

# Living Ecosystems



*Working Towards Sustainable Development and Providing Ecological Education...*

## **An assessment of land near Saunderson Rd, Penistone, Yorkshire, to ascertain its capacity to support great crested newts.**

### **Introduction**

Living Ecosystems was commissioned by Nicol Thomas Ltd Architects in January 2013 to assess all ponds and other waterbodies in this area in relation to their capacity to support a breeding population of great crested newts.

### **Site location**

The site is located at Saunderson Road Penistone Sheffield S36 9DU, grid reference SE 24063 03559, lat/long 424063, 403559.



**Location of the site off Saunderson Road in Penistone.**

## Planning Proposal

The current planning application is for the provision of 22 social housing units on behalf of Yorkshire Housing Ltd.

## Ecological data search

An ecological data search was carried out to find existing records of protected species and habitats within a 2km radius of the site using Magic Map, Nature on a Map and the NBN Gateway produced the following records of protected species and habitats in a 2km radius of the site.

No nationally designated sites [eg SSSI, NNR, SPA, SAC etc] were identified. Nor are any statutory Local Nature Reserves listed as existing within 2km of the site.

Two local relevant records for protected species were found. A record of great crested newts at Royd Moor Reservoir 220 metres to the north-west of the Saunderson Road site. There was also a single record of an unidentified bat 490 metres to the east of the Saunderson Road site [See aerial photograph below].



## Habitat Survey Methodology

Detailed walkover surveys of the site were undertaken on the 26<sup>th</sup> September 2012 & 15<sup>th</sup> January 2013. A Habitat Suitability Index for great crested newts was compiled. The survey was carried out by Richard Parkinson a suitably experienced Ecologist & Herpetologist, assisted by Candice Howe a very experienced ecological survey assistant during the second survey.

## Survey Area

The site is located on land immediately to the south of Thurlestone Road and the east of Sauderson Road in Penistone [see aerial photograph below].

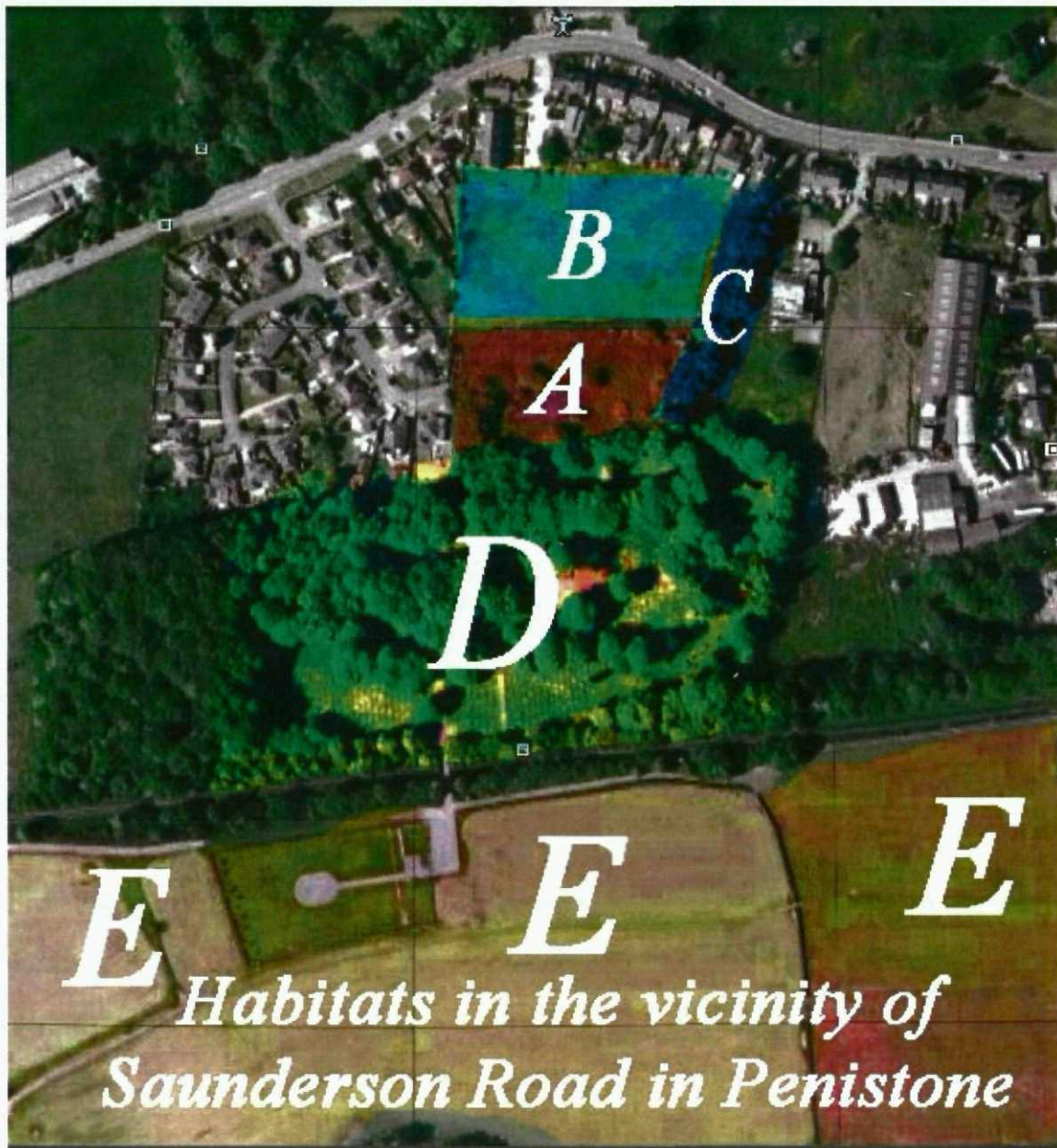


**An examination of maps and aerial photographs discovered no ponds suitable as great crested newt breeding sites within 500 metres of the site** and not separated from it by major roads, rivers or canals or other insuperable barriers. The walkover survey included all open land outside the site perimeter to within a 500 metre radius and not separated from it by insuperable barriers to great crested newts [such as busy roads, fast flowing water, arable cultivation, urban development and canals]. **No suitable**

ponds were discovered within 500 metres of the site during the walkover survey.

### Site description

The proposed development site is compartment A on the map below. The current planning application is for the provision of 22 social housing units on behalf of Yorkshire Housing Ltd.



Habitat compartments on site adjacent to Saunderson Road, Penistone.

## **Compartment A – Abandoned smallholding**

Compartment A is bounded by a dry stone wall about one metre tall to the south, and by fences to the east and west and by a stony bank about 1.5 metres tall to the north separating it from the adjacent cemetery. The Northern portion of the compartment is clearly a disused and abandoned smallholding, a derelict shed/small wooden Dutch barn is present as are the remains of some disused animal pens and vegetable plots; all abandoned and colonised by grasses and plant species typical of waste sites. The dominant habitat is rank grassland [Yorkshire fog and cocksfoot grasses predominating] forming well developed tussocks in some places. There are a variety of other species mostly typical of waste sites.

The Southern half of the compartment comprises a mixture of rank grassland, tall herbs dominated by rosebay willowherb and willow scrub dominated by goat willow. The two most interesting plant species are ling [*Calluna vulgaris* - a heather] which occurs in the south of the compartment, and sneezewort [*Achillea ptarmica*] which occurs very rarely in the north of the compartment. There was some limited evidence for field voles in compartment A. Such evidence included tracks, burrows and resting places. This type of habitat does provide good foraging habitat for barn owls, kestrels and other rodent predators. There are however no nesting opportunities for barn owls on the site. There are no large trees on the site but there is a small quantity of goat-willow scrub and a few ash and elder saplings.

### **Marshy Grassland**

A survey was carried out by Christopher Marrs of TEP as part of the Local Development Framework preparation by BMBC on 8<sup>th</sup> September 2010 it recorded a small patch of marshy grassland with associated *Equisetum* [Horsetail] species. During the survey of 26<sup>th</sup> September 2012 no *Equisetum* was visible and though there was a small area of standing water less than one metre square in area and less than 10cm deep this was a day after one months rainfall had fallen in the space of 24 hours. The rest of the site was completely dry. **For a full description of the marshy area see the [Amphibian potential](#) section below.**



**Compartment A**



**Compartment A**



**Ling [*Calluna vulgaris*] in compartment A**

| Common name       | Latin name               | Frequency |
|-------------------|--------------------------|-----------|
| Japanese knotweed | <i>Fallopia japonica</i> | R         |

|                     |                                                                                                                    |   |
|---------------------|--------------------------------------------------------------------------------------------------------------------|---|
| Cocksfoot grass     | <i>Dactylis glomerata</i>                                                                                          | A |
| Common bent         | <i>Agrostis capillaris</i>                                                                                         | O |
| Yorkshire fog grass | <i>Holcus lanatus</i>                                                                                              | A |
| False oat grass     | <i>Arrhenatherum elatius</i>                                                                                       | F |
| Rosebay willowherb  | <i>Chamaerion angustifolium</i>                                                                                    | O |
| Teasel              | <i>Dipsacus fullonum</i>                                                                                           | O |
| Greater burdock     | <i>Arctium lappa</i>                                                                                               | O |
| Soft rush           | <i>Juncus effusus</i>                                                                                              | O |
| Red clover          | <i>Trifolium pratense</i>                                                                                          | O |
| Birds foot trefoil  | <i>Lotus corniculatus</i>                                                                                          | O |
| Hogweed             | <i>Heracleum sphondylium</i>                                                                                       | O |
| Meadow vetchling    | <i>Lathyrus pratensis</i>                                                                                          | O |
| Creeping thistle    | <i>Cirsium arvense</i>                                                                                             | F |
| Stinging nettle     | <i>Urtica dioica</i>                                                                                               | F |
| Bush vetch          | <i>Vicia sepium</i>                                                                                                | O |
| Creeping buttercup  | <i>Ranunculus repens</i>                                                                                           | O |
| Common sorrel       | <i>Rumex acetosa</i>                                                                                               | F |
| Bramble             | <i>Rubus fruticosus</i>                                                                                            | O |
| Cow parsley         | <i>Anthriscus sylvestris</i>                                                                                       | O |
| Curled dock         | <i>Rumex crispus</i>                                                                                               | O |
| Dandelion           | <i>Teraxacum officinale</i>                                                                                        | O |
| Ribwort plantain    | <i>Plantago lanceolata</i>                                                                                         | O |
| Field horsetail     | <i>Equisetum campestre</i>                                                                                         | F |
| Sneezewort          | <i>Achilea ptarmica</i>                                                                                            | R |
| Ash                 | <i>Fraxinus excelsior</i>                                                                                          | R |
| Hoary willowherb    | <i>Epilobium parviflorum</i>                                                                                       | R |
| Wild raspberry      | <i>Rubus idaeus</i>                                                                                                | R |
| Wild rose           | <i>Rosa sp</i>                                                                                                     | R |
| Sycamore            | <i>Acer pseudoplatanus</i>                                                                                         | R |
| Elder               | <i>Sambucus nigra</i>                                                                                              | R |
| Goat willow         | <i>Salix caprea</i>                                                                                                | R |
| Ling                | <i>Calluna vulgaris</i>                                                                                            | R |
| <b>Marshy area</b>  | The species below were observed during January 2013 survey but not visible at all during the September 2012 survey |   |

|                                                                                         |                              |                                                                  |
|-----------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------|
| Water starwort                                                                          | <i>Callitriche stagnalis</i> | O                                                                |
| Flote grass                                                                             | <i>Glyceria fluitans</i>     | O                                                                |
| Lesser duckweed                                                                         | <i>Lemna minor</i>           | O                                                                |
| Wood horsetail?                                                                         | <i>Equisetum sylvaticum?</i> | Reported in 2010 but not present on either of my visits in 2012. |
| Relative Abundance: D Dominant; A Abundant; F Frequent; O Occasional; R Rare; L Locally |                              |                                                                  |

## Noticeable habitat changes between the 2010 and 2012 surveys

A survey was carried out by Christopher Marrs of TEP as part of the Local Development Framework preparation by BMBC on 8<sup>th</sup> September 2010 records an extensive growth of heather [*Calluna vulgaris*] and horsetail [*Equisetum sylvaticum*] growing in the marshy area [see picture below]. However at the time of the September 2012 survey no *Equisetum* could be found and although *Calluna vulgaris* was observed it was less vigorous and less frequent and clearly showing signs of being strangled by rank grasses. The survey of January 2013 again recorded the complete absence of the [*Equisetum*, but there is significant growth of soft rush [*Juncus effuses*]. **The diversity of the habitat has significantly declined between 2010 and 2013. The precise reasons for this are difficult to determine but it is probable that the relative abandonment of the site leading to a cessation of grazing allowing rank grasses to become more dominant may have played a role. Soil nitrification may also be a factor. Neither heather or *E.sylvaticum* thrive in nutrient rich soils. *Lemna minor* [lesser duckweed] does however thrive in nutrient rich water and it is noticeable that *Lemna minor* is beginning to grow densely in some of the flooded areas.**



**Picture of the marshy area of the site taken in September 2010 showing an extensive growth of heather [*Calluna vulgaris*] and horsetail [*Equisetum silvaticum*?]**



**A picture of the same area taken in September 2012 shows that the horsetail [*Equisetum sylvaticum*?] has entirely disappeared while the heather [*Calluna vulgaris*] has significantly declined.**



**A picture of the same area taken in January 2013 again shows that the horsetail [*Equisetum sylvaticum*?] has entirely disappeared but there is significant growth of soft rush [*Juncus effuses*].**



A picture taken in September 2012 showing the remnants of the heather [*Calluna vulgaris*] which has significantly declined.

### Amphibian potential



A number of aquatic plant species were recorded in the marshy area during the survey visit carried out on 15<sup>th</sup> January 2013 but were not evident during the survey visit of 26<sup>th</sup> September 2012.

**Water starwort** *Callitriche stagnalis* is a species of aquatic plant known by the common name **pond water starwort**. This is an annual herb which roots to the substrate in shallow water or in mud alongside water bodies. Slender stems reach to the surface and form floating mats of leaves. *Callitriche* frequently grows during the Autumn months when flooding is common. This species was not visible in September 2012 but was visible during the January 2013 visit.

**Flote grass** *Glyceria fluitans* grows as floating ribbons on the surface of shallow still or slow flowing water. Flote grass is one of several plant species which are favoured by newts as an egg laying substrate [though

this site is certainly unsuitable for *Triturus cristatus* it is possible that the much commoner *Lissotriton vulgaris* could be present]. This species was not visible in September 2012 but was visible during the January 2013 visit.

**Duckweed *Lemna minor*** quickly forms a dense floating carpet of leaflets on nutrient rich still water. Significant growths of *Lemna minor* [Lesser duckweed] were developing during the January 2013 visit to the site. *Lemna minor* is generally closely associated with nutrient rich conditions. This species was not visible in September 2012 but was visible during the January 2013 visit.

**Wood horsetail *Equisetum sylvaticum*** is commonly found in wet or swampy forest, open woodlands, damp heath and meadow areas. A significant growth of this [or a very similar species] was observed by Christopher Marrs on the 8<sup>th</sup> September 2010 but none could be found during the visits carried out during 2012. It is possible that this decline may be a result of significant increases in nutrient levels in the soil since this time. *Equisetum* tends to be associated with nutrient poor conditions, and it was noticeable that significant growths of *Lemna minor* [Lesser duckweed] were developing during the January 2013 visit to the site. *Lemna minor* is generally closely associated with nutrient rich conditions. This change could possibly be associated with fertiliser runoff from the adjacent cemetery, up the slope to the south.



**Aquatic plants *Callitriche stagnalis*, *Glyceria fluitans* and *Lemna minor* recorded during the January 2013 visit to the**

**site but not visible when the site was almost completely dry in September 2012.**

The habitat at the site is ideal for amphibians in general and smooth newts and common frogs in particular. The site is not ideal for great crested newts [GCNs] as no suitable breeding pond is present. I was unable to find any ponds suitable as great crested newt breeding sites on or within a 500 metre radius of the site despite careful searches. Great crested newts prefer to breed in large ponds [generally greater than 100 square metres - though smaller ponds do support GCNs in some instances]. Such ponds need to be fish free and must regularly retain water for long periods; and most certainly between May and September in most years to allow the great crested newt larvae to develop. Unlike smooth newts and frog tadpoles [which emerge from the water in early summer] great crested newt larvae metamorphose and emerge as eft [newtlets] from September onwards. In the north of England it is also very common for newt larvae to overwinter in the pond and spend two years in the water. For these reasons great crested newt breeding ponds must hold water consistently particularly during August [traditionally the driest month] and ponds which dry out during most summers are unsuitable. The site is clearly regularly flooded during periods of heavy rainfall but available evidence also suggests that it also dries out equally rapidly during dry spells. During my own visit to the site in September 2012 the site was almost completely dry despite the wettest summer for decades and exceptionally heavy rain in preceding days. No pond could be found. During the survey visit of the 8<sup>th</sup> September 2010 Christopher Marrs Senior Ecological Consultant for TEP states that *"no pond was seen and subsequently recorded within the site boundary as provided by Barnsley MBC. A small patch of marshy grassland with associated Equisetum species was recorded in the south of the site and is indicated on the map within the site report. This small marshy area was the only part of the site to display any aquatic characteristics, however, it does not in my opinion constitute a water body nor should be considered as a pond. In the past this area may well have been a pond, but in its current state it is simply marsh"*. Jim Conway a partner at Billingham George & Partners, Consulting Engineers & Building Surveyors visited the site on a number of occasions between August and October 2012 and observed that *"With reference to the Solmek desk study we note from the record maps back to 1893 that there is no reference to water features. There was reference to areas of reeds between 1906 and 1931.*

We also refer the topographical survey which was carried out in September 2012 which references to two areas of dense vegetation and marsh land. there is no reference to a body of water being present.

We have visited the site three times during 2012 and did not note a body of water, due to last years climatic conditions and the topography of the site we did note that the ground was wet in places".

**See below for full details in : Appendix 1** – Statements regarding the presence of a pond suitable for great crested newts at the Saunderson Road site.



**The very small area of standing water on the site in September 2012.** Keeping in mind this is after a month's rain in two days it is reasonable to suppose this is temporary. There were no aquatic plants which imply that the water dries out regularly. This area of water does not constitute a pond and is far too small to be suitable as a great crested newt breeding site.



**There is no evidence of aquatic plants growing in the very shallow water during the September 2012 survey visit.**



**During the survey visit of January 2013 it was observed that aquatic plant species *Callitriche stagnalis*, *Glyceria fluitans* and *Lemna minor* were now growing and a significant growth of *Juncus effuses* [soft rush] was developing. None of the aquatic species were visible when the site was almost completely dry in September 2012, and the rush was much less common [see picture above for detail].**

**As valid great crested newt presence/absence surveys can only be carried out between March and June inclusive, it has not been possible to carry out a great crested newt survey in this case; although it is unlikely that a suitable pond will be found during the normal amphibian survey season. Nonetheless a Great Crested Newt Habitat Suitability Index has been compiled for the site [see below].**

### **Habitat Suitability Indices**

The Habitat Suitability Index (HSI) for the great crested newt was developed by Professor Robert Oldham *et al.* (2000). HSI scoring systems were originally developed by the US Fish and Wildlife Service as a means of evaluating habitat quality and quantity. An HSI is a numerical index, between 0 and 1. 0 indicates unsuitable habitat, 1 represents optimal habitat. The HSI for the great crested newt incorporates ten suitability indices, all of which are factors thought to affect great crested newts.

The HSI for great crested newts is a measure of habitat suitability. It is not a substitute for newt surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so.

|    | Pond Located in Lancashire. | Pond Area                                   | Pond Drying                     | Invertebrate Diversity (indicating water quality) | Shade             | Fowl                        | Fish                  | Pond Density                                             | Terrestrial Habitat                                                                              | Macrophytes                                                                        | HSI Score |
|----|-----------------------------|---------------------------------------------|---------------------------------|---------------------------------------------------|-------------------|-----------------------------|-----------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------|
| sh | Optimal Score<br>1          | Less than 30 square metres<br>Score<br>0.05 | Regularly dries<br>Score<br>0.1 | Poor<br>Score<br>0.33                             | nil<br>Score<br>1 | None observed<br>Score<br>1 | None<br>Score<br>0.01 | 0.1<br><br>There are no known ponds in the vicinity<br>1 | This pond is surrounded by a mixture of wet grassland and rank grassland with open woodland<br>1 | 40% cover. Callitriche stagnalis, Lemna minor & Glyceria fluitans<br><br>Score 0.7 | 0.40      |

### Categorisation of HSI scores

Lee Brady has developed a system for using HSI scores to define pond suitability for great crested newts on a categorical scale:

HSI Pond suitability

<0.5 = poor

0.5 – 0.59 = below average

0.6 – 0.69 = average

0.7 – 0.79 = good

> 0.8 = excellent

Studies in Kent found that more than 79% of ponds which scored as either good or excellent were found to contain great crested newts after surveys had been carried out.

**The habitat suitability index was calculated using data collected during the survey visit to the site.**

**The main waterbody on the site scored 0.40 the second smaller waterbody on the site was too small at less than 1 square metre to categorise using the HSI methodology. This score is categorised as 'Poor'. I have surveyed thousands of ponds between 1998 and 2012 but have never found great**

**crested newts to be present in a pond which scored less than 0.57 on the HSI test.**

## **Amphibian impacts and recommendations**

No pond suitable as a breeding site for great crested newts could be found on or near the site. The waterbody[s] on the site appear to be temporary in nature and associated with heavy rainfall. The site does support a small area of marshy vegetation which may have declined in size and diversity in recent years. **A great crested newt survey is not recommended in this instance.** The habitat is however ideal for amphibians and common frogs [*Rana temporaria*] and smooth newts [*Lissotriton vulgaris*] are likely to be present on the site. Neither of these species are not specifically protected by EPS regulations at this time but in light of recent rapid declines in all amphibian numbers perhaps some voluntary mitigation measures should be considered in respect of these species.

**Richard W Parkinson BSc [Hons] FLS FZS MIEEM**  
**Senior Partner – Living Ecosystems**  
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**January 2013**

## **Appendix 1 – Statements regarding the presence of a pond suitable for great crested newts at the Saunderson Road site.**

**Saunderson Road Penistone Sheffield S36 9DU**  
SE 24063 03559, 424063, 403559

Saunderson Road, Penistone  
From: Francis Hesketh – Director - TEP

Dear Richard, thanks for your email. In response, I contacted our ecologist who actually visited the site as part of our work and asked him to look back over the photos and his notes and confirm the position regarding the wet area. This is his response.

Hello Francis

I visited this site on the 8<sup>th</sup> September 2010. During the site visit no pond was seen and subsequently recorded within the site boundary

as provided by Barnsley MBC. A small patch of marshy grassland with associated *Equisetum* species was recorded in the south of the site and is indicated on the map within the site report. This small marshy area was the only part of the site to display any aquatic characteristics, however, it does not in my opinion constitute a water body nor should be considered as a pond. In the past this area may well have been a pond, but in its current state it is simply marsh.

All the best

Christopher Marrs

Senior Environmental Consultant

TEP The Environment Partnership

RE: Saunderson Rd, Penistone: Pond  
From: Jim Conway

Richard

We have been involved with this site since July 2012 and have visited the site on a number of occasions for the purposes of site investigations, topographical surveys and site surveys.

With reference to the Solmek desk study we note from the record maps back to 1893 that there is no reference to water features. There was reference to areas of reeds between 1906 and 1931.

We also refer the topographical survey which was carried out in September 2012 which references to two areas of dense vegetation and marsh land. there is no reference to a body of water being present.

We have visited the site three times during 2012 and did not note a body of water, due to last years climatic conditions and the

topography of the site we did note that the ground was wet in places.

The ground investigation report and subsequent monitoring identifies water levels recorded during the period 16/08/12 to 15/10/12 noted water levels as being 0.74m and 1.9m below ground level in the monitoring holes.

It can also be noted that ground moisture contents from testing were in the range of 18% to 29% typical for sandy clays.

We conclude that all the above observations and evidence advises that to the best of our knowledge there is not a body of water on the proposed site.

I trust that this meets with your requirements, should you require any clarification or further information please do not hesitate to contact me.

Regards

Jim Conway

**Partner**

**Billinghurst George & Partners  
Consulting Engineers & Building Surveyors**

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