

BIOSECURITY ASSESSMENT AND RECOMMENDATIONS

LAND AT LLAY NEW ROAD, RHOSROBIN, WREXHAM.

Site: Land at Llay New Road
Rhosrobin
Wrexham

Clients: SG Estates
The Croft
Old Wrexham Road
Gresford
Wrexham
LL12 8UA

Job Ref.: 1025-Rhosrobin-Biosecurity-V1a

1.0 ASSESSMENT:-

A full bio-security assessment has been undertaken to identify any potential and actual bio-secure hazards. The findings of the assessment are as follows: -

Water bodies: -

The walkover surveys recorded no water bodies within the proposed development area or any water bodies that would be affected by the development proposals on site.

Invasive Non-native Species (INNS): -

The walkover survey did not identify any INNS species within the proposed development area at the time of survey

2.0 RECOMMENDATIONS: -

Species: -

The mitigation proposals are to form two water bodies within the area of land allocated for wildlife. The potential risk of cross contamination is low as the site presently does not record any existing waterbodies. The only potential for contamination is from off site by introduction from contaminated plant or imported materials.

It is therefore recommended that when the new water bodies are formed the site machinery is dedicated to this one area and has been decontaminated from soils or plant matter before being brought to site. All excavated materials are to be retained on site and reused, no imported materials soils etc. are to be imported for the formation of the mitigation area.

INNS: -

The assessment did not record any INNS species on site at the time of survey, the only potential for site contamination is from imported materials

Cross contamination of sites is to be considered when moving plant and materials, as inadvertently non-native species can be moved between the sites. As part of the construction process a biosecurity risk assessment of site plant and materials is advised prior to delivery on site and should consider the following guidance.

a Excavating machines/dumpers etc. are to be dedicated to the site were feasible, and should be brought to site in a clean state. On completion of works on the site, machines should be power washed with clean water over the existing grassland before moving from the area, all in accordance with agreed sediment control policies within proximity of water courses, i.e., minimum offset, agreed buffer zones, silt control bunding etc

b Any areas of scrub to be removed, the scrub is to be cut and shredded on site, with the chip being deposited within the work zone. If this cannot be achieved then the arisings are to be removed to an approved compost site.

c All reinstated natural areas, i.e., none formal areas/plantings are to be reinstated with retained site soils, the importation of none sterilised topsoil from partner sites etc. is to be avoided, this is to ensure local provenance is maintained where feasible during the construction phase.

d Any planting schemes being adopted as part of the site landscaping should be selected and cross checked to ensure compliance with the NNS species and compliant with 'The Invasive Alien Species (Enforcement and Permitting) Order 2019'

As stated above no NNSS species have been identified on site, nor have any risks been identified with regards to protected habitats/species or biodiversity habitats/species adjacent to or within the proposed construction zones.

3.0 GENERAL POLICIES FOR CONTROLLING/ERADICATING COMMON INNS SPECIES:-

Biosecurity Risk Assessment

Site: Land at Llay New Road, Rhosrobin

Operation: Excluding Great Crested Newts and formation of Mitigation Area and Development Site

	On site	Degree of Risk	Control
Biosecurity Risk/Hazard			
Japanese Knotweed (<i>Fallopia japonica</i>)	No	High	see method statement
Indian (Himalayan) Balsam (<i>Impatiens glandulifera</i>)	No	Medium High	see method statement
Giant Hogweed (<i>Heracleum mantegazzianum</i>)	No	High	see method statement
Rhododendron (<i>Rhododendron ponticum</i>)	No	Medium High	see method statement
Spanish Bluebell (<i>Hyacinthoides hispanica</i>)	No	Medium High	see method statement
Fern, Water <i>Azolla filiculoides</i>	No	High	see method statement
Parrot's-feather <i>Myriophyllum aquaticum</i>	No	High	see method statement
Stonecrop, Australian swamp <i>Crassula helmsii</i>	No	High	see method statement
Water hyacinth <i>Eichhornia crassipes</i>	No	Medium	see method statement
Water Primrose <i>Ludwigia peploides</i> <i>Ludwigia uruguayensis</i> (= <i>L. grandiflora</i>)	No	Medium	see method statement
Waterweed, Canadian <i>Elodea canadensis</i>	No	Medium	see method statement
Waterweed, Curly <i>Lagarosiphon major</i>	No	Medium	see method statement
Waterweeds (other <i>Elodea</i>) <i>Elodea sp.</i>	No	Medium	see method statement
Least duckweed <i>Lemna minuscula</i>	No	High	see method statement

Floating Pennywort
(*Hydrocotyle ranunculoides*)

No

Medium

see method statement

Methodologies and Method Statements

Site and Operator Good Practice

To prevent the spread of invasive species the following good practice is to be observed **if it is known** that pathogens or invasive species are recorded within the working or survey area.

Operator/Surveyor

Foot baths will be provided on sites where the works are ongoing, the operators/site staff will ensure that footwear which has come into contact with infected materials suitable to harbour pathogens is to be disinfected using the foot baths all site operators entering or leaving the area at risk must enter and leave the area via the foot bath. If deemed a requirement the operators/site staff are to wear disposable suits and gloves to be bagged and destroyed prior to leaving the site.

Hand equipment

These include nets, traps, bottle traps, spades; shovels etc are to be disinfected in the dip provided. The dip will be in the form of a 30-gallon drum filled with a bleach solution (1 measure of Hypochlorite to 9 measures of water).

Machinery

Large items of equipment should be power washed prior to leaving site where feasible, to ensure all debris, plant fragments and mud are removed and retained within the controlled area.

Plant and Contaminated Material

Before attempting to remove invasive plants consideration to how to dispose of the cleared plants.

Disposal 'Dos and Don'ts' for aquatic invasive plants

DO	DON'T
Compost invasive plants on designated on site compost heaps or in council compost schemes. Hot heaps will best destroy plant fragments.	Dump plants (or pond/aquarium water) in local ponds, lakes, rivers, streams, canals or ditches
Place in approved skips or waste bins	Put plants in normal skips or waste bin
Burn them on a bonfire	Tip plants or pond/aquarium water down land drains

Some invasive species, including Japanese Knotweed, are controlled waste and must be disposed of properly at registered sites.

When removing by hand, always wear gloves. For most species, pulling by hand on a regular and ongoing basis is the most environmentally friendly approach. For Japanese Knotweed, however, the use of controlled herbicides may be necessary.

Herbicides

Chemicals can be an effective means of controlling invasive plants but manual alternatives should be used whenever possible. Before deciding to use a herbicide, we advise you to:

- Most appropriate selective herbicide to be used, e.g., Glyphosate, 2,4-D Amine etc. Note that some chemicals kill all vegetation they contact.
- Be aware of the Control of Substances Hazardous to Health Regulations (COSHH) 1988 regulations and its amendments.
- The Environment Agency (EA) in England, Natural Resources Wales (NRW) in Wales and the Scottish Environment Protection Agency (SEPA) in Scotland are to be consulted if the use of herbicide in or around a water body or watercourse is to be carried out.

The appropriate herbicides for controlling invasive species and working methodologies as advised by the following organisations:

Environment Agency

Centre for Ecology and Hydrology

Cornwall County Council Japanese Knotweed Advice

Japanese Knotweed Alliance

Guidance for Control of Invasive Plant Species

Australian Swamp Stonecrop

Australian swamp stonecrop (*Crassula helmsii*) was introduced from Tasmania to Britain in 1911. It was first sold as an 'oxygenating plant' in 1927. The first occurrence in the wild was reported in Essex in 1956. In recent years, it has spread much more rapidly due to the increased availability of the plant at garden centres and aquatic nurseries, it is now recorded widely within water bodies in the UK. It is sometimes referred to as *Tillaea recurva*, *Tillaea helmsii*, or New Zealand pigmy weed. The plant is easily dispersed and, although not always sold by suppliers, it is often found as a 'contaminant' with other water plants. Introductions to new sites are associated with a wide range of human, water-based activities, and awareness and education programmes can dramatically reduce transport of the plant between sites. Local dispersal is aided by the high viability of small fragments, which can be carried on

mud to new sites. The success of *Crassula* lies mainly in its ability to colonise virtually any suitable static to very-slow-flowing freshwater habitat across a wide range of water chemistry. It has vigorous, year-round growth, and can grow equally well either on damp ground or in water up to 3m deep. Where *Crassula* invades, it quickly out-competes native vegetation, and maintains its dominance by very rapid growth and uptake of almost all the available nutrients.

There are three typical growth forms:

- (i) a terrestrial form with creeping stems and aerial, succulent leaves;
- (ii) an emergent form with densely packed stems, found in water less than 0.6m deep;
- (iii) and a submerged form that grows from a basal rosette with long, sparsely leaved stems reaching the surface.

The three forms change according to prevailing conditions. The rigid stems have pairs of fleshy leaves that vary in shape from long and narrow in deeper water to slightly elliptical, with sharp or bluntish tips in air. The leaf tip is never notched, which distinguishes it from the native water starwort (*Callitriche* spp.). The leaf bases are joined, forming a distinctive 1mm collar around the stem. In summer, white flowers grow in the axils of the leaves on emergent and terrestrial forms.

Controls:-

Non-Chemical Control

Cutting

Not recommended.

Dredging

Dredging of marginal and emergent material throughout the year can be effective, although it is necessary to ensure that plant fragments cannot be transported elsewhere.

Shading

Covering with black polythene or similar for up to 10 weeks during the growing season.

Chemical Control

Glyphosate

Application of glyphosate at 6 litres/ha to emergent stands from March to October. Regular treatment is required, and at least two applications may be necessary each year.

Submerged

Submerged material can be treated with dichlobenil in March. Submerged material will also die if connected emergent vegetation has been sprayed with glyphosate.

In general

Regular treatment is necessary. Weed wiping may be appropriate in mixed marginal vegetation. Spot treatment of small patches will prevent complete dominance. Treat early and regularly.

Floating Pennywort

Floating pennywort (*Hydrocotyle ranunculoides*) is a native of North America. It was first brought to Britain in the 1980s as a plant for tropical aquaria and garden ponds, and was first noted in the wild in Essex in 1991. Floating pennywort grows in the shallow margins of slow-flowing eutrophic water bodies (particularly ditches, slow flowing dykes and lakes), and forms dense interwoven mats of vegetation. These quickly cover the water surface interfering with both the ecology and amenity uses of the water body. These mats grow up to 15m from the bank in a single season, with stem growth rates of up to 20cm per day. Floating pennywort roots freely from nodes at approximately 40-60mm intervals. The roots are profuse and hair-like. The leaves are emergent, rising on stalks from horizontally growing stems. Both the stem and the petioles are fleshy. The leaf form ranges from circular to kidney shaped; they are deeply lobed, and up to 180mm across. Leaves are held above the water surface whilst the interwoven mat of roots and stems sink up to 50cm into the water. Reproduction in Britain is thought to be principally vegetative, and the plant is capable of forming extensive mats from the smallest shoot fragment. Introduction by seed, however, may also have occurred. Floating pennywort can double its wet weight in as little as three days. The plant exhibits seasonally variable growth in Britain. Maximum growth occurs in the late summer when it typically forms the extensive floating mats of vegetation, whilst it overwinters in the margins and on banks as a much flatter and smaller plant. The plant is relatively restricted in its distribution, largely in southern England and south Wales. Its appearance at the 90 sites so far reported is likely to have been as a result of escapes from aquaria and garden ponds. Floating pennywort has already proved to be difficult to control because of its rapid growth rates, its ability to re-grow from a single node, and its resistance to chemical control.

Controls:-

Non-Chemical Control

Cutting

Regular cutting from May to October will prevent complete dominance of this species. Cut material should be removed from the water immediately. Cutting should be followed by hand pulling or by spot treatment with chemicals to reduce the risk of regrowth.

Pulling or dredging

Hand pulling works very well in small infestations and as a follow-up after major mechanical removal. Eradication is possible using this technique.

Grazing

Cattle grazing has been seen to damage the emergent stems, but it has no long-term effect on the dominance of the plant. There are no known biological control agents in the UK, but research is underway.

Chemical Control

Glyphosate

Applying glyphosate at 6 litres product/ha in 400 litres of water is the most effective treatment with this chemical. Repeat treatments will be necessary throughout the growing season as soon as regrowth occurs. Wetting agents can significantly increase the effectiveness of glyphosate treatment. In general, the plant does not rot down very quickly after chemical treatment, and treated vegetation in flood-risk areas should be removed after two to three weeks if possible. Follow-up spot treatment after mechanical removal is recommended. Regular treatment is necessary.

Parrot's Feather

Parrot's feather (*Myriophyllum aquaticum*) is a native of lowland central South America. It was first found in Britain in 1960 and has now spread extensively, particularly in southern England. It grows in ponds, reservoirs, gravel pits, streams, canals and ditches, particularly where eutrophic water occurs. It can grow as a terrestrial plant when a pond dries out, and has even been found growing on the dry bank of a rubbish tip in Cornwall. It produces emergent shoots in addition to submerged ones, which give it the characteristic feathery appearance, hence its name. Only female plants are established in the UK and it therefore spreads by vegetative means only. The stems are brittle and the plant propagates by growth from small stem fragments. The species is attractive to look at and is widely grown in garden ponds. Introductions to the wild are usually

not deliberate, but fragments can be concealed in the soil of other pot plants sold at aquatic garden centres and nurseries.

Controls:-

Non-Chemical Control

Cutting

Cut material must be removed from the water as soon as possible. Fragmentation must be avoided. Material should be cut as often as necessary and at least every six to nine weeks from March to October to weaken the plant.

Pulling or dredging

Dredging shallow areas will remove this plant very effectively. Carefully pulling out stems by hand after mechanical removal will help to eradicate it.

Grazing

The plant is not palatable to herbivores; cattle and horses will avoid it. There is virtually no insect damage to plants in the UK, but research into biological control agents is under way.

Chemical Control

Emergent

Apply glyphosate at 6 litres/ha to emergent stands from March to October. Regular annual treatment is required, and at least two applications will be necessary each year.

Submerged

Submerged parts will die if the emergent portion has been regularly sprayed with glyphosate. Treatment usually lasts for three to five years.

In general

Regular treatment is necessary. Weed wiping with glyphosate may be appropriate in mixed marginal vegetation. Spot treatment of small patches will prevent complete dominance. Treat early and regularly.

Water Fern

The easiest way to ensure you get all of the plant matter out of your pond is to scoop it up with a net. You can use a hose to force Water Fern to side of your pond, which should make it easier to scoop up. The Royal Horticultural Society (RHS) suggest that by disturbing the water surface, fountains may help to reduce infestations. In larger ponds and lakes, a floating boom can be used to sweep the water surface. Complete control is very difficult and so repeated clearance will be necessary.

It is important to attempt control before the spores are released (at the beginning of winter, or once dense mats have formed). If spores have already been released then be extra vigilant the following year to catch reinfestation early.

Creeping Water-primrose

Early removal is essential if this plant is to be controlled. Try to remove all plant fragments and roots, otherwise reinfestation may occur. Regular clearing may be required to deal with regrowth.

Indian Balsam

Himalayan or Indian balsam (*Impatiens glandulifera*) is a native of the western Himalayas. Introduced to Britain in 1839, it escaped from gardens and rapidly colonised river banks and areas of damp ground. It is the tallest annual plant in Britain, growing up to 3m high. The characteristic purplish-pink slipper shaped flowers appear in June. When the seed pods mature, they explode when touched, scattering the seed up to 7m away. Seeds are also spread by water and they may remain viable for up to two years.

Himalayan balsam plants grow in event flowering. dense stands that suppress the growth of native grasses and other flora. In autumn the plants die back, leaving the banks bare of vegetation, and therefore liable to erosion. The stems are pinkish-red, hollow and jointed, often with some branching.

Leaves and side branches originate from stem joints. The stem is sappy and brittle. The shiny dark green leaves are lance-shaped, have serrated edges, a dark red midrib and can be up to 150mm long. They grow on the stem in whorls of three. Purplish-pink flowers, held on long stalks, appear from June to October. The white, brown or black seeds are produced from July to October and are 4-7mm in diameter. There are between 4 and 16 seeds per pod.

Controls:-

Non-Chemical Control

Cutting

Cut at ground level using a scythe, machete, flail or strimmer before the flowering stage in June. Cutting earlier than this will promote greater seed production from plants that regrow. Cutting should be repeated annually until no more growth occurs.

Pulling

Shallow-rooted plants can be pulled up very easily and disposed of by burning, or composting unless seeds are present.

Grazing

Grazing by cattle and sheep is effective from April throughout the growing season. It should be continued until no new growth occurs.

Chemical Control

Glyphosate

Treatment with a weed wipe in mixed stands, or by foliar spray in dense stands, before flowering. If all plants are controlled, then spraying programmes should only be required for two to three years.

2,4-D amine

Treat during early spring at the rosette stage for effective control.

In general

It is essential to establish vegetation quickly after control measures have been applied. Dense grass sward tends to discourage seed germination. Control should be undertaken on a catchment basis, working from the upstream end to prevent seed recolonisation.

Japanese Knotweed

Japanese knotweed was first brought to Britain in the mid-nineteenth century as an ornamental garden plant. Since then, it has caused serious problems in a range of habitats – particularly roadsides, riverbanks and derelict land – by displacing native flora and even causing structural damage. There are three species of invasive knotweed in the UK: Japanese knotweed (*Fallopia japonica*); giant knotweed (*Fallopia sachalinensis*); and hybrid knotweed (*Fallopia x bohemica*), which is a cross between Japanese

and giant knotweed. Japanese knotweed is the most widespread and troublesome bankside species, followed closely by hybrid knotweed, which has a similarly high regeneration capacity. Only female plants are present in the UK. Japanese knotweed forms dense clumps with fleshy, red/green shoots, 2-3m tall, which have hollow green stems with red/purple flecks. Leaves are green, heart or shield-shaped with a flat base, up to 120mm long. Creamy clusters of flowers are borne on the tips of most stems in late summer. The root system consists of rhizomes which are yellow when cut. The underground rhizome system can extend at least 7m from the parent plant, and reach a depth of 3m or more. A piece of rhizome the size of a little finger nail can grow into a new plant. The crown, located at the base of the stem, will produce new plants. The stems die back in winter and take up to three years to decompose. Japanese knotweed crowns should neither be composted, nor removed from a site without a waste licence.

Japanese Knotweed and the Law

Under the Wildlife and Countryside Act 1981 it is an offence to plant Japanese Knotweed or otherwise cause it to grow in the wild. Problems involving Japanese Knotweed can be referred to the local authority for the area where they are growing as some local authorities have by-laws controlling these plants. There is no statutory requirement for landowners to remove Japanese Knotweed from their property. So, if you find Japanese Knotweed in a public area, you can inform your local council who should have a procedure for dealing with this plant. We cannot do this for you on your behalf, but we are relying on you to raise this important issue in your local area.

Controls:-

Non-Chemical Control

Cutting

Use a simple scythe method of cutting to prevent stem fragmentation. A brush-cutter may be used carefully, again avoiding the production of fragments. Continue cutting every 2-4 weeks to reduce both above and below-ground biomass. Burn cut stems on site or remove to landfill (licence required).

Digging

Great care is needed. Dig out soil around clump for up to 7m. Either sieve soil on site using a 20mm mesh or remove soil to landfill (licence required). Burn rhizome and stem fragments on site, or bury 5m deep, or dispose in landfill (licence required).

Pulling

Uproot stems by pulling from the base – best done from June onwards. Burn rhizome and stem fragments on site, or bury 5m deep, or dispose in landfill (licence required).

Grazing

Grazing of shoots by horses, sheep and goats keeps the plant in check, provided previous dead growth is removed.

Chemical Control

Near water

Glyphosate

Apply as soon as shoots appear, but best effects are when shoots are more than 1.5m tall, in August or September. Can be applied by stem injection using a 1 in 10 dilution.

2,4-D amine

Apply in May and then again in August/September for best results.

In general

Treatment is easier if the dead canes from previous years have been removed during the winter. Improved uptake of herbicide is achieved by treating in early autumn, prior to leaf fall. Herbicides can be applied using tractor-mounted, knapsack long-lance, or CDA applicators. Application in sensitive areas is best achieved by stem injection or weed wiper.

Giant Hogweed

Giant hogweed (*Heracleum mantegazzianum*), is a native of the Caucasus mountains and was introduced to Britain in 1893 as an ornamental plant. It escaped from gardens and now colonises many areas of wasteland and riverbanks. Each flower head produces several thousand seeds that are easily dispersed by water, so the plant spreads rapidly along watercourses. It is a perennial plant, taking up to four years to mature and flower, after which it dies. It forms dense colonies that suppress the growth of native plants and grasses, leaving the banks bare of vegetation in winter and increasing the risk of erosion and recolonisation from seeds washed downstream.

Non-Chemical Control

Cutting

Cut stem below ground using an axe or spade. Wear full protective clothing, especially if strimming. Cut regularly early in the season to prevent flowering. Cutting should be repeated regularly for between 5 and 10 years to eradicate the plant.

Digging

Shallow excavation to about 20cm will remove the growing crown. Spoil should be disposed of at landfill or by piling on site and composting. Any regrowth should be treated chemically.

Grazing

Grazing by cattle, sheep, pigs or goats throughout the growing season will suppress growth, but does not eradicate it.

Chemical Control

Glyphosate

In mixed stands, use a weed wipe when plants are about 1m tall between March and May. When plants are more than 1.5m tall, proceed with extreme caution. Repeat chemical treatment may be required for up to 10 years. Cutting the stem above ground, followed by injection of 1 in 10 dilutions of glyphosate in water below the first node, will give good control. This technique can be used for established plants later in the season.

In general

It is essential to establish vegetation quickly after control measures have been applied. Dense grass sward tends to discourage seed germination. Control should be undertaken on a catchment basis, working from the upstream end to prevent seed recolonisation.

Tim Hodnett
EDC
April 2022