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Parc Cybi – Logistics Centre

on behalf of Jacobs UK

Extended Phase 1 Habitat Survey and Environmental DNA Report

avianecology

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V3	27/06/2017		S Whiteley *BSc MCIEEM*	H Fearn *MSc MCIEEM*

CONTENTS

1 INTRODUCTION

1.1 Background & Scope

1.1.1 This report has been prepared by Avian Ecology Ltd. on behalf of Jacobs UK, and provides the results of an Extended Phase 1 Habitat Survey and Environmental DNA (eDNA) survey on land within the Parc Cybi Development Complex, Holyhead, Anglesey, as shown on **Figure 1** (herein referred to as the 'Site').

1.2 Site Overview

1.2.1 The Site as shown by the red-line boundary **in Figure 1** is located off the A5153, south of Junction 2 of the North Wales Expressway A55, and predominantly comprises grazed pasture surrounded by fences and scrub. The surrounding fields are similar in structure, all earmarked for future development under the wider Parc Cybi outline planning permission (Ref: 19C842A/EIA).

1.2.2 Parts of the scheme have already been constructed including a road and the Roadking Holyhead Transport Café and the general character of the land is open pastoral land within a semi-urbanised setting. The A55 lies to the northeast and a shopping complex lies beyond this, and the recently constructed Parc Cybi Road just beyond the southwestern boundary.

2 METHODOLOGY

2.1 Extended Phase I Habitat Survey

2.1.1 The Extended Phase 1 habitat survey was undertaken by C. Baldock MRes ACIEEM a competent ecologist on **9th May 2016**. The study area comprised the 'Site boundary' as illustrated on **Figure 1**.

2.1.2 The methodology employed was based-upon that outlined in the Joint Nature Conservation Committee JNCC '*Handbook for Phase 1 Habitat Survey*' [1].

2.1.3 The survey included preliminary searches for protected species including potential for water voles and badgers, or for their potential to be present on site. Ponds or other waterbodies within or adjacent to the Site were inspected in order to assess their potential to support great crested newts in accordance with the Habitat Suitability Index (HSI) methodology (following Oldham *et al*., guidance[2]).

Limitations

2.1.4 An Extended Phase 1 habitat survey does not constitute a detailed botanical survey or faunal species list or provide a full protected species survey but, it enables competent ecologists to ascertain an understanding of the ecology of the Site in order to:

- Broadly identify the nature conservation value of the Site and assess the significance of any potential impacts on habitat/species recorded; and/or,
- Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of the Site (if any).

2.1.5 No significant constraints to the survey were identified.

[1] JNCC (2010). Handbook for Phase I Habitat Survey – a Technique for Environmental Audit. JNCC, Peterborough

[2] Oldham R.S., Keeble J., Swan M.J.S & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155

2.2 Environmental DNA Survey

2.2.1 Environmental DNA (eDNA) is nuclear or mitochondrial DNA that is released from an organism into the environment. Sources of eDNA include secreted faeces, mucous, gametes, shed skin and carcasses. In aquatic environments, eDNA is diluted and distributed in the water where it persists for 7–21 days, depending on the conditions (Biggs *et al*., 2014[3]). The technique for determining presence/absence of great crested newt uses Polymerase Chain Reaction (PCR) laboratory techniques to detect the species eDNA within water samples.

2.2.2 Recent research by the Department for Environment Food and Rural Affairs (Defra) Project WC1067 concluded that the sampling of waterbodies collecting eDNA appears to be a highly effective method for determining whether great crested newts are present or absent during the breeding season, even where eDNA is present in very low concentrations.

2.2.3 Natural Resources Wales accepts the use of eDNA surveys as evidence of presence or absence of great crested newts, provided samples are taken when newts are likely to be present (this depends on location and conditions like the weather). Natural Resources Wales will only accept eDNA survey results undertaken between mid-April and 30th June, in strict accordance with the published technical advice note, by suitably trained, experienced and licensed great crested newt surveyors.

Field Sampling Technique

2.2.4 One pond (Pond 1) was sampled on **10th May 2016**.

2.2.5 Samples were collected by suitably licensed and experienced great crested newt surveyor Ms C Baldock MRes ACIEEM, assisted by Mr T Winter BSc GradCIEEM.

2.2.6 The protocol for sampling followed that outlined within the technical advice note for field and laboratory sampling of great crested newts (Biggs *et al*., 2014), which required the collection of 20 x 30ml subsamples from each pond, spaced as evenly as possible around the pond margin.

2.2.7 Each sample was then placed within a Whirl-Pak bag and shaken for 10 seconds, before a 15ml sample was pipetted from the bag and placed in a specimen tube for laboratory analysis. Following collection, samples were refrigerated prior to laboratory dispatch.

Laboratory Analysis

2.2.8 Laboratory analysis was undertaken by SureScreen Scientifics:

SureScreen Scientifics Division Ltd,
Morley Retreat,
Church Lane,
Morley,
Derbyshire,
DE7 6DE
Tel: +44 (0)1332 292003
Email: scientifics@surescreen.com

2.2.9 The laboratory follows the analysis methodology outlined within the Defra Project WC1067 (Biggs *et al*., 2014) using the q-PCR test conducted in two phases.

2.2.10 The sample first goes through an extraction process to acquire as much eDNA as possible to produce a pooled sample. The pooled sample is then tested via 1-PCR.

[3] http://randd.defra.gov.uk/Document.aspx?Document=11973_WC1067_FinalReport.pdf

2.2.11 Each pooled sample is replicated 12 times to ensure results are accurate. If one of the 12 replicates tests positive the sample is declared positive. The sample is only declared negative if no replicates show amplification. Inhibition and degradation checks are also carried out on each sample using a known DNA marker. Results of these quality control tests are recorded with each sample.

2.2.12 Samples are tested in a clean room and the different phases of testing are kept separate to reduce any risk of cross contamination.

3 BASELINE

3.1 Habitats and Flora

3.1.1 The habitats within the Site are presented in **Figure 1**, with TNs described in **Table 3.1.**

3.1.2 The Site is dominated by a large open field with well-weathered trees and hawthorn *Crataegus monogyna* scrub, indicating high exposure. The field had some exposed rock within it, and a rocky outcrop within its south eastern extent (supporting rough grassland and occasional tall ruderals), but primarily supported a well-grazed poor semi-improved sward. No livestock were present at the time of survey, but there was evidence of recent sheep presence.

3.1.3 A dry depression with rushes still present, primarily supporting dense scrub was also present in the south eastern corner of the Site (TN2).

3.1.4 The only hedgerow boundaries were defunct and comprised occasional hawthorn shrubs and some blackthorn *Prunus spinosa*. Other boundaries were fence lines (both wooden fences and wire fences in different areas).

3.1.5 A small copse of planted mixed woodland (sycamore *Acer pseudoplatanus*, and pines *Pinus* sp.) was present within the Site (W1). This had an understorey of nettles *Urtica diotica*. Planted broadleaved woodland flanked the Site to the north (W2), screening the adjacent A55 North Wales Expressway. Species included ash *Fraxinus excelsior*, rowan *Sorbus aucuparia* and willow *Salix* spp.

3.1.6 An area of marshy grassland with standing water was present just overlapping the north western Site boundary. This supported a dense cover of soft rush *Juncus effusus* and other rushes together with water mint *Mentha aquatica*, lesser spearwort *Ranunculus falmmula*, water forget-me-not *Myosotis scorpiodes*, fools watercress *Apium nodiflorum* and cuckooflower *Cardamine pratensis*. This comprised a man-made area for collecting drainage with an inflow from ditch D1.

3.1.7 Ditch 1 comprised a small ditch supporting bracken *Pteridium* spp. cover and tall ruderals on its northern bank. It supported a good cover of aquatic plants including fools water-cress and greater willowherb *Epilobium hirsutum*, with rushes *Juncus* spp. and grassland along the southern banks.

3.1.8 Pond 1 was situated just beyond the north eastern Site boundary and this comprised a large pond with good water quality and abundant macrophytes, including emergent and floating vegetation. A dense stand of common bulrush *Typha latifolia* was present within the western end and scrub cover was present around the margins.

Table 3.1: Target notes

Target Note Number	Comment
TN1	Dry stone wall.
TN2	Dry depression with rushes still present, now overgrown with dense scrub, including willow *Salix* spp. hawthorn *Crategeous monogyna* and elder *Sambucus nigra*, with

Target Note Number	Comment
	gorse *Ulex europaeus*, alexanders *Smyrnium* spp., nettle *Urtica dioica* and bramble *Rubus* spp. cover.
TN3	Spoil and areas of brick and rubble piles with occasional gorse bushes, providing potential refugia for reptiles and amphibians.
TN4	Damp marshy grassland with species including lesser spearwort *Ranunculus flammula*, water starwort *Callitriche stagnalis*, fools water-cress *Apium nodiflorum*, water mint *Mentha aquatica*, water forget-me-not *Myosotis scorpioides*, soft rush *Juncus* spp, other rushes (likely sharp-flowered rush) and occasional bulrush *Typha* spp.
TN5	Slow-flowing stream (D1), approximately 1m wide with steep-sided banks and tall ruderals and bracken *Pteridium* spp. and remnants of a dry stone wall on its northern bank and grassland and rush covered on southern bank.
TN6	South facing dry stone wall with bank and vegetation cover. Providing optimal reptile habitat.
TN7	Species including creeping cinquefoil *Potentilla reptans*, common bird's-foot trefoil *Lotus corniculatus*, common vetch *Vicia sativa*, herb Robert *Geranium robertianum*, doves-foot cranes-bill *G. molle* and black medic *Medicago lupulina*.
TN8	Rough grassland with cock's-foot *Dactylis glomerata*, lesser celandine *Ficaria verna*, ground ivy *Glechoma hederacea*, black horehound *Ballota nigra* and black knapweed *Centaurea nigra*. English stonecrop *Sedum anglicum* was present on the margins of the exposed rock.

3.2 Bats

3.2.1 The limited woodland landscaping around several of the Site margins provides suitable opportunities for foraging bats and connectivity with the wider landscape. The pastoral field within which the Site is located supports a low floral diversity and is of limited interest for foraging bats. The ditch (TN5) located in the north east of the Site may also provide further foraging and commuting opportunities by offering increased invertebrate interest and shelter along the woodland/scrub edge.

3.2.2 The large pond (P1) surrounded by scrub outside the Site to the north also offers foraging opportunities for bat species which may form part of a wider commuting/foraging corridor along the A55; however, the A55 trunk road which lies adjacent to the Site to the north is likely to reduce the suitability of the Site for foraging bats (Berthinussen *et al.,* 2011[4]).

3.2.3 No features with potential to support roosting bats were identified within the Site. All trees present were immature and supported no features suitable for roosting bats (i.e. cracks, fissures etc.), or were of sufficient age likely to support such features out of view.

[4] Berthinussen *et al.*, (2011) The Effect of a Major Road on Bat Activity and Diversity. Journal of Applied Ecology. Volume 49, issue 1.

3.3 Badger

3.3.1 The Extended Phase 1 habitat survey included an extensive search for badger activity. No evidence of badger activity was recorded. Woodland and scrub in the wider area may provide opportunities for badger but they are unlikely to be present within the Site.

3.4 Water vole / otter

3.4.1 Ditch D1 was searched for signs of water vole *Arvicola amphibius* and otter *Lutra lutra*. It supported slow flowing water with steep-sided banks >45 degrees and well vegetated banks which could provide cover and a source of foraging for water voles. The ditch section was subject to a search for signs of this species including burrows, latrines and feeding stations, but no signs of presence were found. The ditch may provide suitable foraging habitat as part of a wider territory for otters, but no suitable locations for a couch or den were found, nor was any evidence of otters.

3.5 Birds

3.5.1 The areas of scrub, woodland, marshy grassland and hedgerow habitats provide some opportunities for widespread breeding birds.

3.5.2 The grassland within the Site has the potential to support small numbers of ground nesting birds, such as skylark *Alauda arvensis* or meadow pipit *Anthus pratensis*. The Site was considered unlikely to support waders such as lapwing *Vanellus vanellus* due to the enclosed nature of the Site, heavily grazed sward and lack of damper areas favoured by this species.

3.5.3 Scrub and wooded areas are likely to support widespread species including some of local conservation value, such as linnet *Linaria cannabina* or song thrush *Turdus philomelos*, which are listed on Birds of Conservation Concern 4[5].

3.6 Amphibians

3.6.1 Pond 1 provided good habitat for amphibians, with abundant macrophtyes. A further pond was identified within 500m of the Site and both were subject to eDNA survey. During the eDNA survey an additional pond (P3) was found adjacent to the road; this was not surveyed but was subject to a HSI assessment. The location of the ponds in shown on **Figure 2**. Pond 2 was in later stages of succession and entirely covered with common reed.

3.6.2 The semi-improved grassland provided limited opportunities but the bordering scrub, marshy grassland and woodland provided moderate opportunities.

3.6.3 The samples were taken on **10th May 2016** at 11:50AM in warm (22°C) and dry weather. The results of the eDNA survey are presented in **Table 3.2**.

Table 3.2: eDNA Results

Laboratory reference	Sample	Co-ordinates	Inhibition check	Sample integrity	Result
EDNA22122	P1	AEL 024	ACCEPTABLE	ACCEPTABLE	NEGATIVE
EDNA22123	P2	AEL 023	ACCEPTABLE	ACCEPTABLE	NEGATIVE

[5] Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746. Available online at britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf

3.6.4 The HSI assessment considered pond P1 and P3 to be of 'Average' suitability for great crested newt and P2 of 'Excellent' suitability. Full results are presented in **Table 3.3** below.

Table 3.3: Habitat Suitability Index Results

Suitability Indices	Pond 1	Pond 2	Pond 3
Location	0.5	0.5	0.5
Pond area	1	1	0.85
Pond drying	0.9	0.9	1
Water quality	1	1	1
Shade	1	1	1
Fowl	0.33	1	0.33
Fish	0.67	0.67	1
Pond count	0.85	0.85	0.85
Terrestrial habitat	0.33	0.67	0.33
Macrophytes	0.6	0.8	0.6
Score	0.66	0.82	0.69
	Average	Excellent	Average

3.7 Reptiles

3.7.1 The semi-improved grassland dominating the Site provided low potential for reptiles due to the general lack of cover. The areas of refuse piles, scrub and the rocky outcrop with rough grassland in the south eastern corner supported some higher interest. Of particular note was the bank on the far side of ditch 1 (TN6) which provided a south-facing slope with patches of bare earth and rocks for basking and scattered bracken and tall ruderals providing suitable cover and a warm microclimate.

3.7.2 No evidence of reptiles was observed during the survey.

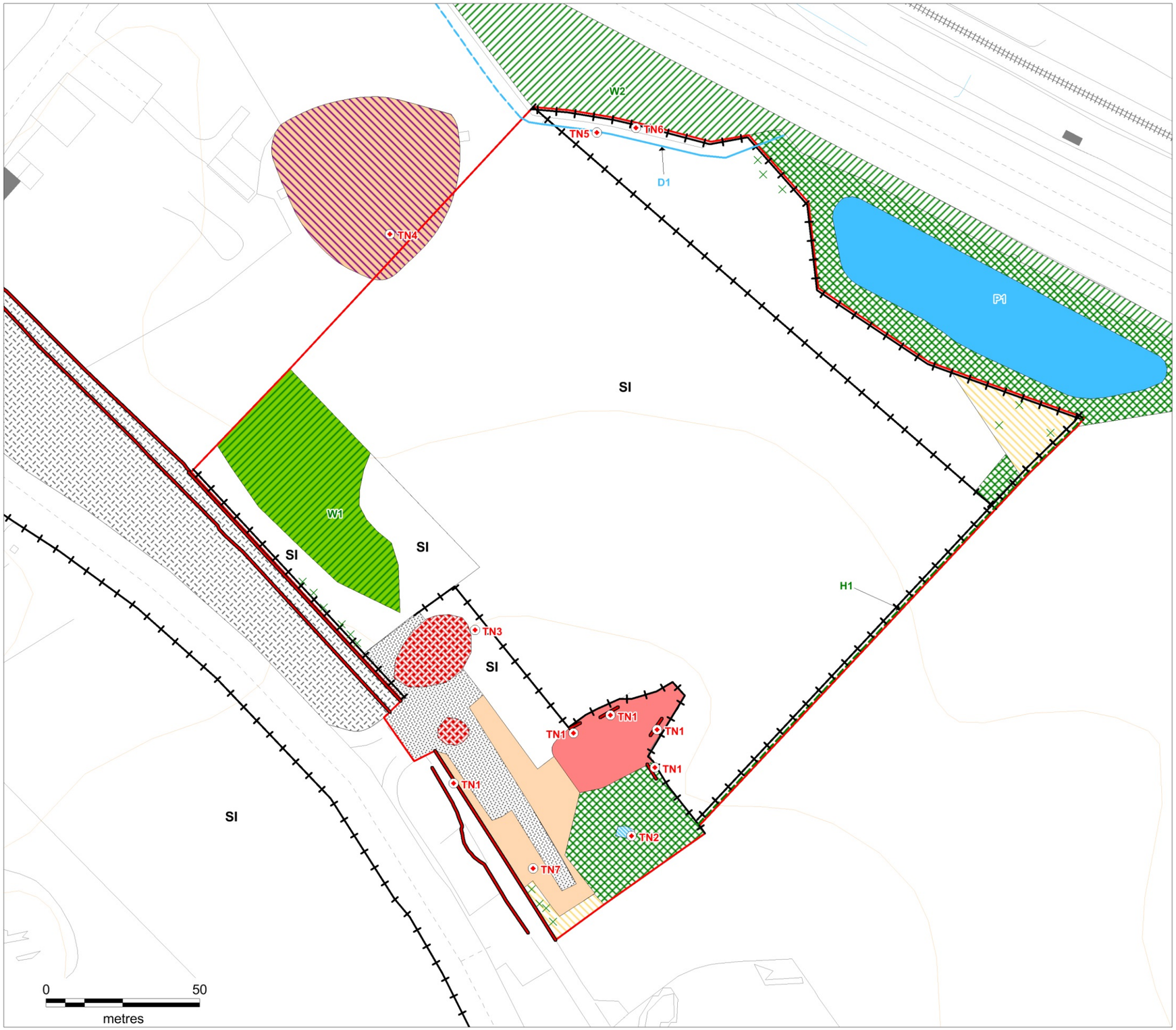
3.8 Invasive Non-native Species

3.8.1 No invasive species were recorded during the field survey.

FIGURE 1

Phase 1 Habitat Survey

FIGURE 1 – HABITAT PLAN



Legend

- Site boundary
- Target note (TN1-TN7)

Habitats

- SI — Poor semi-improved grassland
- Semi-improved neutral grassland
- Marshy grassland
- Broad-leaved plantation woodland
- Mixed plantation woodland
- Dense scrub
- Tall ruderal
- Pond
- Dry pond
- Bare ground
- Hardstanding
- Rock exposure
- Spoil
- Fence
- Defunct hedge (species-poor)
- Wet ditch
- Dry ditch
- Wall
- Scattered scrub

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Phase 1 Habitat Plan

Drawn by:	JP	Checked by:	CB
Date:	12/05/2016		

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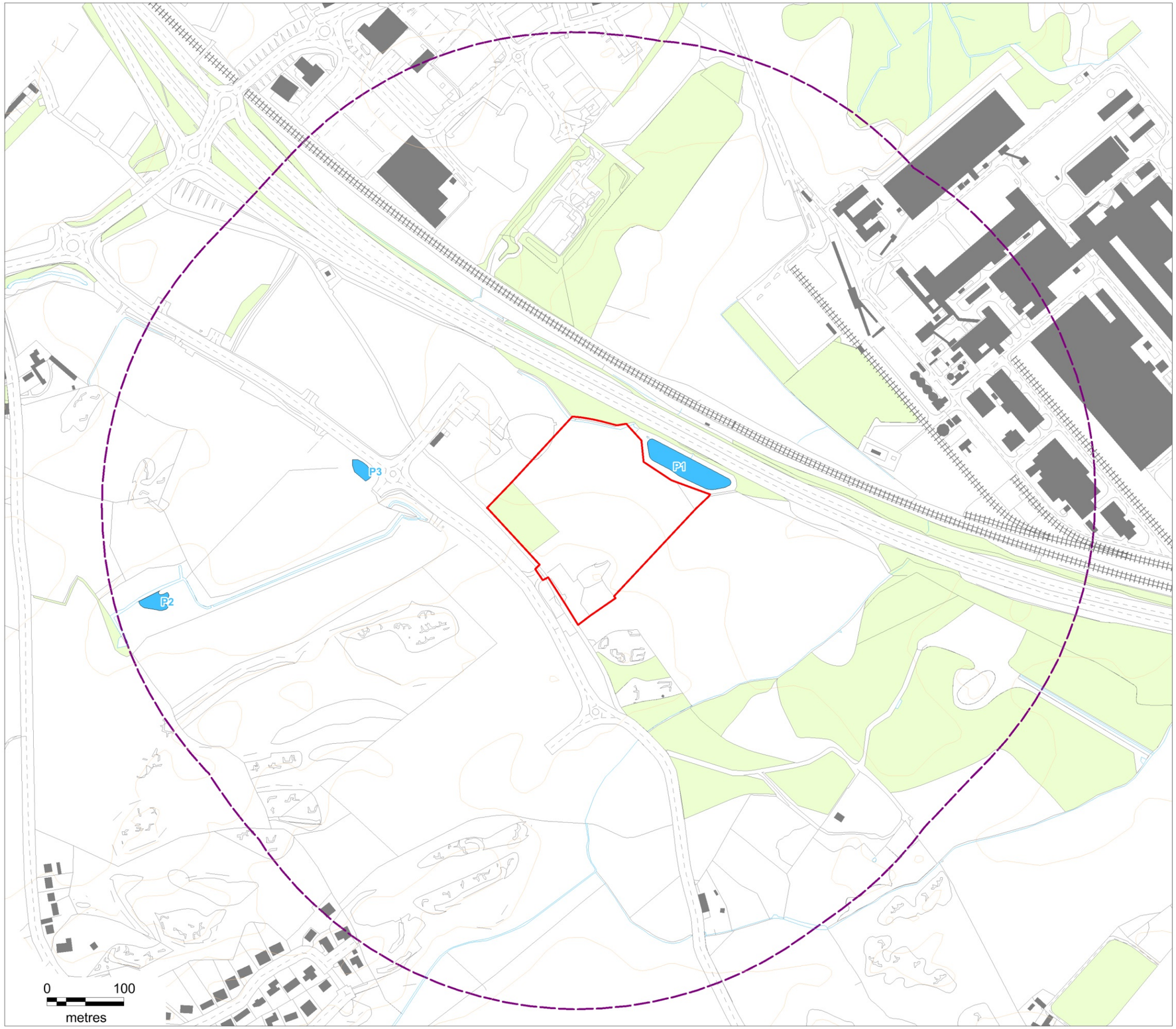
FIGURE 2

Pond Survey

FIGURE 2: POND SURVEY PLAN



Legend
- Site boundary
- 500m site buffer
- Ponds

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Pond Survey Plan

Drawn by:	JP	Checked by:	SW
Date:	10/05/2016		

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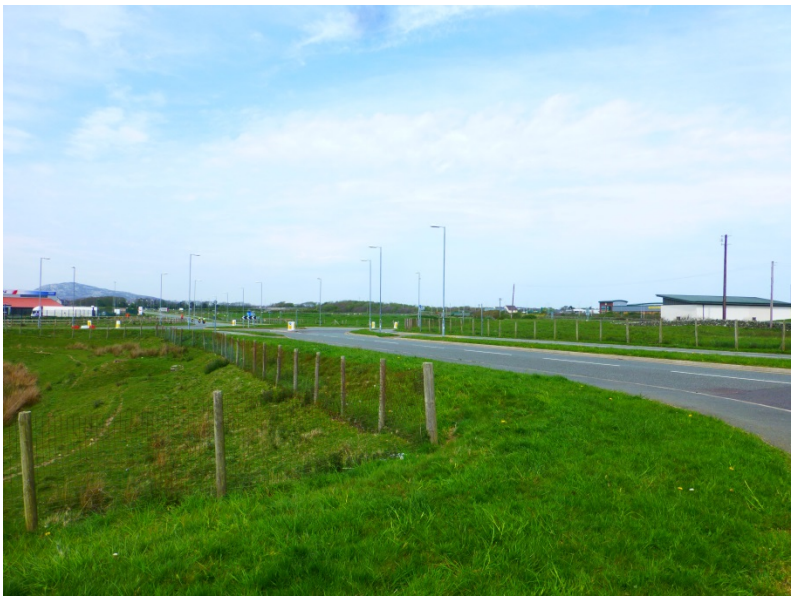
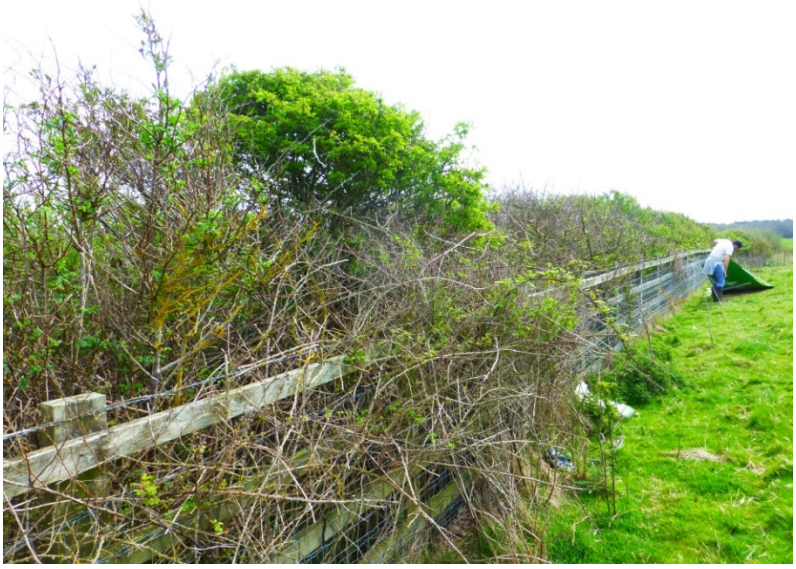
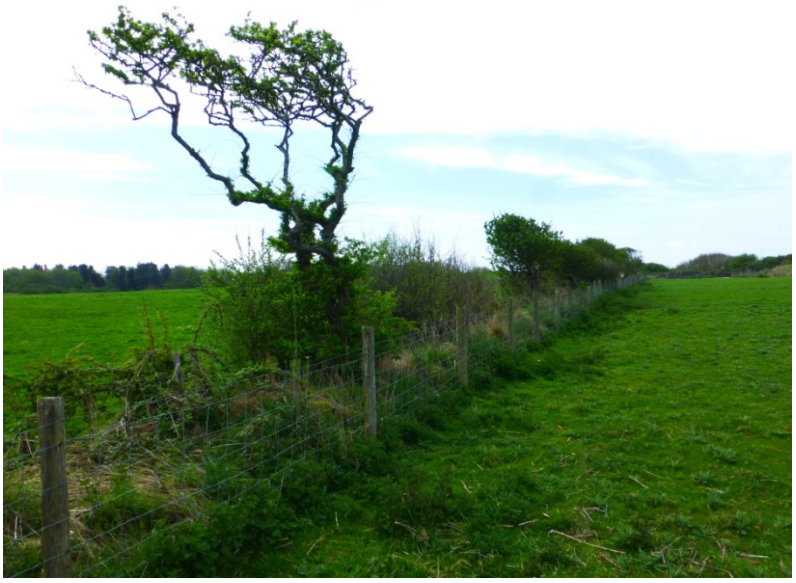
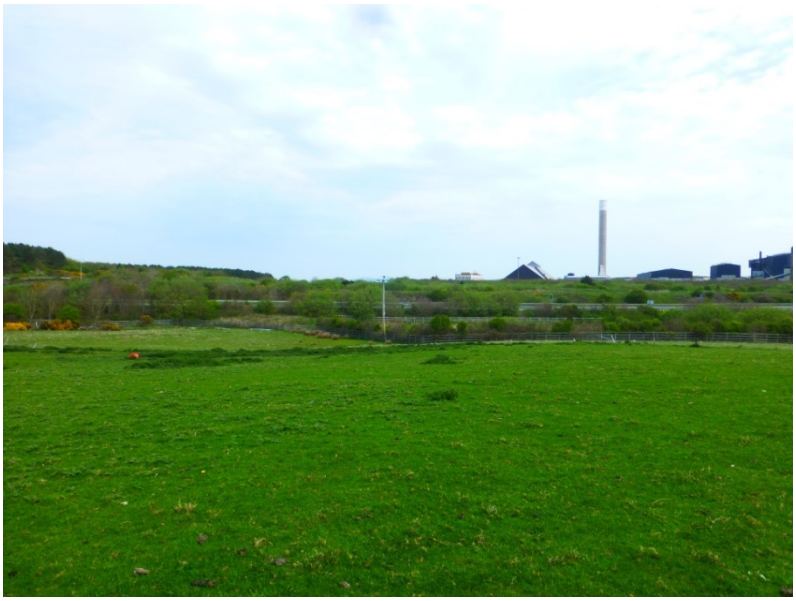
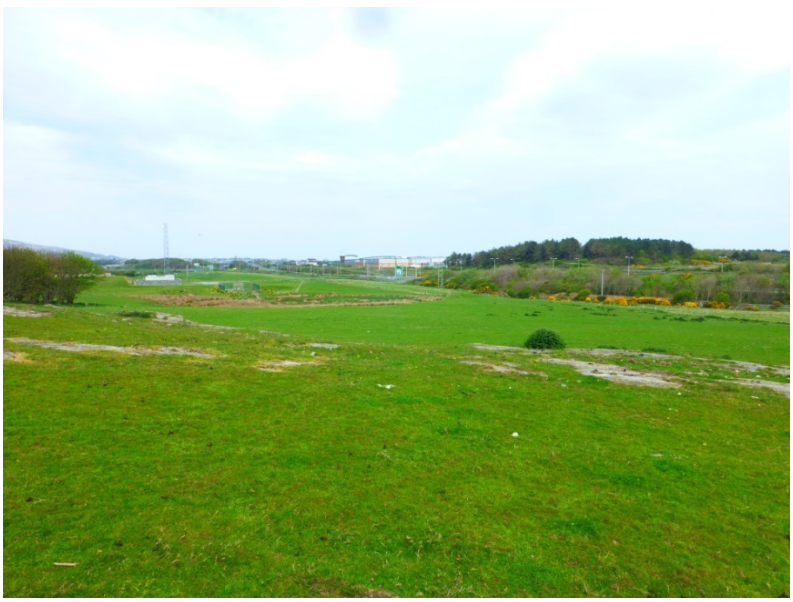
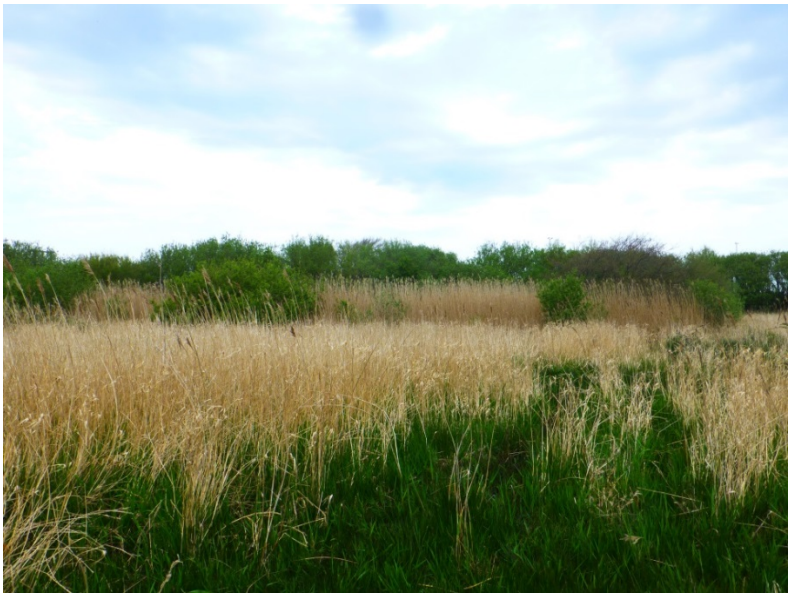
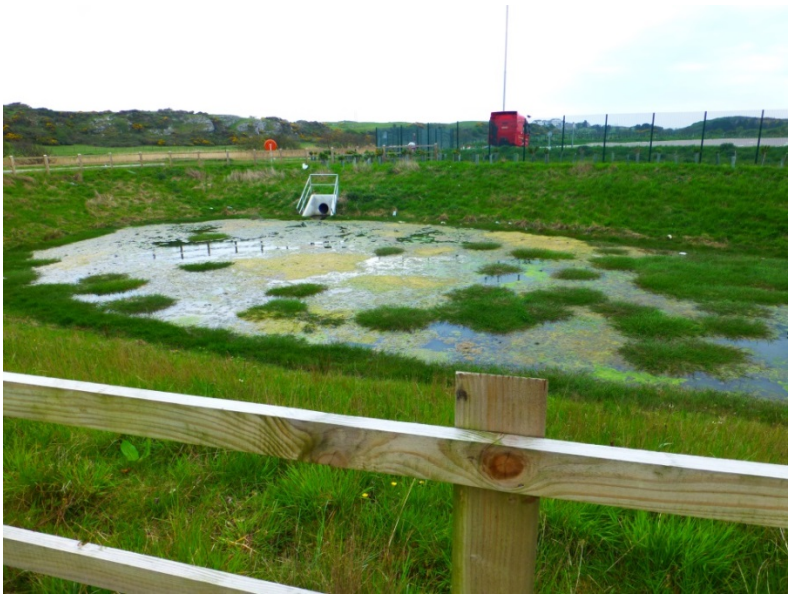
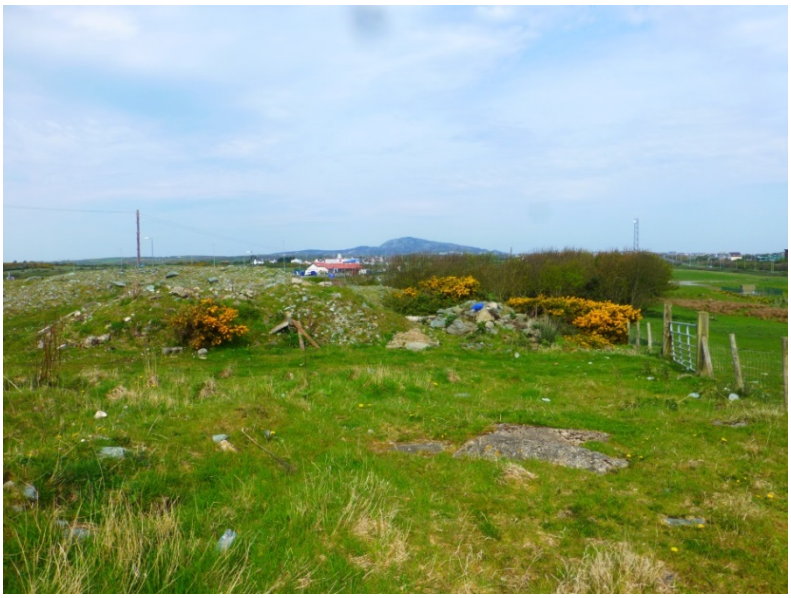
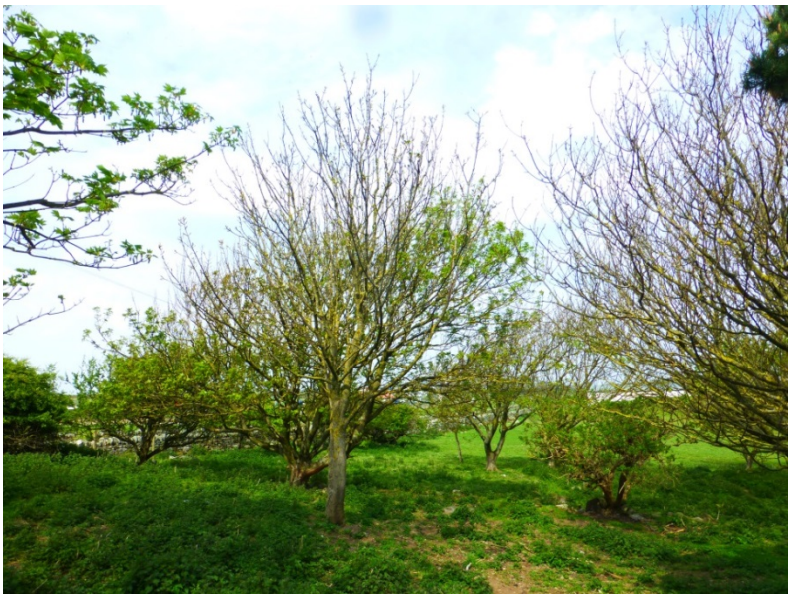
APPENDIX 1: Photographs

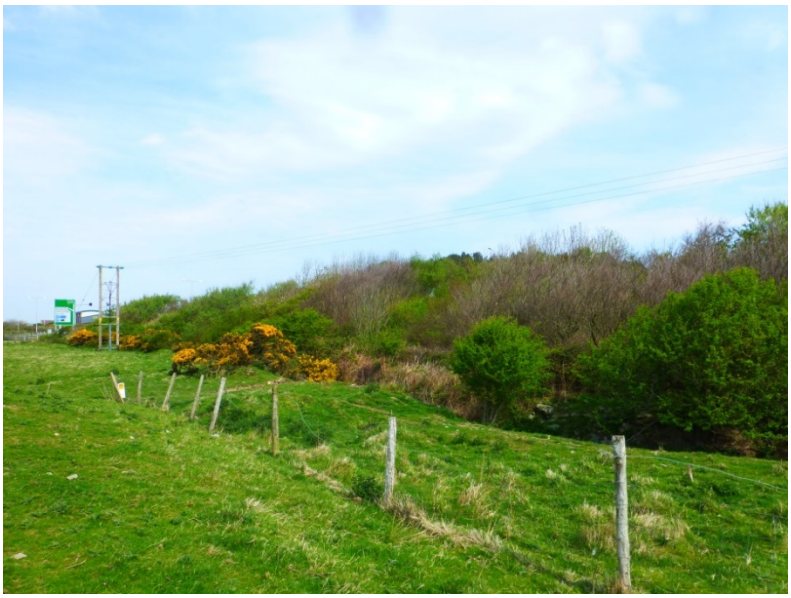
	Fenced margin on SE boundary
	Ditch 1
	Depression with scrub

	Fenced boundary with bordering scrub
	Hedgerow H1
	Marshy grassland

	Semi-improved grassland
	Semi-improved grassland with rocky outcrops
	Pond 1

	Pond 2
	Pond 3
	Rock outcrops on SE of Site

	Rocky outcrop on D1
	TN2
	W1

	W1 understory
	W2