KNOTWEED ERADICATION

Specialist Weed Control &
Site Vegetation Clearance

INVASIVE WEED MANAGEMENT PLAN

FOR

WEST LANCASHIRE BOROUGH COUNCIL

ORMSKIRK BUS / TRAIN LINK FOOTPATH UPGRADE

STATION APPROACH

ORMSKIRK

L39 2YN

KNOTWEED ERADICATION

NEW INN FARM

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Date	8th August 2019
Inspected by	D Nightingale
Checked by	J Howard
Authorised by	D Nightingale
Project	Ormskirk bus / train link upgrade
Report number	IWMP2114A

LIMITATIONS

Knotweed Eradication has prepared this report with reasonable skill, care and diligence and taking account of the contract terms and conditions and manpower and resources devoted to it in agreement with the client. Knotweed Eradication disclaims any responsibility to the client and others in respect of any matters outside the scope of the above.

This report has been prepared based on the information received during the timescale available and all potential contamination; constraints or liabilities associated with the site may not necessarily have been revealed. The report is only valid when it is used in its entirety.

This report is confidential to the client and Knotweed Eradication accepts no responsibility to third parties to whom the report, or any part thereof, is made known. Any such party using any information contained within the report does so at their own risk.

Site Inspection at Ormskirk Bus/Train Link Footpath

For West Lancashire Borough Council

As a division of Helmrig Ltd, Knotweed Eradication have been involved in the management and treatment of invasive weed species for over 15 years, utilising their knowledge and experience to provide clients with information and advice as to how best to deal with invasive weed issues on land within their ownership.

In July 2019 Knotweed Eradication were commissioned by Dominic Carr of West Lancashire Borough Council to undertake an inspection of a footpath link from Ormskirk railway platform to Ormskirk bus depot located off Station Approach, Ormskirk. The purpose of the inspection was to identify any invasive weed species that may be present within the boundary of the site or the immediate surrounding area in accordance with the Wildlife and Countryside Act 1981 (as amended), report the findings and propose a solution to any infestations found to be present.

The main species being inspected for are Japanese Knotweed, Giant Hogweed and Himalayan Balsam.

This report sets out the expected treatment of each species identified prior to, during and following completion of the development phase of the works.

Report Contents

1. Site and finding

1.1. Site consists of an existing tarmac footpath linking Ormskirk railway platform to Ormskirk bus depot located off Station Approach, Ormskirk. It is proposed that improvement works be undertaken to the footpath including widening and clearing back over hanging vegetation.

1.2. Surrounding areas consist of live railway to the west, vegetated embankment and Station Approach to the east with the railway platform forming the northern boundary of the site and the bus station the southern end.

1.3. The site was inspected on 29th July 2019 during the expected growing season with seven areas of visible knotweed being identified within the work zone.

1.4. Areas 1 and 2 are located within grass and vegetation in the north eastern portion of the site. These areas comprise of small pockets of stems off the line of the proposed works. It is expected that these areas can be fenced off and dealt with via herbicide application.

1.5. Areas 3 and 7 are located to the east of the existing footpath on a vegetated embankment. It is thought that they fall within the line of proposed works to install a gabion retaining structure along the edge of the new footpath. It is expected that JK impacted material from within these areas will be excavated to formation level under supervision with material being retained within the embankment area for ongoing monitoring and treatment.

1.6. A copper geocomposite membrane will be installed below formation to prevent longer term damage of regrowth from remaining knotweed rhizome.

1.7. Areas 4, 5 and 6 comprise of partially treated knotweed contained within detritus build up along the western edge of the existing footpath. It is expected that this detritus will be reduced back down to existing kerb level with arising's being placed on the vegetated embankment.

1.8. All areas will be monitored for a three year period with regrowth being treated at appropriate growth stages.

1.9. Further areas of established knotweed were noted to be present to the west of the works area within Network Rail land. It is expected that Network Rail will continue to treat these areas as part of their on-going programme.

1.10. Initial herbicide treatments will consist of stem injection or foliar applications of herbicide with chemical selection being made dependent on the location of the knotweed and nature of any surrounding desirable vegetation. Whilst every effort will be made to retain as much desirable vegetation as possible no responsibility can be taken for any loss or damage.

1.11. No other invasive species were noted to be present within the site boundary at this time.

1.12. It is worthy of note at this point that in knotweed infested areas the root/rhizome system can grow 7 metres outwards from the visible plant and in excess of 3 metres deep and if the spoils are dispersed on site, re - infestation is likely to occur.

1.13. Please note: soil material will continue to be classed as knotweed contaminated even after completion of the knotweed treatment programme and should be dealt with as if still live. If removed from site this must be done in accordance with current waste regulations by a licensed carrier to an appropriate receiving facility.

1.14. This management plan provides background information relating to the main invasive plant species and sets options for control and eradication.

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 this property, but it can be seen on a neighbouring property or land where it was more than 7 metres away from the boundary.

2 JAPANESE KNOTWEED, GIANT HOGWEED AND OTHER INVASIVE PLANTS

2.1 Identifying invasive plants (extracted from Netregs website)

2.1.1 Identifying invasive plants on a site early lets developers assess and cost options for destroying, disposing of and managing them.

2.1.2 Managing land infested by invasive plants in a timely and appropriate way can avoid:

- excessive cost
- potential prosecution and compensation claims
- physical damage to buildings and hard surfaces
- harm to the environment

2.2 Identifying Japanese knotweed

2.2.1 Japanese knotweed begins to grow in early spring and can grow in any type of soil, no matter how poor. It can grow as much as 20 centimetres per day, and can reach a height of 1.5 metres by May and 3 metres by June. It does not produce viable seeds in the UK, but instead spreads through rhizome (underground root-like stem) fragments and cut stems. Japanese knotweed:

- produces fleshy red tinged shoots when it first breaks through the ground
- has large, heart or spade-shaped green leaves
- has leaves arranged in a zig-zag pattern along the stem
- has a hollow stem, like bamboo
- can form dense clumps that can be several metres deep
- produces clusters of cream flowers towards the end of July
- dies back between September and November, leaving brown stems

2.3 Identifying giant hogweed

2.3.1 You should take great care when identifying giant hogweed. Contact with the plant, particularly the sap, can lead to severe blistering and scarring.

2.3.2 Giant hogweed closely resembles native cow parsley or hogweed. It can take four years to reach its full height of 3-5 metres and flower. Giant hogweed:

- has a reddish purple stem with fine spines that make it appear furry - like a stinging nettle
- has hollow stems
- has spotted leaf stalks
- has leaves up to 1.5 metres wide
- flowers in June and July
- has flower heads that are usually 50 centimetres wide - each flower head is capable of producing 50,000 seeds every year
- has seeds that can stay in the soil for several years before they develop

2.4 Identifying Himalayan balsam

2.4.1 Himalayan balsam is often found on river banks, growing up to 2 metres in height. Each plant lasts for one year and dies at the end of the growing season. Himalayan balsam:

- has dark green, lance-shaped leaves with jagged edges
- has reddish coloured stems
- flowers from June to October
- has large, brightly coloured flowers that are usually in variable shades from purple to pale pink
- can produce around 2,500 seeds per plant each year
- has explosive seed pods that can throw seeds over 6 metres away from the plant

2.5 Identifying Montbretia

2.5.1 Crocosmia species are easily recognised when in flower by the distinct shape and colour of their flower heads. All are non-native in the UK. The hybrid montbretia, with relatively short stems and orange flowers, is the main species to have escaped into the wild; however, a number of other ornamental Crocosmia species are grown in gardens and other landscaped areas. When not in flower, Crocosmia species are more difficult to identify. Look for rusty brown dead leaves and remains of previous years flowering heads

2.6 Identifying Variegated Yellow Archangel

2.6.1 Yellow Archangel is an herbaceous creeping perennial. It has a square, hairy stem and can grow up to 1 to 2 feet tall. Leaves are opposite, serrated, prominently veined and ovate with silver markings and a green trim. Undersides are lighter green. Shade leaves are larger, thinner and darker than sun leaves. Flowers occur in clusters in the leaf axils, or whorls at the end of the stem. They are helmet-shaped, with a hooded upper petal and a lipped lower petal. Blooming is May-June. Fruit is set June-July and contains 4 nutlets. L. galeobdolon is a prolific seed-producer.

2.7 Spraying invasive plants with herbicide

2.7.1 Treating invasive plants with herbicide can be a very effective method of treatment. You will have to re-spray. It usually takes at least three years to treat Japanese knotweed until it is dormant. Giant hogweed seeds can continue germinating for 15 years after the last seed fall

2.7.2 If the plant is in or near to water you must have agreement from the Environment Agency to use the herbicide. The herbicide must be approved for use in or near water.

2.7.3 The herbicide's effectiveness depends on the type used. An advisor certified by BASIS (the registration, standards and certification scheme for pesticides and fertilisers) will be able to advise you on the most suitable type of herbicide for your situation and when best to apply it.

2.7.4 *Giant hogweed* and *Himalayan balsam* both drop large quantities of seeds. A control programme will need to continue for several years, with checks carried out throughout the growing season. If you are trying to eradicate these plants from a riverbank it is important to ensure that any plants upstream are also treated to avoid seeds being washed onto the site.

2.7.5 *Japanese knotweed* has a large underground network of rhizomes (underground root-like stems). To eradicate the plant you must kill the rhizomes. Picking the right herbicide is essential, as it must travel through the plant and into the rhizome system below. Several herbicides can treat Japanese knotweed successfully - you will need to pick the right herbicide for your situation. Glyphosate is effective because it penetrates through the whole plant.

2.7.6 *Using herbicides*

The person doing the spraying must hold a certificate of technical competence for herbicide use or work under the direct supervision of a certificate holder. If you plan to spray in or near water, the person carrying out or supervising the spraying must have the appropriate aquatic part of the qualification. The sprayer must also comply with the pesticide product label and meet all of its conditions. Before you spray in or near water you must check that the product is approved for use near water. There are formulations of glyphosate and 2.4-D amine that can be used in or near water and are effective against many invasive plants.

2.8 Burying invasive plant material onsite

2.8.1 Taking plant material and soil containing plant material away for disposal off site uses valuable landfill capacity and increases the likelihood of the spread of invasive plants. Another option is to bury this soil and plant material on your own land because, without sunlight, plants cannot survive and seeds will not germinate. However, this material will need to remain buried for several years to ensure that it will not grow again. Giant hogweed seeds can be viable for up to 15 years and Japanese knotweed rhizome (underground root-like stems) is believed to survive for 20 years.

2.8.2 *What you must do*

2.8.2.1 Before you bury invasive plant waste on your property you must contact the Environment Agency to check you are allowed to do this at your location. The Environment Agency may want to look at your site and may visit while the works are undertaken.

2.8.2.2 Soil and plant material containing Japanese knotweed may need to be buried 5 metres below ground level. You should place a barrier membrane on top of the material and fill the hole with clean soil. Alternatively, the knotweed code of practice describes how you can bury it less deeply

2.8.2.3 Soil containing Himalayan balsam and giant hogweed seeds should be buried at least 0.5 metre below ground level or 0.3m if covered with a geotextile material

2.8.2.4 You must not bury anything other than plant material and soil containing invasive plants that have originated on site.

2.8.2.5 You must make sure that deep burial does not interfere with the ground water level.

2.8.2.6 Buried soil and plant material that have been treated with an herbicide that does not break down in the environment could cause groundwater pollution. If you intend to bury treated material, you should treat it with glyphosate herbicide only. Check with the Environment Agency.

2.8.2.7 Herbicides that do not break down in the environment are described as persistent. Those that do break down are described as biodegradable or non-persistent. The herbicide packaging or safety data sheet will state whether it is persistent or non-persistent.

2.8.3 *Good practice*

2.8.3.1 You should bury the material in an area where it is not likely to be disturbed. You should keep records of the quantity of material that you have buried and a map showing the location of the burial pit and its depth. Use signs to mark the burial pit and keep heavy tracked machinery off the area.

2.8.3.2 Other legislation relevant to the control of non-native invasive weeds includes the following.

- Town and Country Planning Act 1990.
- Highways Act 1980.
- Water Resources Act 1991.
- The Waste Management and Licensing Regulations 1994.
- The Landfill (England and Wales) Regulations 2002.
- The Control of Pesticides Regulations 1986 (under the Food and Environment Protection Act 1985).
- The Control of Substances Hazardous to Health Regulations 2001 (COSHH)

3. Additional control measures:

- Infested areas (to include buffer zone) should be clearly identified.
- Unauthorized access disturbance or removal of contaminated material should be prevented.
- Restrictions regarding access to the infested areas and any applicable restrictions regarding movement of plant and vehicles, should be communicated to all on-site personnel.
- Vehicles, equipment and footwear should be inspected and cleaned prior to exiting contaminated areas.
- Should access to the area be required during the treatment period, advice should be sought prior to entering.
- Where invasive weeds are identified on adjacent land, owners should be informed so that appropriate actions can be taken to prevent re-infestation.

4. Methodology

4.1. Warning signs or fencing should be erected to identify infestations to other site personnel. Additionally, contractors working on site should be briefed to familiarise them with the appearance of the plant. Professional advice should be sought if other possible infestations are noted on site.

4.2. Unauthorised access disturbance or removal of contaminated material will be prevented.

4.3. Restrictions regarding access to the infested areas and any applicable restrictions regarding movement of plant and vehicles, should be communicated to all on-site personnel.

4.4. Vehicles, equipment and footwear should be inspected and cleaned prior to exiting contaminated areas.

4.5. Should access to the area be required during the treatment period, advice should be sought prior to entering.

4.6. Herbicide selection will be dependent on each area taking into consideration surrounding desirable vegetation and environmental considerations.

4.7. PLEASE NOTE: Task and site specific method/risk and COSHH assessments should be carried out for each specific task being undertaken. When filed in conjunction with this management plan they will form a record of actions taken and locations of treated Japanese Knotweed for future users

5. Proposed Method Of Treatment

5.1 Knotweed Eradication would use a selection of the following MAPP and E.A. approved products on the infested areas. Chemical selection will be made based on location of treatment area surrounding environmental factors.

Product	Mapp	Areas of Use
Round up Pro Vantage	15534	Hard surfaces, Amenity vegetation, Forestry, In or near water, Stem injection.
Garlon Ultra (under Stewardship)	16211	Industrial sites, Motorway embankments, Rail embankments, Cemeteries, Grass land of no agricultural interests.
Synero (under stewardship)	14708	Industrial sites, Motorway embankments, Rail embankments, central reservations, Power stations.

6. Programmed Work:

6.1 Treatment of Invasive Weed infestations is to be undertaken for a minimum period of three years to effectively eradicate the species. A detailed schedule of works and annual treatment and monitoring programme is given below in Table 1.

6.2 Under the supervision of a suitably experienced operative, knotweed is to be excavated, in a controlled manner, placed directly on to dumpers and removed to on-site receptor areas for on-going treatment as part of the site remediation works.

6.3 Dumpers are to be parked in designated loading positions during loading. Excavation will utilise half bucket full to ensure no spillage of material during loading with an inspection of the loading area being undertaken prior to Dumpers pulling away. Any spillage is to be cleared and placed into Dumpers for removal to designated receptor area.

6.4 On completion of the excavations plant and machinery will be cleaned and inspected prior to continuing other works or removal from site.

6.5 Please note: Timings of excavation works are based on site works and will need to be amended should this not be the case.

Table 1

Site Name: Ormskirk bus/train link footpath	**Job Ref:** IWMP2114A	**Client:** West Lancashire Borough Council
Location: Ormskirk	Description	
April – Oct 2019	Monitoring of known areas within treatment zone. Herbicide treatment of Japanese Knotweed	
tbc	Excavation and on-site movement of Japanese Knotweed Installation of copper Geocomposite membrane	
April – Oct 2020	Monitoring of known areas within treatment zone. Herbicide treatment of Japanese Knotweed	
April – Oct 2021	Monitoring of known areas within treatment zone. Herbicide treatment of Japanese Knotweed	
April – Oct 2022	Monitoring of known areas within treatment zone. Herbicide treatment of Japanese Knotweed	
October 2022	Survey and sign off on completion and hand over to client.	

7. Health and Safety

7.1 Relevant health and safety legislation must be observed in the UK. The relevant regulations are outlined in *The UK Pesticide Guide* produced annually.

7.2 The legislation relevant to the use of herbicides is: -

- The *Control of Substances Hazardous to Health Regulations* (COSHH) 2001. All operatives must comply with the regulations and wear protective clothing and observe a strict code of hygiene of washing hands before drinking and eating.
- The *Control of Pesticides Regulations 1986* under the *Food and Environment Protection Act* (FEPA) 1995.
- *Pesticides: Code of Practice* 1990 (Published by MAFF/HSE).

7.3 *Health and Safety Guidelines*

- All operatives must hold a Certificate of Competence for herbicide application (NPTC) or be under the direct supervision of qualified operative prior to commencing a spraying programme.
- All operatives must act responsibly in the storage and handling of the herbicide. The disposal of the herbicide and empty containers must be carried out by operatives in a responsible way. Any spillage must be guarded against and if occurring shall be dealt with and cleaned up. All operatives must carry a basic first aid kit.
- The area of work should be protected from the general public during the treatment and use of the herbicide.
- The use of herbicides should be carried out in compliance with the product label instructions.
- Advice on herbicide application should be sought for a BASIS registered advisor

7.4 Other legislation relevant to the control of non-native invasive weeds includes the following.

- *Town and Country Planning Act 1990.*
- *Highways Act 1980.*
- *Water Resources Act 1991.*
- *The Waste Management and Licensing Regulations 1994.*
- *The Landfill (England and Wales) Regulations 2002.*
- *The Control of Pesticides Regulations 1986 (under the Food and Environment Protection Act 1985).*
- *The Control of Substances Hazardous to Health Regulations 2001 (COSHH)*

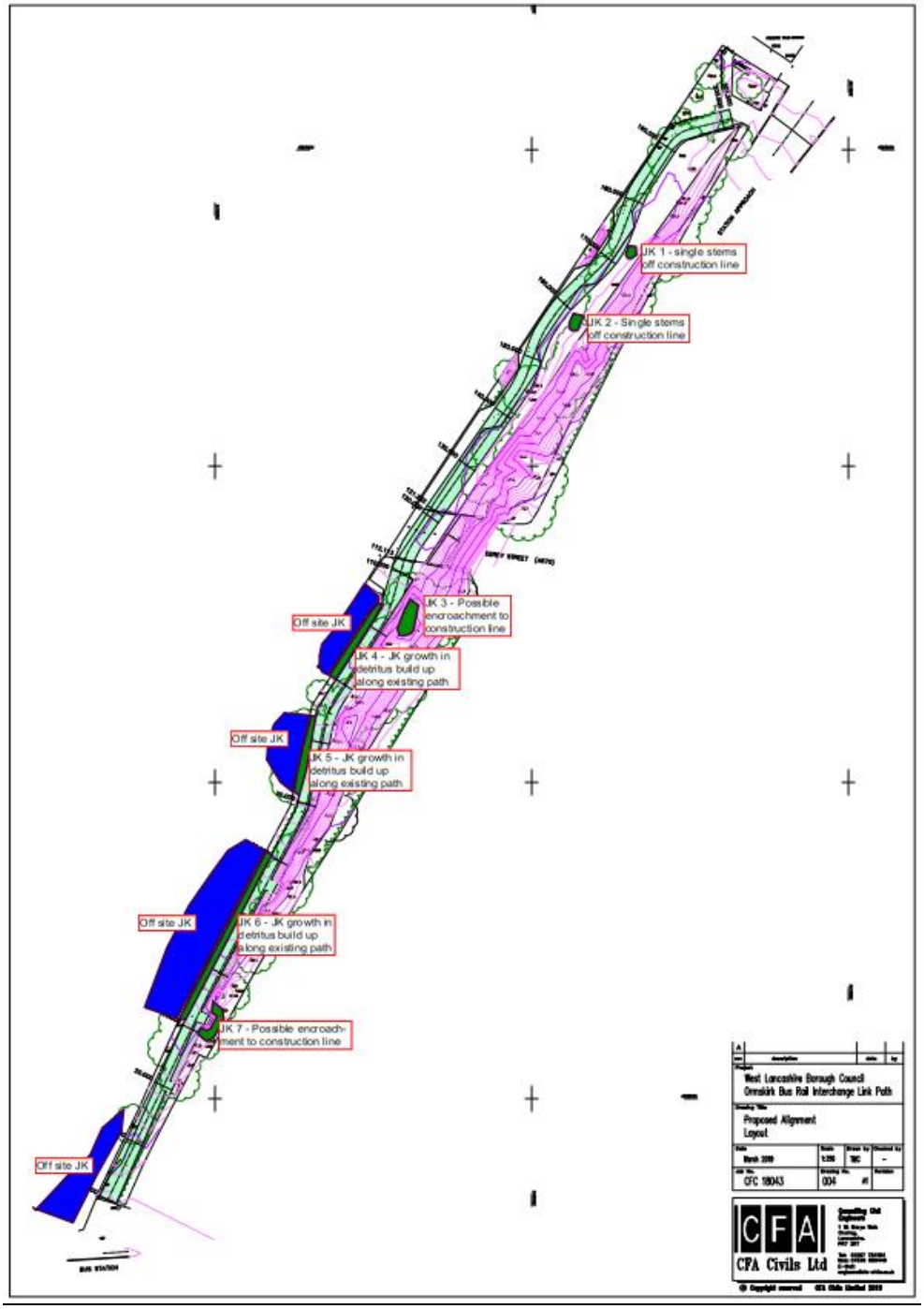
8. Benefits of appointing Knotweed Eradication:

- Professional Solutions
- Staged Payments at Fixed Costs
- MAPP Approved Chemicals and Solutions
- Over 20 Years' Experience
- Method Statement
- Risk Analysis
- COSHH Assessment
- Safety Data Sheets

9. Next Steps:

9.1 Thank you for giving Knotweed Eradication the opportunity to provide its consultancy services and programme of works. Should you decide to go ahead with our recommendations a full Method Statement Risk Assessment, Safety Data Sheets and COSHH Assessment will be produced for the programme of works for the specific site. Timely and appropriate management of land infested with invasive weed species can avoid excessive costs, potential prosecution and prevent physical damage to buildings and hard surfaces. Our solutions can form part of a normal site clearance, are programmable to meet developer's needs, sustainable over a 3 year period, can avoid haulage and land fill costs and are backed by over 20 years weed control experience. If you have any further questions, please do not hesitate to contact Danny Nightingale on 07976 914692 or email *info@knotweederadication.co.uk*

Alternatively we can be contacted by fax on 01772 623 658 or by post at New Inn Farm, Dawson Lane, Leyland, PR25 5DB



- Site Boundary
- Rhizome Buffer Zone
- JK Within site
- JK Beyond site
- JK Beyond site not to be treated
- Himalayan Balsam
- Giant Hogweed
- Other as identified within report

KNOTWEED ERADICATION
Specialist Weed Control & Site Vegetation Clearance

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Date: 8th August 2019
Client: West Lancashire Borough Council
Project Ref: IWMP2114A
Site: Ormskirk bus/train link footpath upgrade
Scale: NTS

Pic 1 - General overview of footpath viewed SW to NE

Pic 2 - general view of footpath viewed NE to SW

Pic 3 - JK area 1

Pic 4 - JK area 2

Pic 5 - JK in detritus build up Area 4

Pic 6 - JK in detritus build up area 5

Pic 7 - JK area 7

Pic 8 - Extensive JK beyond works boundary

REFERENCES

Renals, T. and Rene, P. (May 2001) *Code of Practice for the Management, Destruction and Disposal of Japanese knotweed, Version 1*.
The Environment Agency.

Available to download: www.environment-agency.gov.uk

Child, L. and Wade, M. (2000) *The Japanese knotweed Manual*
Packard Publishing Limited, Chichester.

Web Sites

Nature Conservation
www.nationaltrust.org.uk/enviroronment/htm/nat_con/_fspapers/fs_plant01

Japanese Knotweed Control Forum
www.ex.ac.uk/knotweed

Netregs
www.netregs.gov.uk

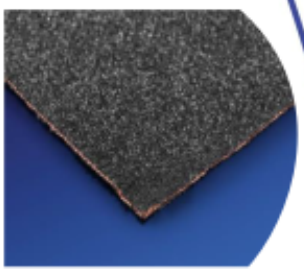
GEOfabrics®

CuTex

Copper Composite Root Barrier

1. DESCRIPTION

A geocomposite root barrier systems consisting of a copper sheet mechanically encapsulated between a woven polypropylene geotextile and a high strength nonwoven polypropylene geotextile. The copper acts as a signal layer that all plants avert their growth from. The copper foil only releases minute quantities of the copper ion. These do not constitute an ecosystem burden, or impact on groundwater.



2. APPLICATIONS

CuTex geocomposite can provide a direct protection of utilities' infrastructures such as foundations and drains from root intrusion, landfill caps and "green roofs". It will also provide a protection to roads, railways and dams.

3.FEATURES

Plant shoot/root primordia (growth tips) are averse to growing into the vicinity of copper concentrations. In essence, the roots/shoots turn their growth in a different direction when confronted with the copper foil. These principles make CuTex a suitable barrier for Japanese Knotweed growth as well as all other plants. The majority of the Japanese Knotweed rhizome exists in the upper layers of topsoil. It has been established that, in an infected area, 14,000kg/ha dry weight of Knotweed may exist in the top 250mm (Brock, 1994).

	Test	Unit	MEAN VALUES
4.MECHANICAL PROPERTIES			
Static Puncture (CBR)	EN ISO 12236	kN	2.5
Tensile Strength (MD/CMD)	EN ISO 10319	kN/m	20
Tensile Elongation (MD/CMD)	EN ISO 10319	%	35
4. FILTER PROPERTIES			
Water Permeability	EN ISO 11058	l/s/m²	3.10^{-4}
5. PHYSICAL PROPERTIES			
Copper Thickness	EN ISO 9863-1	µ	18
Carbon Black Content (Geotextile)			1% active carbon black
Standard Colour			Black
Polymer			100% Virgin Polypropylene

Notes:

a) Mean values indicate the arithmetic mean derived from the samples taken for any one test as defined in the standard – usually an overall mean of five samples. Mean values are subject to tolerances based on 95% confidence limits as published on the product CE declaration of performance.
b) Nominal Value (indicates an average manufacturing norm and not a controlled performance parameter).
c) MD: Machine Direction (longitudinal to the roll).
d) CMD: Cross Machine Direction (across the roll).
e) Tensile testing is performed using extensometes.

	Test	VALUES
6.DURABILITY – GEOTEXTILE		
Weathering 50J/m² (1 month)	EN 12224	>90% Retained Strength
Microbiological resistance	EN 12225	No loss in strength
Resistance to acids & alkalis	EN 14030	No loss in strength
Oxidation at 85 days (100 years)	EN 13438	>90% Retained Strength

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