



PROPOSED CHANGE OF USE FOR NEW FOUNDRY BUILDINGS GUTTER HILL, JOHNSTOWN

Application P/2010/0326

Assessment of the Potential Direct and Indirect Impacts on the Johnstown SAC

**(Report Ref: TEP 2447.001 Version 4.0)
October 2010**

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for

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October 2010

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APPENDICES

- Appendix 1: Map of Johnstown Newt Sites SAC
- Appendix 2: Site Register for Johnstown Newt Sites SAC and Stryt Las SSSI
- Appendix 3: Proposals Drawing
- Appendix 4: Example of reinforced grass surface for loading bay/recycling bins.

DRAWINGS

- 2447.002 Amphibian Impact Assessment: Site location and ecological context

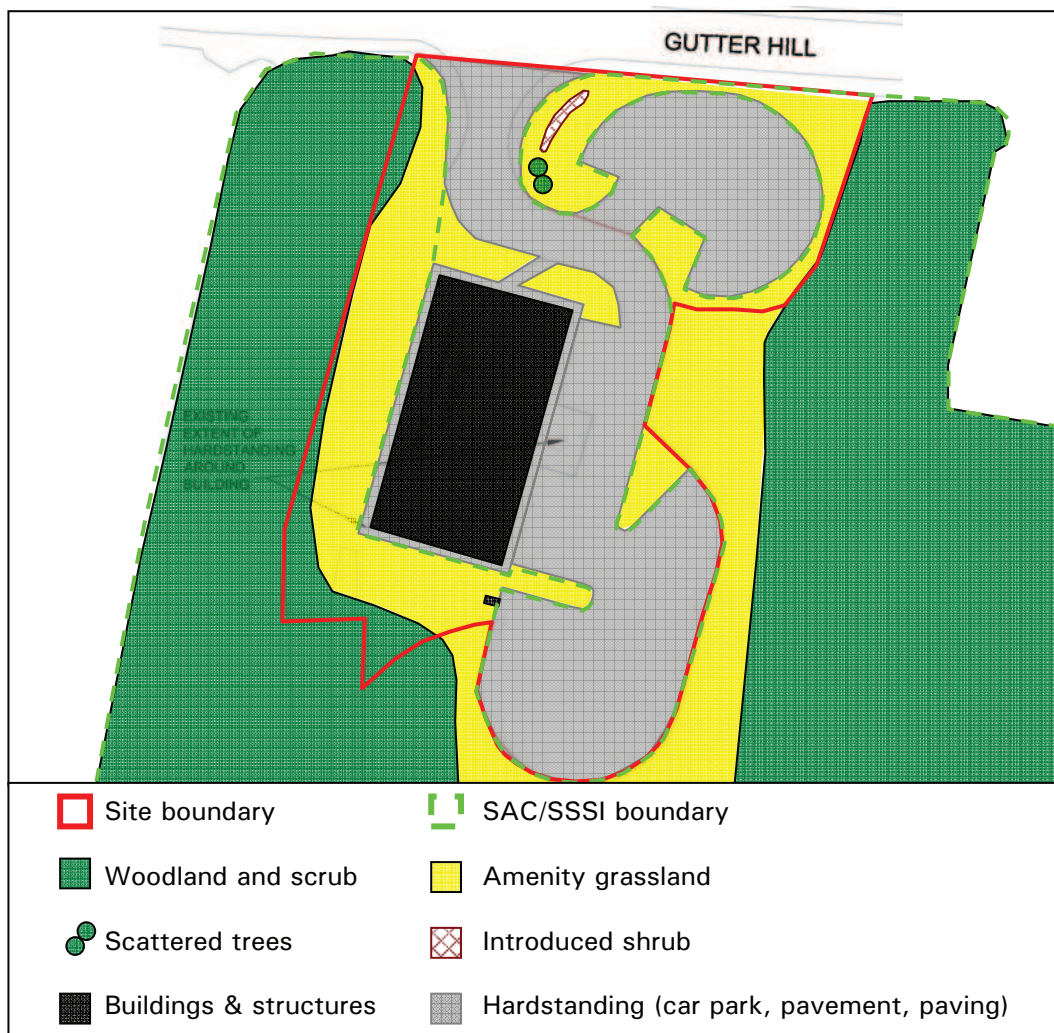
1.0 INTRODUCTION

- 1.1 TEP was commissioned by The Watkin Jones Directors' Pension Fund in May 2010 to undertake an amphibian impact assessment of a site located off the B5605 Gutter Hill, Johnstown, known locally as the former Watkin Jones office block. The site is currently used for commercial offices. A planning application is to be made for the change of use of the ground floor of the building. The application reference is P/2010/0326
- 1.2 A holding objection to the application was submitted by Countryside Council for Wales on the basis that, in combination with other plans or projects, the proposals are likely to cause a significant effect upon the Johnstown Newt Sites SAC. A recommendation was made in light of this holding objection that an assessment be undertaken to identify and address potential impacts arising from the proposals upon the SAC and its main qualifying feature, the great crested newt.

Baseline conditions

- 1.3 The site comprises a single rectangular building and associated grounds. These grounds comprise a mixture of hard standing surfaces and amenity grassland with a narrow strip of woodland along the western boundary. The basic habitat types within the site are illustrated in Figure 1, overleaf.
- 1.4 The hard standing surfaces comprise the entrance road off Gutter Hill, two car parks (one of which is for the Country Park to the north of the site), footpaths around the car park areas and along the road verge and the remainder of the site comprises short mown amenity grassland.
- 1.5 Part of the site is within the Stryt Las SSSI and Johnstown Newt Sites Special Area of Conservation (SAC). The areas excluded are the footprint of the building, associated hard standing (car parks and access road) and the amenity grass immediately to the north of the building.
- 1.6 Drawing 2447.002 illustrates the location of the site in relation to the SAC/SSSI boundary and the nearest waterbody within the SAC/SSSI, known to support great crested newts. The map confirming the extent of the Stryt Las composite site of the Johnstown Newt Sites SAC is presented at Appendix 1.
- 1.7 The SAC and SSSI have contiguous boundaries around the site and both are composite sites. The major qualifying feature of both the Johnstown Newt Sites SAC and Stryt Las SSSI is the presence of a significant population of great crested newts *Triturus cristatus*. The citation for the SSSI and the site register for the SAC are copied at Appendix 2.
- 1.8 Most vegetated land surrounding the site, including land within the SAC/SSSI boundary is managed as Stryt Las Country Park by Wrexham County Borough Council.

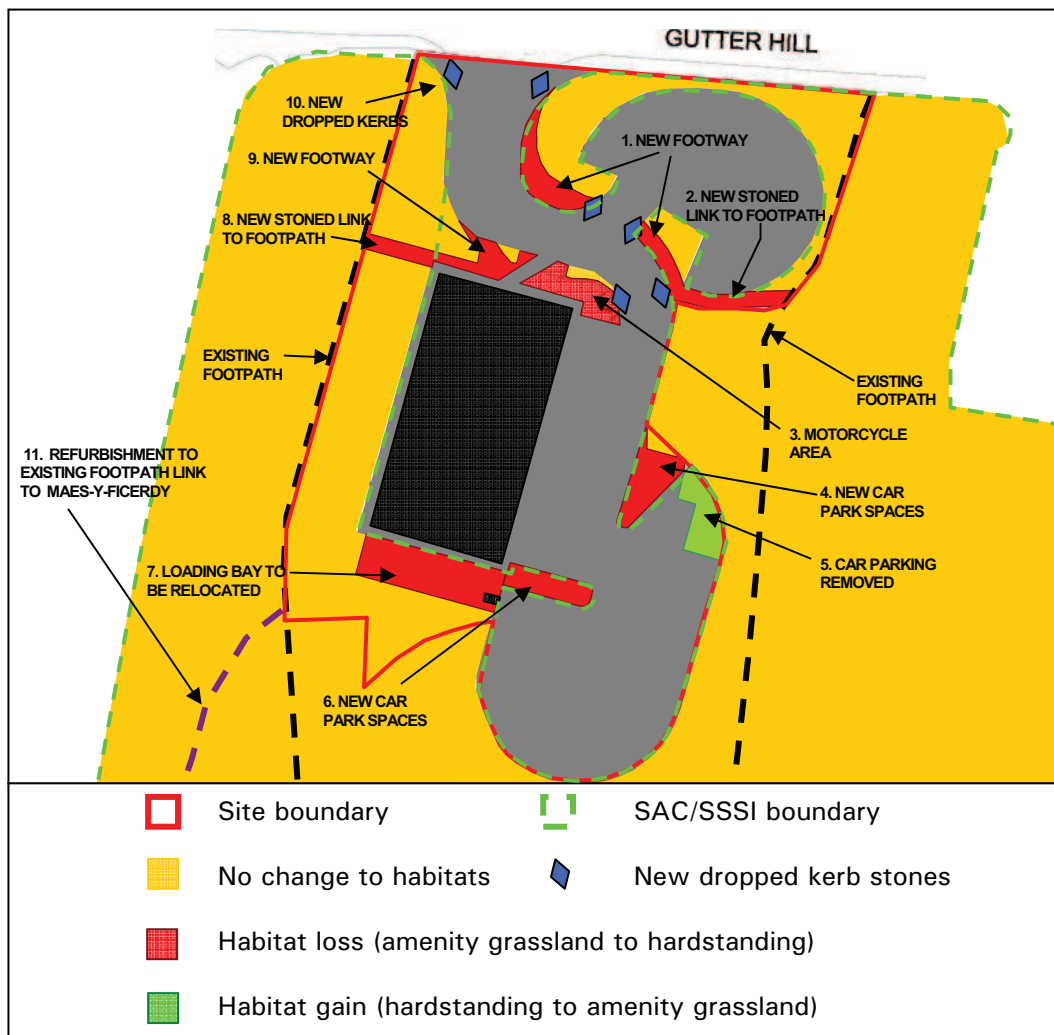
Figure 1: Habitat survey (derived from site and aerial photographs)



Proposals

- 1.9 There will be no alteration to the footprint of the building. Modifications to the building will be internal only.
- 1.10 The proposed layout changes are presented at Appendix 3. Figure 2, overleaf, illustrates these proposed changes in respect of the resulting habitat losses and gains within the site boundary and within the SAC/SSSI boundary. These changes will affect only amenity grassland habitats, some of which is within the SAC/SSSI, and existing hard standing areas (outside of the SAC/SSSI).
- 1.11 In summary, minor modifications are required to the verges and car parking layout to improve pedestrian access and accommodate the required level of servicing and parking. A new loading bay/recycling bin store will be constructed to the south of the building, in an area currently comprising a mix of amenity grassland and hardstanding. Some amenity grass will be used for footpath improvements required by the Council, including new stoned surface links from the car park to existing footpaths into Stryt Las Country Park. Some of the existing car park can be restored to grassland. Modifications also include the replacement of standard kerb stones with dropped kerbs in selected locations to facilitate pedestrian and disabled access across the access road and car park.

Figure 2: Habitat losses and gains under proposals (not to scale) excluding mitigation



1.12 The changes in amenity grassland, as annotated in Figure 2 above, are as follows:

1. New footway from Gutter Hill around east edge of bellmouth to site – loss of approximately 54m² SAC amenity grassland;
2. New stoned footpath link from car park to Stryt Las footpath in east – loss of approximately 20m² SAC amenity grassland;
3. New Motorcycle area and associated footway – loss of approximately 41m² amenity grassland not in the SAC;
4. Car Park spaces 33-35 – loss of approximately 32m² SAC amenity grassland;
5. Car Park spaces 31-32 - creation of 49m² grassland on the existing car park north of spaces 30 and 31 (not in SAC);
6. Car Park Space 10 – loss of approximately 26m² of SAC amenity grassland
7. New loading bay and recycling bin store to south of building, required to separate deliveries and loading from pedestrian access along footpaths around building – loss of approximately 90m² SAC amenity grassland;

8. New stoned footpath link from car park to Stryt Las footpath in west – loss of approximately 20m² SAC amenity grassland;
 9. New footway from Gutter Hill on west side of bellmouth – loss of approximately 24m² SAC amenity grassland;
 10. New dropped kerbs to enhance pedestrian accessibility along Gutter Hill, at the Stryt Las car park entrance and between the store and the footpath to Stryt Las Country Park in the east – no habitat loss;
 11. Upgrade to existing path leading from Stryt Las footpath to Maes-Y-Ficerdy – refurbishing existing worn stone path with new stone surface, including possible slope/steps on steep gradient section. No widening or diversions to the existing route are proposed so all works will be within the existing line of the path – no habitat loss.
- 1.13 In absence of mitigation and compensation measures, there would be a total loss of 307m² amenity grassland resulting from the proposals. There would be a gain of 49m² amenity grassland, outside of the SAC boundary. This results in a total net loss of 258m² of amenity grassland, 242m² of which lie within the SAC.
- 1.14 In the absence of mitigation, footpath improvements to the southwest of the site would also result in potential disturbance and damage to habitats within the SAC.

2.0 LEGISLATIVE AND POLICY CONTEXT

- 2.1 Great crested newts and their breeding sites and places of shelter receive full statutory protection under the Wildlife and Countryside Act 1981 (WCA) as amended and the Conservation of Species and Habitats Regulations 2010 (Habitats Regulations). This combined legislation makes the following activities an offence:
- (a) deliberately capture, injure or kill any great crested newt,
 - (b) deliberately disturbs any great crested newt,
 - (c) deliberately takes or destroys the eggs of any great crested newt, or
 - (d) damages or destroys a breeding site or resting place of any great crested newt.
- 2.2 For the purposes of the offence at (b), disturbance of animals includes in particular any disturbance which is likely to:
- (a) impair their ability—
 - (i) to survive, to breed or reproduce, or to rear or nurture their young, or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
 - (b) affect significantly the local distribution or abundance of the species to which they belong.

- 2.3 It is also an offence under the legislation to be in possession of or control, to transport, to sell or exchange and to offer for sale or exchange a great crested newt.
- 2.4 Derogation from the above legislation can be obtained, under appropriate circumstances, through licensing by the Welsh Assembly Government. Three tests must be satisfied before the licensing authority can issue a licence under Section 53(2)(e) to permit otherwise prohibited acts:
- Section 53(2)(e) states that licences may be granted by the licensing authority “to preserve public health or public safety or other imperative reasons of overriding public interest including those of the social or economic nature and beneficial consequences of primary importance for the environment”
 - Section 53(9)(a) states that a licence may not be granted unless the licensing authority is satisfied “*that there is no satisfactory alternative*”.
 - Under Section 53(9)(b) a licence cannot be issued unless the licensing authority is satisfied that the action proposed “will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range”.
- 2.5 SSSIs form a national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under National Parks & Access to the Countryside Act 1949, SSSIs have been renotified under the WCA. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000, which also resulted in appropriate amendments to the WCA.
- 2.6 Article 3 of the EU Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (Natura 2000). The Directive is transposed into UK law by the Habitats Regulations.
- 2.7 Under Regulation 61 of the Habitats Regulations, Wrexham County Borough Council have a duty to undertake a Habitats Regulations Assessment prior to making a decision for any proposal that is likely to have a significant effect upon an SAC. A proposal that is not likely to have a significant effect, taking account of its inherent design and mitigation proposals, does not require an appropriate assessment.

3.0 IMPACT ASSESSMENT

- 3.1 An appraisal of the proposals was undertaken taking into account the presence of great crested newts and the designations of land surrounding the site and affected by the proposals which lies within the SAC/SSSI.
- 3.2 An impact assessment has therefore been made on two counts:
- (i) effect upon the favourable conservation status of great crested newts; and
 - (ii) effect upon the SAC (and SSSI) designation

Favourable Conservation Status of great crested newts

- 3.3 Favourable conservation status (FCS) is defined in the Habitats Directive as favourable when:
- (a) population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitats; and
 - (b) the natural range of the species is neither being reduced nor is likely to be reduced in the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.
- 3.4 There will be no loss of breeding habitat as part of the proposals and there will be no effect on the natural range of the population resulting from the change of use of the site.
- 3.5 The proposals at the site have the potential to affect great crested newts in one of two ways: potential killing or injury during the works; and permanent loss of terrestrial habitat, leading to potential population decline.

Potential killing or injury during works

- 3.6 Great crested newts are present in breeding ponds approximately 140m to the south of the site. There are no barrier effects between the ponds and the site or the offsite footpath refurbishment works to the southwest of the site. Intervening habitats comprise scrub, woodland and open grassland. There is therefore reasonable risk that great crested newts can be encountered during the works once they commence.
- 3.7 When grass areas within the site are excavated and the existing offsite footpath is refurbished, amphibians may be attracted into stored materials, spoil piles and loose excavations for refuge and foraging overnight, thus coming into danger when works recommence the following morning.
- 3.8 The small areas of work that will be affected mean that it is unlikely that significant numbers of great crested newts would be at risk. The loss of individual animals, in the absence of mitigation for this risk, would not affect the population dynamics of the Stryt Las population in the long term.

- 3.9 Nevertheless, mitigation for the risk of encountering great crested newts can and should be implemented during the works. Mitigation measures are discussed in the following section.

Permanent loss of terrestrial habitats

- 3.10 The net loss of terrestrial habitats will comprise 242m² of amenity grassland, all of which is located immediately adjacent to hardstanding areas. No scrub, woodland or other structurally diverse habitats will be affected.
- 3.11 Amenity grassland in these locations offers only potential foraging for amphibians. It does not provide any refuge or breeding opportunity. There will be no loss of any habitats providing shelter or refuge for amphibians as a result of these proposals.
- 3.12 The locations of the amenity grassland areas, adjacent to the building and hardstanding, with only Gutter Hill road to the north of the building and hardstanding (Figure 1), mean that there is likely to be very limited motivation for great crested newts to move significantly further north than the extent of these amenity grassland habitats.
- 3.13 TEP has received anecdotal information about the recent construction of a house just east of this site in the garden of a larger house on Gutter Hill. This garden was very overgrown and was subject to a newt-trapping exercise prior to the new-build. No great crested newts were trapped. This gives even stronger credence to the theory that the loss of the amenity grass in and around the car park will not result in any death or injury to great crested newts.
- 3.14 The loss of the amenity grassland areas will also not affect the ranging ability of the great crested newts using the breeding pond to the south of the site within their current natural range.
- 3.15 This grassland is not within the high-quality newt habitat zone within 50m of the breeding ponds. There is no loss of high-quality habitat.
- 3.16 The grassland falls into the intermediate habitat category (between 50 and 150m from the breeding pond). The loss of this small area of amenity grassland represents 0.73% of the available intermediate habitats surrounding the breeding ponds to the south (3.3ha). The loss represents 0.26% of this compartment of the SAC (9.47ha).
- 3.17 The loss of this small area of amenity grassland will therefore not have any effect upon the ability of the Stryt Las population of great crested newts to maintain itself in the long-term.
- 3.18 The footpath improvement works to the southwest of the site will not result in losses of any habitats used by great crested newts, although the improvement works have the potential, without mitigation measures put in place, to damage surrounding habitats. Any such damage would be peripheral to the SAC (close the west boundary) and localised. It is also likely that this effect would be temporary as the habitats would regenerate. The footpath improvements would therefore

have no significant long-term effect upon the great crested newt population's ability to survive and maintain itself.

Effect on the SAC

Direct effect

- 3.19 The loss of the amenity grassland represents a permanent net loss of vegetated habitats from the SAC.
- 3.20 As noted above, the primary function of the amenity grassland would be to provide foraging opportunity only. The exposed and managed nature of the amenity grassland, in combination with its location against hardstanding areas or the building, mean that the amenity grassland is unlikely to provide as significant foraging potential as other more structurally diverse habitats types such as shrub, scrub, species diverse grasslands or woodland.
- 3.21 Although a direct net loss of area, the loss of amenity grassland is of lowest impact and the very small areas of loss proposed are unlikely to affect the integrity of the SAC (composite site or the whole SAC).
- 3.22 Mitigation for net area loss of vegetated habitat within the SAC is not possible, but mitigation to maintain and enhance the net functionality of the SAC is possible within the extent of the site boundaries, as discussed in the following Chapter.
- 3.23 Disturbance of habitats within the SAC as a result of the footpath improvement works will be temporary and there will be no net loss of habitats resulting from the works. There will no direct impact on the SAC integrity as a result of these works.

Indirect effect

- 3.24 The change of use of the site has the potential to increase public access to the site and to the Country Park. This would introduce increased public pressure upon the SAC, increasing risk of disturbance to habitats and introduction of invasive species (plants or animals) or disease.
- 3.25 This potential impact is not yet quantifiable. The small character of the site is unlikely to result in significant increases to public use of the SAC compared with current levels, so the risk of increased disturbance, invasive species or disease could be compensated through increased or additional management measures. For example, intervention measures such as access management (footpath improvements, fencing etc) or remedial habitat treatment (fish removal, treatment of invasive species) could be implemented.
- 3.26 Mitigation should be therefore be implemented to ensure that management measures within the SAC can continue to achieve the conservation objectives of the SAC. Mitigation is discussed in the following section.
- 3.27 The footpath improvement works to the southwest of the site will provide a better quality of path that will encourage more users. The objective of such footpath improvement works is to better control public access throughout the SAC, with an

overall net reduction in unregulated desire lines through the designated site. This would be a positive impact on the SAC. Access management works are discussed further in the following Chapter.

4.0 MITIGATION

Favourable conservation status of great crested newts

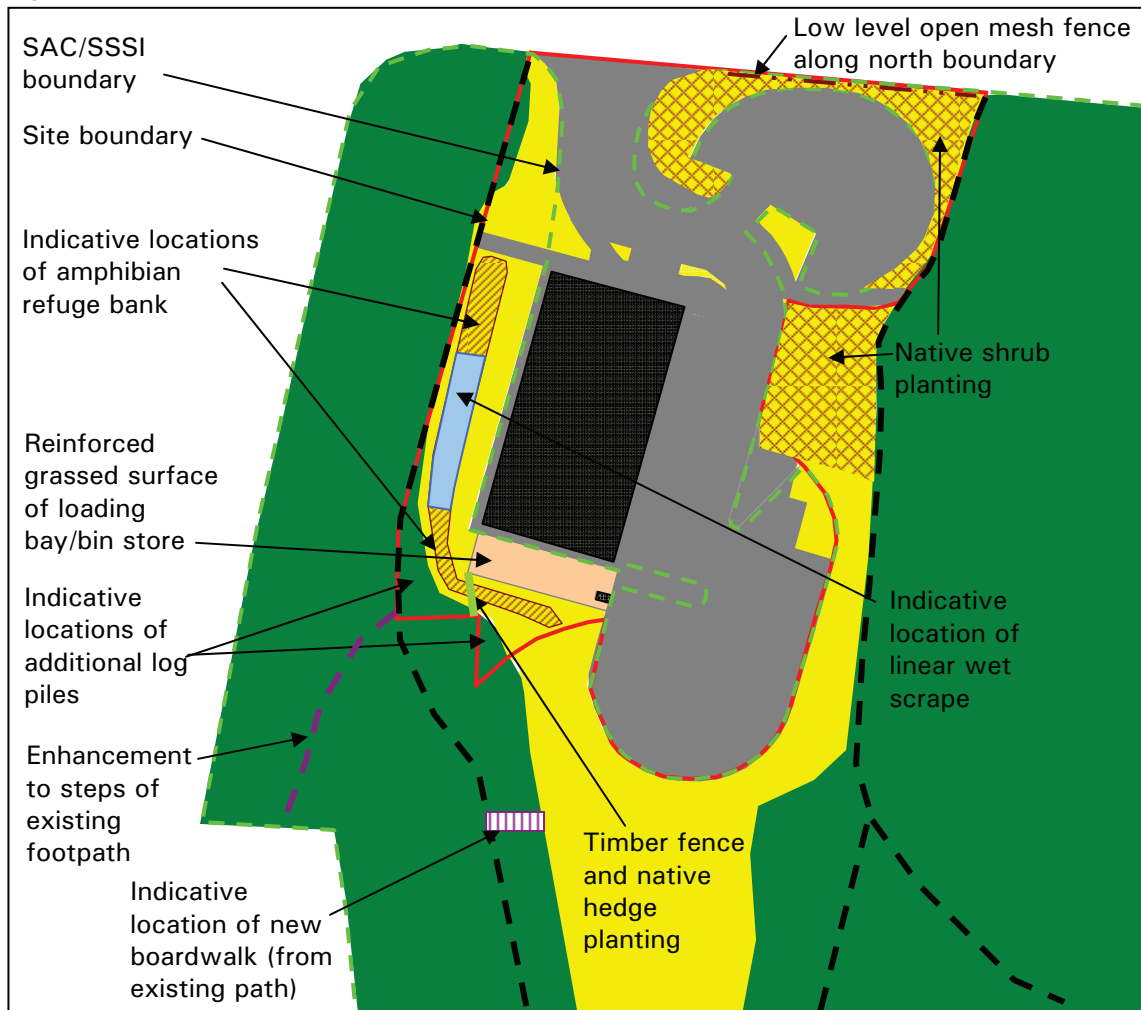
Potential killing or injury

- 4.1 The works are of a small scale, involving the removal and replacement of kerb stones with dropped kerbs or the removal of small areas of amenity grassland turf and replacement with hard standing (for new car park spacing), paving stones (for extensions to pedestrian footpaths around the building). There will also be the construction of a loading bay/recycling bin store, to the south of the existing building, which will create a modified reinforced grassed surface (discussed in further detail in following sections). Localised footpath improvement works will also be implemented along a short section of existing path offsite to the southwest of the site.
- 4.2 A licence from the Welsh Assembly Government should be obtained to permit all these works, given the risk of encountering or disturbing great crested newts. A licence application should be made once full planning permission has been granted for the proposals.
- 4.3 Once a licence has been granted, the works areas should be clearly marked out. No works, including vehicular or machine access or storage of any materials, should be allowed beyond the agreed works areas.
- 4.4 The works areas should be inspected by the licensed ecologist prior to the start of the works. The licensed ecologist should brief the contractors as regard risk of encountering great crested newts and measures to be implemented to avoid or reduce this risk.
- 4.5 No excavations, including exposed turf edges where kerb stones have been removed for subsequent replacement, should be left overnight. Works should be implemented in stages to ensure that excavations undertaken during the day can be infilled, surfaced, compacted or otherwise sealed or covered to ensure that no great crested can enter these areas overnight.
- 4.6 No spoil or other loose materials should be left overnight. If this is unavoidable, then a dedicated storage area should be designated within existing hardstanding areas which are designed to prevent amphibian entry (e.g raised off ground level, contained skip or surrounded by bespoke amphibian proof fencing).
- 4.7 Each new work area should be inspected by the licensed ecologist at the onset of works and on completion. Depending on the duration of works, regular inspections may also be deemed to be appropriate by the licensed ecologist.

Loss of terrestrial habitats

- 4.8 The loss of the amenity grassland areas within the site should be mitigated by the provision of enhanced functionality of habitats remaining within the site. An amphibian refuge bank, in addition to a linear wet scrape, lined to ensure water retention, should be created along the woodland edge to the west and south of the store (land within ownership of Watkins Jones/Carlton to ensure deliverability). The net total area of the refuge bank and wet scrape corridor should total at least 245m². The indicative locations of these features are illustrated in Figure 3, below.

Figure 3: Indicative locations of amphibian habitat creation/enhancement measures

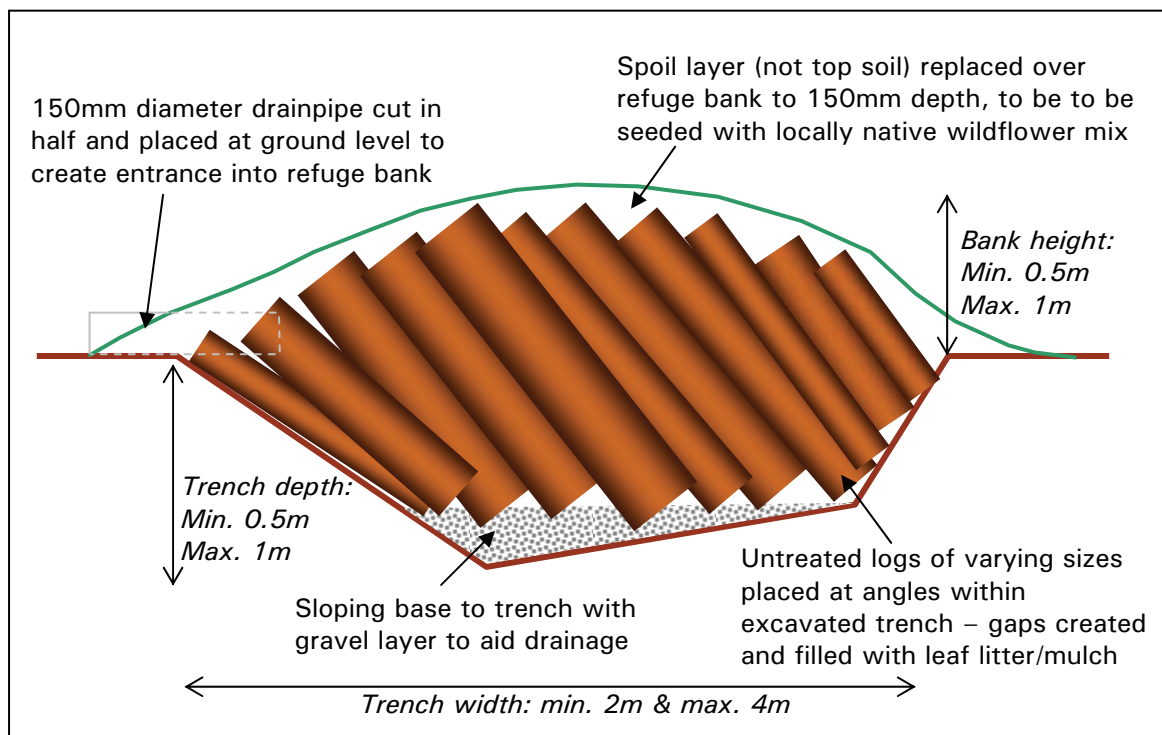


- 4.9 A sketch example of the cross section of the amphibian refuge bank is illustrated at Figure 4, overleaf. The amphibian refuge banks should be created by excavating a trench of between 2m and 4m wide to between 0.5m and 1m below ground level. The turf should be removed from the footprint of the trench. The trench bottom should sloped and be shallow lined with gravel, to facilitate drainage.
- 4.10 A selection of logs of varying width between 50mm and 200mm should be used to fill the excavated trench. The logs should be installed at an angle of 40 to 45 degrees, facing away from the building and car parking areas and pointing towards the surrounding scrub/woodland habitats. Short sections of 150mm diameter pipe cut in half should be installed at ground level into the refuge bank to create access

for amphibians. Gaps between the logs should be part filled with leaf litter or dry bark mulch.

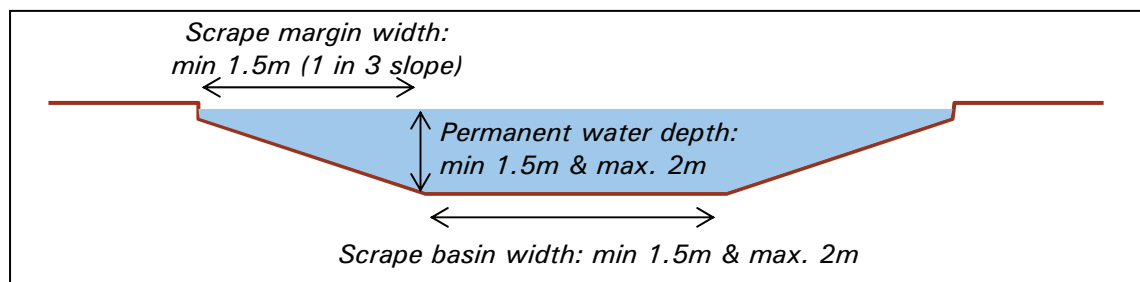
- 4.11 A light cover (150mm) of the excavated subsoil should be laid across the top of the refuge bank. The refuge bank should be seeded with a locally native wildflower seed mix.
- 4.12 The intervening amenity grassland habitat between the woodland edge and the new refuge banks should be left to grow into a tall grassland/tall herb sward, to encourage movement from these habitats to the new hibernacula.

Figure 4: Illustrative cross section of proposed amphibian refuge banks



- 4.13 The linear wet scrape will need to achieve a minimum permanent water depth of 0.5m. With bank profiles at 1 in 3 for public health and safety, the scrape profile will need to be ideally 5m wide to achieve a 2m width of permanent water at 0.5m with 3m width of marginal habitats. The scrape should be a minimum of 15m in length and should provide at least 75m² new aquatic habitat (thus if the width must be narrowed from 5m, the length would need to be increased accordingly). Figure 5, overleaf, illustrates an indicate profile of the wet scrape, with minimum dimensions also indicated.
- 4.14 The linear wet scrape should be lined, ideally by clay puddling, bentonite or similar semi-natural clay lining to increase longevity and promote establishment of aquatic plants.
- 4.15 The linear wet scrape should ideally be fed by roof water collected from the store roof, with a sediment trap and outfall to ensure water quality and levels.

Figure 5: Illustrative cross section of proposed linear wet scrape



- 4.16 The refuge bank and wet scrape should both be set off from the woodland edge sufficiently to protect the tree roots during excavation, reduce leaf fall into the wet scrape and ensure a buffer between the trench/scrape and the building and hardstanding areas.
- 4.17 In addition to the amphibian bank and wet scrape, habitat enhancements will be implemented elsewhere within the site's remaining habitats that fall within the SAC boundary. Surface level log piles shall be created along the woodland edge near to the amphibian bank/wetland scrape corridor to promote connectivity of existing and enhanced habitats. Amenity grassland around the car park areas will be planted with appropriate native shrub species, such as Western Gorse (*Ulex galii*) and heather (*Calluna vulgaris*), to improve foraging and shelter opportunities within this area of the site. These native species are generally low growing by nature, but may require occasional management to ensure the required visibility splays are maintained in proximity to the site access road. The total area of the new native shrub planting will be approximately 545m².
- 4.18 Offsite footpath improvements work required to the southwest of the site should be implemented on as small a scale as possible, keeping the works within the line of the footpath. Works should be implemented by mini-digger and hand tools. This will avoid incidental impact upon adjacent woodland habitats within the SAC that will support great crested newts. The works area, as noted above at paragraph 4.4 and 4.7 will be inspected by a licensed ecologist prior to and during the works, which will monitor progress and effect upon adjacent habitats.

Effect on the SAC

Direct effect

- 4.19 To minimise the direct impact of the proposed layout changes upon the SAC, the footprint of the new loading bay/bin store will be designed to provide a modified grass surface. This will be achieved by creating a reinforced grassed surface across the entire footprint of the loading bay/bin store. Construction profile for the reinforced grass area will be determined by the ground conditions and the loading requirements.
- 4.20 A variety of products are available that will likely be suitable. An example (Bodpave85) is presented at Appendix 4. In general, a sub-base layer of hardcore (depth to be determined by site conditions) will be required, topped with a geotextile membrane then laid with the cellular interlocking system. The cellular

interlocking grid will then be filled with suitable soil and seeded. The seed mix will need to be hardy, capable of withstanding compaction, cold and drought in order to reduce potential for erosion. Detailed specification of the reinforced grass surface can be secured by a planning condition.

- 4.21 A small area of the loading bay/bin store will require an alternative treatment suitable for wheeling delivery trolleys into the main store building. One possible alternative treatment is to use the reinforced grass system such as Bodpave85 but fill the required delivery run area with a suitable gravel, rather than have it put to grass. Bodpave85 gravel surfaces are compliant with British Standards and are suitable for wheelchair use, for example. If this option is not suitable for delivery requirements, a small section of the loading bay/bin store may need to be hard surfaced. In this event, offsetting for the loss of grassed surface will be implemented by modifying car parking spaces to reinforced grass surface.
- 4.22 Habitat enhancement of habitats within the site and SAC, as discussed at paragraphs 4.8 – 4.17, will be implemented to replace and improve upon their former functionality, transforming habitats of value for foraging, in the main, into habitats of value for foraging, shelter and breeding.
- 4.23 A wildlife corridor will be established along the woodland edge to the west and south of the building, which will incorporate the new amphibian refuge bank and wet scrape, described above. As noted in the paragraphs above, this corridor shall total 245m². This corridor will provide enhanced botanical, structural and functional diversity within the SAC. Intervening habitats around the corridor (between the corridor habitats and the existing/new hardstanding surfaces) can be additionally enhanced through differential mowing, allowing a longer sward to develop, and plug planting or seeding of native species appropriate to the habitats within the SAC. Additional functionality will also be provided by replacement of amenity grassland with native shrub cover, which will provide additional shelter and will increase invertebrate diversity, thereby improving foraging opportunities.

Indirect effect

- 4.24 The creation of the amphibian refuge bank and wetland scrape and the planting of shrubs around the car park areas will assist in controlling public access into and through the SAC along regulated pathways. In addition, fencing will be installed along the north boundary of the site to control access into the SAC from Gutter Hill (Figure 3, above). A new short section of timber fence will be installed at the southwest corner of the new loading bay which will extend to the existing hawthorn hedgerow that follows the line of the existing footpath (Figure 3, above). This new fence line will be planted with hawthorn to extend the line of the hedgerow up to the corner of the loading bay, thereby preventing public access into the SAC at this point. Finally, a new timber boardwalk will be created offsite, to the south, at an existing informal crossing point (Figure 3, above). This crossing point is from the existing, unmade footpath into the SAC across a ditch. Informal and uncontrolled access at this point creates erosion and poaching of habitats, which worsens in wet weather. The boardwalk will provide safe, clean and controlled pedestrian movement across a ditch, thereby removing erosion and poaching of the habitats surrounding the crossing point.

- 4.25 Two automatic pedestrian encounter monitors should be installed on the public footpaths accessing the SAC either side of the site. A third monitor should be placed along the offsite footpath proposed for improvement works. These monitors will identify the level of change to pedestrian access into the SAC, which will inform future management requirements to address the changes in public pressure.
- 4.26 An access management scheme should be developed as part of the Welsh Assembly Government licence application. This scheme should aim, through the targeted footpath improvements, fencing and shrub planting associated with the proposals, to assist in the reduction/decommissioning of unregulated desire lines through the SSSI/SAC. The scheme should be drawn up in consultation with landowners/managers of the Country Park and will be secured through the licensed method statement.
- 4.27 A one-off commuted sum should be endowed to an appropriate organisation, such as Building Wildlife, to ensure long term conservation management objectives can be achieved in light of increased public use that may result, in part, by the change of use of the site. The commuted sum should be made within 3 months of the implementation of the planning consent. The commuted sum shall be secured through the licensed method statement.
- 4.28 Building Wildlife is a not-for-profit company which is being registered as a charity. It operates as part of the Pond Conservation Trust. It specialises in making small-scale improvements to habitats in the urban fringes in North Wales. It has a model which has been used in Wrexham, where small developments that individually have a minimal effect on newts, but collectively add to recreational pressure on habitats; make a contribution of £2,500 per house. This is used to fund interventions that benefit nature conservation to offset the increased recreational pressures from an increasing population.
- 4.29 The change of use from offices to retail will not increase the human population in the area, so will not result in any overall increase in visitor pressure on newt habitats and/or the SAC. However, it may result in a localised concentration of pedestrian pressures in the immediate area. TEP suggests that a contribution of £2,500 is appropriate in this case, as it appears to be consistent with the precedent set locally. Put another way, it would fund 3 small "habitat interventions" (on the basis that 2 days work for a mini-digger and 2 countryside managers would cost around £800).

5.0 SUMMARY

- 5.1 The proposed change of use from offices to retail would result in the net loss of about 242m² of amenity grassland for car parking, servicing and a loading bay/bin storage area.
- 5.2 This amenity grassland is of very limited value for great crested newts, and would only be used for foraging, not shelter or breeding. It is 140m from the nearest pond, so is not regarded as high-value habitat (it is considered "intermediate-value").

- 5.3 However, some of the grassland is within the Johnstown Newt Sites SAC.
- 5.4 To mitigate for potential impacts on individual newts, a protection scheme is outlined in Chapter 4 above. This should be implemented under licence from Welsh Assembly Government. This will ensure no impact on animals. Since this is a matter of law, it does not require a planning condition.
- 5.5 The loss of intermediate grassland habitat would not, in normal circumstances, be considered to have any impact on favourable conservation status of the great crested newt in the area. However, because the site is within the SAC, to avoid any reasonable doubt about favourable conservation status, habitat creation and enhancements should be made. A wildlife corridor comprising a refuge bank and wetland scrape totalling 245m² will offset direct habitat losses within the SAC by increasing functionality of retained habitats. Native shrubbery totalling 545 m² will provide additional enhancement within the SAC by further improving functionality of remaining habitats within the site that lie within the SAC. The loading bay/bin store should be created with a reinforced grassed surface to avoid significant habitat loss within the SAC and the area of redundant car park north of proposed spaces 30 and 31 should be restored to grassland or native-species shrubbery.
- 5.6 Chapter 4 outlines how this can be achieved within the site e.g. by creating a new amphibian refuge bank, wildflower seeding, allowing grass to grow long and native shrub planting. This can be achieved through a planning condition requiring the approval of a landscape scheme prior to commencement of development. The landscape scheme should include detailed design of the wet scrape, including details of inflow and outfall and any intervening structures, can be secured by a planning condition. The landscape scheme should also provide detailed design for the reinforced grassed surface of the loading bay/bin store, which will include specifications of the sub-base construction, the paving grid system, the soil fill and the seeded/turfed surface.
- 5.7 The proposed change of use will not, in itself, cause an increase in human population of the area so overall recreational pressure on the SAC will not increase as a result of the development. However, it may result in a localised increase in pedestrian activity within the SAC near the shop. Fencing and native hedgerow and shrub planting within the site and the installation of a boardwalk along an existing offsite footpath will assist in controlling public access through the site into the SAC.
- 5.8 To further mitigate for potential increases in human pressure into and within the SAC, it is proposed that a commuted sum be provided to a local wildlife charity approved by CCW (such as Building Wildlife). This is established practice for small developments. The commuted sum is held for the purpose of making small-scale interventions to improve habitats. As there is a Johnstown SAC management plan, the contributions could be used to fund habitat enhancements within the plan, which would otherwise not occur.
- 5.9 TEP understands that it is established practice in Wrexham for a sum of £2,500 to be paid per dwelling. This sum would also fund 3 small habitat interventions (on the basis of £800 per intervention). TEP considers that the level of impact in this case is similar, so a similar contribution would be appropriate.

- 5.10 The commuted sum should be paid within 3 months of commencement of development. The commuted sum and the timescale in which it is delivered shall be secured and enforced through the method statement that will be licensed by Welsh Assembly Government.
- 5.11 In order to monitor pedestrian activity in the SAC the counters should be installed to enable a baseline monitoring of activity. Installation should be prior to commencement of development AND at least 3 months data should be collected and provided to CCW before occupation of the new retail unit. Again this could be a matter for planning condition.
- 5.12 The Habitats Regulations require an appropriate assessment of any development which is likely to have a significant effect on the integrity of an SAC. The use of planning conditions and obligations can be taken into account when assessing the likelihood of significant effect.
- 5.13 The mitigation measures set out above can all be enforced through planning condition.
- 5.14 The mitigation measures will ensure:
- * No death or injury to great crested newts
 - * Increase in refuge, shelter or breeding habitats
 - * No net loss of foraging habitats
 - * No impact on ranging or migration
 - * A mechanism to assist the reduction of unregulated informal desire line traffic through the SAC, thereby contributing to reducing visitor pressure on the SAC
 - * A mechanism to measure and respond to any localised increases in visitor pressure on the SAC
- 5.15 Taking all the above into account, there will be no likelihood of a significant effect on the integrity of the SAC. In TEP's opinion, an appropriate assessment is not required, but even in the event that CCW consider there is a "likelihood", the mitigation will ensure no adverse effect on SAC integrity.
- 5.16 Planning permission may therefore be granted



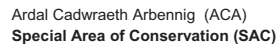
APPENDIX 1:

Map of Johnstown Newt Sites SAC (Stryt Las composite site)



Map 2 / 3

Côd Safle y GE **UK0030173**
EC Site Code



Arwynebedd cyfan
Total area 69.61 ha

Hydred Longitude	03° 01' 46"	Gorllewin West
Lledred Latitude	53° 00' 45"	Gogledd North



N.G. Mae'r ffigurau Lledred/Hydred i gyd wedi deillio o System Geodesig y Byd 84 (WGS 84)

N.B. All Latitude/Longitude figures have been derived from World Geodetic System 84 (WGS 84).

Tafluniad map: Y Grid Cenedlaethol Prydeinig
Projection: British National Grid

Rhif diweddaraf Version number	3	17/02/2005
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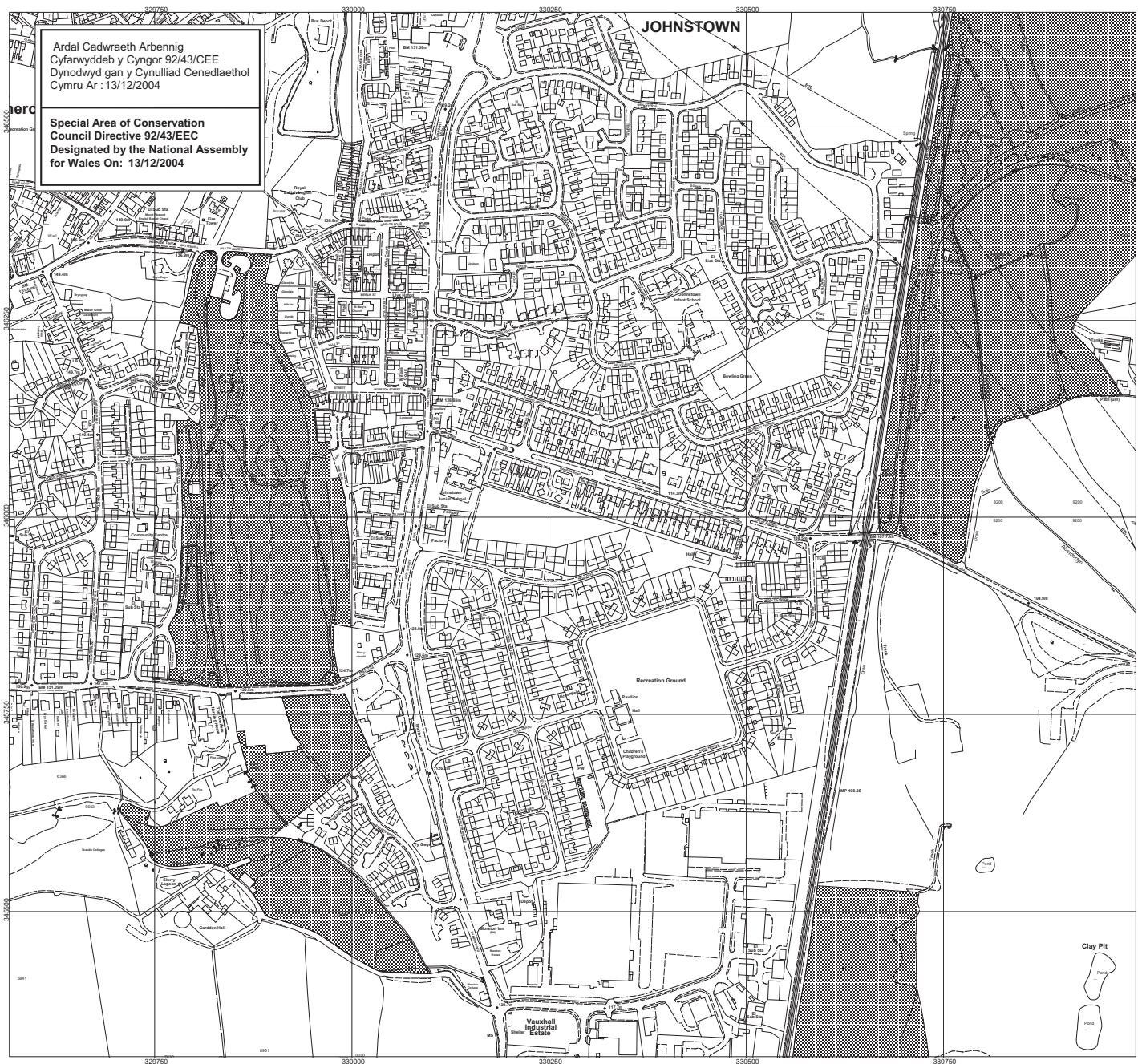
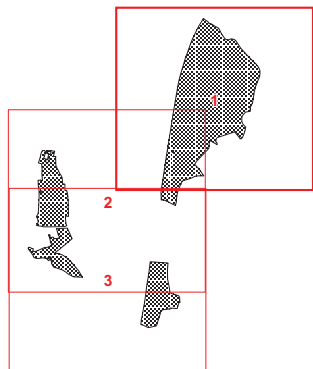
Graddfa
Scale 1 : 5,000

Noder: Data wedi ei gipio ar raddfa 1:2,500 a'i leihau i raddfa 1:5,000.

Note: Data captured at 1:2,500 scale and reduced to 1:5,000.

Algyrhyrhyr y map hwn o ddeunydd yr Arolwg Odrindars gyda chaniatâd Arolwg Odrindars ar ran Rheolwr Llyfrfa Eidi Maerdydi © Hawffrwynt y Goron. Mae algyrhyrhyr hae ganiatâd yn i'w rhoi i'r Goron a gylt yn awr o'r ydied neu achos sifft. Rhif treiglodd Cyngor Celf Gledat Cyborc 1000118813 21/02/2005

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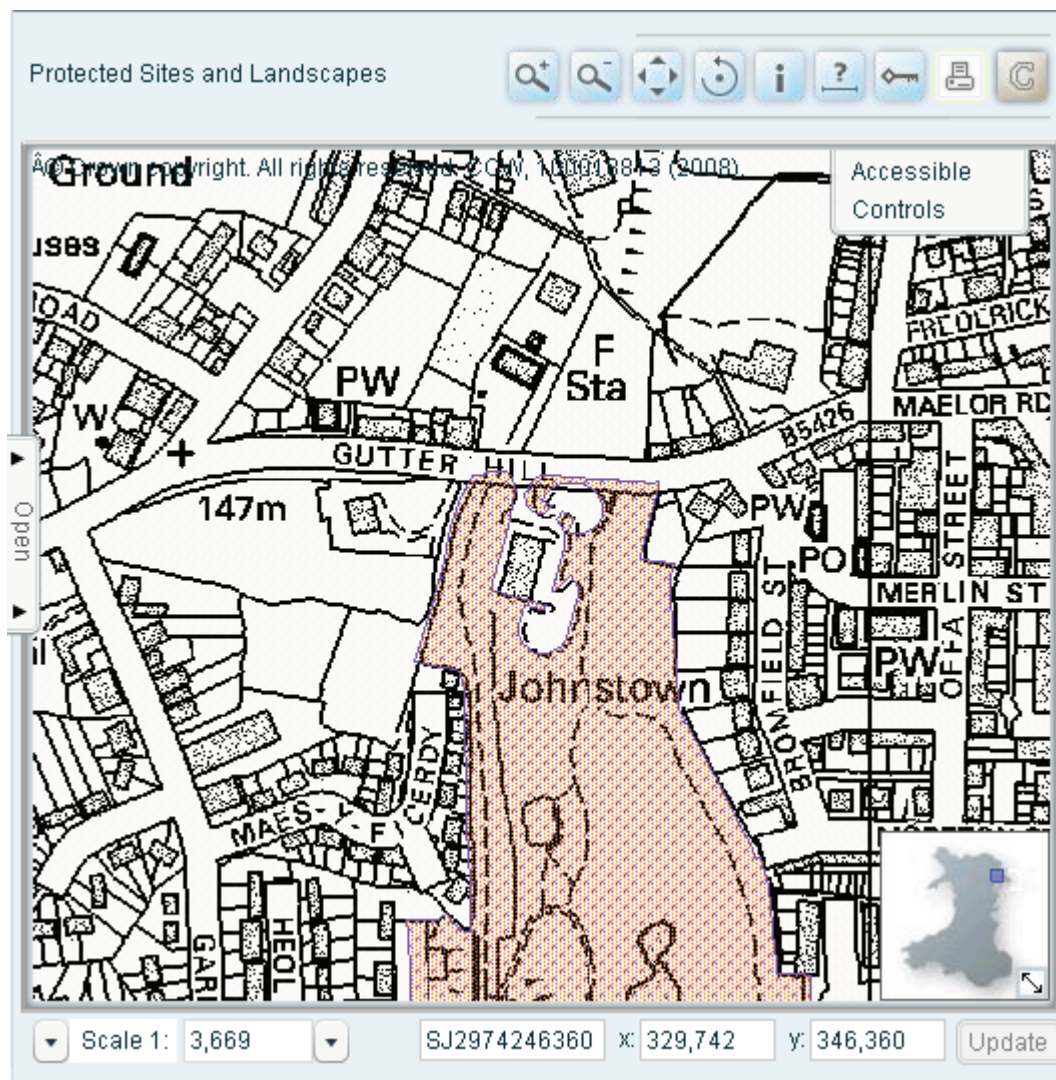


APPENDIX 2:

Site Register for Johnstown Newt Sites SAC and Stryt Las SSSI

Protected Sites and Landscapes map

[Home Page](#) > [Landscape & wildlife](#) > [Protecting our landscape](#) > Protected Sites Map



To use our interactive maps you will need Adobe Flash Player. You can [download the Flash Player](#), free of charge, from the Macromedia website.

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[For full terms & Conditions click here.](#)

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*Conservation (Natural Habitats, &c.) Regulations 1994 (SI 1994 No. 2716),
fel y'u diwygiwyd / as amended.*

COFNOD YN Y GOFRESTR O SAFLEOEDD EWROPEAIDD I GYMRU

ENTRY IN THE REGISTER OF EUROPEAN SITES FOR WALES

(Rheoliad / Regulation 11.2)

ENW'R SAFLE:

SITE NAME:

Johnstown Newt Sites

MATH O SAFLE:

SITE TYPE:

Ardal Cadwraeth Arbennig (ACA)

Special Area of Conservation (SAC)

CÔD Y SAFLE:

SITE CODE:

UK0030173

HANES DYNODIAD:

Dyddiad y trosglwyddwyd i'r Comisiwn

Ewropeaidd (Rheoliad 7.4):

Hydref 2002

*Dyddiad y mabwysiadwyd fel safle o
bwysigrwydd cymunedol (Council Directive*

92/42/EEC, Erthygl 4.2):

7 Rhagfyr 2004

Dyddiad dynodi:

13 Rhagfyr 2004

Dynodwyd gan (Rheoliad 8.1):

Cynulliad Cenedlaethol Cymru

LLEOLIAD:

Awdurdod unedol:

Wrexham

Cyfesurynnau:

Hydred 03 01 42 Gor, Lledred 53 00 44 Gog
Cyfeirnod Grid Cenedlaethol Arolwg Ordans:
SJ310466

*Gweler hefyd y map(iau) amgaeëdig, nad
ydynt yn ffurfio rhan o'r cofnod hwn.*

DESIGNATION HISTORY:

Date transmitted to the European

Commission (Regulation 7.4):

October 2002

Date adopted as a site of community

*importance (Council Directive 92/42/EEC,
Article 4.2):*

7 December 2004

Date designated:

13 December 2004

Designated by (Regulation 8.1):

National Assembly for Wales

LOCATION:

Unitary authority:

Wrexham

Coordinates:

Longitude 03 01 42 W, Latitude 53 00 44 N
Ordnance Survey National Grid Reference:
SJ310466

*See also the accompanying map(s), which do
not form part of this entry.*

MATHAU O GYNEFIN A/NEU RYWOGAETHAU Y DYNODIR Y SAFLE O'U PLEGID:
HABITAT TYPES AND/OR SPECIES FOR WHICH THE SITE IS DESIGNATED:

	Enw cyffredin	Common name	Term Gwyddonol	Scientific term
1	Y fadfall ddŵr gribog	Great crested newt	<i>Triturus cristatus</i>	

*Mae'n dynodi mathau o gynefin neu rywogaeth y rhoddir blaenoriaeth iddynt (a ddiffinnir yn Erthyglau 1(d) ac 1(h) o Council Directive 92/43/EEC).

*Denotes a priority habitat type or species (defined in Articles 1(d) and 1(h) of Council Directive 92/43/EEC).

GWNAED Y COFNOD HWN:
14 Mehefin 2005

THIS ENTRY MADE:
14 June 2005

GAN:
Trish Fretten, ar ran Gweinidog dros yr Amgylchedd, Cynllunio a Chefn Gwlad, Cynulliad Cenedlaethol Cymru

BY:
Trish Fretten, on behalf of the Minister for Environment, Planning and Countryside, National Assembly for Wales

LLOFNOD:

SIGNATURE:



DYDDIAD(AU) COFNODION
BLAENOROL AR GYFER Y SAFLE HWN:
Dim

DATE(S) OF PREVIOUS ENTRIES FOR
THIS SITE:
None

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITES OF SPECIAL SCIENTIFIC INTEREST CITATION

WREXHAM

STRYT LAS A'R HAFOD

<u>Date of Notification:</u>	1997, 2000
<u>National Grid Reference:</u>	SJ298459
<u>O.S. Maps:</u>	1:50,000 Sheet number: 117 1:10,000 Sheet number: SJ24NE, SJ34SE
<u>Site Area:</u>	69.4 ha

Description:

Stryt Las a Hafod is a composite site located close to the village of Johnstown, south west of Wrexham, at an altitude of 130m. It is of special interest for its amphibians. Of particular interest is the population of the great crested newt *Triturus cristatus*. This species has suffered a marked decline throughout Great Britain and Continental Europe as a result of habitat loss. Great Britain is considered to be one of the strongholds for this species in western Europe.

The Bettisfield Formation feldspathic sandstone and coal measures underlie the site and a number of capped mine shafts are present within the boundaries of the site. Where present, natural soils are of overconsolidated till (boulder clay) origin. The majority of the water bodies originated following the cessation of mineral extractive industries including coal mining and quarrying for clay and associated industrial developments. Certain ponds, particularly at Hafod, were specifically created for amphibian conservation purposes.

The water bodies at Stryt Las and Hafod support one of the largest known breeding populations of the great crested newt in Great Britain. Torch night counts undertaken during the spring have revealed over 250 adult and sub-adult animals on several occasions. They also support significant populations of the commoner amphibian species notably smooth newt *Triturus vulgaris*, palmate newt *T. helveticus*, common frog *Rana temporaria*, and common toad *Bufo bufo*.

Surrounding areas of land support a mosaic of scrub and planted trees, grassland, and tall ruderal vegetation. These form important foraging and over wintering areas for adult and juvenile amphibians.

Remarks:

The great crested newt *Triturus cristatus* is protected under the EC Habitats and Species Directive (as implemented in Great Britain by Statutory Instrument 2716: The Conservation (Natural Habitats & c.) Regulations 1994).

Stryt Las is managed by Wrexham County Borough Council as a community nature park.

Land at Hafod is to be managed as a community woodland.

The great crested newt *Triturus cristatus* is listed in the UK's Biodiversity Action Plan as a Priority Species.

*This document is **NOT** a definitive legal version and has been formatted, updated and partially edited for use on the CCW Web site. This document should not be used in any legal proceedings, public enquiry or any other hearing or appeal. If you require a full legal copy of the document please contact CCW in writing.*

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST: MANAGEMENT STATEMENT

WREXHAM

STRYT LAS A'R HAFOD

Date of SSSI Notification:

09 November 2000

Date of Management Statement Notification:

14 August 2003

Site Area:

69.4 ha

1. Introduction:

This management statement contains CCW's opinion of the way in which the SSSI should be managed in order to maintain its special interest. It also provides a basis for future discussions and decisions on the conservation management of the SSSI. It is important that any works described in this statement are fully discussed with and formally consented by CCW, before any of these management activities are started.

The document sets out a vision for the features of interest; it describes the key issues affecting those features and outlines any management considered necessary to safeguard the features.

It is very important to recognise that management may need to change with time. Problems that we are aware of today may be resolved or completely removed and new unforeseen problems may arise. New improved management techniques may also become available. Consequently the management outlined in this document is considered appropriate for the short term but may need to change in the long term.

2. Features of Special Scientific Interest:

- A population of great crested newt
- An assemblage of the five widespread amphibian species namely common frog, common toad, palmate newt, common newt and great crested newt

As well as the features listed above, Stryt Las a'r Hafod SSSI has other habitats that are essential to the maintenance of the special wildlife interest. These include secondary broadleaved woodland, grassland, and scrub together with linear or point structures such as hedgerows, streams, ponds, or individual trees. This diversity of habitats similarly supports a wide range of species and these too are a key component of the special interest of the site. Unless it is specified below, management of this site should aim to look after these habitats as well as the listed features of interest.

3. Long-term Vision for the Site and Features:

The site will continue to support at least 250 great crested newts and all five widespread species of amphibian, as identified by torch surveys in the spring. Terrestrial and aquatic habitats will be managed to ensure the availability and suitability of breeding ponds, and of

foraging and over-wintering areas. Existing amphibian breeding ponds will be retained and other ponds suitable for amphibian breeding will be created, bringing the total to 35. Woodlands, scrub, grasslands, hedgerows and other habitats will be maintained to provide conditions suitable for dispersal, foraging, sheltering and hibernating amphibians.

4. Key Management Issues:

- **Amphibian terrestrial and aquatic habitat**

The great crested newt and the assemblage of amphibian species are dependent on a mosaic of terrestrial and aquatic habitats for breeding, shelter and hibernation purposes. Suitable habitats will typically include ponds/pools and associated wetlands, woodlands, scrub, rank and other grassland and other habitats. Hedgerows and other linear features assist in the continued migration, dispersion and genetic exchange between neighbouring populations. It is essential therefore that all these habitats are managed to benefit these populations.

- **Roadside gully pots**

Amphibians can become trapped in roadside gully pots during migration to and from breeding ponds. Once trapped, it is unlikely that animals will be able to escape. Where gully pots are present, measures should be undertaken to alleviate the impacts of gully pots. In the medium to long term, alternative surface water drainage schemes will need to be considered.

- **Aquatic habitat – colonisation of ponds by vegetation**

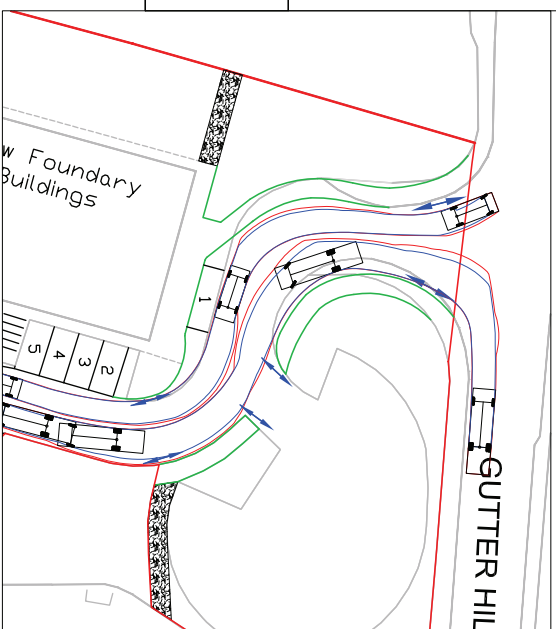
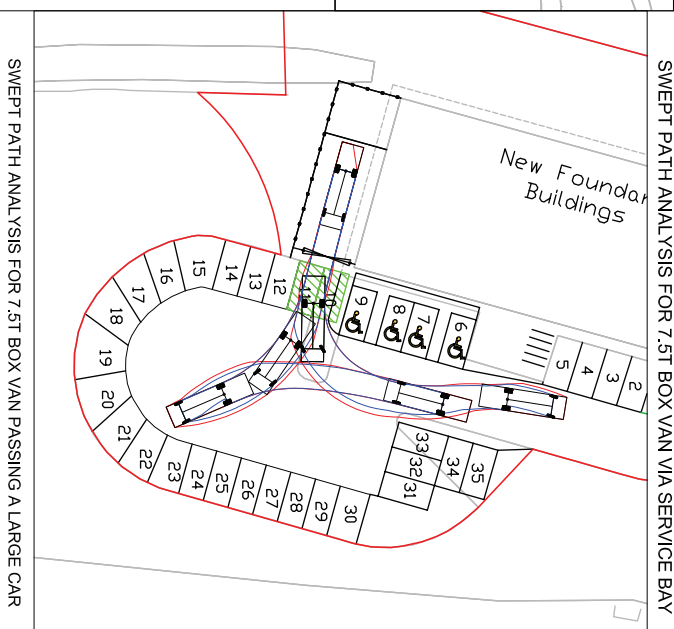
Colonisation by aquatic and emergent plants, including alien species, has led to the gradual loss of open water areas within breeding ponds. These open areas are important to allow adult male newts to display during courtship in the spring. The amount of aquatic vegetation should be monitored, and if it exceeds 60% cover, control measures will need to be implemented. In the medium to long term, it is anticipated that routine maintenance will be required around every 5 years.

- **Aquatic habitat – predator control**

Amphibian breeding ponds should ideally be devoid of fish, as fish will predate newt larvae and frog tadpoles. Consequently, the stocking of ponds with fish should therefore be discouraged. Given the number of settlements within and adjacent to the site, it is anticipated that fish relocation will have to be undertaken on a regular basis. Where already present, fish should ideally be relocated to alternative water features containing fish elsewhere. Ponds containing fish often support large common toad populations, as the toad tadpoles are not predated. Retention of such ponds where toad populations remain high will be tolerated.



APPENDIX 3:
PROPOSALS DRAWING



NOTE

SPACES TO BE CLOSED FOR
SERVICE DELIVERIES
DROPPED KERBS

Drawing Title	
PROPOSED INTERNAL LAYOUT CHANGES INCLUDING VEHICLE SWEEP PATHS	
Date	AUGUST 2010
Job Title	PROPOSED CONVENIENCE STORE, GUTTER HILL, RHOS

Drawing No. _____

APPENDIX A REV 2

Drawn By RB	Scale 1:500@A3	
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APPENDIX 4:
EXAMPLE OF REINFORCED GRASS SURFACE SYSTEM
(BODPAVE85)

Porous Paving Grids

BodPave®85 is an interlocking cellular porous paving system for ground reinforcement which can be installed with either a grass or gravel filled surface. Manufactured from UV stabilised 100% recycled HDPE, BodPave®85 is strong, chemically inert & non-toxic, enabling it to provide a durable, safe & sustainable eco-friendly surface for trafficked areas.

APPLICATIONS

- Car / Coach Parks (Grass or Gravel)
- Emergency / HGV Service Access Routes
- Aircraft Taxiways & Helipads
- Walkways and Disabled Routes
- Golf Buggy Paths
- Driveways & Residential Parking
- SUDS Source Control

BodPave®85 is a cost effective solution to worn & rutted grassed areas, displaced gravel and for Source Control of surface water run-off.

BENEFITS

BodPave®85 grids have been manufactured to offer a high load bearing performance, providing structural integrity and a positive mechanical interlock.

- Load bearing up to 400t/m²
- Manufactured from 100% recycled polymer
- British manufactured
- SUDS Source Control compliant
- Environmentally friendly, aesthetically pleasing and free draining natural grass or gravel surface



GRID STRUCTURE

BodPave®85 is suitable for grassed surfaces, gravel retention and SUDS source control applications.

Available in Black, Green or Natural



BodPave®85 allows optimum growth for grass surfaces



BodPave®85 retains gravel offering a free draining stabilised surface



BodPave®85 is ideal as a driveway or access road with a gravel fill



BodPave®85 is the perfect solution for car & coach parks with either a grass or gravel fill

The unique design of BodPave®85 resists lateral movement, improves traction and allows expansion & contraction whilst promoting optimum grass growth, root protection and surface stabilisation. The open cell structure provides high surface water infiltration and is suitable for source control within a SUDS profile.

TYPICAL PROFILE



FEATURES



Open cell structure promotes optimum grass growth



Integral ground spikes resist deformation & lateral movement



Integral interlocking 'snap-fit' connections on 500mm x 500mm grids



Castellations aid lateral grass growth and increase traction



Cells contain water retention cups to optimise root growth



Pavers can be offset by 1 cell increments for curves/obstructions

BodPave®85 should be installed onto a well prepared, free draining, firm and relatively level sub-base (typically a DoT Type 1 or reduced fines Type 3) using either Boddingtons 'Reduced-Dig System' or by employing a full sub-base construction incorporating a Tensar TriAx™ TX160 geogrid reinforcement layer. Paving grids simply connect together and are then filled with either a sand:soil rootzone and seeded or turfed for a grass surface, or filled with an angular aggregate for a gravel surface as determined by the application. Construction profiles for each application will be determined by the specific site conditions & loading criteria. Detailed design literature and technical support are available to download online as shown below. Please note : All BodPave®85 applications must be provided with sufficient and adequate drainage facilities in order to function as intended. Failure to ensure this may compromise overall performance.

Technical Information

Available to download online at www.grass-reinforcement.com:

Please contact our technical sales team for further technical literature or advice:

- Specification & Installation guidance
- Product data sheets
- Case studies
- Installation locations



Grassed Surface installation



Gravel Surface installation



'Reduced Dig' installation



Case Studies

PAVER SIZE	COLOUR	NOMINAL CELL SIZE	QUANTITY per m ²	WEIGHT (Nominal)	LOAD BEARING CAPACITY	MATERIAL	PART No.
500mm x 500mm x 50mm + 35mm integral ground spike	Black	67mm Plaque & 46mm Round	4 Grids	6.24kg/m ²	400 tonnes/m ²	Recycled Polyethylene	057580
500mm x 500mm x 50mm + 35mm integral ground spike	Green	67mm Plaque & 46mm Round	4 Grids	6.24kg/m ²	400 tonnes/m ²	Recycled Polyethylene	059447
500mm x 500mm x 50mm + 35mm integral ground spike	Natural	67mm Plaque & 46mm Round	4 Grids	6.24kg/m ²	400 tonnes/m ²	Recycled Polyethylene	059430

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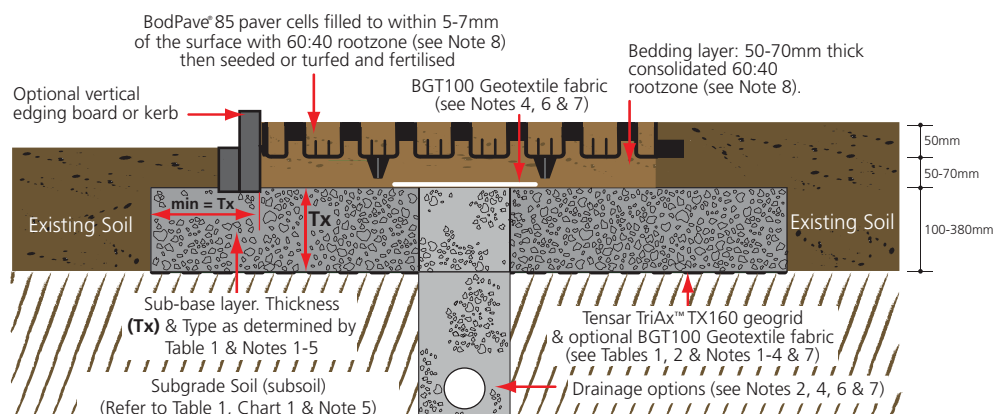
BodPave®85

SPECIFICATION, DESIGN & INSTALLATION GUIDANCE

For Grassed Surfaces



Typical Construction Profile



BODPAVE®85 INSTALLATION METHOD

1. Install edge retention as specified: Either tanalised timber boards, concrete, steel or plastic kerbs as appropriate.
2. Ensure that the sand:soil rootzone bedding layer is the correct & uniform thickness, is level & well consolidated.
3. **Place the paver units:** With the 2 sets of **edge loop** connectors facing in directions of laying, place BodPave®85 firmly onto the surface so that its ground spikes are pressed fully into the bedding and the base of the paver cells sit flat on the bedding layer surface. **Connect adjacent pavers together by slotting the edge cell connectors down into the edge loops (LOOPS ALWAYS LEAD)** & progress over the area in rows. Pavers are locked in place by snap-fit clips. If paver separation is required, clips can be dislocated using careful, firm hand or screwdriver pressure or by gently twisting the paver joints. Use protective gloves to avoid abrasions.
4. Pavers can be offset by 1 cell increments or cut to fit around obstructions & curves using a hand or power saw. The use of cut-pieces which do not have integral snap-fit connectors should be avoided wherever possible.
5. Fill pavers with specified propriety rootzone to finished levels: 5-7mm below top of the cells after settlement. A light whacker plate may be used to consolidate the pavers and settle rootzone fill. Do not overfill or over consolidate.
6. Carry out a normal seeding, fertilising & watering programme. A light top dressing may be applied to just cover the seed and to provide adequate germination conditions. Do not overfill the paver cells. Thin-cut or Washed Turf may be lightly rolled into the surface as an alternative if required.
7. The surface may be trafficked immediately for critical access purposes, but it is preferable to allow grass to fully establish prior to use.

DESIGN NOTES

- Note 1:** If Tensar TriAx™ TX160 geogrid is omitted, the total Granular Sub-Base (GSB) layer thickness (Tx) must be increased by minimum 50%.
- Note 2:** A 'DoT Type 1' sub-base may be used provided that an adequate drainage system is installed. Alternatively, a permeable/open-graded (reduced fines) sub-base layer (i.e. Type 3) may be specified, e.g. as part of a Sustainable Urban Drainage System (SUDS).
- Note 3:** If construction traffic axle loads will be greater than 60kN (approx' 6 Tonnes), minimum sub-base thickness over Tensar TriAx™ TX160 geogrid shall be 150mm. Maximum sub-base particle size should match minimum sub-base thickness but not exceed 75mm diameter. For sub-base thicknesses of around 100mm, a minimum 37.5mm particle size should be adopted to allow effective installation of Tensar TriAx™ TX160 geogrid.
- Note 4:** Where drains are omitted and a 'reduced fines' sub-base is specified for SUDS this must be covered with either a geotextile fabric (i.e. Boddingtons BGT100) and/or a clean, suitably graded gravel blinding to avoid the bedding layer leaching into the sub-base.
- Note 5:** Specific advice on CBR% strengths, ground conditions and construction over weak ground with a CBR less than 1% is available from Boddingtons Limited. CBR% = California Bearing Ratio, a measurement of subgrade soil strength.
- Note 6:** Typical standard drainage detail: 100mm diameter perforated pipe drains laid at minimum gradient 1:100, bedded on gravel in trench backfilled with 'DoT Type A' drainage aggregate, trench covered &/or wrapped with a geotextile fabric (i.e. Boddingtons BGT100), pipes leading to a suitable outfall or soakaway. Drains installed down centre or one edge of areas up to 5m wide. Wider areas may require additional lateral drains at 5m - 10m centres. Drainage design to be determined by the specifier based on specific site conditions.
- Note 7:** Drainage for a Sustainable Urban Drainage System (SUDS) application will vary according to the site but generally omits the requirement for extensive pipe & trench drainage systems within the sub-base layer and may require an additional layer of BGT100 geotextile fabric at base of construction.
- Note 8:** Rootzone bedding and paver fill must be a free-draining, structurally sound propriety blend of sand:soil or sand:compost such as used in sports/golf construction & normally identified as a 60:40 or 70:30 ratio blend. The use of site-won materials or in-situ self-blending is NOT recommended without taking further advice.
- Note 9:** Maximum advised gradient for traffic applications: 12% (1:8) 7°. BodPave®85 has specific pegging points if required for steep slope applications. Pegging is not necessary for standard access route applications.
- Note 10:** BodPave®85 complies with BS8300:2009 - "Design of buildings and their approaches to meet the needs of disabled people" - Code of Practice. (ISBN 978 0 580 57419) & Building Regulations Document 'M' section 6.
- Specific advice on the use of BodPave®85 on steep slopes, drainage suitability and Sustainable Urban Drainage Systems (SUDS) applications, can be obtained from Boddingtons Limited.

Table 1: Typical Sub-base Thickness (Tx) Requirements - refer to construction profile overleaf

APPLICATION/LOAD	CBR (%) STRENGTH OF SUBGRADE SOIL (see Chart 1)	(TX) DoT SUB-BASE THICKNESS (mm) (see Notes 1 - 5)	TENSAR TriAx™ GEOGRID (see Notes 1 - 3)
Fire trucks, Coaches and occasional HGV access	≥ 6	100	TX160
	= 4 < 6	120	TX160
	= 2 < 4	190	TX160
	= 1 < 2	380	TX160
Light vehicle access and overspill car parking	≥ 6	100	TX160
	= 4 < 6	100	TX160
	= 2 < 4	135	TX160
	= 1 < 2	260	TX160

Table 2: Paving Grid Specification

DESCRIPTION	DATA
Product	BodPave®85
Material	100% recycled polyethylene
Colour options	Black, Green & Natural
Paver dimensions	500mm x 500mm x 50mm + 35mm ground spike
Installed Paver size	500mm x 500mm (4 grids per m²)
Nominal internal cell size	Castellated 67mm Plaque & 46mm Round Shaped
Structure Type	Rigid-walled, flexible semi-closed cell combination
Cell wall thickness	2.5mm – 4.4mm
Weight (Nominal)	1.56 kg/paver - (6.24kg/m²)
Load bearing capacity (filled)	< 400 tonnes/m² *
Crush Resistance (unfilled)	< 250 tonnes/m² *
Basal support & Anti-Shear	Integral 35mm long Cross & T section ground spikes (18 per paver)
Open cell %	Top 92% / Base 75%
Connection type	Overlapping Edge Loop & Cell connection
Interlock Mechanism	Integral self locking Snap-Fit Clips
Chemical resistance	Excellent
UV resistance	High
Toxicity	Non Toxic
Bedding Layer	60:40 rootzone (see Note 8) : 50-70mm thick
Paver fill (seed bed)	60:40 rootzone (see Note 8): 43-45mm thick
Grass seed or turf	35g/m² amenity blend low maintenance seed or turf as required
Fertiliser	Pre-seed fertiliser followed up with appropriate seasonal fertiliser
Sub-base type	DoT Type 1 or a modified permeable Type 3 sub-base (Table 1 & Notes 1-5)
Sub-base reinforcement	Tensar TriAx™ TX160 geogrid (Table 1 & Notes 1-4 & 7)-Specification on request.

Chart 1: Field guidance for estimating sub-grade strengths

Consistency	Indicator			Strength	
	Tactile (feel)	Visual (observation)	Mechanical (test)	CBR	CU
			SPT	%	kN/sqm
Very Soft	Hand sample squeezes through fingers	Man standing will sink >75mm	<2	<1	<25
Soft	Easily moulded by finger pressure	Man walking sinks 50-70mm	2-4	Around 1	Around 25
Medium	Moulded by moderate finger pressure	Man walking sinks 25mm	4-8	1-2	25-40
Firm	Moulded by strong finger pressure	Utility truck ruts 10-25mm	8-15	2-4	40-75
Stiff	Cannot be moulded but can be indented by thumb	Loaded construction vehicle ruts by 25mm	15-30	4-6	75-150

This field guide is provided as an aid to assessing the mechanical stabilisation requirements in commonly encountered site conditions. Boddingtons Limited accepts no responsibility for any loss or damage resulting from the use of this guide.

*Research carried out by Sheffield University Department of Mechanical Engineering. (Rennison/Allen March 2009)

Please note that the information above is given as a guide only. All sizes and weights are nominal figures and may vary to what is published. Boddingtons cannot be liable for damage caused by incorrect installation of this product. Final determination of the suitability of any information or material for the use contemplated and the manner of its use is the sole responsibility of the user and the user must assume all risk and responsibility in connection therewith.

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DRAWING

2447.002 Amphibian Impact Assessment: Site location and ecological context



Approximate
site location



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A	revised boundary	RH	23/8/10
Revision	Description	Amended by	Date



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Project

New Foundry Buildings
Gutter Hill, Johnstown

Title

Amphibian Impact Assessment:
Site location and ecological context

Drwg No 2447.002 v2.0

Scale not to scale Date 25/5/10

Drawn by RH Checked by RH Authorised FBH