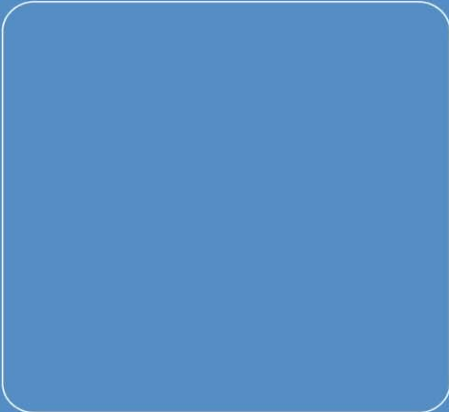


Appendix A11.3 Ecological Survey for Smooth Newt



Ecological Survey for Smooth Newt

Greater Dublin Drainage Project





**ECOLOGICAL SURVEY FOR SMOOTH
NEWT**

FOR IRISH WATER

**GREATER DUBLIN DRAINAGE
PROJECT**

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QUALITY MANAGEMENT

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1 INTRODUCTION

During Extended Phase 1 Habitat Survey undertaken along the route of the proposed Greater Dublin Drainage (GDD) Project, a number of semi-natural and artificial water bodies were recorded which were considered as having the potential to support breeding smooth newt *Lisotriton vulgaris*.

Surveys were conducted, under licence, in May and June 2015. These surveys were repeated in May and June 2017, again under licence from NPWS.

This report presents details of the results of the 2017 surveys and should be read with the following appendices, figures and references:

- Appendix 1: Survey Licence [Ref: C78/2017];
- Figure 1: Site locations
- Figure 2: Site 1 waterbodies no. 1 – 16 and indication of proposed wayleave;
- Figure 3: Site 2 waterbodies no. 1 – 8 and indication of proposed wayleave;
- Figure 4: Site 3 waterbodies no. 1 – 4 and indication of proposed wayleave;
- RPS, 2015.

It should be noted that design changes have resulted in an alteration of the proposed wayleave between 2015 and 2017.

1.1 STATEMENT OF AUTHORITY

The lead surveyor, Nicolas Veale, is an independent ecologist with a BSc in Environmental Science and MSc in Environmental Management. Nick has over seventeen years' experience in the field of ecology, with extensive expertise in ecological surveying and is a protected species licence holder.

Report author and second surveyor, Adam McClure, is an ecologist with RPS and holds a BSc (Hons) in Palaeoecology and Archaeology with eight years' experience in ecology. Adam has extensive expertise in ecological surveying and is a protected species licence holder. Adam is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

This report was reviewed and approved for issue by James McCrory, a Senior Associate with RPS who holds a BA in Plant Sciences and a MSc in Habitat Creation and Management. James is a Chartered Ecologist (CEcol), a Chartered Environmentalist (CEnv) and a full member of CIEEM; and also a Chartered Biologist (CBiol) and full member of the Royal Society of Biology. He was a member of the CIEEM technical working group updating the seminal Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (CIEEM, 2016).

The information prepared and provided is true and accurate at the time of issue of the report, which has been drafted in accordance with the CIEEM Code of Professional Conduct (CIEEM 2016) and BS 42020:2013 Biodiversity - Code of Practice for Planning and Development (BSI, 2013). We confirm that the judgement expressed herein is the true and bona fide opinion of our professional ecologists.

2 SMOOTH NEWT ECOLOGY AND STATUS

There are three species of amphibian found in Ireland: the smooth newt *Lissotriton vulgaris*; the common frog *Rana temporaria* and the natterjack toad *Epidalea calamita*. Current distribution of the natterjack toad is restricted to Counties Kerry and Wexford (Beebee, 2002).

All amphibians are protected in Ireland under the Wildlife Act, 1976 (as amended).

2.1 SMOOTH NEWT

Smooth newts can be found in a diversity of terrestrial and aquatic habitats including uplands, woodlands, marshland, farmland, open moorland and urban areas. They are also widespread in agricultural lowlands (O'Neil *et al.*, 2004). Smooth newts hibernate on land during the winter months (under logs, hedgerows, or other well-hidden sites), returning to wetlands sites to breed in February and March, remaining there until June (O'Neil *et al.*, 2004; Inns, 2009). Breeding habitats are also variable, but typically include waterbodies with still or very slow flowing water and range from large lakes, to small and medium ponds and densely weeded ditched (O'Neil *et al.*, 2004; Buckley, 2012). Generally newts are more likely to be found in ponds (non-linear) than ditches (linear), with small ponds (<200m²) between 0.5-1.0m deep and partly vegetated being the ideal breeding habitat for smooth newts (O'Neil *et al.*, 2004). The most recent national Irish survey of smooth newts undertaken by the Irish Wildlife Trust in 2012 following a pilot study in 2010 found that the smooth newt remains relatively widespread throughout the Irish Republic (Buckley, 2012).

Courting, mating and egg-laying occur both day and night during the breeding season March - June (Inns, 2009). Females conceal each of their several hundred eggs individually in the folds of broad-leaved vegetation in or near the water using their hind feet. The eggs take two weeks to hatch, and are often rarely seen in the field. Larvae are solitary and secretive remaining near the waterbody bottom to avoid predation by birds and mammals. They develop slowly with the majority emerging between July and September (Inns, 2009). During the breeding season males are distinguished from females based on the presence of a conspicuous dorsal crest and heavily and darkly spotted throat (Inns, 2009).

2.2 COMMON FROG

The common frog is the most widespread and familiar amphibian found throughout Britain and Ireland. Like newts they hibernate over winter in damp conditions, close to waterbodies or often submerged in muds at the bottom of ponds (Inns, 2009). Emerging in late February/early March, adults congregate in breeding pools. Common frogs are found in a wide range of damp habitats but will typically breed in small shallow ponds. They are however, opportunistic breeders and will also use lake margins, ditches, puddles and slow-flowing water (Inns, 2009).

2.3 FACTORS LIKELY TO AFFECT NEWT PRESENCE

As outlined above, newts are found in a wide diversity of habitats. Garden ponds have also become extremely important for this species as ponds in the countryside have become fewer and more polluted

(NIMARS website, 2015). Due to the broad habitat preference, it remains difficult to predict the likelihood of their occurrence on habitat alone (O'Neill *et al.*, 2004).

Excluding habitat, the key factors affecting newt presence appear to be presence of fish, frogs and carnivorous birds. Suitable refuges are also important. Logs or tree stumps appear to be a highly significant factor in site preference (O'Neill *et al.*, 2004), whilst the increasing percentage cover of submerged vegetation is associated with the declining probability of newt presence (O'Neil *et al.*, 2004). Smooth newts will co-habit with the common frog and will predate tadpoles as a source of food. The presence of frogs may therefore be positively correlated with newt presence. In contrast, fish predate newt eggs and larvae, so their presence is likely to be inversely correlated with newt presence. However, newts have been recorded in lakes which contain fish. One theory explaining their presence in lakes is that they use dense vegetation such as reed canary-grass *Phalaris arundinacea* and bulrush *Typha latifolia* around lake margins to act as a refuge from predating fish (Meehan, 2013).

Carnivorous birds found in water may also predate newt larvae, and so may decrease the probability of newts occurring at a site where they occur.

2.4 LEGISLATIVE PROTECTION

Smooth newts are protected in Ireland under Schedule 5 of the Wildlife Act, 1976. The species is also afforded additional protection under Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention).

3 SURVEY METHODOLOGY

The survey methodology employed was the same as with previous surveys conducted in 2015. Methodology primarily followed techniques for smooth newts outlined by the NRA (2008) and NIEA (2017). Additional guidance was gathered from Inns (2009), the Newt Survey of Northern Ireland (O'Neill *et al.*, 2004) and the National Newt Survey of Ireland (Buckley, 2012).

As with 2015, waterbodies at three locations along the proposed route, which were identified as being potential smooth newt breeding waterbodies were surveyed (Table 3.1).

Table 3.1: *Newt survey locations*

Site	Location	Number of ponds and/or drainage ditches
1	Coldwinters	16 ponds and/or scrapes
2	Ballymun	1 large interconnected pool or pond with 7 aligned smaller ponds (old foundation works).
3	Toberbunny	1 shallow pond and 3 drainage ditches

The peak number of breeding adults within suitable waterbodies occurs between late-March and late-May. Surveys can be undertaken until late June, after which NPWS will not issue licences to conduct surveys.

Waterbodies at Site 1 and Site 2 were visited on three separate occasions, between late-May and late-June, during which a two-pronged survey approach was employed; (a) dip netting and (b) torchlight surveys. Access issues resulted in Site 3 only being surveyed on the second and third visits.

Netting to confirm presence of newts was undertaken by ecologists using long-handled dip nets, walking the perimeter of waterbodies to net adults. This technique was conducted during dusk / twilight conditions and if a waterbody was found to contain newts, netting was ceased. Dip-netting was not undertaken at all pools and drainage ditches deemed too shallow or too densely vegetated.

Dip-netting was followed by a torchlight survey during the hours of darkness, which involves slowly walking the perimeter of each waterbody with a powerful hand torch to locate, identify and record newts within waterbodies, typically to observe individuals swimming to the surface to take gulps of air. Torchlight surveys were undertaken using rechargeable “gamekeeper-style” spotlight torches. Any newts encountered were sexed and aged (juvenile / adult).

As weather conditions can influence the results of newt surveys, with newt activity considered to drop considerably below 5°C and with rainfall and wind decreasing water clarity, surveys should not be conducted in these conditions.

For each waterbody surveyed the following information was collected:

- Presence of fish, frogs, and birds;
- Abundance of newts/eggs in each waterbody where present (sex recorded).



4 NEWT SURVEY RESULTS

This section details notable observations from each surveyed waterbody. All survey visits were undertaken in suitable conditions, with no visits made in ambient air temperatures below 5°C, during or following periods of rainfall.

Prior to survey, a "Licence to Capture Protected Wild Animals for Educational, Scientific or Other Purposes" was obtained from NPWS Wildlife Licensing Unit (Licence No: C78/2017). A copy of the licence is provided in Appendix 1.

Table 4.1 presents survey dates and conditions. Site locations are illustrated in Figure 1. Individual site maps for Sites 1, 2 and 3 appear in Figures 2, 3 and 4 respectively. A photograph of each individual pool/pond or scrap is presented in the previous report (RPS, 2015).

Table 4.1: Newt survey dates, approximate times and survey conditions.

Site Name	Site No.	Date	Netting		Torching		Weather Conditions
			Start Time	End Time	Start Time	End Time	
Coldwinters	Site 1	24.05.2017	2045hrs	2145hrs	2200hrs	2315hrs	14°C; Wind E; Force 2; Cloud cover 2/8; No rain
Ballymun	Site 2		2000hrs	2030hrs	2330hrs	0010hrs	
Coldwinters	Site 1	06.06.2017	2015hrs	2100hrs	2245hrs	0015hrs	11°C; Wind W; Force 4; Cloud cover 3/8; No rain
Ballymun	Site 2		1930hrs	2000hrs	0030hrs	0100hrs	
Toberbunny	Site3		2115hrs	2145hrs	2200hrs	2230hrs	
Coldwinters	Site 1	29.06.2017	2015hrs	2100hrs	2245hrs	0015hrs	11°C; Wind NW; Force 4; Cloud cover 8/8; No rain
Ballymun	Site 2		1930hrs	2000hrs	0030hrs	0100hrs	
Toberbunny	Site3		2115hrs	2145hrs	2200hrs	2230hrs	

4.1 SITE 1 - COLDWINTERS

This is an 8.8ha site (approx.) consisting entirely of worked spoil and rubble presumably all from nearby road development. The site best resembles the habitat 'Recolonising bare ground (ED3)' described in Fossitt (2000). Many hollows and/or depressions created by these works have evolved into permanent and seasonal waterbodies, some with established flora including emergent, floating and submerged macrophytes as well as a diverse array of freshwater invertebrate species. This was evidenced by an array of insect larvae in particular, as captured during netting, along with various molluscs. The site is grazed by horses. There does not seem to be a structured grazing regime. Of the 16 waterbodies identified on this site, Waterbody 1 almost certainly retains water year-round. Smooth newt was present in several waterbodies. Photos of each of the individual waterbodies described below are found in the 2015 survey report (RPS, 2015).



Waterbody 1

Positive. Adult smooth newt confirmed present on all 3 visits, with 11 males and 17 females recorded during visit 1. Juveniles were also confirmed on all three visits, with 30 juveniles recorded on the second visit. This pond has been recorded as holding water during all seasons and it is the view of the recorders that it retains water year-round. It has a rich freshwater invertebrate fauna and an array of aquatic plants have established.

Table 4.2: Summary of findings from Waterbody 1 at Site 1 - Coldwinters

	Adult male	Adult female	Juvenile
Visit 1	11	17	4
Visit 2	5	4	30
Visit 3	1 (dead)	5	4

Waterbody 2

Negative. Dry during the first two visits. Also negative in 2015.

Waterbody 3

Negative. Dry during the first two visits. Positive in 2015.

Waterbody 4 (within wayleave)

Negative. Dry during the first two visits. Positive in 2015.

Waterbody 5

Dry during all three visits in 2017. Positive in 2015.

Waterbody 6

Dry during all three visits in 2017. This pool was negative in 2015.

Waterbody 7

Positive. Dry during the first two visits, a single male and single female were recorded on the third visit.

Waterbody 8

Negative. This pool had been positive in 2015 with a single adult (sex unconfirmed) found on the third visit.

Waterbody 9

Negative. Dry during the first two visits. This pool was also negative during 2015 surveys.

Waterbody 10

Dry during all three visits.



Waterbody 11 (within wayleave)

Positive. One adult male and two adult females were recorded during the first visit and a female and juvenile were recorded during the second visit. This pond was also positive in 2015.

Waterbody 12 (within wayleave)

Negative. Also negative in 2015.

Waterbodies 13 and 14 (within wayleave)

Negative. These pools were both dry during the first two visits.

Waterbody 15 (on boundary of wayleave)

Positive. This pool was dry during the first visit, negative during the second visit and found to contain two females on the third visit.

Waterbody 16

Positive. Almost dry during the first visit, it had filled up by the second visit and a single juvenile was found. It was negative on the third visit.

4.2 SITE 2 - BALLYMUN

This site has similarities with Site 1. These ponds have also evolved from past disturbance / construction works on what is now an abandoned site. Construction work on what appears to be the foundations of a large structure has been undertaken at some point in the past. Foundations with steel mesh and concrete works can be seen. The main pond (Waterbody 1) is more accurately a series of interconnected pools and deeper ponds. The other 7 ponds are an alignment of foundation works with only seasonal water. An array of emergent, floating and submerged aquatic plants have established in the succeeding years along with a diverse invertebrate fauna evidenced again by the array of insect larvae as well as adult damsel and dragonflies. The habitat in the vicinity of the pools and ponds is 'Recolonising bare ground (ED3)'. There is no active management. The site was found to be negative for the presence of smooth newt (torchlight and netting). Photos of each of the individual waterbodies described below are found in the 2015 survey report (RPS, 2015).

Waterbody 1 (within wayleave)

Negative. This waterbody was notable for the presence of stickleback *Gasterosteidae* sp., tadpoles and birds (female mallard with brood of young). The main area almost certainly retains water year-round. Also negative in 2015.

Waterbodies 2 – 8 (5-8 within wayleave)

All negative – as in 2015. Stickleback and frog tadpoles were found several ponds. Several of these ponds were dry during the first two visits but had filled with rain water by the third visit.



4.3 SITE 3 - TOBERBUNNY

This enclosed site is a Surface Water Monitoring Location adjacent to the long stay (Red) car park at Dublin Airport, east of Dardistown Cemetery. It consists of a small pool beneath some willows along with 3 drainage ditches. All the drainage ditches were shallow and heavily vegetated making them difficult to net. Smooth newt as not recorded in any of the waterbodies on site. The wider habitat is largely 'Recolonising bare ground (ED3)'.

It is the view of the surveyors that this site is likely to be heavily polluted through runoff from hard-standing surfaces surrounding the site.

Waterbodies 1-3 (within wayleave)

All negative. Also all negative in 2015. Waterbodies 2 and 3 are heavily vegetated with mostly bulrush *Typha latifolia*.

Waterbodies 4

Negative. As with waterbodies 2 and 3, a drainage ditch heavily vegetated with mostly bulrush *Typha latifolia*.

5 SUMMARY AND CONCLUSIONS

Smooth newts were recorded at Site 1 - Coldwinters.

No newts were recorded at Site 2 – Ballymun or Site 3 - Toberbunny.

At Site 1, newts were captured during netting survey in waterbodies 1 and 11. All other positive sightings occurred during torching survey. Positive sightings were recorded in waterbodies 1, 7, 11, 15 and 16.

Site 2 had multiple waterbodies with submerged and emerging vegetation but high volumes of fish (stickleback) and birds were present. Predators reduce the likelihood of a waterbody being of any real importance for newts. The surrounding terrestrial habitat did have suitable habitat appeal given the presence of ungrazed grassland, scrub along with rocks and masonry other potential refuges. What may disadvantage the site are the habitats, or lack of, beyond this abandoned ground. A golf course exists immediately north and west and a flowing stream occurs immediately south as well as major road network to the south and east.

Site 3 again had suitable habitat, damp un-grazed grassland with scrub. The site was disadvantaged by a large carpark immediately south and a major road immediately east. Waterbodies within the site did show signs of hydrocarbon pollution on the water's surface. Such pollutants may deter smooth newt or their prey. Damp un-grazed fields occur to the north and west.

This survey report does not include prescriptive measures to comprehensively mitigate the negative ecological effects of development on this protected species. It serves to inform an associated ecological impact assessment and evolving design of the GDD project.

NRA (2008) provides guidance on mitigation, compensation and enhancement measures (at p80) which should be considered.

“In those situations where capturing and relocating important newt populations is considered appropriate, breeding ponds should be encircled by drift fencing and pitfall traps prior to the spring migration period, and newts captured on their way to breed. Netting and draining-down of ponds should also take place to remove as many of the remainder as possible.”

Where large populations of newts are found close to the proposed works, amphibian-proof fencing can be helpful in protecting the resident animals. Permanent fencing can also be used to guide newts to purpose-built tunnels and other safe crossing structures, although their effectiveness for newts remains largely unknown.”

There are sufficient suitable waterbodies at Site 1 outside of the wayleave to consider on-site relocation of smooth newt viable.



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APPENDIX 1: SMOOTH NEWT SURVEY LICENCE



Licence No. C78/2017

NATIONAL PARKS & WILDLIFE SERVICE

Wildlife Acts 1976 to 2012 – Sections 23 and 34

**LICENCE TO CAPTURE PROTECTED WILD ANIMALS FOR EDUCATIONAL, SCIENTIFIC
OR OTHER PURPOSES**

The Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs in exercise of the powers conferred on her by Sections 9, 23 and 34 of the Wildlife Acts 1976 to 2012 authorises:

Nicholas Veale
Elmwood House, 74 Boucher Road, Belfast BT12 6RZ, Northern Ireland.

To disturb specimens of the species specified in Column 1 of the Schedule hereunder in the area specified in Column 2 by the means specified in column 3 for scientific educational or other purposes during the period beginning **18 May 2017** and ending on **30 June 2017**, subject to the conditions listed overleaf.

SCHEDULE

1	2	3
Species	Area	Means of capture
Smooth Newt <i>(Lissotriton vulgaris)</i>	North Co. Dublin: sites at Coldwinters, Baleskin, Ballymun, and Tuberbunny	Long-handled net

Dated 18 May 2017

For the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs





FIGURES

- Figure 1** Site locations
- Figure 2** Site 1 waterbodies no. 1 – 16 and indication of proposed wayleave
- Figure 3** Site 2 waterbodies no. 1 – 8 and indication of proposed wayleave
- Figure 4** Site 3 waterbodies no. 1 – 4 and indication of proposed wayleave

Figure 1 Site locations



Figure 2 Site 1 waterbodies no. 1 – 16 and indication of proposed wayleave

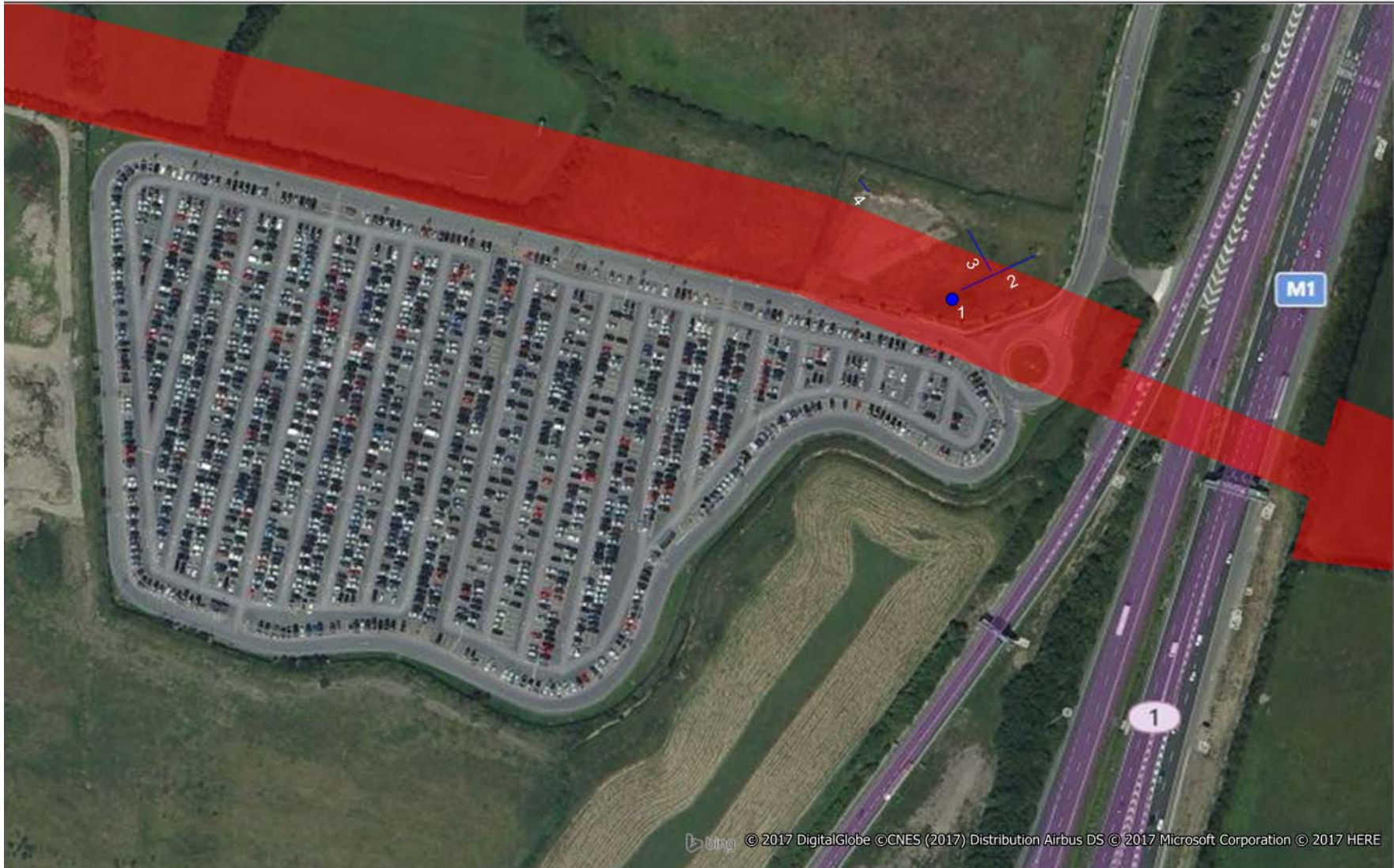


Figure 3 Site 2 waterbodies no. 1 – 8 and indication of proposed wayleave





Figure 4 Site 3 waterbodies no. 1 – 4 and indication of proposed wayleave



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