



Port of Milford Haven

Pembroke Dock Marine, Pembroke Dock

Botanical Report with regard to Open Mosaic Habitat

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Port of Milford Haven

Pembroke Dock Marine, Pembroke Dock – Botanical Survey and OMH assessment

856531

EXECUTIVE SUMMARY

1. This report presents the results of botanical surveys to ascertain whether concentrations of ruderal habitat in two parts of Pembroke Port, Pembroke Dock, Pembrokeshire might qualify as the Habitat of Principal importance called Open Mosaic Habitat (OMH).
2. The surveys were carried out at the very end of June 2017 and involved standard methods of botanical survey including National Vegetation Classification (NVC) methods.
3. Pembroke Dock is an active industrial port and dockyard with frequent movements of machinery, heavy goods vehicles, and ferries. It mostly consists of hard-standing, bare ground and buildings with only scattered ruderals. Concentrations of ruderal vegetation occur in the southern part of the site and around an old dock in the north-western part.
4. Ruderal vegetation including early successional communities, species-rich mixed ruderal vegetation, semi-ruderal grassland, tall-herb vegetation and scrub is described from the two areas.
5. Both areas qualify as OMH habitat. No other areas visited at Pembroke Dock do.
6. One of the two areas around an old dock in the northern part of the site has exceptionally species-rich vegetation including stress-tolerant plants, orchids, parasites and grassland forbs. It is a fine example of what the OMH concept is designed to capture.

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1 INTRODUCTION

1.1 Purpose of this Report

This report presents the results of botanical surveys designed to ascertain whether concentrations of ruderal vegetation at Pembroke Port, Pembroke Dock in Pembrokeshire (OS Grid Reference SM 959 037) might qualify – under the NERC Act 2006 - as a Habitat of Principal Importance called Open Mosaic Habitat on Previously Developed Land (OMH), which was previously (before 2006) classed as a Priority Habitat under the UK Biodiversity Action Plan.

A site plan and ecological habitat map is shown in *Figure 1 and 2*. There are two candidate OMH concentrations of vegetation. The first is in the southern part of the site around *Target Notes 1, 6, 16, 28 and 36* in *Figure 2*, where it is bounded by secondary woodland to the south-east, by the stone dock wall to the south, and by operational buildings, car parks and roads on all other sides. The second surrounds an old dock in the north-eastern part of the site around *Target Notes 26, 33 and 37* in *Figure 2*. These areas contain diverse mosaics of derelict hard-standing, bare ground, open ruderal vegetation, tall-herb ruderal vegetation, bramble scrub, thorn scrub and incipient secondary woodland. There is intermittent shallow flooding in some of the open areas.

1.2 Ecological Context

Pembroke Port is an active industrial port and dockyard with frequent movements of machinery, heavy goods vehicles, and ferries. It is dominated by hard-standing, bare ground and industrial, commercial and office buildings associated with the port operations. A sand-storage depot is present in the east of the site. Vegetated areas are principally located in the southern part of the site and include a small area of recently matured secondary broad-leaved woodland, scattered trees, ruderal open grassland, and scrub. Elsewhere, vegetation is scattered across the site and includes ephemeral species, amenity grassland and introduced shrubs.

The waters of Milford Haven form the northern site boundary of Pembroke Port and Milford Haven and an industrial area forms the western site boundary. To the south the site is bounded by residential properties, the South Pembrokeshire Hospital, a golf course and farmland. The town of Pembroke lies east of the site and is dominated by residential and commercial buildings and transport infrastructure.

1.3 Structure of this Report

The remainder of the report is structured as follows:

- *Section 2* describes the survey methods;
- *Section 3* summarises the results;

- *Section 4* details the evaluations and conclusions; and
- *Section 5* lists the documents referenced in this report

Appendix A provides tables of botanical data and photographic plates (all photographs in this report were taken by RSK and are RSK copyright).

Plant nomenclature in this report (Latin and English names) follows Stace (2010) for vascular plants and Hill *et al.* (2008) for mosses and liverworts.

2 METHODS

2.1 General

Surveys were carried out on 30 June 2017 by Dr R.N. Carter MIEEM, C.Env. He is a botanist with over 45 years experience (32 in consultancy), a visiting lecturer at the University of Reading specialising in vegetation survey, and a Vice-county recorder and taxonomic referee for the Botanical Society of Britain and Ireland (BSBI).

Vascular plant species were separately listed in the two areas of interest (described in *Section 1*) and also in an area extending roughly from *Target Note 15* in *Figure 2* to *Target Note 21*, throughout which ruderals are patchily abundant in operational areas that are however clearly not candidate OMH areas. Subjective estimates of the relative abundance of species were added to the plant species list using a modified DAFOR scale. This ranks species according to their relative abundance in a given parcel of land as: d – dominant, a – abundant, f – frequent, o – occasional, r – rare. In addition, the following prefixes are used: l – locally, v – very. The terms ‘abundant’ and ‘rare’ are used by convention, and apply only to relative-abundance within the recorded area. It does not mean that species are ‘rare’ in the district or the UK at large.

2.2 NVC Sampling

The methods of the National Vegetation Classification (NVC) were used to describe the vegetation (Rodwell 1991, 1992, 2000; Rodwell *et al.* 2000, Rodwell 2006). NVC types were identified by observation and experience (especially nettle-bed and scrub vegetation types), but quadrat sampling was carried out to provide a description of the most typical and distinctive vegetation of the candidate OMH areas. Although NVC methods were used, there was no expectation that this distinctive vegetation would conform to any described NVC community type, since it is acknowledged that many semi-ruderal vegetation types are not yet covered by the system (Rodwell *et al.* 2000).

Quadrat data were collected from homogeneous stands of grassland following the standard methods for identifying NVC types (Rodwell 2006). The cover of each species in each quadrat was estimated by eye and recorded on the Domin Scale (10 - over 90% cover, 9 - 76-90%, 8 - 51-75%, 7 - 34-50%, 6 - 26-33%, 5 - 11-25%, 4 - 5-10%, 3 - under 5% yet frequent, 2 - under 5% and occasional, 1 - under 5% and rare). Where possible at least five quadrats were recorded in each sampled vegetation type, so that not only cover but also frequency estimates were available for each species (i.e. percentage occurrence in quadrats – e.g. a species recorded in 3 quadrats out of 5 has a frequency of 60%). Because NVC communities are determined primarily in terms of species’ frequency, this facilitates the identification of NVC types, and especially

improves computer matching to identify NVC types (Rodwell 2006). The two-metre square quadrat size recommended for grassland by Rodwell (2006) was used.

The data are presented as floristic tables in the style of the definitive NVC tables given in *British Plant Communities* (Rodwell 1991, 1992, 2000). Species are ordered by their relative abundance, first by frequency class (class I – 0-20%, II – 21-40%, III -41-60%, IV – 61-80%, V – 81-100%), and then by maximum cover value on the Domin Scale; any remaining species ties are then ordered alphabetically.

Stands of vegetation were identified from quadrat data with the assistance of the computer-program MATCH (Malloch 1999), which computes similarity-coefficients between quadrat data and the published NVC tables in *British Plant Communities* (because these define the NVC communities and sub-communities). This gives only an initial indication of which NVC types the data are most likely to have been drawn from – the highest coefficient does not necessarily indicate a correct NVC diagnosis. It is always necessary to identify the NVC type through careful consideration of the NVC descriptions in *British Plant Communities* (Rodwell 1991, 1992, 2000). In the floristic tables, matching coefficients in bold represent acceptable NVC diagnoses, and those in italics represent informative but individually unacceptable diagnoses, e.g. cases where a stand of vegetation is transitional to the indicated coefficient.

2.3 Assessing OMH Habitat

In deciding whether candidate habitat qualifies as OMH, reliance was placed primarily on the description of OMH provided in the 2010 version of the priority habitat descriptions (Maddock 2008) for the UK Biodiversity Action Plan. This description defines OMH on the basis of five criteria:

- the area of OMH is at least 0.25 ha;
- the site has a known history of disturbance (extraneous materials may have been added);
- the site contains some vegetation, mainly early successional communities consisting mainly of stress-tolerant species;
- the site contains some bare substrate; and
- the site shows spatial variation forming a mosaic of early successional communities and bare substrate.

In carrying out the surveys there was due cognizance of the methods set out in Lush *et al.* (2013) and Riding *et al.* (2013), though these methods were not followed closely. They address two main objectives: to make decisions where the case for qualifying as OMH is borderline; and to simplify recording so that adequate decisions about OMH can be made by good ecologists who are not fully expert botanists. But here the case for OMH was strong from the outset, and an expert botanist was available.

2.4 Constraints

The survey indicates the botanical character of the site, but by no means every patch was visited, and the plant species list is likely to be far from exhaustive. While the timing of the survey was optimal – there is no better time than June - plant species of OHM include winter annuals, ephemerals and bryophytes. Many of these are identifiable only at specific times of the year and a single visit could never capture every species. Species listing can never be entirely exhaustive, and repeat visits to a site will always yield a tail of additional species which reduces with time – even in well-studied nature reserves additional species are discovered occasionally.

Bryophytes were not generally recorded, though those found in quadrats were.

The survey was conducted in exceptionally bad weather for the time of year, with heavy rain, strong winds and low temperatures. This will not have affected the results significantly, but it reduced the scope for such simple activities as marking up maps in the field and taking photographs (though many were nevertheless taken).

3 RESULTS

3.1 General

Pembroke Dock as a whole – like many dockland areas – contains a wide range of plant species many of which are well-established aliens. The diverse vegetation includes the following elements.

- (1) Sparse ruderal vegetation on bare and trampled ground comprising such species as *Plantago major* ssp. *major* (Greater Plantain), *Poa annua* (Annual Meadow-grass) and *Polygonum arenastrum* (Equal-leaved Knotgrass) and loosely referable to the NVC type **OV21 *Poa annua-Plantago major* community**.
- (2) Similar areas prone to shallow flooding where such species as *Agrostis stolonifera* (Creeping Bent), *Epilobium tetragonum* (Square-stalked Willowherb), *Juncus bufonius* (Toad Rush) and *Plantago major* ssp. *intermedia* (Greater Plantain) tend to form a sparse scatter.
- (3) Scattered ephemeral ruderals on relatively bare ground, e.g. *Lepidium didymus* (Lesser Swine-cress), *Persicaria maculosa* (Redshank), *Senecio vulgaris* (Groundsel), referable to a wide range of NVC types in the OV series.
- (4) Very early successional vegetation characterised by and usually dominated by yellow crucifers, among which *Brassica nigra* (Black Mustard) and *Hirschfeldia incana* (Hoary Mustard) are the most abundant in this case. It is not described in the NVC system, except for discussion in Rodwell *et al.* (2006), but corresponds to the *Sisymbrium* vegetation described by Continental phytosociologists.
- (5) Mixed ruderal vegetation with 50% to 80% cover consisting of a wide range of species among which legumes, especially *Medicago lupulina* (Black Medick) and *Melilotus officinalis* (Ribbed Melilot) and yellow composites, e.g. *Picris hieracioides* (Hawkweed Oxtongue), are abundant. It is not described in the NVC system, except for discussion in Rodwell *et al.* (2006), but corresponds to the *Dauco-Melilotion* vegetation described by Continental phytosociologists.
- (6) Grassy ruderal vegetation variously containing the grasses *Agrostis stolonifera* (Creeping Bent), *Arrhenatherum elatius* (False Oat-grass), *Dactylis glomerata* (Cock's-foot), *Festuca rubra* (Red Fescue) and *Holcus lanatus* (Yorkshire-fog) at high levels of abundance together with a wide range of ruderal species. Some eutrophic examples at Pembroke Dock are almost certainly referable to the NVC type **OV23d *Lolium perenne-Dactylis glomerata* community, *Arrhenatherum elatius-Medicago lupulina* sub-community** while others have affinities with species-rich variants of **MG1a *Arrhenatherum elatius* grassland, *Festuca rubra* sub-community**, but most examples are intermediate in character between OV23 or MG1 and the other communities described in this bullet list, with which they coexist in mosaic and transition.
- (7) Taller and more fully closed ruderal vegetation dominated by thistles and loosely referable to the NVC type **OV25 *Urtica dioica-Cirsium arvense* community**.

- (8) Nettle-beds dominated by *Urtica dioica* (Common Nettle) are here usually associated with *Rubus fruticosus* agg. (Bramble) and referable to the NVC type **OV24b *Urtica dioica*-*Galium aparine* community, *Arrhenatherum elatius*-*Rubus fruticosus* sub-community**. Though closed *Rubus fruticosus* agg. (Bramble) scrub could be assigned to **W24b *Rubus fruticosus*-*Holcus lanatus* underscrub, *Arrhenatherum elatius*-*Heracleum sphondylium* sub-community** it is here probably better regarded as an extreme variant of OV24b.
- (9) Scrub consisting of *Buddleja davidii* (Butterfly-bush) is not described in the NVC system, except for discussion in Rodwell *et al.* (2006), where pure *Buddleja* scrub is mentioned, as well as eutrophic scrub described in Rodwell *et al.* (2006) as a suggested ***Sambucus nigra*-*Urtica dioica* community**. Both types can probably be discerned here.
- (10) Where the scrub described above contains saplings of *Acer pseudoplatanus* (Sycamore) and *Fraxinus excelsior* (Ash) it is transitional to secondary woodland that would probably best be assigned to **W8d *Fraxinus excelsior*-*Acer campestre*-*Mercurialis perennis* woodland, *Hedera helix* sub-community** though sycamore woodland is not always easy to place in the NVC system.

In common with many of the best OMH areas, stress-tolerant annuals and biennials are a distinctive feature of the vegetation, *e.g.* *Blackstonia perfoliata* (Yellow-wort), *Centaureum erythraea* (Common Centaury), *Verbena officinalis* (Vervain). So in a few places are parasites and hemiparasites belonging to the Orobanchaceae including *Euphrasia nemorosa* (Eyebright), *Odontites vernus* (Red Bartsia) and *Orobanche minor* (Common Broomrape). Orchids too are a notable feature, including *Anacamptis pyramidalis* (Pyramidal Orchid), *Dactylorhiza praetermissa* (Southern Marsh-orchid) and *Ophrys apifera* (Bee Orchid). They often occur in brown-field sites which they can colonise by means of their light wind-born seeds.

3.2 Southern Candidate OMH Area

The area around *Target Notes 1, 6, 16, 28 and 36* in *Figure 2* is juxtaposed with hard-standing on the one hand and secondary woodland on the other. It centres on a large and more-or-less bare area of compacted but not fully hard substrate that floods locally (*Plate 1* in *Appendix A*). It bears a variable scatter of ruderals among which *Epilobium tetragonum* (Square-stalked Willowherb) and *Epilobium parviflorum* (Hoary Willowherb) are prominent, so that vegetation types (1) and (2) in *Section 3.1* are extensively represented here. Banks of tipped soil at the edges variously support open ruderal vegetation and yellow crucifer vegetation mostly dominated by *Brassica nigra* (Black Mustard), so that vegetation types (3) and (4) in *Section 3.1* are represented (*Plates 2 and 3* in *Appendix A*). Also in many places towards the edges there is mixed ruderal vegetation with legumes such as *Melilotus officinalis* (Ribbed Melilot) and grassland plants such as *Leucanthemum vulgare* (Oxeye Daisy) and *Trifolium pratense* (Red Clover), so that vegetation type (5) in *Section 3.1* is again extensively represented (*Plate 4* in *Appendix A*). Quadrats in this vegetation are presented in *Table*

2 in *Appendix A*, and show that this is best regarded as what Continental authors describe as *Dauco-Melilotion* vegetation. It is here that the orchid *Ophrys apifera* (Bee Orchid) was found.

Finally, towards the west semi-ruderal grassland occurs so that vegetation type (6) in *Section 3.1* is represented in a single large block. This is surrounded by taller vegetation and scrub so that the remaining vegetation types (7), (8), (9) and (10) in *Section 3.1* are also extensively represented.

Where the ruderal or semi-ruderal vegetation abuts the nearby secondary woodland, shade-tolerant herbs are a feature, including native species, e.g. *Heracleum sphondylium* (Hogweed), *Stachys sylvatica* (Hedge Woundwort). Here there are local clonal patches of *Petasites fragrans* (Winter Heliotrope).

An overall species list is given in column 1 of *Table 1* in *Appendix A*.

3.3 Northern Candidate OMH Area

The area around *Target Notes 26, 33 and 37* in *Figure 2* consists of level ground above the stone walls of an old tidal dock (*Plate 5* in *Appendix A*). It is less variable than the area described in *Section 3.2* mainly containing ruderal grassland, so that something intermediate between the vegetation types (5) and (6) in *Section 3.1* occupies at least 70%. This however is broken up at a small patch size (up to about 3 m diameter) by inhospitable substrates including concrete pads and areas of gravel that are at most sparsely vegetated. Overall this area is exceptionally species-rich. Coarse grasses are scarce, and the relatively small grasses *Agrostis stolonifera* (Creeping Bent) and *Holcus lanatus* (Yorkshire-fog) are the main grass components. These occur in association with grassland forbs among which *Daucus carota* ssp. *carota* (Wild Carrot), *Lotus corniculatus* (Common Bird's-foot-trefoil), *Medicago lupulina* (Black Medick), *Plantago lanceolata* (Ribwort Plantain) and *Trifolium pratense* (Red Clover) are the most prominent. They are however joined here by extensive stands of the orchid *Dactylorhiza praetermissa* (Southern Marsh-orchid) and the parasite *Orobanche minor* (Common Broomrape), together with other hemiparasites including *Euphrasia nemorosa* (Eyebright) and *Odontites vernus* (Red Bartsia) and mostly calcicolous stress-tolerant herbs including *Centaureum erythraea* (Common Centaury) and *Blackstonia perfoliata* (Yellow-wort). Taller broad-leaved herbs including *Hypericum perforatum* (Perforate St John's-wort), *Melilotus officinalis* (Ribbed Melilot) and *Verbena officinalis* (Vervain) are also scattered. Much of this is evident from the quadrats presented in *Table 3* in *Appendix A*, which again show that this is best regarded as what Continental authors describe as *Dauco-Melilotion* vegetation.

Other vegetation types represented here include yellow crucifer vegetation mostly dominated by *Hirschfeldia incana* (Hoary Mustard) so that the vegetation type (3) is represented. Also present in small quantity towards the edges are open ruderal vegetation, rough grassland and bramble scrub so that the vegetation types (1), (3) and (7) in *Section 3.1* are represented here. An overall species list is given in column 2 of *Table 1* in *Appendix A*.

An additional feature very locally present here is intertidal vegetation in the few places where there is earth below the top of the dock walls (which do however themselves have scattered halophytes, mostly *Beta vulgaris* ssp. *maritima* or Sea Beet). Here there is halophytic grassland dominated by the grasses *Festuca rubra* (Red Fescue) – at least halophytic members of the aggregate - and *Elytrigia atherica* (Sea Couch) together with the salt-marsh plants *Atriplex portulacoides* (Sea-purslane), *Carex extensa* (Long-bracted Sedge), *Plantago maritima* (Sea Plantain) and *Spergularia media* (Greater Sea-spurrey).

3.4 OMH Features

The two sites can be considered against OMH criteria as follows.

Criterion 1 - the area of OMH is at least 0.25 ha

Both areas exceed 0.25 ha (allowing that the southern site is irregular in shape). From *Figure 2* they each appear to be at least c.0.5 ha

Criterion 2 - the site has a known history of disturbance

Both areas have previous industrial use in connection with Pembroke Dock. The southern site is still subject to disturbance, e.g. vehicle movements, soil tipping. Both areas have locally compacted soils and extraneous substrates including concrete, ballast and various gravelly materials.

Criterion 3 - the site contains some vegetation, mainly early successional communities consisting mainly of stress-tolerant species

Both areas have at least 50% vegetation cover including early successional communities including *Sisymbrium* and *Dauco-Melilotion* vegetation types. Both have at least some stress tolerant species, though the northern area is far the richer of the two in this respect.

Criterion 4 - the site contains some bare substrate

Both areas have extensive bare substrate, though only the southern site has large uninterrupted expanses and frequent piles of tipped soil.

Criterion 5 - the site shows spatial variation forming a mosaic of early successional communities and bare substrate

Both sites contain mosaics of vegetation and bare ground at multiple scales, from small patches of bare ground within a two-metre square quadrat to large bare patches alternating with large vegetated patches (though the southern area has larger patches of bare ground than the northern). And both sites contain complex mosaics of different vegetation types, again at multiple scales.

4 EVALUATION

4.1 General

From the results presented in *Section 3*, and formally from *Section 3.4*, it is clear that both candidate areas qualify as OMH. No other areas seen during the survey would do so, though there are very locally patches that fail only on account of their very small size, e.g. vegetation near *Target Note 21* in *Figure 2*.

The southern area around *Target Notes 1, 6, 16, 28 and 36* in *Figure 2* contains vegetation types that are common in industrial areas in lowland Britain, and the species-rich stress tolerant vegetation for which OMH is valued, though technically present here, is not of great extent (probably less than 5% of the total area). OMH areas of this quality are commonly redeveloped, though some form of mitigation or compensation would be usual. The only caveats to this conclusion are that the juxtaposition of the OMH with secondary woodland adds somewhat to its value, and may in particular mean that it might possibly be of greater importance for insects and other invertebrates.

The northern area around *Target Notes 26, 33 and 37* in *Figure 2* has an exceptional complement of stress-tolerant plants including orchids, broomrapes, hemi-parasites and calcicolous annuals and biennials. It is clear from Maddock (2008), Lush (2013) and Riding (2010) that the concept of OMH was originally developed mainly to capture within the sphere of conservation concern exactly this kind of vegetation. It is therefore by any standards a small but exceptionally fine example of OMH. Given its location close to areas affected by salt spray it might also have unusual value for invertebrates. If due to its highly strategic location it cannot be protected from development, then mitigation design should at least consider the possibility of skimming off the top 25 cm of material for transfer to another wildlife conservation site.

None of the species recorded are exactly rare in southern Britain, though some are of modest note if only because they are attractive, especially the orchids and *Orobanche minor* (Common Broomrape). Some of the ruderal species may be very local in Pembrokeshire due to the scarcity of urban and industrial habitat; Warren Davis (1970) describes *Verbena officinalis* (Vervain) for example as ‘thinly distributed’ on waste ground (in reference to Pembrokeshire). But such species are seldom of any substantial conservation concern.

4.2 Practical Considerations

As a habitat of principal importance, it is obvious that OMH should be retained wherever possible within any development. But it is equally obvious that former

industrial and commercial sites are likely to be required for redevelopment, and that indeed there is likely to be a presumption of redevelopment in many local plans. In discharging their responsibility to have regard to OMH, most planning officers will therefore want to see that any proposed development of OMH is not in fact avoidable (e.g. by making easy changes to proposals for land-take), and that feasible biodiversity compensation for unavoidable loss is proposed.

If redevelopment of the OMH at this site cannot be avoided, then the following points may be of relevance.

- The southern OMH area should be used in preference, as it is a relatively mundane example of OMH.
- That notwithstanding, if woodland close to the southern OMH were in its right to be retained as a biodiversity or landscape conservation area, then there might be advantage in retaining at least some OMH habitat in juxtaposition with it.
- If OMH loss cannot be avoided, then it could be partly compensated for by setting aside other land within the dock as a whole, and by transferring the surface substrates from the OMH areas to the set-aside land. In that event, the top 0.2 m of the OMH areas should be stripped for re-spreading in this way.
- The northern OMH area is of such species-richness that if a proposed redevelopment were of a kind that might allow all or part of it to be retained (e.g. securing the old dock for industrial archaeology), then any works should so far as possible be designed to protect the OMH from encroachment and damage. So for example work sites and materials storage areas should be sited outside the OMH; walkways should be designed to minimise trampling damage by site personnel during works, areas across which foot-passage is not required should be fenced against casual encroachment, tipping of materials *etc.* Protective fencing could be removed for special tasks - occasional passage of vehicles to deliver materials for example would not significantly damage the OMH.
- The northern OMH area is of such species-richness that – if it cannot be preserved - the top 20 cm should be stripped and transferred to another site outside the dock even if no land is available inside the dock as a whole.

Because invertebrates are a key concern in OMH, invertebrate surveys should be carried out in any areas likely to be affected by proposed development.

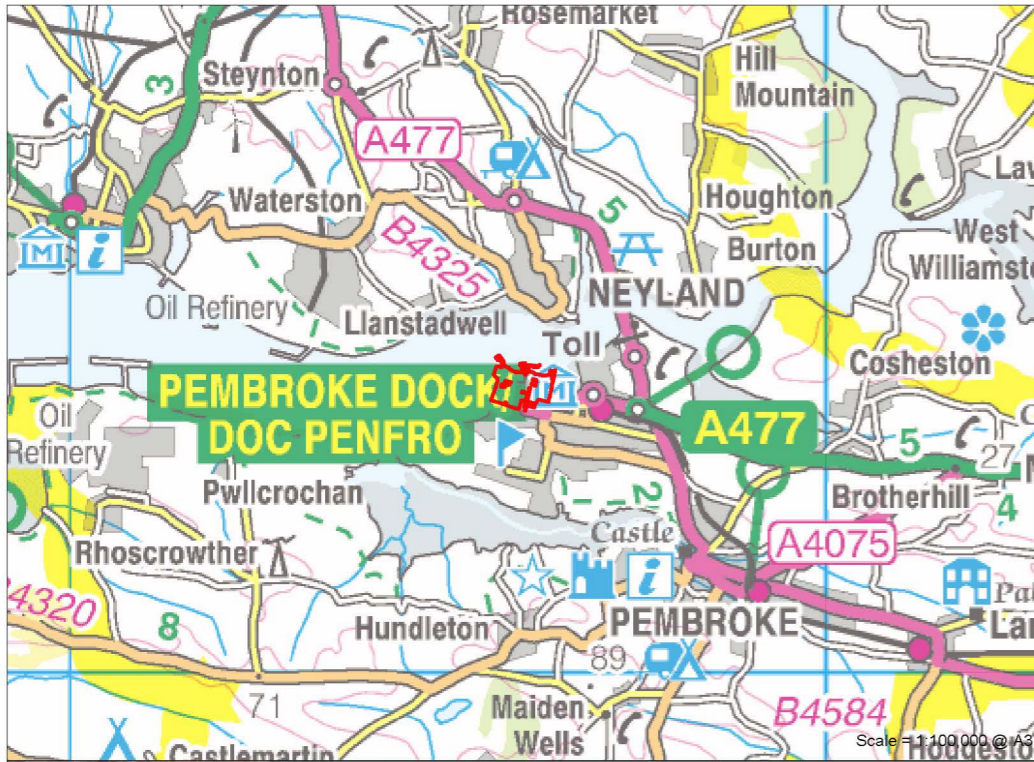
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6 FIGURES

- Figure 1 Site Location Map
- Figure 2 Phase 1 habitat map



Site boundary

Rev	Date	Description	Drn	Chk	App
00	18.04.17	856531	RG	SP	PP

Pembroke Docks

Figure 1
Site Location Plan

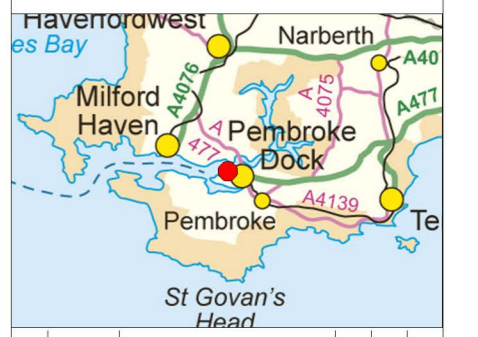
0 300 metres
Scale = 1:10,000 @ A3

0 300 metres
Scale = 1:10,000 @ A3

REV 00



- Site boundary
- Broad-leaved semi-natural woodland
- Scattered broad-leaved tree
- Dense scrub
- Scattered scrub
- Unimproved neutral grassland
- Ruderal open grassland
- Standing water
- Intertidal area / sea
- Sea wall
- Sand pit
- Introduced shrub
- Amenity grassland
- Ephemeral vegetation
- Bare ground
- Building
- Hard standing
- Target note

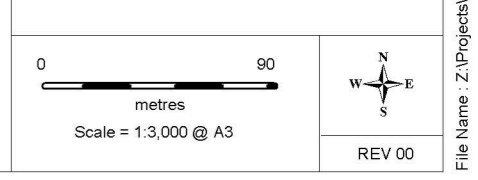


Rev	Date	Description	Drn	Chk	App
00	15.05.17	856531	RG	SP	PP

Pembroke Docks



Figure 2
Phase 1 Map



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APPENDIX A – BOTANICAL DATA AND PLATES

Table 1. Vascular plant species recorded from Pembroke Dock in June 2017. Column 1 – land in the vicinity of Target Notes 6, 11, 16 and 28; column 2 – land in the vicinity of Target Notes 21, 26, 33 and 37; and column 3 – land in the vicinity of Target Note 15. Species marked with asterisks are confined to the intertidal zone.

a) Trees, shrubs and woody climbers			
<i>Acer pseudoplatanus</i> (Sycamore)	a	vr	r
<i>Aesculus hippocastanum</i> (Horse-chestnut)	vr	-	-
<i>Buddleja davidii</i> (Butterfly-bush)	f	o	-
<i>Cornus sericea</i> (Red-osier Dogwood)	vr	-	-
<i>Crataegus monogyna</i> (Hawthorn)	o	-	-
<i>Ficus carica</i> (Fig)	vr	-	-
<i>Fraxinus excelsior</i> (Ash)	o	-	r
<i>Hebe</i> species (a Hedge-veronica)	-	-	vr
<i>Hedera</i> cf. <i>hibernica</i> (Atlantic Ivy)	a	la	r
<i>Ilex aquifolium</i> (Holly)	r	-	-
<i>Leycesteria formosa</i> (Himalayan Honeysuckle)	vr	-	-
<i>Lonicera japonica</i> (Japanese Honeysuckle)	r	-	-
<i>Prunus spinosa</i> (Blackthorn)	-	-	vr
<i>Pyracantha coccinea</i> (Firethorn)	-	vr	-
<i>Rhus typhina</i> (Stag's-horn Sumach)	vr	-	-
<i>Rosa canina</i> (Dog-rose)	r	-	-
<i>Rosa rugosa</i> (Japanese Rose)	vr	-	-
<i>Rubus armeniacus</i> (Bramble)	lf	-	r
<i>Rubus fruticosus</i> agg. (Bramble)	a	o	-
<i>Rubus idaeus</i> (Raspberry)	vr	-	-
<i>Rubus ulmifolius</i> (Bramble)	-	vr	-
<i>Salix cinerea</i> ssp. <i>oleifolia</i> (Rusty Willow)	r	-	-
<i>Sambucus nigra</i> (Elder)	o	-	-
<i>Syringa vulgaris</i> (Lilac)	vr	-	-
<i>Ulex europaeus</i> (Gorse)	-	r	-
b) Herbaceous species			
<i>Achillea millefolium</i> (Yarrow)	o	o	o
<i>Agrostis stolonifera</i> (Creeping Bent)	a	a	a
<i>Ammophila arenaria</i> (Marram)	-	vr	-
<i>Anacamptis pyramidalis</i> (Pyramidal Orchid)	-	-	vr
<i>Anagallis arvensis</i> (Scarlet Pimpernel)	r	o	o
<i>Anthyllis vulneraria</i> (Kidney Vetch)	-	o	r
<i>Arabidopsis thaliana</i> (Thale Cress)	vr	-	-

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* <i>Armeria maritima</i> (Thrift)	-	vr	-
<i>Arrhenatherum elatius</i> (False Oat-grass)	f	f	f
<i>Asplenium scolopendrium</i> (Hart's-tongue)	vr	-	vr
<i>Asplenium trichomanes</i> ssp. <i>quadrivalens</i> (Maidenhair Spleenwort)	-	-	vr
* <i>Atriplex portulacoides</i> (Sea-purslane)	-	vr	-
<i>Atriplex prostrata</i> (Spear-leaved Orache)	o	-	o
<i>Barbarea</i> cf. <i>stricta</i> (Small-flowered Winter-cress)	-	vr	vr
* <i>Beta vulgaris</i> ssp. <i>maritima</i> (Sea Beet)	-	vr	r
<i>Blackstonia perfoliata</i> (Yellow-wort)	-	la	-
<i>Brachypodium sylvaticum</i> (False Brome)	vr	vr	-
<i>Brassica nigra</i> (Black Mustard)	f	-	-
<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i> (Soft-brome)	vr	-	-
<i>Calystegia sepium</i> ssp. <i>sepium</i> (Hedge Bindweed)	vr	-	r
<i>Calystegia silvatica</i> (Large Bindweed)	f	-	-
* <i>Carex extensa</i> (Long-bracted Sedge)	-	vr	-
<i>Carex flacca</i> (Glaucous Sedge)	r	-	-
<i>Carex hirta</i> (Hairy Sedge)	vr	-	r
<i>Centaurea debeauxii</i> (Chalk Knapweed)	o	-	-
<i>Centaureum erythraea</i> (Common Centaury)	-	r	r
<i>Centranthus ruber</i> (Red Valerian)	o	-	r
<i>Cerastium fontanum</i> (Common Mouse-ear)	o	o	-
<i>Cerastium glomeratum</i> (Sticky Mouse-ear)	o	-	r
<i>Chamerion angustifolium</i> (Rosebay Willowherb)	vr	-	o
<i>Cirsium arvense</i> (Creeping Thistle)	vr	-	vr
<i>Cirsium vulgare</i> (Spear Thistle)	o	r	-
<i>Cochlearia danica</i> (Danish Scurvygrass)	-	-	vr
<i>Convolvulus arvensis</i> (Field Bindweed)	o	-	r
<i>Conyza canadensis</i> (Canadian Fleabane)	-	-	vr
<i>Crepis vesicaria</i> ssp. <i>taraxacifolia</i> (Beaked Hawk's-beard)	r	-	o
<i>Crocsmia</i> × <i>crocsmiiflora</i> (Montbretia)	vr	-	-
<i>Cymbalaria muralis</i> (Ivy-leaved Toadflax)	vr	-	-
<i>Dactylis glomerata</i> (Cock's-foot)	o	r	o
<i>Dactylorhiza praetermissa</i> (Southern Marsh-orchid)	-	o	-
<i>Daucus carota</i> ssp. <i>carota</i> (Wild Carrot)	f	o	r
<i>Dipsacus fullonum</i> (Wild Teasel)	r	-	-
<i>Elytrigia atherica</i> (Sea Couch)	-	vr	-
<i>Elytrigia repens</i> (Common Couch)	-	vr	-
<i>Epilobium ciliatum</i> (American Willowherb)	o	-	r
<i>Epilobium hirsutum</i> (Great Willowherb)	o	-	-
<i>Epilobium montanum</i> (Broad-leaved Willowherb)	f	-	r
<i>Epilobium parviflorum</i> (Hoary Willowherb)	o	-	f
<i>Epilobium tetragonum</i> (Square-stalked Willowherb)	o	-	f
<i>Eupatorium cannabinum</i> (Hemp-agrimony)	r	r	vr

<i>Euphorbia helioscopia</i> (Sun Spurge)	r	-	vr
<i>Euphorbia peplus</i> (Petty Spurge)	r	-	r
<i>Euphorbia portlandica</i> (Portland Spurge)	-	r	-
<i>Euphrasia</i> cf. <i>nemorosa</i> (Common Eyebright)	-	o	vr
<i>Fallopia japonica</i> (Japanese Knotweed)	-	-	vr
<i>Festuca arenaria</i> (Rush-leaved Fescue)	-	vr	-
<i>Festuca rubra</i> (Red Fescue)	o	a	o
<i>Fumaria officinalis</i> ssp. <i>officinalis</i> (Common Fumitory)	-	-	vr
<i>Galium aparine</i> (Cleavers)	r	-	r
<i>Geranium dissectum</i> (Cut-leaved Crane's-bill)	r	r	r
<i>Geranium lucidum</i> (Shining Crane's-bill)	r	-	-
<i>Geranium robertianum</i> (Herb-Robert)	o	o	o
<i>Geum urbanum</i> (Wood Avens)	-	-	vr
<i>Glechoma hederacea</i> (Ground-ivy)	-	-	vr
<i>Helminthotheca echioides</i> (Bristly Oxtongue)	f	r	o
<i>Heracleum sphondylium</i> (Hogweed)	o	r	r
<i>Hieracium</i> species (Hawkweed)	-	-	vr
<i>Hirschfeldia incana</i> (Hoary Mustard)	-	f	f
<i>Holcus lanatus</i> (Yorkshire-fog)	f	f	f
<i>Hypericum perforatum</i> (Perforate St John's-wort)	o	f	r
<i>Hypochaeris radicata</i> (Cat's-ear)	r	-	o
<i>Juncus articulatus</i> (Jointed Rush)	r	-	-
<i>Juncus bufonius</i> (Toad Rush)	r	-	-
<i>Juncus inflexus</i> (Hard Rush)	o	-	-
<i>Juncus tenuis</i> (Slender Rush)	vr	-	-
<i>Lathyrus pratensis</i> (Meadow Vetchling)	r	o	r
<i>Leontodon hispidus</i> (Rough Hawkbit)	r	f	-
<i>Lepidium didymus</i> (Lesser Swine-cress)	o	-	-
<i>Leucanthemum vulgare</i> (Oxeye Daisy)	o	o	-
<i>Linaria purpurea</i> (Purple Toadflax)	r	-	-
<i>Linaria vulgaris</i> (Common Toadflax)	-	o	r
<i>Linum catharticum</i> (Fairy Flax)	-	o	-
<i>Lolium perenne</i> (Perennial Rye-grass)	r	-	-
<i>Lotus corniculatus</i> (Common Bird's-foot-trefoil)	o	f	f
<i>Malva arborea</i> (Tree-mallow)	vr	-	-
<i>Matricaria discoidea</i> (Pineappleweed)	r	r	-
<i>Medicago lupulina</i> (Black Medick)	f	f	-
<i>Melilotus officinalis</i> (Ribbed Melilot)	r	o	r
<i>Mentha spicata</i> (Spear Mint)	r	-	-
<i>Odontites vernus</i> ssp. <i>serotinus</i> (Red Bartsia)	r	f	-
<i>Oenothera cambrica</i> (Common Evening-primrose)	-	o	o
<i>Oenothera glazioviana</i> (Large-flowered Evening-primrose)	o	r	-
<i>Ononis repens</i> (Common Restharrow)	-	o	r
<i>Ophrys apifera</i> (Bee Orchid)	vr	-	-

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<i>Orobanche minor</i> (Common Broomrape)	-	f	vr
<i>Papaver rhoeas</i> (Common Poppy)	r	-	-
<i>Persicaria maculosa</i> (Redshank)	vr	-	-
<i>Petasites fragrans</i> (Winter Heliotrope)	la	r	r
<i>Phleum pratense</i> (Timothy)	r	-	-
<i>Picris hieracioides</i> (Hawkweed Oxtongue)	-	f	r
<i>Pilosella officinarum</i> (Mouse-ear Hawkweed)	-	vr	-
<i>Plantago coronopus</i> (Buck's-horn Plantain)	-	vr	o
<i>Plantago lanceolata</i> (Ribwort Plantain)	o	f	o
<i>Plantago major</i> ssp. <i>intermedia</i> (Greater Plantain)	vr	-	-
<i>Plantago major</i> ssp. <i>major</i> (Greater Plantain)	o	r	o
* <i>Plantago maritima</i> (Sea Plantain)	-	r	-
<i>Poa annua</i> (Annual Meadow-grass)	-	r	o
<i>Poa trivialis</i> (Rough Meadow-grass)	o	-	o
<i>Polygonum arenastrum</i> (Equal-leaved Knotgrass)	-	vr	o
<i>Polygonum aviculare</i> (Knotgrass)	o	-	-
<i>Polypodium interjectum</i> (Intermediate Polypody)	-	r	vr
<i>Polystichum setiferum</i> (Soft Shield-fern)	-	-	vr
<i>Potentilla anserina</i> (Silverweed)	r	-	-
<i>Potentilla reptans</i> (Creeping Cinquefoil)	o	r	o
<i>Prunella vulgaris</i> (Selfheal)	o	-	o
<i>Pulicaria dysenterica</i> (Common Fleabane)	r	-	-
<i>Ranunculus repens</i> (Creeping Buttercup)	o	-	o
<i>Reseda luteola</i> (Weld)	vr	r	r
<i>Rumex crispus</i> (Curled Dock)	o	o	o
<i>Rumex sanguineus</i> (Wood Dock)	r	-	-
<i>Sambucus ebulus</i> (Dwarf Elder)	-	-	la
<i>Saxifraga tridactylites</i> (Rue-leaved Saxifrage)	vr	-	-
<i>Schedonorus arundinaceus</i> (Tall Fescue)	-	-	r
<i>Scorzoneroides autumnalis</i> (Autumn Hawkbit)	o	-	-
<i>Scrophularia auriculata</i> (Water Figwort)	f	o	o
<i>Senecio erucifolius</i> (Hoary Ragwort)	r	r	r
<i>Senecio jacobaea</i> (Common Ragwort)	o	r	o
<i>Senecio squalidus</i> (Oxford Ragwort)	-	-	vr
<i>Senecio vulgaris</i> (Groundsel)	vr	-	r
<i>Silene vulgaris</i> ssp. <i>vulgaris</i> (Bladder Champion)	-	-	vr
<i>Solanum dulcamara</i> (Bittersweet)	o	-	-
<i>Sonchus arvensis</i> (Perennial Sow-thistle)	-	-	r
<i>Sonchus asper</i> (Prickly Sow-thistle)	o	-	o
<i>Sonchus oleraceus</i> (Smooth Sow-thistle)	o	-	r
* <i>Spergularia media</i> (Greater Sea-spurrey)	-	vr	-
<i>Stachys sylvatica</i> (Hedge Woundwort)	r	-	-
<i>Stellaria media</i> (Common Chickweed)	r	-	r

<i>Symphytum ×uplandicum</i> (Russian Comfrey)	la	-	-
<i>Taraxacum</i> species (Dandelion)	r	r	o
<i>Trifolium campestre</i> (Hop Trefoil)	vr	vr	-
<i>Trifolium dubium</i> (Lesser Trefoil)	-	r	r
<i>Trifolium pratense</i> (Red Clover)	r	f	o
<i>Trifolium repens</i> (White Clover)	r	r	o
<i>Tripleurospermum inodorum</i> (Scentless Mayweed)	o	-	r
<i>Tussilago farfara</i> (Colt's-foot)	r	-	r
<i>Urtica dioica</i> (Common Nettle)	o	vr	o
<i>Verbena officinalis</i> (Vervain)	r	r	vr
<i>Veronica arvensis</i> (Wall Speedwell)	-	-	r
<i>Veronica persica</i> (Common Field-speedwell)	vr	-	-
<i>Vicia cracca</i> (Tufted Vetch)	-	-	vr
<i>Vicia hirsuta</i> (Hairy Tare)	vr	-	-
<i>Vicia sativa</i> ssp. <i>segetalis</i> (Common Vetch)	o	r	r

Table 2. Floristic table for five 2x2m quadrats in land near Target Notes 6 and 16 in Figure 2.

<i>Agrostis stolonifera</i>	3	2	4	4	3	V	2-4
<i>Plantago lanceolata</i>	2	4	1	1	2	V	1-4
<i>Holcus lanatus</i>	3	1	7	-	1	IV	1-7
<i>Rubus fruticosus</i> agg.	7	-	1	5	7	IV	1-7
<i>Dactylis glomerata</i>	-	-	5	2	4	III	2-5
<i>Potentilla reptans</i>	1	4	-	-	2	III	1-4
<i>Hypericum perforatum</i>	1	-	-	2	1	III	1-2
<i>Melilotus officinalis</i>	-	2	7	-	-	II	2-7
<i>Medicago lupulina</i>	-	7	-	1	-	II	1-7
<i>Eupatorium cannabinum</i>	4	-	-	-	4	II	4
<i>Brassica nigra</i>	-	2	4	-	-	II	2-4
<i>Arrhenatherum elatius</i>	3	-	-	-	2	II	2-3
<i>Daucus carota</i> ssp. <i>carota</i>	-	1	-	2	-	II	1-2
<i>Scrophularia auriculata</i>	2	-	-	-	1	II	1-2
<i>Calliergonella cuspidata</i>	-	-	-	7	-	I	7
<i>Lotus corniculatus</i>	7	-	-	-	-	I	7
<i>Carex flacca</i>	5	-	-	-	-	I	5
<i>Trifolium pratense</i>	-	-	-	5	-	I	5
<i>Heracleum sphondylium</i>	4	-	-	-	-	I	4
<i>Festuca rubra</i>	3	-	-	-	-	I	3
<i>Leucanthemum vulgare</i>	3	-	-	-	-	I	3
<i>Poa annua</i>	-	-	-	-	3	I	3
<i>Scorzoneroides autumnalis</i>	-	-	-	3	-	I	3
<i>Sonchus oleraceus</i>	-	3	-	-	-	I	3
<i>Trifolium dubium</i>	-	-	-	3	-	I	3
<i>Calystegia silvatica</i>	-	-	-	-	2	I	2
<i>Cerastium fontanum</i>	-	-	-	2	-	I	2
<i>Convolvulus arvensis</i>	-	-	-	-	1	I	2
<i>Senecio erucifolius</i>	2	-	-	-	-	I	2
<i>Achillea millefolium</i>	1	-	-	-	-	I	1
<i>Dipsacus fullonum</i>	-	-	1	-	-	I	1
<i>Epilobium ciliatum</i>	-	1	-	-	-	I	1
<i>Epilobium tetragonum</i>	-	1	-	-	-	I	1
<i>Geranium robertianum</i>	1	-	-	-	-	I	1
<i>Helminthotheca echioides</i>	-	-	1	-	-	I	1
<i>Lolium perenne</i>	-	-	-	1	-	I	1
<i>Reseda luteola</i>	-	1	-	-	-	I	1
<i>Senecio jacobaea</i>	-	-	-	1	-	I	1
<i>Taraxacum</i> species	-	-	-	1	-	I	1
<i>Vicia sativa</i> ssp. <i>segetalis</i>	-	1	-	-	-	I	1

Matching coefficients. OV23d 45.1, OV23c 44.8, OV23 undifferentiated 44.3, MG1a 42.8,

MG9 undifferentiated 40.4, MG1b 38.9, MG9d 38.2, MG9b 38.2, MC9b 38.1, MG1 undifferentiated 37.6.

Diagnosis. Though the NVC type suggested by the highest matching coefficients, *i.e.* **OV23 *Lolium perenne-Dactylis glomerata* community** is understandable in terms of the combination of grasses and ruderal species, nevertheless this is clearly not *Lolio-Plantaginion* vegetation, and OV23 does not represent an acceptable diagnosis. Similarly it is clearly not grassland referable to the NVC types **MG1 *Arrhenatherum elatius* grassland** or **MG9 *Holcus lanatus-Deschampsia cespitosa* grassland**. There may be transitions from the core ruderal vegetation to OV23 and MG1, but the core vegetation is probably not of a kind described in the National Vegetation Classification at all – most probably it is similar to that described by Continental botanists as *Dauco-Melilotion* vegetation, perhaps in mosaic and transition with *Sisymbrium* vegetation where yellow crucifers such as *Brassica nigra* rise to dominance.

. Floristic table for five 2x2m quadrats in land near Target Note 37 in Figure 2.

<i>Agrostis stolonifera</i>	5	2	8	3	3	V	2-8
<i>Trifolium pratense</i>	4	1	-	1	2	IV	1-4
<i>Holcus lanatus</i>	4	7	4	-	-	III	4-7
<i>Leontodon hispidus</i>	4	1	-	-	5	III	1-5
<i>Melilotus officinalis</i>	-	5	4	1	-	III	1-5
<i>Lotus corniculatus</i>	2	4	-	-	4	III	2-4
<i>Festuca rubra</i>	-	7	-	-	7	II	7
<i>Ceratodon purpureus</i>	6	-	-	-	4	II	4-6
<i>Arrhenatherum elatius</i>	-	4	3	-	-	II	3-4
<i>Orobancha minor</i>	3	-	-	-	2	II	2-3
<i>Euphrasia nemorosa</i>	3	-	-	-	1	II	1-3
<i>Hypericum perforatum</i>	1	-	-	-	3	II	1-3
<i>Picris hieracioides</i>	1	-	-	-	3	II	1-3
<i>Plantago coronopus</i>	-	-	-	3	1	II	1-3
<i>Hirschfeldia incana</i>	-	-	5	-	-	I	5
<i>Odontites vernus</i>	4	-	-	-	-	I	4
<i>Plantago major</i> ssp. <i>major</i>	-	-	-	4	-	I	4
<i>Brachythecium albicans</i>	-	-	-	-	3	I	3
<i>Dactylorhiza praetermissa</i>	-	-	-	-	3	I	3
<i>Hypnum cupressiforme</i>	-	-	-	-	3	I	3
<i>Medicago lupulina</i>	3	-	-	-	-	I	3
<i>Poa annua</i>	-	-	-	3	-	I	3
<i>Rubus fruticosus</i> agg.	-	3	-	-	-	I	3
<i>Trifolium campestre</i>	3	-	-	-	-	I	3
<i>Cladonia</i> cf. <i>pyxidata</i>	-	-	-	-	2	I	2
<i>Dactylis glomerata</i>	-	2	-	-	-	I	2
<i>Matricaria discoidea</i>	-	-	-	2	-	I	2
<i>Petasites fragrans</i>	-	-	2	-	-	I	2
<i>Polygonum arenastrum</i>	-	-	-	2	-	I	2
<i>Centaurium erythraea</i>	-	-	-	-	1	I	1
<i>Cirsium vulgare</i>	1	-	-	-	-	I	1
<i>Daucus carota</i> ssp. <i>carota</i>	-	-	-	-	1	I	1
<i>Hypochaeris radicata</i>	-	-	-	-	1	I	1
<i>Linum catharticum</i>	-	-	-	-	1	I	1
<i>Oenothera cambrica</i>	1	-	-	-	-	I	1
<i>Plantago lanceolata</i>	-	-	-	1	-	I	1
<i>Senecio erucifolius</i>	-	1	-	-	-	I	1
<i>Taraxacum</i> species	1	-	-	-	-	I	1
<i>Trifolium repens</i>	-	-	-	1	-	I	1
<i>Verbena officinalis</i>	1	-	-	-	-	I	1

MG11a 39.0, OV23c 38.2, OV23 undifferentiated 36.5, MG11 undifferentiated 35.7, MC8

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Pembroke Dock Marine, Pembroke Dock – Botanical Survey and OMH assessment

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undifferentiated 34.6, MG12a 34.3, MC8d 34.0, MG1a 33.4, SD7e 33.3, SD7a 33.2.

Diagnosis. High matching coefficients with **MG11 *Festuca rubra*-*Agrostis stolonifera*-*Potentilla anserina* grassland** and **MC8 *Festuca rubra*-*Armeria maritima* maritime grassland community** result from the local abundance of *Agrostis stolonifera* and *Festuca rubra* respectively, but the former is a wet grassland type and the latter is a maritime cliff type and neither is acceptable as a diagnosis. Similarly the match with **OV23 *Lolium perenne*-*Dactylis glomerata* community** is understandable in terms of the combination of grasses and ruderal species, but this is not *Lolio-Plantaginion* vegetation, and OV23 is not an acceptable diagnosis. Similarly it is clearly not grassland referable to the NVC type **MG1 *Arrhenatherum elatius* grassland**. There may be transitions from the core ruderal vegetation to OV23 and MG1, but the core vegetation is probably not of a kind described in the National Vegetation Classification at all – most probably it is similar to that described by Continental botanists as *Dauco-Melilotion* vegetation, perhaps in mosaic and transition with *Sisymbrium* vegetation where yellow crucifers such as *Hirschfeldia incana* rise to dominance.

Plate 1. A general view of OMH habitat looking towards Target Note 6 in Figure 2.



Plate 2. Mixed ruderal vegetation on bunds near Target Note 16 in Figure 2.



Figure 3. Mixed ruderal vegetation on bunds near Target Note 16 in Figure 2.



Figure 4. Typical ruderal vegetation on level ground and bunds near Target Note 16 in Figure 2.



Plate 5. A general view of OMH habitat looking towards Target Note 37 in Figure 2.



Plate 6. Species-rich OMH vegetation near Target Note 37 in Figure 2 – species in view include *Dactylorhiza praetermissa* (Southern Marsh-orchid), *Orobanche minor* (Common Broomrape), *Leontodon hispidus* (Rough Hawkbit) and *Trifolium pratense* (Red Clover).



Plate 6. Species-rich OMH vegetation near Target Note 37 in Figure 2 – species in view include a large stand of *Blackstonia perfoliata* (Yellow-wort).



Plate 7. A typical OMH plant - *Oenothera cambrica* (Common Evening-primrose) at Pembroke Dock.



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