

Japanese knotweed Management Plan & Method Statement

SURVEYOR DETAILS

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CLIENT

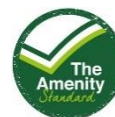
Name: Mr Luke Hurley
Organisation: Hurley and Davies
E mail: luke@hurleyanddavies.co.uk

SITE DETAILS

Address: Cardonnel Court, Cardonnel Road, Neath SA10 6BS
Job ref: CC/ SA10 6BS/2023

DATES

Site visit: 19 January 2023
Report: 1 February 2023



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1. BACKGROUND INFORMATION

1.1. Background

- Formerly a 39 bed care home for the elderly, the site is now a state of disrepair and in the process of being sold.
- A pre-planning application enquiry (reference Q2022/0081) proposal has been registered with the Planning Department of Neath and Port Talbot Country Borough Council for the demolition of the existing build and construction of a new 2 storey building for 16 adults requiring supported living.
- The Planning Department require a Japanese knotweed Eradication Method Statement/Report in addition to information already received as both to limit the disturbance or spread the Japanese knotweed during any preparatory site investigation/survey as well as during the development phase of the proposed scheme.
- In January 2023 Mr Luke Hurly from Hurley and Davies, Chartered Surveyors contacted Knotweed Control Swansea Limited for assistance in regard to the Japanese knotweed on site on behalf of their clients who is in the process of purchasing the site.
- A site visit was undertaken by Knotweed Control Swansea Limited 19 January 2023 and this Japanese knotweed Management Plan report has been created laying out the options available for the Japanese knotweed following all current relevant legislation and best practice guidance.
- Although the Environment Agency's [Managing Japanese knotweed on Development Sites: Code of Practice](#) was withdrawn in 2016 and some of the information is out of date, it still is the best guidance for development or redevelopment sites with regards to Japanese knotweed.
- It is essential that all biosecurity measures (see ii. **SITE HYGIENE – BIOSECURITY MEASURES** are put in place BEFORE any other works or investigations are carried out.
- Several other invasive non-native species (INNS) were observed within the boundaries (see 8. **OTHER INVASIVE NON NATIVE SPECIES**).
- There is no equivalent development site guidance for the other invasive non-native species but there is a good legacy of suitable control, biosecurity and monitoring measures.

1.2. Scope of the Report

- Knotweed Control has not been given any details of the timing of the development and has only been supplied with a floor plan of the main building so the Japanese knotweed Management Plan and Method Statement covers the control, biosecurity and monitoring measures for;
 - Pre development works
 - Vegetation clearance/ control
 - Tree works
 - Demolition and removal works
 - Waste disposalAnd to a lesser degree;
 - Post development maintenance and management ground works
 - Use of the garden and outdoor space

1.3. Objectives

- The main objectives of this Japanese knotweed Management Plan/ Method Statement are to
 - ensure the owner & operators is aware of the potential issues, legalities and obligations with regards to Japanese knotweed
 - locate the general position of and condition, health and state the Japanese knotweed affecting the site
 - help to contain and minimise any spread of any viable Japanese knotweed propagules during all phases of the project both around and off site
 - provide control and management options of the Japanese knotweed
 - provide monitoring and longer term management options of the Japanese knotweed

2. SITE DETAILS

2.1. Site details

- The site is currently a derelict nursing home complex in a triangle of land between Cardonnel Road running diagonally from the north west to the south east, Bendle Close to the north and a railway line to the east.
- The foot print of the old buildings cover most of the east of the site with tarmacked parking and access towards the west.
- The boundary along Cardonnel Road from the north west to the south east consists of a raised concrete bed with woody shrubs, the old vehicle and pedestal entrance and a soil bank.
- The boundary along Bendle Close or northern boundary has running parallel an old wooden fence, a ditch and stream and a line of trees all backing onto the rear gardens of 2 to 17 Bendle Close.
- The boundary to the east has a fence separating the railway line embankment which falls steeply away down to the track, along the longest axis of the old building.

2.2. General Site Plan



General Site Plan

Key	
	Site boundary
	Existing building
	Stream/ ditch
	Railway line



2.3. Site ownership, boundaries, permissions & access

- The ownership of the site and potential purchaser are currently unknown to Knotweed Control, the houses to on Cardonnel Road and Bendle Close are assumed to be privately owned and railway line assumed to be owned and managed by Network Rail.
- The pre-planning application enquiry plans have been provide to Knotweed Control by Mr Luke Hurley from Hurley and Davies.
- Access is restricted to parts of the plot due to fencing, rotten decking, dense vegetation and the railway line and there are some steep slippery slopes, uneven ground, running water and fly tipped waste. The building has been broken into and some looting taken place.
- Japanese knotweed does not respect ownership or legal boundaries so permission to access and control any Japanese knotweed not within the site boundaries will be required so as not to cause reinfection.

Please note:

 *Where land owners cannot be located but all reasonable effort has been made to find and contact them, the owner of the subject property will be required to take responsibility and give written permission for treatment in the land owners absence before treatment can commence*

2.4. Water courses

- The stream in the ditch and along the northern boundary comes from a culvert popping out beneath Cardonnel Road and runs from west to east across the site.

Please note;

 Under the Control of Pesticides Regulations 1986 a [Simple or Higher Risk Agreement for the use of Herbicide near water or a designated site](#) may be required from Natural Resources Wales.

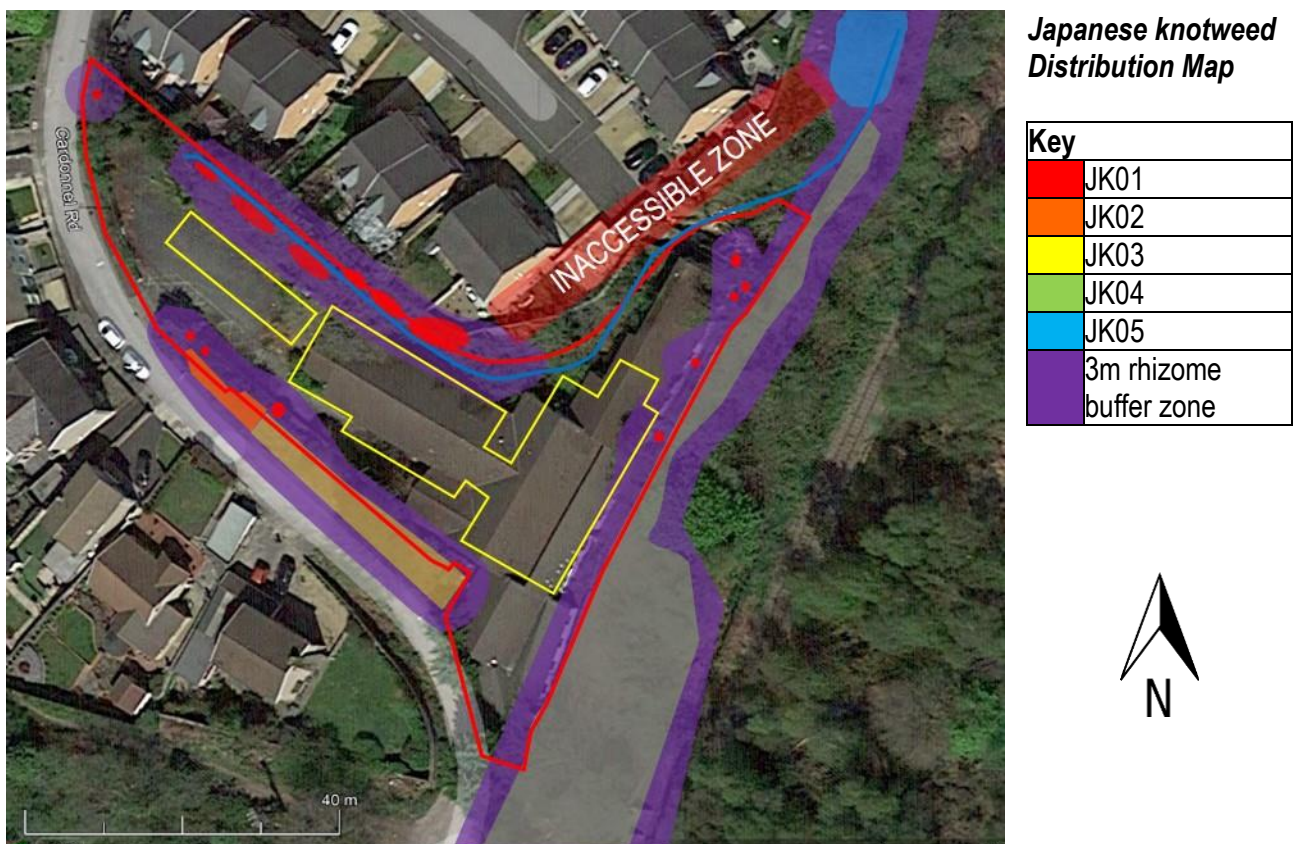
 *Aquatic approved herbicides only must be used near water courses by qualified operators.*

3. JAPANESE KNOTWEED ON SITE

3.1. General description

- The Japanese knotweed was observed in several locations around the site but all on the boundary perimeter.
- Japanese knotweed areas are as followings;
 - JK01, within the site boundary. subdivided into 4 different locations (JK01a, b, c & d)
 - JK02; along the boundary with Cardonnel Road
 - JK03; along the boundary with Cardonnel Road showing evidence of herbicide treatment
 - JK04; along the railway track showing evidence of herbicide treatment
 - JK05; to the north east of the site other side of the stream

3.2. Japanese knotweed Distribution Map



3.3. Original source of infection

- It can be impossible to say with certainty where the original source of the Japanese knotweed is on site.
- However in this case the railway is the most likely historical source the Japanese knotweed and the area is generally a well-known for Japanese knotweed.

Please note;

- ⚠ *South Wales is a hotspot for Japanese knotweed especially in where there is a history of heavy industry, soil disturbance helping spread the plant.*
- ⚠ *It is readily spread along railway lines, tramways, rivers, canals, roads & action such as fly tipping, contaminated waste & poor biosecurity practices, all of which have played their part in its spread.*
- ⚠ *Other invasive species are also not uncommon in this area and south Wales as a whole.*

3.4. Local sources of re-infection

- All mature established areas of Japanese knotweed that will affect the works directly and functions of the have been identified in this report and but it is possible there are smaller out breaks in the dense vegetation (see **3.6. History or evidence of herbicide treatment, control, disturbance & monitoring**)
- It must also be noted that there is a risk from other sources of Japanese knotweed including that;
 - not visible or obvious during the site visit due to evidence being removed, covered, treated etc.
 - dormant rhizome material under the ground
 - new contaminated material brought onto site
 - areas not treated as part of the Japanese knotweed Management Plan
 - secondary spread or cross contamination on site

3.5. Length of time Japanese knotweed on site

- Again it is often impossible to say with certainty how long the Japanese knotweed have been on site
- However the extensive areas of mature knotweed growing as a monoculture with tall thick stems and the deep leaf litter and in some places such as along the railway line where there are tell-tale large crowns, all indicate knotweed has been on site for many years.
- The oldest Google Earth aerial images available show Japanese knotweed has been on site since at least 1999 and the oldest Google Street View available for this area shows Japanese knotweed along Cardonnel Road since at least 2008.

3.6. History or evidence of herbicide treatment, control, disturbance & monitoring

- It appears there has been some control of the Japanese knotweed in areas JK01a, JK03 and JK04
- During the site visit on 19 January 2022 there were tall thick stems of Japanese knotweed in area JK01a are assumed to be from 2021 growing season not only because they are brittle faded but also there appears to be no growth in the 2022 season looking at Google Street View photos from June 2022. It is assumed the herbicide treatment took place in 2021.
- During the site visit area JK03 had the winter remains of short thin sporadic growth assumed to be from the 2022 season as it was moist and still brown orangey. There was also a lot of bare earth with limited revegetation from annual self-seeded plants that have blown in. Both indicated herbicide treatment. Some of the stems have stunted deformed regrowth called sub lethal bonsai growth not an uncommon response to glyphosate based herbicide treatment. Google Street View photos in area JK03 from June 2022 indicate that the area must have had herbicide treatment in 2021 and then again in 2022.
- The Japanese knotweed area JK04 along the railway embankment looking at Google Earth images shows it was a large mature and established area of knotweed from appeared from at least 1999 (large knotweed crowns still in evidence on site) but the aerial images appear to show treatment from 2016. During the site visit on 19 January 2022 the evidence supports this in area JK04 with remaining short thin sporadic regrowth and sub lethal bonsai growth typical of glyphosate based herbicide treatment.



Google Street View photos showing no live Japanese knotweed growth in June 2022 in area JK01a



During the site visit on 19 Jan 2022, faded brittle standing canes assumed to be from 2021 season



Google Street View photos from June 2022; JK03 yellow showing evidence of herbicide treatment



Site visit 19 January 2022; JK03 yellow showing bare ground, short thin sporadic regrowth

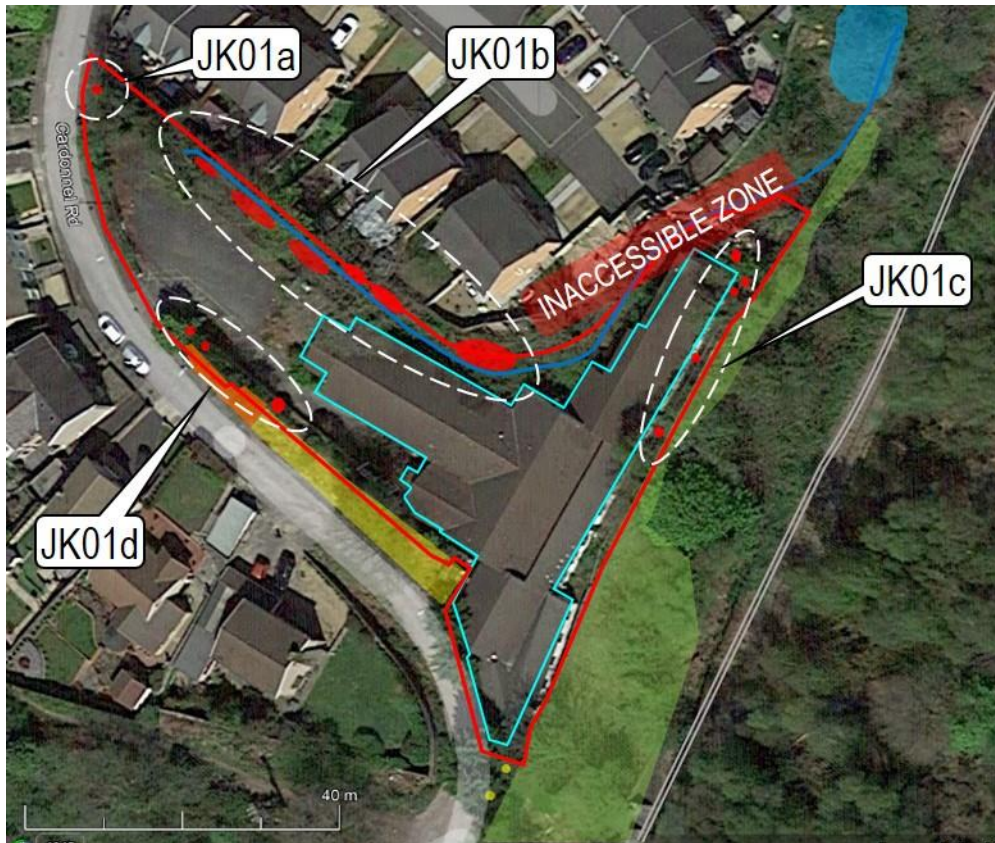


JK04 on railway embankment showing old large knotweed crowns (dark brown lumps in photo on the right), bare ground and short thin sporadic regrowth and some sub lethal bonsai growth

Please Note:

- △ Correct control from the outset is essential as inconsistency or incorrect control or disturbance can make the Japanese knotweed spread quicker than it might have otherwise reducing the effectiveness of future treatment, extending the timeframes and increasing costs. It is also very easy to spread Japanese knotweed as it only takes 0.7gm of rhizome the size of a pea to create new area of infestation.

4. JAPANESE KNOTWEED DETAIL

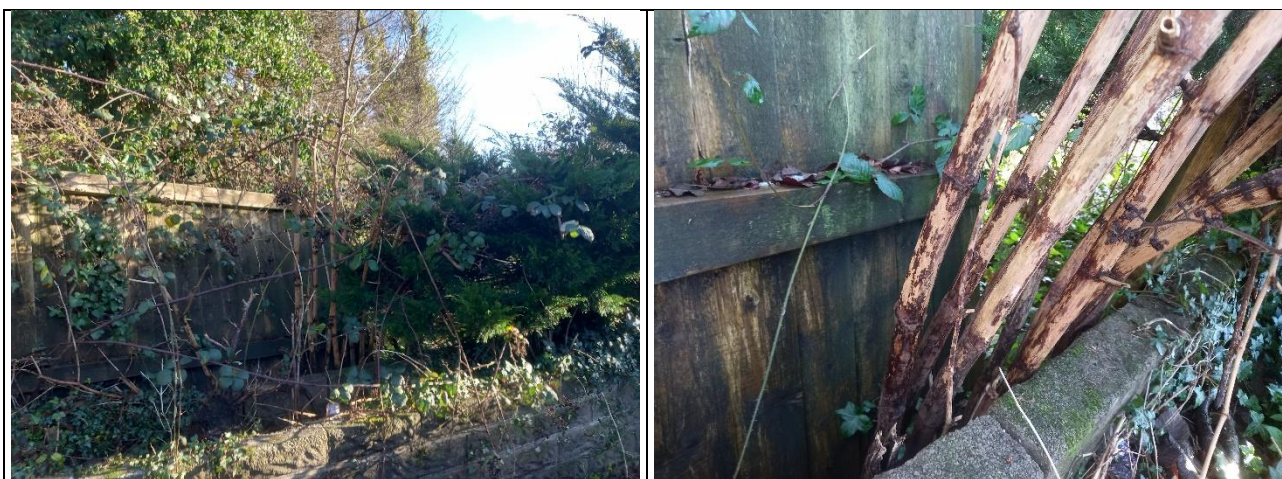


*Japanese knotweed
Distribution Map*

Key	
■	JK01
■	JK02
■	JK03
■	JK04
■	JK05

4.1.a. JK01a

Location	Within the site boundary in the raised concrete planting border along Cardonnel Road					
General	Small area of mature established knotweed					
2023 Growth	• Too early in the season any growth					
2022 Growth	• No evidence from growth from 2022 growing season					
2021 Growth	• A small area of mature and dense knotweed growth with tall thick fading fragile tall thick stems still standing from the 2021 growing season					
	Height	1-2.5m	Stem diameter	> & <8 mm	Density	Med
Other vegetation	Bramble					
Note	Evidence of herbicide (see 3.4. History or evidence of herbicide treatment, control, disturbance & monitoring)					



During the site visit on 19 Jan 2022, faded brittle standing canes assumed to be from 2021 growing season

4.1.b. JK01b

Location	Within the site boundary along the northern boundary with Bendle Close behind the wooden fence					
General	Mature established knotweed in several clumps mainly on the stream bank closest to the site although some on the opposite bank near some trees that have been felled					
2023 Growth	• Too early in the season any regrowth					
2022 Growth	• Tall thick dark black brown robust canes still standing with brown orangey seed stalks still in place					
	Height	0.2-2.5m	Stem diameter	> & <8 mm	Density	Med
2021 Growth	• Tall thick faded and fragile canes only standing due to support from younger canes					
Other vegetation	Bramble, ivy and other native woodland species					
Note	Fly tipped household and garden rubbish Access hindered towards east of site from fallen branches, bramble					



General area of JK01a behind the fencing with tall stems from 2022 growing season still standing with brown orangey seed stalks still in place



JK01b: Tall thick dark black brown robust canes from the 2022 growing season and tall thick faded and fragile canes from the 2021 growing season all along the southern stream bank

4.1.c. JK01c

Location	Within the site boundary along the eastern boundary parallel to the railway line					
General	Several individuals stems with one larger area with multiple canes					
2023 Growth	Too early in the season any growth					
2022 Growth	- Several individual short thin brown orangey stems still standing - A larger area with many tall thick dark black brown robust canes still standing with brown orangey seed stalks still in place					
	Height	0.2-2m	Stem diameter	> & <8 mm	Density	Low to med
2021 Growth	Larger area with tall thick faded and fragile canes only standing due to support from younger canes					
Other vegetation	Bramble and ivy and woodland species					
Note	Hard to access					



Several individuals stems with one larger area with multiple canes



Individuals stems along site the old building

4.1.d. JK01d.

Location	Within the site boundary on Cardonnel Road					
General	3 small area of mature established knotweed in the bank next to the entrance to the old building					
2023 Growth	• Too early in the season any growth					
2022 Growth	• Tall thick dark black brown robust canes still standing with brown orangey seed stalks still in place					
	Height	1-2.5m	Stem diameter	> & <8 mm	Density	Med
2021 Growth	• Tall thick faded and fragile canes only standing due to support from younger canes					
Other vegetation	Bramble and over grown woody shrubs					
Note	On the other side of the bank along Cardonnel Road is untreated knotweed area JK02					



3 small area of mature established knotweed in the bank next to the entrance to the old building

4.2. JK02

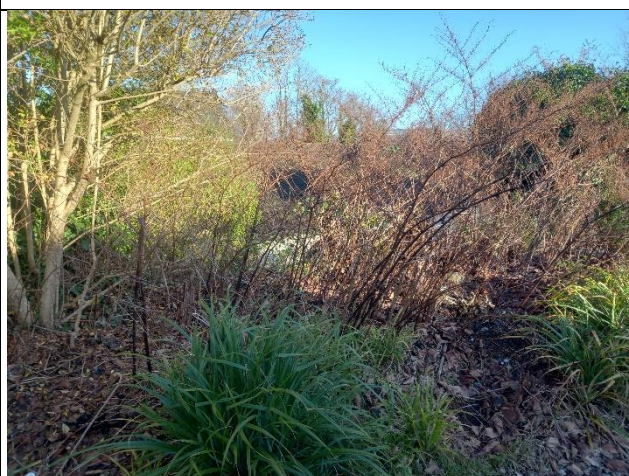
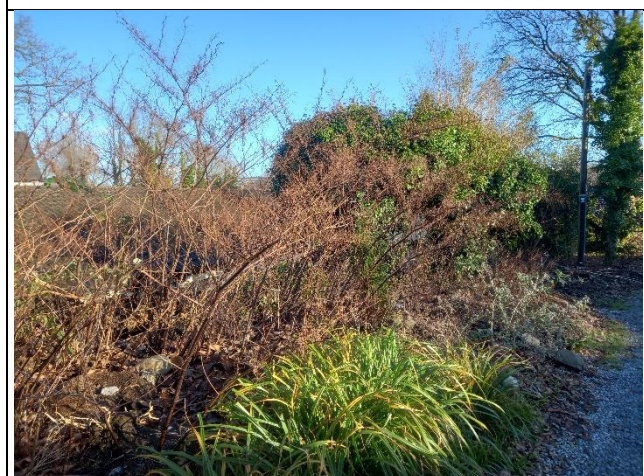
Location	Outside the site boundary along Cardonnel Road opposite 57 Cardonnel Road					
General	A large area of mature established untreated Japanese knotweed					
2023 Growth	Too early in the season any growth					
2022 Growth	Tall thick dark black brown robust canes with brown orangey standing and seed stalks still in place					
	Height	1.5-2m	Stem diameter	> & <8 mm	Density	High
2021 Growth	Tall thick faded and fragile canes only standing due to support from younger canes					
Other vegetation	Monoculture of Japanese knotweed but with bramble and other hedgerow species at the edges					
Note	On the other side of the bank by the old building is knotweed area JK01d					



Google Street View photos from June 2022; JK03 yellow showing JK02 orange untreated area



Site visit 19 January 2022; JK03 yellow showing JK02 orange untreated area



JK02 Tall thick dark black brown robust canes standing with brown orangey seed stalks still in place

4.3. JK03

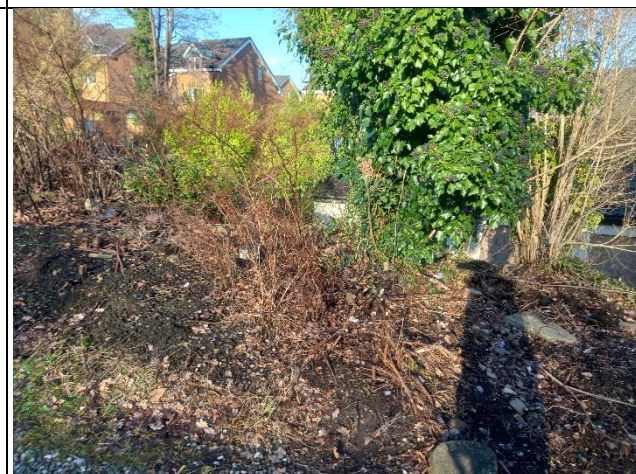
Location	Outside the site boundary along Cardonnel Road opposite 57A Cardonnel Road					
General	A large area of mature established Japanese knotweed					
2023 Growth	• Too early in the season any growth					
2022 Growth	• Winter remains of short thin sporadic growth moist and still brown orangey • Some stems with stunted deformed regrowth called sub lethal bonsai growth					
	Height	0.2-1.5m	Stem diameter	> & <8 mm	Density	High
2021 Growth	• No older growth evident on site					
Other vegetation	Mainly bare earth with limited revegetation from annual self-seeded plants					
Note	Evidence of herbicide (see 3.4. History or evidence of herbicide treatment, control, disturbance & monitoring)					



Google Street View photos June 2022; JK03 yellow showing bare ground & short thin sporadic regrowth



Site visit 19 January 2022; JK03 yellow showing bare ground & short thin sporadic regrowth



Bare ground and short thin sporadic regrowth all evidence of herbicide treatment

4.4. JK04

Location	Outside the site boundary along the railway embankment					
General	A large area of mature established Japanese knotweed					
2023 Growth	• Too early in the season any growth					
2022 Growth	• Winter remains of short thin sporadic growth moist and still brown orangey • Some stems with stunted deformed regrowth called sub lethal bonsai growth					
	Height	0.2-1.5m	Stem diameter	> & <8 mm	Density	High
Older Growth	• Large old crowns					
Other vegetation	Mainly bare earth with limited annual self-seeded revegetation					
Note	Evidence of herbicide (see 3.4. History or evidence of herbicide treatment, control, disturbance & monitoring)					



Winter remains of short thin sporadic growth & some stems with stunted deformed regrowth called sub lethal bonsai growth but mainly bare earth with limited revegetation



Large old crown old established mature knotweed (brown lumps)

4.5. JK05

Location	Unsure if within the boundary but in the north east of the general location perhaps along the stream/ ditch					
General	In inaccessible zone so observations from afar appear to show a large area of mature established Japanese knotweed					
2023 Growth	• Too early in the season any growth					
2022 Growth	• Appears to be tall thick dark black brown robust canes with brown orangey standing and seed stalks still in place					
	Height	1.5-2.5m	Stem diameter	> & <8 mm	Density	High
2021 Growth	• Too far to see					
Other vegetation	Appears to be a monoculture of Japanese knotweed surrounded by dense vegetation including thick bramble					
Note						



In an inaccessible zone but appears to be tall thick dark black brown robust canes with brown orangey standing and seed stalks still in place

4.6. Japanese knotweed Underground Rhizome Buffer Zone

- Japanese knotweed has been likened to an iceberg with only about 20% of the whole biomass of a mature plant being visible above ground including stems, leaves & crown material being above ground the rest being subterranean rhizome and root system.
- The actual extent of Japanese knotweed on site will depend on many factors including the volume, maturity and length of time growing on site and substrate/growing medium which will also affect the success of the herbicide treatment.
- In the **3.2. Japanese knotweed Distribution Map** the purple area is the theoretical 3m buffer zone potential underground rhizome growth around all visible areas of Japanese knotweed.
- 3m is required to be recorded and mapped in accordance with the Property Care Association [Code of Practice Management of Japanese Knotweed -2022](#) whilst the Environment Agency's Environment Agency [Managing Japanese knotweed on Development Sites: Code of Practice](#), (withdrawn in 2016) uses a 7m buffer/ safety zone which is now through to be very cautions but is still a good guide and to complicate things, research has shown rhizome rarely extends more than 4m from above ground growth. (Fennell, Wade, Bacon; [Japanese knotweed: An analysis of capacity to cause structural damage 2018](#)



5. PROPOSED WORKS ON SITE IN RELATION TO THE JAPANESE KNOTWEED

- Each site and situation is unique with regard to the control and management of Japanese knotweed and INNS with variations in the extent and age of infestation, location of planned works, infrastructure, access points, time and money available therefore different control methods and combinations can be adopted to suit the client and specific site issues (see v. **GENERAL JAPANESE KNOTWEED CONTROL METHODS**)
 - Although the Environment Agency's [Managing Japanese knotweed on Development Sites: Code of Practice](#) was withdrawn in 2016 and some of the information is out of date, it still is the best guidance for development or redevelopment sites with regards to Japanese knotweed.
 - Although most of the visible evidence of Japanese knotweed on site is limited to the outer boundaries it may affect the wider development as the rhizomes can extend much further than the above ground growth (see **4.6. Japanese knotweed Underground Rhizome Buffer Zone.**)
 - Knotweed Control has mapped a 3m rhizome buffer zone but refers to a 7m rhizome buffer zone in the Management Plan/ Method Statement to be extra cautious especially with some areas of knotweed being so well established.
 - Knotweed Control has not been given any details of the timing of the development as they are still unclear but has only been supplied with a floor plan of the main building so the Japanese knotweed Management Plan and Method Statement covers the control, biosecurity and monitoring measures for;
 - Pre development works
 - Vegetation clearance/ control
 - Tree works
 - Demolition and removal works
 - Waste disposal
- And to a lesser degree;
- Post development maintenance and management ground works
 - Use of the garden and outdoor space
- The timings and order of the Japanese knotweed Method Statement may change from this place due to the work schedules and this plan is assuming the knotweed works are to start straight away.
 - It must be noted however Japanese knotweed herbicide treatment is time critical and can only be undertaken at certain times with the optimum treatment taking place in late summer through to the autumn.

6. JAPANESE KNOTWEED METHOD STATEMENT

PRE DEVELOPMENT WORKS

1. Japanese knotweed does not respect ownership or legal boundaries so permission to access and control any Japanese knotweed not within the site boundaries will be required so as not to cause reinfection.

Please note:

 *Where land owners cannot be located but all reasonable effort has been made to find and contact them, the owner of the subject property will be required to take responsibility and give written permission for treatment in the land owners absence before treatment can commence*

2. The site should ideally be **secured so that no material contaminated with Japanese knotweed** is brought onto site via fly tipping.
3. Again ideally, **an exclusion fence** around all known or visible areas of Japanese knotweed **with signage in a zone 7m** should be erected to prevent access and by site traffic and operatives to limit disturbance.

Please note

 *Japanese knotweed is like an iceberg; only about 20% or so of the total biomass of the plant is visible above ground*

 *The actual extent of Japanese knotweed on site will depend on many factors including the volume, maturity and length of time growing on site and substrate/growing medium which will also affect the success of the herbicide treatment.*

 *7m is distance used by many organisations including surveyors and lenders as the “safe” distance from structures which is often over cautious.*

 *Japanese knotweed and is required to be recorded and mapped 3m from visible growth in accordance with the Property Care Association’s [Code of Practice: Management of Japanese knotweed 2018](#)*

4. Where fencing may not be possible there should at least be signage and any works and vehicle movement or storage within 7m required approval/ supervision of a **Japanese knotweed Clerk of Works (JKCoW)** see point 5.
5. **A Japanese knotweed Clerk of Works (JKCoW)** should be appointed to approval, oversee and supervise any works and vehicle movement or storage within 7m on any visible above ground Japanese knotweed. This could be a member of the existing team who should be aware of the potential extent of the knotweed and who can identify Japanese knotweed in all states including winter and underground rhizomes (see pages x. **THE ENVIRONMENT AGENCY’S GUIDE TO JAPANESE KNOTWEED RHIZOME ID**) but also has the **authority to halt or improve works practice if concerned** about cross contamination or where there may be unapproved works near the knotweed.
6. There should be a **toolbox talk for all regular works** on site regarding **location of knotweed, legislation, the importance of biosecurity & good practice** with regard to Japanese knotweed who can intervene when they see back practise around the areas of Japanese knotweed or contact the **Japanese knotweed Clerk of Works (JKCoW)** to either halt or improve works practice as point 5.

VEGETATION CLEARANCE / CONTROL

7. It is this stage that fencing and signage is really important to prevent access and disturbance by site traffic and operatives especially as new contractors are brought onto site with no awareness.
8. Where vegetation is to be cleared/ controlled once again those areas that are **Japanese knotweed FREE should be removed first**, working towards the known areas with Japanese knotweed to reduce the likelihood of cross contamination or spreading viable propagules.
9. Where vegetation clearance/ control is to take place near the knotweed it should be done with **hand tools** and should take extra care should be taken – if knotweed canes are to be cut they **should be left in situ** to rot down as they are a controlled waste (see vi. **LEGISLATION**)
10. All tools, equipment and foot wear should be **thoroughly cleaned and inspected** by the **Japanese knotweed Clerk of Works before moving onto another area for clearance/ control** (to stop the spread around site) and **when moving off site** (to stop the spread off site as it an offence under the Environmental Protection Act 1990, see vi. **LEGISLATION**).
11. It must be noted that there **may be other areas of knotweed NOT MAPPED** either beneath the soil surface or just not visible for some other reason e.g. in dense vegetation therefore if during the clearance works if any other potential areas of Japanese knotweed are found, works should be halted and the **Japanese knotweed Clerk of Works** brought in to investigate.
12. If other areas of Japanese knotweed are found, they will have to have the similar procedures as above with the addition of the material being put back where it was and vehicles and machinery required to be pressure washed the in situ and inspected before being moved.
13. At this stage if my client choses in some places that the **6.1.1. “Dig and dump” / excavation and landfill as per 6.1. JAPANESE KNOTWEED MANAGEMENT PLAN**, is required in some areas it could be done at this stage to remove contaminated soils and limited further potential spread.

TREE WORKS

14. Where trees require to be taken down, arborists should be made aware of the Japanese knotweed with their works overseen by the **Japanese knotweed Clerk of Works**.
15. They should work on trees in areas that are **knotweed FREE areas first** moving towards the trees in the known Japanese knotweed areas to reduce likelihood of spreading viable propagules.
16. When felling the trees or limbs are to be dropping in the knotweed area avoid disturbing the knotweed as much as possible in the 7m rhizome buffer zone around all visible above the ground knotweed.
17. When removing tree limbs once felled, careful extraction is required as not to pick up viable Japanese knotweed propagules and moving them around or off site especially on treads on vehicles and footwear
18. Careful **cleaning e.g. pressure washing and inspection** of any tools, treads on vehicles and footwear needs to be undertaken by the **Japanese knotweed Clerk of Works** to ensure no potential knotweed propagules are taken before leaving the location.

DEMOLITION AND REMOVAL WORKS

19. There is a high risk of cross contamination of potentially viable knotweed material during the demolition and removal due to the proximity of the knotweed to the structures – the building, foundations and car park and path areas including concrete and tarmac.
20. Work on again should start in areas that are **knotweed FREE areas first** moving towards the areas with Japanese knotweed so there is reduced likelihood of cross contamination or spreading viable propagules.
21. When demolishing structures or removing them from site, the knotweed should be disturbed as little as possible including the rhizome buffer zone 7m from the visible above the ground knotweed canes.
22. When removing materials and structures from site near the knotweed, careful extraction is required as not to pick up viable Japanese knotweed propagules and moving them around or off site especially on treads on vehicles and footwear or the structures or materials themselves.
23. Careful **cleaning e.g. pressure washing and inspection** of any treads on vehicles and footwear or the structures or materials needs to be undertaken by the **Japanese knotweed Clerk of Works** to ensure no potential knotweed propagules are taken before leaving the location.
24. Any vegetation, concrete, spoil, tarmac, soil etc. potentially contaminated with Japanese knotweed material is classed as a controlled waste (see **vi. LEGALSATION**) **so should be kept to a minimal and stored transported and disposed of appropriately** (see **WASTE DISPOSAL** point 25 below)

WASTE DISPOSAL

25. All Japanese knotweed and material potentially contaminated with knotweed propagules as small as 0.7gm, the size of a pea will be classed as a controlled waste (see **vi. LEGALSATION**). It is therefore generally preferable to keep this waste on site **rather than take to a landfill** (see **7.1. “Dig & Dump”/ excavation & landfill**) with the associated extra costs and increased complexity in logistics.

POST DEVELOPMENT GROUNDS MAINTENANCE AND MANAGEMENT

26. Japanese knotweed is a long lived perennial, easily spread, unpredictable and notoriously hard to kill. Knotweed Control does not guarantee ERADICATION and the lack of above ground of regrowth does not mean the knotweed has all been killed. Japanese knotweed rhizome can remain dormant deep in the soil for over 20 years & can be broken by disturbance or a change in conditions.
27. If there are to be any ground works within 7m of any area of known Japanese knotweed it is essential that a Method Statement is created by the operator to show the steps being undertaken to limited the interfere with the management of the Japanese knotweed and all biosecurity steps and procedure put in place to stop or managed the spread across and off site.
28. Great care must be taken when undertaking general works on site that may disturb the knotweed rhizomes (e.g. vegetation or trees, paths ,track, or underground or ground work) and to ensure no viable material is spread around the site (e.g. on infected equipment, machinery, tools, footwear and material such as soil, plants etc.) It is therefore important there is fencing and/ or signage of the potential location of rhizome even when all visible sign of the knotweed has gone.

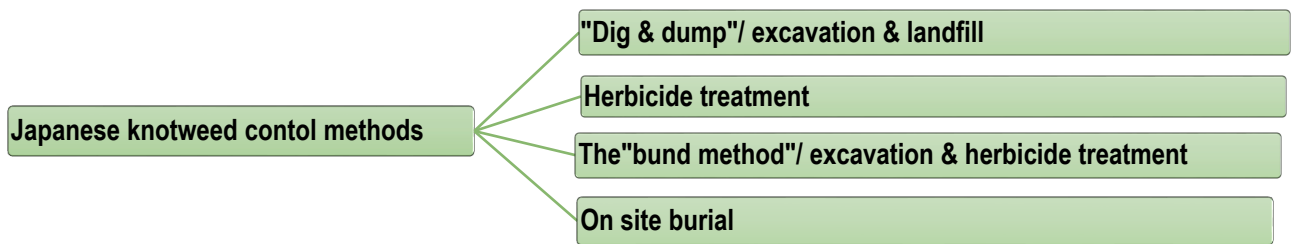
-
29. Careful **cleaning e.g. pressure washing and inspection** of any treads on vehicles and footwear or the structures or materials needs to be undertaken by the **Japanese knotweed Clerk of Works** to ensure no potential knotweed propagules are taken before leaving the location.
 30. Longer term monitoring is always required and even after the suggested timeframes it is likely a “mop-up” herbicide treatment may be required in the future.

USE OF THE GARDEN AND OUTDOOR SPACE

31. Again any activities that will potential interfere with or disturb the growth of the Japanese knotweed could stimulate the growth of and spread viable propagules
32. Also of the knotweed growth to be treated post development is damaged or compacted it could hindering the long term efficacy of any ongoing herbicide treatment as there needs to be as much surface area and growth on which to apply the herbicide and may take longer that it would otherwise.

7. JAPANESE KNOTWEED MANAGEMENT PLAN

- Japanese knotweed control comes with a few options available (see **iii. JAPANESE KNOTWEED CONTROL METHODS - INTERGREATED WEED MANAGEMENT (IWM)**)



- Each method has with its own pros and cons & **iv. PROS AND CONS OF JAPANESE KNOTWEED CONTROL METHODS**) but these are the options available to my client currently with details as follows.
- It may be that different locations of knotweed require different methods and may depend on the timing of the works.
- In this case it appears the only options available are as follows but it is up to my client to decide which is/ are the best;
 - 7.1. “Dig & dump” (excavation & landfill)
 - 7.2. Herbicide treatment
- There is no room for the following methods of control.
 - 7.3. The “Bund method” (excavation & herbicide treatment)
 - 7.4. On site burial

7.1. “Dig and dump” (excavation and landfill)

- The Environment Agency’s [Managing Japanese knotweed on Development Sites: Code of Practice](#) states landfill should only be used if there is no viable alternative .
- 1. Ideally the Japanese knotweed would have at least 1 season of herbicide treatment to reduce the vigour of the plant and rhizome (see **7.2. Herbicide Treatment**)
- 2. The works to take place in this area
 - a. must be overseen by the **Japanese knotweed Clerk of Work**
 - b. A **dedicated track** lined with **an appropriate membrane** for the movement vehicles to minimise likelihood with to stop cross contamination
 - a. Any potentially soil contaminated with Japanese knotweed will need to be carefully excavated until there is no more visible rhizomes left in the soil.
 - b. Any removed spoil is classed controlled waste
 - c. This can be sieved / screened to remove knotweed material to reduce the volume going to landfill but the sieved material must still be treated as controlled waste.
 - d. An **extra bucket** of “clean” soil removed in case of extended rhizomes
 - c. All paper work including **transfer notes** must be in place to **show duty of care** at each stage
 - a. Transported by a licenced waste carrier in suitably covered
 - d. Needs to go to a **landfill site licenced to accept** Japanese knotweed and **tonnage agreed in advance**.
 - e. Vehicles, tools, footwear must be **thoroughly pressure washed and inspected** when leaving the development and landfill site before it can move off site

Please note:

- ⚠ *Under the Environmental Protection Act 1990 ALL Japanese knotweed material is classed as “controlled waste” however if the Japanese knotweed has been treated with certain pesticides the rhizomes and contaminated soil will be classed as a “hazardous waste” an different legislation comes into force under the ‘Hazardous Waste Regulations 2005’.*
- ⚠ *Landfilling both “controlled” and “hazardous” waste are expensive and environmentally problematic and should only be undertaken if all other avenues have been explored.*
- ⚠ *When cleaning and inspecting vehicles and equipment all voids should all be checked with particular care is needed in the load space, tyre treads, wheel arches, digging buckets and caterpillar tracks where there are small moving parts are where any knotweed material could be trapped (it only takes 0.7gm the size of a pea of rhizome or crown material to create a new plant)*

3. Even after very careful and skilful excavation, very small pieces of viable rhizome may remain in the soil so a monitoring programme should be followed for several years with a herbicide treatment “mop up” annually of any regrowth (see **7.2. Herbicide Treatment**)
4. **Longer term monitoring is always required** as Japanese knotweed is a very long lived perennial and can be a highly unpredictable and notoriously hard to kill as well as remain dormant yet still viable in the soil for many years.

Please note:

- ⚠ *Japanese knotweed is a long lived perennial, is highly unpredictable and notoriously hard to kill*
- ⚠ *Knotweed Control does not guarantee ERADICATION and the lack of above ground of regrowth does not mean the knotweed has all been killed.*
- ⚠ *Japanese knotweed rhizome can remain dormant deep in the soil for over 20 years & can be broken by disturbance or a change in conditions*

7.2. Herbicide Treatment

1. **Permission for treatment, clearance & monitoring** must be gained by the subject property's owner from all land owners where control is to take place before any remediation works are undertaken and for duration of the agreed control plan. This permission is assumed at the start of treatment.
2. During the winter 2023, in knotweed's dormant period, any dense vegetation including bramble and old Japanese knotweed canes should be **cut down the and left in situ to rot**, carefully ensuring no viable material is spread or taken off site.

Please note:

- ⚠ *Clearance of old Japanese knotweed canes & other vegetation ensures any knotweed regrowth is not inhibited in the following spring making it bigger and healthier & more susceptible to treatment*
- ⚠ *It also makes it easier to access, and better herbicide coverage when spraying – all of which improving results of treatment*
- ⚠ *Winter clearance may only be required for the first few years depending on how the vegetation regrows.*
- ⚠ *Knotweed or contaminated material is classed as a “controlled” waste so has strict transportation, storage and disposal regulations so should be left to rot down or incinerated on site.*

3. During the 2023 growing season, it essential if there is any **Japanese knotweed, it must be left to grow with no disturbance or interference.**

Please note:

- ⚠ *The knotweed must be left to grow with no disturbance or interference so that it is as big and healthy as possible. The larger the leaves and stems the more surface area on which to apply the herbicide or stems to inject making the treatment more effective.*
- ⚠ *Also the timing of treatment is essential (see v. **JAPANESE KNOTWEED CONTROL METHODS OFFERED BY KNOTWEED CONTROL Treatment Timing**)*

4. Any Japanese knotweed growth will be;
 - a. treated using a professional aquatic approved glyphosate based herbicide
 - b. by an appropriate qualified operator
 - c. under licence by Natural Resources Wales to used herbicide need water and protected sites
 - d. by an appropriate qualified operator
 - e. at the optimum time of year - in this case from mid to late autumn, before leaves change colour or fall from the lands and before the early frosts
 - f. applied via foliar spray and/or stem injection depending on the size of the leaves and stems -foliar spray in this case as the growth is so small
 - g. in the correct conditions (not windy & no rain forecast for at least an hour after application
 - h. in accordance with the herbicide label, best practice guidance and relevant legislation
 - i. following appropriate health and safety and environmental protection procedures
5. The herbicide will start working within 24 hours and carry on working for **at least 6 weeks** so again it is essential it is **left undisturbed for the herbicide to continue to work.**
6. After each year's treatment the knotweed will regrow smaller so the treatment is to be **undertaken slightly later in the season in following years** and **most likely to be applied via foliar spray.**
7. For more information **see v. JAPANESE KNOTWEED CONTROL METHODS OFFERED BY KNOTWEED CONTROL.**

Please note:

- ⚠ *After every year's treatment regrowth will be smaller and more sporadic with smaller leaves and thinner stems. Stems may be too small to inject so will be applied via foliar spray*
- ⚠ *As there is less leaf surface area on which to apply herbicide (i.e. smaller leaves) it makes successive treatments less effective which is why it can take 3-8 years to control the knotweed*
- ⚠ *Also late season treatment is the most effective as it will draw the herbicide into deeper rhizomes than earlier treatment*
- ⚠ *Later season treatment also means the smothering annual weeds have died down exposing more of the knotweed*

8. Herbicide treatment and perhaps vegetation clearance as per steps 2. **Winter . will need to be repeated for at least 3 years several years** and points 3-7, the Herbicide Treatment may need to be undertaken for quite a few more years perhaps up to 8 in areas where it is mature and established or disturbed during the project.
9. **Longer term monitoring is always required** as Japanese knotweed is a very long lived perennial and can be a highly unpredictable and notoriously hard to kill as well as remain dormant yet still viable in the soil for many years.

Please note:

- ⚠ *Japanese knotweed is a long lived perennial, is highly unpredictable and notoriously hard to kill*
- ⚠ *Knotweed Control does not guarantee ERADICATION and the lack of above ground of regrowth does not mean the knotweed has all been killed.*
- ⚠ *Japanese knotweed rhizome can remain dormant deep in the soil for over 20 years & can be broken by disturbance or a change in conditions*

7.3. The "Bund method" (excavation & herbicide treatment)

- There is no room for this method of control on this particular site so it is not an option.

7.4. On site burial

- There is no room for this method of control on this particular site so it is not an option.

8. OTHER INVASIVE NON NATIVE SPECIES (INNS) ON SITE

- During the site visit Knotweed Control observed other Invasive Non Native Species on site not just Japanese knotweed including the following;
 - Cherry laurel (*Prunus Lusitanica*)
 - Buddleia (*Buddleja Davidii*)
 - Himalayan balsam (*Impatiens glandulifera*) –possibly
 - Himalayan honeysuckle (*Leycesteria formosa*)
 - Ash die back (*Hymenoscyphus fraxineus*) likely to be on the ash trees (*Fraxinus excelsior*)

APENNDICIES

- i. KNOTWEED CONTROL SWANSEA LIMITED DETAILS**
- ii. SITE HYGIENE – BIOSECURITY MEASURES**
- iii. JAPANESE KNOTWEED CONTROL METHODS - INTERGRATED WEED MANAGEMENT (IWM)**
- iv. THE PROS AND CONS OF CONTROL METHODS**
- v. JAPANESE KNOTWEED CONTROL METHODS OFFERED BY KNOTWEED CONTROL**
- vi. LEGISLATION**
- vii. CODES & MORE INFORMATION**
- viii. KNOTWEED CONTROL SWANSEA LIMITED'S TERMS & CONDITIONS**
- i. THE ENVIRONMENT AGNECY'S SUGGESTED WORDING FOR EXCLUSION FENCING**
- ii. THE ENVIRONMENT AGNECY'S GUIDE TO JAPANESE KNOTWEED RHIZOME ID**

i. KNOTWEED CONTROL SWANSEA LIMITED DETAILS

Company: Knotweed Control Swansea Limited
Company no: 9815953
Director: Joanne Mullett
Address: 20 Penfilia Road, Brynhyfryd, Swansea, SA5 9HX
Tel: 07790505232
E mail: knotweedcontrol@gmail.com
Website: www.knotweedcontrolwales.co.uk

Surveyor: Jo Mullett
Qualifications: [Property Care Association](#)
Qualified Technician (QTPCA) (2014)
Certified Surveyor of Control & Eradication of Japanese knotweed (CSJK) (2015)
[National Proficiency Test Council](#)
Safe Use in Pesticides PA1, PA6 (2011), PA6AW (2013) & PA6INJ (2016)
Credit & Qualifications Framework for Wales (CQFW)
[Swansea University Advanced Professional Training Bioscience](#)
Invasive Plants: Identification, Ecology and Control: (2013)
[City & County of Swansea](#)
Internal training for the Control of Substances Hazardous to Health (COSHH) (2014)
[Non-native Species Secretariat e-learning](#)
Module 1. Introduction to Invasive Non-native Species
[Module 2a. Introduction to Identification and Recording](#)
Module 2b. Identification of Invasive Freshwater Plants
Module 2c. Identification of Invasive Freshwater Invertebrates
Module 2d. Identification of Invasive Riparian Plants
Module 3. Biosecurity

Property Care Association: www.property-care.org

Knotweed Control is a member of the [Property Care Association \(2015\) Invasive Weed Control Group \(PCA IWCG\)](#) which enables consumers a means of identifying specialist contractors and consultants in the control and management of invasive species, offering the highest levels of technical knowledge and practical skill.

TrustMark: www.trustmark.org.uk

As a member of the Property Care Association Knotweed Control is be default part of the [TrustMark](#), a scheme licensed by Government and supported by consumer protection groups enabling clients to find **local** trustworthy, reliable **tradespeople** operating to Government Endorsed Standards.

Amenity Training Register: www.basis-reg.co.uk/Schemes/Amenity/About-Amenity-Register

The BASIS Amenity Training Register is a professional register demonstrating members have up-to-date training and knowledge to responsibly manage pesticide use in the amenity sector.

The Amenity Standard www.theamenitystandard.co.uk/

A bespoke voluntary quality management standard of he Amenity Forum and backed by the Government to which highlights the need to use professionally approved operators in public spaces and promotes best practice in areas including invasive weed control.

ii. SITE HYGIENE - BIOSECURITY MEASURES

- Good site hygiene - biosecurity measures is essential on sites with Japanese knotweed to minimise the risk spreading of Japanese knotweed around or illegally, off site.
- It only takes a viable piece of Japanese knotweed material 0.7gm, the size of a pea, to make a new plant which can quickly establish so great care is needed when handling contaminated material.
- All Japanese knotweed is classed as a “controlled” waste and has very specific legal regulations regarding transport, storage
- Knotweed Control cannot be held responsible for
 - any cross contamination from untreated local sources
 - cross contamination from material moved around site
 - or new source of Japanese knotweed brought into site

Japanese Knotweed Dos and Don'ts

DO

- ✓ ... Do get professional advice on as soon as possible
- ✓ ... Do ensure contractors are members of the [Property Care Association](#) or INNSA)
- ✓ ... Do check qualifications of operators (National Proficiency Tests Council Certificate of Competence)
- ✓ ... Do work with neighbouring land owners to deal with the Japanese knotweed
- ✓ ... Do make yourself aware of Japanese knotweed & the law
- ✓ ... Do take great care not to spread the knotweed around site especially crown & rhizome material!
- ✓ ... Do thoroughly clean tools, vehicles and machinery if used near Japanese knotweed.
- ✓ ... Do put up fencing and signs to keep out where Japanese knotweed is likely to be disturbed
- ✓ ... Do take care not to read too on the internet – there are so many recycled myths!

DON'T

- ✗ ... Don't panic!
- ✗ ... Don't spread Japanese knotweed by digging, mowing, flailing, cutting, chopping or chipping etc.
- ✗ ... Don't cut down live knotweed – it needs to be big & healthy for the herbicide treatment to be effective
- ✗ ... Don't put knotweed material in council black bag, green waste or take to Civic Amenity Sites
- ✗ ... Don't put it in your compost bin – you won't to kill it this way and you could spread it in the garden.
- ✗ ... Don't allow Japanese knotweed to spread into the wild or neighbouring land
- ✗ ... Don't break the law so find out about your responsibilities
- ✗ ... Don't ignore Japanese knotweed – the problem won't go away on its own & will only get worse!

iii. JAPANESE KNOTWEED CONTROL METHODS - Integrated Weed Management (IWM)

- Integrated Weed Management (IWM) is the use of a combination of preventive, cultural, mechanical (physical), chemical (herbicide) or biological practices in order to control weed, invasive non-native or problematic plants including Japanese knotweed.
- There are several different recognised methods of dealing with Japanese knotweed (see the Property Care Association's [Code of Practice; Management of Japanese knotweed 2018](#))
- Each have their own advantages and disadvantages (see **iv. PROS AND CONS OF JAPANESE KNOTWEED CONTROL METHODS**) and the method chosen depends on a number of factors on site and in relation to the client's requirements and may change with circumstances
- The 4 general methods fall into different types;
 - a. **Physical or mechanical** (including digging/ excavation/ landfill "dig & dump"/ on site burial/ screening/ membranes/ rhizome fragmentation/ cultivation)
 - b. **Chemical or herbicide** control
 - c. **A combination of control** (including "**Bund method**" **excavation & herbicide treatment**)
 - d. **Biological/ biological agent/ bio-control** - currently unavailable as at the research phase
- Each control method for Japanese knotweed is chosen appropriate to the site, the time frames and money available and each have their own advantages and disadvantages (see **iv. PROS AND CONS OF CONTROL METHODS**) but all require great care but there should always monitoring of the site following control due to the highly invasive and persistent nature of Japanese knotweed.
- It is not uncommon for Japanese knotweed to respond to inconsistency/ incorrect/ incomplete herbicide treatment, control or disturbance in unpredictable way making subsequent treatment more complicated, prolonged and expensive.
- Control options currently include;
 - **Herbicide treatment:** applying herbicide to Japanese Knotweed in situ. See **v. JAPANESE KNOTWEED CONTROL METHODS OFFERED BY KNOTWEED CONTROL**
 - "**Dig & dump**" (**excavation & landfill**): exaction of Japanese knotweed material and removal to a landfill. At least 1 season of herbicide treatment is recommended before excavation and some herbicide treatment may be required to "mop up" any small remains.
 - The "**Bund method**" (**excavation & herbicide treatment**): excavation and movement of Japanese Knotweed material to an area of the site where it will not be disturbed. Creation of a bund and subsequent treatment with herbicide.
 - **Screening/ sifting:** excavation of Japanese Knotweed material and screening (sieving) the material through a mesh or other selective system to remove rhizome fragments, which are then disposed of correctly and safely. The soil that passed through the screener will still be classed as controlled waste and may be used on site but must be located where it will not be disturbed. This soil will then need to be monitored for at least two growing seasons and any regrowth treated with herbicide as per the stockpiling treatment above, or dug out (usually manually), before control can be considered complete.

-
- **Rhizome fragmentation and cultivation:** digging and breaking up rhizome material and soil with the aim of increasing the leaf surface area to rhizome volume ratio and to un-compact, disturb and aerate the soil. Crown removal can be integrated into such works, including prior to the commencement of herbicide treatment. The subsequent Japanese Knotweed growth is then treated with herbicide.
 - **On site burial:** excavation of Japanese Knotweed material with burial at another part of the site at an appropriate depth to prevent regrowth. Monitoring of the area will still be required and any regrowth treated with herbicide.
 - **Root barrier membrane:** prevention of horizontal and vertical growth of Japanese Knotweed by installing a vertical and/or horizontal membrane barrier. Monitoring of the area will still be required for at least two growing seasons and any regrowth treated with herbicide.
 - **Removal to landfill:** excavation and transport of Japanese Knotweed material to a licensed landfill using haulage vehicles. Monitoring of the area will still be required and, although all rhizome material should have been removed, any regrowth treated with herbicide.
 - **Biological control:** There are currently no approved methods for the biological control of Japanese Knotweed. Trials are being conducted by CABI for several biocontrol agents.

iv. PROS AND CONS OF CONTROL METHODS

- The following table has been taken from the Property Care Association [Code of Practice Management of Japanese Knotweed](#) and shows a comprehensive list of the pros and cons of different control methods.

Herbicide treatment	
Pros	Cons
- Cost effective - Treatment can be carried out in situ without risk of spreading the plant further. - Quickly reduces the capacity of the plant to spread on/off site. - Quickly eliminates the capacity of the plant to impact built structures. - Easy to administer	- Can take many years to achieve acceptable results, especially where stands are mature. - Management plans that rely solely on herbicide treatment must include at least 2 years of monitoring after all evidence of growth has ceased. - Herbicide treatment alone should not be recommended on sites with future development plans that involve the soil being dug and disturbed. - Construction works cannot continue in areas still containing the plant and the risks associated with landscaping treated soils, e.g. stimulating regrowth, should be made clear to the client and mitigated for. - The use of some herbicides is restricted near waterbodies and desired vegetation. - Some herbicides can persist in the soil. - If soil is disturbed at a later date, regrowth can occur. - Effective control requires expert knowledge of herbicide treatment of Japanese Knotweed. - Soil which contains Japanese Knotweed that has been treated with herbicide is still classed as controlled waste if it enters the waste stream. - Herbicide treatment can induce temporary dormancy.

Stockpiling	
Pros	Cons
• Cost effective • Site work can be undertaken while treatment takes place elsewhere on-site.	• Requires an area that can be left undisturbed for several years. • Soil from a stockpile must remain on the site. • The same cons as herbicide treatment apply in the stockpile area. • Plant material can be accidentally spread e.g. after a change in ownership. • The depth of the stockpiled soil must be appropriate for the future use of the soil. • Rhizome buried deeper in a bund is less likely to express itself and may become dormant; as such, bunds should be created as shallow as is practical and should not exceed 0.5m. • If larger bunds are created, it may be necessary to apply for planning permission.
Screening	
Pros	Cons
• Can be cost effective but not always. • Less material needs to be disposed of to waste facility. • The treated soil can be re-introduced on site as fill or in soft landscaping areas. •	• Where soil needs to be imported, less is required from elsewhere to fill voids created by excavation. • All screened soil is still classed as controlled waste • Small fragments of Japanese Knotweed will still be present in the soil and could lead to re-infestation. • Area where screened soils are re-used must be monitored for regrowth. • Follow up herbicide treatment or manual removal may be required. • Plant material can be accidentally spread during movement. • Soil type and makeup dictate if it can be screened or not. • Rhizome fragmentation and cultivation, including crown removal
Rhizome fragmentation and cultivation, including crown removal	
Pros	Cons
• Increases the leaf surface area to rhizome volume ratio • Breaks up and aerates the soil. • Can increase the effectiveness of herbicides under certain scenarios. • Can improve the potential for eradication on sites where the Japanese Knotweed is persistent. • Crown removal removes a large amount of surface and underground biomass.	• Most above ground vegetation must be cleared, even desirable plants. • Cleared vegetation would usually need to be disposed of. • A large area must be dug to ensure all rhizome containing soil has been included. • Rhizome located deeper in the soil may be missed and result in regrowth. • Soil should be compacted at the end of the treatment to help reduce the potential of deep soil rhizome regrowth. • Crown removal can be time consuming or impractical for large infestations and removed crown must be managed appropriately

Burial	
Pros	Cons
- Does not require a set-a-side area for control. - Work can continue immediately after burial. - Quickly removes the Japanese Knotweed from an undesirable area	- Restrictions remain on the site, e.g. in some areas deep excavation would interfere with buried material. - The use of the area above burial site is limited. - Typically requires a large hole to receive material, so it may not be possible if soil is shallow or water table is high. - The appropriate environment agency must be notified. - Plant material can be accidentally spread during movement.
Root barrier	
Pros	Cons
- Can be installed to reduce the chance of horizontal and vertical rhizome spread. - Can be used to protect structures, hard surfaces and services. - Work can continue immediately after installation in areas protected by membranes.	- Tears in the membrane or poorly sealed seams between sheets can be exploited by growing rhizome. - Can only be installed in favourable weather conditions. - Damp and/or wet conditions and/or work surfaces will reduce the robustness of heat welded seals. - Surface drainage and underground water can affect installation and ponding can occur, all of which must be taken into consideration. - Installation of root barrier is a form of control/prevention to be used in conjunction with other methodology, as it is not in itself a method of eradication.
Landfill	
Pros	Cons
- Quickly removes the Japanese Knotweed from an undesirable area - No restrictions left onsite. - Work can continue immediately after removal. - Fast and efficient	- Relatively expensive - Disposal to landfill reduces valuable landfill capacity and needs haulage (which damages the environment and increases the risk of Japanese Knotweed spreading) and in the long term unsustainable. As such, disposal to landfill should only be considered as last resort when Japanese - Knotweed cannot be classed as a controlled waste with specific storage , transportation and disposal regulations and controls
Biological control	
Pro	Con
Targeted control of a specific species after extensive lab and field tests	- Not currently commercially available as still in the research phase - Does not kill Japanese knotweed outright but another control method to hinder growth

v. JAPANESE KNOTWEED CONTROL METHODS OFFERED BY KNOTWEED CONTROL

GLYPHOSATE BASED HERBICIDE CONTROL

- Generally acknowledged as the cheapest & often the best front-line tool for Japanese knotweed control for residential situations Knotweed Control Swansea Limited only offers in-situ glyphosate-based herbicide/ clearance/ monitoring programmes
- A professional glyphosate-based, aquatic approved herbicide applied following best practice (see [Optimising physiochemical control of Japanese knotweed](#)) via stem injection and/ or foliar spray.
- Control using glyphosate typically takes 3 - 8 years & the success of any treatment is determined by a number of factors some of which are not easy to know or predict even from the site visits as detailed later.
- Tall, strong and healthy knotweed is more susceptible to herbicide treatment so it must be left to grow with no undisturbed with no inference before application (i.e. no mowing, cutting, strimming, herbicide treatment, compaction of soil, covering, tramping, grazing, digging/ excavation or covering with membrane/ mulch/ decking etc.) as it could negatively affect the ongoing treatment and invalidate guarantees and insurance.
- Glyphosate starts working within 24 hours, shows signs of response within 7 days (leaves browning & dropping) and continues to work for over 6 weeks.
- Glyphosate applied to the stems or leaves is translocated to the growing cells of plant (meristem) interfering with protein production, stopping cell division and causing the plant, over time, to starve.
- After each year's treatment, the size of the Japanese knotweed will reduce so in following years there are less leaves and surface area on which the herbicide can be absorbed therefore the response becomes affective less and dramatic, one reason why treatment takes so long.

Please note:

- ⚠ *Knotweed Control cannot be held responsible for any growth or cross-contamination from untreated local sources, cross-contamination across site or new material brought onto site, therefore, good site hygiene (biosecurity) is essential to prevent reinfection and spread. If good site hygiene practices are not followed it could invalidate the guarantees*
- ⚠ *Under the Control of Pesticides Regulations 1986 a [Simple or Higher Risk Agreement for the use of Herbicide near water or a designated site](#) may be required from Natural Resources Wales.*
- ⚠ *Aquatic approved herbicides only must be used near water courses by qualified operators.*

Glyphosate application

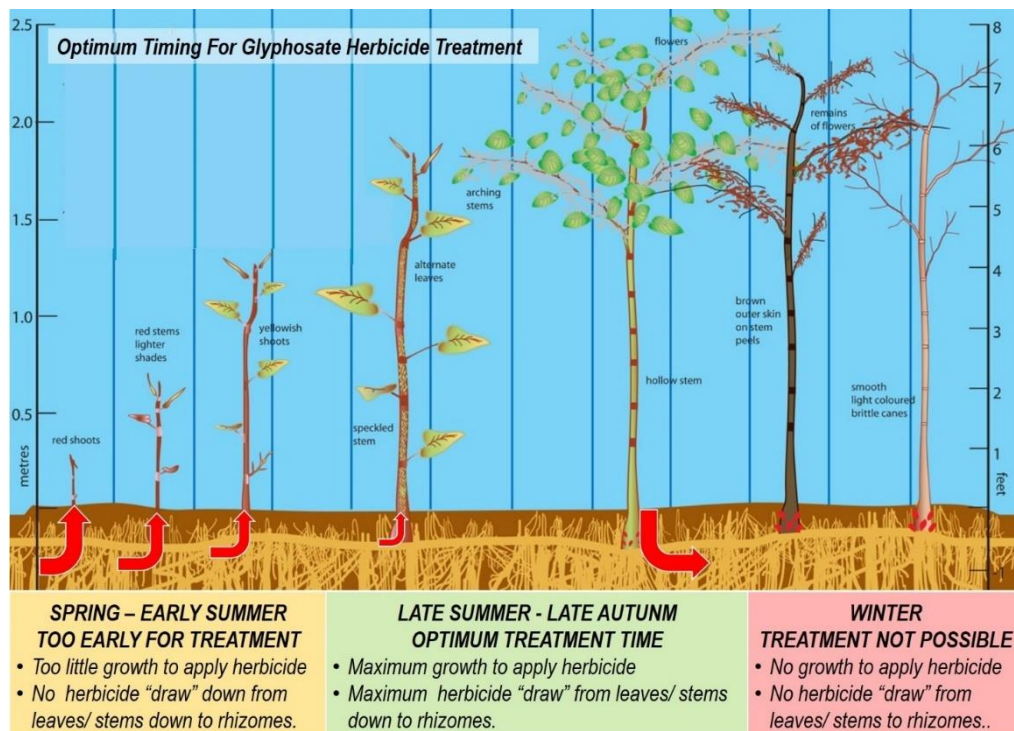
- Stem injection is very effective, highly targeted method but stems need to be at least 8mm in diameter.
- Foliar spray is used on stems less than 8mm in diameter and must be applied when it is not windy and there is no rain for a least an hour after treatment and great care is needed to protect pollinating insects.
- Treatment should be repeated until there is no evidence of regrowth.

People Pets & Animals

- As per product label; *"People, pets and wildlife need not be kept out of treated areas. It is best not to walk in areas where the spray is still wet as transfer to other vegetation may lead to unwanted damage to other foliage. Once the spray is dry this cannot occur. Keep stock out of treated areas for 5 days. Treated poisonous plant species [e.g. ragwort] must be removed before regrazing or conserving"*
- Japanese knotweed is NOT a poisonous plant therefore does not require to be removed after treatment.

Treatment Timing

- Treatment can take place once the knotweed is large enough, green and actively growing, before the knotweed dies back in the autumn or is damaged by early frosts.
- Optimum treatment time is mid-summer to late autumn as described below.



Original graphic
courtesy of Cornwall
Knotweed Forum

Factors Affecting Herbicide Treatment

- Factors affecting treatment efficacy include
 - The length of time an area has been infected (density, health and size of knotweed)
 - Previous control (e.g. herbicide use, digging, cutting, mowing)
 - Time of year treatment takes place
 - Herbicide application method and dosage
 - Re or cross-contamination from existing or new sources
 - Other environmental conditions (e.g. drought, flood, humidity soil type, fertility, plant stress)
 - Incorrect, incomplete or inconsistency control (see **Incorrect Control** below)

Incorrect Control

- Japanese knotweed is unpredictable and can respond to incorrect, incomplete or inconsistent control in several ways, making subsequent treatment more complicated, prolonged and expensive therefore trying to tackle the problem yourself can make the situation worse
- This can include mowing, cutting, strimming, herbicide treatment, compaction of soil, covering, tramping, grazing, digging/ excavation or covering with membrane/ mulch/ decking etc.
- There should be no disturbance or deviation from the Japanese knotweed Management Plan as this can negatively affect the ongoing treatment and invalidate guarantees and insurance.

Response to Incorrect Control

- The response of the knotweed to incorrect control includes;
 - Increased rate of spread and or growth
 - Deformation of subsequent years' growth called sub lethal bonsai growth
 - Enforced dormancy of which has been documented for up to 20 years
- Antagonistic effect of previous to subsequent treatments reducing the overall effectiveness

CLEARANCE & CONTROLLED RHIZOME FRAGMENTATION/ CULTIVATION

- Clearance of old Japanese knotweed canes & other vegetation may be needed especially in the winter to improve access, allow the knotweed to grow impeded and enable better access and herbicide coverage when spraying.
- Knotweed or contaminated material is classed as a “controlled” waste so has strict transportation, storage and disposal regulations so should be left to rot down or incinerated on site.
- After each year’s treatment, the size of the Japanese knotweed will reduce so in following years there are less leaves and surface area on which the herbicide can be absorbed therefore the response becomes affective less and dramatic, one reason why treatment takes so long.
- Controlled rhizome fragmentation/ cultivation at this point of done correctly can stimulate dormant growth and is then treated with herbicide the following season and may be deemed as suitable.

Please note: Clearance

- ⚠ *Great care is needed not to spread any of the viable knotweed material around or off site so good biosecurity measures will be followed.*
- ⚠ *All Japanese knotweed material is classed as “controlled waste” has strict transportation, storage and disposal regulations so should be left to rot down or incinerated on site.*

MONITORING

- Although 2 years is usually sufficient to determine if regrowth will take place, is not a guarantee the knotweed has been eradicated.
- If soil is disturbed after this period regrowth can occur due to exposing deeper rhizome that might be dormant and has been recorded as long as 20 years, after treatment appears to have been complete.
- The Property Care Association’s [Code of Practice: Management of Japanese knotweed 2018](#) states; *“The final monitoring visit is the visit carried out after the completion of control action and after which there has been at least two full growing seasons with no evidence of Japanese Knotweed growth. In this context, growing season refers to the entire active growth period in a given year. Although two full growing seasons are usually sufficient to determine if regrowth will take place, if soil is disturbed after this period regrowth can sometimes occur due to exposing deeper rhizome that might be dormant.”*

vi. LEGISLATION

Professional advice should always be sought regarding the legalities of Japanese knotweed as it is a complex and new area of law, the following points can be used for basic guidance. Although not illegal to have Japanese knotweed on your land:

- **Private nuisance** Japanese knotweed could be deemed as a private nuisance where Japanese knotweed causes someone unreasonable interference with the enjoyment or use of their land
- **Wildlife & Countryside Act 1981**; it is an offense to plant or otherwise allow Japanese knotweed & other plants on Schedule 9 list to spread in the wild. DEFRA define 'the wild' as *"The diverse range of natural and semi-natural habitats and their associated wild native flora and fauna in the rural and urban environments in general. This can also be broadly described as the general open environment."*
- **Environmental Protection Act 1990**; Japanese knotweed & contaminated material is "controlled waste" requiring specific disposal regulations.
- **Hazardous Waste Regulations 2005** if certain herbicides have been used it could be classes as a "hazardous waste" requiring specific disposal regulation.
- **Duty of Care Regulations 1991**: Both controlled and hazardous wastes have specific paperwork requirements for handling, transportation and disposal.
- Under the **Town & Country Planning Act 1990**; Planning conditions to treat Japanese knotweed can be enforced so developers have to treat Japanese knotweed
- **Misrepresentation Act 1965**; If a vendor lies or omits information about a property being "affected" by Japanese knotweed on the TA6 Property Information Form (since 2013) they could be in breach of the.
- Professional negligence; Surveyors have a duty to record the presence of Japanese knotweed otherwise a claim could be made for
- Consumer Protection Regulations; Estate Agents also have an obligation to disclose the presence of Japanese knotweed as a "material fact" through the
- **Anti-Social Behaviour Crime and Policing Act 2014**: knotweed is not specifically mentioned but community protection notices can be used against individuals who are acting unreasonably and who persistently or continually act in a way that has a detrimental effect on the quality of life of those in the locality.
- **Regulation (1143/2014) on Invasive Alien Species (IAS)**; Surprisingly Japanese knotweed is NOT listed a species of Union concern by the European Commission on their or any of the updated lists.
- **Infrastructure Act 2015**, Welsh Ministers and Natural Resources Wales (others in other UK counties) are able to arrange 'Species Control Agreements' & serve 'Orders' on land owners who allow non-native invasive species to establish on their land.

vii. CODES & MORE INFORMATION

Knotweed Control operates in compliance with all current legislation and best practise guidance in the treatment of Japanese knotweed and other invasive non-native species including:

- Property Care Association's [Code of Practice for the Management of Japanese knotweed 2012](#)
- Property Care Association's [Code of Practice; Management of Japanese knotweed 2018](#)
- Royal Institution of Chartered Surveyors (RICS) [Professional standard for Japanese knotweed 2022](#)
- Royal Institution of Chartered Surveyors (RICS) [information paper on Japanese knotweed 2012](#)
- Royal Institution of Chartered Surveyors (RICS) [information paper amendment 2015](#).
- Environment Agency [Managing Japanese knotweed on Development Sites: Code of Practice 2013](#)
- The Invasive Non-Native Specialists Association (INNSA) [Technical Standards](#)
- Swansea University research paper [Optimising physiochemical control of Japanese knotweed 2018](#)
- Fennell, Wade, Bacon; [Japanese knotweed: An analysis of capacity to cause structural damage 2018](#)

For the safe and responsible use, storage and transportation of pesticides Knotweed Control follows:

- DEFRA's [Code of Practice for Using Plant Protection Products 2008](#)
- Crop Protection Association [Amenity Best Practice: Using Pesticides in the Community 2013](#)

More Information

- UK Government www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants
- **Non-native Species Secretariat** www.nonnativespecies.org/
- Devon County Council www.devon.gov.uk/japanese_knotweed
- House of Commons, Science and Technology Committee [Japanese knotweed and the built environment Seventeenth Report of Session 2017–19](#)

viii. KNOTWEED CONTROL'S TERMS & CONDITIONS

1. INTRODUCTION

- These Terms & Conditions (T&C) form the agreement between Knotweed Control Swansea Limited (Knotweed Control) and the client(s) & may be amended within reason any time.

2. COPY RIGHT

- Materials created by Knotweed Control including reports, document formats, diagrams, photos etc. created by Knotweed Control
 - Remain the property of Knotweed Control,
 - Are subject to copyright
 - Cannot be share of reproduced unless by written agreement in advance
 - May only be used for the purpose they were originally intended unless with prior agreement

3. SITE VISITS & REPORTS

- Knotweed Control will undertake visual, non-intrusive inspection from safely accessible areas both inside and where possible, outside the subject property boundaries.
- Information for reports will be based on data collected during site visits and where if suitable, client(s), neighbours, verified biological records as well as other resources such as on line maps/ records & photos.
- Even if there is no obvious Japanese knotweed seen during a visit, does not guarantee there is no Japanese knotweed on site.
- Material could have been unintentionally or deliberately concealed, removed or treated with herbicide but there still could still be dormant or viable rhizome underground, hidden behind walls, hedges or fences or in dense vegetation.
- When Japanese knotweed dies down in the winter with little or no visible signs from winter through spring or sometime event into late summer.

4. BOUNDARIES, PERMISSIONS & ACCESS

- Knotweed Control cannot be held responsible for omissions of land where boundaries plans have not been made available or incorrect or misleading information given.
- The herbicide treatment, clearance & monitoring phase can commence once:
 - Permission is gained from my client from all land owners here the Japanese knotweed is to be controlled.
 - My client(s) is/ are responsible for gaining permission from other land owners where knotweed is to be treated and this will be assumed at the start of any works
 - Conditions are safe and appropriate for the works
- Where landowners cannot be located, the client(s) will be required to give written permission for treatment in the owner's absence.
- The client(s) will need to arrange access with tenants or occupiers etc.

5. ESTIMATES

- Estimates remain valid for the season in which they are given.
- Estimates are an indication of costs but might need to revised for changes such as if;
 - There have been any changes undertaken on site since Knotweed Control's visit,
 - The extent of the Japanese knotweed has been e.g. hidden, treated with herbicide or cleared or
 - The visit has been undertaken during the winter through to spring when it can be hard to estimate the full extent of the knotweed.
- If Knotweed Control deems conditions too dangerous it reserves the right to cancel works, cease operations or charge extra to cover additional risk and/ or costs to make the site safe.

6. PAYMENT & REFUNDS

- Invoices can be paid with cash, cheque or through BACS and are deemed to have been received once funds have been cleared.
- Receipts are available on request as record of payment.
- Some works will be invoiced and must be paid up front and in full before works are undertaken such as guarantee packages when a property is being sold.
- Other works will be invoiced after works have taken place such as site visits, Japanese knotweed Management Plan Reports or annual treatment or which must be paid within 14 days unless stated as different on the invoice or agreed in writing
- Where there are late or non-payments;
 - An administration fee & interest will be charged
 - Legal action will be taken to recover costs
 - Upfront payment for future works may be required or works refused altogether
 - No refunds will be made of payments to date
 - Guarantees will be invalidated.
- Where the Japanese knotweed treated area covers ground with multiple owners land and cost have been agreed to be shared, it is up to my client(s) to pay Knotweed Control's invoice and they must recover costs from other land owners themselves. Invoices will not be split.
- No refunds will be made where Guarantees Packages have been paid for but no longer required.
- Guarantee Packages payment be placed in an escrow Transact account, a third party holding account where the full contact cost of the works is paid up front and Knotweed Control will drawing down money annually after works have been undertaken. Extra fees to cover admin and annual draw down fees.

7. SITE HYGIENE – BIOSECURITY

- Knotweed Control cannot be held responsible for any growth untreated local sources or cross contamination from new contaminated material brought onto site therefore good site hygiene (biosecurity measures) is essential to prevent reinfection and spread.

8. CANCELLATION OF SERVICES

- If the client(s) wishes to cancel services outstanding invoices will be sent and any out of pocket expenses from Knotweed Control will be charged.
- Knotweed Control retains the right to cancel works if the site is deemed unsafe or where invoices unpaid.

9. COMPLAINTS

- Knotweed Control strives to deliver a service that meets client(s)'s satisfaction but the event of a complaint Knotweed Control will work with the client(s) to come to a mutually suitable solution.
- When a problem cannot be resolved between the client(s) and Knotweed Control an independent person or persons from the Property Care Association Invasive Weed Control Group can be asked to inspect services.
- Any costs incurred through this process will be payable by the client(s).

10. GUARANTEE PACKAGES

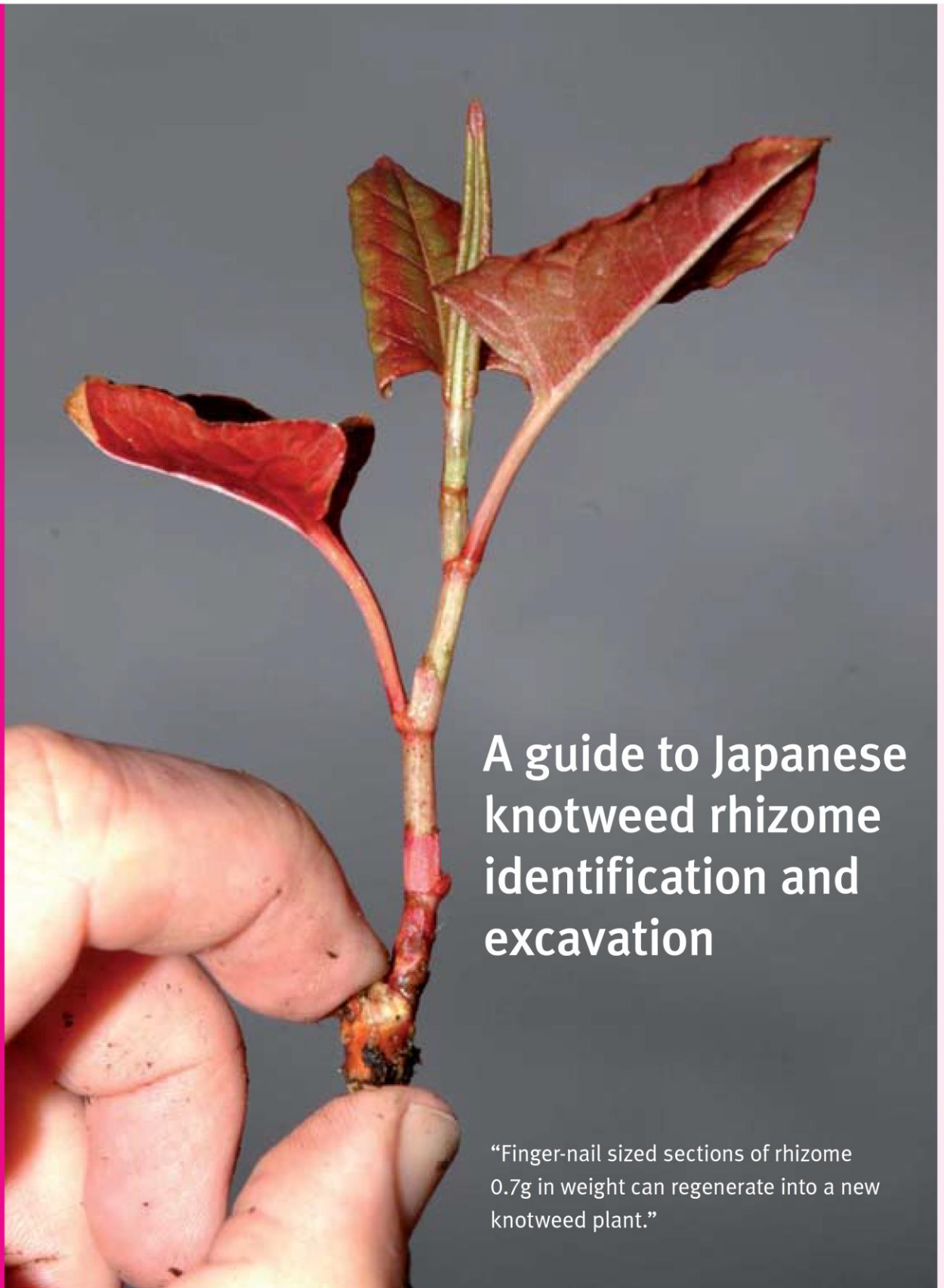
- Knotweed Control offers Guarantee Packages which combine **Knotweed Control's Guarantee** and an **Insurance Backed Guarantee (IBG)**
- Site visits & Japanese knotweed Management Plan (JKMP)_ (JKMP) required for Guarantee Package as creates the word of the works on which the guarantee is based.
- Insurance Backed Guarantee (IBG) policy costs are per property and includes Insurance Premium Tax
- Where Insurance Backed Guarantee (IBG) is required and **others have undertaken treatment, there may be additional costs** due to the extra time required and risk involved (you wouldn't expect a roofer to guarantee someone else's work!)

- The **Knotweed Control's Guarantee** is an guarantee to treat any Japanese knotweed regrowth in the treatment area during the suggested guarantee phase as per the Japanese knotweed Management Plan (JKMP)
- The **Insurance Backed Guarantee (IBG)** is a policy taken out through an third party insurance company to ensure that in the unlikely event Knotweed Control ceases to trade, works will be honoured by another contractor arranged through the insurance company.
- Guarantee packages will;
 - Include a herbicide treatment, clearance and monitoring, details of which are stated in the Japanese knotweed Management Plan (JKMP)
 - **Knotweed Control's Guarantee** then starts after the suggested treatment period
 - After **2 growing seasons with no Japanese knotweed regrowth** a “**completion certificate**” will be issued by Knotweed Control and the **Insurance Backed Guarantee (IBG)** then commences.
- Guarantee packages remain valid as long as
 - There is **no interference in the treatment area** (i.e. no mowing, cutting, strimming, herbicide treatment, compaction of soil, covering, tramping, grazing, digging/ excavation or covering with membrane/ mulch/ decking etc.) Light, hand weeding is permitted.
 - There is **no deviation** from the Japanese knotweed Management Plan by anyone other than Knotweed Control (unless agreed in advance in writing)
 - Knotweed Control may change the detail of the Japanese knotweed in keeping with research, good practice and legation or depending on how the Japanese knotweed responds to treatment
 - Permission Agreement(s) are in place **from all landowners in the treatment area** & for the time frame required and it is the **client's responsivity to gain permission** from land owners before works commence. This is **assumed at the start of the works**
 - There are no permissions revoked during the treatment monitoring and guarantee phase by any other land owners where treatment is to be undertaken a in the Japanese knotweed Management Plan.
 - All invoices are **paid upfront and in full** (unless agreed in advance and in writing)
 - Knotweed Control is informed of any regrowth in the treatment area **as soon as it appears and must be within 3 months of the growth.**
 - Japanese knotweed Management Plans (JKMP) & Guarantee Packages are specific to each individual property although the works themselves may affect other properties.
 - Knotweed Control Swansea Limited's Terms & Conditions apply to Knotweed Control's Guarantee
 - Guarantee Protection Insurance Ltd (GPI)'s Term & Conditions apply to the Insurance Backed Guarantees
 - Guarantee Packages can be transferred to the new property owners as long as Knotweed Control has been given **written notice with the new owner's contact details within 3 months of the sale** (name, address, email and phone number) in order to be able to honour any on-going works. There will be administration costs associated with updating guarantee details by the insurance company but not normally by Knotweed Control Swansea Limited
 - No refunds or legal claims can be made against Knotweed Control Swansea Limited if the points above are not followed and will void Guarantee Packages.



Restricted Access

**The soil in this area
contains Japanese knotweed
and is being treated.
Do not enter unless authorised.
Do not remove soil from this
area without authorisation.**



A guide to Japanese knotweed rhizome identification and excavation

“Finger-nail sized sections of rhizome 0.7g in weight can regenerate into a new knotweed plant.”

In addition to the rhizome described within the identification chart, very new rhizome growth, delicate and white in appearance, can be found during the growing season.

v) How do I remove rhizome?

Put simply, remove the rhizome with extreme care. It is important to read the code of practice before starting excavation. The majority of knotweed rhizome is confined to the top 0.5m of soil. Remove the soil by first scraping off the crowns and surface rhizome and putting to one side. Crowns and rhizome can be dried and burned (see Section 5.2 of Code) prior to treatment with the remaining soil. Crown material in particular is resistant to burning; therefore it is important to regard this material as still potentially infectious.

The next 0.5-1m of soil can then be removed and put aside, and then the remaining soil to a depth of approximately 3m can be excavated. This material should form the base of a bund (See Section 5.5 of Code), or the top layer of buried material (See Sections 5.4 and 4.1 of Code). This process of excavation can be proportioned to any depth of excavation, rather than adopting the 3m generalised depth.

Guidance on the containment and movement of knotweed-infested soil is provided within Sections 2, 6 and 7 of the Code of Practice.

Careful use of the information within this guide should enable operators to effectively inspect the edge of their excavation for remaining rhizome. Depending on the history of the site, the depth to which knotweed rhizome extends can vary between 0.5m – 10m. The history of the infestation, soil type and the water table can all have a profound impact on the extent of rhizome. Situations in which rhizome is greater than 3m tends to be associated with situations in which additional waste has been regularly dumped on an established knotweed stand, or wind-blown sand has created a dune system.

Careful excavation of rhizome has the potential to significantly reduce the volume of waste removed instead of simply excavating a 7m x 3m volume of soil. It also ensures effective removal in situations where a 7m x 3m excavation is an under-estimate. In all cases the precautionary approach must be adopted rather than risk leaving rhizome behind.



A guide to Japanese knotweed rhizome identification and excavation



This guide should be used in conjunction with the Environment Agency code of practice, 'managing Japanese knotweed on development sites'. It has been produced as a separate guide to facilitate use during excavations.

i) What is Japanese knotweed?

Japanese knotweed *Fallopia japonica* was introduced into the UK during the mid-nineteenth century as an ornamental plant. It has since become one of the most problematic invasive weeds in Europe (see Section 1 of Code)

Japanese knotweed is a perennial weed, producing tall canes, up to 3m (10 feet) in height during the summer. The canes have characteristic purple flecks, and produce branches from nodes along its length. These branches support shovel-shaped leaves and clusters of white flowers in autumn. The canes die off in winter, turning brown and shedding their leaves. This produces dense mulch that precludes the growth of native plants.



ii) What is Japanese knotweed rhizome?

Japanese knotweed canes grow from dense crowns that also produce extensive underground stems, called rhizomes. These rhizomes also produce fine, white, hair-like roots. It is hard to state with certainty the likely extent of rhizome spread from the parent plant. Research has shown that rhizome can grow a distance of at least 7m (23 feet) and achieve a depth of at least 2m (6 feet) from the parent crown. However, the actual extent of the rhizome can vary considerably depending on the soil type and the history of the site. Many knotweed infestations start life as a result of fly-tipped waste, and repeated applications of waste on top of the initial infestation can result in a deep matrix of rhizome.



iii) Why is it important to be able to identify Japanese knotweed rhizome?

Whilst knotweed can regenerate from small sections of cane, most knotweed in the UK arises from rhizome and crown material. Finger-nail sized sections of rhizome 0.7 g in weight can regenerate into a new knotweed plant. It appears that the regenerative potential of rhizome varies. Thick, old woody tissue appears to be less able to produce new growth than crown material or thinner succulent rhizome. This has implications for those excavating knotweed rhizomes, where there is a risk of thin terminal rhizome from the edge of the cut being overlooked, which would have a high regenerative potential.

There are often situations in which it is necessary to be able to identify rhizome without the benefit of intact knotweed canes for assistance. If a site is undisturbed it is fairly easy to recognise characteristic summer growth, or the dead winter canes. If the site has already been scraped, it is necessary to inspect the waste material for evidence of knotweed; dead canes, leaves and rhizome, to establish if the weed is present on site. Knowledge of rhizome identification is then required to identify the location and extent of the infestation.

The cost of knotweed management can be significantly reduced if knotweed and non-knotweed waste streams can be kept separate. If poor initial management of a site has already precluded this option, this should be of great concern to any subsequent developer.

Waste hauliers also need to take care to inspect waste material prior to accepting it (See Section 6.2 of Code). Soil containing viable knotweed material is not suitable for disposal under an exemption from Section 34 of the Environmental Protection Act 1990. Section 34 imposes a duty of care on a person who produces, imports, carries, keeps, treats or disposes of controlled waste, or acts as a broker for such wastes.

iv) How do I recognise rhizome?

An identification chart for knotweed rhizome, and a comparison with other commonly encountered roots, is provided within Appendix II. The former Welsh Development Agency, now part of the Welsh Assembly Government, has produced a tabular guide to the identification of knotweed rhizome that is reproduced in Appendix III with their kind permission.



Root / rhizome identification chart - Japanese knotweed

Plants commonly found on development sites



Japanese knotweed *Fallopia japonica* (and other Asiatic invasive knotweeds).

Japanese knotweed is commonly encountered on brownfield sites, where soil disturbance and fly-tipping are common. Close proximity to rivers, roads and railways may also provide a source of invasion.

External appearance of root or rhizome



Colour:

Dark brown, lighter when dried.

Texture:

Smooth skin, becoming rough when desiccated.

Features:

often forming long knotty lengths. May support small red buds, particularly on crowns (base of stem). Fine hair-like roots common, particularly on thinner sections.

Snap Test



Snapability:

Easy. Very carrot-like in structure and colour when fresh. More woody when dry. Older material, particularly near the crown, can be very woody. Colour can vary from deep red to pale yellow, with orange the most common. Younger fresh material usually has a different coloured core.

Scrape Test



Outer layer:

Thin skin, easily removed when fresh.

Inner layer:

Pale threads often run through darker fibrous flesh, particularly in larger rhizome. Often variations in colour through rhizome when split lengthways. Crown material is often caked with soil and can be hard to recognise. Cleaning should reveal red buds and characteristic flesh.

Not all rhizome regenerates in the same manner and the factors that determine rhizome regeneration are the subject of research. It appears that older rhizome becomes woody, and tends to be utilised by the plant for food storage, whereas the fresh young rhizome is more carrot-like and much more infectious. Therefore, the small pieces at the extreme edge of the rhizome ring are potentially the most infectious, and therefore require the greatest of care. It is good practice to excavate another 0.5m around the perimeter of the cut after all rhizome has been apparently removed as a further precaution.

Rhizome is an underground stem, rather than a root, and will tend to spread laterally. The rhizome at the periphery of the matrix will tend to be shallow, therefore the excavation usually describes a saucer-shaped profile.

Having excavated the rhizome it is essential that waste streams are kept separate and that rhizome is not allowed to contaminate spoil that has been removed from areas free from rhizome.



Remember:

Do not excavate rhizome unless you have to, especially if you do not have the capacity to treat the material on site.

A 0.7g piece of rhizome is approximately the size of your little fingernail, and this may be capable of growing into a new plant.

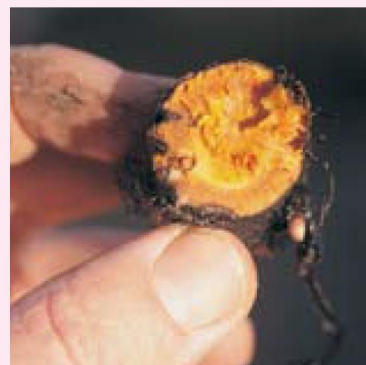
The matrix of the rhizome will vary in size and extent, depending on the nature and history of the site. Careful use of this guide will minimise the waste

you produce and significantly reduce your costs.

Rhizome may remain dormant for at least 20 years. Dormant rhizome may regrow if it is disturbed. Lack of regrowth is not evidence of eradication.

Avoid spreading rhizome by following the guidance given within the knotweed code of practice.

If you spread rhizome into the environment you may be liable to prosecution under the Wildlife & Countryside Act 1981.



Root / Rhizome identification chart - other common plants

Plants commonly found on development sites

**Dock:**

Common on disturbed ground and in topsoil. Agricultural weed and covered by the Weeds Act 1959. Closest native plant to knotweed, so similar root appearance.

External appearance of root or rhizome

**Colour:**

pale red/brown.

Texture:

Fleshy skin.

Features:

Tapering, with branches clustered near the tip. Lacking the knotty appearance of knotweed.

Snap Test

**Snapability:**

Easy. Rubbery, but lacks the carrot-like snappiness of knotweed. Core is similar colour to the rest of the root, lacking the colour variation of knotweed rhizome.

Scrape Test

**Outer layer:**

Thin skin, similar to knotweed.

Inner layer:

fleshy, with a distinct core. Orange/yellow in colour, but usually paler than knotweed.

Plants commonly found on development sites



Buddleja (Butterfly bush):

Introduced shrub (intro: 1890), colonising waste ground and masonry. Spread by seed. Pink, purple or white flowers. Corky bark. Silver underside to leaves.

External appearance of root or rhizome



Colour:

Pale brown.

Texture:

Bark-like.

Features:

Bark easily damaged and revealing the woody core. Tough.

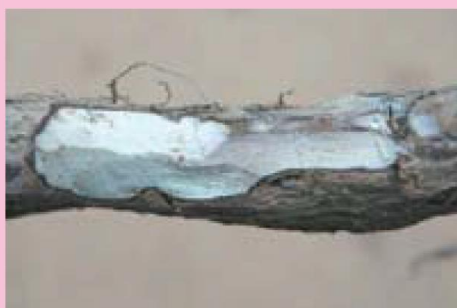
Snap Test



Snapability:

Very poor. Tends to rip rather than break cleanly. Distinct core.

Scrape Test



Outer layer:

Thin wrinkled bark.

Inner layer:

White wood.

Root / Rhizome identification chart - other common plants

Plants commonly found on development sites

**Elder:**

Native shrub, typical of disturbed ground and wasteland. White clusters of flowers in spring, black berries in autumn.

External appearance of root or rhizome

**Colour:**

Pale brown/yellow

Texture:

Fleshy and smooth. Wrinkled if desiccated.

Features:

Fleshy rootlets.

Snap Test

**Snapability:**

Reasonable. Thin sections snap, but larger sections are too woody. Tends to tear.

Scrape Test

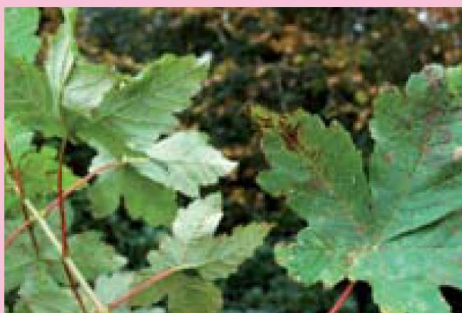
**Outer layer:**

Skin easily removed.

Inner layer:

White fleshy layer with a pale woody core.

Plants commonly found on development sites



Sycamore (and most other trees):

Trees are common colonisers of waste ground. Their roots are occasionally mistaken for rhizome.

External appearance of root or rhizome



Colour:

Mid-brown.

Texture:

Fairly smooth and even.

Features:

Does not fragment as easily as knotweed. Tend to remain in tapered sections. Fine rootlets.

Snap Test



Snapability:

Very poor. Very woody, tending to break and tear rather than snap. Fairly uniform in colour and structure.

Scrape Test



Outer layer:

Tough bark.

Inner layer:

Pale coloured wood.

Table for the identification of Japanese knotweed rhizome

General characteristics	Yes	No
Twig-like appearance		
Fleshy with hardness like carrot		
Brittle when fresh, break easily like carrot		
Young rhizome is white and very soft		
Exterior of rhizome	Yes	No
Colour dark brown, like coffee granules		
Texture of the outer bark leathery		
When bark is removed, tissue is pale orange/yellow		
Nodes at 1-2cm spacing		
Nodes slightly enlarged and 'knotty'		
At nodes white fibrous roots are common		
If present, fresh buds at nodes are red/pink		
Interior of rhizome		
Longitudinal view	Yes	No
Colour: pale orange and light yellow, similar to a carrot		
Central core is usually dark orange/brown, like rust, and sometimes hollow		
Cross section	Yes	No
Cortex with rays coming from centre, like spokes from a wheel		
TOTAL		

If the 'yes score is greater than the 'no' score, then treat the identified rhizome as Japanese knotweed.

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