required and design of new southern habitat • Protection and management of the retained habitats. • Lighting scheme to incorporate recommendations of report 	LEMP to retain and enhance key invert habitats	Negative
Otters	Local	Impacts due to increased disturbance during construction and operational phase	<ul style="list-style-type: none"> • Retainment of key habitats used by otters • Lighting to avoid lake both construction and operational phases • Exclusion zones set up and maintained • Avoidance of construction and operational activities within otter zones • Educational boards 	LEMP to retain and enhance key otter habitats	Neutral

6. Conclusion

- 6.1. The proposed site supports several protected and notable species and habitats which could be impacted as a result of the development.
- 6.2. Mitigation measures, precautionary measures, and compensation measures have been recommended to ensure that the proposal and work programme is designed to minimise adverse impacts on the ecological features.
- 6.3. In the absence of any mitigation measures, the proposed development would be anticipated to have adverse effects significant at the County level. With the implementation of the proposed mitigation and precautionary measures within this report, the proposed development is not anticipated to result in any significant adverse residual effects to the identified ecological features.
- 6.4. Monitoring should be undertaken to ensure that the mitigation described in this report has been undertaken to a satisfactory standard. This applies to both the construction and operation phases of the development. The measures recommended in this report can be secured by a CEMP, Lighting Plan, LEMP, and Landscape Proposal.
- 6.5. Enhancement measures have been recommended within the report to ensure net gains for biodiversity in line with NPPF and Policy ENV 7 of the East Cambridgeshire Local Plan.

7. References

Bruce-White, C. and Shardlow, M. (2011). A Review of the Impact of Artificial Light on Invertebrates.

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Syntegra Group (2020). Mepal Outdoor Centre Botanical Survey Report.

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Syntegra Group (2020). Mepal Outdoor Centre Preliminary Ecological Appraisal Report.

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Syntegra Group (2020). Mepal Outdoor Centre Winter Bird Survey Report.

Appendix I: Location of Notable Botanical Areas



Appendix II: Locations of Trees with Bat Roosting Potential



Location on Site	Species	Features	Potential
Hedge row end of Eastern boundary	Willow (TN1)	Dead crevices, some cracks, woodpecker holes	Moderate Potential
West of building 4	Willow (TN2)	Dead mature, crevices, cracks, raised bark	High potential
Hedge row Southern boundary	Willow x 3 (TN3 & 4 &5)	1 st - Mature tree, dead, raised bark, crevices, several woodpecker holes 2 nd - Dead, raised bark, crevices, woodpecker hole 3 rd - Mature tree, dead, raised bark, cracks, several woodpecker holes	High, low, moderate potential
Shooting range	Willow x 2 (TN6 & TN7)	1 st - Mature, several woodpecker holes, crevices, dead, raised bark. 2 nd - Crevices, dead wood, raised bark	Moderate, low potential

Appendix III: Locations of Notable Bird Areas



Appendix IV: Location of Otter Sensitive Areas



Appendix V: Location of Notable Entomological Areas



Appendix VI: Recreational Use Impacts at the Former Mepal Outdoor Centre Letter

The CDS Group
Building 51
Wrest Park
Silsoe
Bedford
MK45 4HS

19-6364- Former Mepal Outdoor Centre, Ely, Cambridgeshire

Re: Recreational Use Impacts at the Former Mepal Outdoor Centre

Dear CDS Group,

Syntegra is aware that from the outset, the East Cambridgeshire District Council considered a range of land based and water based recreational activities, including kayaking, swimming, sailing, raft building, bush craft, campfires, paddle boarding, canoeing, fishing, archery, and climbing as part of wider redevelopment at the former Mepal Outdoor Centre. However, Syntegra understands that such uses could only be facilitated with an additional point of vehicular access to the north of the site and that feedback by CCC Highways has advised against using the existing northern access point because of concerns about highway safety. With that recommendation it is not considered viable to expand the northern access point for access and car parking for passive recreational uses.

Even so, the initial versions of the Environmental Impact Assessment (EIA) prepared by Syntegra did investigate and determine the impacts of these activities upon the notable ecological features of the site at that time and scoped out activities that even with proposed mitigation in place would result in unacceptable direct and indirect impacts.

Water based activities during the breeding and overwintering season has the potential to cause changes in the usage of the site by waterfowl and directly resulting in the loss of the site usage by waterfowl. The use of lakeside recreational activities including dog walking has the direct and indirect impact to breeding, foraging, and over wintering birds. Disturbance to wintering waterfowl can result in the reduction in foraging, change in behaviour, avoidance of areas, and increased stress on individuals.

Given the high risk of disturbance to birds on site, only low impact recreational activities were deemed suitable for use within the northern section these included proposed walkways and fishing bays.

The water-based activities have the risk of increased turbidity, damage to the notable pondweed, and increased disturbance to wildlife utilising the lake and lakeside habitats. Recreational activities such as sailing, canoeing, swimming, and paddle boarding are considered even with mitigation measures in place will have an overall direct negative impact upon the County Wildlife Site (CWS). These activities will not be suitable at the site due to the direct and indirect impacts that they will pose on the CWS and the pondweeds present within the lake.

Given the select retained areas of the site that will be managed for invertebrate interest, increased land based recreational impact cannot be mitigated for and will result in an increased pressure and impacts upon the select remaining habitats and notable invertebrate species. On the basis of these impacts, recreational land-based activities are not recommended within the retained areas.

Otters using the lake could be subject to disturbance effects (noise, lighting, and human disturbance) during the operation phase. Use of recreational activities within the water and within close proximity of areas suitable for use by otters would cause a direct impact resulting in avoidance by otters and could result in abandonment by the current individuals on site. Recreational water activities cannot be mitigated for given the direct impacts they pose on the otters present at the site.

It should be noted however that the ecological impact of any future scheme, including any proposals for recreational activity, would need to be assessed again to take account of any changes to the ecological baseline as well as any changes in policy at the national and local level.

Yours sincerely,

Patricia Holden MSc MCIEEM

Director of Ecology Services