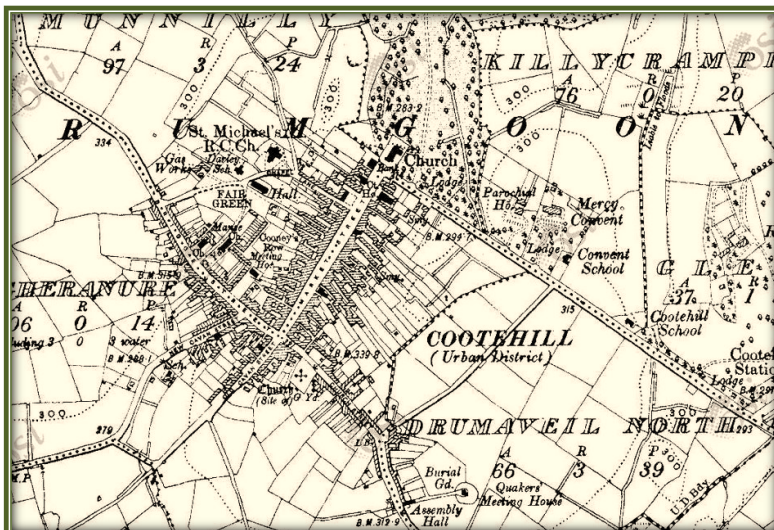


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INVASIVE SPECIES REPORT FOR A PROPOSED DEVELOPMENT SITE AT CHAPEL LANE, MUNNILLY, COOTEHILL, CO. CAVAN



Cavan County Council
c/o WGG Architects and Surveyors
21 Church View
Cavan

July 2023

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1 INTRODUCTION

1.1 BACKGROUND

Cavan County Council have indicated their intention to undertake a residential development on a site at Chapel Lane, Munnilly, Cootehill, Co. Cavan. The works will involve the construction of 13 no. fully serviced dwelling units in 1 terrace block consisting of 9 no. 1 bed maisonettes, 1 no. 2 bed maisonette and 3 no. 3 bed two storey townhouses, provide car parking, connect to existing public services and all ancillary and associated works. Permission for these works will be sought under Section 179A Social Housing Development Application. As part of the tendering process for this application, a report on the potential invasive species within the site was sought.

1.2 REGULATORY CONTEXT

RELEVANT IRISH LEGISLATION

In September 2011, comprehensive regulations which addressed deficiencies in Irish law implementing the EU Birds and Habitats Regulations (2011) were signed into law. The European Communities (Birds and Natural Habitats) Regulations 2011 contained important new provisions to address the problem of invasive species. A blacklist of unwanted species is set out in the regulations and it is an offence to release, allow to disperse or escape, to breed, propagate, import, transport, sell or advertise such species without a license.

The two regulations that deal specifically with these scheduled lists of species are:

Regulation 49: Prohibition on introduction and dispersal of certain species

Regulation 50: Prohibition on dealing in and keeping certain species (Regulation 50 is not yet in effect)

The invasive plant and animal species to which the Birds and Habitats Regulations (2011) apply are presented in Schedule Three, Part 1 - 3. Part 1 details the plants species, Part 2 the animal species while Part 3 outlines the animal or plant vector materials. These species are presented in Tables 1 - 3 below.

Common name	Scientific name	Geographical Application
American skunk-cabbage	<i>Lysichiton americanus</i>	Throughout the State
A red alga	<i>Grateloupia doryphora</i>	Throughout the State
Brazilian giant-rhubarb	<i>Gunnera manicata</i>	Throughout the State
Broad-leaved rush	<i>Juncus planifolius</i>	Throughout the State
Cape pondweed	<i>Aponogeton distachyos</i>	Throughout the State
Cord-grasses	<i>Spartina</i>	Throughout the State
Curly waterweed	<i>Lagarosiphon major</i>	Throughout the State
Dwarf eel-grass	<i>Zostera japonica</i>	Throughout the State
Fanwort	<i>Cabomba caroliniana</i>	Throughout the State
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	Throughout the State
Fringed water-lily	<i>Nymphoides peltata</i>	Throughout the State
Giant hogweed	<i>Heracleum mantegazzianum</i>	Throughout the State
Giant knotweed	<i>Fallopia sachalinensis</i>	Throughout the State
Giant-rhubarb	<i>Gunnera tinctoria</i>	Throughout the State
Giant salvinia	<i>Salvinia molesta</i>	Throughout the State
Himalayan balsam	<i>Impatiens glandulifera</i>	Throughout the State
Himalayan knotweed	<i>Persicaria wallichii</i>	Throughout the State
Hottentot-fig	<i>Carpobrotus edulis</i>	Throughout the State
Japanese knotweed	<i>Fallopia japonica</i>	Throughout the State
Large-flowered waterweed	<i>Egeria densa</i>	Throughout the State
Mile-a-minute weed	<i>Persicaria perfoliata</i>	Throughout the State
New Zealand pigmyweed	<i>Crassula helmsii</i>	Throughout the State
Parrot's feather	<i>Myriophyllum aquaticum</i>	Throughout the State

Rhododendron	<i>Rhododendron ponticum</i>	Throughout the State
Salmonberry	<i>Rubus spectabilis</i>	Throughout the State
Sea-buckthorn	<i>Hippophae rhamnoides</i>	Throughout the State
Spanish bluebell	<i>Hyacinthoides hispanica</i>	Throughout the State
Three-cornered leek	<i>Allium triquetrum</i>	Throughout the State
Wakame	<i>Undaria pinnatifida</i>	Throughout the State
Water chestnut	<i>Trapa natans</i>	Throughout the State
Water fern	<i>Azolla filiculoides</i>	Throughout the State
Water lettuce	<i>Pistia stratiotes</i>	Throughout the State
Water-primrose	<i>Ludwigia</i> (all species)	Throughout the State
Waterweeds	<i>Elodea</i> (all species)	Throughout the State
Wireweed	<i>Sargassum muticum</i>	Throughout the State

Table 1 - Third Schedule: Part 1 Plants

Common name	Scientific name	Geographical Application
A colonial sea squirt	<i>Didemnum spp.</i>	Throughout the State
A colonial sea squirt	<i>Perophora japonica</i>	Throughout the State
All freshwater crayfish species except the white-clawed crayfish	<i>All freshwater crayfish species except Austropotamobius pallipes</i>	Throughout the State
American bullfrog	<i>Rana catesbeiana</i>	Throughout the State
American mink	<i>Neovison vison</i>	Throughout the State
American oyster drill	<i>Urosalpinx cinerea</i>	Throughout the State
Asian oyster drill	<i>Ceratostoma inornatum</i>	Throughout the State
Asian rapa whelk	<i>Rapana venosa</i>	Throughout the State
Asian river clam	<i>Corbicula fluminea</i>	Throughout the State
Bay barnacle	<i>Balanus improvisus</i>	Throughout the State

Black rat	<i>Rattus rattus</i>	Offshore islands only
Brown hare	<i>Lepus europaeus</i>	Throughout the State
Brown rat	<i>Rattus norvegicus</i>	Offshore islands only
Canada goose	<i>Branta canadensis</i>	Throughout the State
Carp	<i>Cyprinus carpio</i>	Throughout the State
Chinese mitten crab	<i>Eriocheir sinensis</i>	Throughout the State
Chinese water deer	<i>Hydropotes inermis</i>	Throughout the State
Chub	<i>Leuciscus cephalus</i>	Throughout the State
Common toad	<i>Bufo bufo</i>	Throughout the State
Coypu	<i>Myocastor coypus</i>	Throughout the State
Dace	<i>Leuciscus leuciscus</i>	Throughout the State
Freshwater shrimp	<i>Dikerogammarus villosus</i>	Throughout the State
Fox	<i>Vulpes vulpes</i>	Offshore islands only
Grey squirrel	<i>Sciurus carolinensis</i>	Throughout the State
Greylag goose	<i>Anser anser</i>	Throughout the State
Harlequin Ladybird	<i>Harmonia axyridis</i>	Throughout the State
Hedgehog	<i>Erinaceus europaeus</i>	Offshore islands only
Irish stoat	<i>Mustela erminea hibernicus</i>	Offshore islands only
Japanese skeleton shrimp	<i>Caprella mutica</i>	Throughout the State
Muntjac deer	<i>Muntiacus reevesi</i>	Throughout the State
Muskrat	<i>Ondatra zibethicus</i>	Throughout the State
Quagga Mussel	<i>Dreissena rostriformis</i>	Throughout the State
Roach	<i>Rutilus rutilus</i>	Throughout the State
Roe deer	<i>Capreolus capreolus</i>	Throughout the State
Ruddy duck	<i>Oxyura jamaicensis</i>	Throughout the State

Siberian chipmunk	<i>Tamias sibiricus</i>	Throughout the State
Slipper limpet	<i>Crepidula fornicata</i>	Throughout the State
Stalked sea squirt	<i>Styela clava</i>	Throughout the State
Tawny owl	<i>Strix aluco</i>	Throughout the State
Wild boar	<i>Sus scrofa</i>	Throughout the State
Zebra mussel	<i>Dreissena polymorpha</i>	Throughout the State
Animals to which Specified Provisions of Regulations 49 and 50 apply:		
Fallow deer	<i>Dama dama</i>	Throughout the State
Sika deer	<i>Cervus nippon</i>	Throughout the State

Table 2 - Third Schedule: Part 2 Animals

Common name	Scientific names	Geographical Application
Blue mussel (<i>Mytilus edulis</i>) seed for aquaculture taken from places (including places outside the State) where there are established populations of the slipper limpet (<i>Crepidula fornicata</i>) or from places within 50 km. of such places	Mussel (<i>Mytilus edulis</i>) Slipper limpet (<i>Crepidula fornicata</i>)	Throughout the State
Soil or spoil taken from places infested with Japanese knotweed (<i>Fallopia japonica</i>), giant knotweed (<i>Fallopia sachalinensis</i>) or their hybrid Bohemian knotweed (<i>Fallopia x bohemica</i>)	Japanese knotweed (<i>Fallopia japonica</i>) Giant knotweed (<i>Fallopia sachalinensis</i>) Bohemian knotweed (<i>Fallopia x bohemica</i>)	Throughout the State

Table 3 - Third Schedule: Part 3 Vector Material

EUROPEAN LEGISLATION

In July 2016 the European Commission published the Commission Implementing Regulation 2016/1141 which sets out an initial list of 37 species to which EU Invasive Alien Species Regulation 1143/2014 will apply. The associated restrictions and obligations came into force on 3rd August 2016.

Three distinct types of measures are envisaged under the Directive, which follow an internationally agreed hierarchical approach to combatting IAS (Invasive Alien Species):

- **Prevention:** a number of robust measures aimed at preventing IAS of Union concern from entering the EU, either intentionally or unintentionally.
- **Early detection and rapid eradication:** Member States must put in place a surveillance system to detect the presence of IAS of Union concern as early as possible and take rapid eradication measures to prevent them from establishing.
- **Management:** some IAS of Union concern are already well-established in certain Member States and concerted management action is needed so that they do not spread any further and to minimize the harm they cause.

Plant species listed on this directive include:

- American skunk cabbage *Lysichiton americanus*
- Asiatic tearthumb *Persicaria perfoliata* (*Polygonum perfoliatum*)
- Curly waterweed *Lagarosiphon major*
- Eastern Baccharis *Baccharis halimifolia*
- Floating pennywort *Hydrocotyle ranunculoides*
- Floating primrose willow *Ludwigia peploides*
- Green cabomba *Cabomba caroliniana*
- Kudzu vine *Pueraria lobata*
- Parrot's feather *Myriophyllum aquaticum*
- Persian hogweed *Heracleum persicum*
- Sosnowski's hogweed *Heracleum sosnowskyi*
- Water hyacinth *Eichhornia crassipes*
- Water primrose *Ludwigia grandiflora*
- Whitetop weed *Parthenium hysterophorus*

Animal species listed on the directive include:

- Amur sleeper *Perccottus glenii*
- Asian hornet *Vespa velutina*
- Chinese mitten crab *Eriocheir sinensis*
- Coypu *Myocastor coypus*
- Fox squirrel *Sciurus niger*
- Grey squirrel *Sciurus carolinensis*

- Indian house crow *Corvus splendens*
- Marbled crayfish *Procambarus spp.*
- Muntjac deer *Muntiacus reevesii*
- North american bullfrog *Lithobates (Rana) catesbeianus*
- Pallas's squirrel *Callosciurus erythraeus*
- Raccoon *Procyon lotor*
- Red swamp crayfish *Procambarus clarkii*
- Red-eared terrapin/slider *Trachemys scripta elegans*
- Ruddy duck *Oxyura jamaicensis*
- Sacred ibis *Threskiornis aethiopicus*
- Siberian chipmunk *Tamias sibiricus*
- Signal crayfish *Pacifastacus leniusculus*
- Small Asian mongoose *Herpestes javanicus*
- South American coati *Nasua nasua*
- Spiny-cheek crayfish *Orconectes limosus*
- Topmouth gudgeon *Pseudorasbora parva*
- Virile crayfish *Orconectes virilis*

On 13 July 2017 the European Commission published Commission Implementing Regulation 2017/1263 which added a further 12 species to the current list of 37 species regulated under the EU Invasive Alien Species Regulation (1143/2014). These are:

Plant species

- Alligator weed *Alternanthera philoxeroides*
- Milkweed *Asclepias syriaca*
- Nuttall's waterweed *Elodea nuttallii*
- Chilean rhubarb *Gunnera tinctoria*
- Giant hogweed *Heracleum mantegazzianum*
- Himalayan balsam *Impatiens glandulifera*
- Japanese stiltgrass *Microstegium vimineum*
- Broadleaf watermilfoil *Myriophyllum heterophyllum*
- Crimson fountain grass *Pennisetum setaceum*

Animal species

- Egyptian goose *Alopochen aegyptiacus*
- Raccoon dog *Nyctereutes procyonoides*
- Muskrat *Ondatra zibethicus*

2 METHODOLOGY

2.1 PERSONNEL

This report was carried out by Noreen McLoughlin. Noreen is the owner and main ecologist at Whitehill Environmental. Noreen holds a BA (Hons) in Natural Science (Mod) Zoology and an MSc in freshwater ecology (TCD, Dublin). She has been a full member of the CIEEM (Chartered Institute of Ecology and Environmental Management) for over 17 years.

2.2 DESK STUDIES

Information on the site and the area of the proposed development was studied prior to the completion of this statement. The following data sources were accessed in order to complete a thorough examination of potential impacts:

- National Biodiversity Data Centre (NBDC) – Information pertaining to invasive plant and animal species within the study area.
- WGG Architects and Surveyors – Information regarding the proposed development including site plans and specifications.

2.3 FIELD STUDIES

A visit to the site of the proposed application at Cotehill was conducted on July 26th 2023, when field notes, species lists and photographs were taken. Habitats within the application site were classified in accordance to Level 3 of *A Guide to Habitats in Ireland* (Fossit, 2000). Particular attention was paid to invasive plant species within the application site.

SEASONAL CONSTRAINTS

July is an optimal time of the year for undertaking an invasive species survey and no seasonal constraints were noted.

3 RESULTS

An examination of the website of the National Biodiversity Data Centre, revealed that there are records for the presence of listed invasive species (Under S.I. 477) from within the relevant 10km squares (H51 and H61) of this proposed development. These records are cited below. Records also exist for listed invasive species from within the 1km square of the application site (H5914, H6014). These species are additionally marked below with an Asterix.

- American mink *Mustela vison* – High Impact Invasive Species
- Canada Goose *Branta canadensis* – High Impact Invasive Species
- Canadian waterweed *Elodea Canadensis* - High Impact Invasive Species*
- Grey squirrel *Sciurus carolinensis* - High Impact Invasive Species
- Fallow Deer *Dama dama* – High Impact Invasive Species
- Giant-rhubarb *Gunnera tinctoria* – High Impact Invasive Species
- Greylag Goose *Anser anser*
- Japanese Knotweed *Fallopia japonica* - High Impact Invasive Species*
- Nuttall's Waterweed *Elodea nuttallii* – High Impact Invasive Species
- *Rhododendron ponticum* - High Impact Invasive Species
- Roach *Rutilus rutilus* - Medium Impact Invasive Species
- Salmonberry *Rubus spectabilis* - Medium Impact Invasive Species
- Sika Deer *Cervus nippon* - High Impact Invasive Species
- Zebra Mussel *Dreissena (Dreissena) polymorpha* - High Impact Invasive Species

3.1 FIELD SURVEY RESULTS

The presence of Japanese knotweed was confirmed on site during the visit in July 2023. There is one main stand of knotweed in the site and this occurs along the boundary in the south-westerly section behind the sheds that are adjacent to the site. It is a large and well-established stand of knotweed, with abundant re-growth and new shoots emerging from the ground.

An indication of where the knotweed is located is shown in Figure 1 and photos are included in Figures 2.

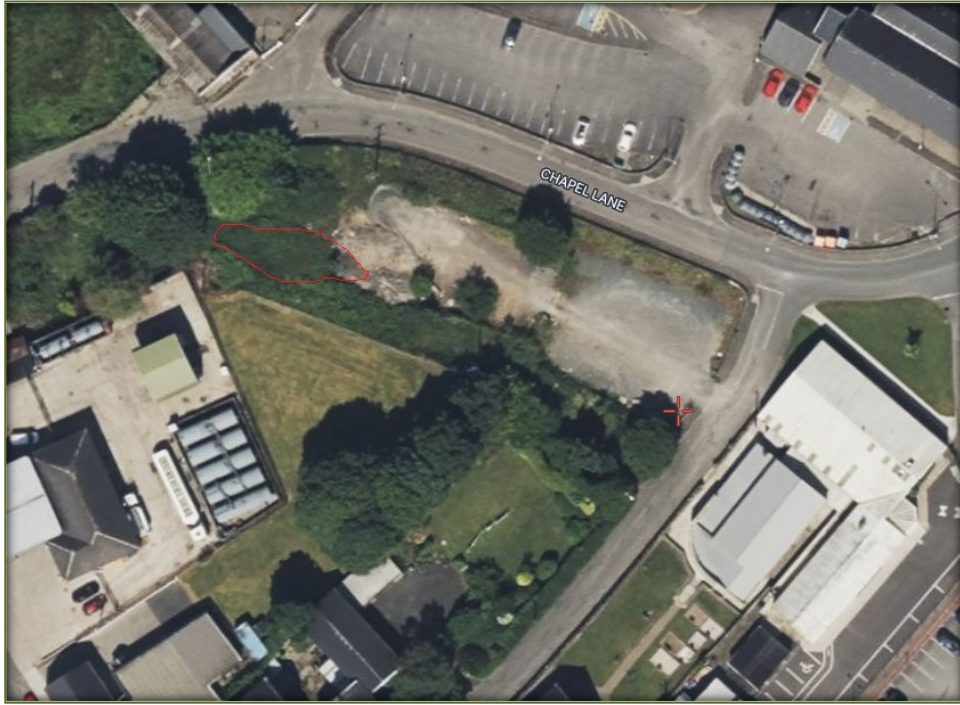


Figure 1 – Approximate Location of Knotweed (Outlined in Red) © Google



Figure 2a – Knotweed in the Site



Figure 2b – Knotweed in the Site



Figure 2c – Emerging Knotweed

4 DISCUSSION AND RECOMMENDATIONS

Prior to commencement of any construction works on site, the following actions must be taken to eradicate the knotweed from the site and ensure that it doesn't spread within the site or to areas outside of the site.

- Prior to the commencement of any works on site, a detailed and site-specific Japanese Knotweed Management Plan should be prepared and agreed upon by the contractor and Local Authority. The plan must be prepared by a suitable qualified and insured company or individual. This plan should contain a detailed schedule and timeline of works for the eradication of knotweed from the site. It should detail whether the works must be undertaken prior to the main construction works on site, or if they can be done concurrently in certain areas.
- To inform the eradication plan, the site should be surveyed in detail by an indemnified Japanese knotweed expert and a detailed distribution map and overall area of the knotweed should be produced for the site. A 7m radius buffer outside of the above ground growth should be included and mapped as this will help identify areas with potential rhizome growth.
- Surrounding properties should also be surveyed to identify the original source of the knotweed on site or to identify means of potential for re-introduction on the site. The potential contamination routes must be identified and mitigation should be included to prevent further spread of this species into the site. Other landowners or the Local Authority may need to be engaged in order to prevent re-introduction into this site.
- Once the knotweed stands within and adjacent to the site are properly mapped, a decision will have to be made as to whether the treatment programme involves continuous control on a yearly basis or total eradication from the site. This decision should be based on an understanding of the biology, size of infestation, potential for reintroduction and other relevant sensitivities in the area. The treatment options will also depend on the proposed site layout and where construction works will be undertaken.
- Potential treatment options will include the following:
 - Deep excavations to remove the above ground growth and all rhizomes. These would need to be 7m around the plant and 3m below ground.

- Herbicide application - If the area of Japanese knotweed is very small, it is possible to spray the leaves and canes with glyphosate. It is recommended that herbicide treatment is carried out by an experienced, competent and qualified operator. Several different herbicides with the following active ingredients can be used to kill Japanese knotweed: glyphosate, triclopyr, picloram and 2,4-D amine. The majority of herbicides are not effective during the winter as the active ingredient needs to be taken up by live material. It should be noted that herbicide treatment is usually the most cost-effective method, however, it can take a long time to achieve acceptable control.
- On-site disposal – Disposal of dead Japanese knotweed can be done on site by burial if the knotweed was treated with a glyphosate formulation. Other persistent herbicides will not be allowed for burial under various waste regulations. Burial must be to a depth of at least 5m. This can involve large scale engineering operations and large holes within a site. Various root barrier membranes are available which can prevent Japanese knotweed penetrating. These membranes need to be specially laid under expert supervision in order to be effective, protecting the surrounding soil.

Bunding on site could also be considered. A bund is a shallow area of Japanese knotweed contaminated soil, typically 0.5m deep. This method is used where conditions do not allow for burial and is usually only suitable for large sites as even small infestations, with limited above ground growth, can be very big. The bund method is used when it is not possible to treat Japanese knotweed in the area where it was originally located by moving it to an area that is not used. Bunds should be located at least 10 m away from site boundaries to prevent spread. The bund can be raised, on top of the ground or placed within an excavation. The material within the bund is treated as often as is necessary to prevent growth and spread. Bunds should use a root barrier membrane if being constructed in an area free of Japanese knotweed.

- Off-site disposal - If Japanese knotweed cannot be dealt with effectively on site, it must be disposed of at a suitably licensed waste management site. The licensed waste manager must be informed that the material is Japanese knotweed. Disposal at licensed facilities can be very expensive and should be considered as a last resort. Great care must be taken when transferring contaminated material. It is an offence to cause Japanese knotweed to grow in the wild on the island of Ireland.

- Once the plan is in place and methods are being undertaken to eradicate the knotweed, continuous monitoring of the knotweed should be undertaken regularly, throughout the entire construction phase of the project and in subsequent years following completion of the development.
- During construction the following must be considered:
 - Knotweed contaminated topsoil or subsoil must not leave the site. Knotweed can propagate from vegetative fragments that are as small as 1cm.
 - Topsoil should not be brought onto the site unless it can be certified free of knotweed and other invasive plant vector material.
 - Machinery should not be brought onto the site from areas contaminated with knotweed or any other known invasive without thorough cleaning and power washing. Conversely, machinery used throughout the construction phase should stay on the site until no longer required and prior to leaving the site all plant machinery and equipment should be thoroughly cleaned and disinfected. Footware can also be a vector, so workers should also clean shoes and footware before leaving the site if working in the contaminated areas.