

**VEGETATION SURVEY
OF
SHOREHAM BEACH LNR**

***DOLPHIN ECOLOGICAL SURVEYS
2009***

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1.0 BACKGROUND

This vegetation survey was commissioned by the Shoreham Beach LNR Management Committee in early 2009 and was carried out by Kate Ryland of Dolphin Ecological Surveys.

The 2006-2011 Management Plan recommended that a baseline ecological survey of the LNR should be undertaken in year 1 of the plan. Up to date information about the vegetation of the beach is necessary to provide a sound basis for management decisions and as a basis for future monitoring.

The project brief was to map areas of shingle vegetation, compile a plant species list and present target notes highlighting areas of particular importance, invasive species etc. The mapped shingle vegetation was divided into 3 zones; pioneer, intermediate and established, in a system based on previous vegetated shingle surveys carried out on the Sussex coast, most notably Williams and Cooke 1993.

2.0 VEGETATION SURVEY

2.1 METHODOLOGY

Walkover surveys of the LNR were conducted on 13th May and 8th June 2009 to cover the main flowering period of the majority of shingle plants before the small, early season annuals become too dried out to identify.

The approximate extent of each vegetation zone was visually assessed and mapped on a series of 1:2000 scale maps. A plant species list was compiled for the whole site and a broad measure of abundance of each plant within the LNR was also noted (see Table 1). Within the species list the vegetation zone(s) where each species occurred was noted. Target notes were compiled for the LNR to highlight areas or species of interest and locations of potentially problematic non-native species (see section 4.0).

Two days fieldwork was considered adequate to conduct the type of baseline survey that was required in the project brief, however, there will inevitably be omissions in the plant list. The LNR Management Committee has a five-year action plan that includes a programme of biological monitoring that will help to build up a more comprehensive picture of the site's biodiversity over time. The Committee should aim to collate casual records of plants observed on the beach by members of the FoSB and others and add them to the dataset.

A second list of plant species was compiled from existing sources (the LNR management plan and the Sussex Biodiversity Record Centre) to indicate some of the additional species that have been recorded in or near the LNR in the past. Some of these species may be found again on the site during future targeted surveys and ongoing monitoring.

2.2 CONSTRAINTS

The main survey constraint was the narrow seasonal timing of the field visits, though this was chosen deliberately as an optimum time to survey vegetated shingle. Whilst some plant species may not have been evident in early summer, many of the important and characteristic species would have been missed by later visits.

2.3 SURVEY RESULTS

The plant list compiled during the 2009 vegetation survey has added considerably to the cumulative total of species previously recorded on the LNR, although some species that had been recorded in the past were not observed in 2009.

Some changes in the species found on the vegetated shingle are to be expected since the plant communities are naturally dynamic and annual species in particular may come and go. Some plants may have been present in 2009 but were missed due to recorder error, whilst others may not have been at an identifiable stage, for example species that develop later in the summer. Some of the plants known from the site in the past but not observed in 2009 may be genuine losses from the site. This is most likely to be true of rare species, which were always present in low numbers in the past.

Non-native, invasive species occur in many parts of the LNR, most notably red valerian and silver ragwort, which are already a particular concern of the Management Committee. In addition species such as spearmint, (which is currently only present at one location in the west of the site), and cotoneaster (noted in two places) may become problematic in future and early control of such species should be given serious consideration. Some garden escapes/introductions are much less aggressive and are unlikely to spread far beyond their original sites, for example great quaking-grass, red-hot poker and yucca. These plants, whilst not to be encouraged, should be a lower priority for the Management Committee.

The set of 6 maps showing the extent of the three vegetation zones (pioneer, intermediate and established vegetation) should be used to form the basis of long-term monitoring of patterns of vegetation on the LNR.

The maps show a complex mosaic of vegetated shingle across the LNR although they reflect the expected pattern of established vegetation with short turf found most commonly along property boundaries, trampled paths and areas where access pressure is greatest such as at entry points to the beach. Pioneer vegetation is naturally concentrated around the more exposed and less stable seaward parts of the site and the intermediate vegetation occurs in areas of less consolidated shingle but which nevertheless has a degree of stability.

Plant records from botanical surveys and casual observations in the future should be added to the baseline species list to build up a more comprehensive picture of the vegetation of the LNR.

Table 1 Plant species recorded in the 2009 survey

The plants observed within the LNR during the 2009 survey are shown in the table below. The different vegetation zones where each species was recorded are indicated and a broad measure of the abundance of each species within the LNR is given on the DAFOR scale where D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare and L = Locally.

Plants of particular biodiversity interest, such as those of restricted local or national distribution, are highlighted (Briggs 2001). Introduced/non-native species and probable garden escapes are indicated with an *

Species	English name	Established	Intermediate	Pioneer	Abundance
<i>Achillea millefolium</i>	Yarrow	√			O
<i>Agrimonia eupatoria</i>	Agrimony	√			R
<i>Agrostis stolonifera</i>	Creeping bent		√		O
<i>Anagallis arvensis</i>	Scarlet pimpernel		√		O
<i>Anisantha sterilis</i>	Barren brome	√		√	OLF
<i>Anthyllis vulneraria</i>	Kidney vetch	√	√		OLA
* <i>Aquilegia vulgaris</i>	Aquilegia		√		O
<i>Arctium minus</i>	Lesser burdock			√	R
<i>Armeria maritima</i>	Thrift	√	√		OLF
<i>Arrhenatherum elatius</i>	False oat-grass	√	√	√	FLA
<i>Artemisia vulgaris</i>	Mugwort	√	√		O
* <i>Aster</i> sp.	Michaelmas daisy sp.		√		O
<i>Atriplex prostrata</i>	Spear-leaved orache			√	O
* <i>Avena sativa</i>	Oat	√			R
<i>Ballota nigra</i>	Black horehound	√			R
<i>Bellis perennis</i>	Common daisy	√			O
<i>Beta vulgaris</i>	Sea beet	√	√	√	F
* <i>Briza maxima</i>	Great quaking- grass	√			R
<i>Bromus hordeaceus</i>	Soft brome	√	√	√	F
* <i>Calendula officinalis</i>	Pot marigold	√			O
<i>Carduus tenuiflorus</i>	Slender thistle	√			O
<i>Catapodium rigidum</i>	Fern grass	√	√	√	A
* <i>Centranthus ruber</i>	Red valerian	√	√	√	FLA
<i>Cerastium diffusum</i>	Sea mouse-ear			√	O
<i>Cerastium fontanum</i>	Common mouse- ear	√			O
<i>Cerastium glomeratum</i>	Sticky mouse-ear		√		O
<i>Cerastium semidecandrum</i>	Little mouse-ear		√	√	LF
* <i>Cerastium tomentosum</i>	Snow-in-summer	√			O
<i>Cirsium arvense</i>	Creeping thistle	√		√	OLF
<i>Cirsium vulgare</i>	Spear thistle	√	√	√	O
<i>Cochlearia danica</i>	Danish scurvygrass		√	√	O
<i>Convolvulus arvensis</i>	Field bindweed	√			O
* <i>Cotoneaster horizontalis</i>	Wall cotoneaster	√	√		R

Species	English name	Established	Intermediate	Pioneer	Abundance
<i>Crambe maritime</i>	Sea kale	√	√	√	FLD
<i>Crepis capillaris</i>	Smooth hawksbeard	√			O
<i>Crepis vesicaria</i>	Beaked hawksbeard		√		O
<i>Crithmum maritimum</i>	Rock samphire		√		O
<i>Cymbalaria muralis</i>	Ivy-leaved toadflax		√		OLF
<i>Dactylis glomerata</i>	Cocks-foot	√			O
<i>Daucus carota</i>	Wild carrot	√			O
<i>Dipsacus fullonum</i>	Common teasel	√			R
<i>Echium vulgare</i>	Vipers bugloss	√		√	F
<i>Elytrigia atherica</i>	Sea couch	√		√	OLF
<i>Elytrigia repens</i>	Common couch	√			LF
<i>Epilobium hirsutum</i>	Great willowherb		√		R
* <i>Erigeron glaucus</i>	Seaside daisy	√	√	√	F
* <i>Euonymus japonica</i>	Evergreen spindle	√			R
* <i>Euphorbia cyparissias</i>	Cypress spurge		√		R
<i>Festuca ovina</i>	Sheeps fescue	√			R
<i>Festuca rubra</i>	Red fescue	√	√		FLA
* <i>Foeniculum vulgare</i>	Fennel	√			R
<i>Galium aparine</i>	Common cleavers	√	√		O
<i>Galium mollugo</i>	Hedge bedstraw	√			R
<i>Geranium dissectum</i>	Cut-leaved cranesbill	√			O
<i>Geranium molle</i>	Dove's-foot cranesbill		√		R
* <i>Geranium pyrenaicum</i>	Hedgerow cranesbill	√			R
<i>Glaucium flavum</i>	Yellow horned poppy		√	√	F
<i>Glechoma hederacea</i>	Ground-ivy		√		R
<i>Hedera helix</i>	Ivy	√			R
<i>Holcus lanatus</i>	Yorkshire fog			√	O
<i>Hordeum murinum</i>	Wall barley		√	√	OLF
<i>Hypochaeris radicata</i>	Common catsear	√	√	√	F
* <i>Iris sp.</i>	Iris sp.	√			R
* <i>Kniphofia sp.</i>	Red-hot poker sp.	√			R
<i>Lavatera arborea</i>	Tree mallow	√	√		OLF
<i>Lepidium draba</i>	Hoary cress	√	√	√	LA
* <i>Leucanthemum sp.</i>	Daisy sp.		√		R
<i>Leucanthemum vulgare</i>	Ox-eye daisy	√			R
<i>Ligustrum vulgare</i>	Privet	√			R
<i>Linaria purpurea</i>	Purple toadflax		√		O
<i>Lolium perenne</i>	Perennial ryegrass	√		√	FLA
<i>Lonicera periclymenum</i>	Honeysuckle		√		R
<i>Lotus corniculatus</i>	Common birds-foot-trefoil	√	√		FLA
<i>Malva sylvestris</i>	Common mallow	√			O
* <i>Mecanopsis cambrica</i>	Welsh poppy	√			R
<i>Medicago arabica</i>	Spotted medick	√			O
<i>Medicago lupulina</i>	Black medick	√	√	√	F
<i>Medicago polymorpha</i>	Toothed medick	√			O
* <i>Mentha spicata</i>	Spearmint	√			R

Species	English name	Established	Intermediate	Pioneer	Abundance
<i>Parapholis incurva</i>	Curved hard-grass		√		LF
<i>Parietaria judaica</i>	Pellitory of the wall		√		LF
<i>Picris hieracioides</i>	Hawkweed oxtongue	√	√	√	FLA
<i>Pilosella officinarum</i>	Mouse-ear hawkweed	√			O
<i>Plantago coronopus</i>	Bucks-horn plantain	√	√	√	F
<i>Plantago lanceolata</i>	Ribwort plantain	√	√	√	F
<i>Plantago major</i>	Greater plantain		√		R
<i>Poa annua</i>	Annual meadow- grass	√			FLA
<i>Poa bulbosa</i>	Bulbous meadow- grass		√		O
<i>Poa trivialis</i>	Rough meadow- grass		√		O
<i>Polygonum aviculare</i>	Common knotweed			√	R
<i>Potentilla reptans</i>	Creeping cinquefoil	√	√		O
<i>Ranunculus repens</i>	Creeping buttercup		√		O
* <i>Rosa rugosa</i>	Japanese rose	√	√		RLO
* <i>Rosa</i> sp.	Rose sp.	√			R
<i>Rubus fruticosus</i>	Bramble	√	√		O
<i>Rumex crispus</i>	Curled dock		√	√	F
<i>Sambucus nigra</i>	Elder	√			R
<i>Sedum acre</i>	Biting stonecrop	√	√		F
<i>Sedum album</i>	White stonecrop	√	√		OLF
<i>Sedum anglicum</i>	English stonecrop		√		O
* <i>Senecio cineraria</i>	Silver ragwort	√	√	√	LA
<i>Senecio jacobaea</i>	Common ragwort	√	√		O
* <i>Senecio squalidus</i>	Oxford ragwort	√		√	OLF
* <i>Senecio viscosus</i>	Sticky groundsel		√		O
<i>Silene dioica</i>	Red campion		√		R
<i>Silene uniflora</i>	Sea campion		√		F
<i>Sisymbrium officinale</i>	Hedge mustard	√	√	√	O
<i>Smyrniolum olusatrum</i>	Alexanders	√			LF
<i>Solanum dulcamara</i>	Bittersweet		√	√	F
<i>Sonchus arvensis</i>	Perennial sow- thistle		√		O
<i>Sonchus asper</i>	Prickly sow-thistle	√	√		OLF
<i>Sonchus oleraceus</i>	Smooth sow-thistle		√		O
<i>Tamarix gallica</i>	Tamarisk	√	√		LF
<i>Taraxacum officinale</i>	Dandelion		√		O
<i>Trifolium campestre</i>	Hop trefoil	√			O
<i>Trifolium dubium</i>	Lesser trefoil	√			O
<i>Trifolium pratense</i>	Red clover	√			O
<i>Trifolium repens</i>	White clover	√	√		OLF
<i>Trifolium scabrum</i>	Rough clover	√	√	√	A
<i>Trifolium stellatum</i>	Starry clover	√			R
<i>Trifolium striatum</i>	Knotted clover	√			OLF
<i>Tripleurospermum maritimum</i>	Sea mayweed			√	O
<i>Tussilago farfara</i>	Coltsfoot		√		R
<i>Urtica dioica</i>	Nettle	√			R

Species	English name	Established	Intermediate	Pioneer	Abundance
Verbascum sp.	Mullein sp.		√		R
Veronica hederifolia	Ivy-leaved speedwell	√			R
Vicia lutea	Yellow-vetch	√			R
Vicia sativa	Common vetch	√			O
*Yucca sp.	Yucca			√	R

3.0 OTHER PLANT RECORDS

The following is a list of plant species previously recorded from Shoreham Beach but not seen in the 2009 survey. The sources of this data are two reports from the Sussex Biodiversity Record Centre, the first from 2001 (quoted in the Shoreham Beach LNR management plan 2006-2011) and the second from 2009. Most records date from the period 1995 to 2007.

This is unlikely to be a comprehensive list of all formerly recorded species and is likely to include species recorded from outside the LNR boundary. Species of particular biodiversity significance (locally or nationally scarce) are shown in bold.

Anthriscus sylvestris – Cow parsley
Atriplex portulacoides – Sea-purslane
Barbarea intermedia – Medium-flowered wintercress
***Calystegia soldanella* – Sea bindweed**
Cardamine hirsuta – Hairy bittercress
Carduus crispus – Welled thistle
Chenopodium bonus-henricus – Good King Henry
***Chenopodium murale* – Nettle-leaved goosefoot**
Cirsium palustre - Marsh thistle
Clematis vitalba – Travellers joy
Conium maculatum - Hemlock
Crataegus monogyna - Hawthorn
***Echium plantagineum* – Purple vipers-bugloss**
Eupatorium cannabinum – Hemp agrimony
***Frankenia laevis* – Sea heath**
***Galeopsis angustifolia* – Red deadnettle**
Galium verum – Ladys bedstraw
Lamium album – White deadnettle
Lamium purpureum – Red deadnettle
***Limonium procerum* – a sea lavender**
Linaria vulgare – Common toadflax
Matricaria discoidea - Pineappleweed
Papaver rhoeas – Common poppy
Plantago media – Hoary plantain
***Poa infirma* – Early meadow-grass**
Primula veris - Cowslip
Ranunculus ficaria – Lesser celandine
Rorippa austriaca – Austrian yellow-cress
Sagina apetata – Annual pearlwort
Sagina maritima – Sea pearlwort

Sedum spurium – Caucasian stonecrop

Senecio erucifolius – Hoary ragwort

Senecio vulgaris - Groundsel

***Silene nutans* – Nottingham catchfly**

Suaeda maritima – Annual seablite

***Trifolium suffocatum* – Suffocated clover**

Tripleurospermum inodorum – Scentless mayweed

Ulex europaeus – Common gorse

Valerianella locusta – Common cornsalad

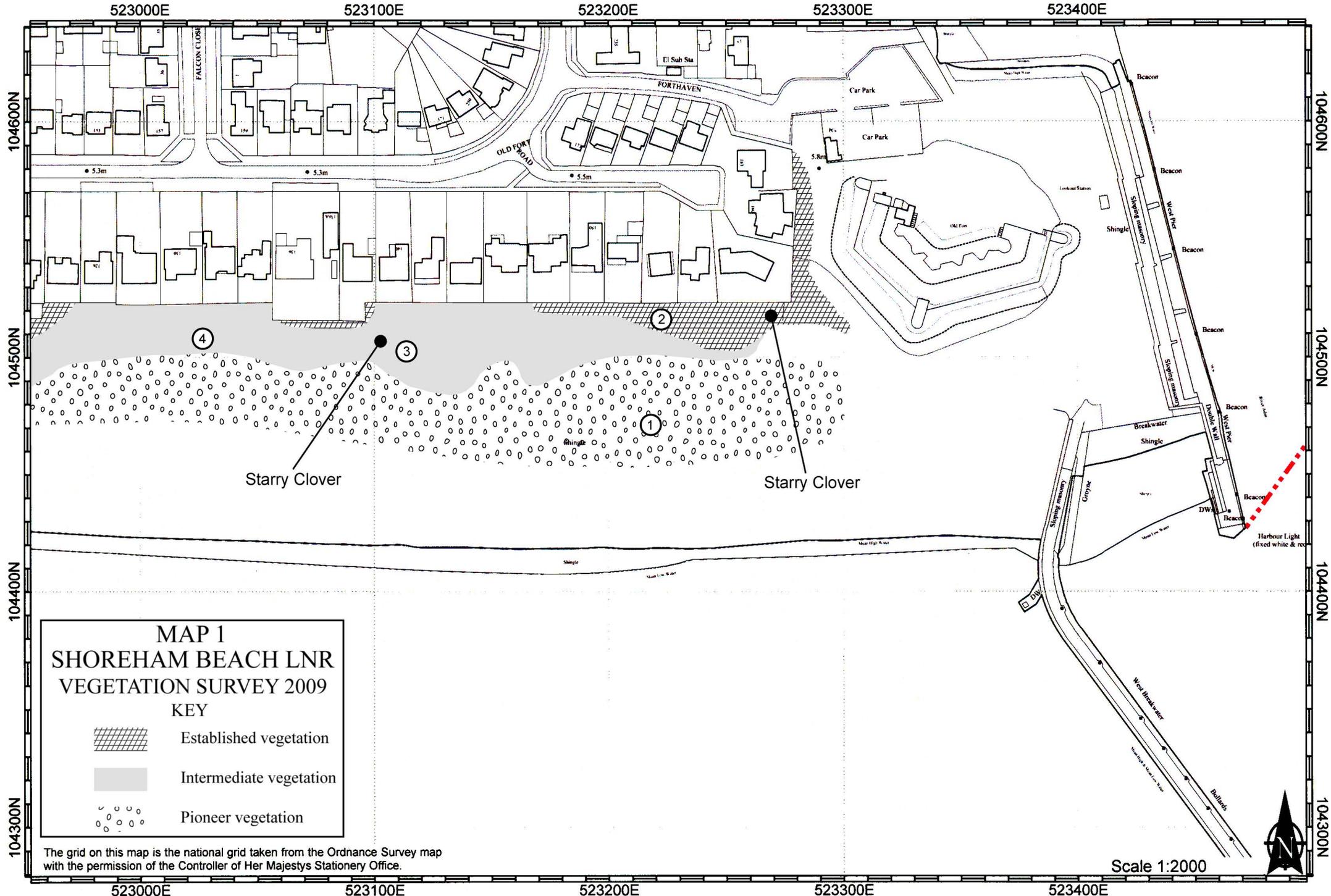
4.0 SURVEY TARGET NOTES (see maps for location of notes)

1. Extensive pioneer vegetation dominated by sea kale.
2. Wide area of established and intermediate vegetation with much silver ragwort, red valerian and false oat-grass. Starry clover is present at the eastern end of this area.
3. Red valerian prominent across this area of intermediate vegetation.
4. Red valerian and silver ragwort are dominant in this area and ivy-leaved toadflax is locally prominent.
5. A mosaic of short, established turf, taller grassy turf, tamarisk and pioneer vegetation. Yellow-vetch is present in this area.
6. False oat-grass is locally abundant along with red valerian in an open, intermediate community.
7. Pioneer vegetation has a mixture of sea kale, ragwort and red valerian.
8. Narrow fringe of established vegetation along property walls and a wide band of intermediate vegetation containing red valerian, false oat-grass and scattered sea kale which grades into a sea kale dominated pioneer zone. Oxford ragwort is locally prominent and there is a stand of wall cotoneaster on the edge of the established vegetation that should be removed before it spreads further across the shingle.
9. A wider area of quite grassy established vegetation behind the houses grades into a narrow fringe of intermediate vegetation. Red valerian is less prominent here though silver ragwort is present and ivy-leaved toadflax is locally abundant.
10. Short, grassy sward.
11. Silver ragwort is locally frequent in the sparse intermediate/pioneer zone whilst red-hot poker and seaside daisy occur near the garden boundaries.
12. Narrow established fringe of grassy vegetation along property boundaries adjoining an area of much sea kale and scattered red valerian.
13. Red valerian and silver ragwort are locally abundant and sea kale is fairly sparse. There is a well-worn path between the intermediate and pioneer vegetation zones and established vegetation adjoining properties and near the path.
14. A grass-dominated sward is present along the twitten.
15. Vegetation is quite sparse in this area with an established sward along property boundaries and path edges. Scattered sea kale, silver ragwort and seaside daisy occur.

16. Vegetation is very sparse here and concentrated along the foot of property walls. Sea kale and silver ragwort are present and 3 yucca plants have been planted on the shingle.
17. Short sward vegetation with patches of bare shingle and scattered pioneer vegetation on the margins.
18. Sparse established vegetation in front of the beach huts with patches of tamarisk scrub.
19. This area has a mosaic of vegetation with established turf along the road edge, very sparse tamarisk and pioneer vegetation with patches of established turf in front of the beach huts.
20. The top of the shingle ridge is quite sparsely vegetated but there are patches of short, established sward especially along the path edges. The landward side of the ridge has a band of intermediate vegetation with much red valerian and established vegetation along the road edge. Within this roadside area there are several non-native species including great quaking-grass, aquilegia, cotoneaster and seaside daisy.
21. The western end of the LNR has very little pioneer vegetation but a well-established sward on the roadside shingle and along path edges. The low turf contains many clovers with few taller herbs and has a different character from the tall herb community of the eastern parts of the LNR.

5.0 REFERENCES

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MAP 1
SHOREHAM BEACH LNR
VEGETATION SURVEY 2009

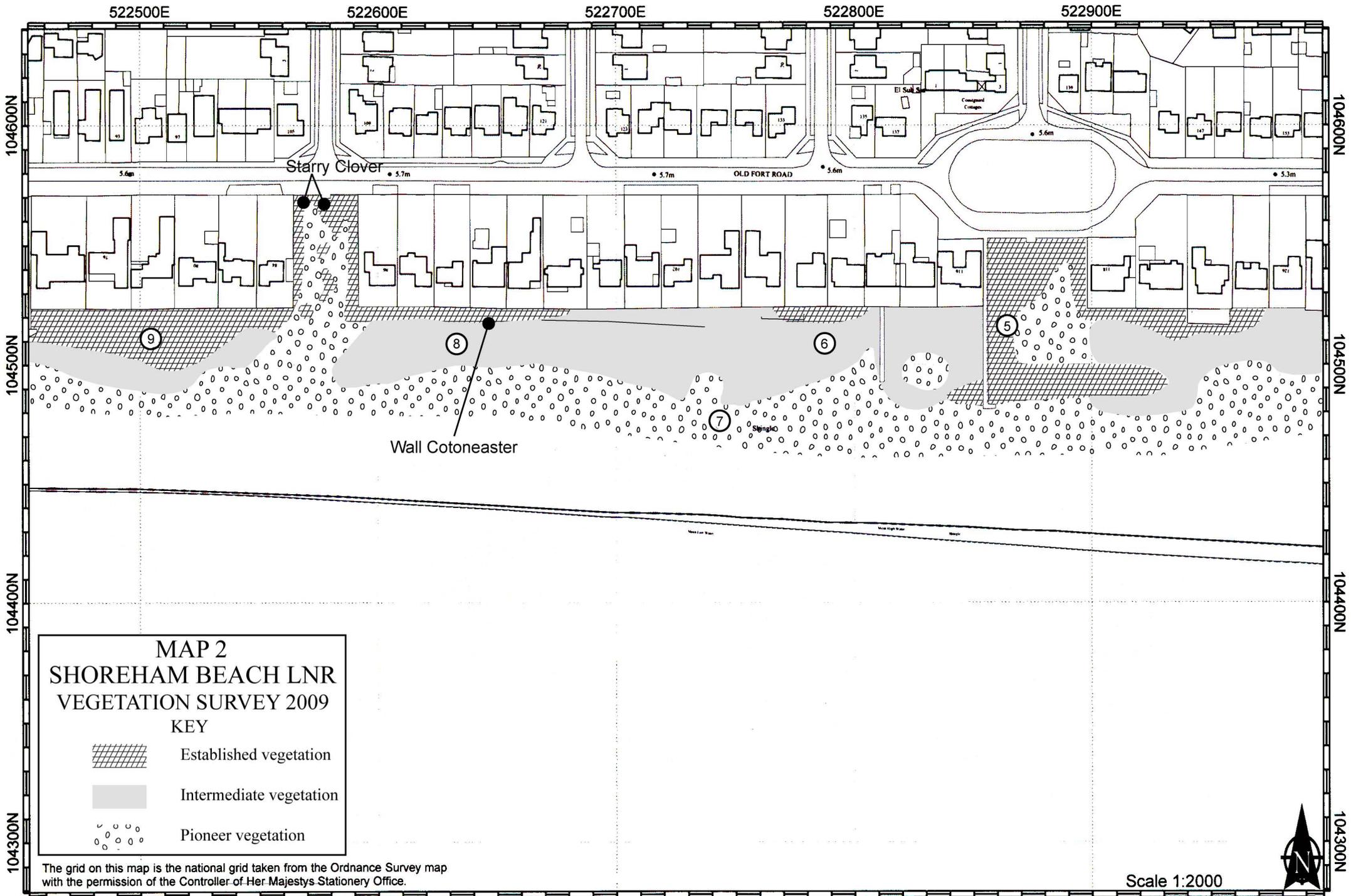
KEY

-  Established vegetation
-  Intermediate vegetation
-  Pioneer vegetation

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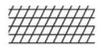
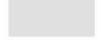
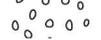
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MAP 2
SHOREHAM BEACH LNR
VEGETATION SURVEY 2009

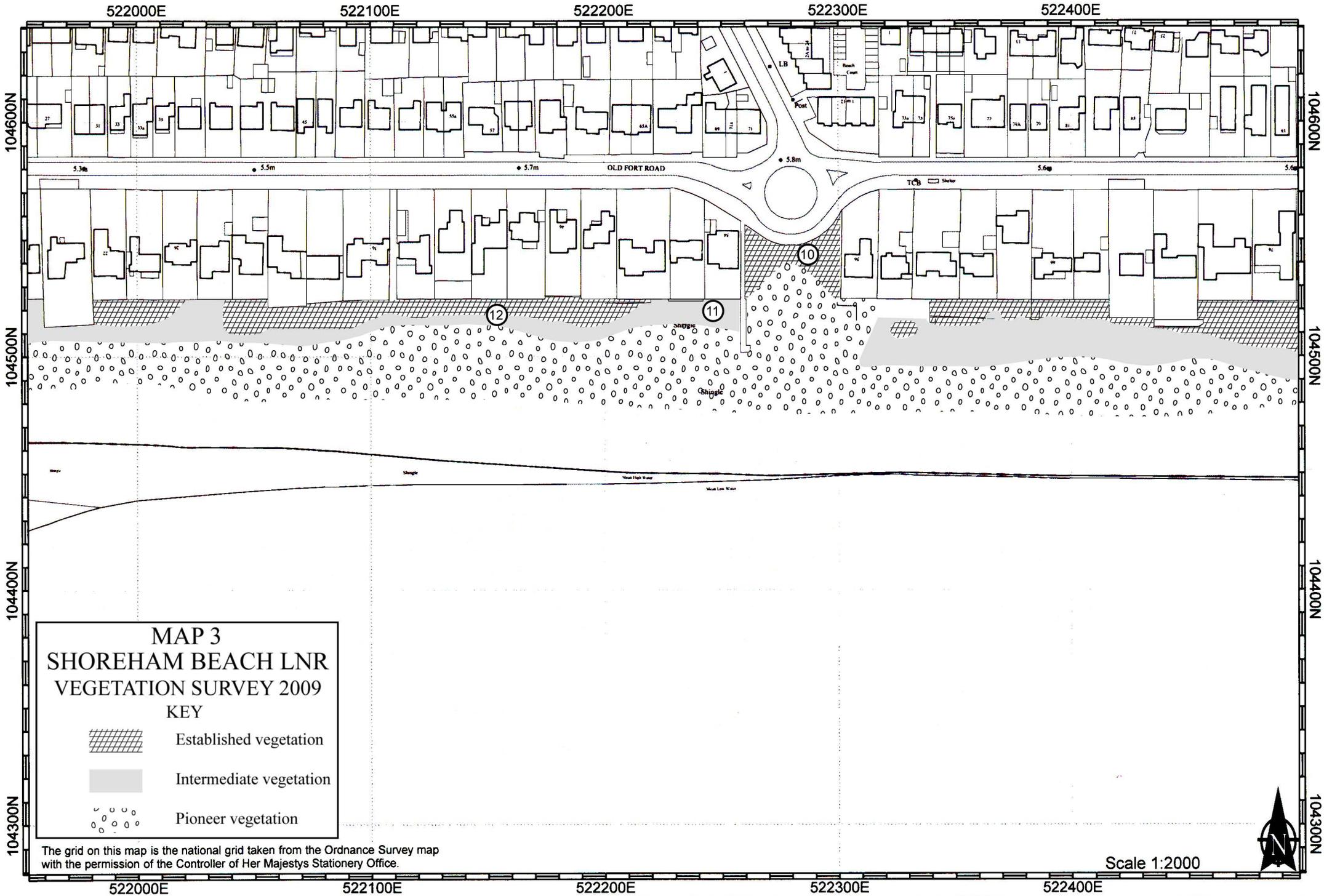
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-  Intermediate vegetation
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MAP 3
SHOREHAM BEACH LNR
VEGETATION SURVEY 2009

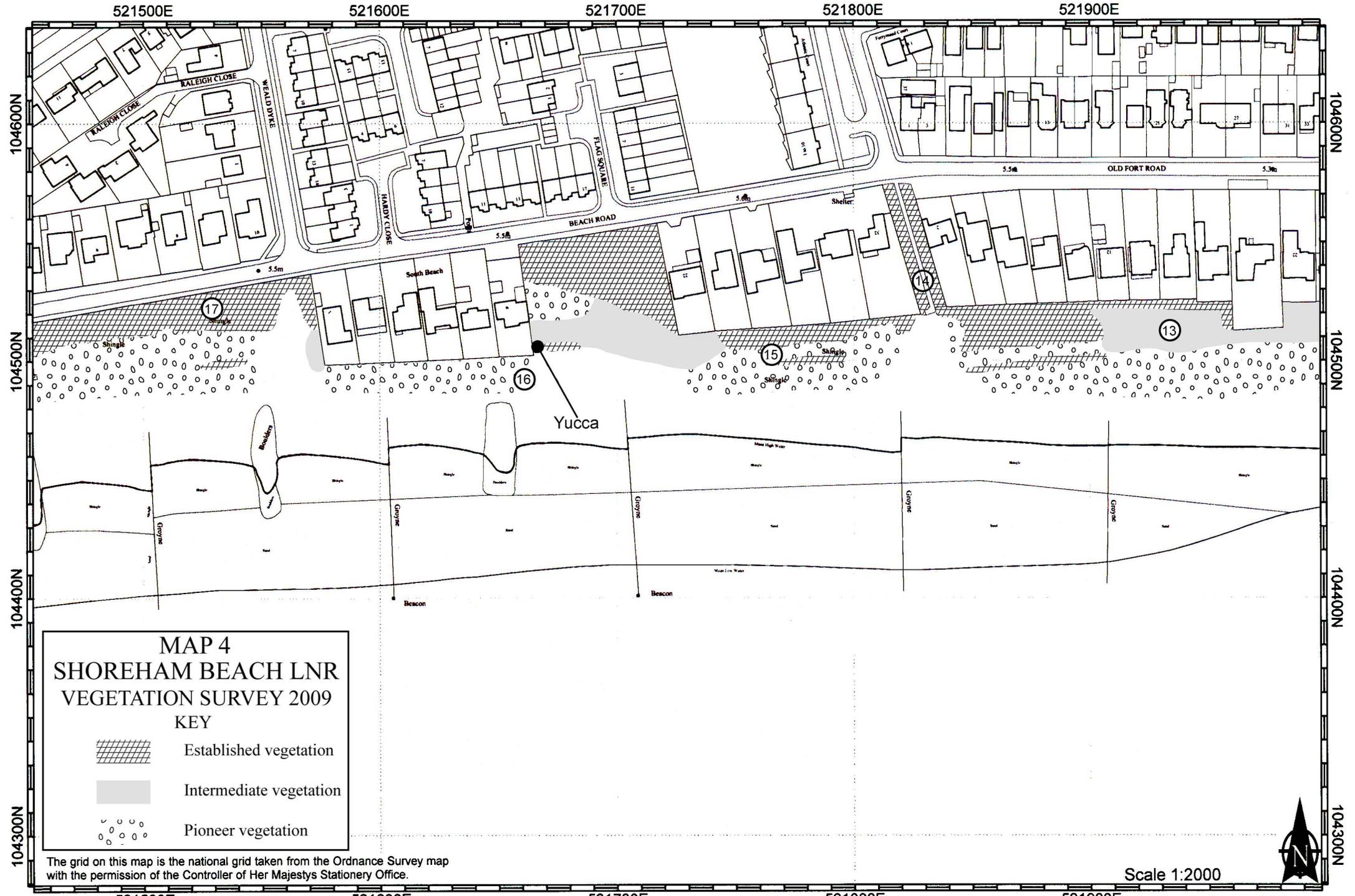
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	Established vegetation
	Intermediate vegetation
	Pioneer vegetation

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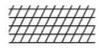
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MAP 4
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VEGETATION SURVEY 2009

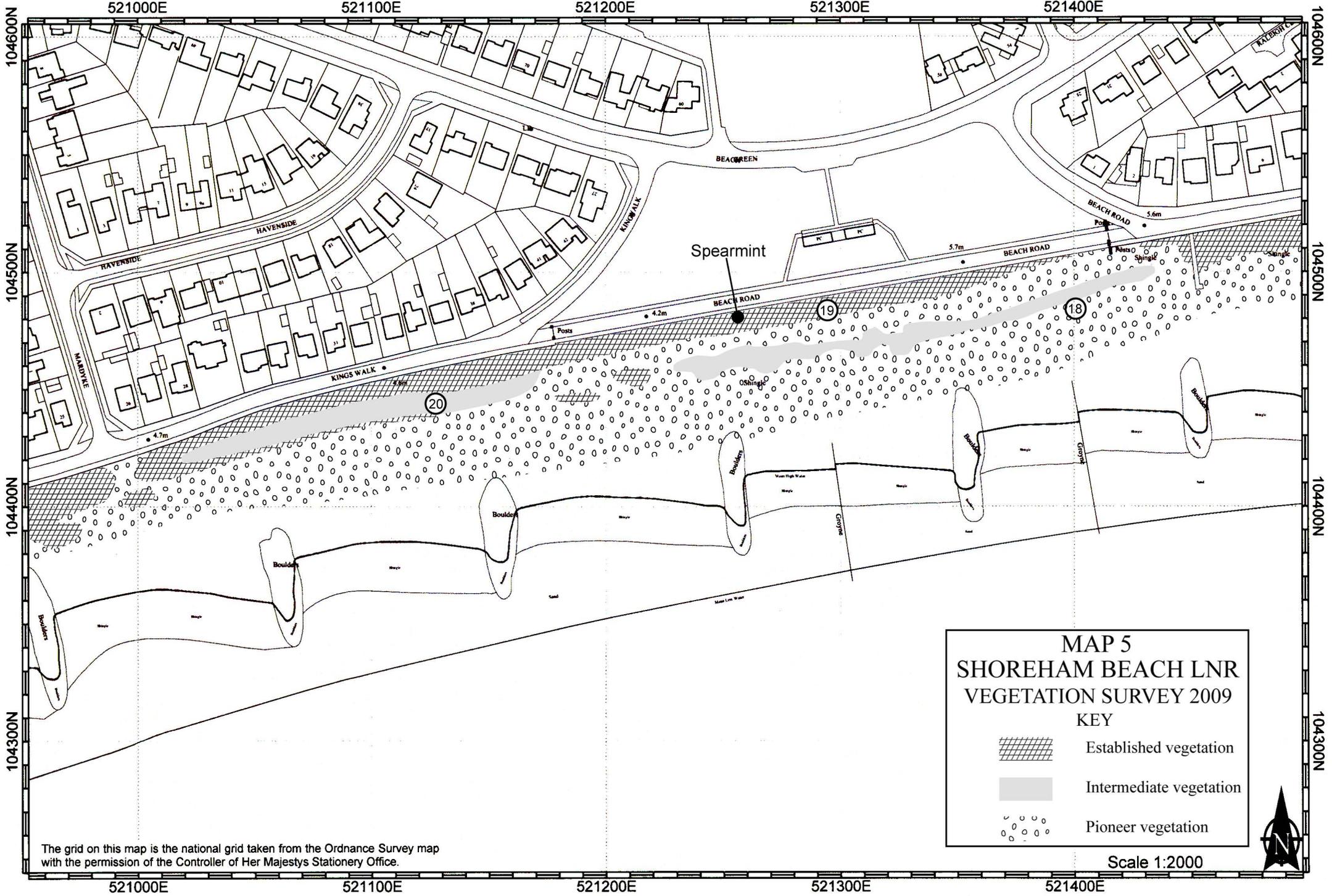
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-  Intermediate vegetation
-  Pioneer vegetation

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Scale 1:2000





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MAP 5
SHOREHAM BEACH LNR
VEGETATION SURVEY 2009

KEY

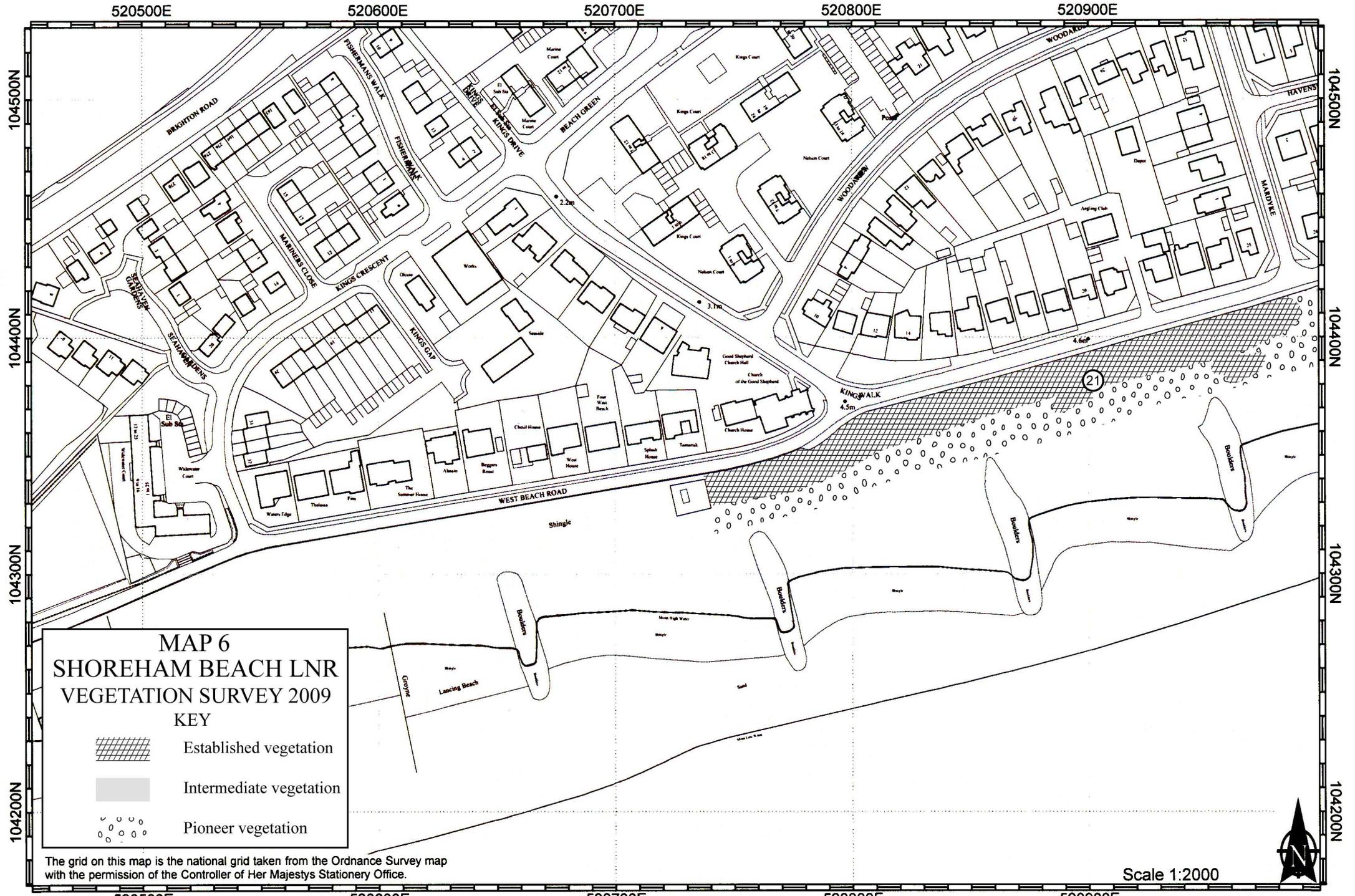
-  Established vegetation
-  Intermediate vegetation
-  Pioneer vegetation

Scale 1:2000



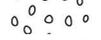
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MAP 6
SHOREHAM BEACH LNR
VEGETATION SURVEY 2009

KEY

-  Established vegetation
-  Intermediate vegetation
-  Pioneer vegetation

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Scale 1:2000

