Wessex Route CP6 Year 1 - Vegetation Management Site Specification – Wokingham to Reading

1. Site of Work

Wokingham Station to Reading Station

2. Vegetation Management Overview

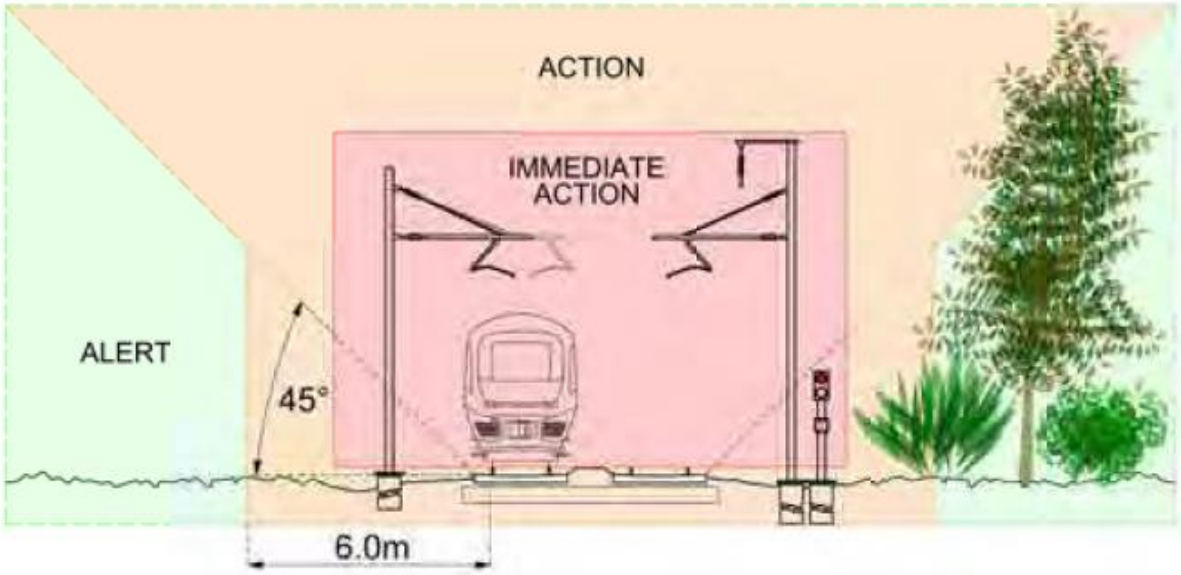
The line of route between Wokingham and Reading is generally a heavily wooded urban area, which narrows in places and runs through a series of cuttings and embankments.

Management of lineside vegetation between Wokingham and Reading has been overlooked in recent years and as a result, this route now tops Network Rail Wessex's priority list for vegetation management.

Lineside vegetation along this route is to be managed in order to prevent it causing obstruction and damage to either the rail network or to our lineside neighbours.

In considering the work required, several criteria have been considered:

- All lines of route must have a safe cess (walkway) for staff who are required to walk along the lineside to carry out their duties. A minimum 7 metre wide cut-back of vegetation has been specified in order to maintain a 6 metre wide vegetation-free corridor either side of the outermost rails.
- Embankments supporting the railway tracks generally need vegetation to be retained at the bottom third of their slope in order to maintain stability at the toe of the embankment. In certain circumstances all vegetation is removed to allow for retaining structures to be installed. Where vegetation has the potential to cause an issue to Network Rail's lineside neighbours it is to be removed.
- There are several cutting slopes (where the railway is lower in elevation than the surrounding terrain) on the Wokingham to Reading route. In order to prevent vegetation falling towards the railway, all vegetation that either overhangs or has the potential to fall onto the railway will be removed. Generally this means vegetation will be removed from the entire cutting slope, plus an additional metre beyond the crest of the cutting slope.
- Several tree species are problematic to the running of the railway due to their size and number of leaves that fall (leaf-fall species) – these are Sycamore, Poplar, Horse and Sweet Chestnut, Ash and Lime. Ash trees, particularly if Chalara is present, need to be removed or managed. Saplings can be thinned and then actively managed if left in the ground.
- Coppicing is to be carried out to some trees, particularly Hazel, which is growing at a distance greater than 7 metres from the railway. This will not apply if their root-balls have become too large through years of coppicing, particularly in chalk soil, if they have the potential to fall towards the railway.
- Hedgerow species are retained where possible and managed.
- Vegetation management work has been specified to create compliance with Network Rail standard NR/L2/OTK/5201 Lineside Vegetation Management Manual. The standard sets out a specification for managing vegetation based on areas for immediate action, action and alert – these are illustrated in the following diagram.



3. Pre-work requirements – Ecology

A Preliminary Ecological Appraisal (PEA) has been undertaken of the site and its immediate surrounding area and is appended to this document.

Additional specialist ecology surveys and mitigation measures may be required as directed by the PEA.

Requirement for Work

- Brief all staff of site ecology constraints and mitigation measures via relevant Toolbox Talks and Method Statements,
- Undertake daily ecology surveys, including bird breeding surveys where required,
- Submit all paperwork (daily ecology surveys, breeding bird and nest check forms, herbicide records) to the Project Manager on a four-weekly basis.

Method Statements required (final list to as directed by the site-specific PEA)

- Nesting birds
- Bats in trees
- Badgers
- Dormice
- Great crested newts (amphibians) and reptiles
- Invasive species
- Water courses (Environment)

Toolbox Talks required (Final list to be determined by the site-specific PEA)

- Nesting birds
- Bats in trees
- Badgers
- Dormice
- Great crested newts (amphibians) and reptiles
- Invasive species
- Pollution Prevention

Documents to be submitted

- NR-BBCv2.1 breeding bird and nest check forms

- Other daily ecology surveys as required by the PEA
- NR/L3/TRK/003/TEF3069 Pesticide Application Record

4. Work Overview

The Wokingham to Reading line is a predominantly urban route, although it passes through extensive wooded areas with some very large trees. There is evidence of significant Chalara (Ash die-back) along this line, and the specification addresses the obligation to remove affected Ash trees. It is acknowledged that this may result in an open aspect for some lineside neighbours.

Nb. The clearance distance specified within this Site Specification varies throughout the site. Where the distance is specified, the measurement is to be taken horizontally from the outermost rail and not along the natural ground level – this is particularly pertinent to cuttings and embankments.

Specified work shown in Bold.

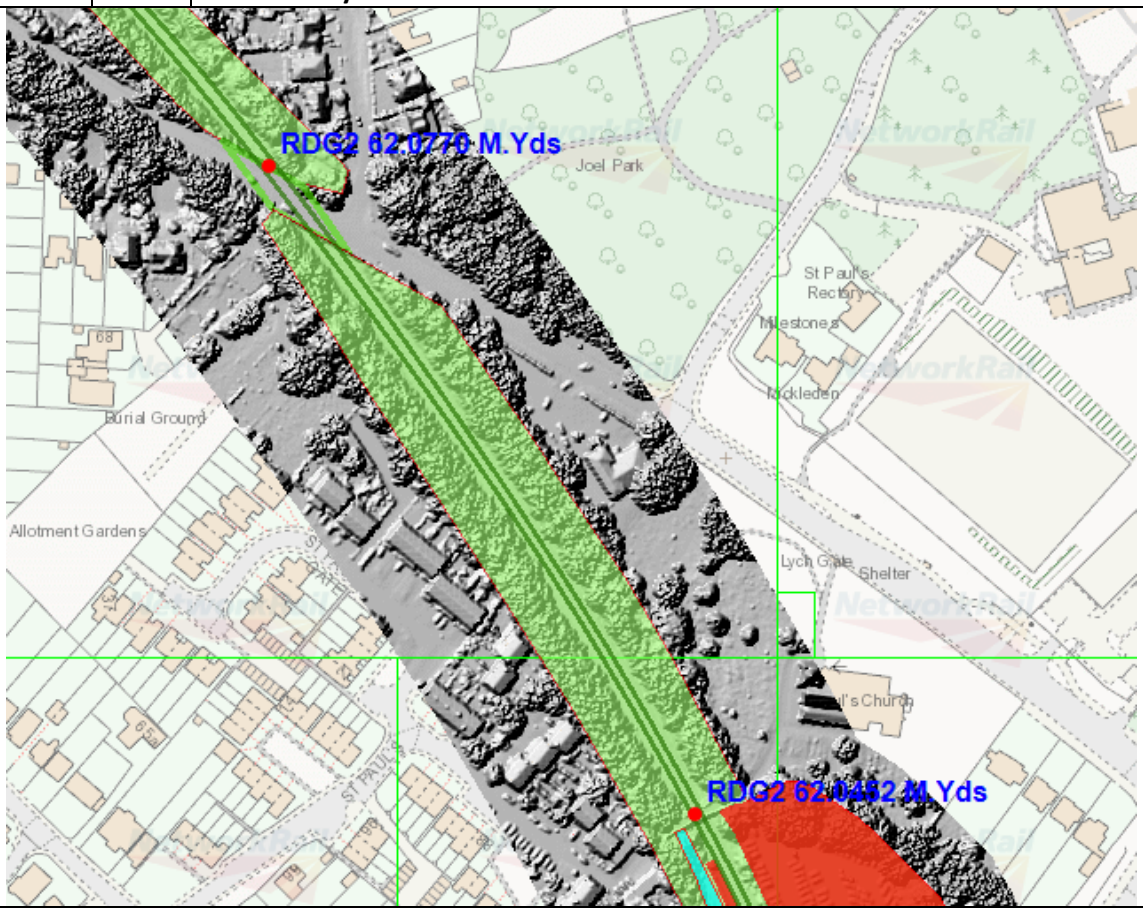
The Up line runs from Reading towards Wokingham.
The Down line runs from Wokingham towards Reading.

5. Ecological and Environmental constrains and requirements

At several locations detailed within this Specification, the Hazel is to be coppiced. Coppiced Hazel is not to be treated with herbicide, but instead will be allowed to re-grow in a controlled manner.

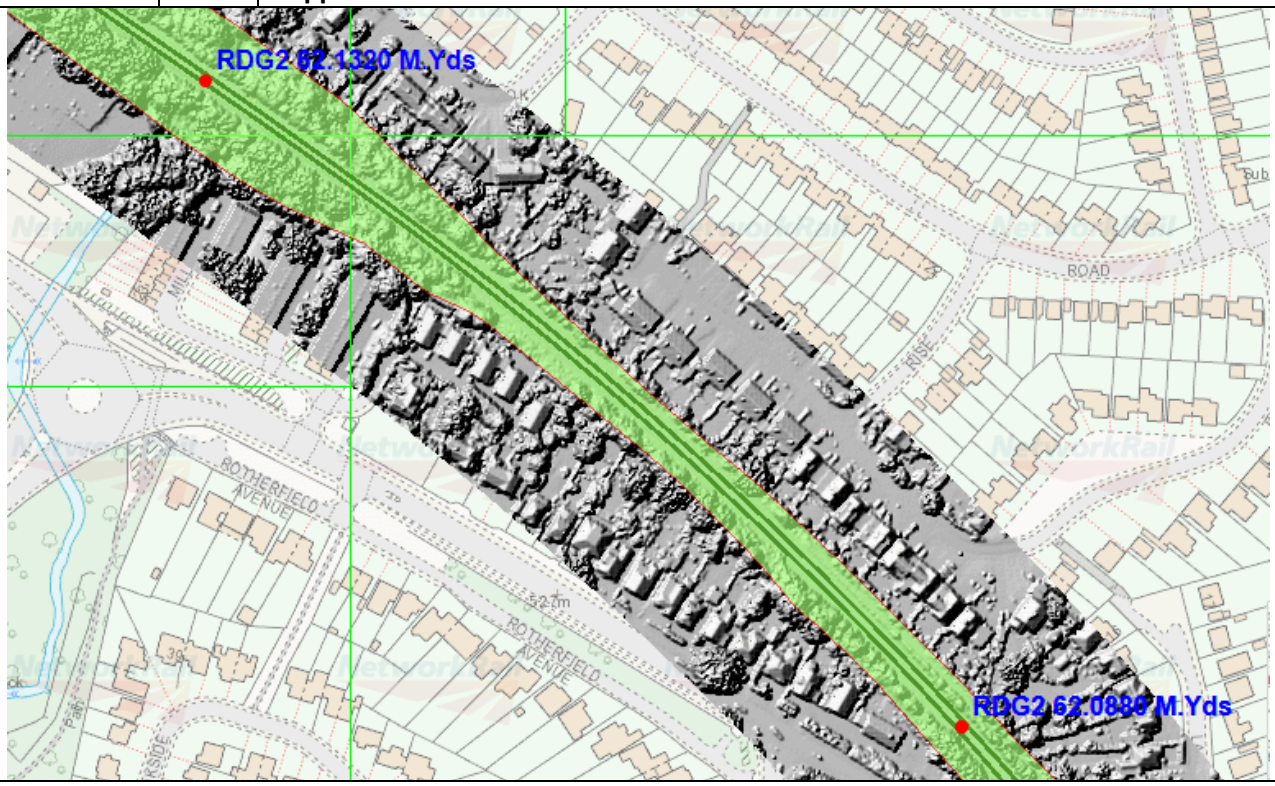
6. Work Specification		
Mileage of Work	**Line**	**Description of Work**
62.0374 – 62.0452	Up	*Wokingham Station to bridge 19/1379 Church Path Footbridge.* **Clear all vegetation, mainly buddleia to fence.**
	Down	*Wokingham Station to bridge 19/1379 Church Path Footbridge, including small railway yard at the back of platform.* **Clear to 6 metres ignoring fence line (some clearance within the railway yard).**

62.0452 - 62.0770	Up	*Cutting slope between bridge 19/1379 Church Path Footbridge and bridge 19/1380 Reading Road A329. Soil cutting with evidence of desiccation. Silver Birch trees through this section are old and their roots are unstable in the ground.* **Clear all vegetation to 12 metres.** **Clear all Birch to fence line.**
	Down	*Cutting slope between bridge 19/1379 Church Path Footbridge and bridge 19/1380 Reading Road A329. Soil cutting with evidence of desiccation. Leaf fall species through this section need to be addressed, hedgerow species to be retained.* **Clear all Willow, Poplar, Birch and Ash to fence line** **Retain Holly and Hazel between 12 metres and fence line.**

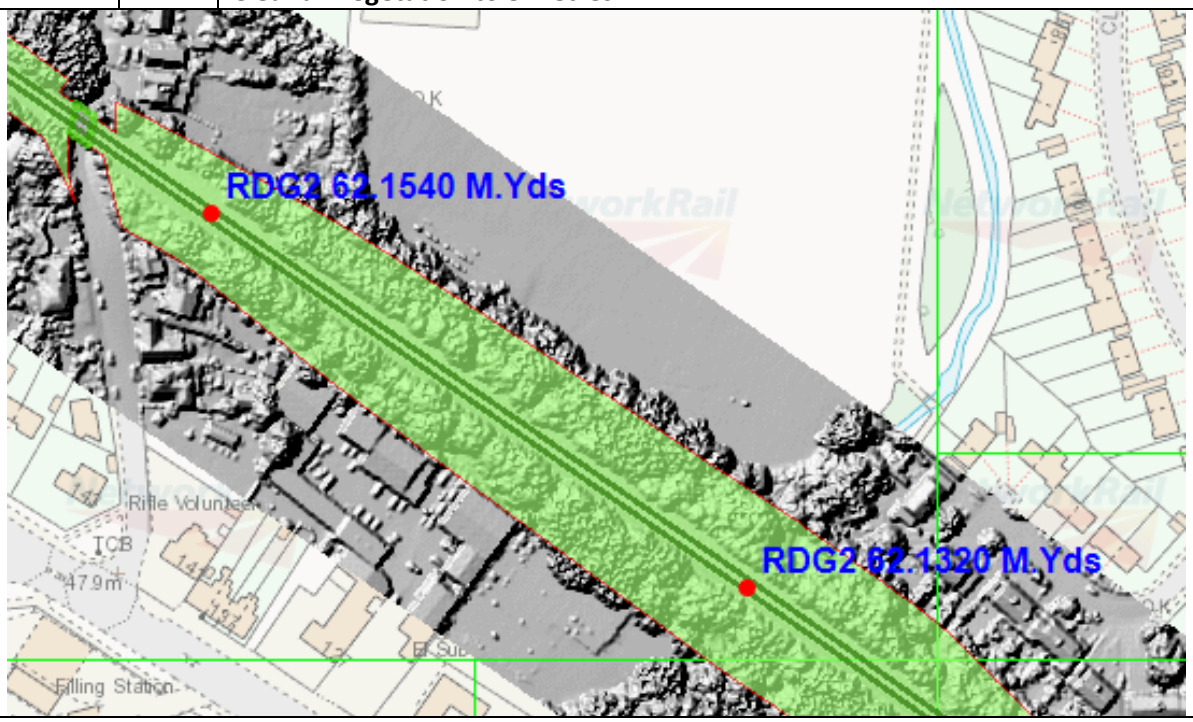


62.0770 – 62.0880	Up	*Railway through this section is on a curve which makes it more hazardous for staff walking alongside the tracks. Management of vegetation will increase sighting distances and thus safety for track staff. Leaf fall species through this section need to be addressed.* **Clear all vegetation to 10 metres.** **Clear all Sycamore to fence line.**
	Down	*Railway through this section is on a curve which makes it more hazardous for staff walking alongside the tracks. Management of vegetation will increase sighting distances and thus safety for track staff. Clearance of vegetation to fence line mitigated by dense vegetation on neighbouring land.* **Clear all vegetation to fence line.**

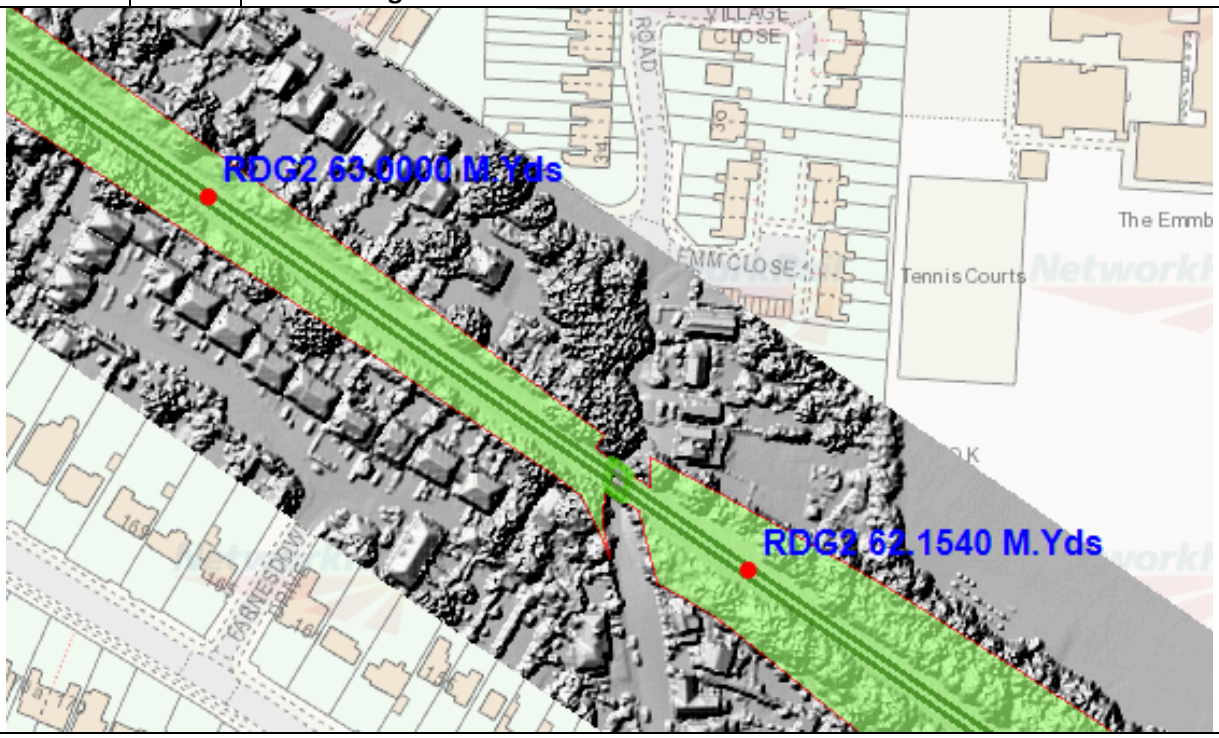
62.0880 – 62.1320	Up	*Railway through this section is on a curve which makes it more hazardous for staff walking alongside the tracks. Management of vegetation will increase sighting distances and thus safety for track staff.* **Clear all vegetation to 7 metres.**
	Down	*Railway through this section is on a curve which makes it more hazardous for staff walking alongside the tracks. Management of vegetation will increase sighting distances and thus safety for track staff. Leaf fall species through this section need to be addressed.* **Clear all vegetation to 7 metres.** **Clear all Ash, Birch, and Willow to fence line.** **Coppice all Hazel from 7 metres to fence line.**

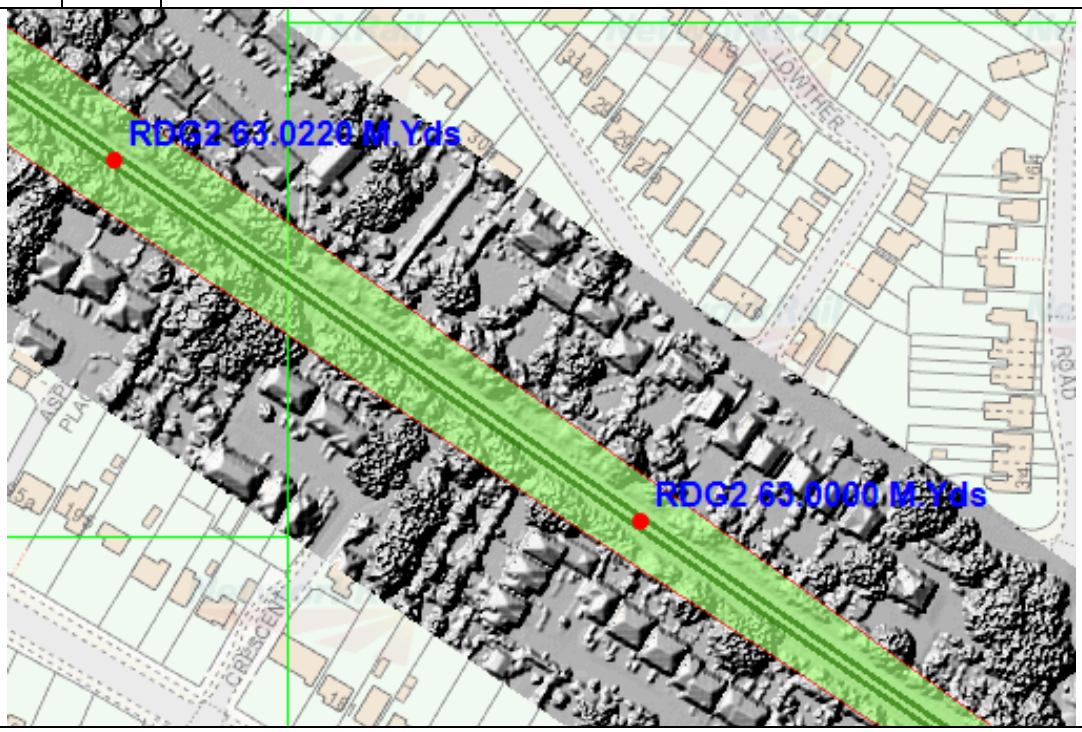


62.1320 – 62.1540	Up	*Embankment of dense vegetation. Width of embankment is 15m – 25m from outer rail through this section. 8m clearance will see significant width of vegetation retained on lower slope of embankment.* *This section of embankment has desiccation issues and is being monitored for movement. Removal of the large Oaks will help prevent movement of the embankment and will thus help prevent deterioration of the railway track bed (which presents a safety concern for Network Rail).* **Clear all vegetation to 8 metres and all Oak to 10 metres.**
	Down	*Embankment of dense vegetation. Width of embankment is 15m – 25m from outer rail through this section. 8m clearance will see significant width of vegetation retained on lower slope of embankment.* *This section of embankment has desiccation issues and is being monitored for movement (any movement of the railway track bed presents a safety concern for Network Rail).* **Clear all vegetation to 8 metres.**

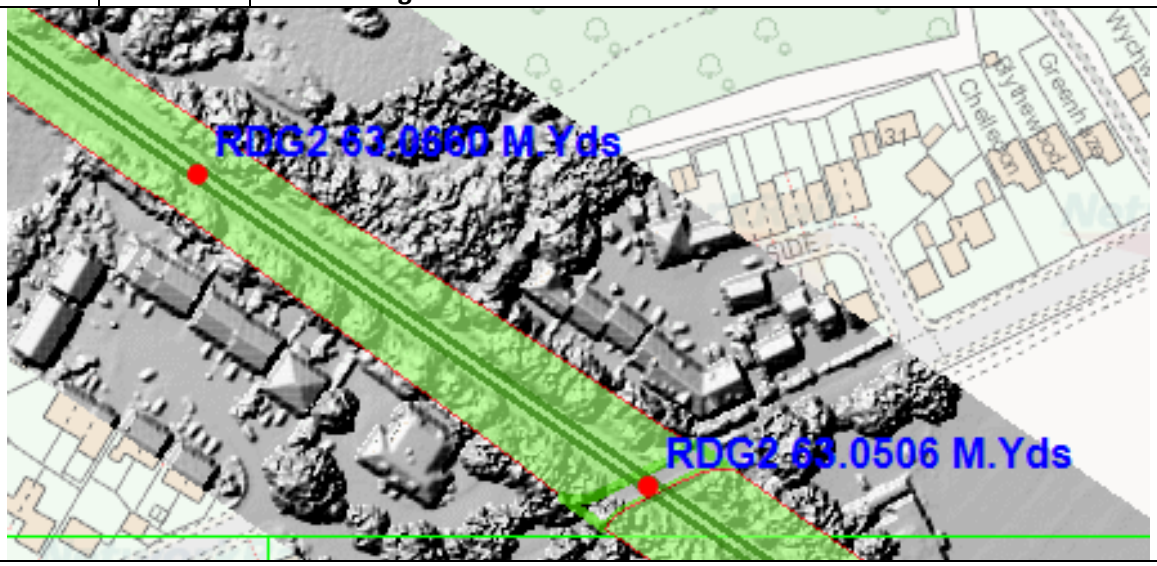


62.1540 – 63.0000	Up	*Embankment of dense vegetation, thorn, Oak and Ash.* *Average width of embankment is between 8m and 11m on both the Up and Down sides.* **Clear all vegetation to 8 metres.** **Clear all Oak and Ash to 10 metres** **Assess trees along fence line using THREATS process to evaluate risk to adjacent school. Remove trees that score THREATS category 3 and above.** *This assessment is required to ensure these trees are safe to retain.*
	Down	*Average width of embankment is between 8m and 11m on both the Up and Down sides.* **Clear all vegetation to 7 metres.**

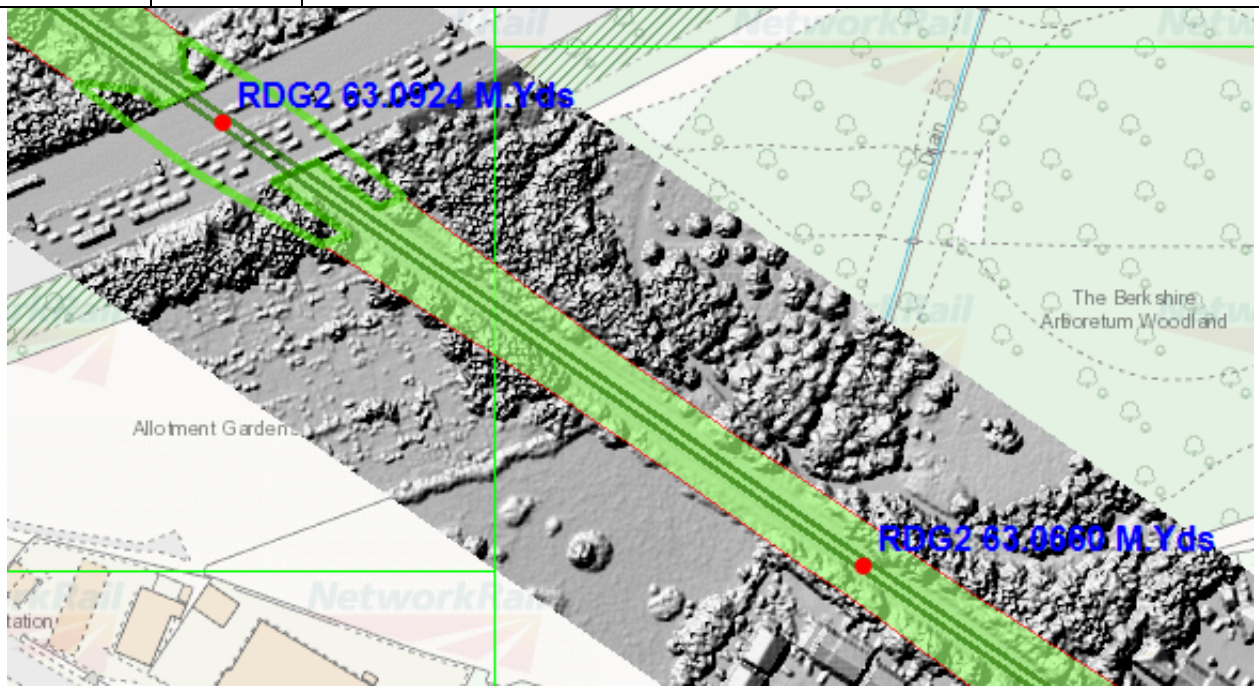


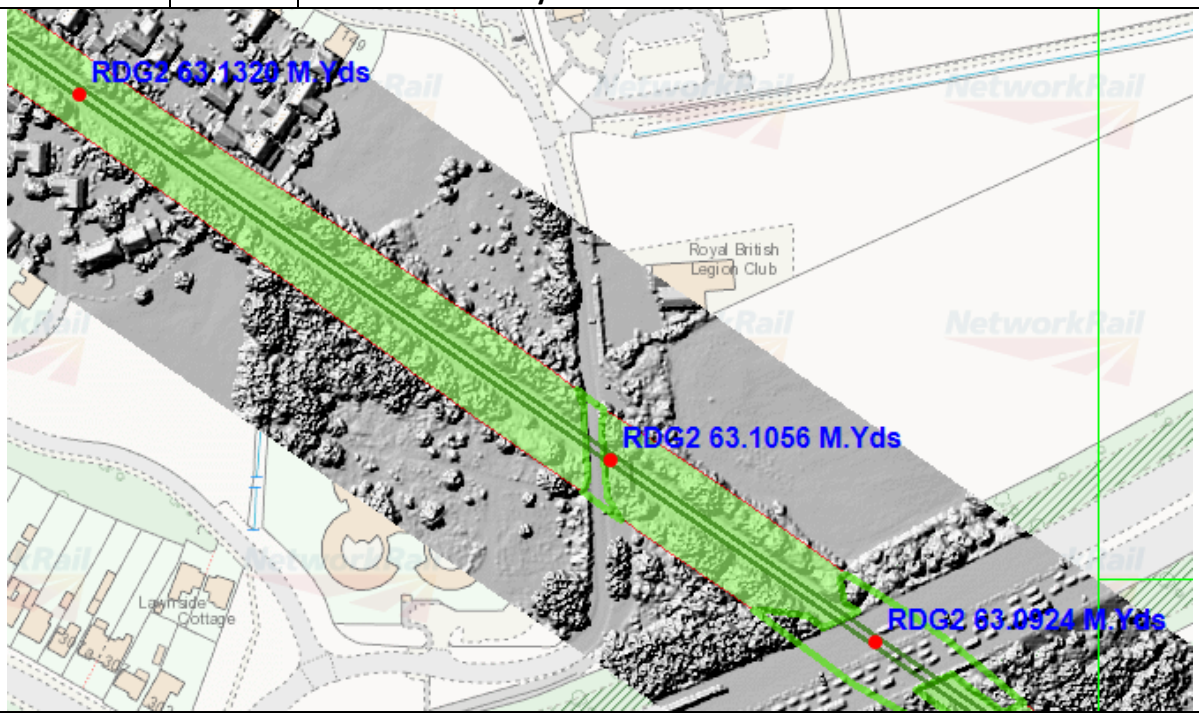
63.0000 - 63.0220	Up	*Shallow cutting through residential area. Dense scrub with Birch, Poplar and Willow. Minimum cut-back of 8m width to provide a safe walking route for staff. Clearance of specified trees is to prevent leaf-fall and remove limbs which overhang the tracks.* **Clear all vegetation to 8 metres.** **Clear all Norway Maple, Sycamore, Poplar, Ash and Birch to fence line.** **At 63.0220, prune back overhanging limbs of 3rd party Oaks to 7 metres from the nearest track.**
	Down	*Shallow cutting through residential area. Dense scrub with Birch, Poplar and Willow. Minimum cut-back of 8m width to provide a safe walking route for staff. Clearance of specified trees is to prevent leaf-fall and remove limbs which overhang the tracks.* **Clear vegetation to 8 metres.** **Coppice Hazel from 8 metres to fence line.** **Prune back overhanging limbs of 3rd party Oaks to 7 metres from the nearest track.**
		

63.0220 – 63.0440	Up	*Shallow cutting slope with dense tree growth – leaf-fall species to be removed.* **Clear all vegetation to 8 metres.** **Clear all Birch, Willow and Sycamore to fence line.**
	Down	*Shallow cutting slope with over-mature coppice which requires management. Hedgerow species to be retained.* **Clear all vegetation to fence line except for:** **Hawthorn, Elder, Bramble.** **Coppice Hazel and Laurel.**
63.0440 – 63.0506	Up	*Shallow cutting slope with dense tree growth – leaf-fall species to be removed.* **Clear all vegetation to 10 metres.** **Clear Sycamore and birch to fence**
	Down	*Shallow cutting slope with over-mature coppice which requires management. Hedgerow species to be retained.* **Clear all vegetation to 10 metres.** **Clear Birch and willow to fence.**

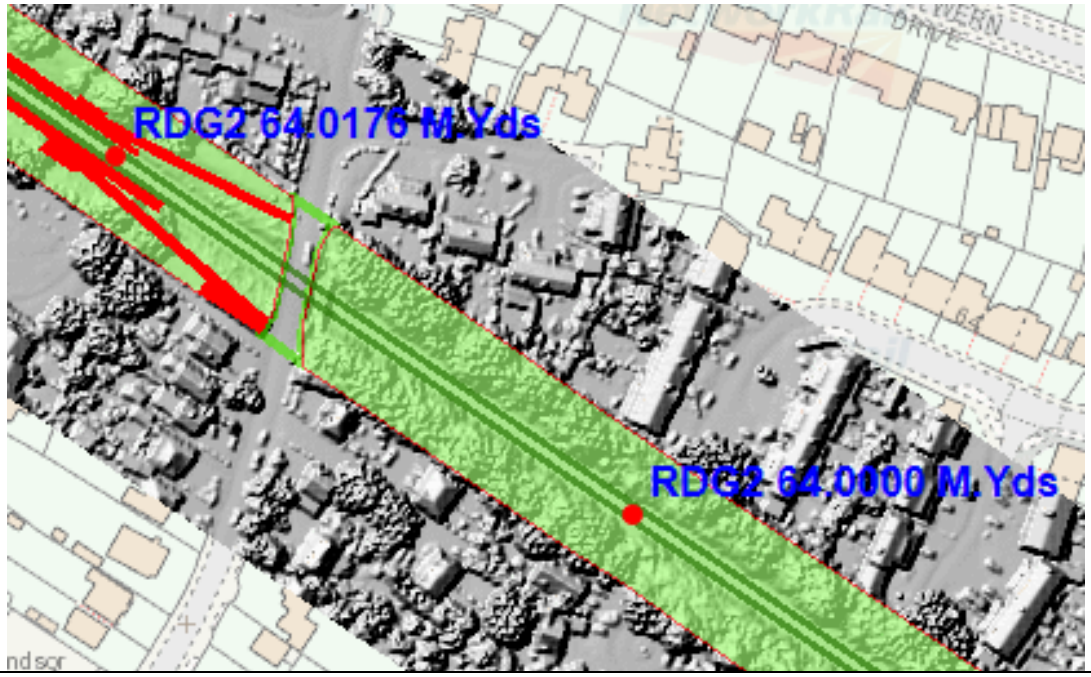
63.0506 – 63.0660	Up	*Small steep cutting of mixed vegetation. Clearance of vegetation to 10m is to prevent overhang above the tracks and prevent trees falling towards the railway. Leaf-fall species are to be cleared to boundary.* **Clear all vegetation to 10 metres.** **Clear all Sycamore and Birch to fence line**
	Down	*Small steep cutting of mixed vegetation. Clearance of vegetation to 10m is to prevent overhang above the tracks and prevent trees falling towards the railway.* **Clear all vegetation to 10 metres.**
		

63.0660 – 63.0924	Up & Down	*Rural area with flat ground. Limbs which overhang the tracks are to be removed.* **Clear all vegetation to 6 metres.** **Retain Oaks on Up at 63m 31ch, cutting back trackside limbs on both trees.**

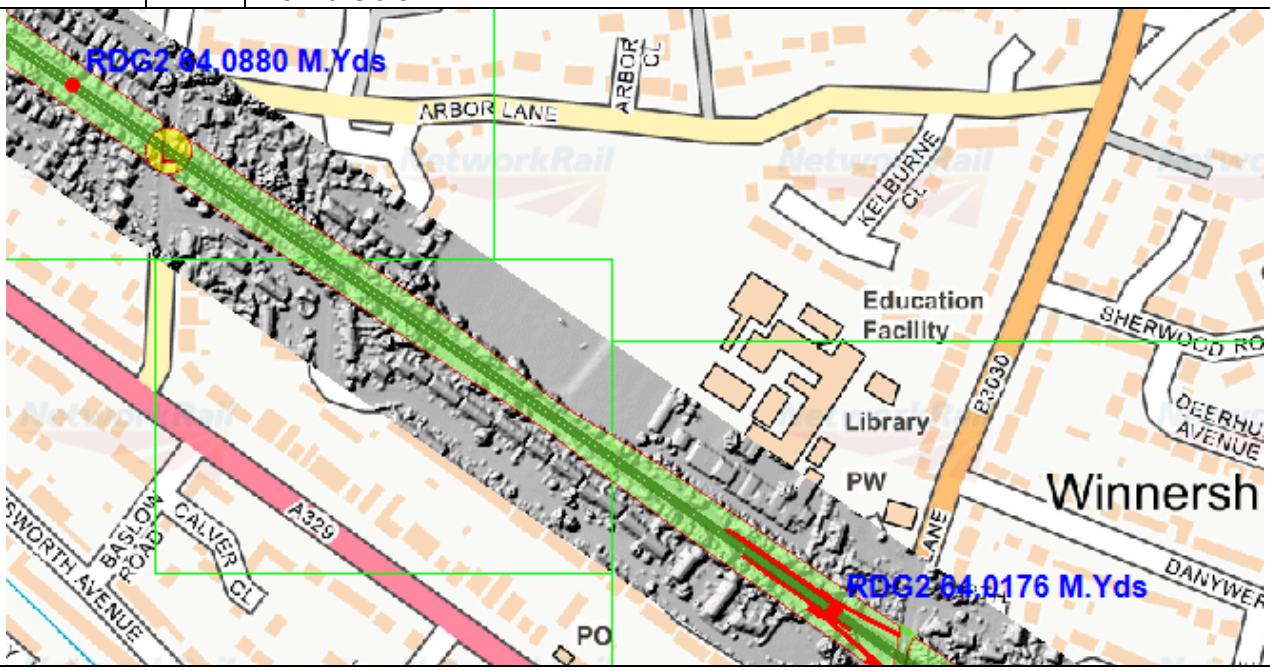


63.0924 - 63.1056	Up & Down	*Rural area with flat ground. Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 12 metres.**
63.1056 – 63.1320	Up & Down	*Rural area with flat ground. Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 9 metres.** **Clear all Ash and Sycamore to fence line.**
		

63.1320 - 63.1540	Up	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 10 metres.**
	Down	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 10 metres.** **Clear all Birch and Willow to fence line.** **Coppice Hazel from 10 metres to fence line.**
63.1540 – 64.0000	Up	*This section has many earthworks issues and is being monitored for desiccation.* *Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 10 metres.**
	Down	*This section has many earthworks issues and is being monitored for desiccation.* *Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 8 metres.** **Coppice Hazel between 8 metres to 12 metres.**
		

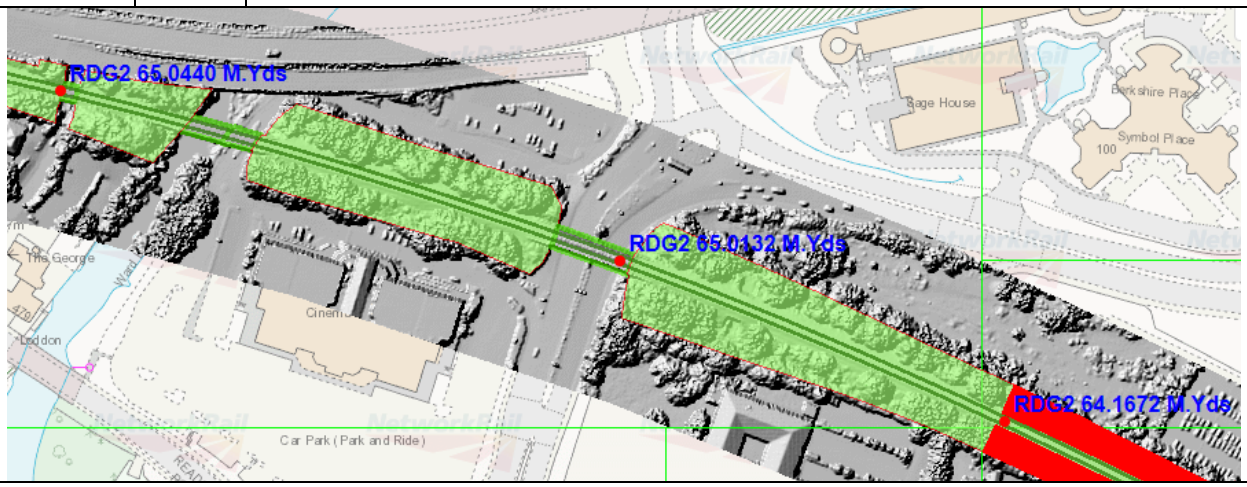
64.0000 – 64.0176	Up	*Towards Winnersh Station. This section has many earthworks issues and is being monitored for desiccation. Specified clearance manages leaf fall species and creates a safe cess / walking route for staff. Overhanging limbs to be cut back.* **Clear all vegetation to 10 metres.** **Cut back large oaks outside of 10 metres back to 8 metres from running rail.**
	Down	*Towards Winnersh Station. This section has many earthworks issues and is being monitored for desiccation. Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 10 metres** **Coppice hazel between 10 and 12 metres**
		

64.0176 – 64.0880	Up & Down	*Line adjacent to school on the Down and back gardens on the Up. This section has many earthworks issues and is being monitored for desiccation. Leaf fall species to be addressed. Oaks are to be retained and pruned to maintain their safety.* **Clear all vegetation to 6 metres.** **Clear all Ash, Poplar and Elm to fence line.** **Cut mature Oaks on the Down to the 6 metre clearance line and remove dead wood from the crown.**

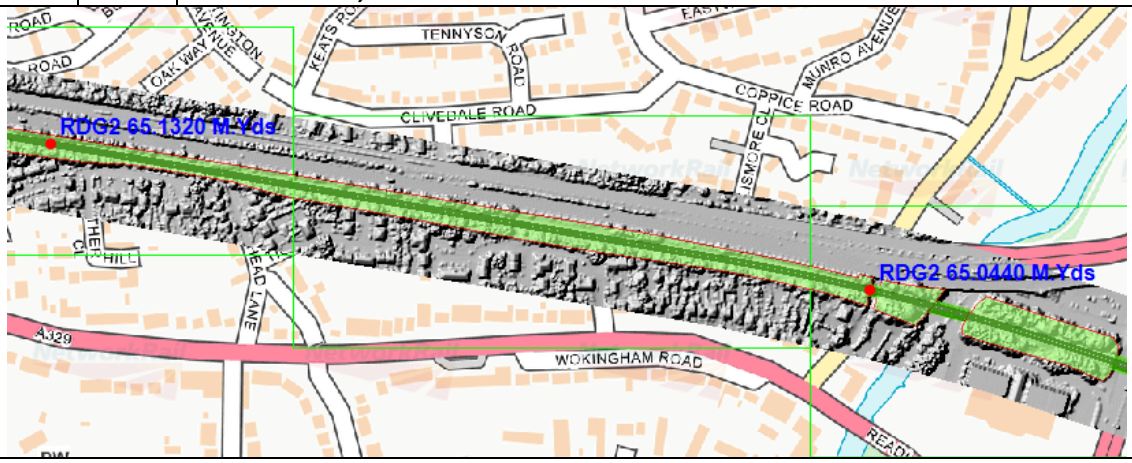


64.0880 – 64.1452	Up & Down	*This section has many earthworks issues and is being monitored for desiccation. Leaf fall species to be addressed.* **Clear all vegetation to 7 metres.** **Clear all Ash, Sycamore and Poplar to fence line.** **Coppice Hazel on the up between 7 metres and 10 metres.**

64.1452 – 64.1672	Up & Down	*Winnersh Triangle Station.* **No work required.**
64.1672 – 65.0132	Up & Down	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 8 metres.**
65.0132 – 65.0440	Up & Down	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 10 metres.** **Clear all Ash to fence line.**



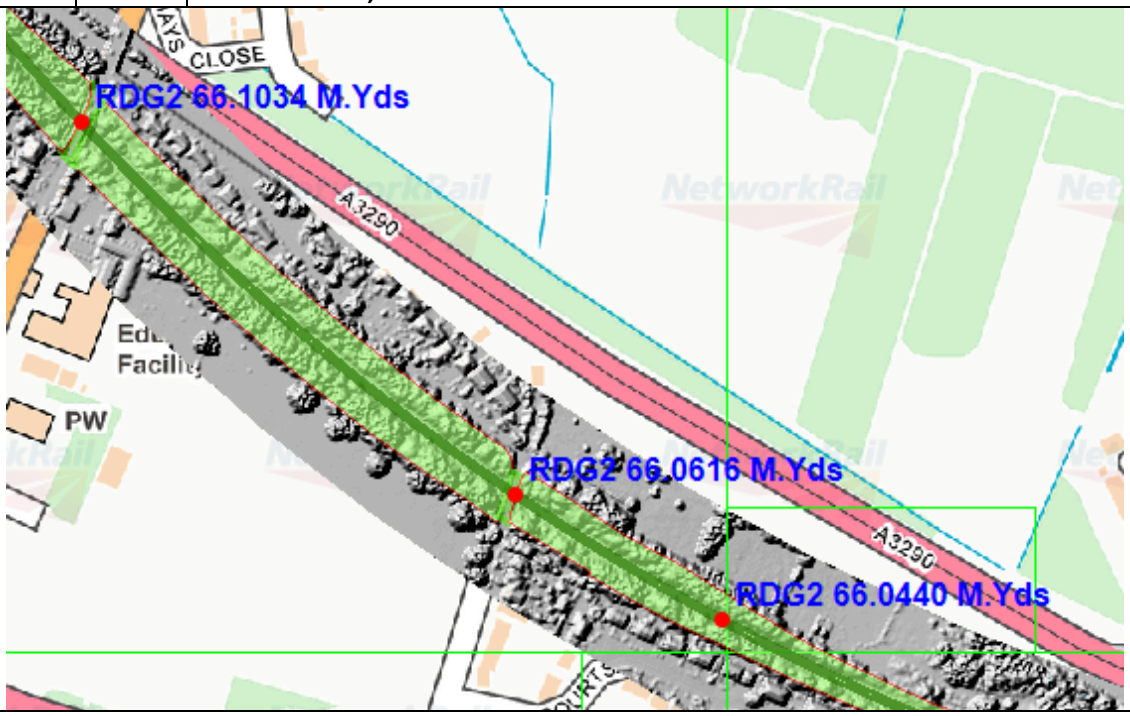
65.0440 – 65.1320	Up	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 7 metres.** **Clear all Sycamore and Willow to fence line.** **Fell 3rd party Goat Willow at 65m 41ch.**
	Down	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 8 metres.** **Clear all Birch, Ash and Willow to fence line.**



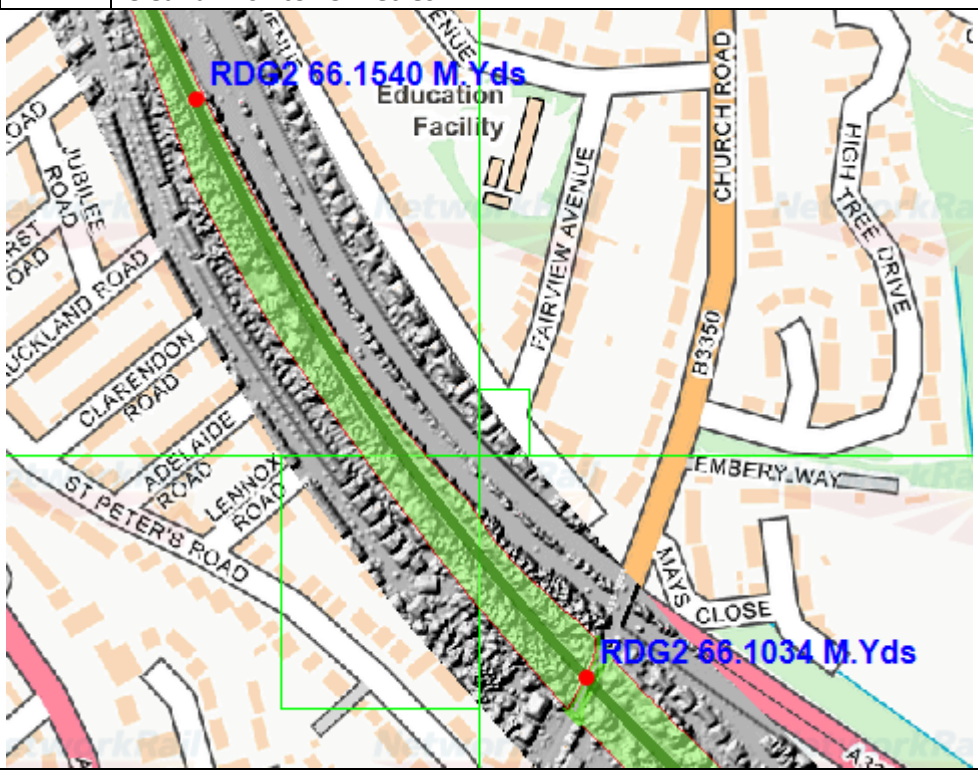
65.1320 – 66.0000	Up & Down	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 8 metres.** **Clear all Birch, Ash, Sycamore and Willow to fence line.**

66.0000 66.0440	Up	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 8 metres.** **Clear all Ash and Poplar to fence line.**
	Down	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 8 metres.** **Clear all Ash to fence line.** **Coppice Hazel between 8 metres and fence line.**

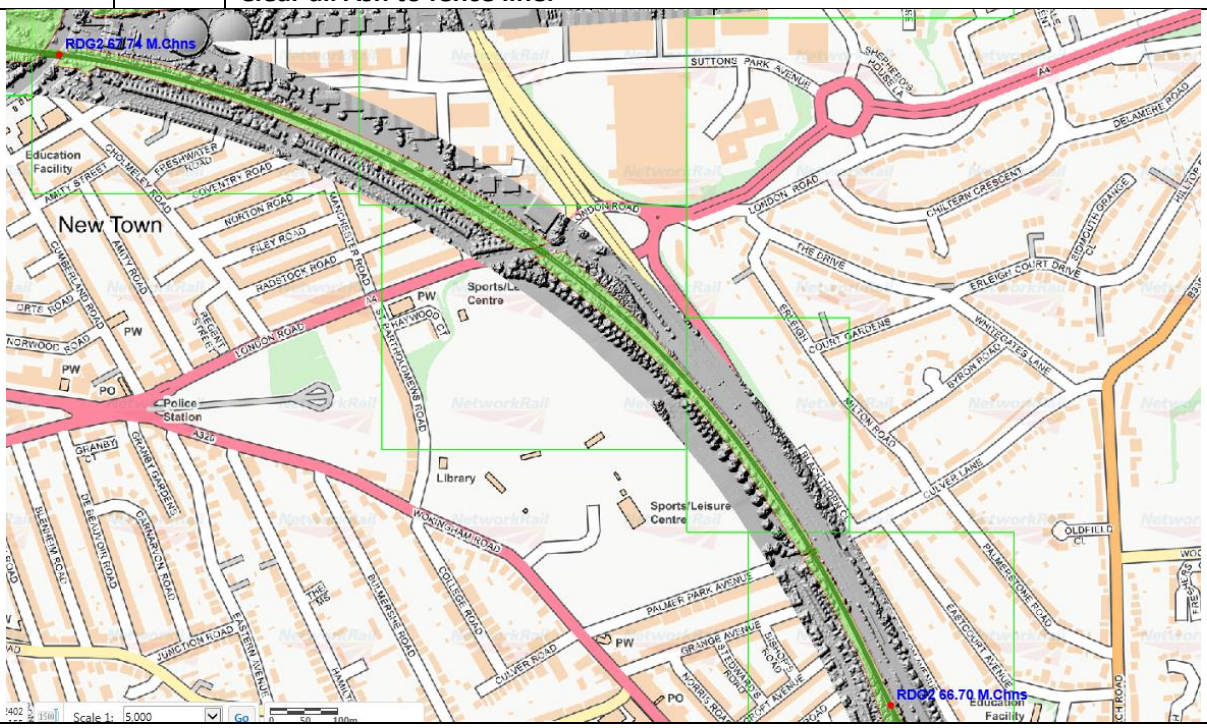
66.0440 – 66.0616	Up & Down	*Very large Ash and Oak along this stretch. Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 10 metres** **Clear all Ash and Poplar to 20 metres.**
66.0616 – 66.1034	Up & Down	*Specified clearance manages leaf fall species and creates a safe cess / walking route for staff.* **Clear all vegetation to 10 metres.** **Clear all Birch, Ash and Willow to 12 metres on the Up.** **Clear all Birch, Ash and Willow to fence line on the Down.**



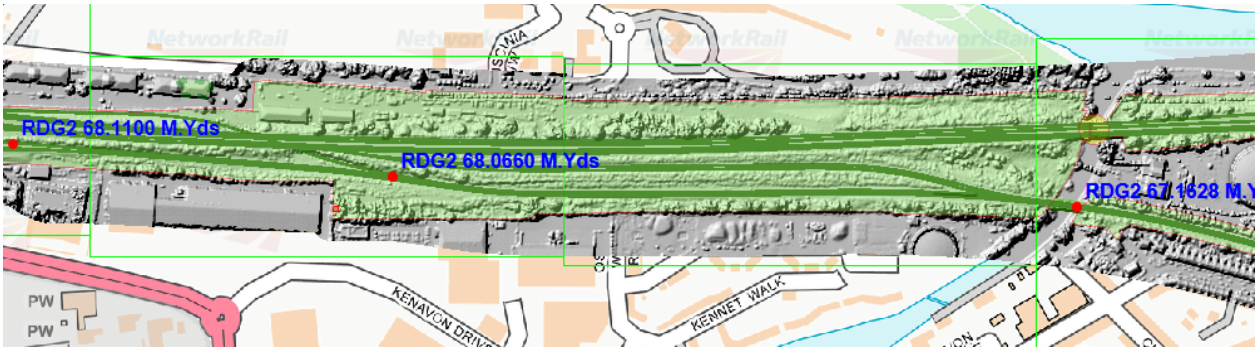
66.1034 – 66.1540	Up & Down	*Railway here runs through cutting slopes around a sharp curve. Sighting is poor for track staff and vegetation management will improve this. Earthwork desiccation present throughout this section.* **Clear all vegetation to 12 metres.** **Clear all Ash to 15 metres.**



66.1540 – 67.1628	Up & Down	*Mainly embankment of mixed vegetation adjacent to road, park and gardens. Sighting is very poor for track staff and vegetation management will improve this.* **Clear all vegetation to 8 metres.** **Clear all Ash to fence line.**



67.1628 68.1100	Up	*Vegetation through this section is mainly Buddleia. This section approaches Reading station and runs alongside the Great Western mainline (MLN1) which is electrified with overhead lines.* **Clear all vegetation to 10m between 67.1628 and 68.0660.** **Clear to base of retaining wall between 68.0660 and 68.1100.**
	Down	**Clear all vegetation to 10m.**



PRELIMINARY ECOLOGICAL APPRAISAL

RDG2
WOKINGHAM JUNCTION TO READING RAILWAY STATION
VEGETATION CLEARANCE WORKS

EFU-19-03
MAY 2019

Naturally Wild Consultants Limited
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Email: hello@naturallywild.co.uk

PRELIMINARY ECOLOGICAL APPRAISAL

WOKINGHAM JUNCTION TO READING RAILWAY STATION VEGETATION CLEARANCE WORKS

BERKSHIRE

GRID REF SU 8068 6836 – SU 7144 7394

Quality Assurance

Version	Prepared by	Date	Checked by	Date	Approved by	Date
R1	Scott Taylor	23/05/2019	Matthew Buxton	23/05/2019	Matthew Buxton	23/05/2019

This report is intended to provide an accurate description of findings from survey work undertaken on the dates shown in the report; however, it cannot fully account for any changes to site conditions following the completion of the survey work due to activities carried out on site or the dynamic nature of the natural environment. All work carried out by Naturally Wild Consultants Ltd is subject to our Terms and Conditions.

The report has been produced in accordance with current best practice guidelines.

REPORT CONTENTS

EXECUTIVE SUMMARY

Naturally Wild were instructed to undertake a Preliminary Ecological Appraisal (PEA) on the RDG2 Railway Line in Berkshire, which covers Wokingham Junction to Reading Railway Station. The proposed works involve carrying out vegetation clearance on behalf of Network Rail on both sides of the railway line for a number of health and safety-related reasons, including improving train driver and track worker visibility, ensuring there are positions of safety for track workers, and removing any dangerous trees that could fall on the line.

The PEA comprised two parts: a desktop study and a site visit. The desktop study collated available public information regarding the biodiversity of the area, including the habitat structure of the site and surrounding area and the presence of any statutory or non-statutory designated sites.

The site visit consisted of an assessment of all habitats on site and in the surrounding area to determine their ecological importance to protected species and was conducted on 23rd, 24th and 25th of April 2019 by Senior Ecologist Scott Taylor PhD BSc (Hons).

The surveyed area was considered to be of relatively low ecological value overall. The area was considered to be of moderate to high value for nesting birds, with a number of nests noted during the survey. Some of the larger mature trees were considered to have low bat roost potential, with the other woodland and shrub areas considered to be of moderate value for foraging and commuting bats. Suitable habitat is present for badgers, amphibians and reptiles; however, due to the nature of the works it is considered that these species are unlikely to be significantly impacted.

Overall, the results of the PEA indicate that the proposed clearance works will have a low or negligible impact on protected species, primarily due to the nature of the works or the time of year in which works are anticipated to be undertaken. As a result, recommendations have made in relation to mitigation and compensation measures for both birds and bats, as well as appropriate removal and management of the invasive species present.

Providing the recommendations of this report are implemented in full, Naturally Wild would conclude that there will not be a significant impact to protected species or habitats as a result of the proposed works.

1 INTRODUCTION

Naturally Wild were instructed to undertake a Preliminary Ecological Appraisal (PEA) along the RDG2 Line which covers Wokingham Junction to Reading Railway Station (Figure 1). The main objective of the assessment was to determine the suitability of the site to support protected species and to check for any evidence of the presence of protected species, as well as the presence of any protected or notable habitats.

The proposed works involve carrying out extensive vegetation clearance on behalf of Network Rail on both sides of the railway line for a number of health and safety-related reasons, including improving train driver and track worker visibility, ensuring there are positions of safety for track workers, and removing any dangerous trees that could fall on the line. In accordance with Network Rail's environmental policy and relevant UK legislation, an ecological assessment is required to determine if any legally protected, UK Biodiversity Action Plan (BAP) or other notable species/habitats are likely to be affected by the proposed works, and to show how any negative ecological impacts would be mitigated and compensated.

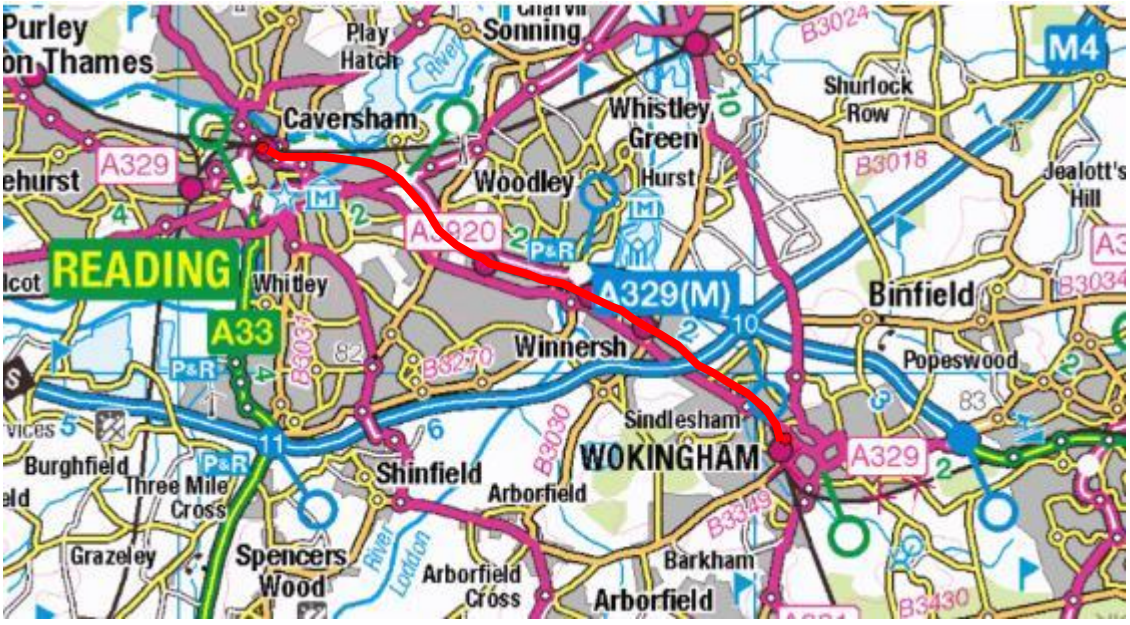

Figure 1. Site location plan. Red line shows the area of the proposed works.

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2 RELEVANT LEGISLATION

British wildlife is protected by a range of legislation, the most important being the Wildlife and Countryside Act 1981, the Countryside Rights of Way Act 2000 and The Conservation of Habitats and Species Regulations 2017. The Wildlife and Countryside Act, as amended mainly by the Countryside Rights of Way Act, protects species listed in Schedules 5 and 8 of the Act (animals and plants respectively) from being killed, injured, and used for trade. For some species, such as great crested newts and all bat species, the provisions of this act go further to protect animals from being disturbed or taken from the wild and protects aspects of their habitats. The Act also stipulates that offences occur regardless of whether they were committed intentionally or recklessly. The parts of this legislation that apply to most reptile species are in regard to killing, injury and trade only and do not protect their habitat, nor are they protected from disturbance or from being taken from their habitat.

The Conservation of Habitats and Species Regulations is the English enactment of European legislation and provides similar but subtly different protection for species listed on Schedules 2 and 4 of those regulations. A recent change in this legislation means that the provisions of this act now complement those of the Wildlife and Countryside Act more. Species to which these provisions apply are the European Protected Species. Activities that might cause offences to be committed can be legitimised by obtaining a licence from the relevant statutory body.

Further details on the legislation protecting species of British wildlife relevant to this assessment can be found in section 8.1 of this report.

3 METHODOLOGY

3.1 Overview

The PEA comprised of a desktop study and a site visit. The desktop study collated available public information regarding the biodiversity of the area, including the habitat structure of the site and surrounding area and the presence of any statutory or non-statutory designated sites, using the Multi-Agency Geographic Information for the Countryside (MAGIC) resource.

The objective of the survey was to ascertain if any protected species may be using the site, document the habitats present and determine any potential ecological risks during and following the completion of the works. The survey would be completed under suitable weather conditions and by an experienced ecologist. Further to this, the results of the desktop study and site survey would be assessed to determine the ecological impacts posed by the work, any additional survey work required, and how such impacts should be mitigated and compensated for.

The survey work and the preparation of this report has been conducted by Senior Ecologist Scott Taylor PhD BSc (Hons) who is experienced in protected species survey work. All survey and assessment work has been completed in line with official guidelines produced by Natural England and the Chartered Institute for Ecology and Environmental Management, and British Standard document BS 42020: 2013 *'Biodiversity – Code of practice for planning and development.'*

3.2 Survey Area

The assessment covered all habitats present within the Network Rail boundary between Wokingham Junction (SU 8068 6836) and Reading Station (SU 7144 7394), with particular focus on the areas to be cleared. In addition, although they will not be directly impacted by the works, all habitats within the immediate surrounding area were also visually assessed.

Figure 2. Location of the surveyed area. Proposed works area highlighted in red.

(Image taken from Google Earth Pro: ©2019 Map Data Google 2019)

3.3 Survey Constraints

The section of track south of Wokingham Station could not be accessed; however, the majority of habitats could be viewed from a pedestrian footbridge and footpaths in close proximity. In addition to this available satellite imagery of the area was also reviewed. Based on the survey findings that were still able to be gained, this was not considered to have been a significant constraint and has not impacted the survey objectives across the site.

3.4 Field Survey

3.4.1 Habitat Assessment

The survey was carried out on the 23rd, 24th and 25th of April 2019 and consisted of an assessment of the habitats on and adjacent to the site. The dominant vegetation structure was identified, where present, allowing the habitats to be classified. Following this, the habitats present were assessed for their suitability to support protected species and for the presence of any evidence of protected species.

3.4.2 Protected Species Risk Assessment

Based on the habitats present, the site was assessed with particular regard to determine the presence or otherwise of badgers (*Meles meles*), bats, dormice (*Muscardinus avellanarius*), great crested newts (GCN) (*Triturus cristatus*), nesting birds, and reptiles. An overview of the survey methods used is outlined below.

Badgers: An assessment of the site and surrounding habitats (where access was available), with particular focus on any areas of dense vegetation, was carried out in order to identify any evidence of badgers, including:

- the presence of any setts
- well-used runs/tracks
- supplementary evidence, such as hairs or prints
- badgers themselves

Bats: A preliminary ground level roost assessment of any trees on or directly adjacent to the site was carried out in order to identify the presence of any potential roost features (PRFs) for bats, such as split bark, woodpecker holes and other cavities for bats and/or evidence of roosting bats. All trees assessed were categorised in terms of their value in accordance with the Bat Conservation Trust (BCT) survey guidelines (Collins, 2016), shown in Table 1.

Table 1. Guidelines for assessing bat roosting potential of structures and trees.

Suitability	Habitat description	Further action required?
Negligible	Negligible habitat features on site likely to be used by roosting bats.	No further bat risk assessment effort or bat activity surveys are required.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	**Structures:** One bat activity survey is required to determine whether the structure is being utilised by roosting bats; this may be a dusk or dawn survey. This survey must occur between May and August. The discovery of a roosting bat during this single bat activity survey will require further survey effort.
	A tree of sufficient size and age to contain PRFs, but with none seen from the ground or features seen with only very limited roosting potential.	**Trees:** No further bat risk assessment effort or bat activity surveys are required.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection conditions and surrounding habitat, but unlikely to support a roost of high conservation status.	Two bat activity surveys are required to determine whether the structure or tree is being utilised by roosting bats; this should be comprised of one dusk and one dawn survey. One survey must occur between May and August.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three bat activity surveys are required to determine whether the structure or tree is being utilised by roosting bats; this should be comprised of one dusk and one dawn survey, with an additional survey (either dusk or dawn). Two surveys must occur between May and August.

Evidence of roosting bats includes: bat droppings in, around or below an entrance hole; staining around an entrance hole; small scratches around an entrance hole; audible squeaking at dusk or in warm weather; smoothening of surfaces around cavity or an entrance hole; distinctive smell of bats.

The bat risk assessment was completed using ladders, binoculars and a powerful torch. An endoscope was also available to check any small gaps/cracks for evidence of bats.

Dormice: An assessment of the site was carried out to determine its suitability for dormice in terms of the vegetation structure and species composition, along with identifying any evidence of dormice presence, such as characteristically chewed nuts, dormice nests or dormice themselves. The assessment was carried out with reference to current best practice guidelines (Bright *et al*., 2006).

Great Crested Newts: An assessment of the habitats present on the site was carried out in order to determine their suitability to support GCN and any natural or artificial refugia (such as logs, stones, discarded building materials etc.) present were also lifted to check for the presence of GCN.

Nesting Birds: The habitats on site were assessed to determine their suitability for nesting, with a check carried out for the presence of any active nests or any evidence of nesting behaviour.

Reptiles: The assessment for reptiles followed a similar methodology to that for GCN, with an assessment of the habitats present carried out to determine their suitability to support reptiles, and with any refugia lifted to check for the presence of reptiles or evidence of reptiles, such as sloughs (shed skins).

Other Wildlife: In accordance with good practice, the site was checked for the presence of any other protected/notable species, with particular regard to any other species highlighted in the desktop study.

Invasive Species: The site was also surveyed for the presence of any invasive, non-native flora or fauna.

4 RESULTS

4.1 Desktop Study

4.1.1 Designated Sites

One statutory designated site, Holt Copse and Joel Park Local Nature Reserve (LNR Ref No. 1009921), is situated adjacent to the site (location shown on Figure 4, below). The site occupies an area of 5.28 ha and predominantly comprises lowland mixed deciduous woodland and ancient semi-natural woodland. The site also supports a large noctule (*Nyctalus noctula*) roost. A further 19 statutory protected sites, comprised of 15 LNR's and four sites of Special Scientific Interest (SSSI's) are located within 5 km of the proposed works.

Due to the proximity and relatively limited scale of the proposed works, which comprise above-ground vegetation clearance within a defined area of Network Rail land only, it is considered that none of the designated sites will be directly impacted by the works. Whilst Holt Copse & Joel Park LNR lies closest to the proposed works, the site does not include land within the network rail boundary, so it is therefore considered that the site will not be directly impacted.

Table 2. Statutory and non-statutory designations in the areas surrounding the site.

Designation	Reference	Name	Area (ha)	Distance and direction from site
Local Nature Reserves (LNR)	1009921	Holt Copse & Joel Park	5.28	Adjacent to Site
	1008952	Highwood	15.23	0.25 km N
	1009373	Maiden Eriegh Park	10.15	0.76 km S
	1009010	Lavells Lake	12.45	1.6 km N
	1008744	Alder Moors	8.53	2.3 km N
	1009619	Ali's Pond	0.43	2.6 km NE
	1008844	Clayfield Copse	8.65	3 km N
	1009372	Lousehill Copse	13.03	3.5 km W
	1009628	Round Copse	1.66	3.9 km W
	1009374	McIlroy Park	11.98	3.9 km W
	1009009	Longmoor Bog	11.75	4 km SW
	1009623	Heath Lake	22.27	4 km SE
	1009369	Blundells Copse	5.55	4.1 km W
	1009622	Farley Copse	3.28	4.5 km E
	1009629	Temple Copse	1.91	5 km E
	1009322	Pearmans Copse	6.89	5 km W
Sites of Special Scientific Interest (SSSI)	1000495	Lodge Wood & Sandford Mill	2.33	2.4 km N
	1000943	Longmoor Bog	14.03	4 km SW
	1000699	Heath Lake	6	4 km SE
	1000510	Wykery Copse	3.2	4.8 km E

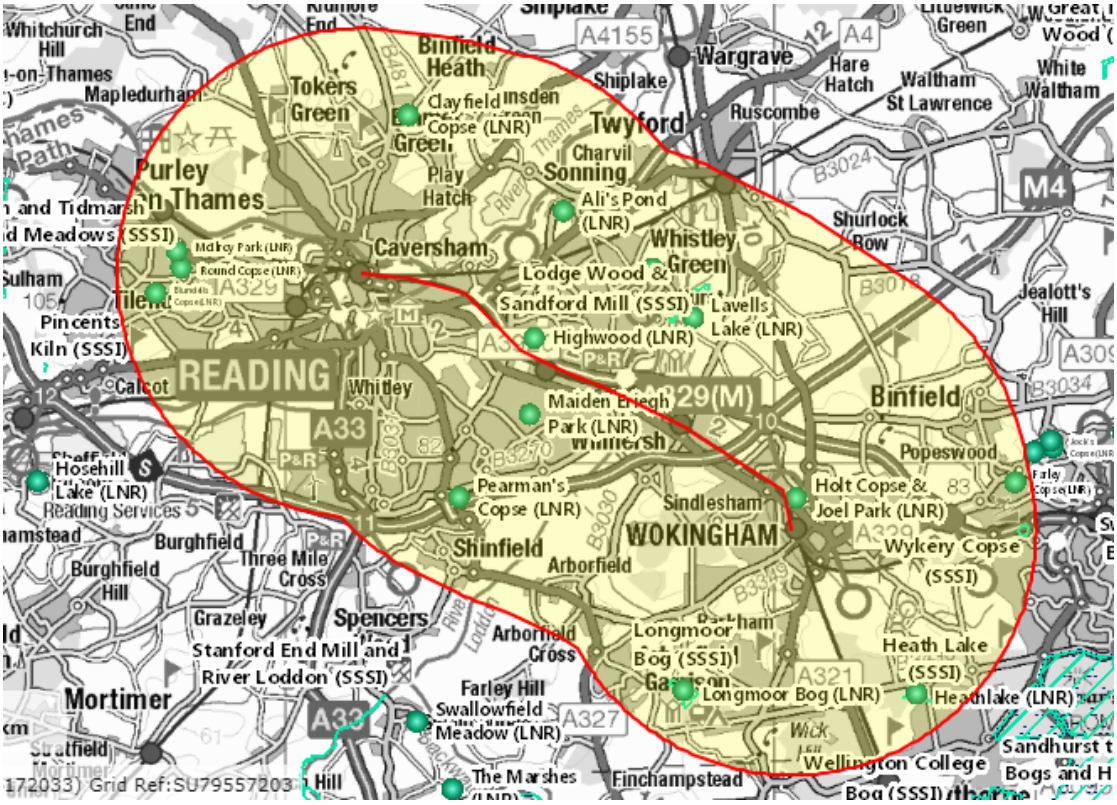

Figure 3. Location of the surveyed site in relation to the surrounding designated sites.

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In addition to designated sites, some UK BAP Priority Habitats are present adjacent to the clearance areas. Some areas of woodland within and adjacent to the Network Rail boundary are designated as Deciduous Woodland UK BAP habitat (areas shaded pale green on Figures 4, 5, 8 and 10, below).

Due to the relatively limited scale of clearance works in the areas where these habitats are present, it is expected that the vast majority of the Deciduous Woodland habitat will remain unaffected.

4.2 Site Assessment

4.2.1 On-Site Ecological Features

For ease of reference, the results of the site assessment have been presented below as a series of annotated figures. Discussion of any evidence of – and potential impacts to – protected or notable species is provided in section 4.3. The figures below are presented in a geographical sequence, running from east to west between Wokingham Junction and Reading Station.

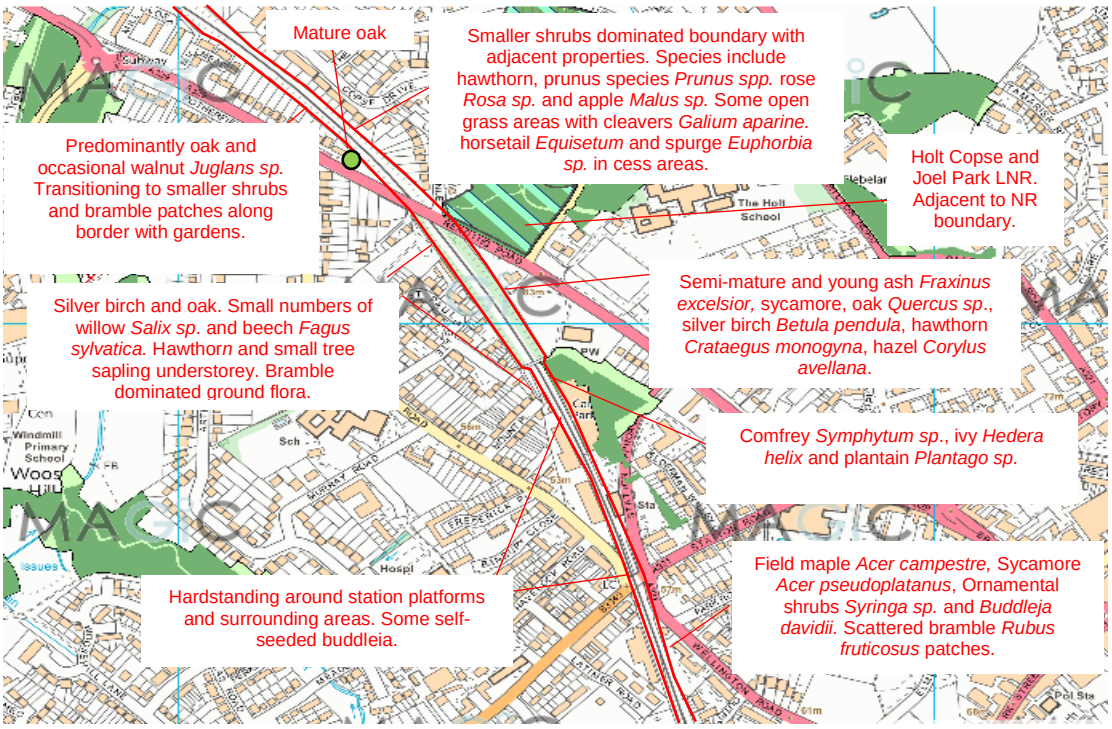

Figure 4. Survey results plan.

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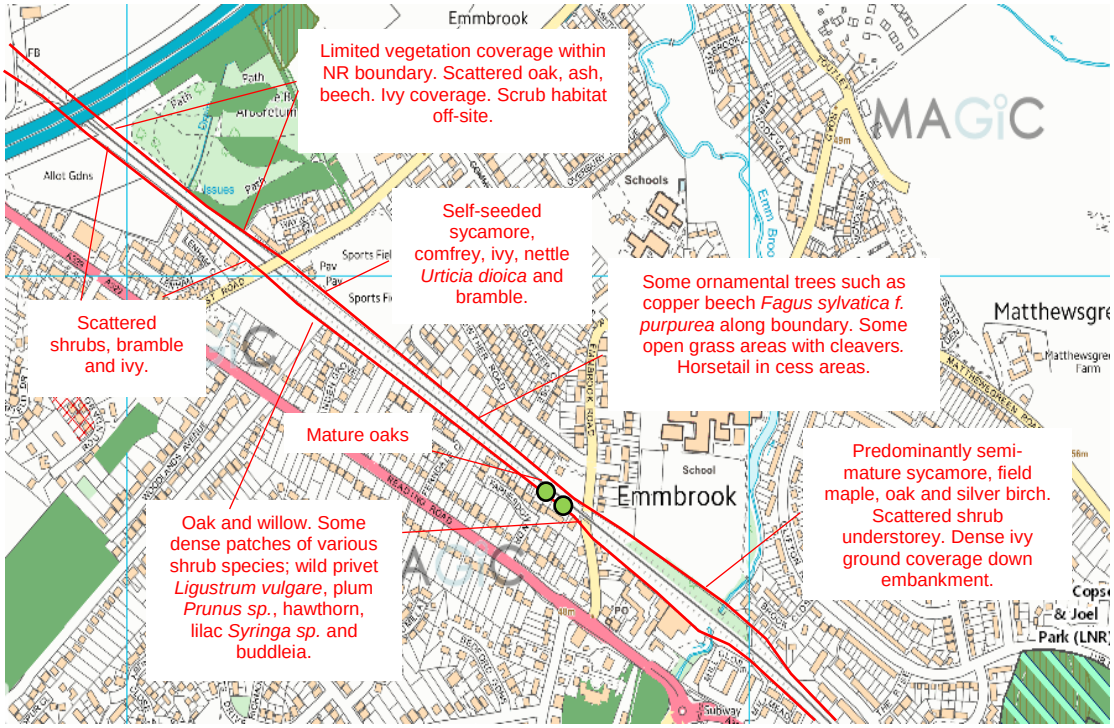

Figure 5. Survey results plan.

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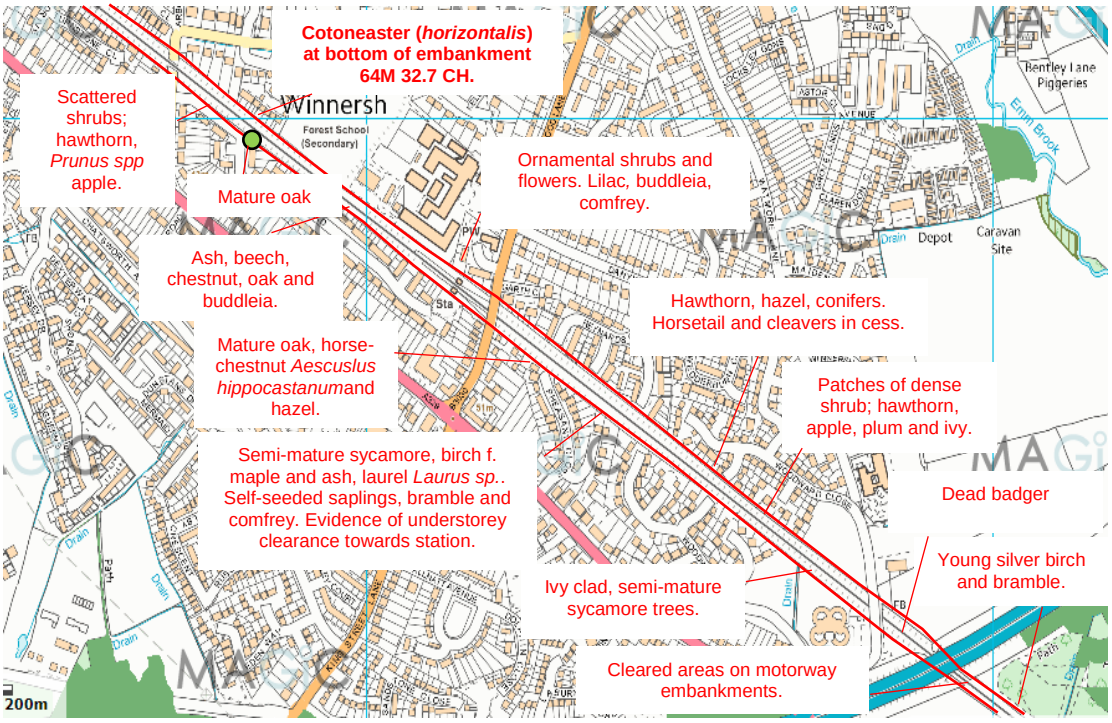

Figure 6. Survey results plan.

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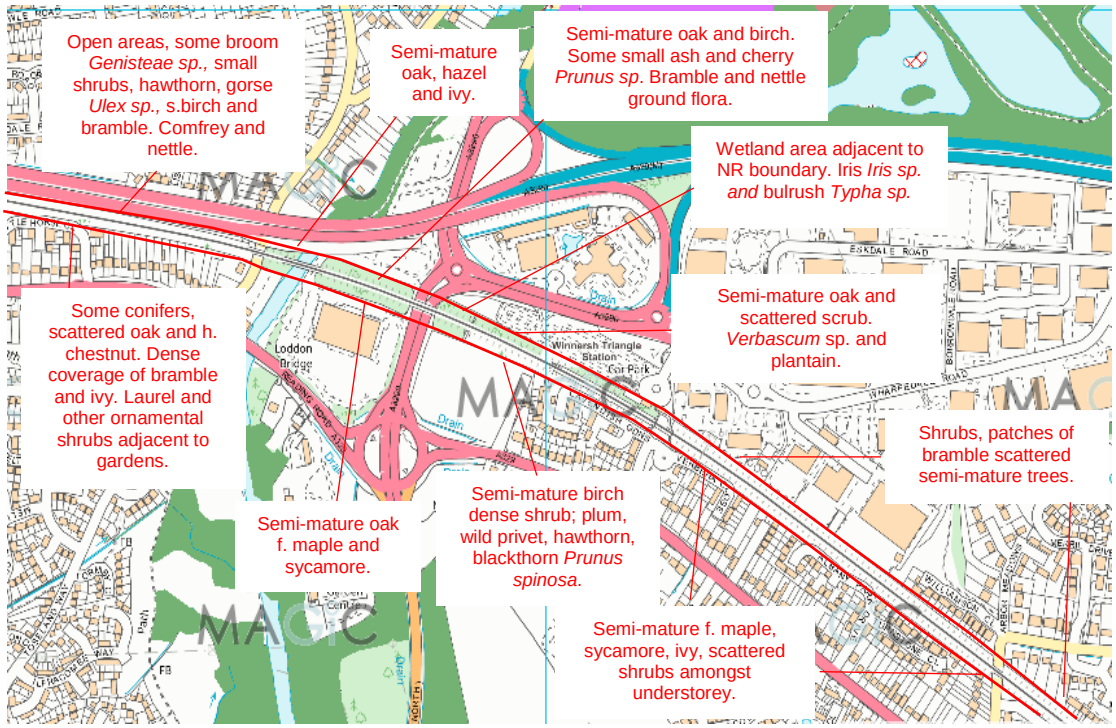

Figure 7. Survey results plan.

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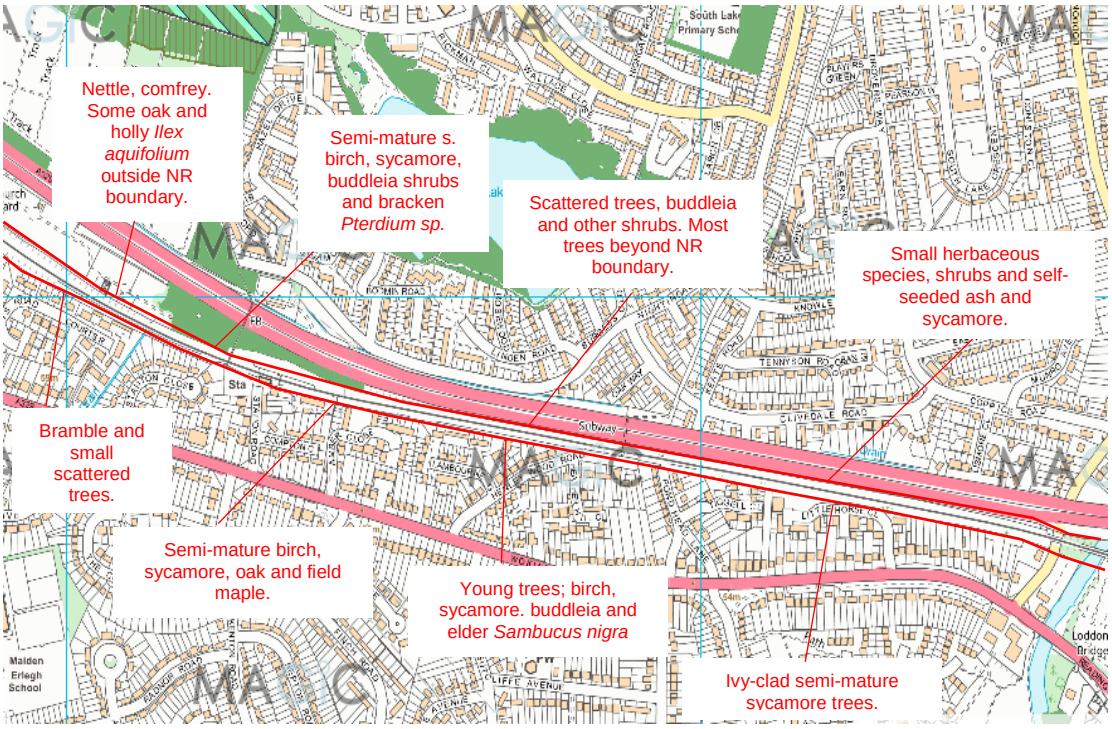

Figure 8. Survey results plan.

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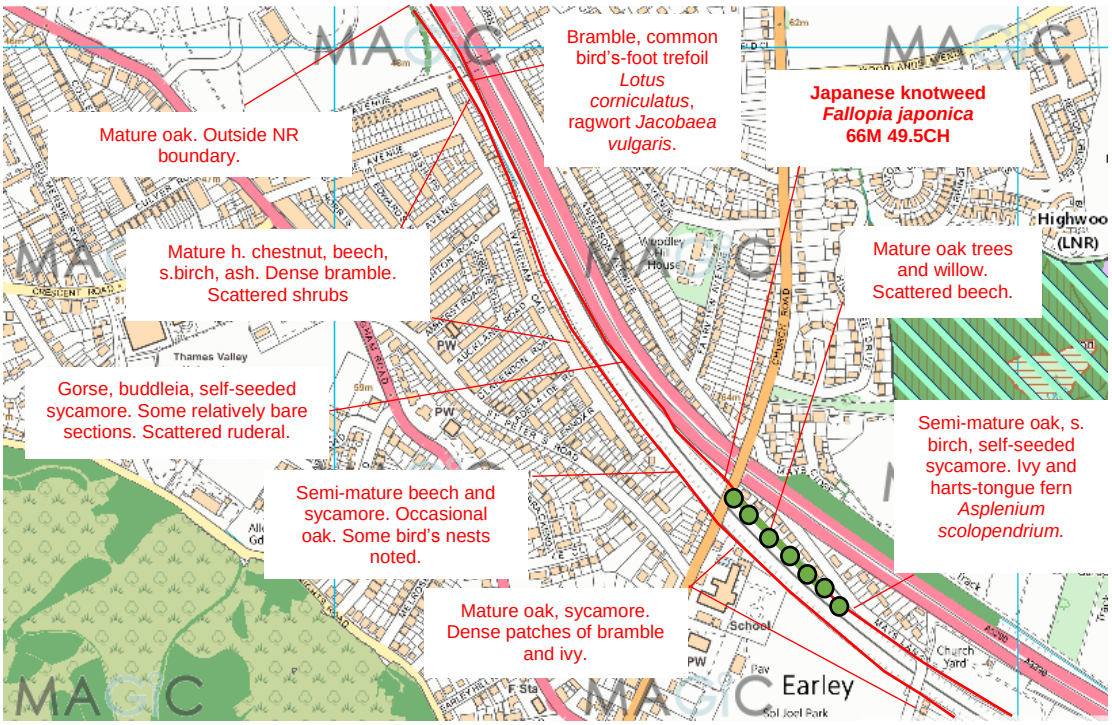

Figure 9. Survey results plan.

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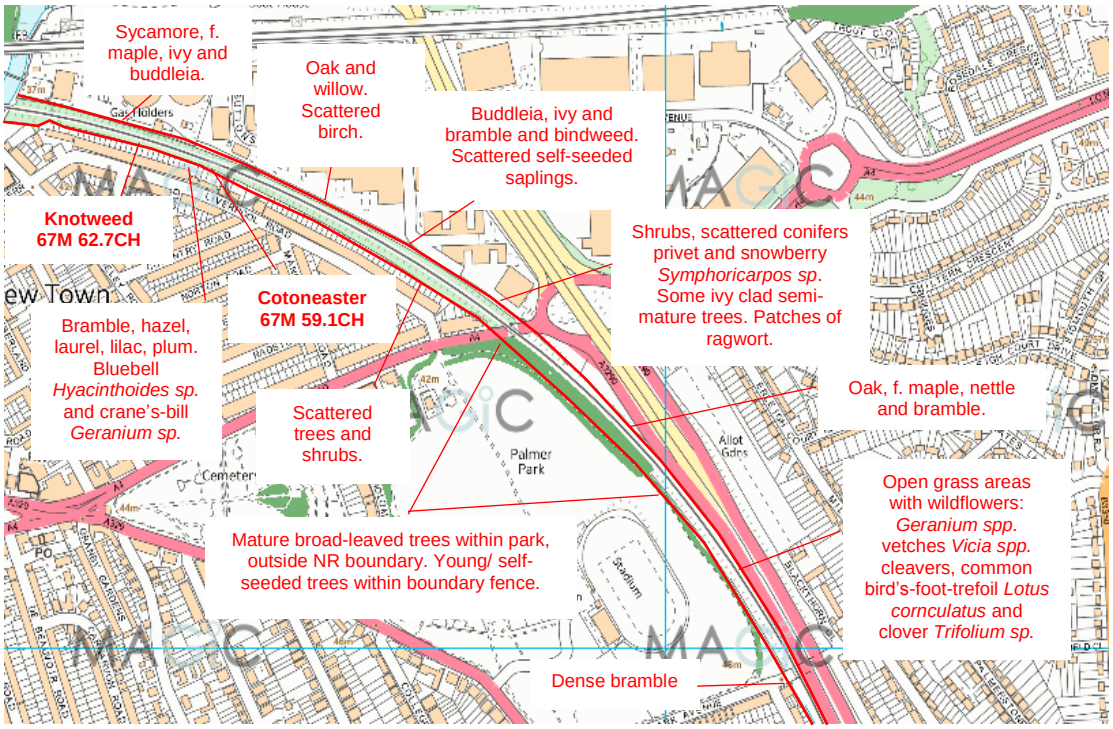

Figure 10. Survey results plan.

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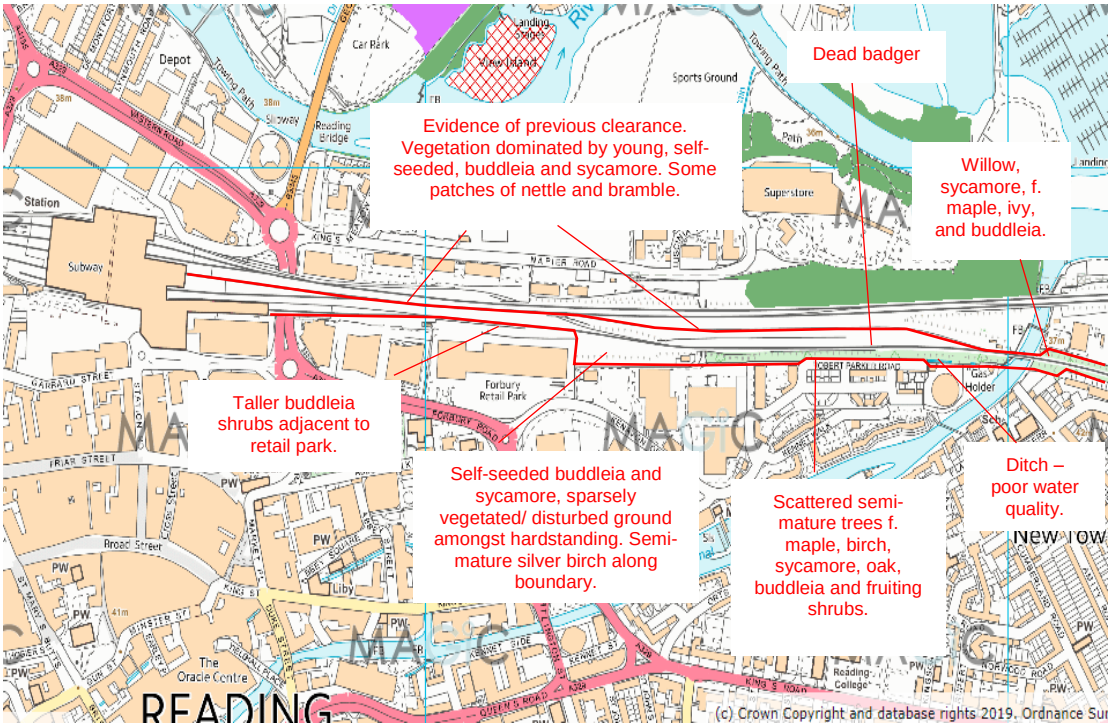

Figure 11. Survey results plan.

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4.2.2 Off-Site Ecological Features

The adjacent habitats largely comprised of built-up urbanised areas. Green areas were generally restricted to gardens, recreational grounds, parkland and allotments, although some scattered patches of woodland are present.

4.3 Protected Species

Badgers: The habitats adjacent to the line along a large proportion of the survey area were considered suitable for sett creation and foraging; however, despite this, no evidence of badger setts were recorded during the survey. One dead badger was observed on the tracks south east of Winnersh (see Figure 6), and east of Reading Station (Figure 11), confirming their presence within the wider area.

A number of mammal holes were recorded in certain areas, particularly towards Reading Station around the Forbes Retail Park and surrounding areas; however, these were all considered to be indicative of rabbit *Oryctolagus cuniculus*. Nonetheless, due to the nature of the works, which involves above-ground vegetation clearance only, no mammal holes (badger or otherwise) would be directly impacted by the works, with disturbance expected to be relatively limited overall. Therefore, overall, the clearance works are expected to have a negligible impact on badgers.

Bats: The majority of the vegetation within the clearance area was considered to be of negligible roosting value for bats, due to an absence of suitable PRFs. The dominance of young and semi-mature trees meant that many trees lacked the sufficient size and structure to support PRFs.
However, there were a number of mature trees that were assessed to be of 'low' value for roosting bats due to their size or covering of ivy, potentially obscuring PRFs (see Figures 4 – 11 for approximate locations of mature trees). A number of mature oak trees near Earley (Figure 9) had some PRFs in the form of small knotholes on some of the upwards extending limbs; however, from what could be observed at ground level these appeared sub-optimal due to being relatively shallow or its aspect increasing the likelihood of water ingress. A large number of semi-mature trees within the survey area were ivy-clad, but many of these were very heavily clad, to the point where the covering of ivy is likely to completely cover any potential PRFs that could be present, rendering them unusable for bats.

The habitats within the railway boundary that predominantly comprised of well-established trees and shrubs offers suitable commuting and foraging habitat. As clearance works within this area will only be carried out up to 6 m from the running rail, it is expected that, although some trees and shrubs will be lost, including some mature trees, the vast majority of existing habitat will be retained and remain largely unaffected by the works. Overall, providing appropriate mitigation measures are implemented, the works are expected to have an overall low impact on bats.

Great Crested Newts: One waterbody was identified within the clearance area and comprised of a small ditch located at the bottom of the embankment east of Reading Station (Grid Reference SU 7287 7327, Image 13 in section 6). However, the ditch was found to be of very low value for GCNs, with low water levels, poor water quality and a lack of suitable vegetation for egg-laying. In addition, there were a general lack of ponds within the surrounding area. Of those that were present, major roads or built-up urbanised

areas created significant barriers to dispersal, resulting in a lack of connectivity between the site and the ponds.

Suitable terrestrial habitat is present within the rail boundary; however, hibernacula suitable for hibernating and sheltering were limited and sub-optimal. In addition, the nature of the works, comprising above-ground vegetation clearance carried out over winter, is highly unlikely to result in any significant impacts to GCNs in the low likelihood that they are present.

Overall, due to a combination of the above factors, it is expected that the works will have a negligible impact on GCNs.

Dormice: The site was assessed to be of overall low value for dormice during the site walkover due to presence of some suitable habitat, particularly the areas supporting an abundance of hazel within the understorey for foraging and nesting, located around Winnersh. However, the woodland areas overall were considered to have a sub-optimal species composition relative to that which is normally required by dormice and a generally inconsistent habitat structure to offer any higher value habitat. In addition to the above, suitable connectivity to adjacent habitats is generally significantly restricted due to the presence of built-up and urbanised areas. Areas of parkland, recreational ground and the small areas of woodland present in close proximity to the track in some areas, were all considered to be sub-optimal at best.

Some small mammal feeding remains were observed, but were considered to be indicative of squirrel *Sciurus carolinensis* and wood mouse *Apodemus sylvaticus*. Overall, it is considered that the proposed works are unlikely to impact dormice.

Nesting Birds: Suitable bird nesting habitat was consistently present throughout the survey area (Figures 4 – 11), with the mixture of mature and semi-mature trees, dense patches of bramble and shrub vegetation creating nesting opportunities for a range of species. The survey was carried out within the nesting season and a number of nests were observed both within and immediately adjacent to the clearance areas.

Although the works will result in the temporary or permanent loss of vegetation within the clearance area, the loss is considered to be somewhat minor relative to that within the railway boundary as a whole and that which will be retained. In addition, the works are planned to be carried out outside of nesting bird season, meaning that no nesting birds will be directly impacted.
Overall, providing suitable mitigation measures are implemented, the works are expected to have a low impact on nesting birds.

Reptiles: Although some suitable areas of reptile habitat were present within the clearance areas, in the form of some areas of grassland and adjacent scrub, the predominant vegetation generally comprised trees and shrubs, resulting in a lack of suitable basking opportunities. The adjacent habitats also generally comprised of those which tend to be unsuitable or sub-optimal for reptiles, predominantly comprising built-up urbanised areas. Other than built-up and urbanised areas, adjacent green areas were largely restricted to recreational grounds, parkland and allotments, all of which were considered to be of negligible to low

value due to consistent management/disturbance, which reduces the likelihood of reptiles being present by limiting connectivity between the railway corridor and areas of suitable reptile habitat.

In addition, the nature of the works, comprising above-ground vegetation clearance over late autumn/ winter months, will carried out when reptiles are hibernating below ground or in suitable shelter, reduces the likelihood that reptiles will be directly impacted by the works, if present. Overall, the works are expected to have a negligible impact on reptiles.

Other species: European hedgehog *Erinaceus europaeus* may be present within the works area. The nature of the works, comprising above ground vegetation clearance, are unlikely to impact hedgehogs directly.

4.4 Invasive Species

A number of invasive, non-native species, including Japanese knotweed, wall cotoneaster and buddleia, were recorded. Some shrubs within the denser areas were also considered likely to be snowberry. Japanese knotweed and wall cotoneaster are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), which makes it illegal to plant or otherwise cause them to grow in the wild. Observed locations and chainage of the Schedule 9 species are outlined on Figures 6, 9 and 10. Buddleia is present along the majority of the track areas, with some shrubs considered likely to be snowberry also noted throughout. Whilst buddleia and snowberry are not listed on Schedule 9, they are considered as invasive species nonetheless and can have a significant negative ecological impact on areas that they colonise.

Without appropriate mitigation, management of these species could lead to their spread within the railway boundary and into adjacent habitat. This is likely to have a significant negative ecological impact, as well as potentially leaving Network Rail liable to potential legal action from adjacent landowners with regard to the Schedule 9 species.

5 CONCLUSIONS AND RECOMMENDATIONS

The surveyed area was considered to be of relatively low ecological value overall. The area was considered to be of moderate to high value for nesting birds, with a number of nests noted during the survey. Some of the larger mature trees were considered to have low bat roost potential, with the other woodland and shrub areas considered to be of moderate value for foraging and commuting bats. Suitable habitat is also present for badgers, amphibians and reptiles; however, due to the nature of the works it is considered that these species are unlikely to be significantly impacted. Following the site assessment and in review of the findings, Naturally Wild would recommend the following:

5.1 Mitigation Measures

- Based on the survey findings and nature of the proposed works, badgers are considered unlikely to be significantly impacted; however, if any mammal holes are recorded by on-site operatives in areas where any mature trees are due to be felled, Naturally Wild should be contacted for advice and may need to carry out an update site visit to confirm the presence or otherwise of badgers on site.
- Although some areas of the site were considered to provide suitable commuting and foraging habitat for bats, the works will be carried out over the late autumn/ winter, when bats are hibernating or generally less active. However, if the works extend into the spring and if any night works are required, any artificial lighting used should be installed to minimise any unnecessary spill and subsequent disturbance to commuting and foraging bats in the area.
- In addition, a number of mature trees were assessed to be of low value for roosting bats (see green circles on Figures 4 – 11 for approximate locations), although no further survey effort is required on the trees, it is recommended that those that are highlighted in the results section, alongside those with a moderate coverage of ivy, are felled using a ‘soft fell’ approach in accordance with good practice.
    - This would require any limbs or sections of trunk that have cavities or PRFs within them in them lowered carefully to the ground and left for a 24-hour period to allow any bats to escape, in the unlikely event that they are present. The felled sections can then be removed from site or retained has habitat piles for invertebrates.
- The vast majority of the works are due to take place outside of the nesting season and, therefore, it is expected that the work can be carried out without having a significant impact on nesting birds. However, if the works carry on into the nesting season, it is recommended that a follow-up nesting bird inspection (or series of inspections) is carried out on the remaining vegetation to be cleared, to ensure that no active nests are present.
    - Any vegetation to be cleared within the nesting season should have been surveyed for nests within the previous 48 hours prior to clearance; therefore, depending on the amount of remaining clearance work required, a series of follow-up inspections may be required.
    - In the event that any active nests are encountered, a suitable exclusion zone (minimum of 5 m) should be placed around the nest, with no clearance work taking place in this area until the nest can be confirmed as no longer active, after which the exclusion zone can be removed and the area can be cleared.

- Several invasive, non-native plant species were recorded within and adjacent to the clearance areas. It is not a legal requirement to remove these plants or control them within the land owned by Network Rail (https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants); however, in order to avoid any contravention of current legislation or long-term liability relating to their spread onto adjacent land, it is recommended that plant material or soil from the Japanese knotweed and cotoneaster that may be removed as part of the works should be properly removed off site by a registered waste carrier for disposal at a landfill site that is authorised to accept invasive plant material.
    - In addition, due to its potential to have a significant negative impact both ecologically and structurally, it is recommended that a full treatment programme is carried out to eradicate the Japanese knotweed from the areas where it is present.
    - Naturally Wild can provide details of suitable treatment options, if required. In the long term, it would be desirable from both an ecological and infrastructure perspective to fully treat and remove all of the invasive, non-native species present, if feasible to do so.

5.2 Compensation/ Enhancement Measures

- As the habitat to be lost is being removed for health and safety reasons and the areas will be maintained as vegetation-free, it is not considered appropriate to provide compensatory planting within the relatively limited areas of railway land available. However, nesting and roosting habitat for birds and bats could be maintained and enhanced by installing a series of bird and/or bat boxes.
    - It is recommended that any boxes to be installed are located in areas of existing suitable nesting, roosting and foraging habitat for both species, which would primarily be the woodland and parkland areas off site.
    - More detailed guidance on the installation of boxes is readily available, but Naturally Wild can provide this, if required.

Providing the recommendations of this report are implemented in full, Naturally Wild would conclude that there will not be a significant impact to protected species or habitats as a result of the proposed works.

6 SITE IMAGES

Image 1. Short grassland areas north of Wokingham Station.

Image 2. View north from Wokingham Station to Reading road bridge.

Image 3. View south towards Reading road bridge.

Image 4. Section of scattered shrubs outside of Winnersh.

Image 5. View north towards Winnersh Station.

Image 6. View south west of Winnersh Station.

Image 7. View north west from Winnersh Station towards Winner.sh Triangle.

Image 8. Cotoneaster located near Winneresh Forest School.

Image 9. View north west Winnersh Triangle.

Image 10. Section after bridge over River Lodden.

Image 11. Section south of Earley Station.

Image 12. Section north of Earley Station.

Image 13. Ditch at bottom of embankment near River Kennet.

Image 14. Section south of Earley Station.

Image 15. Previously cleared areas near Forbes Retail Park.

Image 16. View towards Reading Station.

Image 17. Knotweed stems noted at 67M 62.7CH.

Image 18. Knotweed stems noted at 66M 49.5CH.

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8 APPENDICES

8.1 Additional Information for the Legislation of Other Protected Species

Badgers: The badger is geographically widespread across the UK; however, they are still vulnerable to baiting, hunting and detrimental impacts of development to their habitat. Both the badger and its habitat are protected under The Protection of Badgers Act 1992, Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) an Appendix Three of the Bern Convention. Therefore, badgers have legal protection against deliberate harm or injury and it is an offence to:

- Interfere with a badger sett by damaging or destroying it
- Kill, injure, take or possess a badger
- Cruelly ill-treat a badger
- Obstruct access to a badger sett
- Disturb a badger whilst it is in a badger sett

Bats: All British bat species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are therefore afforded protection under Section 9 of this Act. In addition, all bat species are listed in Schedule 2 of The Conservation (Natural Habitats, &c.) Regulations 1994 (SI 1994 No. 2716) (as amended) (known as the Habitats Regulations) and are therefore protected under Regulation 39 of the Regulations. These Regulations make provision for the purpose of implementing European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992, under which bats are included on Annex IV. The Act and Regulations makes it an offence, *inter alia,* to:

- Intentionally kill, injure, take (handle) or capture a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not) - under the Habitats Regulations it is an offence to damage or destroy a breeding site or resting place of any bat; or
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection - under the Habitats Regulations it is an offence to deliberately disturb a bat (this applies anywhere, not just at its roost) in such a way as to be likely to affect its ability to survive, breed, reproduce, rear or nurture their young or hibernate.

Further details of the above legislation, and of the roles and responsibilities of developers and planners in relation to bats, can be found in Natural England's Bat Mitigation Guidelines (Mitchell-Jones, 2004).

Dormice: Dormice are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are therefore afforded protection under Section 9 of this Act. In addition, dormice are listed in Schedule 2 of The Conservation (Natural Habitats, &c.) Regulations 1994 (SI 1994 No. 2716) (as amended) (known as the Habitats Regulations) and are therefore protected under Regulation 39 of the Regulations. These Regulations make provision for the purpose of implementing European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992, under which dormice are included on Annex IV. The Act and Regulations makes it an offence, *inter alia,* to:

- Intentionally kill, injure or take a dormouse

- Possess or control any live or dead specimen or anything derived from a dormouse (unless it can be shown to have been legally acquired)
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a dormouse.
- Intentionally or recklessly disturb a dormouse while it is occupying a structure or place which it uses for that purposes.

Nesting Birds: Birds receive protection under the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly kill, injure or take any wild bird; take, damage or destroy a nest of a wild bird whilst it is in use or being built; or to take, damage or destroy an egg of a wild bird. The bird-nesting season is defined as being from 1st March until 31st August with exceptions and alterations for some species.

Great Crested Newts: Great crested newts are a European Protected Species, listed on Annex II and IV of the EEC Directive on the Conservation of Natural Habitats and Wild Fauna and Flora, receiving protection under Schedule 2 of The Conservation of Habitats and Species Regulations 2017. This species is also afforded full protection under the Schedule 5 of the Wildlife and Countryside Act 1981. Under such legislation it is an offence to:

- Intentionally or recklessly* kill, injure or capture a great crested newt;
- Possess or control any live or dead specimen or anything derived from a great crested newt;
- Intentionally or recklessly* damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt; and
- Intentionally or recklessly* disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.
- Damage or destroy a breeding site or resting place.
- Sell, barter, exchange or transport or offer for sale great crested newts or parts of them.

**Reckless offences were added by the Countryside and Rights of Way Act 2000, which applies only to England and Wales.*

To undertake surveys for great crested newts it is necessary to hold an appropriate licence issued by Natural England.

Reptiles: All native British species of reptile (of which there are 6) are listed on Schedule 5 of the Wildlife and Countryside Act 1981 and, as such, are protected from deliberate killing, injury or trade. Therefore, where development is permitted and there will be a significant change in land use, a reasonable effort must be undertaken to remove reptiles off site to avoid committing an offence. The same Act makes the trading of native reptile species a criminal offence without an appropriate licence.