
Appendix D6

Otter Survey Report

A77 Maybole Bypass

Otter Survey Report

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1. Introduction

1.1. Project Overview

- 1.1.1. A Phase 1 habitat survey was undertaken between 23rd July and 20th September 2012, which identified the potential for otter *Lutra lutra* within the survey area. Therefore otter surveys were undertaken on the 9th, 10th, 11th and 16th of April 2013. The survey methodology was derived and adapted from three guidance documents – the Design Manual for Roads and Bridges (DMRB, 2001) , Monitoring the Otter (Chanin, 2003) and Otters & Development (Green R & Green J) .
- 1.1.2. The proposed scheme is located between National Grid Reference (NGR) NS 28848 09551 (south of Maybole) and NS 32137 12957(north of Maybole). Drawings are located within Appendix A

1.2. Study Area Context

- 1.2.1. Maybole is one of the five main Ayrshire towns which lie on the A77 trunk road. It is approximately 6km east of the coast and 11km south of Ayr. Residential areas of Maybole are located to the south of the western half of the study area. The landscape of the study area is dominated by open agricultural grassland with only minor areas of woodland present.
- 1.2.2. The proposed scheme is approximately 5.065km in length and ties into the existing A77 southwest of Maybole by means of a new 60m ICD (Inscribed Circular Diameter) roundabout, Broomknowes Roundabout. From here the route climbs steeply, maximum gradient 6 %, up the south flank of Gallow Hill, where it passes to the east of the summit close to the urban fringe of Maybole.
- 1.2.3. For details of the surrounding habitats reference should also be made to the Phase 1 Habitat Survey, Chapter 9, Nature Conservation. In general there are broadleaved plantation woodland, coniferous woodland, improved grassland, marshy grassland, species-poor defunct hedgerows, scattered trees, amenity grassland and introduced shrub areas within the study area.
- 1.2.4. Figure 1 shows the location of the proposed scheme and Figure 2 shows the design.

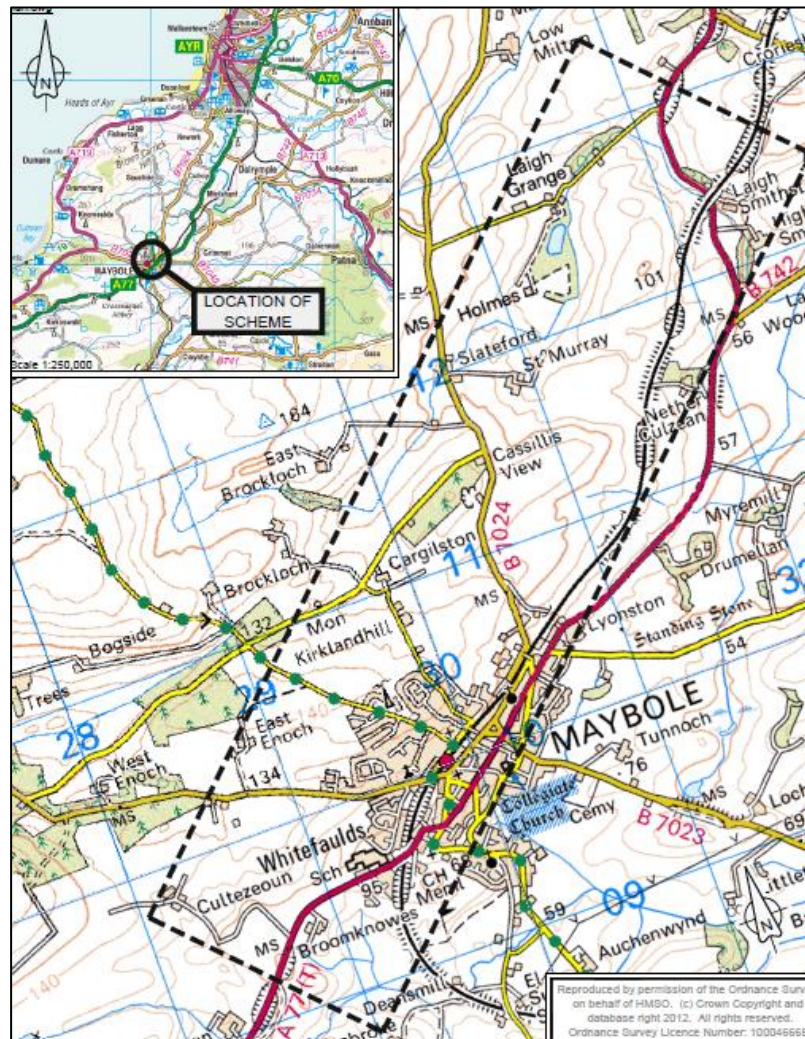


Figure 1: Site location

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Figure 2: Route of new bypass

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2. Legislative Background

2.1. Policies

The UK Biodiversity Action Plan (1994)¹

2.1.1. The world-wide aim of conserving biodiversity began at the 'Earth Summit' in Rio de Janeiro in 1992 where the Convention on Biological Diversity was one of the initiatives. At the Rio summit, the UK was one of 150 governments to sign up to the convention. To achieve its commitment the UK government published the UK Biodiversity Action Plan (UKBAP) in 1994.

2.1.2. Otter have a Species Action Plan in place under the UKBAP.

The Scottish Biodiversity Strategy (2004)²

2.1.3. In Scotland the Scottish Biodiversity Forum was set up to translate the UKBAP into specific action plans for Scotland. The forum has produced 'Scotland's Biodiversity – It's in Your Hands', a strategy for the conservation and enhancement of biodiversity in Scotland. The strategy maps out a 25 year framework for action to conserve and enhance biodiversity for the health, enjoyment and well-being of all the people of Scotland.

The Scottish Biodiversity List (2005)³

2.1.4. The Scottish Biodiversity List is a list of animals, plants and habitats that are considered to be of principal importance for biodiversity conservation in Scotland. The list was published in 2005 to satisfy the requirement under the Nature Conservation (Scotland) Act 2004.

2.1.5. Otter are a Scottish Biodiversity List species.

Ayrshire Biodiversity Action Plan (2007-2010)⁴

2.1.6. The first Ayrshire Local Biodiversity Action Plan (LBAP) was completed in 2001 and covered an action plan for 2001-2005. The original Ayrshire LBAP included 26 Habitat Action Plans and 11 Species Action Plans. Since the original Ayrshire LBAP, The Scottish Biodiversity Strategy and Scottish Biodiversity List implementation has seen the need for the Ayrshire Plan to undergo a revision. The Ayrshire Biodiversity Action Plan was completed in 2007.

2.1.7. Otter are a Key Ayrshire Species on the Ayrshire Biodiversity Action Plan.

¹ The UK Biodiversity Action Plan, 2004. Available from http://jncc.defra.gov.uk/PDF/UKBAP_Action-Plan-1994.pdf [Accessed 15th April 2013]

² Scottish Executive (2004), *Scotland's Biodiversity: It's In Your Hands*, available from: <http://www.scotland.gov.uk/Resource/Doc/25954/0014583.pdf> [Accessed 15th March 2013]

³ The Scottish Government, the Scottish biodiversity list 2005. Available from <http://www.scotland.gov.uk/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL> [Accessed 21st April 2013]

⁴ The Ayrshire Biodiversity Action Plan 2007-2010. Available from <http://www.ayrshire-jsu.gov.uk/download/Ayrshire%20Biodiversity%20Action%20Plan%202007-2010.pdf> [Accessed 20th April 2013]

2.2. Legislation

2.2.1. In Scotland, otters are protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and the Wildlife and Countryside Act 1981 (as amended).

2.2.2. Otter are a European protected species and are fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). It is illegal to:

- Deliberately or recklessly kill, injure or take (capture) an otter;
- Deliberately or recklessly disturb or harass an otter; or
- Damage, destroy or obstruct access to a breeding site or resting place of an otter.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to:

- Deliberately or recklessly disturbs an otter whilst it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place which otter use for shelter or protection.

3. Methodology

3.1. Desk Study

- 3.1.1. The DMRB Stage 2 Environmental Assessment previously undertaken by Atkins in 2007⁵ was consulted for information gathered about otter activity within the area surrounding the proposed route.
- 3.1.2. The National Biodiversity Network (NBN) Gateway website provides a collation of species records from a range of record centres and conservation organisations. A search was carried out on the NBN Gateway website to establish if otters occur within the area. A search for species in the 10km grid squares of NS20, NS21, NS30 and NS31 was undertaken (NBN, 2012).
- 3.1.3. The following organisations were consulted in May 2013:
- Scottish Natural Heritage (SNH)

3.2. Field Survey

- 3.2.1. A Phase 1 habitat survey was undertaken between 23rd July and 20th September 2012, which identified the potential for otter within the survey area. The survey area extended 500m from the centreline of the proposed scheme. The proposed route lies to the north of Maybole, South Ayrshire. Starting at the approximate co-ordinates: 228873, 609500 on the A77, south of Maybole, the centreline of the proposed scheme extends north east through arable fields and hedgerows. The proposed centreline of the scheme re-joins the A77, north of Maybole, at the approximate co-ordinates: 232147, 612962.
- 3.2.2. The watercourses that flow through the centreline of the proposed scheme were considered to be favourable habitat for otter, with a variety of foraging habitats and potential resting sites.
- 3.2.3. The objectives of the otter survey were to identify and record all evidence of otter activity in the areas identified during the Phase 1 habitat survey conducted between 23rd July and 20th September 2012 as being potentially suitable to support otter.
- 3.2.4. The watercourses within the survey area were assessed for otter suitability.
- 3.2.5. The surveys were carried out by Amey Ecologists Sinéad Thom and Gavin Boyd on the following dates:
- 9th April 2013
 - 10th April 2013
 - 11th April 2013
 - 16th April 2013

⁵ Atkins (2007), A77 Maybole Transport Study – DMRB Stage 2 Report.

- 3.2.6. The surveys were conducted at the optimum time of year with vegetation cover low. Rainfall and temperature in the weeks preceding the survey was lower than average for the time of year making flow levels in the watercourses low.
- 3.2.7. All otter field signs discovered during the course of the Phase 1 habitat, otter survey and other ecological surveys conducted in relation to the proposed bypass were recorded.
- 3.2.8. The survey methodology was derived and adapted from three guidance documents – the Design Manual for Roads and Bridges (DMRB, 2001)⁶, Monitoring the Otter (Chanin, 2003)⁷ and Otters & Development (Green R & Green J)⁸.
- 3.2.9. As otters are rarely seen, field signs are used to establish their presence and give an indication of activity levels in the area. These field signs include spraint (otter droppings usually placed on prominent features within their territory), pathways, footprints, feeding remains and resting sites (these encompass holts, hovers, couches, natal holts and breeding areas).
- 3.2.10. Otter spraint can be found on boulders, manmade objects, tree roots and grass at the edge of a watercourse or at a shore line. The age and density of spraint at a site is an indication of the importance of the habitat.
- 3.2.11. Spraint can be classified as being fresh, recent or old. Fresh spraint have been deposited in the last few days or hours; recent spraint deposited within around a week; and old spraint deposited a month or longer ago. A conspicuous spraint location may mark the boundary of an otter territory or an important resting site.

3.3. Survey Limitations

- 3.3.1. The absence of field signs does not necessarily signify that otter are not present.
- 3.3.2. Ideally an otter survey should be undertaken over a longer time period to account for seasonal variations within otter activity. Otters may use different areas at different times of year and this must be taken into account (DMRB, 2001). However due to time restraints of the scheme delivery all surveys were undertaken within one month.

⁶ The Design Manual for Roads and Bridges (2001), *Nature Conservation Advice in Relation to Otters*, Volume 10, Section 4, Part 4, HA 81/99.

⁷ Chanin P (2003) Monitoring the Otter (*Lutra lutra*) *Conserving Natura 2000 Rivers*, Monitoring series No. 10. English Nature, 2003.

⁸ Green R & Green J, *Otters & Development*, Scottish Natural Heritage, available from: <http://www.snh.org.uk/publications/online/wildlife/otters/default.asp>, [Accessed 20th April 2013]

4. Results

4.1. Desk Study

4.1.1. As part of the DMRB Stage 2 Environmental Assessment a Phase 1 habitat survey was undertaken in 2007. Evidence of otter was found at several locations throughout the survey area:

- Slateford Bridge (co-ordinates: 230104, 611603);
- Bankend Bridge over the Chapelton Burn tributary (co-ordinates: 231865, 612909 – 232116, 612743) where otter spraint and footprints were discovered;
- A small temporal burn north of the railway line at Neather Culzean (co-ordinates: 231513, 611571); and
- West of Maybole on the Rancleugh Burn at a road bridge leading to Old Trees Farm (co-ordinates: 228167, 610893).

4.1.2. The Stage 2 Environmental Assessment concluded that otter evidence discovered along the Chapelton Burn tributary near Bankend Bridge (co-ordinates: 231865, 612909 – 232116, 612743) is considered to be of greatest significance, as field signs were present at several locations within a small area. A number of these signs demonstrated recent activity and included a spraint and a footprint. This evidence suggests the burn is within an active otter territory and was located within 100m of two known otter road kill records on the A77 between August 2005 and May 2006.

4.1.3. No otter holts were discovered, although woodland at Bankend Bridge in particular displayed habitat with potential to provide holt sites. The composition of the spraint evidence suggests these burns may provide a feeding resource of small fish, amphibians and wildfowl.

4.1.4. The search on the NBN Gateway website showed that the following notable bird species were recorded in the 10km grid squares NS20, NS21, NS30 and NS31.

4.1.5. Consultation was undertaken with SNH in May 2013 and the following feedback was received:

- There are only a few minor water courses which cross the proposed alignment. However there is a probability that these will occasionally be used by otter foraging across the catchment. Appropriate culvert design should be considered. It is also likely that SuDS arrangements may prove to be attractive to otter and this should also be addressed in the design of environmental measures.

4.2. Field Survey

- 4.2.1. The habitats surrounding the proposed scheme and the wider area were considered to be favourable habitat for otter. The watercourses that flow through the centreline of the proposed scheme were considered to be favourable habitat for otter, with a variety of foraging habitats and potential resting sites. Table 1 describes the watercourses surveyed within the survey area.

Table 1: Watercourses within the survey area			
No.	Name	Co-ordinates	Description
1	Abbeymill Burn	228534, 609593 – 228865, 609201	Small watercourse, approximately 1m wide and 0.5m deep with a uniform flow. Poaching by cattle in some sections.
2	Unnamed	229319, 610430 – 229196, 610202	Ditch along the field boundary. Flowing east to west along the edge of hawthorn hedgerow, then north to south through gorse scrub to an area of marshy grassland. It then flows west to east along the bottom of the field. Narrow and shallow flow at the time of the survey.

Table 1: Watercourses within the survey area



No.	Name	Co-ordinates	Description	Description
3	Unnamed	230179, 610665 – 230623, 610613	Small watercourse starting from a drainage pipe in improved grassland to the west of the B7024 Alloway Road. The watercourse flows under the Alloway Road at co-ordinates: 230468, 610694 and then follows Lovers Lane south. At the time of the survey there was very low flow in the watercourse. To the west of Alloway Road there was evidence of poaching by cattle.	 

Table 1: Watercourses within the survey area			
No.	Name	Co-ordinates	Description
4	Unnamed	230079, 611401 – 231372, 610983	<p>Watercourse starting in an area of marshy grassland and flowing east under the B7024 Alloway Road. At the time of the survey sections of the watercourse were dry.</p> <p>The watercourse continues at the edge of a field boundary and flows east through marshy grassland and along field boundaries before crossing under the rail line and through the Black Glen woodland. The section south of the rail line was dry at the time of the survey. It was also noted during previous surveys that this section was dry perhaps due to a culvert blockage under the rail line.</p>





Table 1: Watercourses within the survey area

No.	Name	Co-ordinates	Description
5	Unnamed	230840, 611456 – 231572, 611555	Small watercourse, details unknown
6	Chapelton Burn	232180, 612506	One of the main watercourses north west of Maybole (highest otter activity)
7	Brockloch Burn	232120, 612582	One of the main watercourses north west of Maybole

- 4.2.2. During the Phase 1 habitat survey, conducted between 23rd July and 20th September 2012, otter field signs were recorded on the watercourses within the survey area.
- 4.2.3. During the otter surveys undertaken in April 2013, otter field signs were recorded throughout the survey area. The field signs recorded included spraint, resting sites, feeding remains and pathways.
- 4.2.4. Old otter spraint was recorded on watercourse 4 at co-ordinates: 230250, 610983 (Figure 3 and 4).



Figure 3: Old spraint on a boulder on watercourse 4



Figure 4: Boulder with spraint adjacent to watercourse 4

- 4.2.5. On watercourse 4 next to the culvert under the B7024 Alloway Road, old spraint was recorded with fish bones visible in the spraint (Figure 5 and 6).



Figure 5: Old spraint



Figure 6: Spraint next to the B7024 looking west

- 4.2.6. Further east on watercourse 4 at the edge of a field boundary there was a large amount of old spraint at co-ordinates: 230704, 611039 (Figure 7). A suspected resting site was noted adjacent to the spraint site at co-ordinates: 230697, 611048. The site was next to a boundary wall and had flattened grass where an otter may have been lying (Figure 8). A pathway was evident along the edge of the watercourse (Figure 9). The watercourse passes under a boundary wall at co-ordinates: 230887, 611097. Very old spraint was recorded here (Figure 10). A pathway leading over the wall and under a fence was recorded to the east of the spraint site at co-ordinates: 230887, 611097.
- 4.2.7. At the lower reaches of watercourse 4, near the rail line, at co-ordinates: 231301, 611065, recent otter spraint was recorded (Figure 11).



Figure 7: Large amounts of old spraint



Figure 8: Possible resting site



Figure 9: Pathway at the edge of the watercourse



Figure 10: Spraint at co-ordinates: 230887, 611097



Figure 11: Spraint near to the rail line

- 4.2.8. An otter holt was recorded at co-ordinates: 232091, 612274 on the railway embankment, adjacent to a drainage culvert under the embankment (Figure 12). Fresh spraint was recorded next to the entrance (Figure 13).

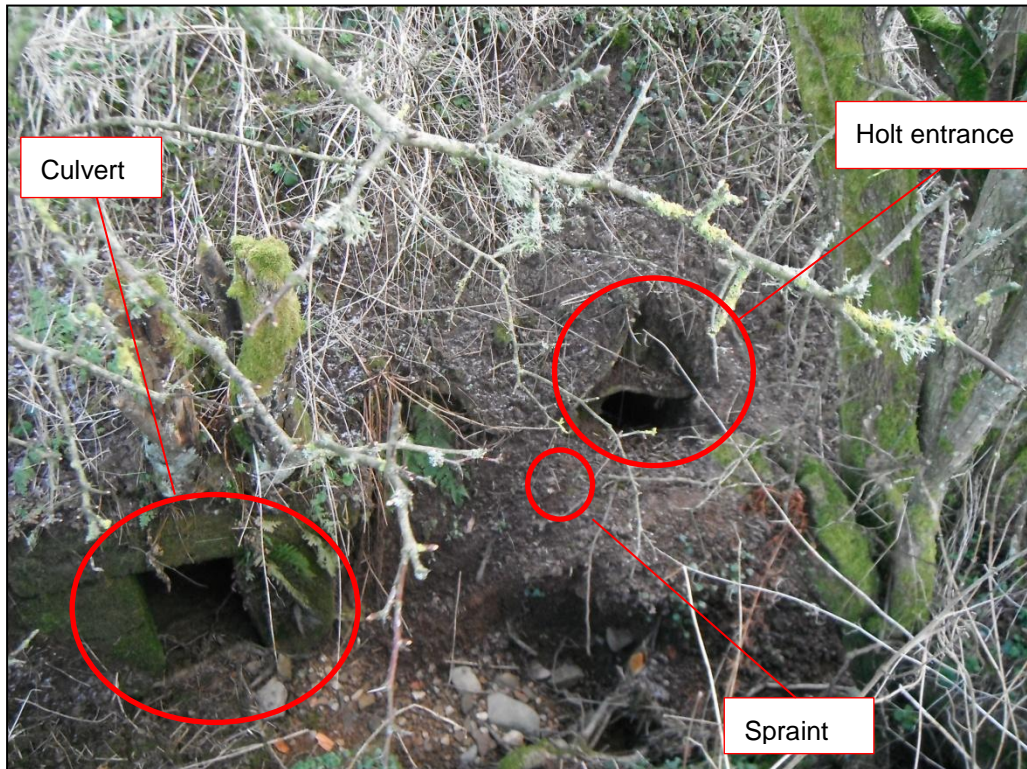


Figure 12: Holt and culvert on the railway embankment



Figure 13: Fresh spraint next to the entrance to the holt

- 4.2.9. At co-ordinates: 232180, 612506, fresh spraint was recorded on Chapelton Burn (watercourse 6) near to where the burn crosses under the existing A77 road (Figure 14). Feeding remains were recorded at co-ordinates: 232129, 612572 (Figure 15).



Figure 14: Sprainting site



Figure 15: Feeding remains

4.2.10. Adjacent to the feeding remains a large amount of fresh spraint had been deposited on a mole hill (Figure 16). Brockloch Burn (watercourse 7) flows downhill west to east and joins the Chapelton Burn at co-ordinates: 232120, 612582. Two old spraints were recorded on the unnamed watercourse at co-ordinates: 232071, 612525.



Figure 16: Fresh spraint on a mole hill

4.2.11. Feeding remains in the form of snail shells (Figure 17) next to boulders were recorded along the edge of the burn at the following co-ordinates:

- 232065, 612791;
- 232043, 612809;
- 232030, 612817;
- 232024, 612822; and
- 231991, 612850.

4.2.12. A large amount of spraint was recorded near to the feeding remains on a boulder at the edge of the burn (Figure 18) at co-ordinates: 232076, 612782.



Figure 17: Snail shell feeding remains next to the watercourse



Figure 18: Spraint site at the edge of Chapelton Burn

4.2.13. The burn flows through woodland north of Bankend Bridge and under Bankend Bridge at co-ordinates: 231951, 612907. Immediately to the north of Bankend Bridge four spraint sites were recorded at co-ordinates:

- 231943, 612917;
- 231942, 612914;
- 231927, 612913; and
- 231923, 612916.

4.2.14. At co-ordinates: 231943, 612917 recent spraint was recorded above a new drainage outfall (Figure 19). At co-ordinates: 231942, 612914 recent spraint was recorded on an in-stream boulder. The moss had been removed from the top of the boulder due to frequent sprainting (Figure 20). At co-ordinates: 231927, 612913 six spraints were noted on boulders at the base of a burn-side tree. There was one large spraint and five very old spraints (Figure 21). At co-ordinates: 231923, 612916 a small amount of old spraint was recorded at the base of a tree (Figure 22).



Figure 19: Spraint above new drainage outfall pipe



Figure 20: Well used sprainting site on in stream boulder

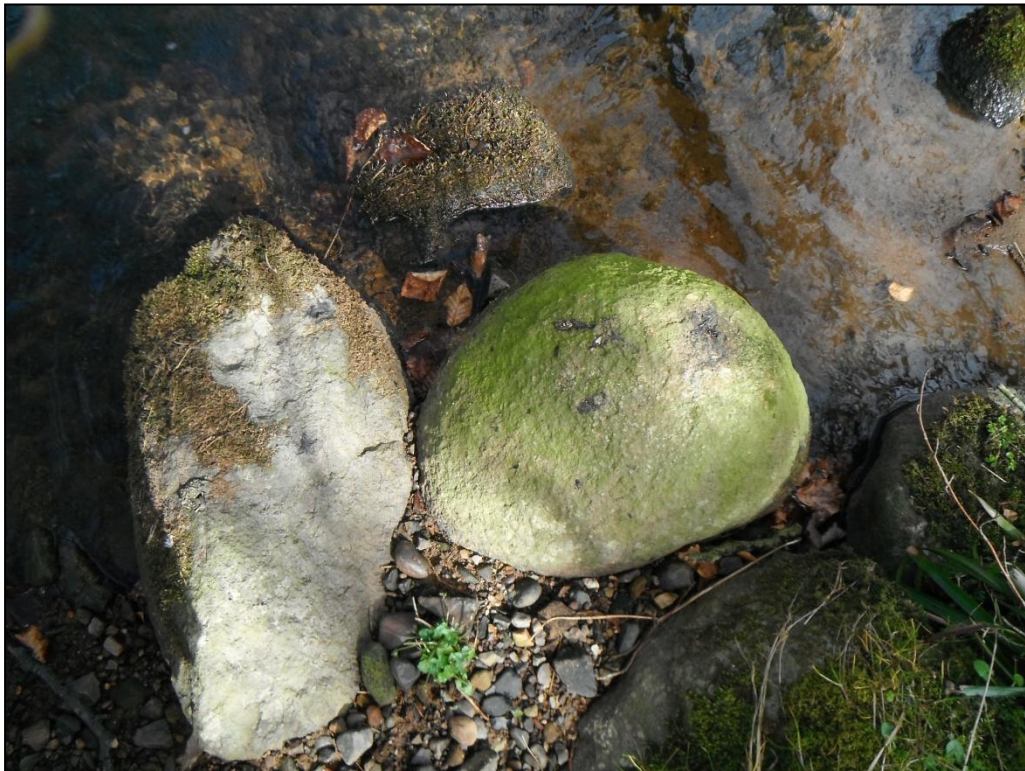


Figure 21: Spraint site at the base of a tree at the edge of the burn



Figure 22: Old spraint at the base of a tree

5. Interpretation of Results

- 5.1.1. Otter are active on the watercourses and habitats, through which the proposed scheme will pass. It is likely that otter use the watercourses within the survey area seasonally, with the exception of Chapelton Burn at the north west of Maybole which is considered to be used year round.
- 5.1.2. The spraint recorded along watercourse 4 was also significant as it shows that otter use the linear nature of this watercourse to move through the territory even when flow is low. The majority of spraint recorded along watercourse 4 contained fish bones. Fish, amphibians, fowl, small mammals and molluscs are likely to account for the main diet of the otters within this territory. A resting site was recorded at co-ordinates: 230675, 611069.
- 5.1.3. The Chapelton Burn flows to the north west of Maybole. It is considered that otter are using the water body at co-ordinates: 231401, 612494 (HOLMES RESEVOIR) to forage and are moving along the Chapelton Burn from there.
- 5.1.4. It is likely that there is a resting site immediately north of Bankend Bridge at co-ordinates: 231951, 612907, due to the amount of spraint recorded in the area.
- 5.1.5. It is likely that the holt on the railway embankment at co-ordinates: 232091, 612273 is being accessed from the culvert under the embankment and also from the west side of the embankment. Due to the presence of fresh spraint at the entrance; the holt was in use at the time of the survey. Although in a suitable, secluded, location the holt is not thought to be a natal holt due to spraint at the entrance as this would advertise the presence of the holt to male otters which could, potentially, prey on cubs.

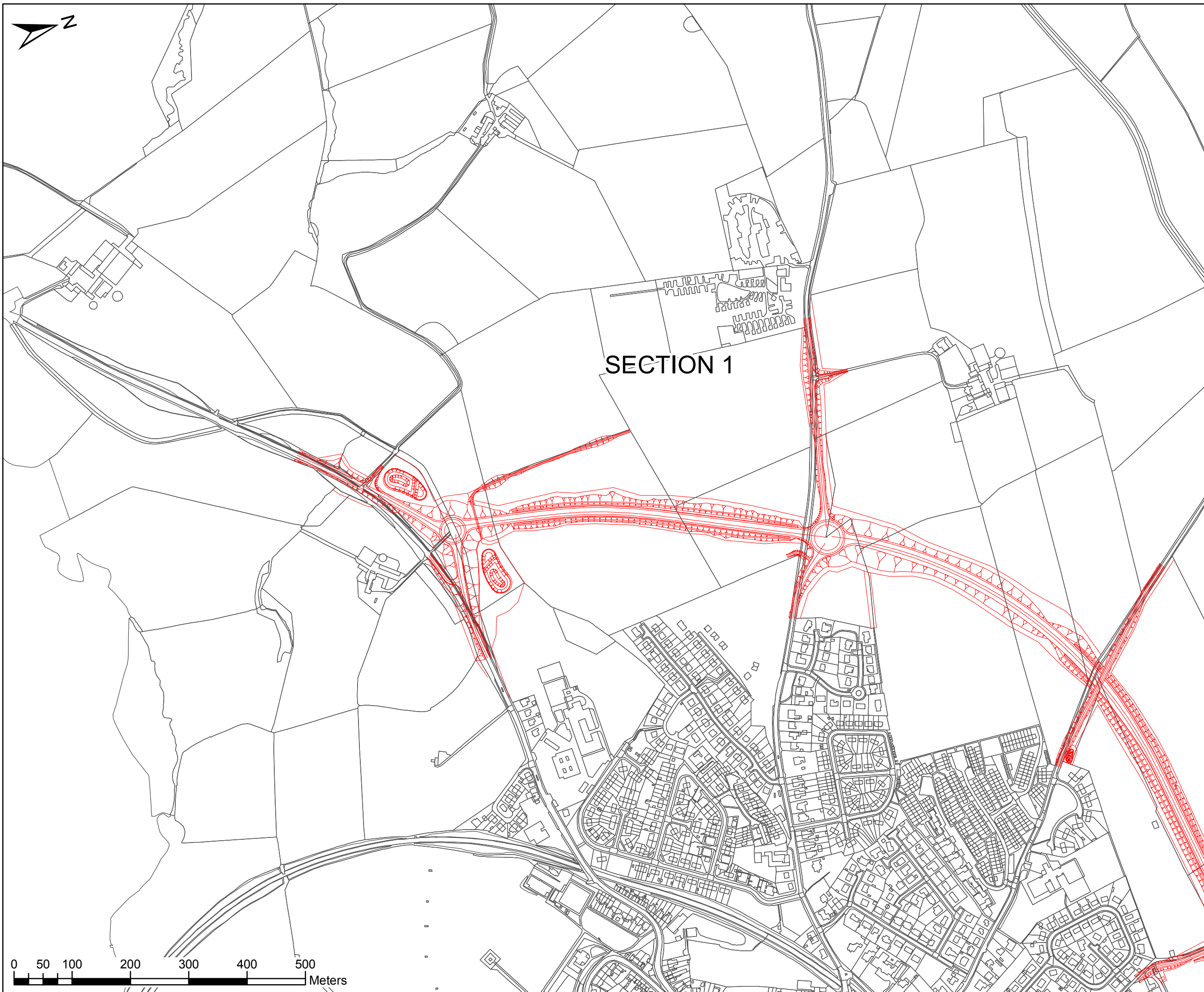
6. Conclusion and Recommendations

- 6.1.1. Otter are active on the watercourses and habitats, through which the proposed scheme will pass. It is likely that otter use the watercourses within the survey area seasonally, with the exception of Chapelton Burn at the north west of Maybole which is considered to be used year round.
- 6.1.2. During the survey, Chapelton Burn to the north west of Maybole had the highest amount of activity. Watercourse 4 is located to the north of Maybole and also has significant levels of otter activity. The varied habitats present within the survey area provide good food sources for otter.
- 6.1.3. The proposed scheme will bisect the watercourses and result in the loss of important foraging habitat. As otter will be using the whole stretch of the watercourses there is an increased likelihood of the scheme impacting negatively on local otter populations.
- 6.1.4. Underpasses should be installed in areas where the road passes between different types of habitat resource, such as a lake or reservoir and a water course, or between the sea and other potential otter habitats, or where areas of habitat will be bisected. This will allow otters to fully utilise the resources within their home range so that they will not be disadvantaged. Again they will need to be guided to the crossing by means of fencing and/or channels (DMRB, 2001).
- 6.1.5. It is recommended that prestart checking surveys are undertaken to establish the presence of otter holts and resting sites within the footprint of the proposed working area and 50m out with that. Post construction surveys should also be undertaken and any disturbed habitat should be restored to its original state.



Appendix A

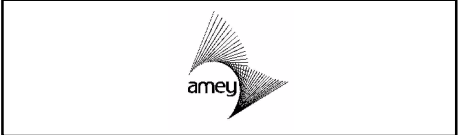
Otter Surveys drawings 1-4



SECTION 1

- Legend**
- DROPPINGS
 - FEEDING_REMAINS
 - HOLT
 - PATHWAYS
 - RESTING_PLACES
 - Otter Tracks
 - Bypass

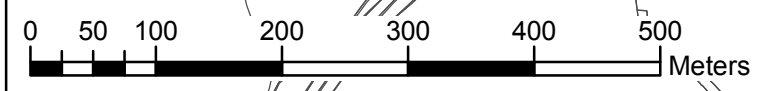
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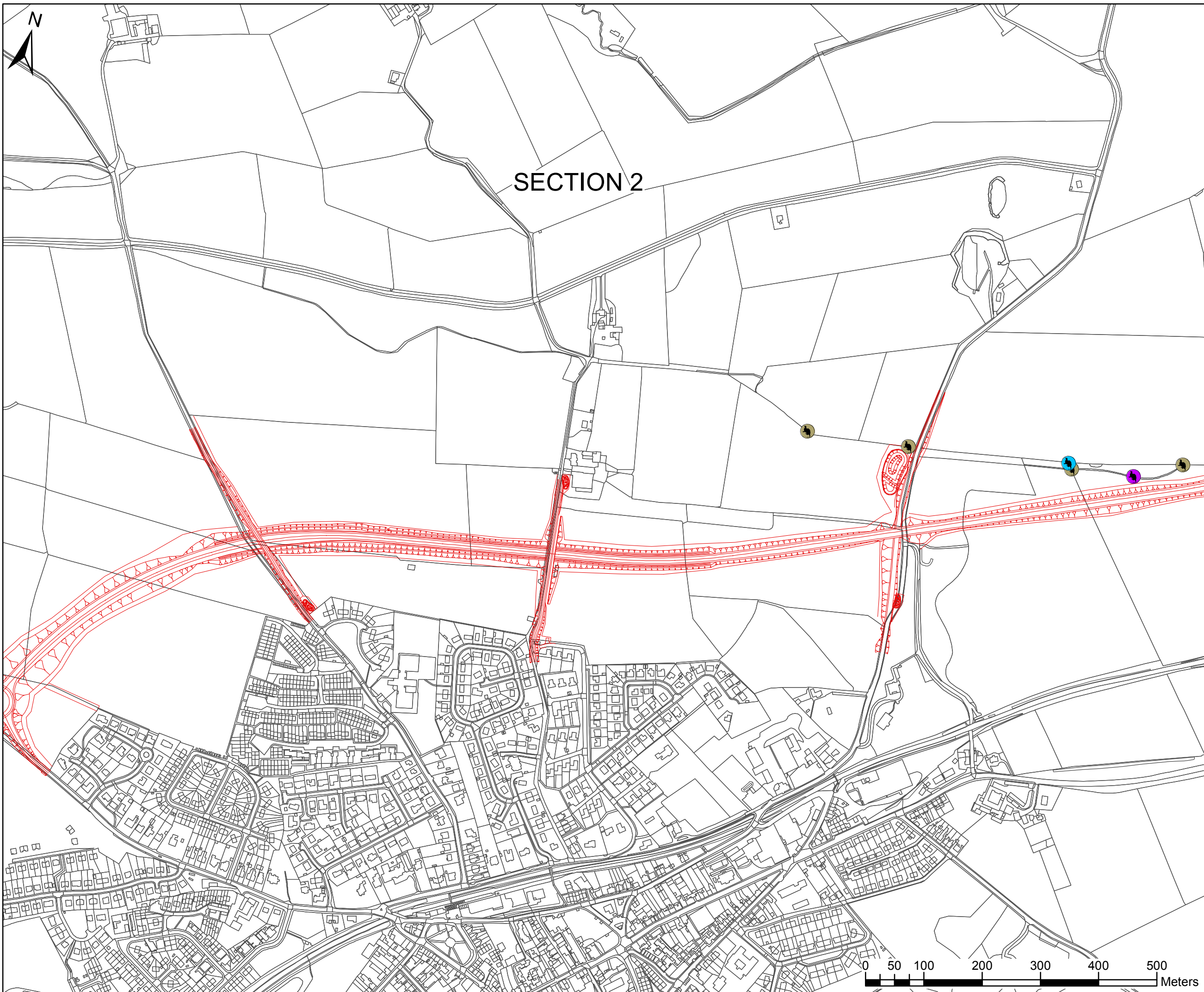


Project Name :
A77 Maybole Bypass

Drawing Title :
**Otter Survey
 Section 1**

Original Drawing Size : A3	
Scale : 1:6,000	Dimensions :
Drawing No : 25000182/OS/001	Rev : R0





SECTION 2

- Legend**
- DROPPINGS
 - FEEDING_REMAINS
 - HOLT
 - PATHWAYS
 - RESTING_PLACES
 - Otter Tracks
 - Bypass

Rev	Revision Details	Chkd	Appd	Date

Drawn : VM	Preliminary
Design : GB	For Comment
Chkd : MW	For tender
Appd : GH	For construction
Date : 21/05/2013	As constructed
	Other

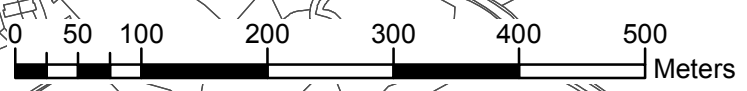


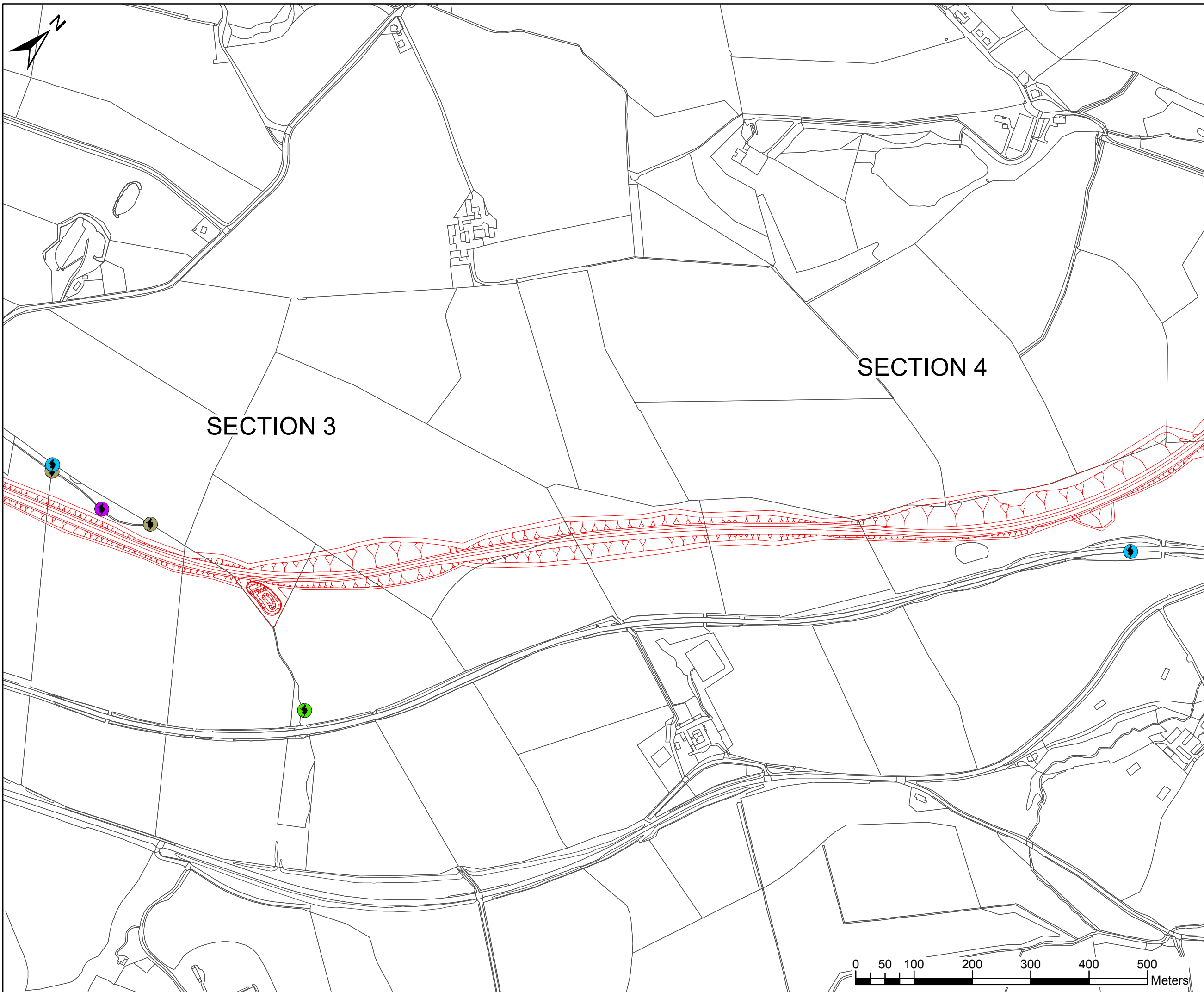
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Project Name :
A77 Maybole Bypass

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**Otter Survey
Section 2**

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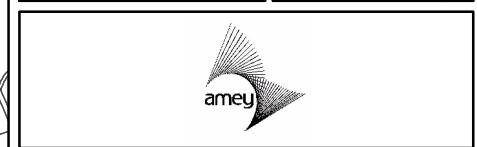
Legend

Otter

- DROPPINGS
- FEEDING_REMAINS
- HOLT
- PATHWAYS
- RESTING_PLACES
- Otter Tracks
- Bypass

Rev	Revision Details	Chkd	Appd	Date

Drawn : VM	Preliminary
Design : GB	For Comment
Chkd : MW	For tender
Appd : GH	For construction
Date : 21/05/2013	As constructed
	Other



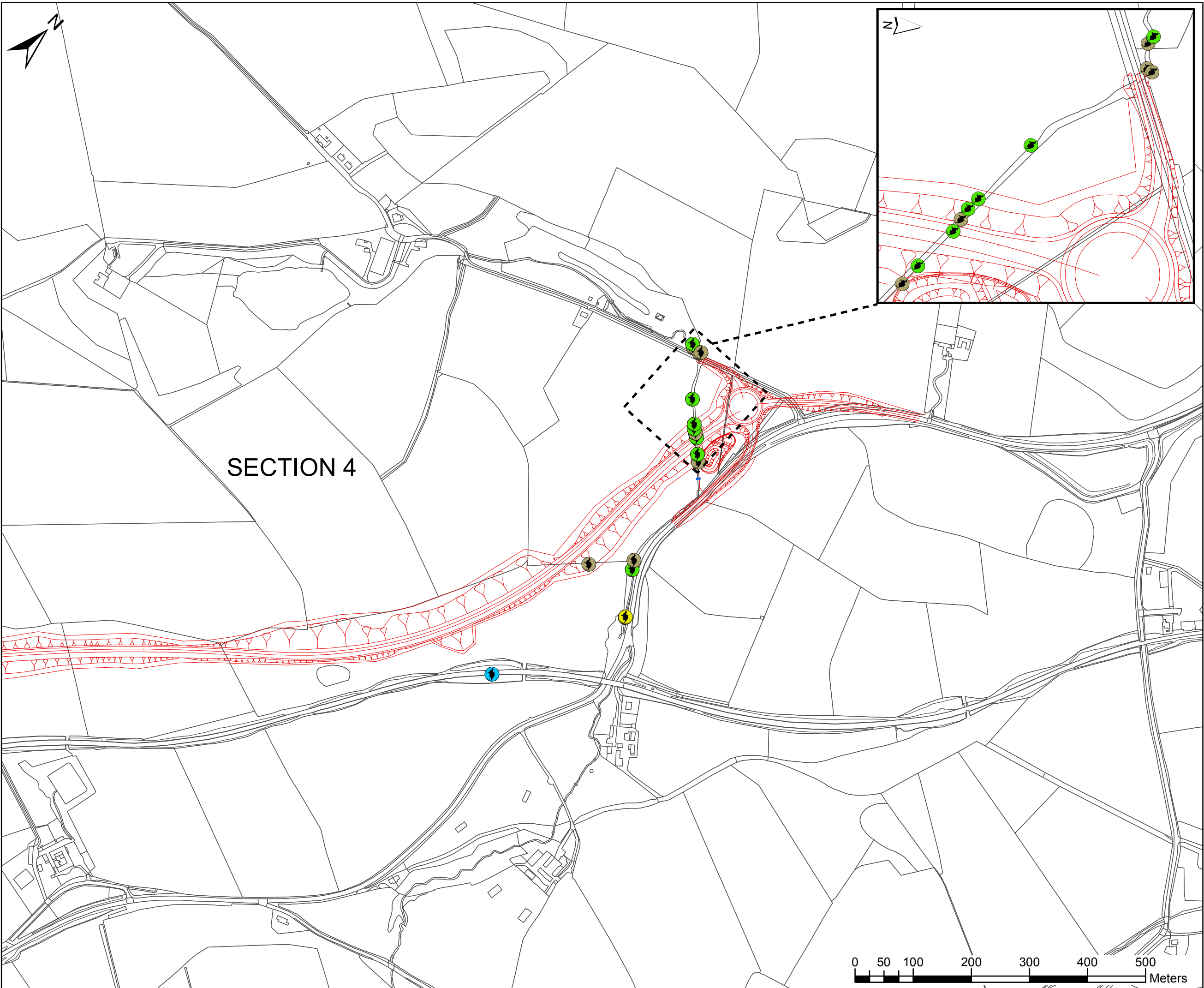
Client :

Project Name :
A77 Maybole Bypass

Drawing Title :
**Otter Survey
Section 3 & Section 4**

Original Drawing Size : A3	
Scale : 1:6,000	Dimensions :
Drawing No 25000182/OS/003	Rev R0





SECTION 4

Legend

Otter

-  DROPPINGS
-  FEEDING_REMAINS
-  HOLT
-  PATHWAYS
-  RESTING_PLACES
-  Otter Tracks
-  Bypass

Rev	Revision Details	Chkd	Appd	Date
Drawn : VM				Preliminary
Design : GB				For Comment
Chkd : MW				For tender
Appd : GH				For construction
Date : 21/05/2013				As constructed
				Other



Project Name :
A77 Maybole Bypass

Drawing Title :
**Otter Survey
Section 4**

Original Drawing Size : A3	
Scale : 1:6,000	Dimensions :
Drawing No 25000182/OS/004	Rev R0

