MMB
MOTT MACDONALD
BENTLEY

Technical Note

Project:	Cresswell Chemical Dosing Rig		
Our reference:	380859RH15	**Your reference:**	RH15
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Approved by:	L Strickland	**Checked by:**	T Oliver
Subject:	Ecological Constraints		

1 Introduction

Mott MacDonald Bentley (MMB) are proposing to install chemical dosing rigs onto approximately eight existing Severn Trent Water Limited clean water sites to combat plumbosolvency issues. This technical note has been produced to identify potential ecological constraints at one of these sites, Cresswell Pumping Station in Staffordshire (hereafter referred to as the 'Site') to support the planning application. The Site is located at Ordnance Survey (OS) Grid Reference SJ 97400 39477 on the edge of the village of Cresswell surrounded by agricultural land and woodland.

The proposed works involve:

- Construction of a concrete base
- Provision of a chemical delivery area with a bund and interceptor tank to contain potential spillages from chemical fills
- Connection of the rig to power, telemetry and the Site itself
- Installation of an emergency shower connected to power and a portable water supply
- Pipe connections
- Installation of speed ramps and drains within road

Works are proposed to start on site in January 2018.

2 Methodology

A desk study was undertaken to identify the presence of statutory designated sites within 2.0km of the Site using MAGIC (http://magic.defra.gov.uk/). The presence of ponds within 0.5km of the Site was also identified using aerial photography and OS mapping. However, a full desk study to obtain biological records with information of non-statutory sites and protected species within close proximity of the Site was not deemed necessary due to the minor nature of the proposed works which will be restricted to a very small area within the curtilage of the existing Site.

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A field survey, based on an extended Phase 1 Habitat Survey at the Site was undertaken by Laura Boggeln ACIEEM, Mott MacDonald ecologist, on 25 September 2017. This focussed particularly on habitats and the potential for protected and/or notable species in the proposed works areas of the Site, though ecology throughout the Site was also considered.

Photos taken during the field survey are referenced in Section 3 and presented in Section 5.

3 Results and Interpretation

3.1 Designated Sites

There are no statutory designated sites within 2.0km of the Site. Therefore, statutory sites do not present an ecological constraint to the proposed works at the Site.

3.2 Habitats

3.2.1 Buildings

There are two main buildings in the Site; the control building and the Ultra Violet (UV) building, as well as several metal kiosks.

The UV building is adjacent to the proposed works area in the west of the Site (Photo 1). This is constructed of brick walls with a pitched roof of flat slate roof tiles. It also has wooden soffits. There are multiple large gaps under the tiles where the tiles are in poor condition at the front of the building (Photos 2 and 3). It is unknown whether building has a roof space and internal access wasn't possible at the time of the survey. There will be some pipe connections to the kiosk at the back of this building but the building will not be impacted directly.

The control building is in the middle of the Site away from the proposed works area (Photo 4). This is constructed from brick with a pitched tiled roof. It has plastic soffits and plastic caps on the ends of the roof tiles along one edge. There is a gap in the soffit box on the rear gable end (Photo 5).

The ecological value of the buildings is dependent on their potential for bats to roost (see Section 3.3.3 below).

3.2.2 Broadleaved Woodland

There is a dense area of mature plantation woodland along the northern boundary of the Site (Photo 6). This consists of mature silver birch (*Betula pendula*), hazel (*Corylus avellana*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), English oak (*Quercus robur*), holly (*Ilex aquifolium*), hawthorn (*Crataegus monogyna*) and also bramble (*Rubus fruticosus* agg.).

There is also an area of plantation woodland in the south west of the Site closer to the proposed works area (Photo 7). This consists of large ash (*Fraxinus excelsior*) trees, elder, cherry (*Prunus* sp.), silver birch, hazel, hawthorn, and large Norway maple (*Acer platanoides*). Bramble and common nettle (*Urtica dioica*) dominate the ground flora.

These areas of habitat have high ecological value but will not be impacted by the proposed works and therefore do not present a constraint to the works.

3.2.3 Broadleaved Scattered Trees

A small area of shrubs will be directly impacted by the proposals to install the chemical dosing kiosk and interceptor tank (Photo 8). These include holly, dogwood (*Cornus sanguinea*), and poplar (*Poplar* sp.) located in the west of the Site. These trees are quite tall but semi-mature and exhibit a large amount of ivy (*Hedera helix*) cover. Additionally, there is one coniferous tree, a cypress (*Cupressaceae* sp.) behind this area, adjacent to an area of tall ruderals which may require removal. This habitat has low ecological value and is not considered to present an ecological constraint to the proposed works.

There is another small area of shrubs to the east of the UV building which may require cutting back for the works (Photos 9 and 10). This includes hawthorn, elder and cherry laurel (*Prunus laurocerasus*). The presence of cherry laurel presents a minor ecological constraint to the proposed works (see Section 3.3.5 below).

3.2.4 Hardstanding

Concrete hardstanding makes up an access road through the Site (Photo 11). This is anticipated to be impacted by the proposed works for the installation of ramps and drains. However this has negligible ecological value and therefore does not present an ecological constraint to the proposed works.

3.2.5 Improved grassland

Improved grassland makes up the majority of the Site and is dominated by perennial ryegrass (*Lolium perenne*) (Photo 12). This is short and appears to be regularly mown. This habitat has negligible ecological value and is unlikely to be impacted by the proposed works, any potential impacts are likely to be minor. Therefore, this habitat does not present an ecological constraint to the proposed works.

3.2.6 Semi-Improved Grassland

There is an area of semi-improved grassland in the west of the Site in the area of the proposed interceptor tank (Photo 13). This consists of perennial ryegrass, red fescue (*Festuca rubra*), curled dock (*Rumex crispus*), broad-leaved dock (*Rumex obtusifolius*), common hogweed (*Heracleum sphondylium*), creeping buttercup (*Ranunculus repens*), dandelion (*Taraxacum officinale* agg.), daisy (*Bellis perennis*), common knapweed (*Centauria nigra*), bush vetch (*Vicia sepium*).

3.2.7 Tall Ruderals

There is an area of tall ruderal vegetation behind the small area of shrubs in the proposed area of the kiosk and emergency shower (Photo 14). This is dominated by common nettle with abundant hedge bindweed (*Calystegia sepium*) and broad-leaved dock, bracken (*Pteridius aquilinum*) and various tree saplings. There are also some small brash piles in this area.

Tall ruderals are also present along the edge of the woodland and grassland to the east of the UV building consisting of common nettle, creeping thistle (*Cirsium arvense*), broad-leaved dock, red campion (*Silene dioica*) and imperforate St John's-wort (*Hypercium maculatum*) (Photo 15).

3.3 Protected/Notable Species

3.3.1 Amphibians

Aerial photography and OS mapping showed that there are three ponds within 0.5km of the Site; two of these are in woodland directly adjacent to the north of the Site. There are some suitable terrestrial habitats for amphibians such as great crested newts (*Triturus cristatus*), such as within the woodland and the semi-

improved grassland. Therefore, there is potential for such species to be present within the proposed works areas in the Site, in the semi-improved grassland, though these areas will be very small.

The works are proposed to be undertaken during the winter which is within the great crested newt hibernation season. The potential for this species to hibernate in this area is low as there are no features in this area suitable for hibernacula. If great crested newts are present in the nearby ponds, they are more likely to use the adjacent woodland areas for hibernation and refuge opportunities. Although there are some piles of brash in part of the proposed works area, the potential for great crested newts or other amphibian species to use these for hibernation is very low as they are only small and sporadic. It is considered that great crested newts present a minor ecological constraint to the proposed works.

3.3.2 Badgers

Two disused badger sett entrances, which are characteristically large, with large spoil heaps outside, were discovered in the woodland to the north of the proposed works area, in the north east of the Site (Photo 16). The closest of these holes is approximately 12m away from the nearest proposed works area where pipe connections will be made behind the UV building. These sett entrances are overgrown with bramble and contain a large amount of leaf litter with no clear trails or paths through the vegetation in this area and rabbit droppings near the entrances (Photo 17). There appears to be some recent digging activity indicative of badgers adjacent to this area outside of the Site in the railway land. There also appears to be an old, disused badger latrine underneath one of the trees in the woodland; potential dung pits but no dung was observed (Photo 18).

A large main badger sett was discovered in the broadleaved woodland in the south of the Site, over 30m away from the proposed works area. This consists of a minimum of ten large holes (Photo 19). There is abundant evidence showing that the badger sett is active including fresh spoil outside of the entrances, claw marks, badger hairs and very clear trails around the area (Photo 20). This shows that the badgers are clearly active within the Site therefore there is high potential for them to be close to the proposed works area. There is also some potential for them to re-inhabit the disused badger sett behind the proposed

Additionally, there are some mammal trails in the area of semi-improved grassland very near to the proposed works areas which could potentially be used by badgers. Therefore, although the main active badger sett is located sufficient distance from the works to not be impacted, badgers still present a minor ecological constraint due to their known presence in the Site.

3.3.3 Bats

The buildings were not able to be accessed internally during the survey. No evidence of bats, such as droppings or staining, was observed on the buildings externally. However, external inspection suggests the UV building, which will be directly adjacent to the proposed works area, has high potential for roosting bats due to the presence of multiple holes (Photos 2 and 3), though the potential for hibernation is negligible. Therefore, as the work is proposed to be carried out during the winter (bat hibernation season), disturbance to potentially roosting bats is not anticipated.

External inspection of the control building suggests it has moderate potential for roosting bats due to the presence of the hole on one of the gable ends (Photo 5), but, again, no evidence of bats was observed and it is of negligible potential for hibernation. This building is not within close proximity to the proposed works and, though its use is likely to increase during the works, possible indirect impacts to potentially roosting bats are not anticipated because the works will be carried out during the winter (bat hibernation season).

There are two bat boxes on a tree in the woodland in the south west of the Site. It is unknown if these are used by bats for roosting but they are not anticipated to be impacted directly or indirectly by the proposed works.

Overall, impact to roosting bats is not anticipated and bats are not considered to pose an ecological constraint to the proposed works.

3.3.4 Birds

There is potential for nesting birds within habitats in the Site which are likely to be directly impacted by the proposed works, such as in the trees and shrubs, as well as adjacent habitats such as the woodland areas. However, the works will be undertaken outside of the bird nesting season, which is March to September, and therefore are not anticipated to cause any direct or indirect impacts to nesting birds. Therefore, birds do not pose an ecological constraint to the proposed works.

3.3.5 Invasive species

Himalayan balsam (*Impatiens glandulifera*) was observed adjacent to the access road into the Site in the front garden of a residence (Photo 21). Although the works will not be undertaken close to this area, increased site traffic along this road could indirectly spread seeds of the plants. However, the works will be undertaken in the winter when the plants will have died back with no flowers present and so there would be no risk of spreading the seeds. Therefore, Himalayan balsam does not present an ecological constraint to the proposed works.

Cherry laurel is present in the Site to the south west of the UV building where it has been previously planted for landscaping purposes and has become very dense (Photos 9 and 10). This is not an invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) but it has the potential to spread prolifically. This may be required to be cut back as part of the works and, therefore, there is potential for it to spread. Therefore, cherry laurel presents a minor ecological constraint to the proposed works.

3.3.6 Other species

There is evidence of rabbits using the Site; rabbit droppings (Photo 17) and evidence of rabbit digging was observed throughout. One rabbit burrow was observed near to the disused badger sett in the woodland in the north which has a characteristically small, round entrance. However, no rabbit burrows were observed near the proposed works areas and therefore rabbits are unlikely to be impacted by the works and do not present an ecological constraint.

3.3.7 Reptiles

There is suitable habitat for reptiles in the Site where there is semi-improved grassland in combination with denser vegetation such as tall ruderals which could be used for refuge. However, this area of habitat is unlikely to provide basking opportunities as it is fairly shaded and is likely to be subject to some disturbance, such as mowing. Although there is some connectivity to other suitable habitat such as the woodland and the railway embankment, the potential for reptiles to be present in the proposed works area, which will be a small area only in the west of the Site, is considered to be low.

The works are proposed to be carried out during the winter which is within reptile hibernation season. The potential for reptiles to hibernate in this area is low as this area does not contain suitable hibernacula. The adjacent woodland areas are likely to provide more suitable hibernation features. Although there are some piles of brash in part of the proposed works area in the tall ruderal vegetation, the potential for reptile species to use these for hibernation is very low as they are only small and sporadic. It is considered that reptiles present a minor ecological constraint to the proposed works.

4 Conclusions and Recommendations

The proposed works are not anticipated to impact any designated sites or ecologically significant habitats. The proposed works are also not anticipated to impact protected/notable species though some present minor ecological constraints which must be taken into consideration, including: the potential for badgers to enter the proposed works areas, due to their known presence within the wider areas of the Site, the potential to spread cherry laurel, which is known to spread prolifically, and the potential presence of great crested newts and reptiles.

The following recommendations are put forward with respect to protected/notable species:

- To avoid impact to badgers, best practice guidance must be implemented during the works which involves:
  - Conducting a pre-start badger check to ensure that the disused badger sett is has not be re-occupied by badgers and that new holes have not appeared within 20m of the proposed works area. This should be undertaken by a competent and qualified ecologist.
  - Ensuring that any open excavations are covered overnight or a suitable egress is provided for potential badgers that may fall into them.
  - Ensuring that all spoil material is fully compacted when stock-piled.

- To avoid the spread of cherry laurel, it is recommended that all cuttings are left *in situ* on Site in the existing areas of this shrub.

- To avoid impact to potential great crested newts and reptiles, clearance of the area of tall ruderal vegetation should be undertaken with care under the supervision and instruction of a competent and qualified ecologist.

5 Photos

Photo 1: UV building in north east of Site adjacent to proposed works area



Photo 2: Gaps underneath roof tiles of UV building



Photo 3: Gaps under roof tiles of UV building



Photo 4: Control building in south west of Site



Photo 5: Gap in soffit on gable end of control building



Photo 6: Broad-leaved woodland in south of Site



Photo 7: Broad-leaved woodland in north east of Site



Photo 8: Shrubs and trees in proposed works area in north east of Site



Photo 9: Shrubs to west of UV building near area of proposed works



Photo 10: Shrubs to west of UV building near area of proposed works



Photo 11: Concrete hardstanding in proposed works area



Photo 12: Improved grassland in Site



Photo 13: Semi-improved grassland in proposed works area



Photo 14: Tall ruderal vegetation behind shrubs in proposed works area



Photo 15: Tall ruderal vegetation adjacent to woodland and grassland



Photo 16: Disused badger sett entrance in woodland in north east of Site



Photo 17: Rabbit droppings on spoil heap outside disused badger sett entrance



Photo 18: Potential old badger dung pit in woodland in north east of Site



Photo 19: Main badger sett entrance hole in woodland in south of Site



Photo 20: Badger scratch marks in soil and badger hairs outside a main badger sett entrance hole



Photo 21: Himalayan balsam adjacent to access road of Site

