

MONA OFFSHORE WIND PROJECT

Environmental Statement

Volume 7, Annex 3.14: National vegetation classification and invasive non-native species technical report

Document Number: MOCNS-J3303-RPS-10108

Document Reference: F7.3.14

APFP Regulations: 5(2)(a)

February 2024

F01



Image of an offshore wind farm

MONA OFFSHORE WIND PROJECT

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
Rev01	Application	RPS	Mona Offshore Wind Ltd	Mona Offshore Wind Ltd	February 2024
Prepared by: RPS			Prepared for: Mona Offshore Wind Ltd.		

Contents

1	NATIONAL VEGETATION CLASSIFICATION AND INVASIVE NON-NATIVE SPECIES SURVEY TECHNICAL REPORT	1
1.1	Introduction	1
1.2	Study area	1
1.3	Survey area	1
1.4	Relevant legislation.....	4
1.5	Consultation	4
1.6	Methodology	5
1.6.1	Overview	5
1.6.2	Desktop study.....	5
1.6.3	Site-specific surveys.....	5
1.6.4	Limitations	8
1.7	Results	8
1.7.1	Desk study.....	8
1.7.2	Site-specific surveys.....	10
1.7.3	Site descriptions	18
1.7.4	INNS	32
1.8	Summary	36
1.9	References	37

Tables

Table 1.1:	Summary of key desktop sources.	5
Table 1.2:	Domin scale.....	6
Table 1.3:	Frequency class of each species recorded (adapted from Rodwell, 2006).	7
Table 1.4:	Desk study records of protected or notable flora within the Mona Onshore Development Area ..	9
Table 1.5:	Desk study records of INNS within the Mona Onshore Development Area	9
Table 1.6:	NVC survey results.....	17

Figures

Figure 1.1:	The NVC and INNS study area and survey area.	3
Figure 1.2:	The NVC sites.....	11
Figure 1.3:	The NVC sites.....	12
Figure 1.4:	The NVC sites.....	13
Figure 1.5:	The NVC sites.....	14
Figure 1.6:	The NVC sites.....	15
Figure 1.7:	The NVC sites.....	16
Figure 1.8:	Results of the NVC Survey.....	26
Figure 1.9:	Results of the NVC Survey	27
Figure 1.10:	Results of the NVC Survey	28
Figure 1.11:	Results of the NVC Survey.....	29
Figure 1.12:	Results of the NVC Survey.....	30
Figure 1.13:	Results of the NVC Survey.....	31
Figure 1.14:	Results of the INNS Survey.....	33
Figure 1.15:	Results of the INNS Survey	34
Figure 1.16:	Results of the INNS Survey.....	35

Appendices

APPENDIX A :	BOTANICAL SPECIES LIST	38
---------------------	-------------------------------------	-----------

MONA OFFSHORE WIND PROJECT

Glossary

Term	Meaning
Domin scale	A measure of percentage cover per plant species within a survey quadrat
Expert Working Group (EWG)	Expert working groups set up with relevant stakeholders as part of the Evidence Plan process.
Extended phase 1 habitat survey	An industry standardised survey methodology for classifying and mapping large extents of habitats quickly and efficiently
National Vegetation Classification (NVC)	A standard classification system used in the UK to describe and characterize plant communities.
Habitats of Principal Importance (HPI)	Habitats recognised in Welsh policy and afforded due regard in the planning system by the Environment (Wales) Act 2016, Section 7. Public bodies have a legal duty to conserve such habitats through their work.

Acronyms

Acronym	Description
BSBI	Botanical Society of Britain and Ireland
Defra	Department for the Environment, Food & Rural Affairs
CoCP	Code of Construction Practice
GPS	Global Positioning System
HPI	Habitats of Principal Importance
INNS	Invasive Non-Native Species
JNCC	Joint Nature Conservation Committee
MAGIC	Multi-Agency Geographic Information for the Countryside
MAVIS	Modular Analysis of Vegetation Information System
MLWS	Mean Low Water Springs
NVC	National Vegetation Classification
SPI	Species of Principal Importance
GIS	Geographical Information System

Units

Unit	Description
km	Kilometre
m	Metre
%	Percent

1 NATIONAL VEGETATION CLASSIFICATION AND INVASIVE NON-NATIVE SPECIES SURVEY TECHNICAL REPORT

1.1 Introduction

- 1.1.1.1 This document forms Volume 7, Annex 3.14: National Vegetation Classification and invasive non-native species technical report of the Environmental Statement for the Mona Offshore Wind Project.
- 1.1.1.2 The purpose of this technical report is to present the results of the National Vegetation Classification (NVC) and the Invasive Non-Native Species (INNS) desk study and site-specific surveys undertaken between June and September 2023, to inform Volume 3, Chapter 3: Onshore ecology of the Environmental Statement. This technical report comprises botanical data and data on INNS plant species only. Invasive and Non-Native faunal species were not identified during the site surveys and have been scoped out of this technical report.
- 1.1.1.3 The desk study and site-specific surveys were designed to identify the vegetation types and patterns of select areas and to produce a comprehensive classification and description of plant communities. They were also designed to determine the presence or likely absence of protected or notable vascular plant species, including invasive non-natives.
- 1.1.1.4 Two separate areas have been defined for the purposes of this technical report. These include the 'study area', which describes the geographical extent subject to desk based research, and the 'survey area', which describes the area of land subject to site-specific surveys. The extent of the study area was selected to ensure all available data was collected for the Mona Onshore Development Area and the surroundings that may support protected or notable vascular plants and invasive non-natives and may reasonably be affected by the Project. The areas were discussed and agreed with the onshore ecology Expert Working Group (EWG).

1.2 Study area

- 1.2.1.1 The study area comprises the Mona Onshore Development Area, landward of Mean Low Water Springs (MLWS) and a 1 km buffer ('the NVC and INNS study area').
- 1.2.1.2 The location and geographical extent of the NVC and INNS study area is presented in Figure 1.1 of this technical report.

1.3 Survey area

- 1.3.1.1 Following the commencement of NVC and INNS surveys, the Mona Onshore Development Area has been refined and now occupies a smaller geographical area. As such, the area of land subject to NVC surveys ('the NVC and INNS survey area') extends beyond the current iteration of the Mona Onshore Development Area. The results from surveys undertaken beyond the Mona Onshore Development Area (i.e. surveys undertaken based on an earlier design iterations) have been included in this technical report because they provide further context regarding the ecological sensitivity of the wider area and to inform Volume 3, Chapter 3: Onshore ecology of the Environmental Statement (where relevant). All the ecological data collected as part of the Environmental Statement for the Mona Offshore Wind Project has been made publicly available through the relevant data records centre.

MONA OFFSHORE WIND PROJECT

- 1.3.1.2 Adopting a survey area that is greater in extent than the Mona Onshore Development Area is in accordance with the precautionary approach. It ensures that the Environmental Statement is accurately informed with data from within the Mona Onshore Development Area (i.e. that may be subject to direct impacts) and data from outside the Mona Onshore Development Area (i.e. that may be subject to indirect impacts).
- 1.3.1.3 The location and geographical extent of the NVC and INNS survey area is presented in Figure 1.1 of this technical report.

MONA OFFSHORE WIND PROJECT

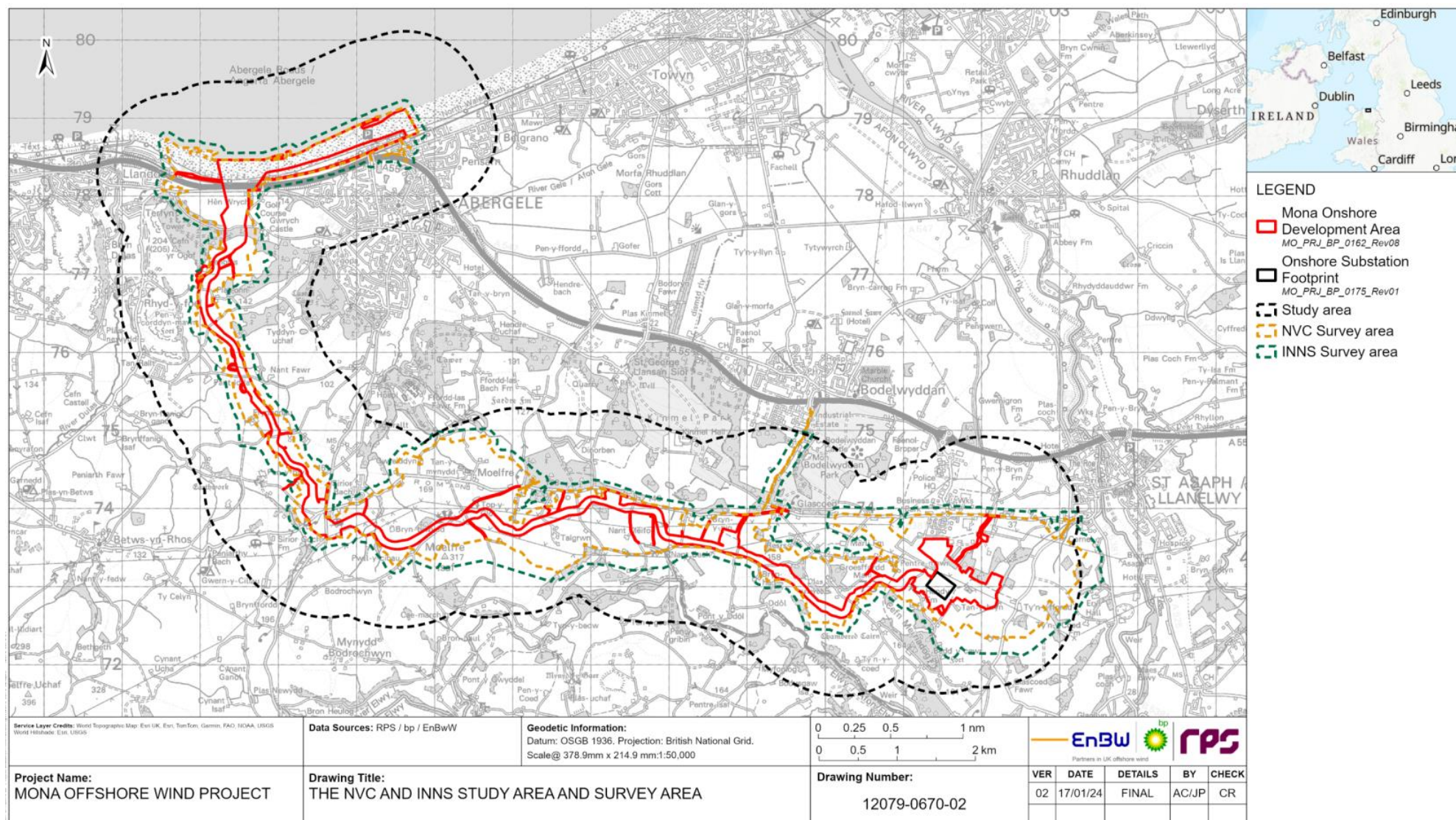


Figure 1.1: The NVC and INNS study area and survey area.

1.4 Relevant legislation

- 1.4.1.1 Four key pieces of legislation are relevant for plants under Welsh and UK law: the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations), the Wildlife and Countryside Act 1981 (as amended), the Invasive Alien Species (Enforcement and Permitting) Order 2019 and the Environment (Wales) Act 2016.
- 1.4.1.2 The Conservation of Habitats and Species Regulations 2017 (as amended) protects nine species of vascular plants. These are shore dock *Rumex rupsetris*, Kilarney fern *Trichomanes speciosum*, early gentian *Gentianella anglica*, Lady's-slipper *Cypripedium calceolus*, creeping marshwort *Apium repens*, slender naiad *Najas flexilis*, fen orchid *Liparis loeselii*, floating-leaved water plantain *Luronium natans* and yellow marsh saxifrage *Saxifraga hirculus*. Under Schedule 5 of the Conservation of Habitats and Species Regulations 2017 (as amended) it is an offence to:
- Deliberately pick, collect, cut, uproot or destroy a wild plant
 - Possess, control or transport them (alive or dead).
- 1.4.1.3 A total of 180 plant species (which include vascular and non-vascular plants) are listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). As such, under Section 13 of the Wildlife and Countryside Act 1981 (as amended) it is an offence to intentionally pick, uproot, destroy or sell a wild plant or any seed or spore attached to it.
- 1.4.1.4 A total of 64 vascular plant species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) as INNS. As such, under section 14 of the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or otherwise cause the growth of any species listed on Schedule 9 in the wild.
- 1.4.1.5 A total of 11 vascular plant species are listed on Schedule 2 of The Invasive Alien Species (Enforcement and Permitting) Order 2019. It is an offence to import, keep, breed, purchase or release species listed on Schedule 2 unless under an appropriate permit or licence.
- 1.4.1.6 In Wales, Section 7 of the Environment (Wales) Act 2016 affords 77 vascular plant species and 119 non-vascular plants due regard in the planning system. All vascular and non-vascular plant species listed under Section 7 of the Environment (Wales) Act 2016 are Species of Principal Importance (SPI) in Wales. A total of 55 habitats are also listed on Section 7 as Habitats of Principal Importance (HPI) in Wales. Public bodies and local planning authorities have a legal duty to conserve SPI and HPI when exercising their duties.

1.5 Consultation

- 1.5.1.1 The scope, methodology and findings of the NVC and INNS surveys, including those undertaken beyond the current Mona Onshore Development Area, were discussed and agreed with stakeholders via regular Onshore Ecology EWG Meetings. Further detail regarding consultation undertaken with respect onshore ecology, including NVC surveys can be found in Volume 3, Chapter 3: Onshore ecology of the Environmental Statement and the Consultation Report (Document reference: E.3).

MONA OFFSHORE WIND PROJECT

1.6 Methodology

1.6.1 Overview

- 1.6.1.1 A combination of a desk study and site-specific surveys were undertaken to produce a comprehensive classification and description of the plant communities and to establish the presence or likely absence of INNS within the NVC and INNS study area.
- 1.6.1.2 The results of the desk study are presented in Volume 7, Annex 3.1: Onshore ecology desk study technical report of the Environmental Statement and summarised in section 1.7.1 below. The results of the site-specific surveys are presented in section 1.7 below.

1.6.2 Desktop study

- 1.6.2.1 Botanical data within the NVC and INNS study area was obtained from existing studies and datasets, the sources are summarised in Table 1.1.

Table 1.1: Summary of key desktop sources.

Title	Source	Year	Author
Historical biological records	Cofnod	2023	Cofnod
DataMapWales	Welsh Government	2023	Welsh Government
Multi-Agency Geographic Information for the Countryside (MAGIC)	Department for the Environment, Food & Rural Affairs (Defra)	2023	Defra
UK Protected Area Joint Nature Conservation Committee (JNCC)	JNCC website	2023	JNCC
Plant distribution maps	Botanical Society of Britain and Ireland (BSBI)	2023	BSBI

1.6.3 Site-specific surveys

Extended phase 1 habitat surveys

- 1.6.3.1 Extended phase 1 habitat surveys undertaken between May 2022 and September 2023 were used to assess the potential for habitats to support protected or notable flora or a diverse assemblage of botanical species, (see Volume 7, Annex 3.2: Extended phase 1 habitat surveys technical report of the Environmental Statement).
- 1.6.3.2 All areas identified as potentially suitable for supporting protected and notable plant species, or ecological valuable sites with the potential to contain diverse plant assemblages were subsequently surveyed. All surveys were undertaken by competent botanical surveyors with a level four Field Identification Skills Certificate (FISC) from the Botanical Society of Britain and Ireland (BSBI). The surveys comprised NVC surveys and INNS surveys.

NVC surveys

- 1.6.3.3 The NVC survey is a detailed botanical survey technique designed to identify plant communities. The preceding Phase 1 Habitat surveys are designed to identify broad habitats only. The NVC surveys were undertaken between June and September 2023 and followed the guidelines set out in National Vegetation Classification: Users' handbook (Rodwell, 2006).
- 1.6.3.4 Potentially valuable sites comprised habitats that could support diverse assemblages of plant species, including rare, scarce or plant species associated with Sites of Special Scientific Interest (SSSI).
- 1.6.3.5 Each habitat or contiguous or connected habitats (a 'Site') potentially valuable for its plant communities was assigned a number for the purposes of undertaking NVC surveys and referred to as a 'Site' (e.g. Site 1, Site 2, Site 3). At each Site, a walkover was undertaken to select a sample location where vegetation could be recorded. A sample location within each Site was chosen based on similar stands of vegetation. The vegetation was then sampled using quadrats.
- 1.6.3.6 The location of each quadrat was recorded on a map and Global Positioning System (GPS) coordinates were taken. Specimens of plants (excluding protected species) were collected where identification was difficult or contentious in the field. Physical parameters, including the slope and aspect were also recorded (where appropriate) to understand the vegetation pattern across each site and inform quadrat selection.
- 1.6.3.7 The size of the quadrat selected was appropriate to the vegetation type being surveyed. For grassland habitats, quadrat sizes were 2 m x 2 m and were recorded in typical grassland vegetation. On occasion, fewer quadrats than the recommended three to five were sampled. This approach was undertaken at sites where habitats were identified as improved grassland, species poor grassland or temporary grass leys. This approach was taken due to the low value and generally species poor plant communities associated with these habitat types.
- 1.6.3.8 For woodland sites, a 50 m x 50 m quadrat was used to record the tree and shrub data. For woodland ground flora, 4 m x 4 m or 10 x 10 m quadrats were used. Within small woodland blocks, where five 50 m x 50 m samples could not be taken due to the woodland's size (i.e. smaller than 50 x 50 m), the whole woodland stand was used as the quadrat for canopy and the understorey. Within such areas replicated 4 m x 4 m or 10 m x 10 m quadrats were recorded for the field and ground layers and then combined.
- 1.6.3.9 Within each quadrat, all species were recorded with an estimate of percentage cover and abundance using the Domin scale (see Table 1.2 below). The Domin scale is a measure of percentage cover per plant species within a survey quadrat.

Table 1.2: Domin scale.

Percentage of quadrat (%)	Domin Value
91-100	10
76-90	9
51-75	8
34-50	7
26-33	6

MONA OFFSHORE WIND PROJECT

Percentage of quadrat (%)	Domin Value
11-25	5
4-10	4
<4 (many individuals)	3
<4 (several individuals)	2
<4 (few individuals)	1

1.6.3.10 The species data recorded in each quadrat from each similar stand of vegetation was tabulated and a frequency value for each species calculated for each defined group of quadrats as per Table 1.3 below. Frequency is defined by how often a plant species is encountered across multiple quadrats.

Table 1.3: Frequency class of each species recorded (adapted from Rodwell, 2006).

Frequency value	Percentage of quadrat (%)	Measure of frequency
I	1-20	Scarce
II	21-40	Occasional
III	41-60	Frequent
IV	61-80	Constant
V	81-100	Constant

1.6.3.11 Data collected from each Site was reviewed to ascertain its vegetation type as defined in the five published British Plant Communities volumes (Rodwell, 1991 – 2004). This was done manually through use of the keys and the floristic tables provided in the British Plant Communities volumes and by visual comparison of the collected data with the published data.

1.6.3.12 The computer program MAVIS (Modular Analysis of Vegetation Information System) was used to facilitate comparison of data collected from each Site with published data and aid the assignment of sites to a plant community. The tabulated results of the NVC surveys were entered into MAVIS. Matching coefficients were computed between the published floristic tables and the NVC survey results. Both the output from MAVIS and the manual assignment of data were compared to ascertain the most appropriate plant community.

1.6.3.13 Each plant community is defined by an NVC name code as listed within floristic tables within the British Plant Communities volumes. The code starts with one or two letters corresponding to their vegetation type, followed by a number starting with one and increasing sequentially for each different plant community, for example 'MG7', which is the *Lolium perenne* leys and related grasslands plant community. Each plant community also have their own sub-communities based on differences in species composition. Where a sub-community has been identified, these are defined by lower case letters. In the case of MG7, this could be MG7a, MG7b through to MG7f.

1.6.3.14 Botanical nomenclature used in this technical report is as per the New Flora of the British Isles, Fourth Edition (Stace, 2019).

INNS surveys

- 1.6.3.15 INNS surveys were targeted to plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Where signs or evidence of animals listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were observed, this was noted. INNS surveys were undertaken alongside the NVC surveys, extended phase 1 habitat surveys and hedgerow surveys. As part of the INNS surveys, a systematic walkover of all areas within the NVC and INNS survey area (where accessible), including field boundaries was conducted. Where INNS were found, they were plotted on a Geographical Information System (GIS) device. Single stands, or a population of plants too small to map were recorded as points. Where dense stands of INNS were identified, their extent within a Site were mapped as polygons.
- 1.6.3.16 In addition to the targeted INNS surveys, incidental records of INNS from other site-specific surveys were recorded on a GIS device (where present). These observations were collated to accompany the results of the targeted INNS surveys.
- 1.6.3.17 All personnel conducting the INNS survey were suitably competent and experienced in the identification of plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

1.6.4 Limitations

- 1.6.4.1 Every effort has been made to provide an accurate classification of each Site surveyed. It should be noted that NVC surveys are time dependant, and some surveys were undertaken in September after fields had been cut and managed and therefore the NVC surveys may not have picked up all the species potentially present.
- 1.6.4.2 Additionally, access was not granted to certain areas of land within the NVC and INNS survey area at the time of survey. As a result, full survey coverage could not be completed and stands of INNS may have been missed. The areas not surveyed that are within the Mona Onshore Development Area will be surveyed prior to construction to confirm the presence or like absence of INNS. For the purpose of the assessment in Volume 3, Chapter 3: Onshore ecology of the Environmental Statement, a precautionary approach has been taken and INNS are assumed potentially present. As such, precautionary measures including pre-construction botanical INNS surveys will be completed in accordance with the Outline Code of Construction Practice (CoCP) (Document reference: J.26). Further reference are provided in the Landscape and Ecology Management Plan (document reference: J.22).
- 1.6.4.3 No other limitations were encountered during the NVC and INNS surveys, which would have a significant impact on the outcome of the evaluation, therefore it is considered that this report accurately reflects the plant communities present.

1.7 Results

1.7.1 Desk study

- 1.7.1.1 A total of 293 vascular and non-vascular plant species were identified within the NVC and INNS study area. A total of 10 protected or notable vascular plants were identified within the Mona Onshore Development Area.
- 1.7.1.2 Of the 10 protected or notable vascular plants, one species, bluebell *Hyacinthoides non-scripta*, was protected under the Wildlife and Countryside Act 1981 (as amended) and nine were notable plant species. Notable species included those that are listed in

MONA OFFSHORE WIND PROJECT

Biodiversity Action Plans, cited in an International Union for Conservation of Nature (IUCN) Red Data Book as Nationally Scarce, listed as Critically Endangered or Endangered by IUCN or listed as nationally important on the Rare Plant Register or the Vascular Plant Red Data List. The species are listed in Table 1.4 below.

Table 1.4: Desk study records of protected or notable flora within the Mona Onshore Development Area

Number of records	Number of records within Mona Onshore Development Area	Common Name	Latin Name
40	2	Alexanders	<i>Smyrniololus satrum</i>
7	1	Autumn Lady's tresses	<i>Spiranthes spiralis</i>
48	2	Bluebell	<i>Hyacinthoides non-scripta</i>
11	3	Chicory	<i>Cichorium intybus</i>
8	1	Scented Mayweed	<i>Matricaria chamomilla</i>
9	1	Scentless Mayweed	<i>Tripleurospermum inodorum</i>
11	1	Weld	<i>Reseda luteola</i>
18	3	White Campion	<i>Silene latifolia</i>
9	1	Wild Leek	<i>Allium ampeloprasum</i>
3	1	Wormwood	<i>Artemisia absinthium</i>

1.7.1.3 Protected or notable species of plants recorded within NVC and INNS study area are presented in Appendix A of Volume 7, Annex 3.1: Onshore ecological desk study technical report of the Environmental Statement.

1.7.1.4 A total of 13 INNS species were identified as part of the desktop study. Eight of these species were identified within the Mona Onshore Development Area and are listed in Table 1.5 below.

Table 1.5: Desk study records of INNS within the Mona Onshore Development Area

Number of records	Number of records within Mona Onshore Development Area	Common Name	Latin Name
16	3	Japanese knotweed	<i>Reynoutria japonica</i>
32	0	Himalayan balsam	<i>Impatiens glandulifera</i>
3	1	Three-cornered garlic	<i>Allium triquetrum</i>
3	5	Montbretia	<i>Crocasmia pottsii x aurea</i>
1	1	Water fern	<i>Azola filiculoides</i>
7	1	Himalayan cotoneaster	<i>Cotoneaster simonsii</i>
6	2	Variegated yellow archangel	<i>Lamium galeobdolon ssp. argentatum</i>
5	1	Rhododendron	<i>Rhododendron ponticum</i>

MONA OFFSHORE WIND PROJECT

- 1.7.1.5 The full list of INNS records identified within the NVC and INNS study area but outside the Mona Onshore Development Area is provided in Table A.1.6 of Appendix A within Volume 7, Annex 3.1: Onshore ecological desk study technical report of the Environmental Statement.

1.7.2 Site-specific surveys

Site-specific surveys were undertaken at 45 sites within the NVC and INNS survey area, as presented between Figure 1.2 and

- 1.7.2.1 . The location of the 45 NVC survey sites. A total of 19 NVC community types were identified across the 45 sites surveyed. 19 of the sites were located within the Mona Onshore Development Area, 16 were within the Onshore Substation area. Three sites were to the south west of Abergele. The remaining six sites were outside of the Mona Onshore Development Area, primarily surrounding the Onshore Substation area. With the exception of sites 2, 19, 20, 21, 22, 24, 25, 26, 27 and 44, all sites were located near the Onshore Substation area.
- 1.7.2.2 The surveys confirmed that MG7 *Lolium perenne* dominated grasslands, particularly sub-communities MG7a *Lolium perenne* leys and related grasslands, *Lolium perenne*-*Trifolium repens* leys and MG7b *Lolium perenne* leys and related grasslands, *Lolium perenne*-*Poa trivialis* leys were the most abundant community types identified during the NVC surveys. MG7a was identified at 17 sites and MG7b was identified at six sites. Of the 17 sites assigned to MG7a, 10 sites identified were located within the Mona Onshore Development Area. Nine within or in proximity to the Onshore Substation and one to the south west of Abergele. The remaining seven sites were located outside Mona Onshore Development Area.
- 1.7.2.3 Three sites identified as supporting MG7b were located within the Mona Onshore Development Area, surrounding the Onshore Substation. The remaining three were located to the east of the Mona Onshore Development Area.
- 1.7.2.4 Three of the sites were woodland plant communities. This included site 9 which was assigned as W10 *Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus* woodland. Site 43 identified as W10c *Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus* woodland, *Hedera helix* sub-community and site 44 was W8d *Quercus robur*-*Pteridium aquilinum*-*Rubus fruticosus* woodland, *Holcus lanatus* sub-community.
- 1.7.2.5 Site 20, located partially within the Mona Onshore Development Area to the south west of Abergele comprised the plant community CG7a *Festuca ovina*-*Hieracium pilosella*-*Thymus praecox/pulegioides* grassland. This is a community associated with lowland, calcareous habitats. Lowland calcareous grassland is a Habitat of Principal Importance in Wales listed in Section 7 of the Environment (Wales) Act 2016.
- 1.7.2.6 The location of all 45 sites is presented in Figure 1.2 to Figure 1.7. Their respective NVC community types are displayed between Figure 1.8 and Figure 1.13. The full results of the NVC surveys at each Site are set out in Table 1.6 below, including their respective plant communities, based on analysis using MAVIS. Descriptions of each Site is provided in section 1.7.3. A full species list is provided in Appendix A of this technical report.

MONA OFFSHORE WIND PROJECT

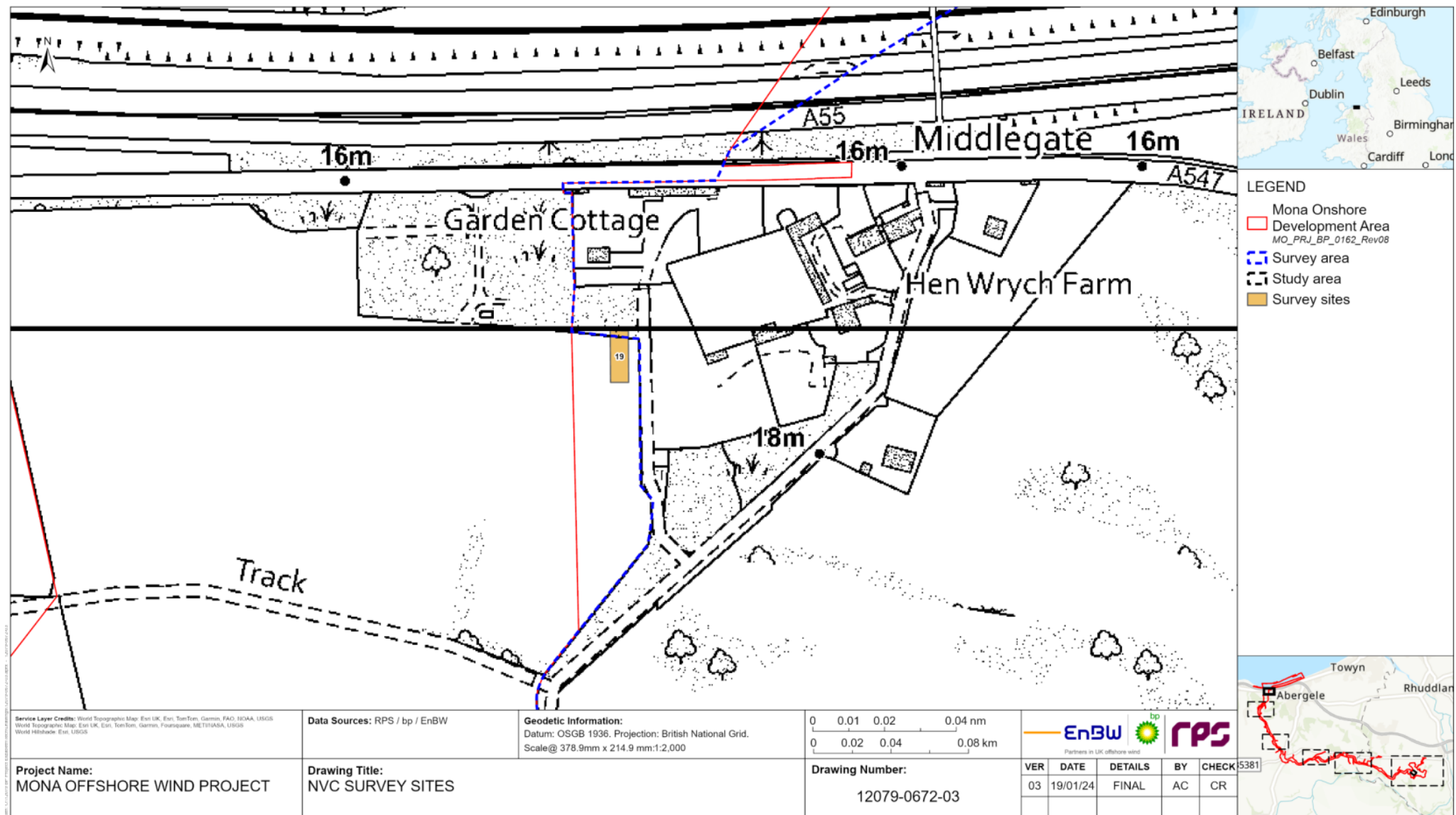


Figure 1.2: The NVC sites.

MONA OFFSHORE WIND PROJECT

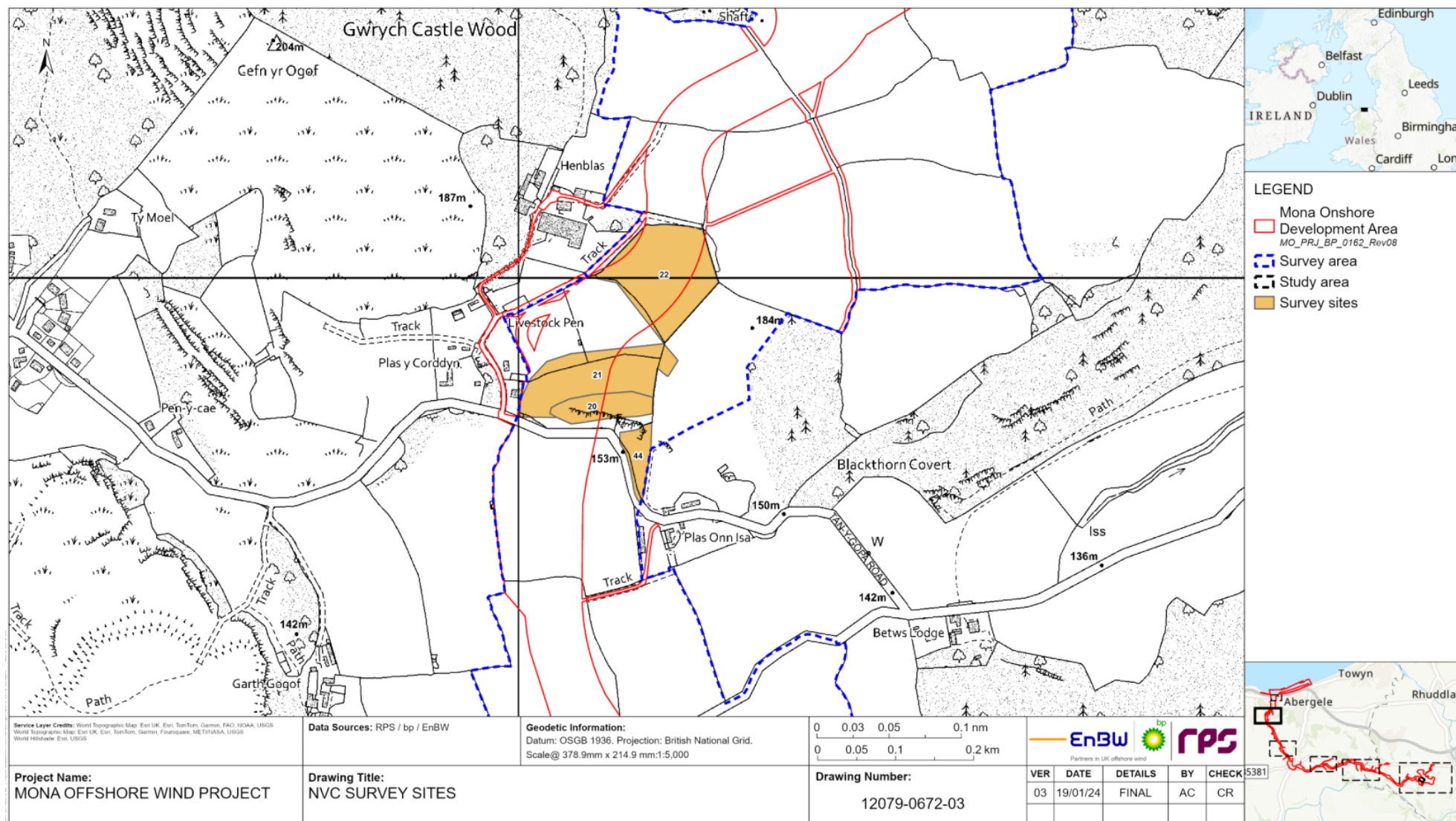


Figure 1.3: The NVC sites.

MONA OFFSHORE WIND PROJECT

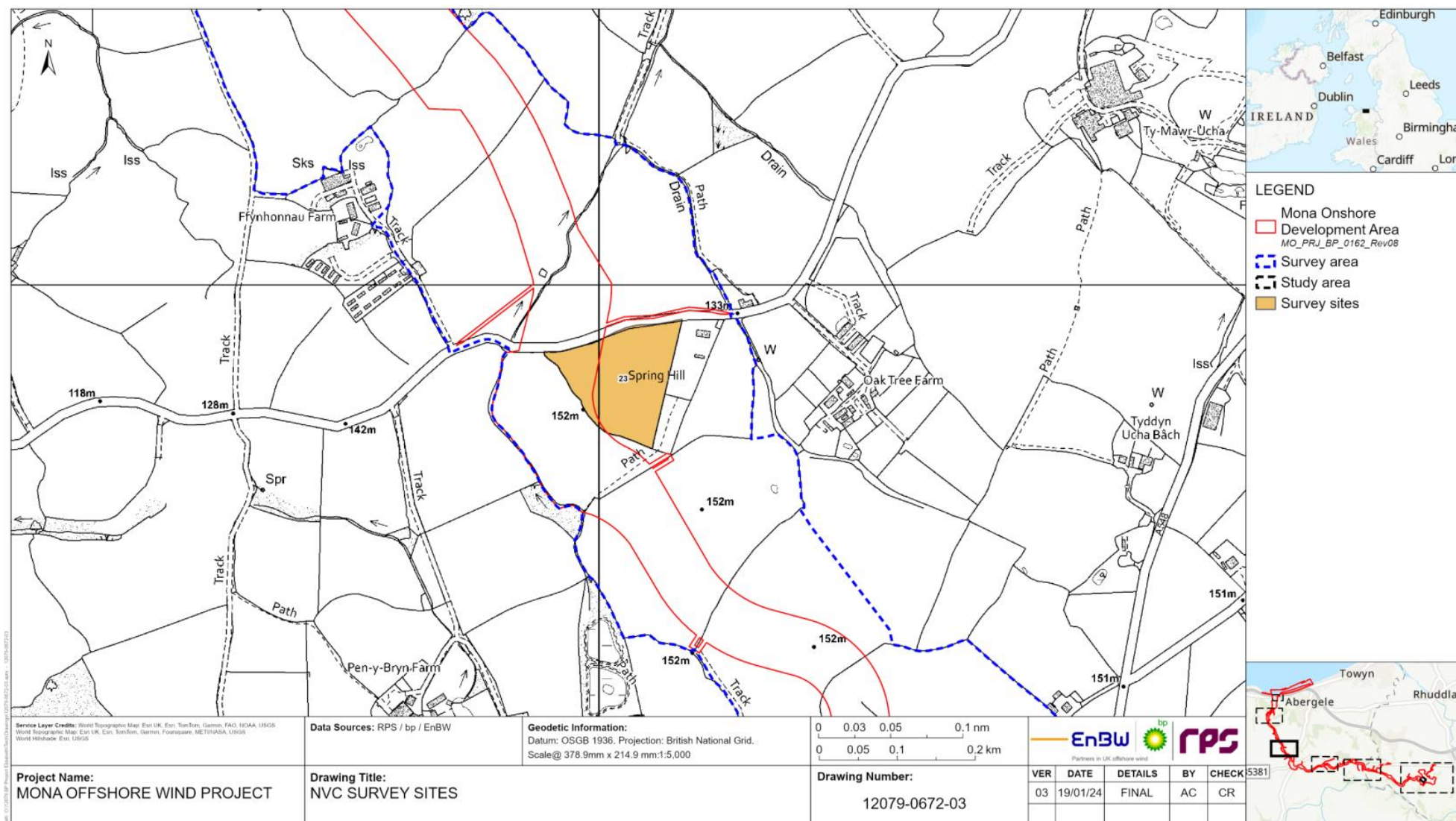


Figure 1.4: The NVC sites.

MONA OFFSHORE WIND PROJECT

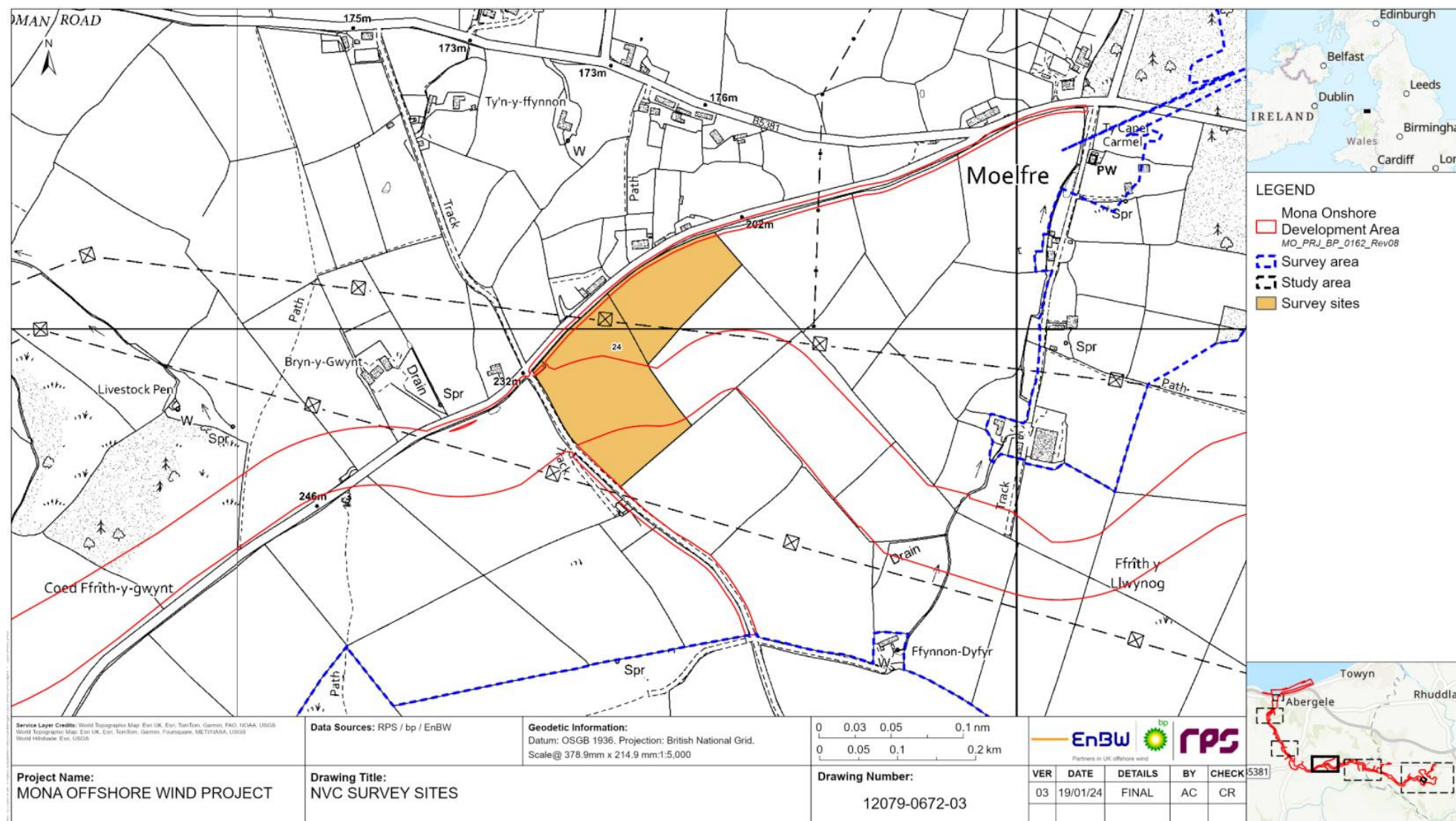


Figure 1.5: The NVC sites.

MONA OFFSHORE WIND PROJECT

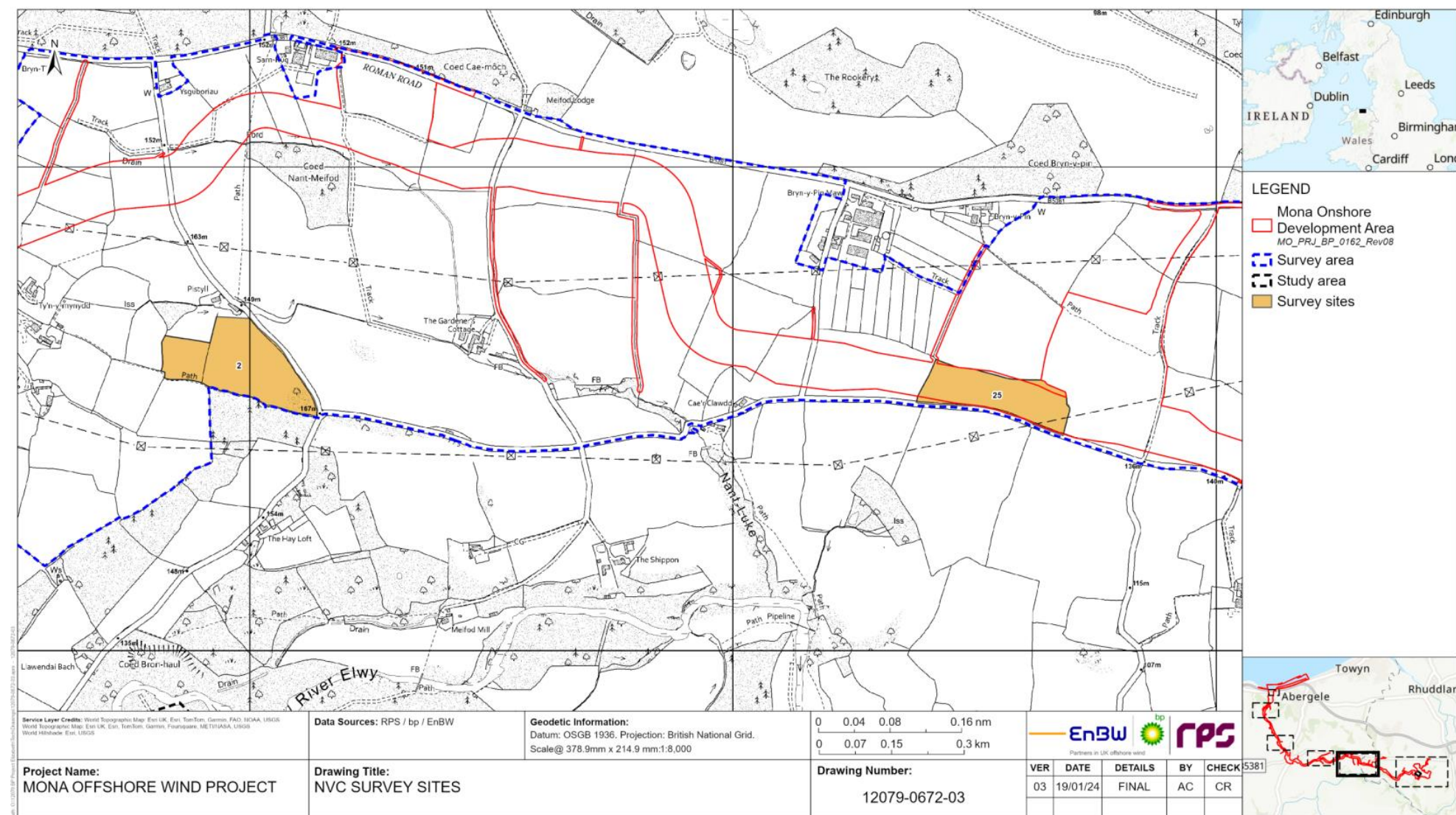


Figure 1.6: The NVC sites.

MONA OFFSHORE WIND PROJECT

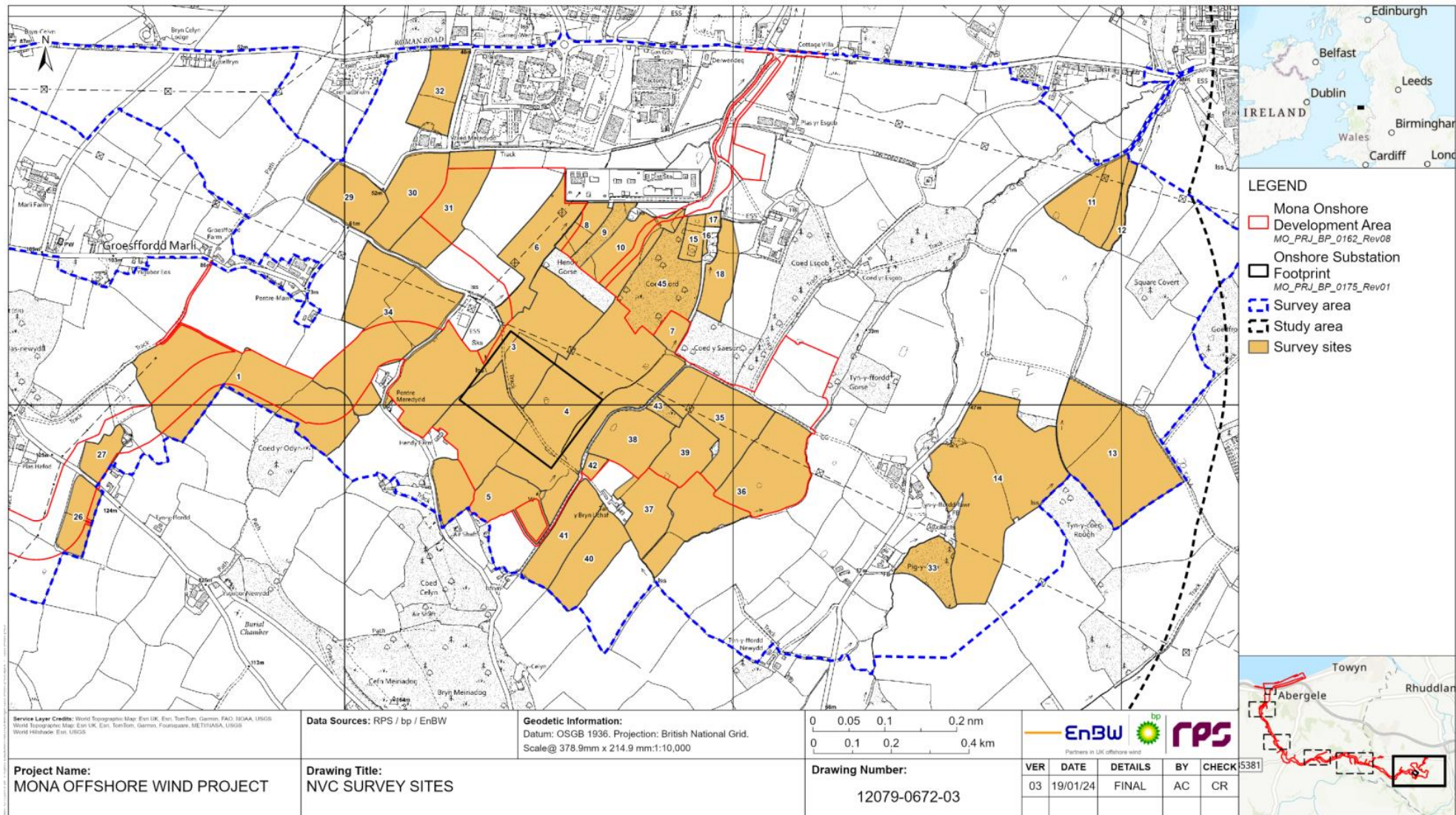


Figure 1.7: The NVC sites

MONA OFFSHORE WIND PROJECT

Table 1.6: NVC survey results.

NVC Name Code	NVC community type	Sites where NVC community type was present
MG7b	<i>Lolium perenne</i> leys and related grasslands, <i>Lolium perenne</i> - <i>Poa trivialis</i> leys.	Site 1, Site 8, Site 11, Site 12, Site 34 and Site 40.
MG6b	<i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland, <i>Anthoxanthum odoratum</i> sub-community.	Site 2, Site 24, Site 26.
MG7a	<i>Lolium perenne</i> leys and related grasslands, <i>Lolium perenne</i> - <i>Trifolium repens</i> leys.	Site 3, Site 4, Site 5, Site 13, Site 14, Site 23, Site 25 Site 29, Site 30, Site 31, Site 32, Site 35, Site 36, Site 37, Site 38, Site 39, Site 41.
MG7b and MG7a	<i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland, typical sub-community.	Site 6
MG6a	<i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland, typical sub-community.	Site 7, Site 10, Site 18.
W10	<i>Quercus robur</i> - <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> woodland.	Site 9
MG15	<i>Alopecurus pratensis</i> - <i>Poa trivialis</i> - <i>Cardamine pratensis</i> grassland.	Site 15
MG7d	<i>Lolium perenne</i> – <i>Alopecurus pratensis</i> grassland.	Site 16
MG5a	<i>Cynosurus cristatus</i> – <i>Centaurea nigra</i> grassland. <i>Lathyrus pratensis</i> subcommunity.	Site 17
MG1C	<i>Arrhenatherum elatius</i> grassland. <i>Filipendula ulmaria</i> subcommunity.	Site 19
CG7a	<i>Festuca ovina</i> - <i>Hieracium pilosella</i> - <i>Thymus praecox/pulegioides</i> grassland. <i>Koeleria macrantha</i> sub-community.	Site 20
MG6c	<i>Lolium perenne</i> – <i>Cynosurus cristatus</i> grassland. <i>Trisetum flavescens</i> subcommunity.	Site 21, Site 22.
MG	<i>Cynosurus cristatus</i> - <i>Centaurea nigra</i> grassland.	Site 27
W9	<i>Fraxinus excelsior</i> - <i>Sorbus aucuparia</i> - <i>Mercurialis perennis</i> woodland.	Site 33
W10c	<i>Quercus robur</i> - <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> woodland, <i>Hedera helix</i> sub-community.	Site 43
MG6	<i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland.	Site 42
MG5b	<i>Cynosurus cristatus</i> - <i>Centaurea nigra</i> grassland, <i>Galium verum</i> sub-community.	Site 44

MONA OFFSHORE WIND PROJECT

NVC Name Code	NVC community type	Sites where NVC community type was present
W8d	<i>Quercus robur</i> - <i>Pteridium aquilinum</i> - <i>Rubus fruticosus</i> woodland, <i>Holcus lanatus</i> sub-community.	Site 45

1.7.3 Site descriptions

1.7.3.1 Brief habitat descriptions of all 45 sites within the NVC and INNS survey area and the species most often encountered within them are summarised below. The results are presented in Figure 1.8 to Figure 1.13 and the full botanical species list recorded is within Appendix A.

Site 1 – MG7b

1.7.3.2 Site 1 was within the Mona Onshore Development Area to the west of the Onshore Substation area and assigned plant community MG7b *Lolium perenne* – *Poa trivialis* sub-community. The Site comprised three fields, used predominantly for pasture and ley rotation and cut for hay or silage. Perennial rye-grass *Lolium perenne* was the dominant plant species, rough meadow-grass *Poa trivialis* was also present throughout.

Site 2 – MG6b

1.7.3.3 Site 2 was outside of the Mona Onshore Development Area to the east of Moelfre and assigned plant community MG6b *Lolium perenne*-*Cynosurus cristatus* grassland, *Anthoxanthum odoratum* sub-community. The site comprised two heavily grazed fields with a patch of gorse located in the east.

1.7.3.4 Perennial rye-grass was the dominant species recorded with sweet vernal grass *Anthoxanthum odoratum*, red fescue *Festuca rubra* and Yorkshire fog *Holcus lanatus* being abundant. The site was included field wood-rush *Luzula campestris*, pignut *Conopodium majus*, ground-ivy *Glechoma hederacea*, meadow buttercup *Ranunculus acris*, yarrow *Achillea millefolium*, common sorrell *Rumex acetosa*, springy turf-moss *Rhytidiadelphus squarrosus*, wild carrot *Daucus carota*, germander speedwell *Veronica chamaedrys*, common mouse-ear *Cerastium fontanum*, creeping thistle *Cirsium arvense*, meadow foxtail *Alopecurus pratensis*, white clover *Trifolium repens* and annual meadow-grass *Poa annua*.

Site 3 – MG7a

1.7.3.5 Site 3 was within the Mona Onshore Development Area near the far eastern boundary. This site was assigned plant community MG7a *Lolium perenne* leys and related grasslands, *Lolium perenne*-*Trifolium repens* leys. Perennial rye-grass was dominant throughout with white clover the next most abundant species and frequent throughout.

Site 4 – MG7a

1.7.3.6 Site was next to site 3 within the Mona Onshore Development Area and was assigned as MG7a *Lolium perenne* leys and related grasslands, *Lolium perenne*-*Trifolium*

MONA OFFSHORE WIND PROJECT

repens leys. Perennial rye-grass was dominant at this Site, along with heath wood-rush *Luzula* and white clover.

Site 5 – MG7a

- 1.7.3.7 Site 5 was within the Mona Onshore Development Area close to Site 3 and 4. The site was assigned plant community MG7a *Lolium perenne* leys and related grasslands, *Lolium perenne-Trifolium repens* leys. Almost entirely dominated by perennial rye-grass but with intermittent white clover. Bare ground patches within the site were identified.

Site 6 – MG7a / MG7b

- 1.7.3.8 Site 6 was within the Mona Onshore Development Area east near the Onshore Substation. The site was assigned a combination of plant communities MG7a *Lolium perenne* leys and related grasslands, *Lolium perenne-Trifolium repens* leys and MG7b *Lolium perenne – Poa trivialis* sub-community. The site was dominated by perennial rye-grass. There was also rough meadow-grass, white clover, and a small amount of marsh foxtail *Alopecurus geniculatus*.

Site 7 – MG6a

- 1.7.3.9 Site 7 was within the Mona Onshore Development Area in the east near the Onshore Substation. The site was assigned as MG6a, *Lolium perenne - Cynosurus cristatus* grassland, typical subcommunity. Perennial rye-grass was dominant with crested dog's-tail *Cynosurus cristatus* and rough meadow-grass found to be abundant. Yorkshire fog and common mouse ear were also present throughout. Marsh foxtail was recorded closer to the wetter side of the Site, adjacent to a watercourse.

Site 8 – MG7b

- 1.7.3.10 Site 8 was within the Mona Onshore Development Area near Site 7 and assigned plant community MG7b *Lolium perenne - Poa trivialis* sub-community. Perennial rye-grass was dominant with Yorkshire fog also present throughout but in lower numbers suggesting an older sward. Rough meadow-grass was also present throughout. Marsh foxtail and creeping bent *Agrostis stolonifera* indicated a damper habitat.

Site 9 – W10

- 1.7.3.11 Site 9 comprised a small woodland block outside of the Mona Onshore Development Area near the eastern boundary. The woodland was assigned plant community W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland. The woodland entirely comprised pedunculate oak *Quercus robur* which was surrounded by pasture. A small amount of ash *Fraxinus excelsior* and hawthorn *Crataegus monogyna* seedlings were present. Most of the ground layer comprised cock's-foot *Dactylis glomerata*, rough-meadow grass and leaf litter. Common bent *Agrostis capillaris* and scattered patches of bramble *Rubus fruticosus* agg., common ivy *Hedera helix* and perennial sow-thistle *Sonchus arvensis* were also present.

Site 10 – MG6a

- 1.7.3.12 Site 10 comprised grassland near site 9 to the east and partially within the Mona Onshore Development Area. The site was assigned plant community MG6a *Lolium*

MONA OFFSHORE WIND PROJECT

perenne - *Cynosurus cristatus* grassland - Typical subcommunity. The site was dominated by perennial rye-grass, Yorkshire fog and common bent with intermittent patches of crested dog's-tail and white clover. Meadow buttercup, thyme-leaved speedwell *Veronica serpyllifolia*, common dandelion *Taraxacum officinale* agg. Common mouse ear was infrequently recorded. The area was planted with black poplar *Poplar nigra*.

Site 11 – MG7b

- 1.7.3.13 Site 11 was located outside of the Mona Onshore Development Area to the south west of St. Asaph and assigned plant community MG7b *Lolium perenne* - *Poa trivialis* sub-community. Perennial rye-grass and rough meadow-grass were dominant grasses, with cock's-foot and Timothy *Phleum pratense* recorded throughout. Creeping bent, Yorkshire fog, creeping buttercup and meadow foxtail *Alopecurus* were frequent.

Site 12 – MG7b

- 1.7.3.14 Site 12 was adjacent to site 11 to the north east of the Mona Onshore Development Area. Whilst the botanical diversity was slightly different to site 11 the plant community was assigned as MG7b *Lolium perenne* - *Poa trivialis* sub-community. Perennial rye-grass was the dominant grass with rough meadow-grass and smaller cat's-tail *Phleum bertolonii* throughout. Cock's-foot, common dandelion, Yorkshire fog and creeping buttercup were recorded in lower numbers.

Site 13 – MG7a

- 1.7.3.15 Site 13 was south of sites 12 and 13 outside of the Mona Onshore Development Area. The site was assigned plant community MG7a *Lolium perenne* – *Trifolium repens* Ley. Perennial rye-grass was dominant with white clover present throughout. Rough meadow-grass was also present but less abundant and did not occur throughout. Also present but less frequent were meadow foxtail and common dandelion.

Site 14 – MG7a

- 1.7.3.16 Site 14 was located outside of the Mona Onshore Development Area, next to site 13. The site was assigned as plant community MG7a *Lolium perenne* – *Trifolium repens* Ley. Perennial rye-grass was the dominant grass species throughout. Cock's-foot and creeping bent were present but less frequent. Yorkshire fog, creeping soft-grass *Holcus mollis*, common chickweed *Stellaria media*, broad-leaved dock *Rumex obtusifolius*, meadow fox-tail, scented mayweed *Matricaria chamomilla* and common dandelion were scattered throughout.

Site 15 – MG15

- 1.7.3.17 Site 15 comprised grassland outside of the Mona Onshore Development Area, to the north east and was assigned plant community MG15 *Alopecurus pratensis*-*Poa trivialis*-*Cardamine pratensis* grassland. Plant species present were meadow fox-tail, rough meadow-grass and cuckoo flower *Cardamine pratensis*. Creeping buttercup was recorded frequently. Other species in lower numbers included Yorkshire fog, crested dog's-tail and sweet vernal grass.

MONA OFFSHORE WIND PROJECT

Site 16 - MG7d

- 1.7.3.18 Site 16 was adjacent to site 15, outside of the Mona Onshore Development Area and was assigned plant community MG7d *Lolium perenne* - *Alopecurus pratensis* grassland. Perennial rye-grass was present throughout though and dominant along with Yorkshire fog, rough meadow-grass, meadow foxtail, sweet vernal grass, red fescue and Timothy. False oat-grass *Arrhenatherum elatius* and common bent were also frequent. Common knapweed *Centaurea nigra* was recorded less frequently.

Site 17 – MG5a

- 1.7.3.19 Site 17 was outside of the Mona Onshore Development Area, along the north eastern boundary adjacent to site 15 and assigned plant community MG5a *Cynosurus cristatus* - *Centaurea nigra* grassland - *Lathyrus pratensis* subcommunity. Common bent, sweet vernal grass, common knapweed, crested dog's-tail and red fescue were all recorded frequently. Yorkshire fog, ribwort plantain *Plantago lanceolata*, white clover and meadow vetchling *Lathyrus pratensis* were also present, though less frequently.

Site 18 - MG6a

- 1.7.3.20 Site 18 was adjacent to site 17, just outside of the Mona Onshore Development Area next to the Permanent Access Route. This Site was assigned as plant community MG6a *Lolium perenne* - *Cynosurus cristatus* grassland, typical subcommunity. Perennial rye-grass and crested-dog's tail were the dominant species. Common mouse-ear, common knapweed, Yorkshire fog and white clover were also recorded.

Site 19 – MG1c

- 1.7.3.21 Site 19 was close to the Conwy coast just outside of the Mona Onshore Development Area. The site was assigned plant community MG1c *Arrhenatherum elatius* grassland - *Filipendula ulmaria* subcommunity. The site comprised a field margin that had been seeded adjacent to arable fields. Whilst the site lacked meadowsweet *Filipendula ulmaria*, MG1c was considered the most appropriate plant community. Dominant species recorded included false-oat grass and cock's-foot. Common hogweed *Heracleum sphondylium*, common nettle *Urtica dioica*, Yorkshire fog and rough-meadow grass were recorded.

Site 20 – CG7a

- 1.7.3.22 Site 20 comprised grassland near the Conwy coast, east of Rhyd-Y-Foel but further inland than site 19. The site was partially within the Mona Onshore Development Area and assigned plant community CG7a *Festuca ovina*-*Hieracium pilosella*-*Thymus praecox/pulegioides* grassland, *Koeleria macrantha* sub-community. Sheep's fescue *Festuca ovina*, mouse-ear-hawkweed *Pilosella officinarum* and large thyme *Thymus pulegioides* were all recorded frequently. Crested hair-grass *Koeleria macrantha* was frequent throughout all quadrats, with salad burnet *Poterium sanguisorba*, common rock-rose *Helianthemum nummularium*, lady's bedstraw *Galium verum*, ribwort plantain and thyme-leaved sandwort *Arenaria serpyllifolia* all present.
- 1.7.3.23 The plant community CG7a assigned to this Site is typically found on calcareous grasslands, a HPI listed in Section 7 of the Environment (Wales) Act 2016.

MONA OFFSHORE WIND PROJECT

Site 21 – MG6c

- 1.7.3.24 Site 21 comprised grassland adjacent to site 20, outside of the Mona Onshore Development Area east of Rhyd-Y-Foel. The grassland was assigned as plant community MG6c *Lolium perenne-Cynosurus cristatus* grassland, *Trisetum flavescens* sub community. Common mouse-ear, crested dog's-tail, red fescue, perennial rye-grass and white clover were recorded frequently. Cock's-foot, common bent and rough meadow-grass were frequently present although not dominant. Sub-community species recorded frequently comprised yellow oat-grass *Trisetum flavescens*, smaller cat's tail and salad burnet.

Site 22 – MG6c

- 1.7.3.25 Site 22 was adjacent to Site 21 outside of the Mona Onshore Development Area and was assigned plant community MG6c *Lolium perenne-Cynosurus cristatus* grassland, *Trisetum flavescens* sub-community. Common mouse-ear, Crested dog's-tail, red fescue, Yorkshire fog, perennial rye-grass and white clover were all dominant species. Cock's-foot, common bent and rough meadow-grass were frequently recorded. Yellow oat-grass was not recorded within the quadrats, however, sub-community species smaller cat's tail and scarlet pimpernell were recorded.

Site 23 – MG7a

- 1.7.3.26 Site 23 was partly within the Mona Onshore Development Area to the west of Moelfre. Site 23 comprised grassland assigned plant community MG7a *Lolium perenne-Trifolium repens* leys. Perennial rye-grass and white clover were dominant species. Cock's-foot and Yorkshire fog were recorded. Timothy and common chickweed were recorded less frequently.

Site 24 – MG6b

- 1.7.3.27 Site 24 was grassland partly within the Mona Onshore Development Area to the east of Moelfre. Site 24 was assigned MG6b *Lolium perenne-Cynosurus cristatus* grassland, *Anthoxanthum odoratum* sub-community. Perennial rye-grass, crested dog's-tail, red fescue, common bent were all dominant species within Site 24. Yorkshire fog was recorded frequently. White clover and sweet vernal grass were also recorded but less frequently.

Site 25 – MG7a

- 1.7.3.28 Site 25 was within the Mona Onshore Development Area, to the east, north west of Llanefydd. Site 25 was assigned plant community MG7a *Lolium perenne-Trifolium repens* leys. Perennial rye-grass and white clover were dominant species. Other species recorded included Yorkshire fog, annual meadow-grass and common dandelion.

Site 26 – MG6b

- 1.7.3.29 Site 26 was partly within the Mona Onshore Development Area, in the east near Groesffordd Marli. The plant community assigned to site 26 was MG6b *Lolium perenne-Cynosurus cristatus* grassland, *Anthoxanthum odoratum* sub-community. Common mouse-ear, perennial rye-grass, crested dog's-tail, red fescue, Yorkshire fog

MONA OFFSHORE WIND PROJECT

and white clover were recorded most frequently. Sweet vernal grass was also recorded frequently. Common knapweed was recorded infrequently.

- 1.7.3.30 Early purple orchid *Orchis mascula* was recorded within this Site during the extended phase 1 habitat surveys, prior to June. At the time of the NVC survey there was no evidence of this species. It was included as part of the data entered into MAVIS but did its present not change the outcome of the plant community classification.

Site 27 – MG5

- 1.7.3.31 Site 27 was located within the Mona Onshore Development Area in the east, just north of Site 26. Site 27 was assigned plant community MG5 *Cynosurus cristatus*-*Centaurea nigra* grassland. Frequent species included common bent, sweet vernal grass, crested dog's-tail, common knapweed, cock's-foot, red fescue, Yorkshire fog, bird's-foot trefoil *Lotus corniculatus*, ribwort plantain, red clover and white clover.

Site 29 – MG7a

- 1.7.3.32 Site 29 was outside of the Mona Onshore Development Area, to the east near St. Asaph. Site 29 was assigned plant community MG7a *Lolium perenne*-*Trifolium repens* leys. Perennial rye-grass was the dominant species. White clover was frequently recorded. Rough meadow-grass and dandelion were recorded infrequently.

Site 30 – MG7a

- 1.7.3.33 Site 30 was adjacent to Site 29 outside of the Mona Onshore Development Area. Site 30 was assigned plant community MG7a *Lolium perenne*-*Trifolium repens* leys. Perennial rye-grass dominated the sward. White clover was recorded frequently, with creeping buttercup and rough meadow-grass identified less frequently.

Site 31 – MG7a

- 1.7.3.34 Site 31 was located within the Mona Onshore Development Area next to Site 30. The plant community assigned to the site was MG7a *Lolium perenne*-*Trifolium repens* leys. Perennial rye-grass was the dominant species with white clover also dominant but slightly less frequently. Meadow buttercup, dandelion, rough meadow-grass and annual meadow-grass were also recorded but less frequent.

Site 32 – MG7a

- 1.7.3.35 Site 32 as recorded to the north of Site 30 and to the north west of the Mona Onshore Development Area. The grassland within Site 32 was assigned as plant community MG7a *Lolium perenne*-*Trifolium repens* leys. Perennial rye grass and white clover were recorded as the most frequent species, with perennial rye-grass being the dominant plant within the site. Dandelion and annual meadow-grass were also identified but recorded occasionally.

Site 33 – W9

- 1.7.3.36 Site 33 comprised a woodland block to the south east of the Mona Onshore Development Area, east of the Onshore Substation. The woodland was assigned plant community W9 *Fraxinus excelsior*-*Sorbus aucuparia*-*Mercurialis perennis* woodland. Ash and silver birch *Betula pendula* dominated the canopy. Also present within the woodland were stands of beech *Fagus sylvatica*, European larch *Larix decidua* and

MONA OFFSHORE WIND PROJECT

sessile oak *Quercus petraea*. The understorey was dominated by hazel *Corylus avellana* and rowan *Sorbus aucuparia* was frequent. Wych elm *Ulmus glabra* was also present but not throughout. Within the ground layer, common male fern *Dryopteris filix-masis* was present throughout. Wood-sorrel *Oxalis acetosella* and common dog-violet *Viola riviniana* were frequently recorded. The oldest species in the woodland were Ash trees, the largest of which had a diameter of 45 cm.

Site 34 – MG7b

- 1.7.3.37 Site 34 was outside of the Mona Onshore Development Area, to the west of the Onshore Substation. The grassland was assigned plant community MG7b *Lolium perenne* - *Poa trivialis* sub-community. Perennial rye-grass and white clover dominated the site, with creeping buttercup and cock's-foot recorded frequently.

Site 35 – MG7a

- 1.7.3.38 Site 35 was located within the Mona Onshore Development Area, near the eastern boundary. Site 35 was assigned plant community MG7a *Lolium perenne-Trifolium repens* leys. Italian rye-grass *Lolium multiflorum* was the most dominant grass species, with perennial rye-grass and white clover frequently recorded.

Site 36 – MG7a

- 1.7.3.39 Site 36 was located within the Mona Onshore Development Area, adjacent to Site 35. Site 36 was assigned plant community MG7a *Lolium perenne-Trifolium repens* leys. Italian rye-grass and perennial rye-grass were dominant plant species. White clover was recorded frequently within the parcel with dandelion also recorded.

Site 37 – MG7a

- 1.7.3.40 Site 37 was outside the Mona Onshore Development Area, south of Site 36 and assigned plant community MG7a *Lolium perenne-Trifolium repens* leys. Perennial rye-grass dominated the site with white clover recorded frequently. Yorkshire fog and creeping buttercup were recorded less frequently than white clover, with dandelion recorded the least.

Site 38 - MG7a

- 1.7.3.41 Site 38 was located to the north of Site 37 and within the Mona Onshore Development Area. The grassland within Site 38 was assigned as plant community MG7a *Lolium perenne-Trifolium repens* leys. Site 38's botanical composition was similar to Site 37, dominated by perennial rye-grass.

Site 39 – MG7a

- 1.7.3.42 Site 39 was another ley field located to the south of the Mona Onshore Development Area and assigned as plant community MG7a *Lolium perenne-Trifolium repens* leys. Italian rye-grass was the dominant plant species, with white and red clover also recorded. Dandelion was infrequently recorded within site 39.

MONA OFFSHORE WIND PROJECT

Site 40 – MG7b

- 1.7.3.43 Site 40 was within the Mona Onshore Development Area, to the south east. Site 40 was assigned plant community MG7b *Lolium perenne* leys and related grasslands, *Lolium perenne-Poa trivialis* leys. Perennial rye-grass, Yorkshire fog and rough meadow-grass dominated the sward with dandelion and common mouse-ear recorded infrequently.

Site 41 – MG7a

- 1.7.3.44 Site 41 was inside the Mona Onshore Development Area, in the east, along the south eastern boundary. Site 41 was assigned plant community MG7a *Lolium perenne-Trifolium repens* leys. Perennial rye-grass dominated the grassland, with white clover recorded frequently. As per some of the surrounding grasslands, dandelion and creeping buttercup were recorded albeit infrequently.

Site 42 – MG6

- 1.7.3.45 Site 42 was within the Mona Onshore Development Area in the east, close to the Onshore Substation. The grassland was assigned as plant community MG6 *Lolium perenne-Cynosurus cristatus* grassland. Perennial rye-grass dominated the sward with crested dog's-tail being recorded frequently.

Site 43 – W10c

- 1.7.3.46 Site 43 comprised a woodland within the Mona Onshore Development Area, in the east. The woodland was assigned plant community W10c *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Hedera helix* sub-community. Pedunculate oak was the dominant species within the canopy, with ash present in smaller quantities. The oak trees were all of a similar age. Common ivy was present throughout the woodland, covering large parts of the woodland ground layer. The area is surrounded by pasture fields. Bramble was also frequently recorded.

Site 44 - MG5b

- 1.7.3.47 Site 44 was near the Conwy coast, east of Rhyd-Y-Foel and outside of the Mona Onshore Development Area. The site was assigned plant community of MG5b *Cynosurus cristatus-Centaurea nigra* grassland, *Galium verum* sub-community. Species frequently encountered were common bent, sweet vernal grass, common knapweed, cock's-foot, red fescue, Yorkshire fog, bird's-foot trefoil, ribwort plantain and white clover. Lady's bedstraw, yellow oat-grass and creeping soft-grass *Holcus mollis* were present but recorded less frequently.

Site 45 – W8d

- 1.7.3.48 Site 45 was outside of the Mona Onshore Development Area, south of St. Asaph. The woodland was assigned plant community W8d *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, *Holcus lanatus* sub-community. Pedunculate oak was the dominant tree and were all of a similar age. Ash was present throughout the woodland but was younger and formed less of the canopy. Scot's pine *Pinus sylvestris* also formed part of the canopy but not throughout the woodland. The understory was fairly sparse with limited stands of hazel, hawthorn, holly *Ilex aquifolium* and rowan. The ground layer was dominated by bramble.

MONA OFFSHORE WIND PROJECT

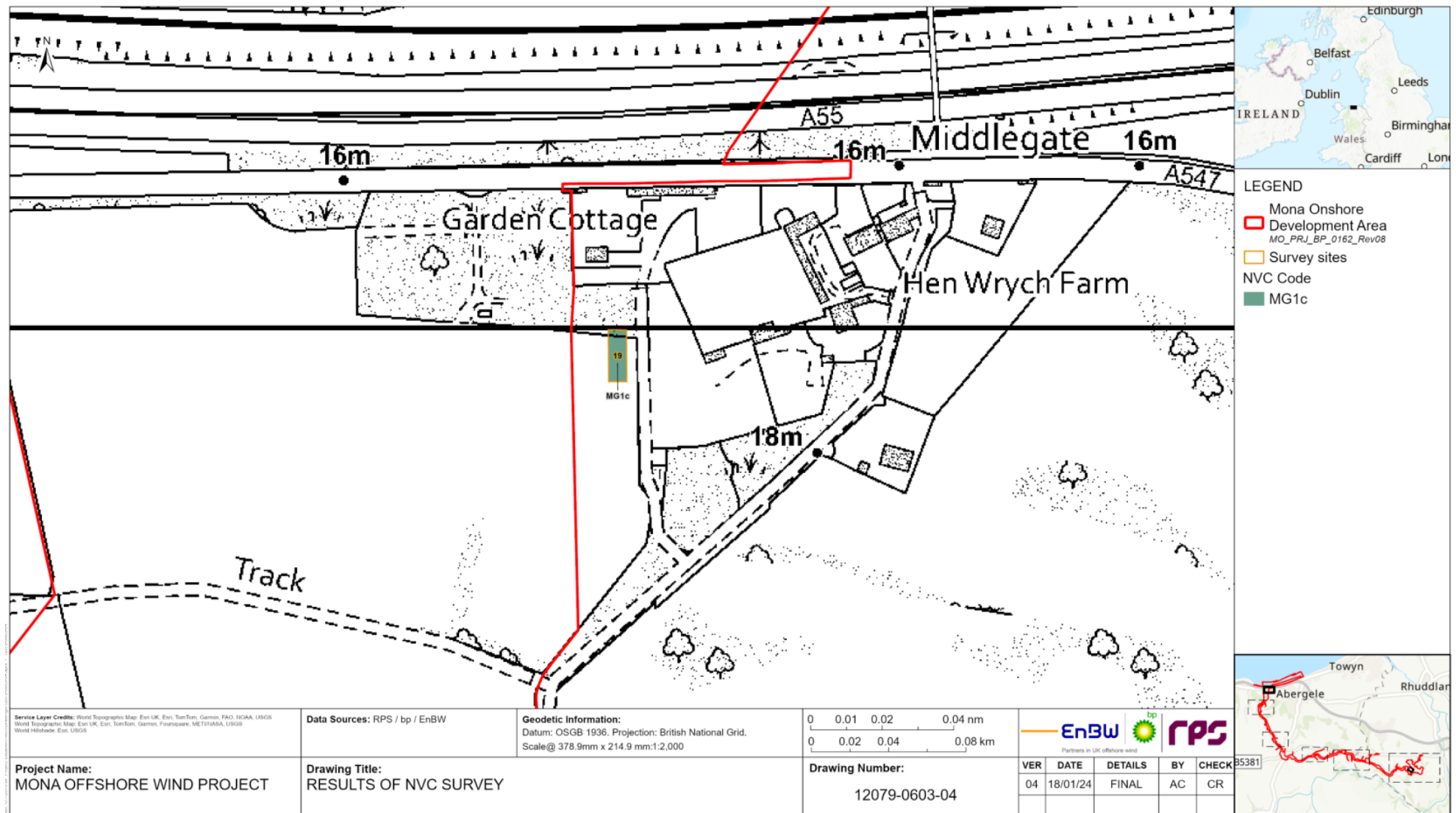


Figure 1.8: Results of the NVC Survey.

MONA OFFSHORE WIND PROJECT

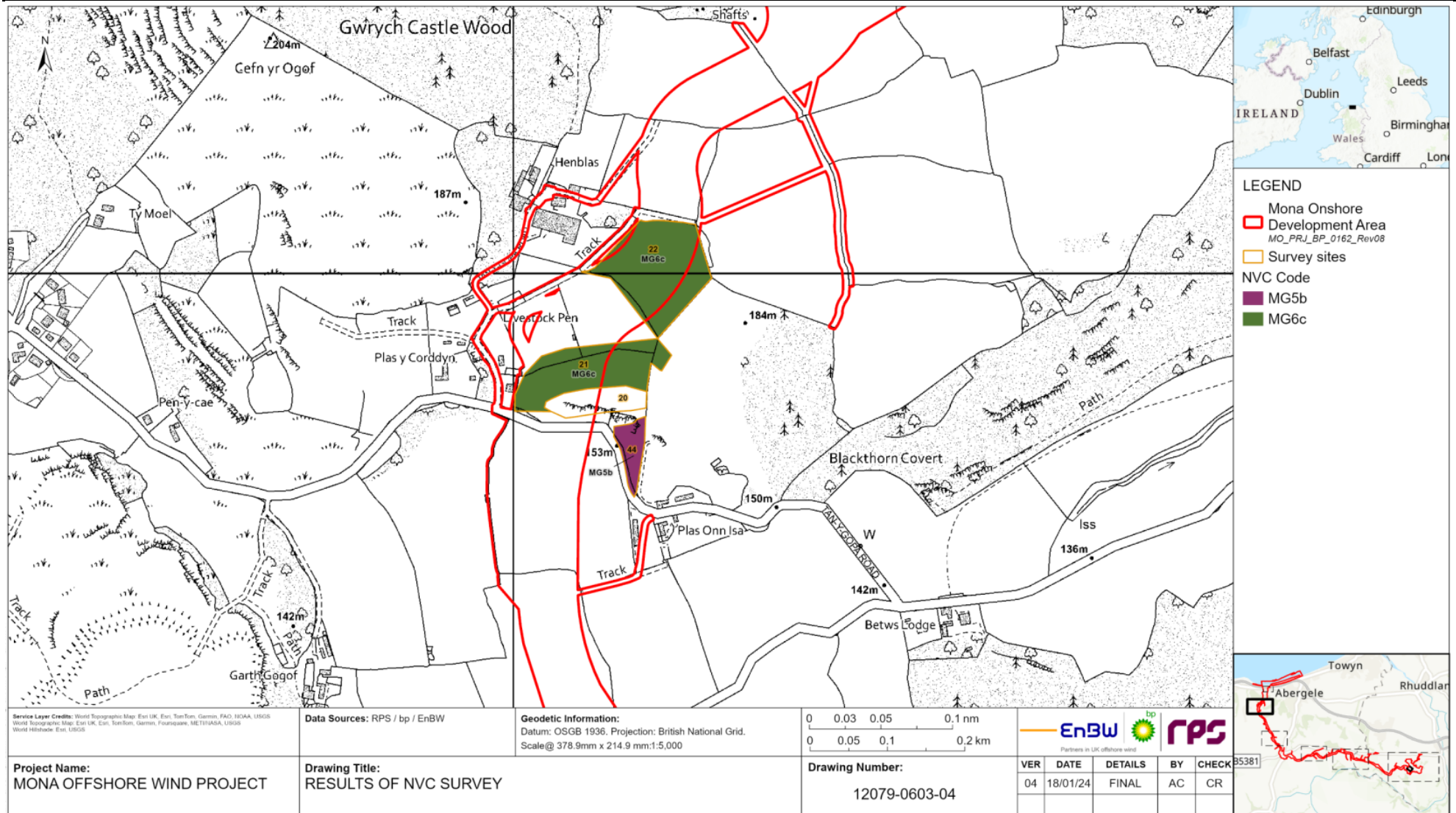


Figure 1.9: Results of the NVC Survey .

MONA OFFSHORE WIND PROJECT

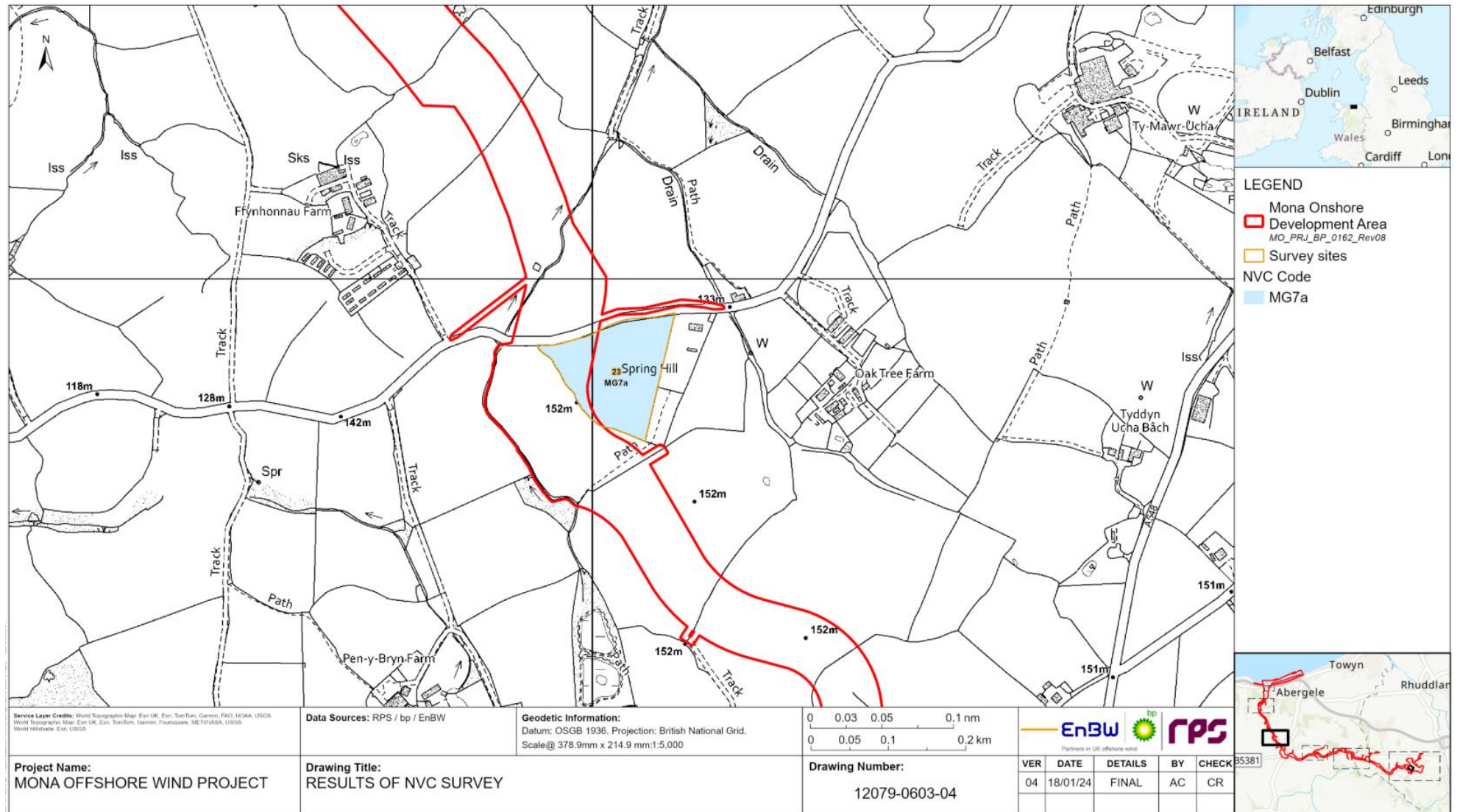


Figure 1.10: Results of the NVC Survey .

MONA OFFSHORE WIND PROJECT

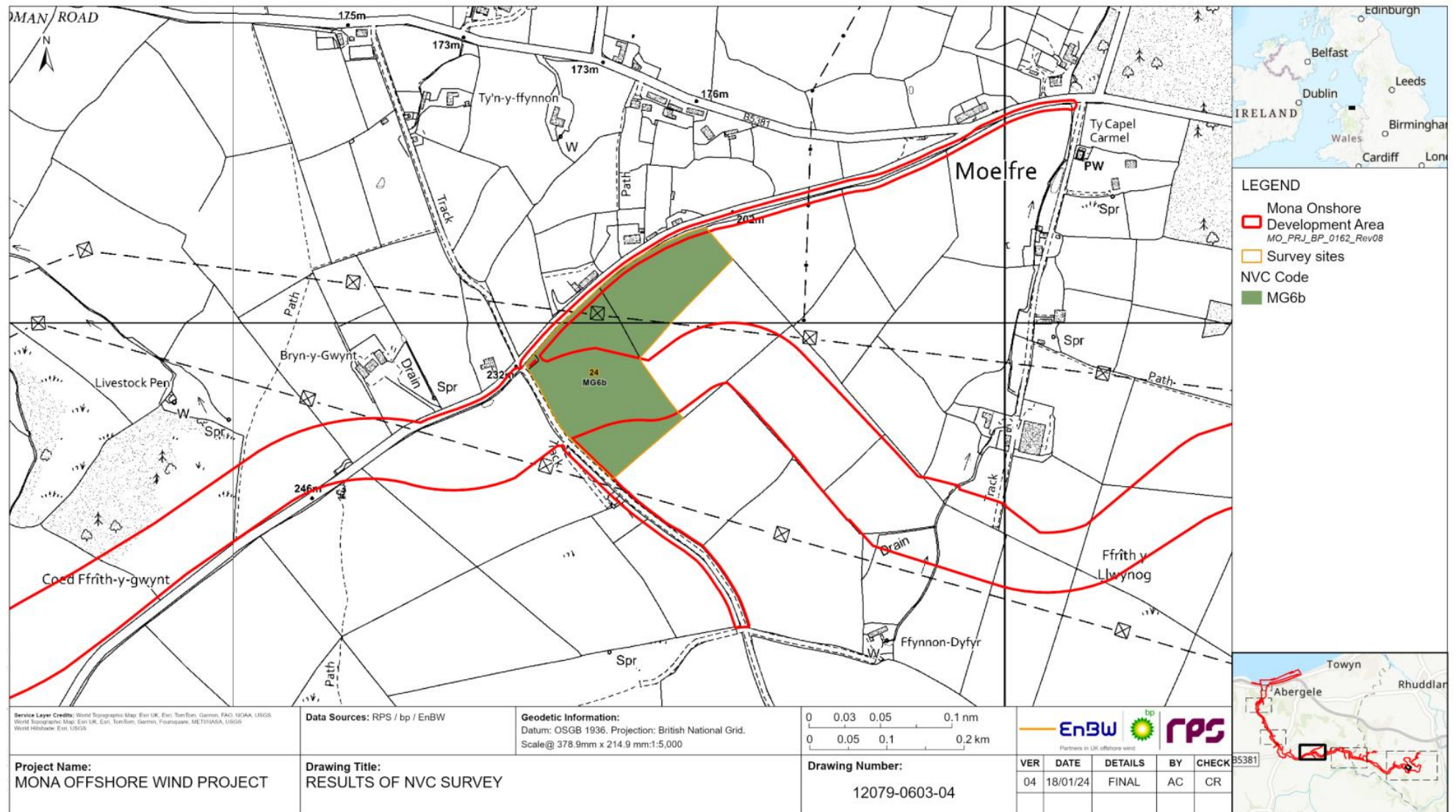


Figure 1.11: Results of the NVC Survey.

MONA OFFSHORE WIND PROJECT

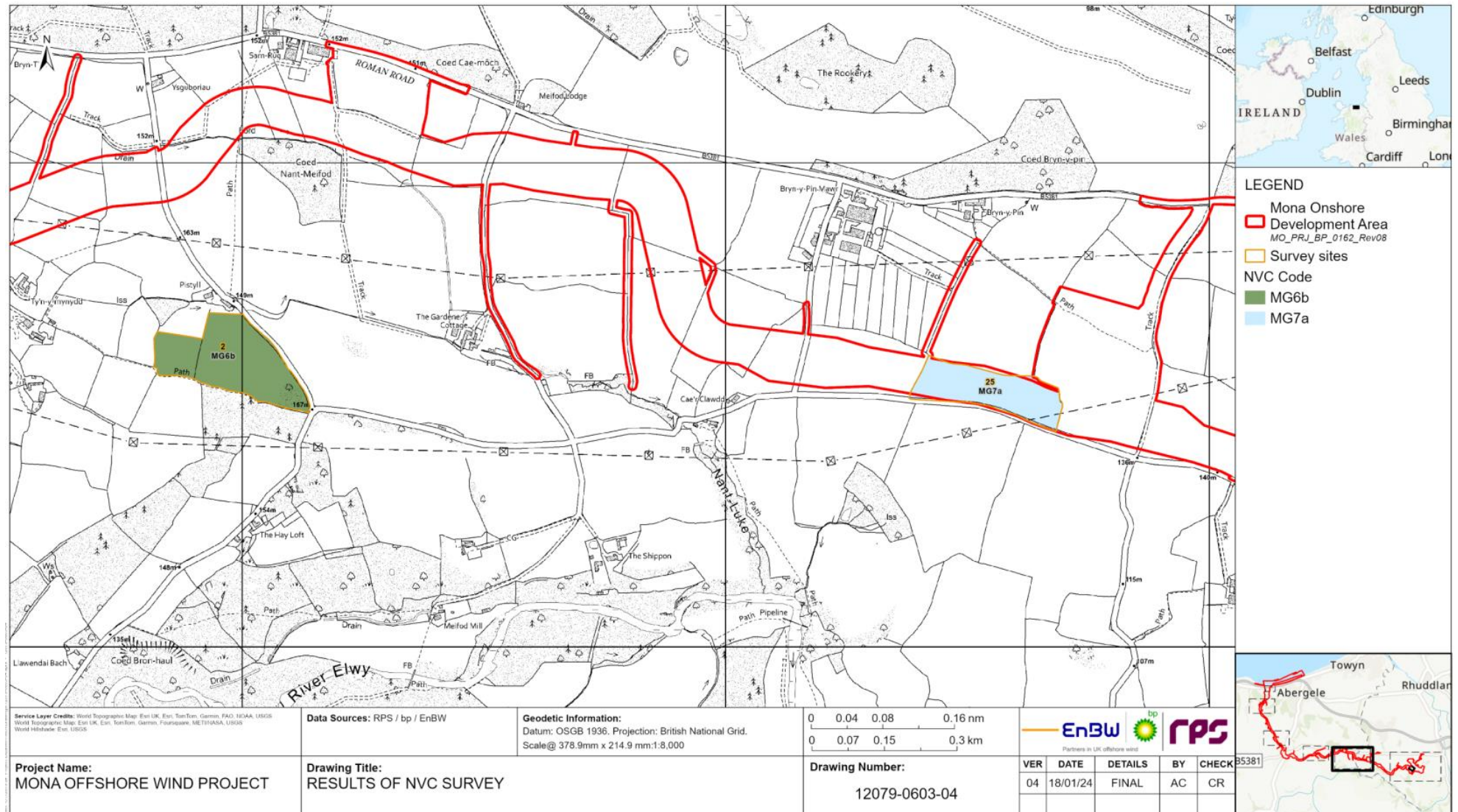


Figure 1.12: Results of the NVC Survey.

MONA OFFSHORE WIND PROJECT

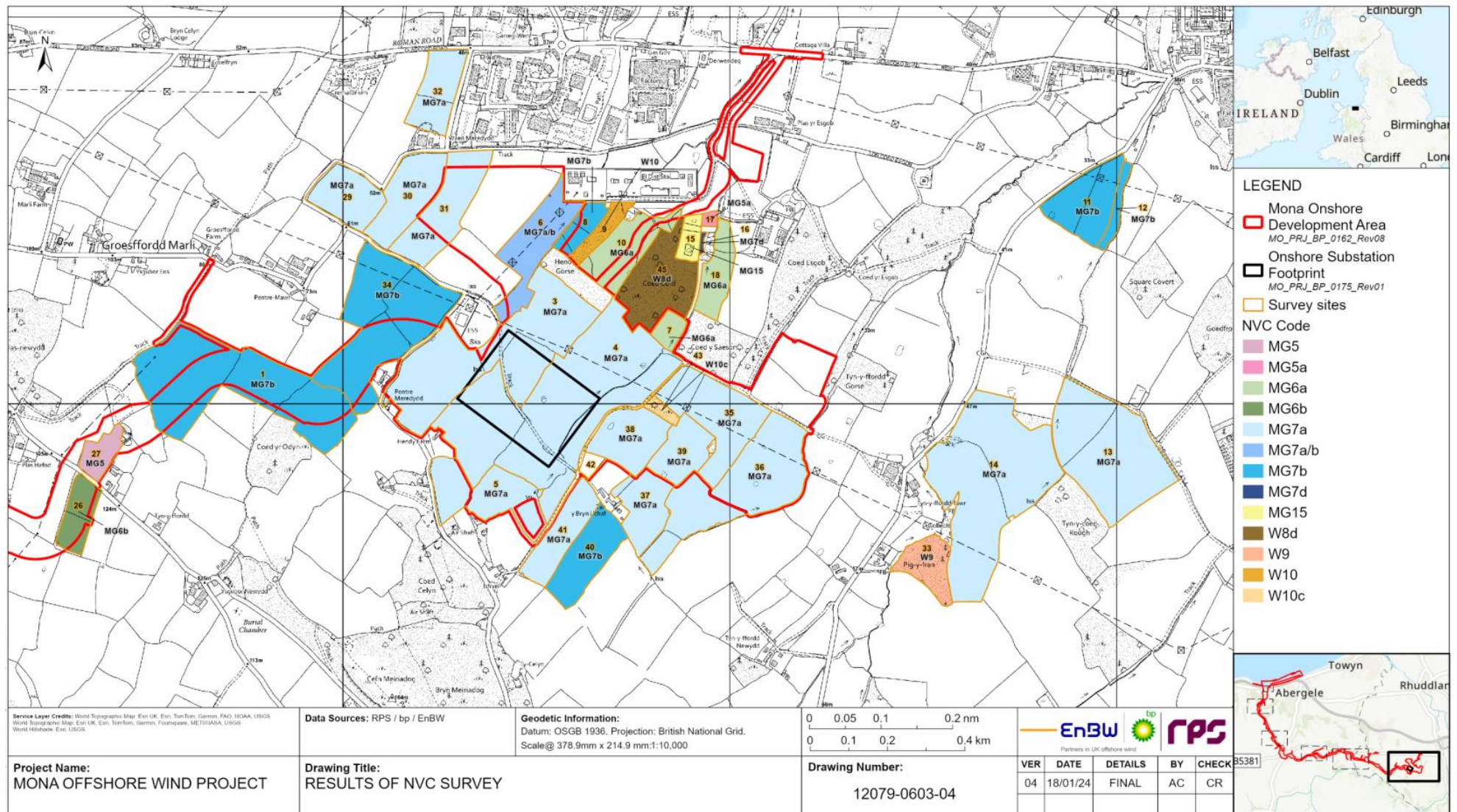


Figure 1.13: Results of the NVC Survey.

MONA OFFSHORE WIND PROJECT

1.7.4 INNS

- 1.7.4.1 Five INNS species were recorded during field surveys. These include Himalayan balsam, Japanese knotweed, rhododendron, montbretia and Japanese rose. Four of the five species were recorded within the Mona Onshore Development Area. This included: two stands of Himalayan balsam, within the Onshore Substation footprint, and one to the south of Moelfre; two stands of Japanese knotweed, one to the south of Moelfre and one along the Conwy coast; one stand of rhododendron, to the south of Moelfre, and two stands of montbretia. Both stands of montbretia were recorded in proximity to the rhododendron.
- 1.7.4.2 A single stand of Japanese knotweed was identified outside of the Mona Onshore Development Area, just north of the B5381. No other INNS were identified during other field surveys.
- 1.7.4.3 The results are presented in Figure 1.14 to Figure 1.16 of this technical report below.

MONA OFFSHORE WIND PROJECT

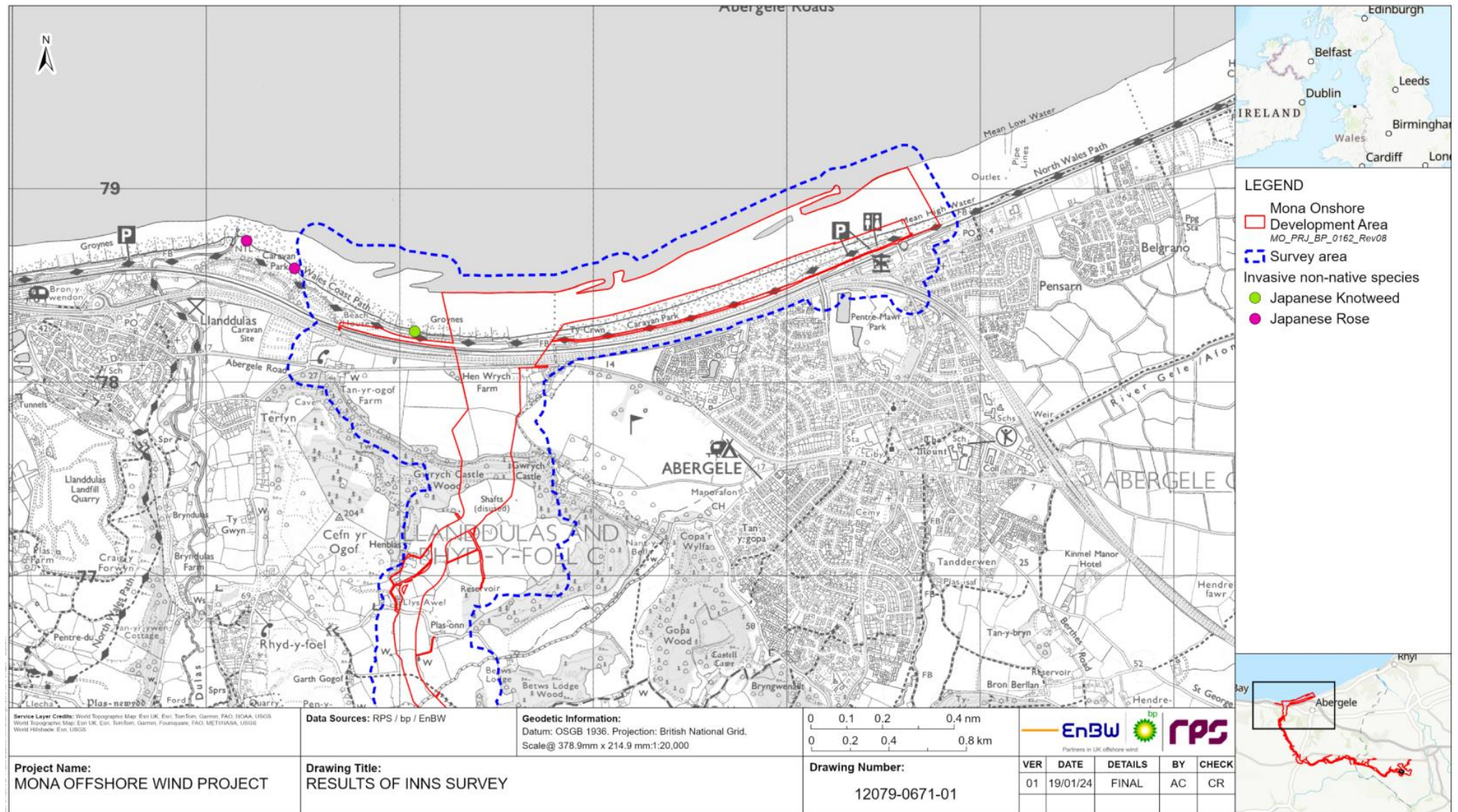


Figure 1.14: Results of the INNS Survey.

MONA OFFSHORE WIND PROJECT

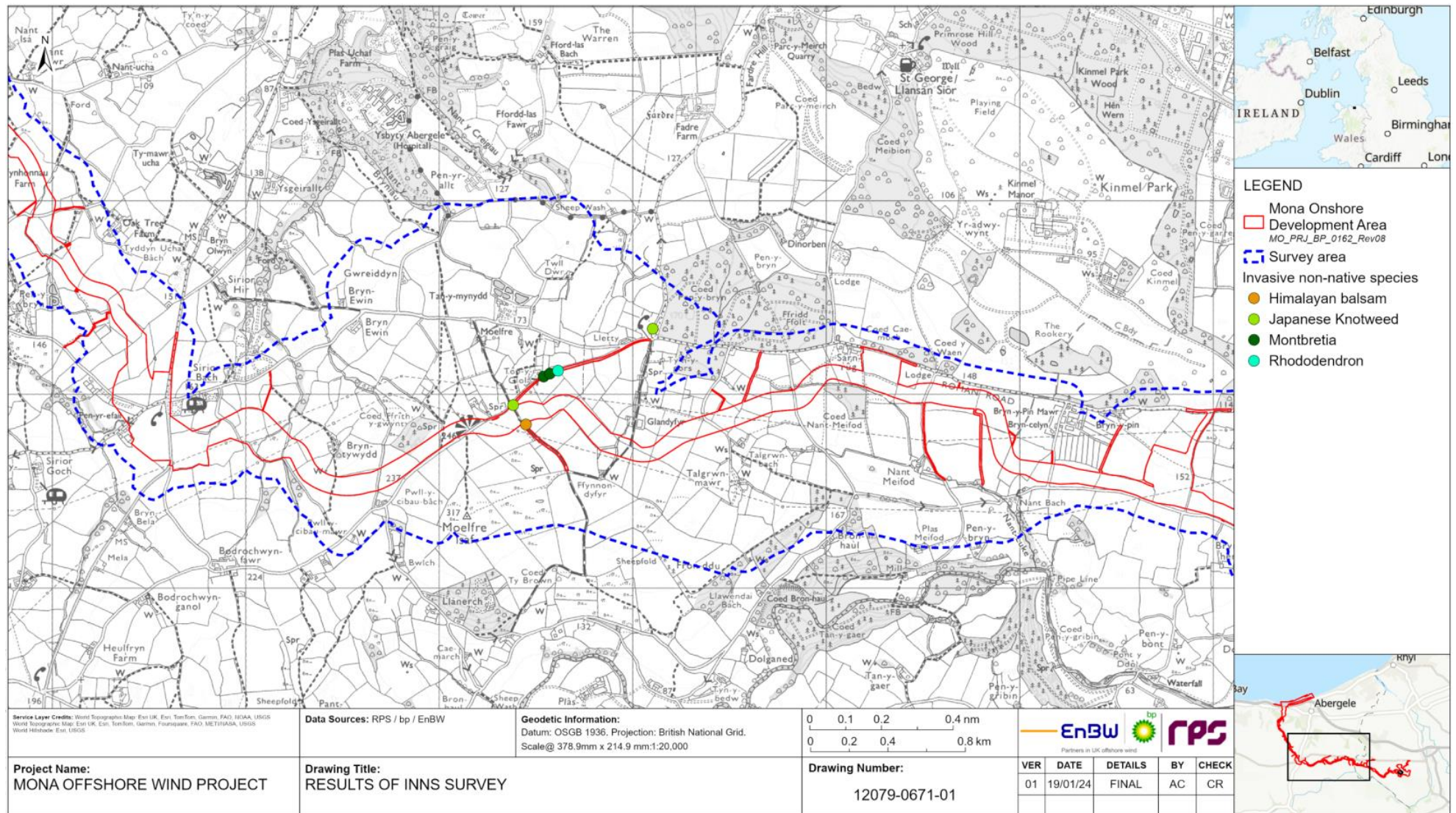


Figure 1.15: Results of the INNS Survey .

MONA OFFSHORE WIND PROJECT

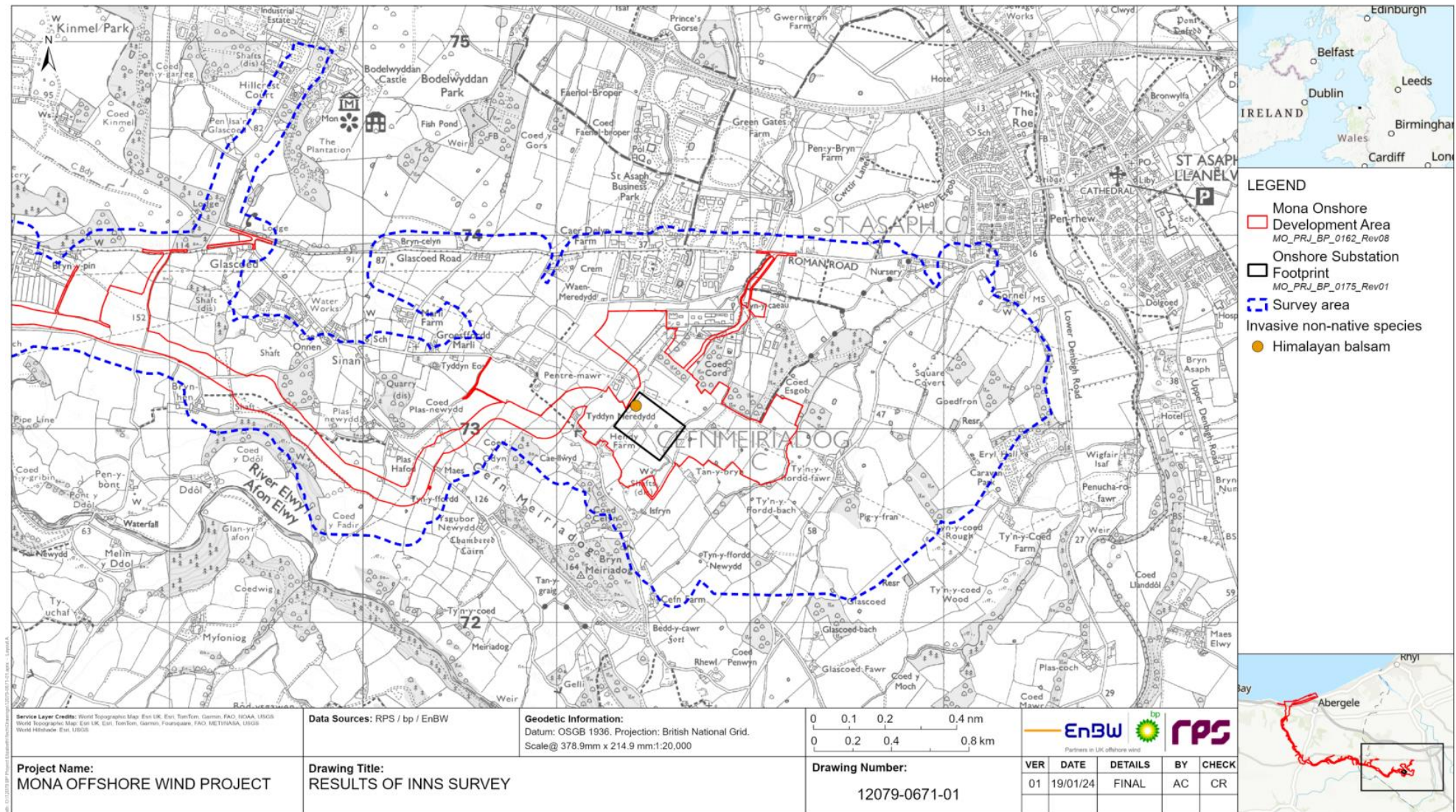


Figure 1.16: Results of the INNS Survey.

1.8 Summary

- 1.8.1.1 This technical report presents the results of the NVC and INNS surveys undertaken between June and September 2023 to inform Volume 3: Chapter 3: Onshore ecology of the Environmental Statement.
- 1.8.1.2 The desk study confirmed that hundreds of common and widespread plants are present within the NVC and INNS study area. A total of 10 protected or notable plant species records were confirmed within the Mona Onshore Development Area (see Volume 7, Annex 3.2: Onshore ecology desk study technical report of the Environmental Statement). This included a record of bluebell which is a protected species listed on the Wildlife and Countryside Act 1981 (as amended).
- 1.8.1.3 A total of 45 sites were surveyed as part of the NVC surveys within the NVC and INNS survey area. No protected or notable species were recorded during the NVC surveys at any of the sites. Of the 45 sites, 19 were located within the Mona Onshore Development Area, which included 16 near to the Onshore Substation area and three to the south west of Abergele. The remaining six sites were outside of the Mona Onshore Development Area, primarily surrounding the Onshore Substation area.
- 1.8.1.4 A total of 19 plant communities were identified across the 45 sites. The most frequently assigned plant communities of the 45 sites were MG7a and MG7b. These are plant communities associated with agriculturally improved grasslands and grazing pasture. A total of 17 sites supported the plant community MG7a. Of the 17, 10 were located within the Mona Onshore Development Area and nine of these sites were close to the Onshore Substation and the tenth Site to the north west, near Abergele. The remaining seven were located outside of the Mona Onshore Development Area. Six sites were assigned to plant community MG7b. This included three sites within the Mona Onshore Development Area, surrounding the west and north of the Onshore Substation. The remaining three were located to the east of the Mona Onshore Development Area.
- 1.8.1.5 The least abundant plant communities were the woodland communities W8d , W9 and W10c, which were only identified at three sites. The woodland plant community W10c was located within the Mona Onshore Development Area at Site 43, to the east of the Onshore Substation footprint.
- 1.8.1.6 The grassland plant communities MG1c, MG15 and CG7a were also only recorded once at Site 15, Site 19 and Site 20 respectively. Site 15 and Site 19 were recorded outside of the Mona Onshore Development Area.
- 1.8.1.7 Plant community CG7a was recorded at Site 20, partially within the Mona Onshore Development Area to the south west of Abergele and is characteristic of lowland calcareous grassland, a HPI in Wales. As a result, this Site is of ecological value.
- 1.8.1.8 Five species of INNS were identified as part of the desktop study (see Volume 7, Annex 3.2: Onshore ecology desk study technical report of the Environmental Statement). Of the five INNS species identified, Himalayan balsam, Japanese knotweed and montbretia were all identified within the Mona Onshore Proposed Development Area. Four species of INNS were recorded during INNS surveys. This included Japanese knotweed, Himalayan balsam, montbretia and rhododendron. All species were identified within the Mona Onshore Development Area. Japanese rose, a fifth species of INNS was identified just outside of the NVC and INNS survey area, on the Conwy coast. These were of two separate observations.

1.9 References

- Dines, T (2008). Red Data Lists of Vascular Plants of Wales. Plant life.
- Kirby, K.J., Saunders, G.R. and Whitbread, A.M. (1991). The National Vegetation Classification in nature conservation surveys. *British Wildlife*, 3, 70–80.
- Rodwell, J. S. (2006) National Vegetation Classification: User's handbook. Joint Nature Conservation Committee. Peterborough.
- Rodwell, J. S. (Ed.). (1991). Volume 1: Woodlands and scrub. *British plant communities* (Vol. 1). Cambridge University Press
- Rodwell, J. S. (Ed.). (1992). Volume 2: Mires and heaths. *British plant communities* (Vol. 2). Cambridge University Press.
- Rodwell, J. S. (Ed.). (1992). Volume 3: Grasslands and montane communities. *British plant communities* (Vol. 3). Cambridge University Press
- Rodwell, J. S. (Ed.). (1995). Volume 4: Aquatic communities, swamps and tall-herb fens. *British plant communities* (Vol. 4). Cambridge University Press
- Rodwell, J. S. (Ed.). (2000). Volume 5: Maritime Communities and Vegetation of Open Habitats. *British plant communities* (Vol. 5). Cambridge University Press
- Stace, C. (2019). *New Flora of the British Isles* (4th ed.). C&M Floristics.

Appendix A: Botanical species list

Table A. 1: Complete botanical species list recorded during NVC Surveys.

Scientific name	Common name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Agrimonia eupatoria</i>	Agrimony
<i>Agrostis capillaris</i>	Common Bent
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alopecurus geniculatus</i>	Marsh Foxtail
<i>Alopecurus pratensis</i>	Meadow foxtail
<i>Anthoxanthum odoratum</i>	Sweet vernal grass
<i>Arctium minus</i>	Lesser burdock
<i>Arenaria serpyllifolia</i>	Thyme-leaved Sandwort
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Arum maculatum</i>	Lords-and-ladies
<i>Atrichum undulatum</i>	Common Smoothcap
<i>Avenula pubescens</i>	Downy Oat-grass
<i>Bellis perennis</i>	Common daisy
<i>Betula pendula</i>	Silver birch
<i>Brachypodium sylvaticum</i>	False-brome
<i>Brachythecium rutabulum</i>	Rough-stalked feather-moss
<i>Bromus hordeaceus</i>	Soft-brome
<i>Bromus sterilis/Anisantha sterilis</i>	Barren Brome
<i>Calystegia silvatica</i>	Large Bindweed
<i>Campanula rotundifolia</i>	Harebell
<i>Cardamine flexuosa</i>	Wavy Bitter-cress
<i>Cardamine hirsuta</i>	Hairy Bitter-cress
<i>Cardamine pratensis</i>	Cuckoo-flower
<i>Cardamine amara</i>	Musk Thistle
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex luporina</i>	Oval sedge
<i>Carex remota</i>	Remote Sedge
<i>Carex riparia</i>	Great Pond-sedge
<i>Centaurea nigra</i>	Common Knapweed
<i>Centaureum erythraea</i>	Common Centaury
<i>Cerastium fontanum</i>	Common Mouse-ear

MONA OFFSHORE WIND PROJECT

Scientific name	Common name
<i>Cerastium glomeratum</i>	Sticky Mouse-ear
<i>Chaerophyllum temulum</i>	Rough Chervil
<i>Chenopodium album</i>	Fat Hen
<i>Circaea lutetiana</i>	Enchanter's-nightshade
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Clematis vitalba</i>	Traveller's Joy
<i>Clinopodium vulgare</i>	Wild Basil
<i>Conopodium majus</i>	Pignut
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Crepis capillaris</i>	Smooth Hawk's-beard
<i>Cruciata laevipes</i>	Crosswort
<i>Cynosurus cristatus</i>	Crested Dog's-tail
<i>Dactylis glomerata</i>	Cock's-foot
<i>Daucus carota</i>	Wild Carrot
<i>Digitalis purpurea</i>	Foxglove
<i>Dryopteris filix-mas</i>	Common Male Fern
<i>Elymus repens/Elytrigia repens</i>	Common Couch
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Fagus sylvatica</i>	Beech
<i>Festuca ovina</i>	Sheep's Fescue
<i>Festuca rubra</i>	Red Fescue
<i>Fraxinus excelsior</i>	Ash
<i>Fritillaria meleagris</i>	Fritillary
<i>Galium album/Galium mollugo</i>	Hedge Bedstraw
<i>Galium aparine</i>	Cleavers
<i>Galium odoratum</i>	Woodruff
<i>Galium palustre</i>	Common Marsh-bedstraw
<i>Galium verum</i>	Lady's Bedstraw
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill
<i>Geranium pusillum</i>	Small-flowered Crane's-bill
<i>Geranium robertianum</i>	Herb Robert
<i>Geranium sanguineum</i>	Bloody Crane's-bill
<i>Bloody Crane's-bill</i>	Ground-ivy

MONA OFFSHORE WIND PROJECT

Scientific name	Common name
<i>Glyceria declinata</i>	Small Sweet-grass
<i>Hedera helix</i>	Ivy
<i>Helianthemum nummularium</i>	Common Rock-rose
<i>Helminthotheca echioides/Picris echioides</i>	Bristly Oxtongue
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Holcus mollis</i>	Creeping Soft-grass
<i>Hordeum secalinum</i>	Meadow Barley
<i>Hypericum perforatum</i>	Perforate St. John's-wort
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Ilex aquifolium</i>	Holly
<i>Jacobaea vulgaris</i>	Common Ragwort
<i>Juncus conglomeratus</i>	Compact Rush
<i>Juncus effusus</i>	Soft Rush
<i>Knautia arvensis</i>	Field Scabious
<i>Koeleria macrantha</i>	Crested Hair-grass
<i>Lapsana communis</i>	Nipplewort
<i>Larix decidua</i>	Larch
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leontodon autumnalis</i>	Autumnal Hawkbit
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Lolium multiflorum</i>	Italian Rye-grass
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil
<i>Lotus pedunculatus</i>	Large Bird's-foot-trefoil
<i>Lunularia cruciata</i>	Crested-cup Liverwort
<i>Luzula campestris</i>	Field Wood-rush
<i>Chamaemelum nobile</i>	Chamomile
<i>Matricaria discoidea</i>	Pineapple Weed
<i>Medicago lupulina</i>	Black Medic
<i>Mercurialis perennis</i>	Dog's mercury
<i>Odontites vernus</i>	Red Bartsia
<i>Origanum vulgare</i>	Wild Marjoram
<i>Phleum bertolonii</i>	Smaller Cat's-tail
<i>Phleum pratense</i>	Timothy

MONA OFFSHORE WIND PROJECT

Scientific name	Common name
<i>Pilosella officinarum</i>	Mouse-ear-hawkweed
<i>Pimpinella saxifraga</i>	Burnet-saxifrage
<i>Pinus sylvestris</i>	Scots Pine
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa trivialis</i>	Rough Meadow-grass
<i>Potentilla neumanniana</i>	Spring Cinquefoil
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Primula veris</i>	Cowslip
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Pteridium aquilinum</i>	Bracken
<i>Pulicaria dysenterica</i>	Common Fleabane
<i>Quercus cerris</i>	Turkey Oak
<i>Quercus petraea</i>	Sessile Oak
<i>Quercus robur</i>	Pedunculate Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rhinanthus minor</i>	Yellow-rattle
<i>Rhytidiadelphus squarrosus</i>	Springy Turf-moss
<i>Rosa canina</i>	Dog Rose
<i>Rubus fruticosus</i>	Bramble
<i>Rumex acetosa</i>	Common Sorrel
<i>Rumex conglomeratus</i>	Clustered Dock
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Sagina procumbens</i>	Procumbent Pearlwort
<i>Sambucus nigra</i>	Elder
<i>Poterium sanguisorba</i>	Salad Burnet
<i>Schedonorus arundinaceus</i>	Tall Fescue
<i>Sedum acre</i>	Biting Stonecrop
<i>Senecio jacobaea</i>	Common Ragwort
<i>Sisymbrium officinale</i>	Hedge Mustard
<i>Solanum dulcamara</i>	Bittersweet

MONA OFFSHORE WIND PROJECT

Scientific name	Common name
<i>Sonchus arvensis</i>	Perennial Sow-thistle
<i>Sonchus oleraceus</i>	Smooth Sow-thistle
<i>Sorbus aucuparia</i>	Rowan
<i>Stachys officinalis</i>	Betony
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Stellaria media</i>	Common Chickweed
<i>Stellaria graminea</i>	Lesser Stitchwort
<i>Taraxacum officinale</i>	Dandelion
<i>Thymus polytrichus</i>	Wild Thyme
<i>Torilis japonica</i>	Upright Hedge-parsley
<i>Tragopogon pratensis</i>	Goat's-beard
<i>Trifolium repens</i>	White Clover
<i>Trifolium dubium</i>	Lesser Trefoil
<i>Trifolium pratense</i>	Red Clover
<i>Trisetum flavescens</i>	Yellow Oat-grass
<i>Ulex europaeus</i>	Gorse
<i>Ulmus glabra</i>	Wych Elm
<i>Urtica dioica</i>	Common Nettle
<i>Veronica arvensis</i>	Wall Speedwell
<i>Veronica chamaedrys</i>	Germander Speedwell
<i>Veronica montana</i>	Wood Speedwell
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell
<i>Vicia sativa</i>	Common Vetch
<i>Vicia hirsuta</i>	Hairy Tare
<i>Vicia Sativa</i>	Common Vetch