

Japanese knotweed Management Plan

SURVEYOR DETAILS

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CLIENT

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SITE DETAILS

Address: Tirbach Washery, Ystalyfera, Swansea SA9 2HX
Job ref: TW/ SA9 2HX/2020

DATES

Site visit: 17 February, 5 March 2020 & 5 July
Report: 10 July 2020

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1. SUMMARY OF FINDINGS

- Knotweed Control was commissioned to undertake a site visit and create a management plan for Japanese knotweed and the other invasive non-native species (INNS) at Tirbach Washery, Ystalyfera, Swansea SA9 2HX by Iestyn Evans of I & G Ecological Consulting Limited back in March 2020.
- Winter or early spring is not the best time of the year to undertake assessment of many the invasive non-native species (INNS). New, immature areas of Japanese knotweed infection or areas treated with herbicide can be misleading this time of year. Also delicate non hardy annuals such as Himalayan balsam show little or no evidence during the winter and the seeds from the previous year which will grow into new areas of infection will not show at this time of year.
- Knotweed Control therefore undertook 3 site visits; in February, March and July giving a more realistic representation of the extent and health of the Japanese knotweed and Himalayan balsam in particular.

1.1. Japanese knotweed

- During the site visits the Japanese knotweed found on site and in the general locality, can be seen to be mature and well established and limited as far as can be seen, on the periphery of the site- (see **5.2. Distribution Map**)
- There is evidence of some incorrect or incomplete treatment of some areas of Japanese knotweed on site along the road leading to Cwm Nant Lleici Quarry.
- Japanese knotweed can have a huge impact on time scales, costs and legalities on development sites as well as being highly problematic and destructive on biodiversity and the wider environment so should be treated with caution and respect.
- As Japanese knotweed is so common in the south Wales area its presence and mechanisms of spread are all too often overlooked or ignored. However but when the issues are highlighted for example on development site or when there is a sale of land or property the mind is focused and action required.
- The details of the locations, extent condition and ongoing management of Japanese knotweed make up the bulk of this report.

1.2. Other Invasive Non Native Species (INNS)

- The other invasive non-native species (INNS) were also generally found on the edges of the site (see **5.2. Distribution Map**) with the expansion of Buddleia (*Buddleja davidii*) and Canadian fleabane (*Erigeron Canadensis*) which were found throughout the site
- Although current on the south and east of the site, due its nature Himalayan balsam, will quickly spread throughout if not controlled as it produces many seeds ejected up to 6m from explosive seeds pods.
- For a development site, these other invasive non-native species will have less of an impact but their effect on biodiversity and the wider environment can be highly problematic and destructive and some have legal implications so do need to be taken into consideration. The management of these species are also detailed later in the report (see **8. MANAGEMENT OF OTHER INVASIVE NON NATIVE SPECIES**)

2. BACKGROUND INFORMATION

2.1. Site details

- I&G Ecological Consulting Ltd undertook an Ecological Appraisal of the site in 2019 where several Invasive Non Native Species (INNS) including Japanese knotweed were identified.
- Knotweed Control Swansea Limited has been commissioned to extent of the INNS and suggest a Management Plan with a focus on the Japanese knotweed
- The site is a post-industrial brownfield site just off the A4097 in the village of Ystalyfera.
- Originally it was a coal mine, then a coal washery and more recently a training facility for heavy plant machinery drivers.
- Along the eastern boundary is a steep wooded area sloping up to a lane, there is a flat board area from the main entrance narrowing and becoming steeper and on the western boundary again a steep wooded bank sloping away to the river Twrch.
- The site appears to be mainly old coal spoil, central area and more natural soils (wooded area west and east)

2.2. Reason for the Japanese knotweed Management Plan

- Knotweed Control Swansea Limited has been commissioned to extent of the INNS and suggest a Management Plan with a focus on the Japanese knotweed.

2.3. Site ownership, boundaries, permissions & access

- The ownership of the site is unknown by Knotweed Control Swansea Limited but the request and permission to access the site has been given by I & G Ecological Consulting Limited who also supplied a plan with boundaries.
- Access issues include steep slippery slopes, potential for landslides and tree falls especially after recent stormy weather, dense vegetation including brambles, deep fast flowing river, standing water, potential contamination, old dangerous half demolished buildings, industrial foundations, isolated situation, locked gate, uneven ground with areas of hard-core & spoil, waste, ditches and mounds,

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 and watercourses

- No agreement from Natural Resources Wales is required however due to the slope towards River Twrch and the standing water, an aquatic approved herbicide must be used on 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 must be used near water courses and these are only available to qualified operators to for aquatic areas.*
- ⚠ *Knotweed Control always used an aquatic approved herbicide*

2.5. Protected / priority habitats or species and site designations

- I & G Ecological Consulting Limited has undertaken an Ecological Appraisal and should advise Knotweed Control of any concerns they have over this report.
- The site is a brownfield site with many native and non-native plant species, all of which have some ecological benefit although with INNS, the negative affects generally outweigh any positives.
- All treatment and control operations on site will follow relevant legislation and good practice for habitats and species including;
 - *Legally protected species e.g. nesting birds, bats, dormice, otters, badgers*
 - *Species not protected by the law e.g. pollinators, amphibians, reptiles, birds, other mammals*
 - *Domestic or feral animals e.g. as pets, cats, horses or stock*
 - *Minimise the non-target damage of the herbicide to plant species and habitats.*

3. RISK OF THE JAPANESE KNOTWEED TO POTENTIAL DEVELOPMENT

3.1. Problems for Development

- Even though recent research has shown Japanese knotweed does not cause much of the structural damage reported in many over exaggerated news articles, (see [Japanese knotweed; an analysis of capacity to cause structural damage](#)) it still causes significant problems for developer and property owners as well as substantial environmental damage.
- Problems for developers, property owners or managers include;
 - A reduction in property/ land value (on average by 10-15% but can be as much as 40%)
 - Complications when selling properties
 - Problems with mortgages or loans
 - Refusal of insurance claims where knotweed has caused damage
 - Japanese knotweed Management Plan as a condition for planning permission
 - Potential liability if the knotweed spreads from your property
 - Impeded drainage increasing the potential of flooding
 - Bad publicity and public relations nightmares
- Under the Town & Country Planning Act 1990, developers may have to create and implement a Japanese knotweed Management Plan as a condition for approval to include the biosecurity to limit spread across and off site as well as the best control methods for the particulars of that site
- Although the Environment Agency [Managing Japanese knotweed on Development Sites: Code of Practice](#) 2013 was withdrawn in 2016 with some of the information is out of date (especially the herbicide treatment details therefore so should be used with care) it still is the best guidance for development sites. Each site is different and will require its own plan and approach to the Japanese knotweed on site.

3.2. Problems for residential property & landowners

- Problems for property & landowners or those who manage land include;
 - A reduction in property/ land value (on average by 10-15% but can be as much as 40%)
 - Delayed/ failed property sales- Problems/ refusal of mortgages
 - Refusal of insurance claims
 - Quickly takes over gardens and green spaces
 - Neighbour disputes/ potential litigation

3.3. Problems for residential property sales

- Each lender has its own policy with regard to properties “affected” by Japanese knotweed, dealing with each on a case-by-case basis. Increasingly, lenders insist that any survey, reports or remediation works are undertaken by [Property Care Association](#) members with 5 or 10-year Insurance Backed Guarantees before they release monies.
- Members of the Royal Institution of Chartered Surveyors (RICS) has its own professional code, [Information paper on Japanese knotweed 2012 \(amended 2015\)](#), which uses the risk categories as seen in the table below). However please note, surveyors often work for mortgage lenders so they follow the lender's policy rather than the RICS code.

Risk Category	Descriptors
4	Japanese Knotweed is within 7 metres of a habitable space, conservatory and/or garage, either within the boundaries of this property or in a neighbouring property or space; and/or Japanese Knotweed is causing serious damage to outbuildings, associated structures drains, paths, boundary walls and fences and so on. Further investigations by an appropriately qualified and/or experienced person are required.
3	Although Japanese Knotweed is present within the boundaries of the property, it is more than 7 metres from a habitable space, conservatory, and/or garage. If there is damage to outbuildings, associated structures, paths and boundary walls and fences, it is minor. Further investigations by an appropriately qualified and/or experienced person are required.
2	Japanese Knotweed was not seen within the boundaries of this property, but it was seen on a neighbouring property or land. Here, it was within 7 metres of the boundary, but more than 7 metres away from habitable spaces, conservatory and/or garage of the subject property.
1	Japanese Knotweed was not seen on the property, but it can be seen on a neighbouring property or land where it was more than 7 metres away from the boundary.

4. JAPANESE KNOTWEED ON SITE - GENERAL

4.1. Original source of infection

- It is often impossible to say with certainty the original source of the Japanese knotweed but on this site there is likely to be a few sources including;
 - Fly tipping
 - The river
 - Cutting of road verges with infected tools and equipment
 - Heavy plant machinate on site spreading material (less likely)

Please note:

- ⚠ *South Wales is an especially are a well-known hotspot for Japanese knotweed normally associated with human activity on neglected post-industrial areas, undeveloped or disturbed ground and alongside rivers, canals, roads and railway lines.*
- ⚠ *Viable Japanese knotweed material is easily brought onto site and spread many different mechanisms with rhizome or crown as small as 0.7gm, the size of a pea able to create a new plant and quickly causing a new area of infection.*
- ⚠ *Viable material can be brought onto side and spread by water (rivers, streams, canals, flooding etc.), contaminated material (soils, compost, dumping waste, fly tipping) poor land management practices (e.g. strimming or flailing Japanese knotweed with infected machinery)*

4.2. Length of time Japanese knotweed on site

- Again it is often impossible to say how long the Japanese knotweed has been on site.
- However, Google Earth aerial photographs show knotweed has been in the area since at least 2006 and probably longer.
- Evidence in the field backs up that knotweed has been on site for many years with mature and well established monoculture stands covering large areas with thick tall stems, large crowns, a thin layer of leaf litter
- Other shorter and less extensive areas of knotweed could be more recent sources of infection so less established or could have had some sort of control or treatment

Please note:

- ⚠ *Undisturbed, established and mature Japanese knotweed is tall with thick stems with deep leaf litter as the leaves decompose slowly and large crown material*
- ⚠ *Aerial photographs can sometimes show the historical coverage of Japanese knotweed if the resolution is clear enough or if it is not under tall tree cover.*

4.3. Past, Current & Future Vectors and Other Sources of Re-infection

- All of the obvious large area of Japanese knotweed on site plot has been identified.
- However it must be noted that there is always potential smaller areas;
 - not seen during the site visit hidden by dense scrub and bramble
 - new or immature areas of Japanese knotweed with no winter signs
 - dormant Japanese knotweed rhizome underground

-
- There is also a risk of secondary spread or cross contamination from
 - Contaminated material brought onto site e.g. the river especially in flood, fly tipped waste soil, vehicles, tools or equipment during hedge and verge cutting along Tirbach Road and A4067
 - infected spoil movement as part of the coal mining and washery activities or future development

4.4. History or Evidence of Japanese knotweed treatment, control or removal

- There are a few areas showing signs of control
 - JK01 - herbicide control BEFORE the 2020 growing season and cut winter canes
 - JK02 - herbicide control during 2020 growing season
 - JK03 - herbicide control BEFORE the 2020
 - JK13 - herbicide control BEFORE the 2020 growing season and cut winter canes
 - There are also areas of Japanese knotweed that appear to have had herbicide treatment outside the site namely on the road verge running to Cwm Nant Lleici Quarry along the south of the site boundary and on the boundary to the south west.
- The evidence of herbicide control on site includes;
 - Bare areas of soil with limited vegetation regrowth including small sporadic Japanese knotweed stems showing possible herbicide treatment during the 2019 or previous growing season(s)
 - Sub-lethal bonsai growth (small deformed growth with small leaves) showing incomplete / incorrect treatment with a glyphosate based herbicide observed on growth from the 2019 growing season and new regrowth from this growing season
 - Cut winter canes
 - Browning leaves from 2020 growth grow showing possible herbicide treatment during the 2020 growing season

4.4.1. Photographic evidence of possible Japanese knotweed treatment, control or removal



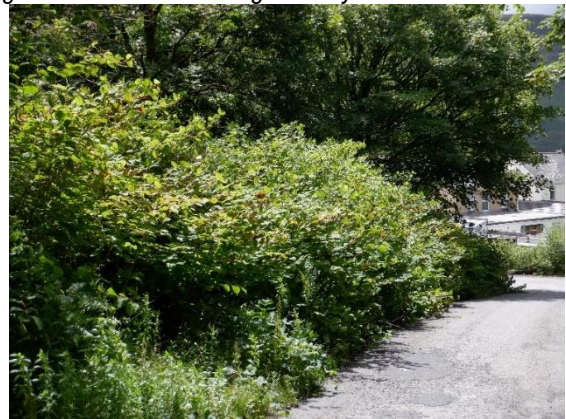
Cut winter stems & sub-lethal bonsai growth from the 2019 growing season in area JK03 as observed on March site visit



JK03 Bare ground with limited regrowth of vegetation. Small sporadic unhealthy Japanese knotweed stems. Cut winter canes & sub-lethal bonsai regrowth from the 2020 growing season as seen during the July site visit in area



Small sporadic unhealthy Japanese knotweed stems as observed during the July site visit in area JK03



Japanese knotweed along the lane to Cwm Nant Lleici Quarry showing browning typical of herbicide treatment

Please note;

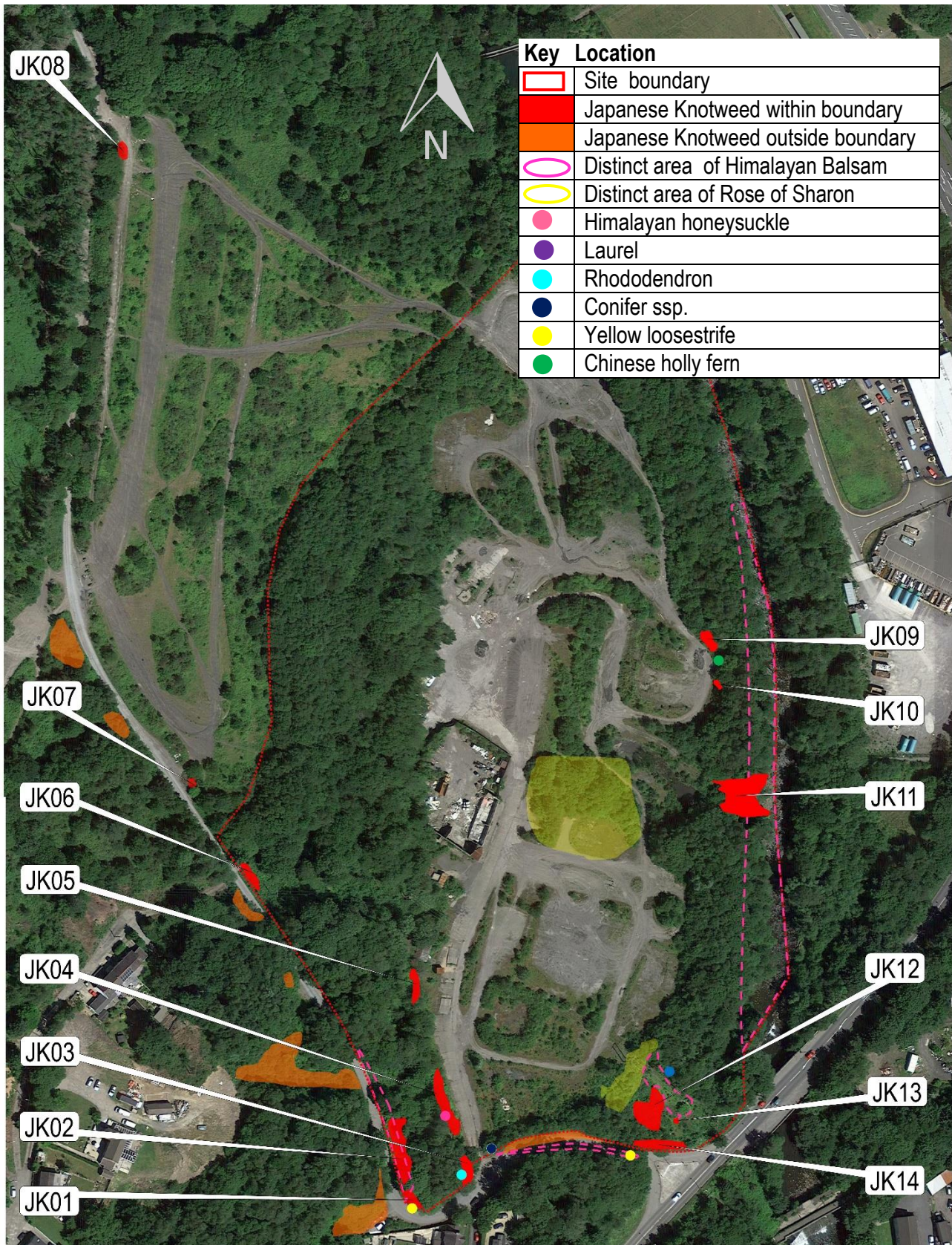
- ⚠ *Different herbicide families used on the same area of Japanese knotweed, even if used at different times can have an antagonistic effect on the plants causing a reduction in the effectiveness of ongoing treatment, making subsequent years' future treatment harder extending the potential treatment times and costs.*
- ⚠ *Where Knotweed Control agrees to take on cases where treatment has already been carried out there will be an extra cost to cover the additional risk.*

5. JAPANESE KNOTWEED ON SITE - DETAIL

5.1. General description

- During the site visits the Japanese knotweed was found in several areas around the edge of the site near the boundaries.
- All areas appear to be mature and established areas generally monocultures of knotweed with a few areas showing evidence of limited herbicide.
- It must also be noted that there may be small viable pieces of rhizome not visible during the site visits which may have been spread anywhere over the site

5.2. Distribution Map



5.3. Japanese knotweed details summary

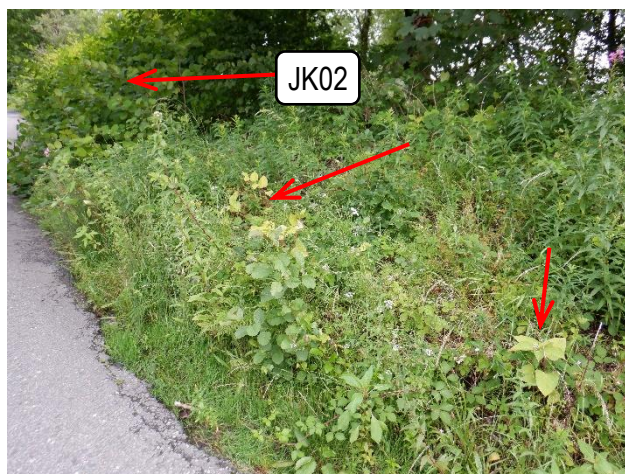
Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK01	Low	20m ²	< 8mm	0.2 - 0.5m	Small-medium unhealthy sporadic 2020 growth Deformed sub-lethal bonsai 2019 & 2020 growth Deformed phytoplasma damage of 2020 growth	Yes Herbicide Cut stems
JK02	High	50m ²	>&< 8mm	0.2 - 2m	Mature established monoculture 2020 growth Tall thick stems Slight browning of the leaves	Yes Herbicide
JK03	Low	30m ²	< 8mm	0.2 - 1m	Bare ground Cut winter canes Small-medium unhealthy sporadic 2020 growth Deformed sub-lethal bonsai 2019 & 2020 growth Deformed phytoplasma damage of 2020 growth	Yes Herbicide Cut stems
JK04	High	80m ²	> & < 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK05	High	25m ²	> & < 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK06	High	35m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK07	High	15m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK08	High	20m ²	>&< 8m	1 - 2.5m	Mature established monoculture with tall thick stems	No
JK09	High	10m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK10	High	<10m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK11	Med-low	60m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK12	High	40m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No
JK13	Low	5m ²	< 8mm	0.2 - 0.5m	Bare ground Cut winter canes Small-medium unhealthy sporadic 2020 growth Deformed sub-lethal bonsai 2019 & 2020 growth Deformed phytoplasma damage of 2020 growth	Yes Herbicide Cut stems
JK14	High	30m ²	> & < 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No

Key for above

	Japanese knotweed areas
	Japanese knotweed showing signs of glyphosate based herbicide undertaken 2019 & perhaps in previously year(s) also
	Japanese knotweed showing signs of glyphosate based herbicide undertaken during 2020

5.3.1. Japanese knotweed area JK01

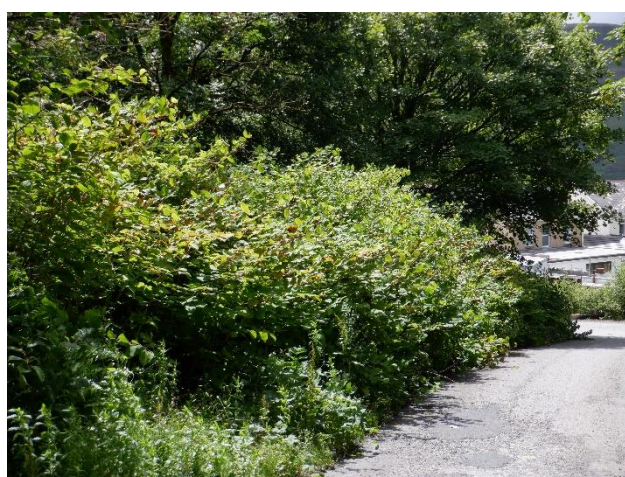
Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK01	Low	20m ²	< 8mm	0.2 - 0.5m	Small-medium unhealthy sporadic 2020 growth Deformed sub-lethal bonsai 2019 & 2020 growth Deformed phytoplasma damage of 2020 growth	Yes Herbicide Cut stems



JK01 as observed during spring & (left) summer (right) 2020 site visits with JK02 just seen in the top left Japanese knotweed showing signs of glyphosate based herbicide undertaken 2019 & perhaps in previously year(s) also

5.3.2. Japanese knotweed area JK02

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK02	High	50m ²	>&< 8mm	0.2 - 2m	Mature established monoculture 2020 growth Tall thick stems Slight browning of the leaves	Yes Herbicide



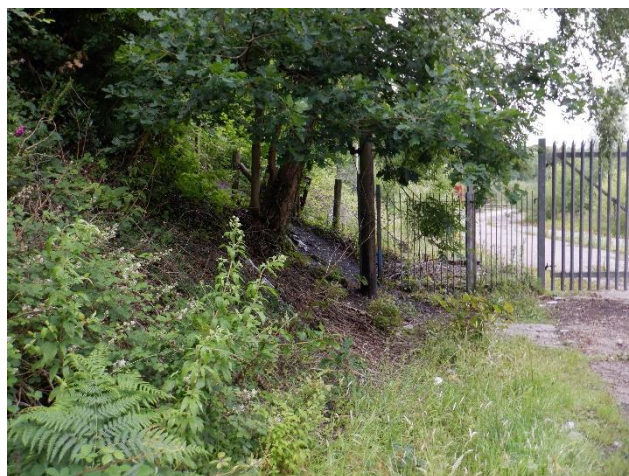
Dead old orangey canes from 2019 growth season cut and left on ground in spring (left)
Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right)
Some leaves browning showing possible herbicide treatment undertaken during 2020 (right)

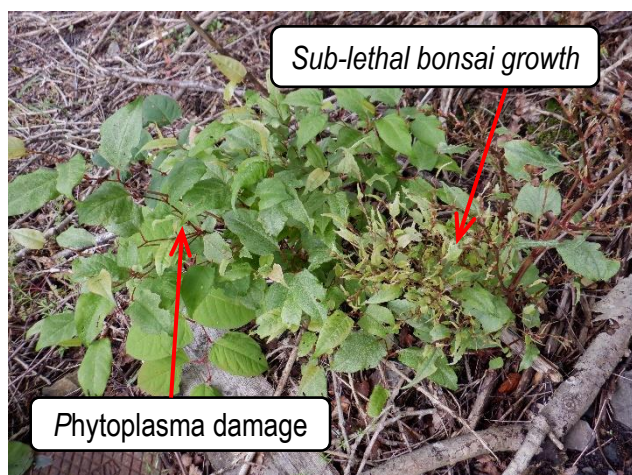
5.3.3. Japanese knotweed area JK03

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK03	Low	30m ²	< 8mm	0.2 - 1m	Bare ground Cut winter canes Small-medium unhealthy sporadic 2020 growth Deformed sub-lethal bonsai 2019 & 2020 growth Deformed phytoplasma damage of 2020 growth	Yes Herbicide Cut stems



*JK03 as observed during spring 2020 site visit
Bare patches due to "foot traffic" compaction as well as herbicide treatment
Cut winter canes (circled in red)*





JK03 as observed during summer 2020 site visit

Bare patches due to “foot traffic” compaction as well as possible herbicide treatment

Limited small to medium sporadic Japanese knotweed from the 2020 growing season

Deformed sub-lethal bonsai 2019 & 2020 growth

Deformed phytoplasma damage of 2020 growth caused by a bacterial parasite (phytoplasma) carried from plant to plant by insects (seen as elongated silvery leaves and fragile “crepe” stems)

5.3.4. Japanese knotweed area JK04

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK04	High	80m ²	> & < 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



JK04 as observed during spring & (left) summer (right) 2020 site visits

Dead old orangey canes from 2019 growth season still standing in spring (left)

Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right)

5.3.5. Japanese knotweed area JK05

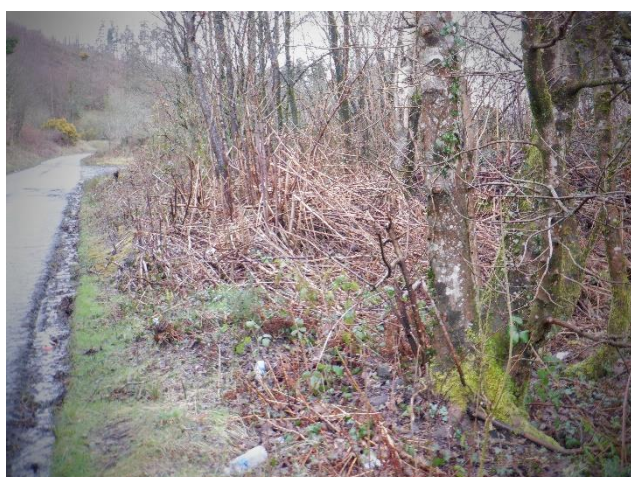
Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK05	High	25m ²	> & < 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



JK05 as observed during spring & (left) summer (right) 2020 site visits
 Dead old orangey canes from 2019 growth season still standing in spring (left) behind buddleia
 Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right)

5.3.6. Japanese knotweed area JK06

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK06	High	35m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



JK06 as observed during spring 2020 site visit
 as observed during spring & (left) summer (right) 2020 site visits
 Dead old orangey canes from 2019 growth season lying mainly on ground in spring (left)
 Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right)

5.3.7. Japanese knotweed area JK07

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK07	High	20m ²	>&< 8m	1 - 2.5m	Mature established monoculture with tall thick stems	No



JK07 as observed during spring & (left) summer (right) 2020 site visits
 Dead old orangey canes from 2019 growth season still standing in spring (left)
 Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right)

5.3.8. Japanese knotweed area JK08

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK08	High	20m ²	>&< 8m	1 - 2.5m	Mature established monoculture with tall thick stems	No



JK08 as observed during spring & (left) summer (right) 2020 site visits
 Dead old orangey canes from 2019 growth season still standing in spring (left)
 Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right) High incidence of fly tipping in this area

5.3.9. Japanese knotweed area JK09

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK09	High	10m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



JK09 as observed during spring & (left) summer (right) 2020 site visits
 Dead old orangey canes from 2019 growth season still standing in spring (left)
 Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right)

5.3.10. Japanese knotweed area JK10

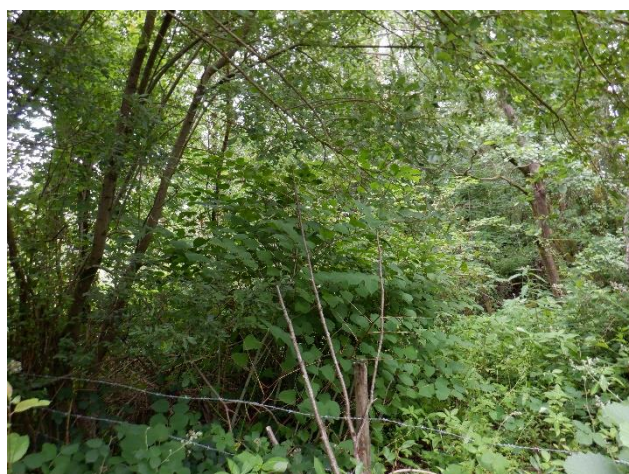
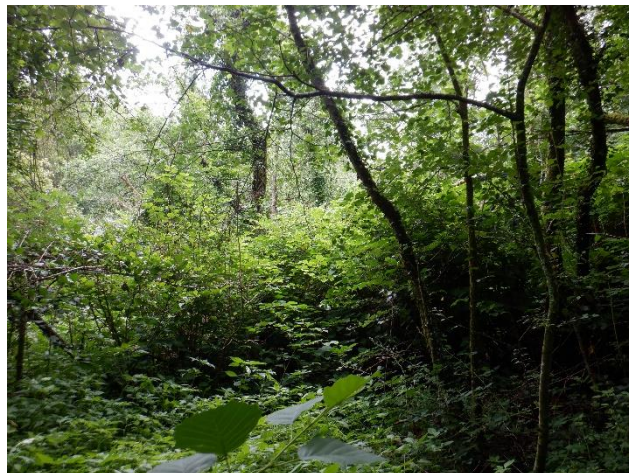
Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK10	High	<10m ²	>&< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



JK10 as observed during spring 2020 site visit
 Dead old organget winter canes still standing in spring
 Tall mature monoculture of healthy Japanese knotweed summer growth

5.3.11. Japanese knotweed area JK11

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK11	Med-low	60m ²	>< 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



JK09 as observed during spring & (left) summer (right) 2020 site visits
 Dead old orangey canes from 2019 growth season still standing in spring (left)
 Tall mature monoculture of healthy Japanese knotweed summer growth 2020 (right)

5.3.12. Japanese knotweed area JK12

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK12	High	40m ²	> < 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



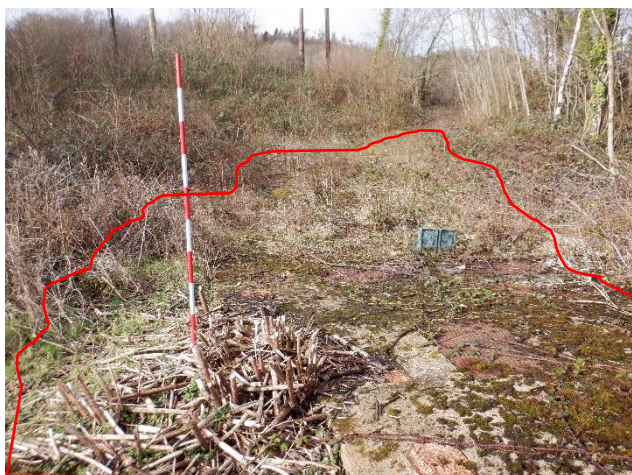
JK12 as observed during spring & (left) summer (right) 2020 site visits

Dead cut canes from 2019 growth season in spring (left)

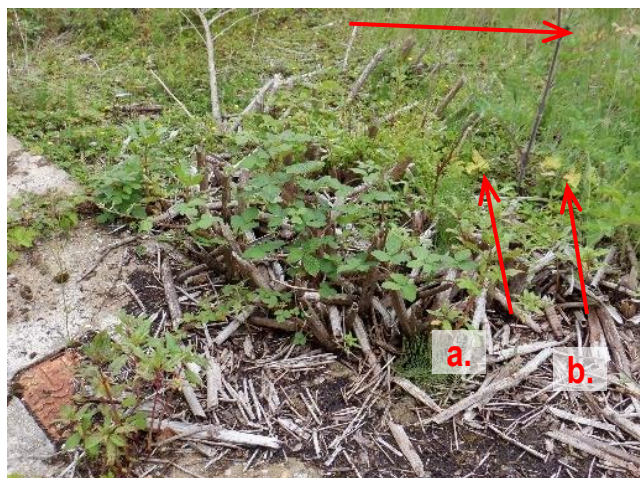
Tall mature clump of healthy Japanese knotweed summer growth 2020 (right)

5.3.13. Japanese knotweed area JK13

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK13	Low	5m ²	< 8mm	0.2 - 0.5m	Bare ground Cut winter canes Small-medium unhealthy sporadic 2020 growth Deformed sub-lethal bonsai 2019 & 2020 growth Deformed phytoplasma damage of 2020 growth	Yes Herbicide Cut stems



JK13 general area as observed during spring & (left) summer (right) 2020 site visits

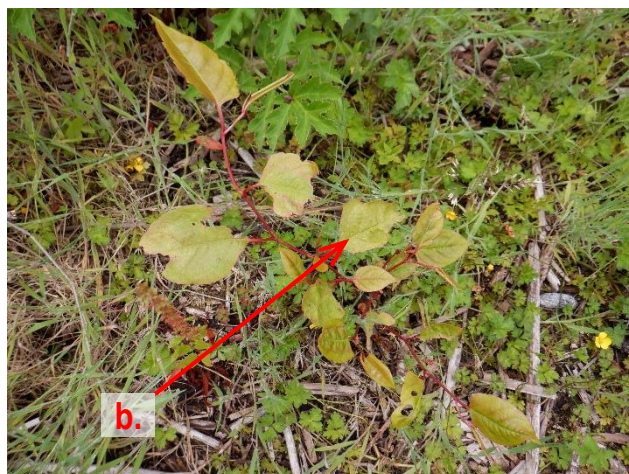


JK13 general area as observed during spring & (left) summer (right) 2020 site visits

Area of cut canes (left) from 2019 growth season

Regrowth from 2020 growing season typical of this area (right);

- a. sub-lethal bonsai growth –red and elongated stem
- b. small sporadic unhealthy Japanese knotweed stems typ



Regrowth from 2020 growing season

a. sub-lethal bonsai growth (left)

b. small sporadic unhealthy Japanese knotweed stems (right)

5.3.14. Japanese knotweed area JK14

Area	Density	Area (approx.)	Stem diameter	Stem height	Description	Evidence of control
JK14	High	30m ²	> & < 8m	1 - 2.5m	Mature established monoculture of knotweed with tall thick stems	No



JK14 general area as observed during spring & (left) summer (right) 2020 site visits

Dead cut canes from 2019 growth season in spring (left)

Tall mature clump of healthy Japanese knotweed summer growth 2020 (right)

6. SITE SPECIFIC JAPANESE KNOTWEED CONTROL RECOMMENDATIONS

6.1. Japanese Knotweed Management Plan Objectives

- Each site and situation is unique with regard to the control and management of Japanese knotweed with variations in the extent and age of infestation, location of planned infrastructure, access points, time and money available therefore different control methods and combinations can be adopted to suit the client, specific site and subject property (see v. **GENERAL MANAGEMENT OPTIONS**).
- According Environment Agency's [Managing Japanese knotweed on Development Sites: Code of Practice](#) a Japanese knotweed survey and management should always be put in place before any works take place on a development site so the risk can be assessed, the best control method agreed and biosecurity measures put in place to avoid any unnecessary spread across or off site.
- Knotweed Control suggests these are the objectives of the Management Plan currently although these will change over time as there is information about the scope of any development.

Objective 1	• To assess the extent, location and health of the Japanese knotweed on site
Objective 2	• To contain existing Japanese Knotweed and prevent further spread across and off site.
Objective 3	• To identify appropriate control and management programme of the Japanese knotweed
Objective 4	• To identify appropriate monitor the Japanese knotweed's response to control
Objective 5	• To raise awareness of highly invasive nature of Japanese knotweed
Objective 6	• To ensure no legislation is breached in relation to the Japanese knotweed

6.2. Japanese Knotweed Management Plan Priorities

Area	Priority
JK01	High
JK02	High
JK03	High
JK04	High
JK05	High
JK06	High
JK07	High
JK08	High
JK09	High
JK10	High
JK11	High
JK12	High
JK13	High
JK14	High

- The Japanese knotweed identified during Knotweed Controls' site visit and appears to be limited to the outer edges of the development site but all will potentially have an impact on any development on site .
- However it is essential to ensure no growth or cross contamination to spread the knotweed over the site or off site in the short, medium and long term so Knotweed Control suggests the following are the priorities of the Japanese knotweed Management Plan.

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- Areas **JK01 – JK014** are **ALL POTENTIALLY HIGH RISK** for the development site and should be included in a biosecurity, control & monitoring programme as they are (see **5.1. Development Plan**)
 - Within the development boundary,
 - Viable Japanese knotweed material could be spread around the site especially during the vegetation clearance or earth works phases
 - Possibly could affect the value & saleability of properties
 - If left with no control the knotweed could grow and spread to a wider area and create more potential to spread

6.3. Control methods

- There are alternative treatments (see appendix **v. GENERAL MANAGEMENT OPTIONS** but in situ herbicide treatment and monitoring is the best option in this case as it is;
 - The cheapest option
 - The most environmentally sustainable option
 - It the least disruptive to the develop as a whole
 - The lowest risk for cross contamination of Japanese knotweed material around and off site
- With the omission details of any potential development it is impossible to give any more advice at this time but again as per the points above the following suggestions are the best option at this time.

6.3.1. Vegetation Clearance Works

1. Before any works take place it is good practice (especially before any vegetation clearance or earth works), that an exclusion fence 7m around all area of living Japanese knotweed is erected with signs along the lines of “Area contaminated with Japanese knotweed”, “No unauthorised access” “Japanese knotweed in this area is under a herbicide management programme”
2. Also the site should be secured so that no more dumping potentially contaminated material is brought onto site as well as to stop any more unwanted fly tipping.

 *Rhizomes deep in soils have been found to be able to lie dormant for long periods, as long as 20 years (Environment Agency’s [Managing Japanese knotweed on Development Sites: Code of Practice 2013](#)) but can be re-activated when disturbed and exposed to suitable conditions with light and water.*

6.3.2. Herbicide Treatment Programme

3. It is recommended that an initial herbicide treatment is undertaken to weaken the vigour of any viable Japanese knotweed on site even if in the long term excavation may be required in some specific areas.
4. From late summer to autumn (but before natural autumnal leaf fall or any frosts) the Japanese knotweed should be treated with an aquatic approved glyphosate based herbicide applied according to best practices via;
 - Foliar spray (for stems more than 8mm in diameter) or
 - Stem injection (for stems less than 8mm in diameter).
5. Typically, glyphosate based herbicide treatment typically takes 3-8 years but it is hard to predicate on a site with treatment and disturbance and previous treatment as this can affect long term responses and it is a notoriously unpredictable plant with many different survival strategies.

-
6. During the winter, the Japanese knotweed and any encroaching vegetation such as bramble should be carefully cut and mulched and left in situ to rot down.
 7. After each year's treatment, the Japanese knotweed will become smaller and smaller and should be re-treated and cut down as above points 3. - 7. until there is no regrowth with a monitoring programme to follow as Japanese knotweed is a long lived perennial

Please note;

 *Glyphosate based herbicide cannot always be translocated to the extremities of the rhizomes and some viable material will remain therefore no evidence of regrowth although this is no guarantee that the Japanese knotweed has been totally eradicated from site.*

6.3.3. Monitoring Programme

8. The Japanese knotweed must be monitored on an annual basis for several years after treatment and long term monitoring is always recommend due to Japanese knotweed's unpredictable nature.
9. The new owners, tenants or whoever manages the site should be made aware of the potential for Japanese knotweed on site.

6.3.4. Pre development & development phase

10. Once a detailed plan for the development is in place a more detailed management plan for the Japanese knotweed can be created as there may be a requirement for immediate remediation which require "dig and dump" (excavation and landfill) or scope for other solutions such as the "bund method"(excavation and further on site herbicide treatment).
11. A Japanese knotweed Clerk of Works (JKCoW) should be appointed on site and no works should take place in this exclusion area without direct supervision. A (JKCoW) should be able to recognised Japanese knotweed leaves and stems as well as potentially viable propagules including rhizome and crown material.
12. Ideally all workers on site should have a tool box talk and be aware of the potential and implications of spreading Japanese knotweed around and off site. This knowledge would be transferable to all sites although as each site has its own specific management regime.
13. If any workers on site come across any other areas of what they think is Japanese knotweed, the Japanese knotweed Clerk of Works (JKCoW) should be asked to inspect the area and if it is confirmed as Japanese knotweed is becomes another area, steps 1. - 7. should be followed.

6.3.5. Removal of Soil or Spoil from Site

14. If any soils or spoil are to be removed anywhere near potential areas of Japanese knotweed, it can't be guaranteed the soils are not contaminated it must be assumed to be and treated as a "controlled waste".
15. Any vehicles working in the areas of or with potentially Japanese knotweed contaminated materials should;

- Use a dedicated track way so if there is any cross contamination it is confined to these specific areas. Ideally line with a specialist membrane so any contamination can be contained
- Thoroughly power washed in a bunded area lined with a specialist membrane again so any contamination can be contained
- Inspected for any Japanese knotweed rhizome material BEFORE being taken off site to make sure it does not infect off site or during transit – and rewashed again if not clean.

16. Controlled waste has strict legislation governing its transportation and disposal including it must be;
- Taken to a landfill site licenced and willing to accept Japanese knotweed
 - The volume and nature of the waste must be agreed in advance with the landfill site
 - All paper work including transfer notes must be in place to show duty of care at each stage
 - Transported by a licenced waste carrier in suitably covered vehicle
 - Vehicles must be thoroughly pressure washed and inspected when leaving the landfill

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” and 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 pressure washing 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)*

6.3.6. Ongoing Site Management

17. Anyone who takes on the longer term management of the site and will need to ensure any regrowth is left undisturbed (unmown, untrimmed, uncut, no digging or herbicide treatment), until late summer or autumn, the optimum time for treatment and steps 4. - 6. are repeated until there is no regrowth.

7. MANGEMENT OF OTHER INVASIVE NON NATIVE SPECIES ON SITE

- The invasive and / or non- native species (INNS) found included but may not be limited to;
 - Buddleia (*Buddleja davidii*)
 - Canadian fleabane (*Erigeron Canadensis*)
 - Chinese holy fern (*Cyrtomium falcatum*)
 - Himalayan balsam (*Impatiens glandulifera*)
 - Himalayan honeysuckle (*Leycesteria formosa*)
 - Japanese Knotweed (*Reynoutria japonica*)
 - Land hoppers (*Arcitalitrus dorrieni*)
 - Laurel (*Prunus rotundifolia*)
 - Rhododendron ponticum
 - Rose of Sharon (*Hypericum calycinum*)
 - Yellow loosestrife (*Lysimacha punctata*)



Himalayan balsam



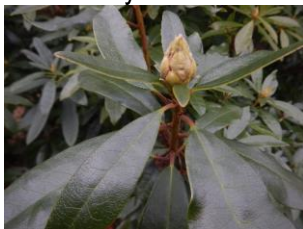
Rose of Sharon



Yellow loosestrife



Laurel



Rhododendron ponticum



Chinese holy fern



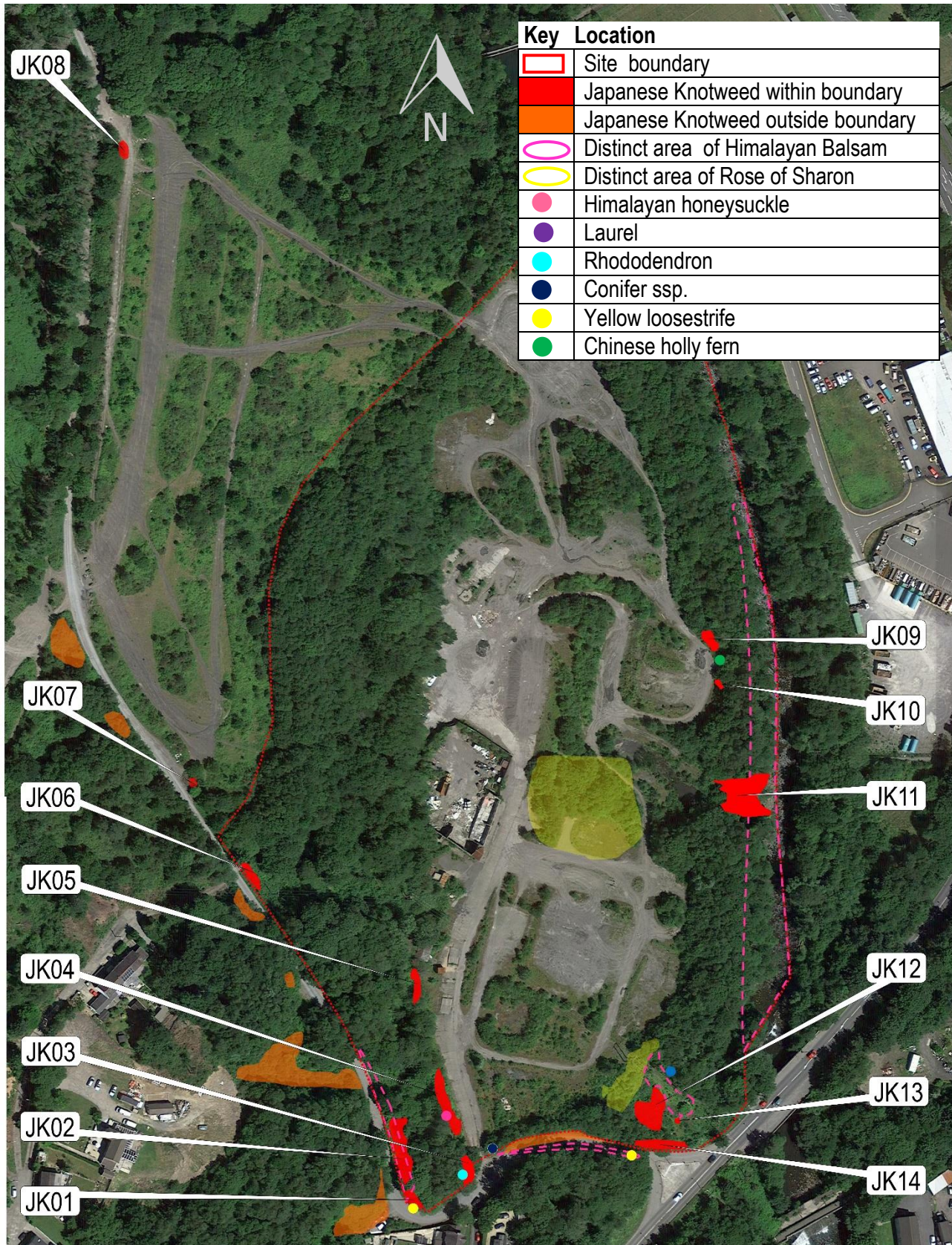
Himalayan honeysuckle



Canadian fleabane

- For a development site, the other invasive non-native species will have less of an impact but their effect on biodiversity and the wider environment can be highly problematic and destructive.
- Normal vegetation clearance methods for development sites such as felling, grubbing, root removal, stump grinding and topsoil scraping will generally remove all the INNS species on site namely Canadian fleabane, Chinese holy fern, Himalayan honeysuckle (*Leycesteria formosa*), Laurel, Rhododendron ponticum, Rose of Sharon and Yellow loosestrife (*Lysimacha punctata*)
- However it is the more invasive and persistent species within seed bank the soils on site and the continuing new sources of seeds, windblown or waterborne of Himalayan balsam (*Impatiens glandulifera*) and Buddleia (*Buddleja davidii*) in particular that need the longer term control and monitoring.

Distribution Map



MANGEMENT OF HIMALAYAN BALSAM

Himalayan balsam; risk to development sites

- Himalayan balsam, being a shallow rooted annual and fairly easy to control, will not pose any risk to the land and development on site
- However the seeds can be persistent and if they get into the developments landscape features they can be persistent and in water course and wetland in particular, can cause wider environmental problems
- Great care is required not to allow the spread of Himalayan balsam off site and especially into the wild as it is an offence under the Wildlife and Countryside Act 1981

Himalayan balsam; ecology

- Himalayan balsam (*Impatiens glandulifera*) is a tall non-hardy annual plant with a hollow stems and whorled, serrated narrow leaves.
- Sickly sweetly scented flowers white to dark pink or purple flowers give rise to explosive seed pods in summer
- Although easy to identify as a mature plant with its pink-purple flowers, fleshy stem and characteristic leaves, the seedlings and last year's dead stems of this annual are more difficult to spot.
- Introduced as a garden plant in the early 19th century and first recorded in the wild in 1855. Often favoured by the general public for its aesthetic appeal and is still deliberately planted on occasion. Now widespread in the UK, especially along urban rivers.



Himalayan balsam; Invasive Nature

- Himalayan balsam quickly can become dominant, shading out and growing faster than other species
- The plant spreads solely by seeds, which are small and easily carried by wind or water and are thrown from explosive seed cases which can be sent 6m from the parent plant.
- Each plant can produce up to 15,000 seeds which can remain viable in the soil for 2-5 years so control needs to continue even if the source of infection is removed.
- Himalayan balsam are associated with water courses and wet areas as well as linear features such as roads and hedges where they can grow and spread without much disturbance or management.



Himalayan balsam; Management Options

- Himalayan balsam is an annual plant and therefore the key objective for control of Himalayan balsam is to exhaust the plants seed bank. This is done by repeatedly removing adults before they set seed. Seed bank longevity is about 2 years and control programmes should be undertaken for the whole of this period followed by a 5 year monitoring programme.
- Disturbed bare soils are prone to new undesirable invasive, therefore Knotweed Control recommends revegetation where possible and can help suggest species.
- Currently there are 3 known control methods for Himalayan balsam:
 - a. Physical/ mechanical control
 - b. Chemical/ herbicide control
 - c. Biological control

a. Physical/ mechanical control

- Hand pulling the plant including the flat root base is the most effective way of removing plants in small areas.
- Care should be taken to remove the whole plant as plants can regrow within the same season if cut and not fully removed or if settles back in moist soil.
- In larger areas brushcutting, strimming or scything can be undertaken but care is needed in wet areas or areas where there are objects that might be sticking up.
- The plants must be cut below the lowest node otherwise it can coppice the plant and make more flowers which makes more seeds, exacerbating the problem.
- Grazing animals generally don't eat Himalayan balsam but they are be vectors spreading the can also achieve control but cutting should not be attempted once the seed heads have formed, as this would effectively spread the plant further than would otherwise.
- Continual monitoring should be undertaken to prevent reseeding as cut plants can regrow.
- The first monitoring visit should be timed shortly after cutting, as Himalayan Balsam has been known to re-grow within weeks of control.

b. Chemical /herbicide control

- Herbicide treatment should be the last resort generally for most invasive species but it can be used for high density large populations and as Himalayan balsam is so easy to pull or cut herbicide treatment is not recommended or an environmentally sustainable or responsible option.
- The use of herbicides near or on a watercourse may need special approval by Natural Resources Wales.
- Chemical control would need to be repeated with viable seeds generating in future years.

Himalayan balsam; Site Hygiene – Biosecurity

- Himalayan balsam seeds are very small and can easily be transferred around and off site
- Care must be taken with personnel working amongst and within 6 m of flowering and especially seeding Himalayan balsam where they can be carried in folds of clothing and in the treats of footwear.
- There should be correct disposal of Himalayan balsam plants and seeds. Do not discard plants with developed seed heads outside the existing area of contamination.
- There should be careful control of movement of soils contaminated with seed or control if and when the seed germinate from soil moved to new locations for several years as seeds remain viable.
- The site should have on going management of the Himalayan balsam especially if there is a reservoir or reoccurring sources of seed.

Himalayan Balsam; Legislation

- Under the Wildlife & Countryside Act 1981 it is a criminal offence plant or allow Himalayan balsam to spread into the wild.

Himalayan Balsam; Codes & Further Information

- Welsh Government [Himalayan balsam: controlling it on your land](#)
- Property Care Association's [Management of Himalayan Balsam](#)
- Non-native Species Secretariat [Himalayan balsam factsheet](#)
- CABI [Biological control of Himalayan balsam](#)

MANGEMENT OF BUDDLEIA

Buddleia; risk to development sites

- Buddleia is fairly easy to control although is prolific and invasive on neglected sites, and does not pose any significant risk to a development on site.
- However the seeds can be persistent and if they get into the developments landscape features they can be persistent and are windborne so can travel long distances to reinfect.



Buddleia; ecology

- Buddleia is a long lived perennial evergreen woody shrub with opposite lanceolate leaves are 7–13 cm long, densely covered with short matted woolly hairs beneath when young. Long arching woody branches have dense terminal spike of purple or mauve flowers consisting of hundreds of purple to white coloured and highly fragrant trumpet-shaped petals
- Often favoured for its aesthetic appeal and rich in nectar loved especially by butterflies as is commonly known as “butterfly bush” so “butterfly bush”
- Now widespread in the UK, especially on urban brownfield sites.



Buddleia; Invasive Nature

- Buddleia quickly can become dominant, shading out and growing faster than other species
- The plant spreads solely by seeds, which are small and easily carried by wind or water
- Each plant can product up to 40,000+ seeds which can remain viable in the soil for 2-5 years so control needs to continue even if the source of infection is removed.

Buddleia; Management Options

- Buddleia is a long lived perennial shrub which therefore the key objective for control is to removed mature seeding plants and to exhaust the plants seed bank. This is done by repeatedly removing adults before they set seed. Seed bank longevity is about 2 years and control programmes should be undertaken for the whole of this period followed by a 5 year monitoring programme.
- Disturbed bare soils are prone to new undesirable invasive species therefore Knotweed Control recommends revegetation where possible and can help suggest species.
- Currently there are 2 known control methods for Himalayan balsam:
 - a. Physical/ mechanical control
 - b. Chemical/ herbicide control
- a. **Physical/ mechanical control**
 - Mechanical clearing of top soils as well as felling/ grubbing out roots is the most effective way of removing plants.
 - If the roots of large plants aren't removed, they are prone to coppicing and regrow from stumps so may need herbicide treatment (see below)
 - The first monitoring visit should be timed shortly after cutting, as Himalayan Balsam has been known to re-grow within weeks of control.
 - Physical control would need to be repeated with viable seeds generating in future years

b. Chemical / Herbicide Control

- Herbicide treatment of small shrubs on the foliar is possible in the summer or in the winter larger shrubs can be cut and stump treated with a herbicide
- The use of herbicides near or on a watercourse may need special approval by Natural Resources Wales.
- Chemical control would need to be repeated with viable seeds generating in future years.

Buddleia; Site Hygiene – Biosecurity

- Himalayan balsam seeds are very small and are easily transferred by the wind around and off site
- It is almost impossible to stop the seeds from landing on a site but quick action when the seed germinate ensure the buddleia does not become problematic.

Buddleia; Legislation

- Buddleia is not included in the *Wildlife & Countryside Act 1981*.

Buddleia; Codes & Further Information

- Property Care Association's [Practical Management of Invasive Non-Native Weeds in Britain and Ireland](#)
- Non-native Species Secretariat [Buddleia factsheet](#)

8. FUTURE SITE MANAGEMENT AFTER TREATMENT

- The long term management of the site after the recommended treatment of the Japanese knotweed and other INNS on site will largely depend on the timescales and nature of the development
- Anyone taking on the longer term management and monitoring of the site and will need to ensure any regrowth is left to regrow and steps 5.-8. should be repeated from **6. JAPANESE KNOTWEED MANAGEMENT PLAN.**
- When managing the vegetation and land contaminated with Japanese knotweed the very invasive nature must be taken into consideration (see iii. **THE SPREAD & INVASIVE NATURE OF JAPANESE KNOTWEED**) and all iii. **SITE HYGIENE – BIOSECURITY MEASURES** must be followed to ensure there is no spread or new material brought onto site.
- Some sort of revegetation scheme is always recommended after herbicide treatment of Japanese knotweed but this will depend highly on what the end use of land and site will be
- Where possible native local provenance species should be used as per guidance from the Property Care Associations [Revegetation following Invasive Non-Native Weed Management May 2020](#)

Please note:

- ⚠ *Any disturbance of the Japanese knotweed and 7m zone around the knotweed could activate dormant underground rhizomes.*
- ⚠ *All Japanese knotweed and contaminated material is a “controlled waste” with very specific disposal and transportation regulation therefore can cannot be put in council refuse collection normal or green waste or taken to Civic Amenity Sites and should not be put in with normal compost waste*

APENNDICIES

- i. KNOTWEED CONTROL SWANSEA LIMITED DETAILS**
- ii. THE SPREAD & INVASIVE NATURE OF JAPANESE KNOTWEED**
- iii. SITE HYGIENE – BIOSECURITY MEASURES**
- iv. GENERAL JAPANESE KNOTWEED CONTROL METHODS**
- v. KNOTWEED CONTROL METHODS OFFERED BY KNOTWEED CONTROL**
- vi. LEGISLATION**
- vii. CODES & MORE INFORMATION**
- viii. KNOTWEED CONTROL SWANSEA LIMITED'S TERMS & CONDITIONS**

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

Trade body: 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. THE SPREAD & INVASIVE NATURE OF JAPANESE KNOTWEED

- Japanese knotweed is very successful and problematic in many places where it is not native especially in North America and Europe and has been listed by the International Union for the Conservation of Nature (IUCN) as one of the [world's 100 worst invasive species](#).
- In the UK Japanese knotweed grows very rapidly by vegetative regeneration. This means either rhizomes growing through the soil and producing new plants or from pieces of rhizome, fresh stems with active growth nodes and crowns material, all capable regenerating also producing new plants from fragments as small as 0.7 gramme (the size of a pea).
- Large crowns are resistant to burning and drying out and but can rapidly produce new canes when in contact with soil or water. This helps in its native Japan where knotweed is a pioneer species of bare volcanic slopes. Small fragments of crown pulled from seemingly dead canes are also capable of regenerating so it is important to dispose of the crown and stems correctly and not removing them or moving them around the site.
- Fresh solid nodes on green stems can produce new plants in a soil or in water within 6 days. This is why mechanical cutting such as mowers, brushcutters, strimmers or flails can spread materials so should always be avoided.
- The creamy white flowers (~3 mm) of Japanese knotweed can produce seeds but they have a very low survival rate and are usually unviable in the UK and so extremely unlikely that they would germinate.
- The introduction and such rapid spread of Japanese knotweed in the UK can be attributed almost solely to human activity and it therefore particularly widespread in urban areas, areas of development and along transportation corridors and waterways. Although it is normally spread by human it can also be spread by natural vectors in both the built and natural environment.
- Manmade vectors spreading knotweed include:
inappropriate and/ or illegal disposal of contaminated waste
 - in municipal green or food waste collection
 - unauthorised tipping on landfill or other land
 - fly-tipping
 - incomplete composting and spread
spread of Japanese knotweed fragments
 - through flaying or strimming
 - along railway lines, roads and water transportation corridors
 - by vehicles (especially heavy plant machinery with caterpillar tracks or deep treads)
 - footwear of those who walk over infested site
 - children playing with knotweed material
 - importation of infected top soil or other material
- Natural vectors include
 - erosion such as landslides, soil creep, slumps
 - water along rivers, streams, canal, estuaries, sea currents and tides
 - water from flood events and high tides leading to new areas of Japanese knotweed

iii. 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.
- Japanese knotweed is a highly invasive with a piece of rhizome as small as 0.7gm the size of a pea having the ability to regrow into a new plant and colonise a new area quickly therefore good site hygiene is important.
- Rhizome fragments as small as 0.7gm/ the size of a pea able to grow into new plants.
- Fencing and signs can be erected around areas of knotweed to reduce the risk of disturbance, liaison with adjacent land owners for coordinated treatment is essential to where there is a high risk of reinfection and care must be taken not to imported contaminated material.
- Although withdrawn in July 2016 due to changes in legislation and herbicide licences, the Agency's [Managing Japanese knotweed on Development Sites: Code of Practice 2013](#) is still the best guidance for developments sites.
- with hygiene/ biosecurity recommendations for development sites to reduce the potential for cross-contamination include;
 - Exclusion fencing 7m around all visible areas of Japanese knotweed to stop any disturbance
 - "Restricted access – Japanese knotweed area" warning signs
 - A Japanese knotweed Clerk of Works to oversee works near the Japanese knotweed
 - Tool Box Talks for constructions workers on site
 - Dedicated track to ensure no cross contamination of site from infected heavy plant machinery
 - Pressure washing and inspection of vehicles used on or near the Japanese knotweed

Cross contamination, reinfection and good site hygiene

- Knotweed Control cannot be held responsible for any regrowth or cross contamination from either untreated local sources, material moved around on site therefore good site hygiene is essential to prevent reinfection.or new source of Japanese knotweed brought into site
- Care is needed when dealing with knotweed material or infected soil especially crown & rhizome material.
- It is not recommended to cut, dig, pull, strim or mow Japanese knotweed as even the smallest piece, 0.7 gram, the size of a pea can regrow into new plant and colonising a new area quickly. This type of removal can weaken rhizomes over many years. However if the practice is stopped the knotweed will quickly recover and grow back to its original size.)
- Knotweed material can cannot be put in council refuse collection normal or green waste or taken to Civic Amenity Sites
- Under the Environmental Protection Act 1990, all Japanese knotweed material including contaminated soils are classed as "controlled waste" therefore any Japanese knotweed material is to be removed from site must be transported by registered waste carrier, in suitable covered vehicle, disposed of by prior arrangement to a landfill site licenced to take knotweed with the correct waste transfer notes. The vehicle transporting the Japanese knotweed must be pressure washed and inspected to ensure there is no contamination of knotweed material remaining.

iv. GENERAL JAPANESE KNOTWEED CONTROL METHODS

- There are 5 main control methods and combinations used for Japanese knotweed and the method chosen will be appropriate to the site, the time frame and money available(see [Code of Practice for the Management of Japanese Knotweed, 2018](#))
- Each method has its own advantages and disadvantages but all require great care but there should always monitoring of the site after every control method due to the highly invasive and persistent nature of Japanese knotweed.
- The main control methods are;
 - a. Chemical/ herbicide control
 - b. Physical/ mechanical control
 - c. Combined chemical and physical control
 - d. Biological control
 - e. Membrane to stop lateral or vertical spread

v. JAPANESE KNOTWEED CONTROL METHODS OFFERED BY KNOTWEED CONTROL

Glyphosate based herbicide control

- Knotweed Control undertake control with a professional, aquatic approved glyphosate based herbicide applied as recommended in [Optimising physiochemical control of invasive Japanese knotweed 2018](#) via stem injection 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.

How Glyphosate Works

- Glyphosate is a systemic herbicide which works by being applied to the stems or leaves is translocated to the growing cells of plant (meristem) and interferes with protein production, stopping cell division and causing the plant, over time, to starve and die.
- Glyphosate starts to work within 24 hours, shows signs of treatment within in 7 days (leaf wilt, losing colour & dropping) and continue to work for at least 6 weeks.

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.
- After each year's treatment, the Japanese knotweed size will reduce so in following years there is 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.
- 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.
- In the spring and early summer knotweed pumps substances (including sugars & glyphosate) upwards away from rhizomes to stems & leaves slowing down as summer progresses and in late summer and autumn this process reverses and substances are strongly drawn down and into the rhizomes (including herbicide) making late season treatment the most effective

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. This can include cutting, mowing, flailing, strimming, digging, herbicide use or trampling)
- Therefore trying to tackle the problem yourself can make the situation worse, or could affect guarantees offered by Knotweed 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.
- Incorrect, incomplete or inconsistent control can include cutting, mowing, flailing, strimming, digging, herbicide
- There should be no disturbance or deviation from the Japanese knotweed Management Plan once in place as this can invalidate any Insurance Backed Guarantee (IBG).
- Where Knotweed Control is requested Insurance Backed Guarantee (IBG) and others have undertaken treatment including other contractors, it could mean extra costs due to the extra risk involved in taking on someone else's work (you wouldn't expect a roofer to guarantee someone else's work on a roof)
- It is essential therefore where guarantees are required, that there is;
 - No interference with the Japanese knotweed before Knotweed Control's involvement otherwise extra costs might be charged due to extra risk (see below) and
 - No disturbance or deviation from the Japanese knotweed Management Plan once in place

Response To Incorrect Control

- The response of the knotweed to inappropriate control includes;
 - Increased rate of spread and or growth
 - Deformation of subsequent years' growth (leaves, stems and rhizomes)
 - Enforced dormancy of which has been documented for up to 20 years
- Antagonistic effect of previous to subsequent treatments reducing the overall effectiveness

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) [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) which form the agreement between Knotweed Control Swansea Limited (Knotweed Control) and the client(s).
- Knotweed Control reserves the right to update T&C at any time which will be made available on request.

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.
- Also Japanese knotweed dies down in the dormant winter season where there can be little or no visible signs.

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 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

- Herbicide treatment, clearance & monitoring estimates remain valid for the season in which they are given.
- Estimates are an indication of costs but might need to revised e.g. where
 - 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 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 from 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 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 may be able to offer Guarantee Packages which combine **Knotweed Control's Guarantee** and an **Insurance Backed Guarantee (IBG)**
- 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 "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 3-8 year herbicide "**treatment phase**" (typically 5 years) which may include clearance and monitoring details of which are stated in the Japanese knotweed Management Plan (JKMP)
 - **Knotweed Control's Guarantee** then starts after this period

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- After **2 growing seasons with no Japanese knotweed regrowth** a “**completion certificate**” will be issued by Knotweed Control and the **Insurance Backed Guarantee (IBG)** commences.
 - Guarantee packages remain valid as long as
 - There is **no interference in the treatment area (NO mowing, cutting, strimming, digging, excavation, trampling, compaction, herbicide treatment, etc.)**. Light hand weeding is allowed
 - 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 legislation 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
 - It is the **clients responsibility to gain permission** from land owners and this **is assumed at the start of the works**
 - Site visits & Japanese knotweed Management Plan (JKMP) required for Guarantee Package as this is the wording and works on which the guarantee is based.
 - 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 **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.
 - 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.