

Invasive Non-native Species Management Plan



Shire Hill Residential Development, Glossop, Derbyshire, SK13 7QP

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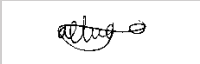
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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

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Revision History

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1 Introduction

1.1 Background and Survey Objectives

ADAS was commissioned by Cube Homes Ltd to compile an invasive non-native species (INNS) management plan following a recommendation from the Preliminary Ecological Appraisal (PEA) completed by ADAS in July 2022. The site contains the former Shire Hill Hospital and associated grounds located off Bute Street, Glossop, Derbyshire, SK13 7QP. This report will inform a planning application to construct a 30-unit residential development and associated landscaping.

The Preliminary Ecological Appraisal (ADAS, 2022) confirmed the presence of multiple INNS in the area including Japanese Knotweed (*Reynoutria japonica*), Rhododendron (*Rhododendron ponticum*) and Small-leaved Cotoneaster (*Cotoneaster microphyllus*).

This document sets out the findings of a PEA survey undertaken by ADAS on the 28th July 2022 to confirm and map the distribution of INNS present and inform the preparation of a Management Plan with the aim of eradication of INNS from the site and that adequate controls are maintained, both during and after development to prevent their spread off site.

The management plan should be maintained as a live file on site, under the designated responsibility of the site manager. Space is provided in the Appendix for the appropriate additional documentation to be inserted.

1.2 Site Description

The proposed development site covered approximately 1.5 ha and comprised the former Shire Hill Hospital and associated grounds. It is understood that Shire Hill Hospital closed in 2018 and has therefore experienced no recent or ongoing management and maintenance of the structures or vegetation which comprise the grounds. Since the closure of the hospital, the site has experienced 24-hour security by an onsite guard and dog handler. The former hospital site consisted of a number of buildings flanked by hardstanding, grassland and scattered semi-mature and mature trees within the wider grounds. In addition, a small area of deciduous woodland was present in the northern section of the proposed development boundary, associated with an historic quarry. The site is located towards the northern border of Glossop, a market town in Derbyshire, on the boundary of the Pennines and Peak District National Park, bounded by residential developments to the south and east and expanses of agricultural land to the north and west.

The proposed development site and ownership boundary in context of the wider landscape can be seen in Figure 1 below.



Figure 1: The proposed development site (indicated by the red line) and ownership boundary (indicated by the blue line). Imagery taken from OS Mapping (ADAS Mapping Tool, July 2022).

1.3 Legislation

Section 14(2) of the Wildlife and Countryside Act 1981 (WCA 1981) states that “if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence.” Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster are all plants listed in Schedule 9. Providing the recommendations and Management Plan set out below are adopted, there should be no legal issues with respect to the development and the above listed INNS on site.

1.4 Description of the Proposed Development

The proposed development plans involve the demolition / refurbishment of all existing structures on site to facilitate the erection of a 30-unit residential development and associated landscaping. Existing access to the site from Bute Street and Blackshaw Clough will be retained and widened where required. A significant number of mature trees present within the main body and along the boundaries of the site will be retained, as well as the majority of the existing deciduous woodland and sections of grassland.

However, it is anticipated that the removal of trees, scrub and a proportion of the woodland / grassland to some extent on site will be required.

2 Methodology

The site was systematically searched for INNS during the PEA (ADAS 2022) and where found, the extents of these species mapped (Appendix 1). Where possible, land immediately adjacent to the site boundary was also visually searched for the presence of INNS.

3 Results

3.1 Survey Findings

Three species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), were recorded during the survey. A single stand of Japanese Knotweed was identified in the south-western corner of the site (Appendix 2: Photograph 1) with Rhododendron also confirmed present adjacent to the main entrance off Bute Street (Appendix 2: Photograph 2). In addition, Small-leaved Cotoneaster was present abundantly within the central area of mixed scrub on site (Appendix 2: Photograph 3). Management recommendations have been made for Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster. A map displaying the extent and distribution of INNS on and adjacent to the site is shown in Appendix 1 and Photographs can be found in Appendix 2.

3.2 Survey Limitations

Although carefully surveyed, the mapped stands of INNS are indicative only and should not be interpreted to show the precise location or extent of the species.

Additional plants may be present on site outside of the mapped stands but are scattered at lower frequency.

4 Management Plan

4.1 Site Management Objections

Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster on site should be managed so that site clearance, construction and ongoing management of the site may proceed in line with current legislative requirements and good practice. The Management Plan set out below aims to achieve the following objectives:

- Eradicate Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster from the site prior to site clearance and construction;
- Prevent spread of the Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster on- and off-site during the clearance and construction phases;
- Use eradication methods which protect existing features of ecological value on site; and
- Ensure Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster does not re-establish on site in the years after construction.

4.2 Limitations and Threats to Site Management Objectives

4.2.1 Japanese Knotweed

Japanese Knotweed is a fast-growing and strong clump-forming perennial, with tall, dense annual stems. Stem growth is renewed each year from the stout, deeply-penetrating rhizomes. Japanese Knotweed mainly spreads vegetatively, from fragments of its rhizome/roots being moved from one location to another. This often happens when soils close to knotweed plants are dug and moved elsewhere. Although originally introduced to Britain as an ornamental garden plant, Japanese Knotweed is now classed as an INNS.

One single stand of Japanese Knotweed was identified in the south-western corner of the site. Spraying or injecting the stems with chemicals can be an effective treatment to stop this species spreading. Re-spraying will be required over a minimum period of 3 years to effectively eradicate this species as rhizomes can remain dormant in the soil for many years and will regrow if disturbed or if the soil is relocated. Any excavated material must be disposed of at a licensed landfill. Burying and burning the plant material on site is also an option.

4.2.2 Rhododendron

Rhododendron is a non-native shrub that has been cultivated and widely planted in gardens and woodlands since Victorian times. It has since spread extensively into the wild where it out-competes nearly all native trees and shrubs. Rhododendron was found on site adjacent to the main entrance off Bute Street. There are many ways to control and eradicate this species, often in combination, which can

include the following: hand cutting, chemical treatments of the stumps, stem injection, spraying regrowth, mechanical flailing and uprooting.

4.2.3 Small-leaved Cotoneaster

Small-leaved Cotoneaster can dominate areas, outcompeting native flora by forming extensive root systems which make it difficult to remove. The seeds are spread over large areas by birds as they feed on the berries. Young seedlings can be effectively pulled; however, more established stands that develop multiple stems from the large root mass, are more difficult to remove. The stands found on site are all mature plants and well established and therefore the most effective way to remove this species would be to excavate the root system, remove the contaminated material and dispose of at a licenced landfill for controlled waste. Chemical methods of control include spraying plants with a glyphosphate-based herbicide and treating cut stumps of larger plants to prevent regrowth. Small-leaved Cotoneaster was present abundantly within the central area of mixed scrub on site.

4.3 Responsibilities

The management plan has been prepared by ADAS on behalf of Cube Homes Ltd.

Responsibility for providing advice to Cube Homes, and for identifying the presence and extent of the INNS lies with ADAS.

Responsibility for the execution of plan, briefing of construction staff and commissioning of any monitoring or additional control measures that may be required will remain with Cube Homes.

A copy of this management plan and any supplement shall be retained by Cube Homes and provided to the site manager (who will be responsible for any INNS management required during construction), and to the end user responsible for overseeing the development post construction.

4.4 Management Priorities

- Eradicate known stands of Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster on site;
- Prevent further spread of Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster on site;
- Prevent spread of Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster to off-site land; and
- Devise and agree an on-going monitoring programme for Japanese Knotweed, Rhododendron and Small-leaved Cotoneaster to eradicate new young plants before they can flower.

4.5 Management Options and Proposed Methodology

4.5.1 Japanese Knotweed

Japanese Knotweed can be eradicated correctly by the use of chemical treatments with appropriate disposal. Mechanical methods such as hand pulling are sometimes used when infestations of Japanese Knotweed are small in size and newly established. As this site only contains one stand of Japanese Knotweed, this method could be used. The following methods are recommended to eradicate Japanese Knotweed;

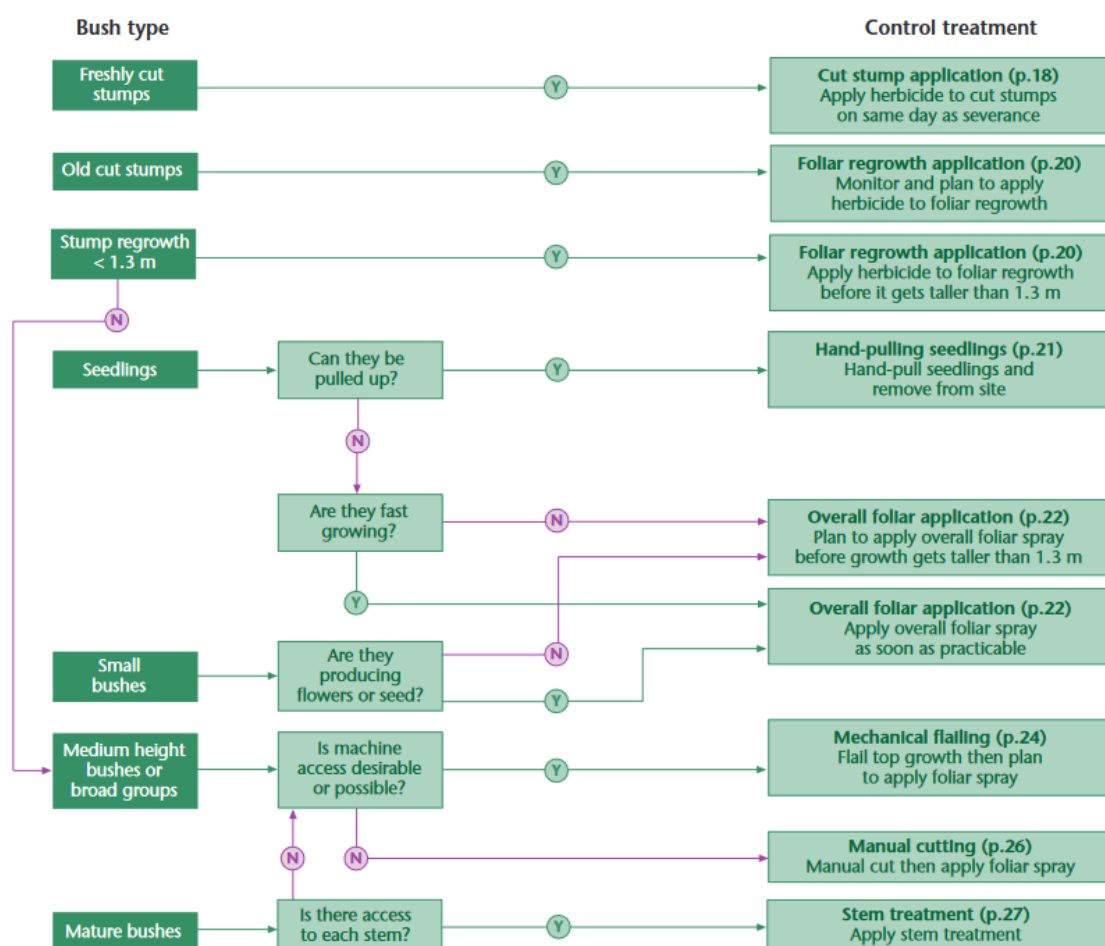
- Chemical Application – Glyphosate must be injected into the stems or sprayed onto the entire plant in late summer/early autumn (August to October) after the plant has flowered. Applying glyphosate earlier in the year may stunt growth, but it will not kill the plant. Large mature stands of Japanese Knotweed will need to be treated for two or three years to achieve eradication. It is important that glyphosate is applied during dry weather and not during windy or rainy conditions. Young growth of Japanese Knotweed should be chemically treated in May or June.
- Excavating – Small stands of Japanese Knotweed can be dug up and disposed of at an appropriate licensed landfill; however, this method can easily cause new regrowth and is often used in combination with herbicide treatment.
- Offsite Disposal – Japanese Knotweed is classed as ‘controlled waste’ and as such must be disposed of safely at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991 (see “Legislation”). Soil containing rhizome material can be regarded as contaminated and, if taken off a site, must be disposed of at a suitably licensed landfill site. Once the plant has died, all ground vegetation, rhizomes, soil and crowns can be removed offsite to a licensed waste disposal landfill.
- Onsite Burial - On site burial of the dead plant material is also an option if a suitable area for burial can be agreed with the local council and site manager. A semi-permeable membrane should be placed in the areas of excavation and disposal to ensure no parts of Japanese Knotweed is spread during the process of transportation. Once the material has been dried out and deposited into the burial site, it should then be covered with a root barrier membrane and buried at least 5 metres deep with inert fill or topsoil. This area should be accurately mapped and recorded to prevent potential disturbance and re-infestation, and that any future landowners are advised of its position.

It is worth noting that a combination of chemical and mechanical techniques, in conjunction with on-going monitoring, provides the most effective control of this species.

4.5.2 Rhododendron

The safest and most efficient methods of controlling Rhododendron depend on the size, life stage and accessibility of the target bush. In general, stem treatment with Glyphosate is the most effective and efficient method of killing large rhododendron bushes. Small bushes are easily treated, but chemical sprays cannot be applied safely to larger bushes, which must therefore be reduced in size before a safe application of herbicide can be given. There are two main ways to reduce bush size: using a mechanical flail or by manual cutting. See Figure 2 below which outlines the control methods which can be used depending on the size of the stump / bush. Chemical methods of control include spraying plants with a glyphosphate-based herbicide and treating cut stumps of larger plants to prevent regrowth.

Figure 2: Recommended control methods for bushes of a specific size (Forestry Commission, 2023).



4.5.3 Small-leaved Cotoneaster

Cotoneaster species can be eradicated effectively through methods listed below:

- Mechanical methods of control comprise pulling young seedlings and excavating the root mass. Any material from the Cotoneaster/containing Cotoneaster waste must be bagged/chipped/burnt on site or removed to licenced landfill as controlled waste.
- Chemical methods of control include spraying plants with a glyphosphate-based herbicide and treating cut stumps of larger plants to prevent regrowth.

It is worth noting that if removal of Small-leaved Cotoneaster is undertaken over the winter months, outside of active growing season, then plants can be controlled by cutting and then treatment of the cut stump. If removal is undertaken over spring and summer months, then herbicide may be applied directly to the plant's leaves. If berries and seeds are present, the plant should be bagged and sealed prior to removal to minimise the risk of seeds spreading across or off the site.

4.6 Timing of Works

4.6.1 Japanese Knotweed

Chemical treatment of Japanese Knotweed should be undertaken at the end of summer and beginning of autumn as this is likely to absorb more of the herbicide, especially down to the rhizome and therefore increasing the effectiveness of the treatment. Applying Glyphosate should also be undertaken during dry weather, avoiding windy and wet conditions.

The monitoring programme should be used to identify if and when additional control is required, in response to any new INNS growth and establishment.

4.6.2 Rhododendron

To control Rhododendron, herbicides must be applied on the same day as stem cutting, in frost-free and rain-free conditions and when rain is not forecast for at least six hours. Applications immediately after cutting have a much greater chance of success. Delayed applications will be less effective, particularly with glyphosate. Applications during spring (March and April) and autumn (October) are the most successful.

4.6.3 Small-leaved Cotoneaster

Removal of Small-leaved Cotoneaster can be undertaken at any time of year; however, it is advised that removal/treatment should be undertaken outside of breeding bird season (October – March inclusive). The site should be monitored for INNS and the eradication programme continued until there are no signs of regrowth.

The monitoring programme should be used to identify if and when additional control is required, in response to any new INNS growth and establishment.

4.7 Criteria for Success

The eradication programme may be considered successful when:

- The cycle of eradication and monitoring action for INNS on site prevents plants reaching the mature stage where root systems are full established.
- No increase in spread or abundance of INNS occurs within the recorded areas labelled in Appendix 1.
- Long-term success will be achieved when no new INNS grow on site and when all established root systems are fully removed.

Monitoring of the wider site should be carried out on a monthly basis during the construction period, either by a suitably qualified ecologist or by the site manager. Results of monitoring should be recorded and included within the recording sheet in Appendix 3.

4.8 Resource Needs and Programme

Resources needed to contain and eradicate the existing extent of INNS are estimated to be:

1. A suitably qualified ecologist should attend site to identify and mark out the stands of INNS.
2. One day per month should be allocated for ongoing monitoring of INNS presence on site, as part of general site management duties. Vegetation on site should be monitored each week to identify any areas of newly germinating INNS, and to initiate control measures before plants are able to flower/seed.

5 Control Methods During Construction

5.1 Rhododendron and Small-leaved Cotoneaster

- All site operatives should receive a toolbox talk so they can confidently identify the INNS and are aware of the legislation that prohibits the spread of these species.
- All stands of invasive species should be clearly marked and areas of stockpiled contaminated soil and vegetative material should be fenced off.
- All equipment and machinery working within proximity to the INNS should be jet washed and disinfected, in a designated area, before leaving site and provision for cleaning footwear should be provided.
- Waste material and water left after vehicles have been pressure-washed should be stored and disposed of correctly.

5.2 Japanese Knotweed

- Areas of Japanese Knotweed should be clearly demarcated by installing a fence preventing pedestrian or vehicular access (i.e. Heras fencing). Rhizomes can extend up to seven metres above ground stands of the plant therefore fencing should be extended accordingly. Signage should be fixed to the fencing to ensure anybody entering the area of infestation is aware of the presence of Japanese Knotweed and the risk of spreading.
- No material should be disturbed or removed from the exclusion zone unless it forms part of the targeted removal of Japanese Knotweed.
- Any equipment, machinery and footwear used when working with Japanese Knotweed needs to be checked and cleaned of plant material, followed by sterilisation and drying of the equipment before the next usage.
- All site workers should be briefed as to the presence of Japanese Knotweed and the risks associated with its spreading.

6 References

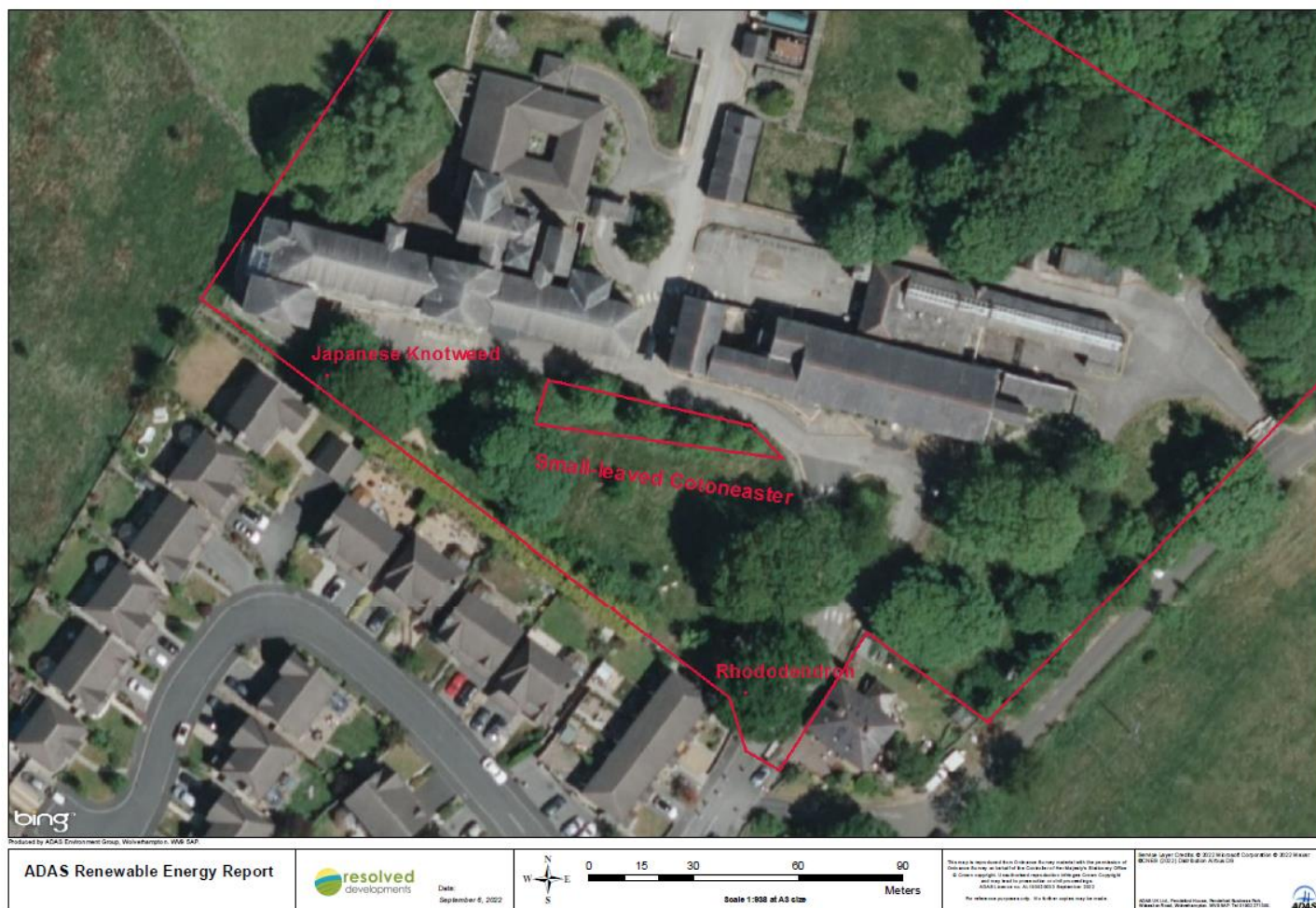
Edwards, C. (2006). *Managing and controlling invasive rhododendron*. Forestry Commission Practice Guide 17. Forestry Commission, Edinburgh.

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The Royal Horticultural Society (2023). *Japanese Knotweed*. www.rhs.org.uk

Appendix 1: Invasive Species Distribution Map



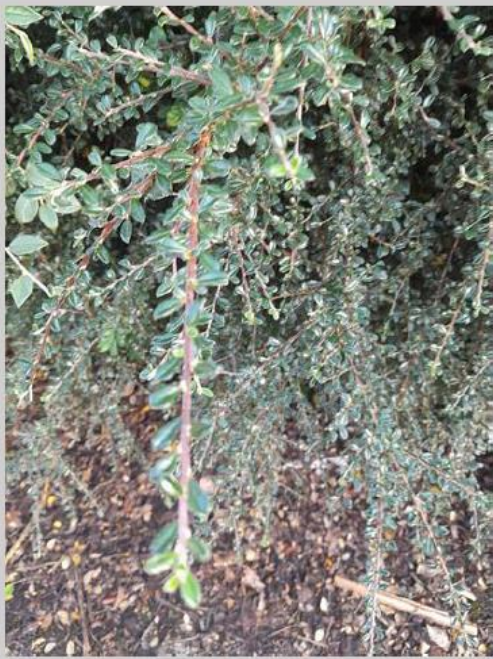
Appendix 2: Site Photographs



Photograph 1: Single stand of Japanese Knotweed found on site.



Photograph 2: Well-established Rhododendron bush found on site.



Photograph 3: Mature Small-leaved Cotoneaster found on site.

Appendix 3: Recording Sheet Example

Site Name	
Site Address	
Inspection Date	
Inspector name	
Area inspected	
Observations/ activity and recommendations	
Print Name	
Signature	
Date	