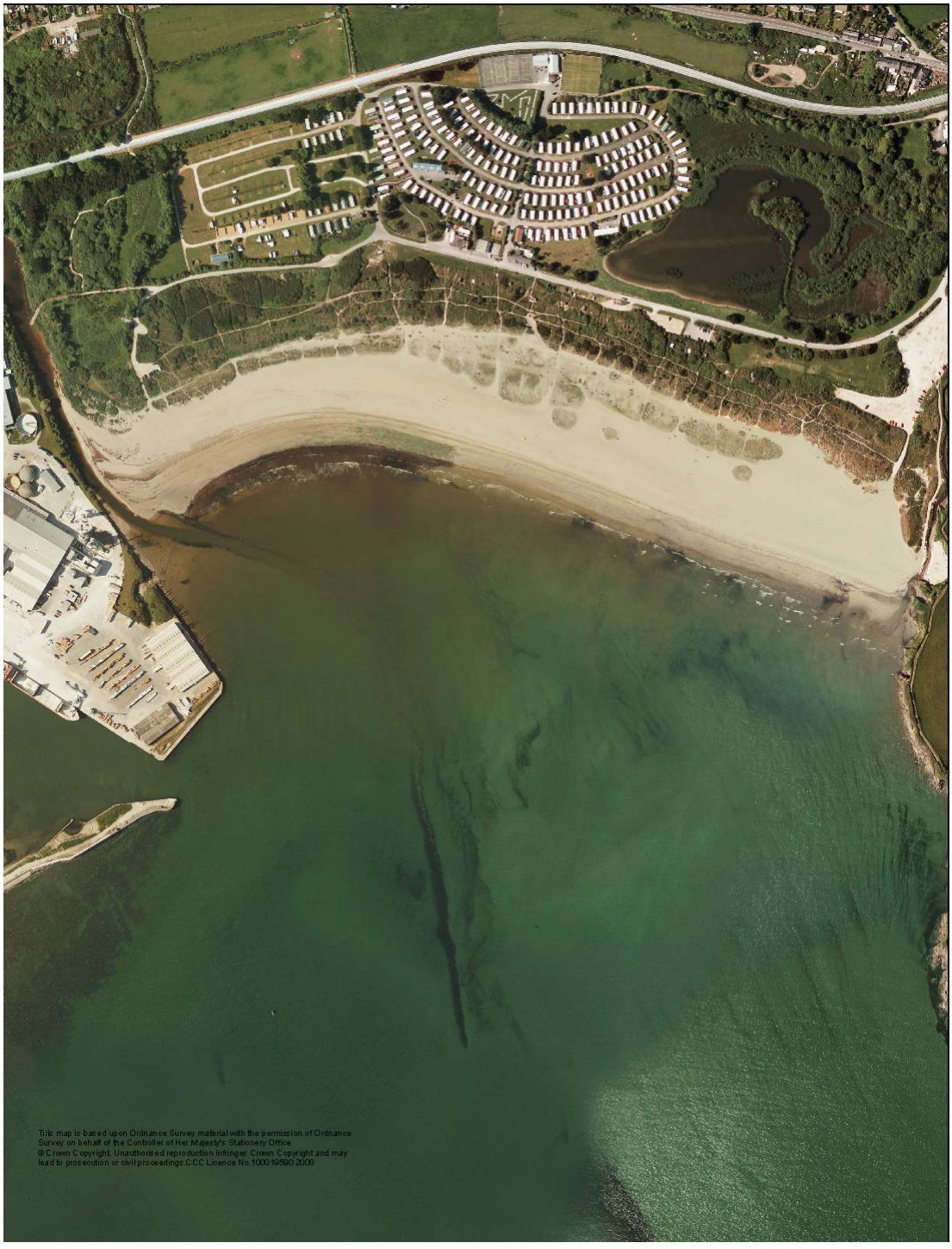
Managing the Countryside Estate

Par Sands Local Nature Reserve



PAR SANDS
MANAGEMENT PLAN

1 INTRODUCTION

The aim of this document is to give direction and consistency to the day to day management of Par sands and to clearly set out operational objectives for the next five years.

Generally speaking, the management prescriptions listed in section 5 of the plan are part of the ongoing management of the site and while some large capital works are hinted at, these will be the subject of separate documents and subsequent bids for external funding.

1.1 Vision Statement

To effectively and sustainably manage Par Sands Local Nature Reserve, in partnership with local communities, as a place where people can enjoy a diverse range of recreational activities, diverse wildlife and natural beauty.

1.2 Aims and Objectives for 5 year plan

1. **Site Management -** To manage the site to the highest possible standard; providing a safe environment for public enjoyment, whilst maintaining access and protecting and enhancing the natural and historic features

2. **Community Involvement-** To provide opportunities for local people to become involved in the management and maintenance of the site through volunteering, Partnerships and 'friends of' groups.

3. **Marketing and Interpretation-** To develop and promote the site for sustainable use to benefit the health and wellbeing of local communities and to improve peoples' interest and understanding of the site.

4. **Monitoring and Research-** To implement a detailed monitoring programme for the site and encourage further research and surveys to fill gaps in our present knowledge about the site.

2 DESCRIPTION

2.1 General Information

2.1.1 Location

Par Sands Local Nature reserve and Caravan Park is situated in Mid Cornwall on the south coast, 4 miles east of St. Austell, one of Cornwall's largest towns. (**Map 1**)

• Name	Par Sands
• County	Cornwall
• District (formerly)	Restormel
• Parish	Tywardreath
• Grid Ref	SX 085 533
• Area	31.2 ha (80.90 ha to mean low water)
• Conservation Status	Local Nature Reserve and County Wildlife site R3.3

2.1.2 Map coverage

1:50,000	Sheets 200 or 204
1:25,000	SX 05
1:10,000	SX 05 SE
1: 2,500	SX 0753 and SX 0853

2.2 Summary description

Par Sands is a beach and brackish lagoon on the south coast of Cornwall. The beach itself lies within a cove at the mouth of the river valley at Par, near St Austell. The river valley extends northward for some 10 kilometres into the china clay production zone of mid Cornwall. The small cove at Par Sands lies within the shelter of the wide embayment of St. Austell Bay. Par Sands and the bay have a southerly aspect. The headland of Dodman Point to the west gives the bay shelter from the prevailing south-westerly weather patterns.

The main semi-natural habitats are sand dune, swamp (reed bed), marine rock and sand complexes.

2.2.1 Significance in the area

Par Sands is a low lying beach situated in an urbanised landscape. To the west of the site lies Par harbour, once, an operating commercial port, exporting china clay, with associated modern industrial processing for the china clay industry (by the company Imerys). Now the port is closed to shipping and un-operational. The Industrial area on the opposite side of the river still processes China Clay though parts are to be the venue of the proposed Eco town. Behind the beach there is a low zone of dune habitat that

separates the beach from a caravan park, (leased from Cornwall Council), a lagoon of slow moving water, a reed bed and marshy area. Towards the western end are small areas of woodland, scrub and grasland. To the east the beach is enclosed by a natural low cliff that extends out onto the relatively open coastline of St Austell Bay.

2.2.2 Value to the Community

The site is easily accessible by car or on foot from the nearby town of Par and is highly valued, and heavily used, by the local community as a place of informal recreation. During the summer months it attracts large numbers of visiting tourists to its large sheltered beach.

2.2.3 Historic Value

The Landscape and ecology of Par Sands has been heavily influenced by the industrial past of the area. The various industrial works that were undertaken up river produced large volumes of silt and sand which have gradually filled the river channel that was once tidal to St Blazey, some 2 kilometres upstream from the Par Sands beach. Par harbour was “reclaimed” in 1828 from the extensive sand banks that had developed at the river mouth. A breakwater was constructed, possibly around 60 years ago, to act as a breakwater and to channel sediment further out to sea. It is currently a long angled strip of stable boulders and rocks that enclose the western section of the beach.

The sediments that form the extensive sand flats at Par Sands are composed largely of residue from the china clay industry, giving the sand a distinctive white colouration.

A number of World War Two installations have been recorded at Par Dunes, including gun emplacements and coastal defences. It appears that all of these features have been removed, although it is possible that some concrete platforms may remain. (**Map 4**)

Dune sites in Cornwall are often rich in archaeological remains, with well preserved sites and artefacts. Although there are currently no known records of early sites at Par Dunes, the potential remains for them to be uncovered following storms

2.2.4 Land Tenure

Par Sands is partly owned by Cornwall Council (previously Restormel Borough Council) and partly leased (the large car park) from the Rashleigh Estate. The southern boundary of the Reserve is mobile and legally extends to the mean high tide line, wherever this happens to be. There is no registered owner of the area of the beach between mean high and mean low water and it is assumed to be the Duchy of Cornwall. (**Map 3**)

3 ENVIRONMENTAL INFORMATION

3.1 Physical Information

The Par Sands site comprises of the main beach and a brackish lagoon, with associated wet woodland, willow car and reed bed, separated by a sand bar which extends the width of the site in an east-west direction. The bar supports a sand dune system. To the west there is an area of plantation woodland and an area of semi-natural grassland.

3.1.1 Local climate

Par Sands is situated in an area of temperate maritime climate with relatively high rainfall and mild temperatures, rarely dropping below 0°C or rising above 20°C

3.1.2 Hydrology

The Polmear stream, which feeds the Lagoon and wetland, runs down from an agricultural valley to the north-east. It flows along the eastern edge of the site where it empties into the sea. There are small channels to the east of the lagoon that carry fast flowing water away from the swamp habitat to a sluiced section near the road, under the road and out to sea at the eastern edge of the site. The stream bed at the east of the site shows signs of high nutrient levels with abundant algal growth.

3.1.3 Geology and soils

The site lies on the Meadfoot Beds of the Lower Devonian. These beds are overlain by alluvium to the north of the sand dune system and overlain by sands to the south. The soils throughout the site are neutral to moderately acid (CSD, 1990).

3.2 Biological Information

Flora and Fauna overview

3.2.1 Significant Habitats (Map 6)

The important (key) habitats at the site have been selected using the following criteria:

- They have been identified as priority habitats by European (European Habitats Directive) and national (UK Biodiversity Action Plan) criteria

or

- They play a major role in the coastal dynamics of the site.

The key habitats of the Par Sands Local Nature Reserve.

- Dune (open dune and fixed dune)
- Open Water Transition Lowland Fen
- Littoral Habitats

The quality of these key habitats has been assessed provisionally (in the absence of a baseline) by using the national standard as described by the Joint Nature Conservancy Committee in the Guidelines for Common Standards Monitoring (2005). (Par Sands Ecological Assessment Report 2005 (Spalding Associates Ltd)).

The results are summarised as follows:

Habitat	**Condition summary**
Fore Dunes (Strandline, Embryo and Mobile Dunes).	**Unfavourable** due to presence of non-natives
Grey Dunes (Fixed Dune Grassland)	**Unfavourable** due to restricted zonation, lack of short turf, presence of non-natives and frequent scrub
Pond and Wetland (Open Water Transition Lowland Fen)	**Unfavourable** due to indicators of negative change –scrub invasion of reed bed and over grazing by wild fowl
Tidal Beach Zone (Littoral Habitats)	Probably **favourable** though no baseline data exists although non-native species are present and strandline is removed through the summer

The natural pressures that impact on the ecology of the site can be summarised as follows:

- Shelter from south westerly weather patterns that prevail on the south coast
- An extensive near-shore source of sand blown on shore, and slightly along shore, by prevailing winds and currents
- a possibly diminishing supply of sand from industrial sources which has created the dune and beach
- predicted increased storminess and sea level rise

The following factors are identified as the main anthropogenic pressures affecting the natural dynamics of the site:

- recreational pressure
- localised trampling erosion and loss of sand cover on the dune
- restriction of the dune system
- presence of invasive non-native plant species
- localised pollution
- removal of strandline habitat
- trampling of the rocky shore

All the habitats present on the site have been recorded, mapped and measured; each habitat is described in detail in the Par Sands Ecological Assessment Report 2005 (Spalding Associates Ltd)

3.2.2 Significant Species (Map 6)

A full Species list can be found in appendix 1 of the Spalding Associates Ltd Par Sands Ecological Assessment 2005 (Appendix **6.2.2**)

In addition more recent recordings by members of the public can be found on the Friends of Par Beach website at

http://parbeach.com/AboutUsAndParBeach/Wildlife/Wildlife.html

The following Red Data Book species have been found at the site:

- Greek Sea Spurrey *Spergularia bocconei*
- Prostrate Toadflax *Linaria supina*
- Sea Knotgrass *Polygonum maritimum*
- An agaric *Agaricus placomyces*

The following scarce, protected or priority terrestrial species have been recorded at the site:

- Mossy stonecrop *Crassula tillaea*
- Silky Snail *Ashfordia granulata*
- A micro moth *Psychoides filicivora*
- Silky Wainscot *Chilodes maritimus*
- Shore wainscot *Mythimna litoralis*
- Otter *Lutra lutra*
- Lesser Horseshoe Bat *Rhinolophus hipposideros*

Flora

Records were obtained from Cornwall Wildlife Trust files, the Cornish Biological Records Unit and Margetts and David (1981). 80 plant species

have been recorded at the west end of Par Sands and 106 at the eastern end (CBRU).

Greek Sea-spurrey (*Spergularia bocconii*) is nationally rare and listed in the British Red Data Book. 50 plants were recorded by R Murphy in 1993 on the site of the old rubbish tip at SX 079533. It is only known from two other sites in Cornwall (Perring and Farrell 1983), and is probably an introduced species (Margetts and David 1981). Ray's Knotgrass (*Polygonum oxyspermum*), a species which until recently was considered nationally scarce but is now of only local importance, was recorded on the foredunes in 1994. Three other Red Data Book species Prostrate Toadflax (*Linaria supina*), Balm-leaved Figwort (*Scrophularia scorodonia*) and Isle of Man Cabbage (*Rhynchosinapsis monensis*) have been recorded on the nearby Caravan Park and harbour, but not within the proposed LNR boundary.

The nationally scarce moss *Pottia wilsonii* has been recorded in the vicinity by J Paton prior to 1980 but its current status and location is unknown.

Two species are considered to be of county importance as they occur at 6 or less sites in Cornwall. Lesser Pondweed (*Potamogeton pusillus*) and Beaked Tasselweed (*Ruppia maritima*) have both been recorded from the lagoon.

Birds

The site is of county importance for the number of species of wintering and passage birds. Over 200 species have been recorded. The main focus of interest is the lagoon but the intertidal zone is also important. 100 Coot (*Fulica atra*) have been recorded wintering at the lagoon, a population of county importance. The reedbeds form an important roost for wagtails, hirundines and starlings. The nationally rare Cetti's warbler (*Cettia cetti*) which is listed in the British Red Data Book has been resident since 1988 and confirmed as breeding in 1990. Bitterns were also present over the winter of 2010/2011.

More recent sightings can again be found on the FoPB website on the blogg of local birder Mark Whittaker.

Invertebrates

26 species of butterfly have been recorded in the last ten years. Dragonflies and damselflies are uncommon around the lagoon presumably because of its brackish nature.

3.3 Recreational Information

The Site is used extensively and highly valued by local people, mainly for dog walking and other informal recreational activities. In addition, large numbers of beach goers use the site during the summer months. Numerous informal, and formal, tracks and paths criss cross the site. Many other visitors come to feed ducks, swans and geese or to watch the wading birds which frequent the Lagoon. Historically a privately run café operated on the site from a leased,

council owned, building. This building is currently empty though adjacent to it the caravan park currently operate a mobile café unit. A number of privately owned beach huts still exist on the site

3.4 Management assets

3.4.1 Management Structure

The Par Sands site falls within the portfolio of the Cornwall Council Environment Service, part of the Environment, Planning and Economy directorate. The Head of the Environment service is currently Jon James. David Attwell is the Principle Countryside Officer directly responsible for this site, though the day to day management of the site is delivered under contract by Serco, their ranger, Paul Mason, being the first point of contact.

3.4.2 Staff

Paul Mason, the Serco Ranger spends approximately 1 day per month **(?)** managing the site

3.4.3 The Par Sands Partnership

A Par Sands Partnership has yet to be officially formed though officers from Cornwall Council regularly meet with members of the Parish Council to provide a public and community perspective on the management of the site.

3.4.4 The 'Friends of Par Sands' group

The Friends of Par Sands had its inaugural meeting 2009 and has over 200 members made up of mainly local residents, regular visitors and owners of caravans from Holiday Park. The group interest is the long term integrated management of the beach and promoting awareness of the value of the beach, in all its functions, for all people. Its committee meet quarterly to discuss arising issues.

More information about the group, along with its constitution can be found on their website;

http://parbeach.com/index.html

3.4.5 Resources

The site currently has no designated budget, though the Friends of Par beach are currently pursuing a Seaside Towns grant for capital works and Cornwall Council are looking at HLS funding.

3.4.6 Buildings and Structures

Most of the permanent buildings on the site are on the Caravan Park and part of its infrastructure. However, there are a number of structures on the site which are not within the Caravan Park's leasehold.

Disused Café building

The Café premises are currently unused and boarded up. Cornwall Council would be keen to see the café reopened, possibly by a local business interest.

Toilet Facilities

The Car Park opposite the lagoon has a small toilet block. These facilities are current cleaned by a private contractor, managed by Serco.

Beach Huts

Scattered along the back of the dunes there are a number of, non residential, privately owned, wooden beach huts. Cornwall Council's policy is not to replace any huts which fall into disrepair and not to permit the erection of any new such structures.

Car Park Operative's hut

This small wooden structure was recently painted by Caravan Park staff to improve the look of the entrance to the site. This could be a good place to make available any interpretation about the site

Concrete Shelter in the Dunes

Situated in the middle of the dunes directly opposite the old café the structure provides sheltered seating (2 benches). It has been suggested that it be demolished to improve the access to the high point of the dunes for Wheelchairs, though the Historic Environment service should first be consulted before any works commence

4 EVALUATION

Significant Features, Habitats and Species

4.1 Health and Safety (and other Statutory Duties)

Cornwall Council, as the land owner, has a duty to comply with relevant Legislation, including that regarding the Health and Safety of members of the public visiting the site and Cornwall Council staff working on the site, the protection of Habitats, Species, Watercourses and Historic and Landscape features.

Management priorities

- Maintain a safe environment for all users, ensuring that Health and Safety procedures for the site meet with relevant Health and Safety legislation.
- Carry out regular site inspections, recording the condition of structures, surfaces, vegetation and litter.
- Undertake liaison with relevant officers, both within and external to, Cornwall Council to ensure compliance with relevant environmental legislation.

4.2 Access and Recreation

Unrestricted access is encouraged across the site and numerous informal footpaths criss-cross the dunes and woodland. The Southwest coast path runs through the site and number of permissive footpaths run through the Caravan Park connecting to the two Public Rights of way to the north of the site. (**Map 6**)

The 'Par Beach to St Blazey' Clay Villages multiuse trail starts on the site and is designed to accommodate horse riders and cyclists as well as pedestrians. This network of predominantly off road trails connects the site of Par Sands to the Cornish Way Cycle network, the towns of St. Austell, Par, St. Blazey and Bugle as well as the Eden Project and the Wheal Martyn Clay Villages visitor centre. (**Map 7**)

The access road to the Caravan Park is open to all traffic and runs almost the whole length of the site. Three car parks are situated along its length and charges apply during the summer months (payable near the site entrance to a member of staff). The car park closest to the entrance, at the eastern end of the site, is the largest capable of accommodating around 200 cars. Towards the middle of the site, opposite the Lagoon is an additional car park, with toilet facilities and space for around 20 cars. The third car park is situated at the

end of the access road, is the only parking on site affording sea views and can accommodate around 10 cars.

Immediately adjacent to the Caravan Park entrance is a building which, until recently, was leased from the Council by a local private business and run as a café/beach shop. This building currently stands empty and Cornwall Council would wish invite expressions of interest to see the café re-opened. In fact, a recent public consultation (appendix **6.2.1**) shows that one of the main aspirations for the site of the local community is to see the café reopened (See **4.8** Community Engagement). Currently there is a mobile unit located next to the existing café building serving teas, coffees and some snacks. This facility is run by the Caravan Park.

At the far western end of the site is a concrete, high water, slip-way entering the water part way up the river. There is evidence to suggest that this may have been built during WWII as part of other defences once present on the site. The slip is still usable and Personal Rescue Equipment is installed nearby. Although the slip is rarely used appropriate safety signage should be investigated

The beach is used for a variety of different watersports throughout the year. In particular, Kite surfing/boarding/buggying can potentially cause conflict with other beach users due to size and rigging of their equipment. Users are generally considerate (and insured) but it may necessary to 'zone' the beach at busy times.

Management priorities

- Maintain the condition of access roads and car parks to promote the site as a safe, clean and well managed facility, discouraging anti-social behaviour
- Maintain Public Rights of Way and other permissive access across the site
- Manage access to encourage appropriate use by different user groups
- Cornwall Council's Maritime service to monitor the condition of the slip and Personal Rescue Equipment (Andy Brigden) and will erect safety signage where appropriate

4.3 Sand Dunes

The dune system is still accreting. The 1946 aerial photo shows dune vegetation extending only as far as the current access road, but it now extends 100-150m seaward of this. The high tide mark has moved about 100m seaward since 1969. This is unusual as most sandy coastlines have been retreating in the last 100 years (Doody 1985). The dune system forms an important flood defence, as low lying ground to the north was an arm of the sea before the sand bar formed at the end of the 18th century, and flooded regularly until the late 1970's.

Sand dune habitat

The dune habitat at Par Sands is a bay dune system, within its own cove location. It is a narrow but continuous dune formation across a coastal valley mouth and although it is formed at least partly by industrial waste it supports a good open dune habitat. The severe restriction and modification of the hind dune areas (ie the fixed dune grassland and the wet areas) detracts from the value of the habitat as a dune system but there is a valuable habitat resource that has been exploited by native species. The profile of the dune is of local interest due to its formation across a relatively broad river valley, it is on low lying ground so that the associated wetland habitat is integral to the geomorphology of the site. This is an uncommon complex of habitats in Cornwall.

At Par Sands the dune is closely integrated with the urbanised and recreational use of the site. The landward dune ridge has scattered beach huts, car parks and a toilet block along its back edge and the grass has been modified by mowing. In addition there is extensive growth of non-native invasive shrubs which are gradually expanding. Overall the dune system is of moderate nature conservation quality. However it does contain many of the functional elements of a dune system, and has a good internal dynamic robustness in the open habitat.

The open dynamic habitat suffers both natural and anthropogenic pressure in the form of coastal erosion and trampling but, balancing that, there is an active and vigorous growth of both Sand Couch and Sand Sedge on the front faces where blown sand is being trapped into open dune habitat by vigorous pioneer vegetation growth.

The strandline vegetation is very limited in extent and has been restricted to the edge of the dune system by the mechanical beach cleaning that is undertaken during the summer months.

Embryo dune formations probably never survive long enough to establish, as a direct result of the beach cleaning and trampling pressure on the upper beach.

Light trampling is helping to maintain the valuable open dune habitat in the yellow and grey dune zones and is currently at a level that benefits the dune dynamics: although there is localised erosion at the east end of the beach and at scattered access points there are no signs of excessive erosion.

There is an area at the centre of the site where the grey dune is being over stabilised by the growth of the invading non-natives such as buckthorn and Japanese rose: this reduces the ability of the dune to withstand erosion events and the growth will gradually degrade the dune unless it is managed.

<u>Bare sand (non-littoral)</u>

All the bare sand within the site is potentially important to the quality and functioning of the dune system. The sand's grain size is considered medium with at least some sea salt which disappears with weathering. There is a very narrow zone of bare sand at the beach top, between the high water mark and the dune zone, and there are smaller areas further into the dune. This habitat

is important in itself as it provides potential open habitat for animal species, particularly certain coastal invertebrates, and plants such as those pioneer species that occur on the seaward edge of dune and on strandline systems. In general the sands are of good quality as habitat elements. Bare sand habitat is being degraded where bonfires are being lit, largely because of the materials that are being burnt.

Summary

At the broader scale of managing the coastal habitat at Par Sands the changes and characteristics of the dune system need to be considered and allowed for. The extensive areas of sediment in the bay are likely to continue to be moved onshore by the prevailing winds and currents and will be deposited somewhere along the fringing habitats. The dune system provides a means of managing the blown sands on this partially urbanised area where there are strong economic (tourism) forces driving the coastal interests. The management of the sand budget using the soft engineering option of a dune system to stabilise blown sand is a cost effective solution.

Dune management recommendations

It is important for the short and mid term viability of the dune that the extensive stands of scrub, particularly the Sea Buckthorn and Japanese Rose, are controlled and wherever possible eliminated. In places these plants have become so well established that any control should be undertaken gradually with the effects and succession monitored closely to ensure recovery of the dune habitat.

The following are possible actions that could be considered to manage the dunes effectively i.e. in a way that allows the natural processes to keep the dune in a robust dynamic state whilst being visually attractive.

Management of fore and yellow dune habitat

The current fore and dune habitats at this site are relatively robust but it is recommended that they are monitored for erosion or change in profile which indicates increasing erosion or loss of sediment input. In addition it is recommended that the non-natives species are controlled in the fore and yellow dune areas.

Management of grey dune

This habitat requires the greatest intervention by removal of invasive non-natives since it is in this area that there is the greatest loss of dune habitat. Control of European gorse should also be undertaken at selected sites. Maintaining light trampling across the habitat is beneficial to retain some open sand component.

Dune grassland

This habitat is largely absent from the hind dune although some cultivated grassland retains some dune grassland character. In the long term it may be necessary to allow the dune to build back onto this habitat, by allowing sand to blow onto the turf.

Dune scrub and non-native scrub

Management of dune scrub is an issue that is particularly important at this area of dune because so much of the habitat has been invaded by scrub, resulting in the loss of valuable open dune habitat. Control to prevent any further expansion should be regarded as the minimum target.

Bare sand (non-littoral)

These sediments are key to the dynamic robustness of the system. The bare sand ensures open areas for the constant succession of sand fixing/dune stabilising plant species to colonise and for fauna such as specialist insects to occupy. Within the open dune and fixed dune the status of the sand/vegetation ratio requires regular monitoring to ensure that bare sand habitat is retained at a level that can enhance the dune habitat. There is no set ratio but assessment of the vigour of the key plant species is a good guide. This may be achieved as part of the recommended monitoring programme. Managing the quality of the bare sand is largely a matter of limiting pollution from impacts such as camp fires and anthropogenic rubbish, including the removal of marine litter.

The sand above the reach of tidal waters ensures open areas for the constant succession of sand fixing/dune stabilising plant species to colonise and for fauna such as specialist insects to occupy.

Management priorities

- Control scrub, and other invasive species to encourage recovery of grey dune and dune grassland
- Carry out trial control areas of Japanese Rose in the fore dunes
- Maintain areas of bare sand on grey dune habitat

4.4 Pond and Wetland

The reed bed at Par Sands is a significant area of habitat. In general wet reed beds are left undisturbed by the public, although as they dry out, which areas of the Par beds are doing, they become more attractive. Otter has been known to visit the wetland area at Par Sands and the habitat is of at least moderate quality. In addition this is a priority habitat within the Biodiversity Action Plan for the UK. However there is an increasing succession to scrub, willow carr and woodland at the edges which will draw off the water table and

change the reed bed to a tall herb fen. Reed beds such as that at Par Sands are very productive and produce large volumes of vegetable litter. They also can absorb at least some nutrients from enriched waters such as appear to occur on the east side of the site. The habitat is therefore valuable in providing habitat diversity at Par Sands, possibly for at least occasional visits by Otter and is of good quality.

Summary

Management of the reed bed, the open water transition habitat and the hydrology should reflect the importance of the site for bird use, otter use, bat use and as the habitat for the reed moth, Silky Wainscot, since there is no particular botanical interest.

The aim should be to maintain the reed beds against the natural tendency to dry out and develop into scrub and woodland, whilst retaining the open water habitat by preventing encroachment of reed. In order to prevent the gradual drying out of the reed bed it is necessary to establish a programme of active management and the various habitat needs of the reed-bed birds, the otter and the moth should be accommodated within the programme. For example the requirement of the Silky Wainscot moth larva for dead reed stems indicates the need to retain stands of dead vegetation when reed cutting is being undertaken.

The two management processes which can maintain reed dominance are maintenance of high water levels and removal of reed top growth. It is important that the annual pattern of fluctuation in water levels is consistent from year to year, so regular maintenance of the sluicing system is vital. Water levels must be kept sufficiently high to maintain reed dominance by discouraging the invasion of broad leaf herbs. The water levels should be maintained at a high enough level during the summer to prevent the reed bed drying out (which would allow scrub species to establish) but not so high as to harm the invertebrate community. Water channels should also be kept free of vegetation to maintain the flow of water through the reed bed. In the summer of 2011 water levels became so low that a number of fish fatalities and algal blooms were recorded.

Removing reed top growth reduces the build up of the reed litter; the removal slows the rate at which the reed bed dries and is invaded by scrub. Reed cutting in winter is the more traditional cropping method and is the preferred method to maintain good stands of reed.

In recent years the numbers of Canada Geese overwintering on the site has greatly increased. Due to the feeding habits of these birds the size of the reed bed has been reduced and it may be necessary to control their numbers to prevent the loss of this habitat.

The control of scrub invasion is another important aspect of the management. Removal of scattered scrub species from the reed bed will slow down the drying out of the reed bed and should be undertaken at Par Sands. A small proportion of scrub and carr should be retained on the periphery, for structural diversity.

There is a natural tendency for wetland areas such as this to accumulate silts from the inflow of water. These silts increase the gradual drying out of the wetland. Wetland management generally includes removal of silts to maintain water flow and water depth and can be included in reed and scrub clearance works.

To the east of the Polmear stream is another area of reed bed. Its location on the opposite side of the stream prevents public access and, more importantly, dogs. Though there are no areas of open water in this habitat it potentially acts as a valuable sanctuary for wildlife during busy times.

Management priorities

- Continue to manage the lagoon and surrounding habitats as an ecological feature
- Monitor and maintain water levels to prevent encroachment of broadleaf species
- Control scrub on the wetland
- Monitor the numbers of Canada Geese and investigate possible control

4.5 Beach (Littoral) Habitats

Marine littoral

The marine littoral habitats at Par Sands are considered to be of moderate diversity due to the presence of exposed and moderately exposed shores in conjunction with fully marine, variable and reduced salinity environments, all within a relatively small area. Species diversity is only moderate due to the limited extent of rocky shore habitats and the dominance of habitats that typically support moderate to low species diversity. The area of highest species diversity is across the lower shore along the eastern fringe of this site, although this area showed signs of nutrient enrichment from an unknown source. Of possible note is the small, upper eulittoral cave wall in the east of this site which is dominated by the red algae *Rhodochorton purpurea*, a community type that it is thought not to be rare but has few records within the UK.

Rocky littoral

The rocky littoral areas of the site support a moderate diversity of habitats and species. The rocky shore along the eastern fringe of the site consists of a low narrow reef, exposed to onshore waves and currents that support a dense barnacle crust with typical gastropod associates on the upper eulittoral. Mid eulittoral rock supports sparse mussel rafts amongst a barnacle crust, whilst horizontal rock faces on the lower eulittoral are dominated by fucoid algae and large mussels with vertical rock surfaces dominated by common foliose and coralline red algae amongst lower shore barnacle species.

In the west of the site the rocky littoral is virtually confined to the sea wall within the sedimentary shore which experiences fully marine conditions on its eastern side, and variable salinity condition on its western side due to a small river running along its length. This sea wall provides a much more sheltered habitat than the exposed eastern fringe of this site and consequently supports communities more typical of a sheltered shore. These two factors result in the sea wall being the focal point for the majority of the rocky shore species and habitat diversity for this site.

Sedimentary littoral

The sedimentary shore at this site can be divided into two regions, the large expansive area to the east of the sea wall, and the more restricted area to the west of the sea wall. Communities on either side of the sea wall are considered typical of moderately sheltered sedimentary shores in the region and are likely to be an important source of food for certain bird species. In the east of the site the upper eulittoral supports a distinct strandline of beached alage with a very sparse community of talitrid amphipods above a moderately diverse mid eulittoral supporting polychaetes and bivalve molluscs. The lower eulittoral consists of fine sand flats supporting bivalve molluscs and polychaetes including Blow Lug, Sand Mason and Nereids. To the west of the sea wall the upper and mid eulittoral is comprised of highly mobile, granular sands which are probably a product of local industry and are unlikely to support significant levels of faunal population. Lower eulittoral areas supported a community similar to that present to the east of the sea wall.

Summary

There is one major management issue on the littoral zone at Par Sands; strandline removal. Talitrid amphipods were virtually absent from the site and it is likely to be due to the constant mechanical removal of strandline algae and the associated disturbance of the underlying sediments. These crustaceans are an important element of upper shore and strandline ecology and represent a valuable food source for terrestrial and marine species.

However, on a site such as this strandline removal, at least during the summer months, is considered essential, though the following options should be considered;

1. Can beach cleaning be limited to peak periods during the summer months?
2. Is it viable to hand pick marine litter and leave beached algae *in situ*?
3. If this is not possible, can a significant portion (30%) of the beach be left with an intact strandline?
4. Any rakings should be removed and disposed of by using approved methods, preferably not by piling on the beach.

Management Priorities

- Re-instate strandline habitat where possible

- Monitor the results of Plymouth University's and FoPB seaweed composting trial

4.6 Improved Grassland

Marshy grassland

The marshy grassland at Par Sands is largely established over an old refuse tip area at the west end of the site. There is moderate species diversity in the vegetation, including Bee Orchid and Southern Marsh Orchid, and it will attract a wide range of insects whilst the many herbs are in flower. Despite the artificial ground on which it has developed it is of moderate quality and a valuable component of the habitat complex.

Summary

Currently the habitat contains a well balanced mix of clump-forming rushes *Juncus* sp., fine grasses and broad-leaved herbs. However the clump forming rushes have a tendency to spread resulting in the loss of the species and structural diversity of the grassland and the degradation of the quality of the habitat. In general terms the optimum cover of these rushes is no more than 50% to retain a favourable quality of habitat. Cutting is most effective if the cut is close to the ground in order to reduce the vigour of the plant.

Neutral grassland

The areas of neutral grassland are predominantly around amenity areas and car parks. They are of moderate quality and have no distinctive character as they have developed on the slightly modified habitats of the site. They have a low to locally moderate value as habitat.

Management Priorities

- Implement an appropriate cutting regime to maintain and enhance grassland condition
- Control encroaching gorse and scrub

4.7 Other Habitats

Broadleaved woodland and plantation

The broad-leaved woodland at this site is of low to moderate quality since it largely originates as plantation, with many non-natives, and has not yet developed a characteristic ground flora. Equally the plantation areas are of low habitat quality particularly where they are dominated by pine which causes acidifying of the soils and restricts the establishment of a native ground flora.

Scattered trees

The scattered trees are generally of low habitat quality since most are non-natives, with the exception of the mature Oaks at the eastern corner of the site, which are of locally moderate quality. Of some concern is the scattered White Poplar which is suckering vigorously in some areas.

Scrub

The scrub habitat (excluding the introduced shrubs) is a significant component of the site habitats since it provides extensive cover for birds and a wide range of other common fauna. However there is a widespread presence of non-native species, notably Buddleia, which can be invasive but which should gradually reduce in the denser stands. The European Gorse stands will gradually acidify and enrich the underlying soils of the scrub patches that it forms. At Par Sands this may not greatly affect the habitat since the dune vegetation shows little indication of high lime content in the sands. The willow carr scrub is classic moderate quality scrub associated with high nutrient levels on fluvial sediments with an extensive growth of Nettle as ground cover. Overall the scrub habitat is therefore of moderate quality and is significant in the overall habitat diversity of the site.

Tall ruderal herbs

The stands of ruderal herbs are indicative of the rather disturbed habitat that occurs throughout the site, including physically disturbed ground such as at field edges and localised nutrient enrichment. This habitat is not intrinsically of high quality but contributes to the site by providing habitat diversity. The various flowering plants provide nectar and shelter for insects in coastal exposure. The habitat is generally of moderate quality although the local presence of non-natives detracts from this quality.

Summary

The non-natives and invasive species should be removed gradually allowing a native flora to establish. Priority should be given to thinning of the pines to allow the soils to recover, but it is probably not necessary to remove them all.
White Poplar growth should also be a priority for control where it is invading the marshy grassland habitat.

Management Priorities

- Control Invasive and other non-native species

4.8 Community Engagement

The local community take an active interest in the site and the results of a recent Community Consultation day can be found in (Appendix **6.2.1**)

The Friends of Par Beach group also take an active interest in the site. Their goal is the long term integrated management of the beach and promoting

awareness of the value of the beach, in all its functions, for all people. Its committee meet quarterly to discuss arising issues.

A Par Sands Partnership group has not yet been officially formed but initial contact has been made with member of the parish. This group would be essential to help guide the management of the site at a strategic level.

The Caravan Park management team also have an important role to play in informing management decisions and have offered to assist in certain maintenance tasks.

A recent consultation with the local community showed a strong desire to see the café reopened. (Par Sands Community day event feedback: Appendix **6.2.1**) This could be a good place present or make available information and interpretation about the site.

Management Priorities

- Encourage community involvement in the site
- Encourage expressions of interest to re-open the Café

4.9 Marketing and Interpretation

The site has Local Nature Reserve status (excluding the Caravan Park) and proper interpretation of the site is vital to manage the various habitats on the site. Currently the only interpretation about the site can be found on the FoPB website (http://parbeach.com/index.html)

Management Priorities

- Maintain and improve existing interpretation about the site and its wildlife

4.10 Monitoring and Recording

Management Priorities

- Undertake a visitor survey
- Regularly survey indicator species

5 SITE PRESCRIPTIONS AND WORK PLAN

List of Features

5.1 Health and Safety (Statutory Duties)

5.2 Access and recreation

5.3 Sand Dunes

5.4 Pond and Wetland

5.5 Beach (Littoral Habitats)

5.6 Improved Grassland

5.7 Other Habitats

5.8 Community Involvement

5.9 Marketing and Interpretation

5.10 Monitoring

Prescriptions

Key to Responsibilities (who column) bold type indicates lead person or organisation;

NS- Neighbourhood services

PM- Paul Mason, Serco site ranger

Serco- Serco operatives

CCES- Cornwall Council's Environment Service

AC- Adam Chell, CC officer

RY- Rachael Young, CC officer

HG- Hamish Gordon, ROW Ranger

FoPB- Friends of Par Beach

PRIORITY:

Essential- to meet statutory requirements

Required- to maintain and improve site condition

Desirable- if funding and time allow

2011

OPERATIONAL OBJECTIVES	MANAGEMENT PRESCRIPTION	Timings	who	Annual timing												Review- April 2012
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
5.1 Health and Safety																
Maintain a safe environment for all users, ensuring that Health and Safety procedures for the site meet with relevant Health and Safety legislation.	Produce a site risk assessment and Site inspection regimen to assess all gates, stiles, seats, barriers, posts/bollards, bridges, boardwalks, steps, path surface and revetment condition, lake edges and life buoys etc and carry out any necessary safety measures		**PM**													
	Carry out regular site inspections to monitor the condition of structures, surfaces, vegetation and litter	quarterly	**PM**													
Ensure that site management meets with relevant the environmental legislation.	liaise with Cornwall Council's ecologist prior to carrying out any works which could potentially damage the ecology and wildlife of the site.	As required	**PM, CCES**													
	liaise with the Environment Agency regarding issues with either the Par river or the Polmear stream	As required	**PM, CCES**													
	liaise with Cornwall Council's Historic Environment Service prior to carrying out any works which could potentially damage any historic features of the site.	As required	**PM, CCES**													

5.2 Access				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Manage and maintain Public Rights of way and other permissive routes across the site	Monitor surface condition and make necessary improvements to maintain safe access routes	As required	**PM,** Serco													
	Regularly inspect waymarkers; upgrade and renew as appropriate	As required	**PM,** HG													
	Monitor and cut encroaching vegetation and fallen material as required	2x vol team days	**PM,** BTCV, FoPB													
	ensure appropriate timing and methodology of cutting regime to maximize biodiversity value and efficiency	As required	**PM**													
	Manage the access network to minimise damage and disturbance to sensitive areas	As required	**PM**													
	liaise with the Cornwall Local Access Forum to update on the current access policies	As required	**CCES**													
	Replace damaged section of boardwalk on Cycle Trail in woodland	1x vol team day, 1x Cormac day plus plant and materials	**NS,** Sustrans/FoPB vols, Cormac													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Maintain the condition and safety of the Slipway and **P**ersonal **R**escue **E**quipment	Carry out regular inspections of the structure and PRE (includes lakeside PRE)	monthly	Beach Safety team- Andy Brigden													
	Install safety signage at the top of the slip	potential project	Beach Safety team- Andy Brigden													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Manage access to encourage appropriate use by different user groups	improve/extend access provision for people with disabilities	potential seaside towns project	**FoPB, CCES**													
	investigate ways to encourage sustainable access to Par Beach by developing and promoting links to greener transport.	ongoing	**CCES**													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Investigate the safety and condition of the slip-way	erect signs informing users of safe launching proceedures or consider closing the slip to the public until suitable safety protocols can be put in place	potential project	**CCES**													

Car Parks, Access roads, Amenity grassland and Bins				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Maintain the condition of access roads and car parks to promote the site as a safe, clean and well managed facility, discouraging anti-social behaviour	Patrol and remove litter	Monthly	**Serco**													
	Mow verges around car park edges and road verges	6x per year??	**Serco**													
	revise current mowing regime around parking areas and access roads to leave a 2m strip of grass uncut throughout the summer to be cut once in late September	1x per year??	**Serco**													
	the rocks placed around the parking area require an additional strim to maintain uniform sward height- consider leaving wild to reduce costs	liaise with Serco	**PM**, Serco													
	Ensure dog bins are emptied regularly	As required	**Serco**													
	Investigate removing/repositioning litter and dog bins to reduce operational costs and trampling pressure	Potential project	**CCES, Serco**													
	Install notice boards at the entrance to the main car parks	Potential project														

				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
General Biodiversity Management																
Secure HLS funding for the site	Liaise with CEC to ensure realistic actions and targets are submitted in the HLS bid	As required	**CCES**													
	Ensure HLS requirements are met	As required	**CCES**													
5.3 Dune Management				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Control scrub and other invasive species	Hand cut areas of gorse and scrub on a rotation to vary age structure	2x vol team days	**PM**, BTCV/ FoPB													
	Identify and spray trial areas of Japanese Rose on fore dunes and path edges	1x man day	**PM,** BTCV													
	Cut and stump treat/pull sea buckthorn	1x vol team days	**PM**, BTCV													
	monitor and spray white poplar suckers and seedlings	As required	**PM**													
	monitor and pull ragwort where with in 100m of grazed fields or fields cropped for fodder (east end)	2x vol team days	**PM**, BTCV or FoPB													
	Map, using GPS, invasive and other vegetation on the dunes	potential project	student project													
	Control the number of self seeded Pines and Prune up the best examples to encourage fewer but better quality, larger, trees.	1x vol team days	**FoPB**													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Maintain areas of bare sand on grey dune	Continue to encourage use of the numerous informal paths across the dunes and monitor regeneration of areas of vegetation control	As required														

5.4 Pond and Wetland				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Maintain reed bed cover	Maintain birdwatching path and viewing area by hand cutting and pruning. Stack arising alongside path	1x vol team days	**FoPB**													
	coppice areas of willow carr to vary age the structure and open up a mosaic of habitats within the wetland area	1x vol team days	**FoPB**													
	cut reeds on a rotation during the winter months	?														
	monitor Canada Geese populations and investigate control methods	potential project														
	monitor and maintain the condition of sluice gates and channels	As required	**EA**													
	Maintain and control water levels to reduce encroachment of broadleaf species	As required	**Serco**													
	research the specific requirements of the rare moth and bird species recorded at the site	potential project														

5.5 Beach (Littoral) Habitats				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Re-instate the strandline habitat	reduce the number of times mechanical removal takes place, especially over the winter months.	As required	**PM**, local operative													
	hand pick non-organic litter from the strand line so the remaining seaweed can be composted, on or off site, potentially reducing odour during the summer months	As required.	**PM,** FoPB, other groups													
	monitor the results of the seaweed composting trials being carried out by Plymouth University and FoPB	As required.	**CCES,** FoPB													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Monitor and control invasive species	monitor the occurrence of Wireweed in occasional rock pools	potential project														

5.6 Grassland				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Marshy grassland																
Implement an appropriate cutting regime	Cut the area of marshy grassland yearly in July/August cutting close to the ground and remove cuttings. This will help to prevent excessive spread of the rushes.	1x per year	**PM**, Contractor													
	monitor the survival of other grassland species and consider rotational cutting regime if necessary	As required	**FoPB**													
control Invasives and non-native species	cut and remove areas of gorse and scrub encroaching onto the grassland	1x Vol team day	**FoPB**													
	control the white poplar to the western end of the site. Any cut stems **must** be chemically treated to prevent vigorous suckering. Sucker and seedlings to be sprayed		**PM**													
5.7 Other Habitats				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Control invasive and other species	Continue to monitor and treat the Japanese Knotweed on the cycle trail at the western end of the site		**Serco**													
	Monitor and control, where necessary, other invasives and non-natives on the site, eg. Pulling Monbretia	1x vol team days	**FoPB**													
	Monitor and carry out necessary safety works on mature pines in the NW corner of the site	As required														
Buildings				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Toilet Facilities	Ensure the toilets are regularly inspected and cleaned	daily?	**Serco,** contractor													
Beach huts	investigate ownership and potential income, monitor condition	As required	**CCES, PM**													
Car park operative's hut	inspect and monitor and maintain condition	As required	**Serco**													
Shelter in dunes	inspect and monitor and maintain condition	As required	**Serco**													

5.8 Community Involvement

OPERATIONAL OBJECTIVES	MANAGEMENT PRESCRIPTIONS	Timings	who	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	date completed, cost, man days
Encourage community involvement in the site	Continue to work with and develop the role of the Par Beach partnership to strengthen links with the local community	As required	**PM, CCES**													
	Work with the 'Friends of Par Beach' to match their work plan with the objectives of this plan	As required	**PM, AC, FoPB**													
	Provide information to the local community about the control of invasive species on Site	As required	**PM**													
	Assist the Friends of Par Beach to meet relevant Health and Safety legislation for their events through supervision and training	As required	**RY**													
	Encourage expressions of interest from the local business community to re-open the café/beach shop	potential project	**CCES, property services**													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Promote Par sands as an Educational Resource/outdoor classroom.	Develop an information and activity pack in conjunction with local schools and colleges so they can run their own events. Possibly linking with 'sense of place' initiative.	potential project														
	Ensure all events are pre-booked through the admin team at old county hall.	As required	**CCES**													

5.9 Marketing and Interpretation

OPERATIONAL OBJECTIVES	MANAGEMENT PRESCRIPTIONS	Timings	who	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	date completed, cost, man days
Target marketing of Par sand and its facilities to appropriate user groups	Update the Local Nature Reserve website.	As required														
	Continue to ensure all event are advertised in the Cornwall Council Events Diary. Produced by Rachael Young.	As required	**RY,** PM													
	Continue to foster strong links with Campsite management team. Possibly offer the staff a guide tour of the site to improve local knowledge.	As required	**PM**													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Improve existing interpretation for the site	audit current interpretation on and about the site	potential project	**CCES**													
	identify possible funding sources to produce/update interpretation, particularly a leaflet or wildlife interpretation boards (HLS?)	potential project	**CCES**													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
Promote the site as a place for healthy living and well being events.	Engage and work with groups and organisations that wish to use the site for activities that promote healthy living, such as 'Stroll Back The Years'	As required														

5.10 Monitoring and Research

Operational Objectives	Management Prescriptions	Timings	who	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	date completed, cost, man days
Survey and monitor BAP and other key species and habitats on the site	Produce a list of BAP species likely to be present on the site and record any sightings.	As required	CCES, FoPB													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
survey visitor numbers	monitor car park usage by liaising with 'car parks' to get regular updates on numbers		CCES													
				APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
other potential surveys	strand line survey. To indentify non-organic litter	As required	Marine conservation society													
	carry out fixed point photography, especially around the pond and wetland area	potential project	CCES, FoPB													
	Map, using trimble gps, woody vegetation and invasive species on the site especially in the dunes	potential project	CCES													
	bats	specialist project														
	breeding birds	specialist project														
	reptiles and amphibians	specialist project														
	mammals	specialist project														

6 APPENDICES

6.1 Maps

Map 1- Par Sands 1:10,000

Map 2- Par Sands 1:100,000

Map 3- Par Sands Land Tenure

Map 4- Par Sands Historic Sites

Map 5- Par Sands Footpaths and public rights of way

Map 6- Par Sands Phase 1 Habitats

Map 7- Par Sands Multiuse Trails

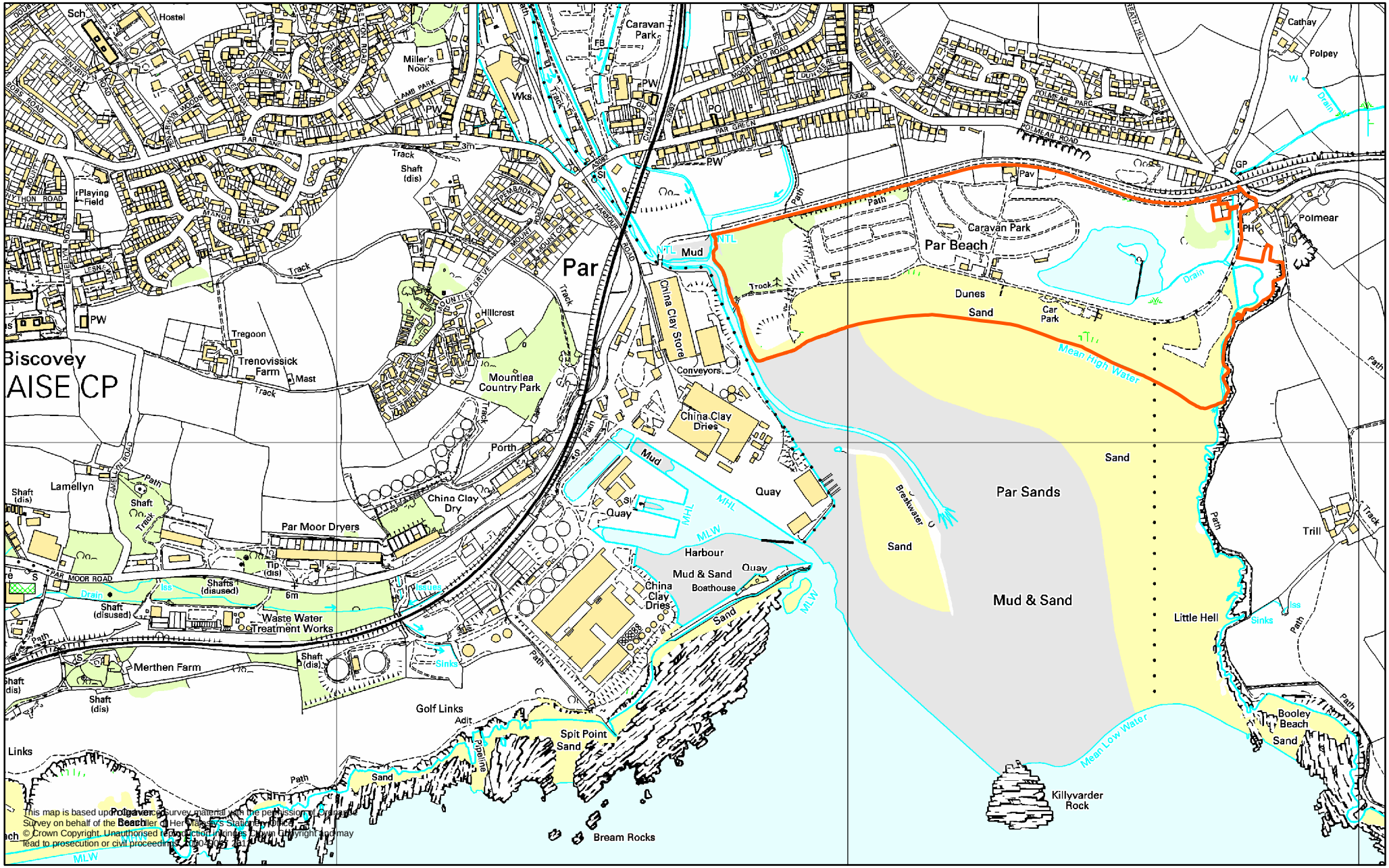
Map 1

Par sands Local Nature Reserve

Scale 1:10,000

Legend

Cornwall Council site boundary



Map 2

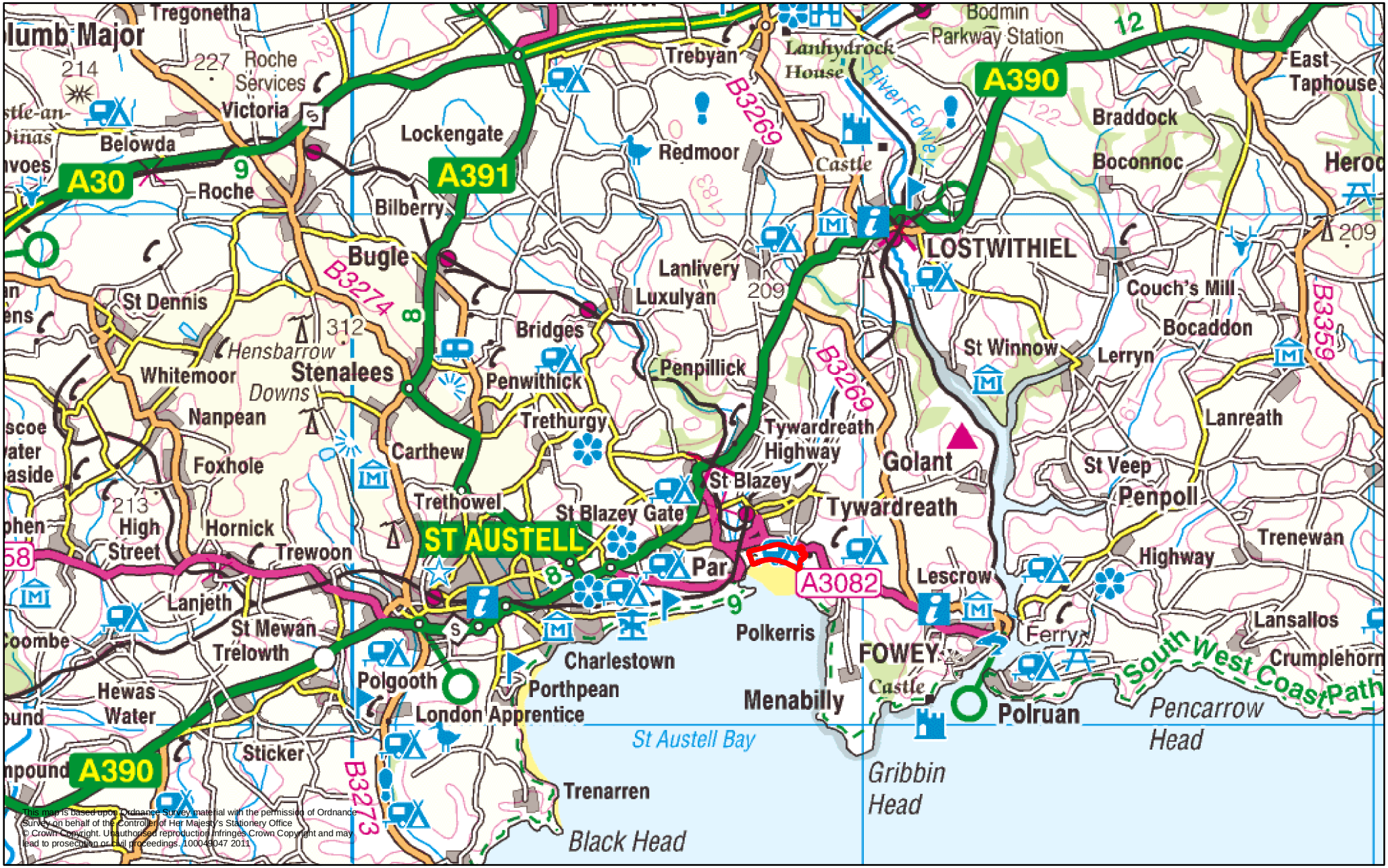
Par sands Local Nature Reserve

Scale 1:100,000

Legend

Cornwall Council site boundary

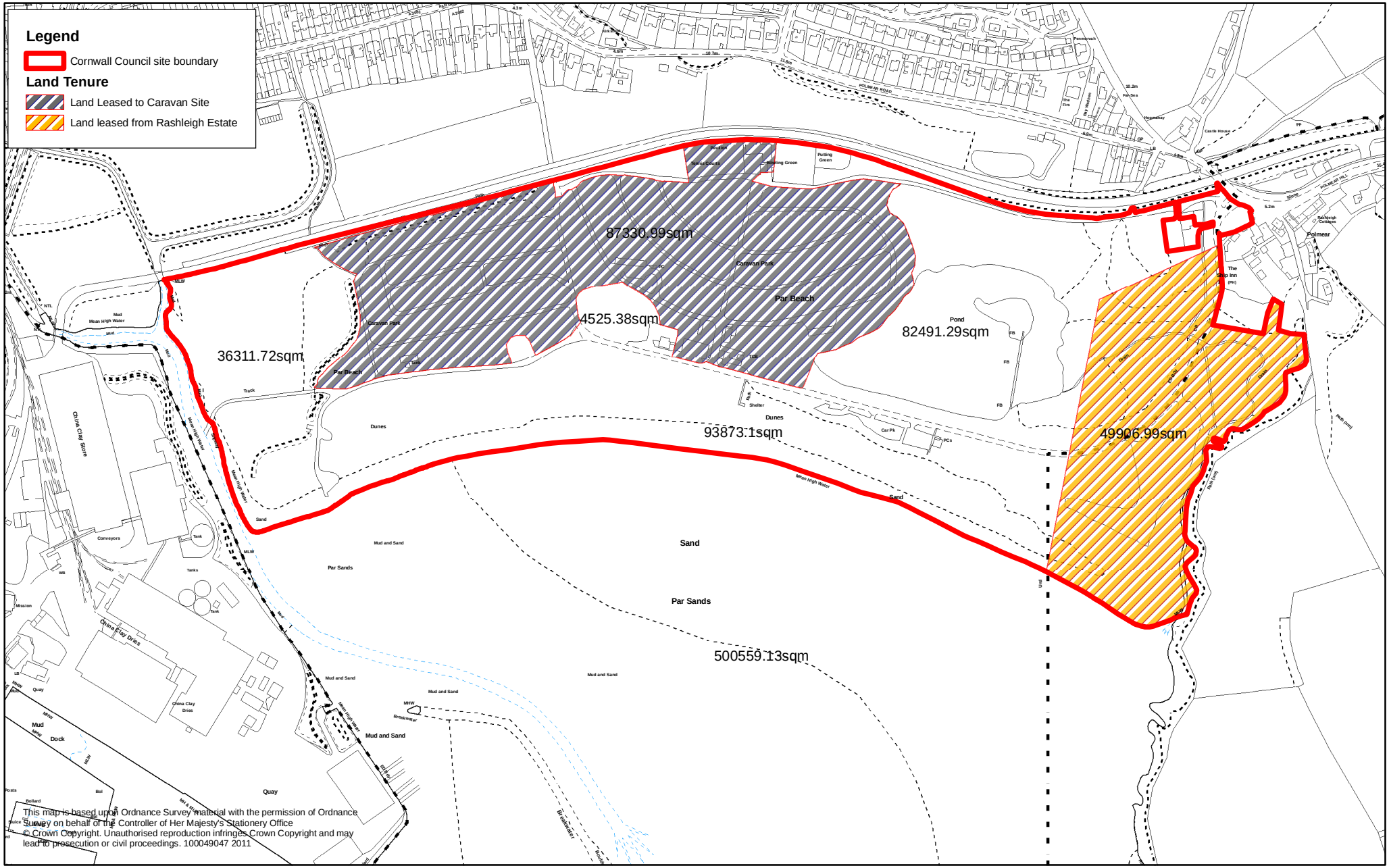
CORNWALL COUNCIL

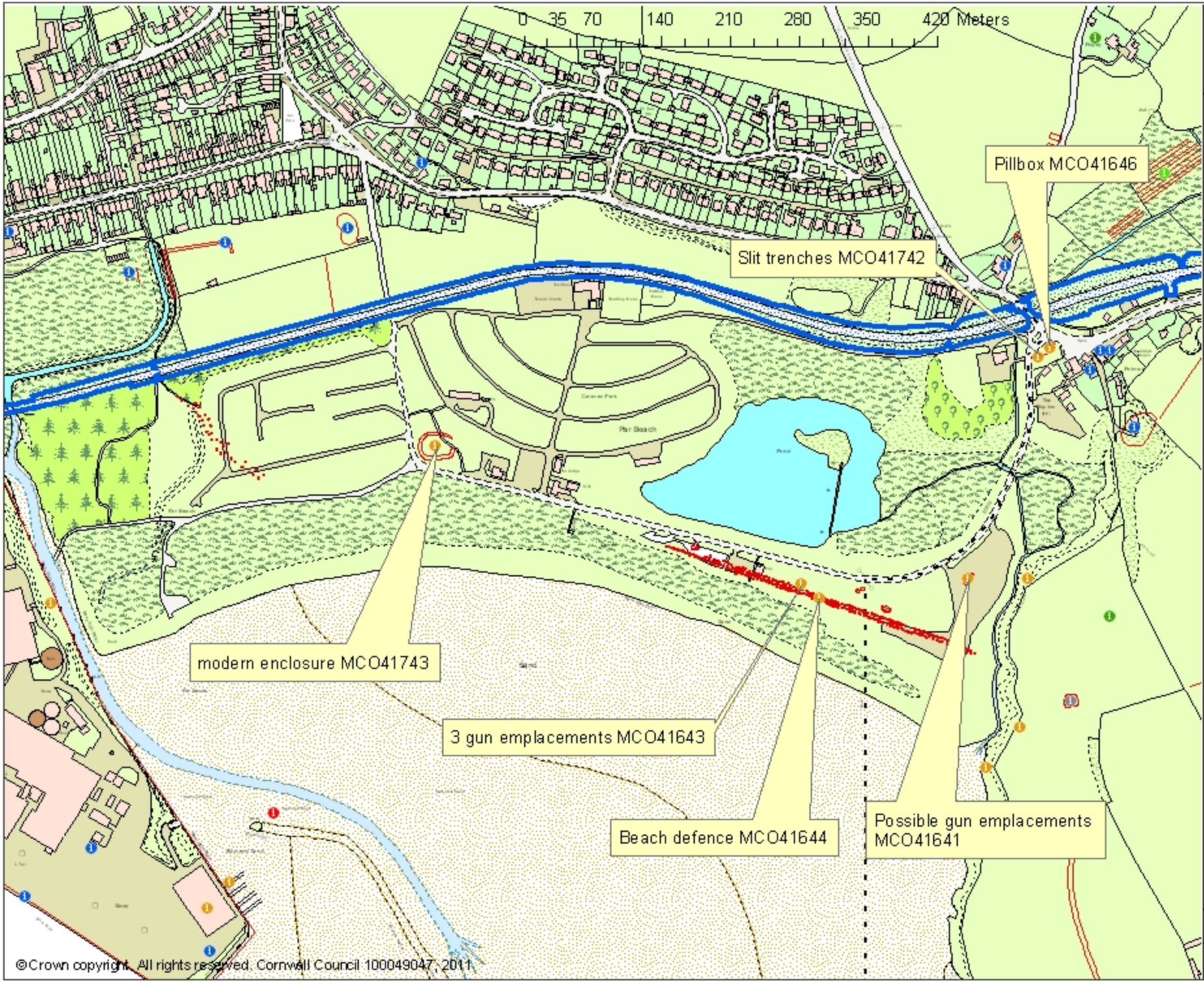


Map 3

Par Sands Local Nature Reserve- Land Tenure

Scale 1:4,999





Cornwall & Scilly
Historic Environment Record

Kernnal Building, Old County Hall,
Station Road, Truro, Cornwall, TR1 3AY
tel: 01872 323603 fax: 01872 323811
email: hse@cornwall.gov.uk

Title

Key

- Prehistoric
- Romano British
- Early Medieval
- Medieval
- Post Medieval
- Modern
- Undated
- <Null>

Known archaeological features mapped from aerial photographs

CORNWALL COUNCIL

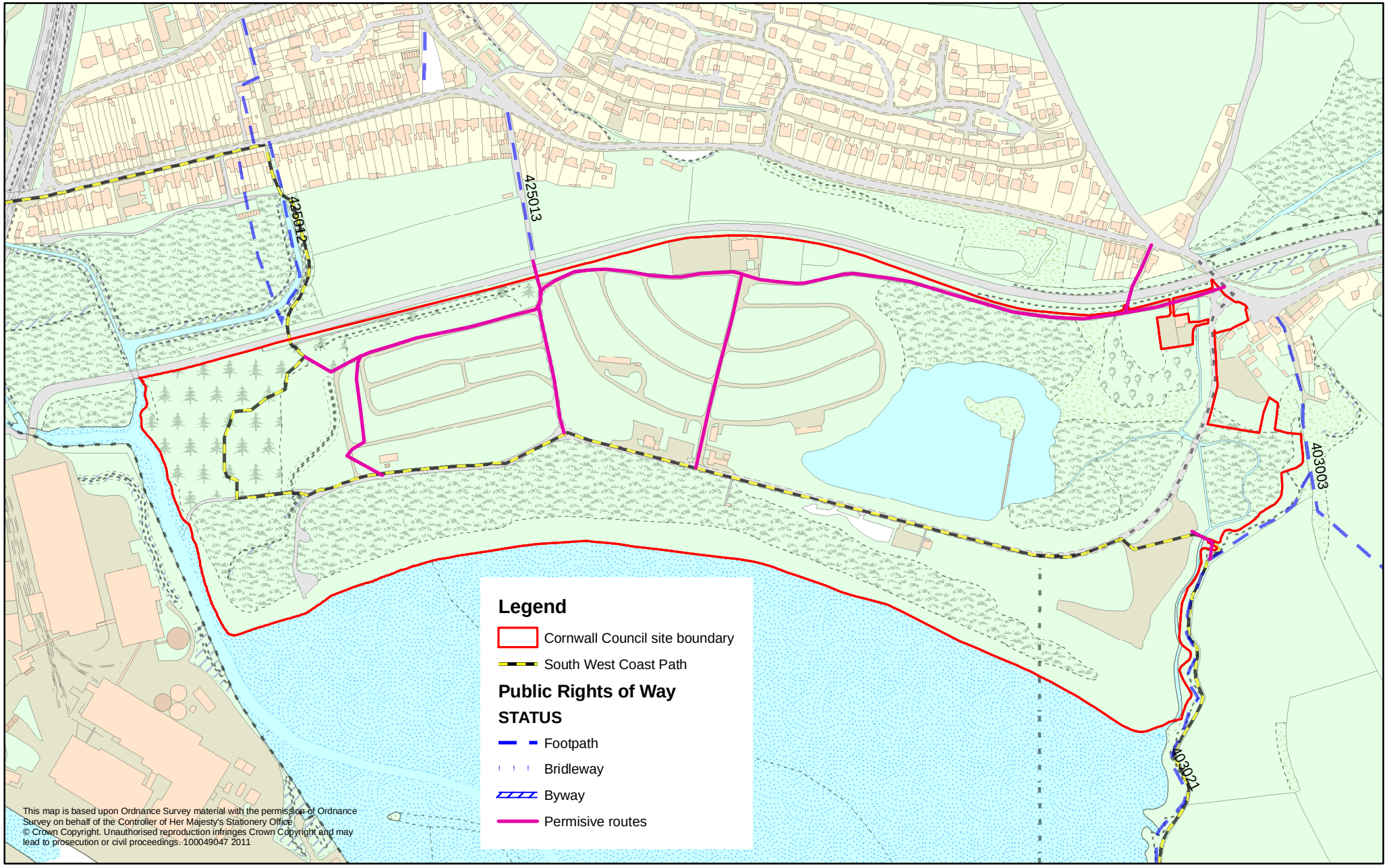
Originator
A Reynolds

Date

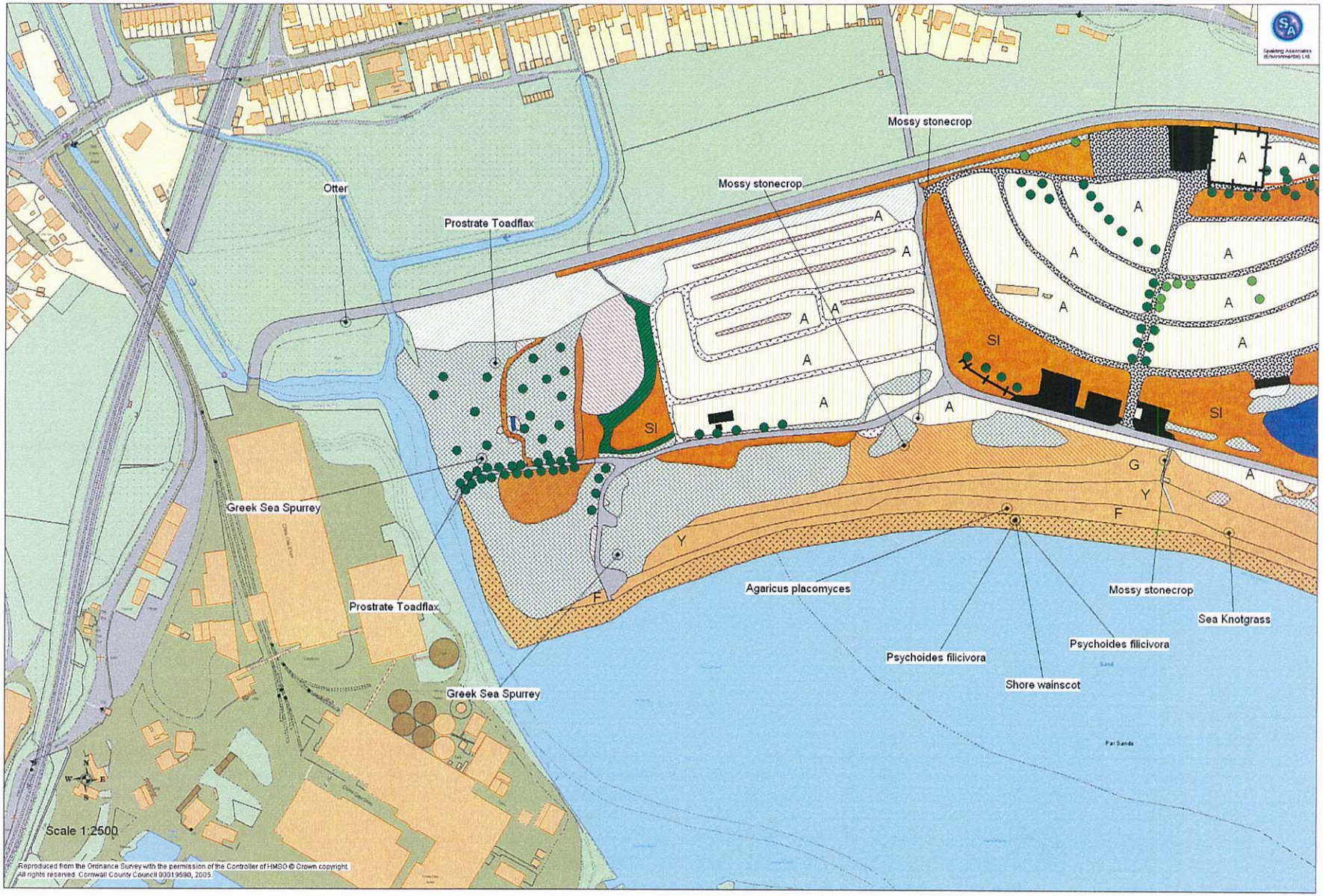
Map 5

Par Sands Local Nature Reserve- Footpaths and rights of way

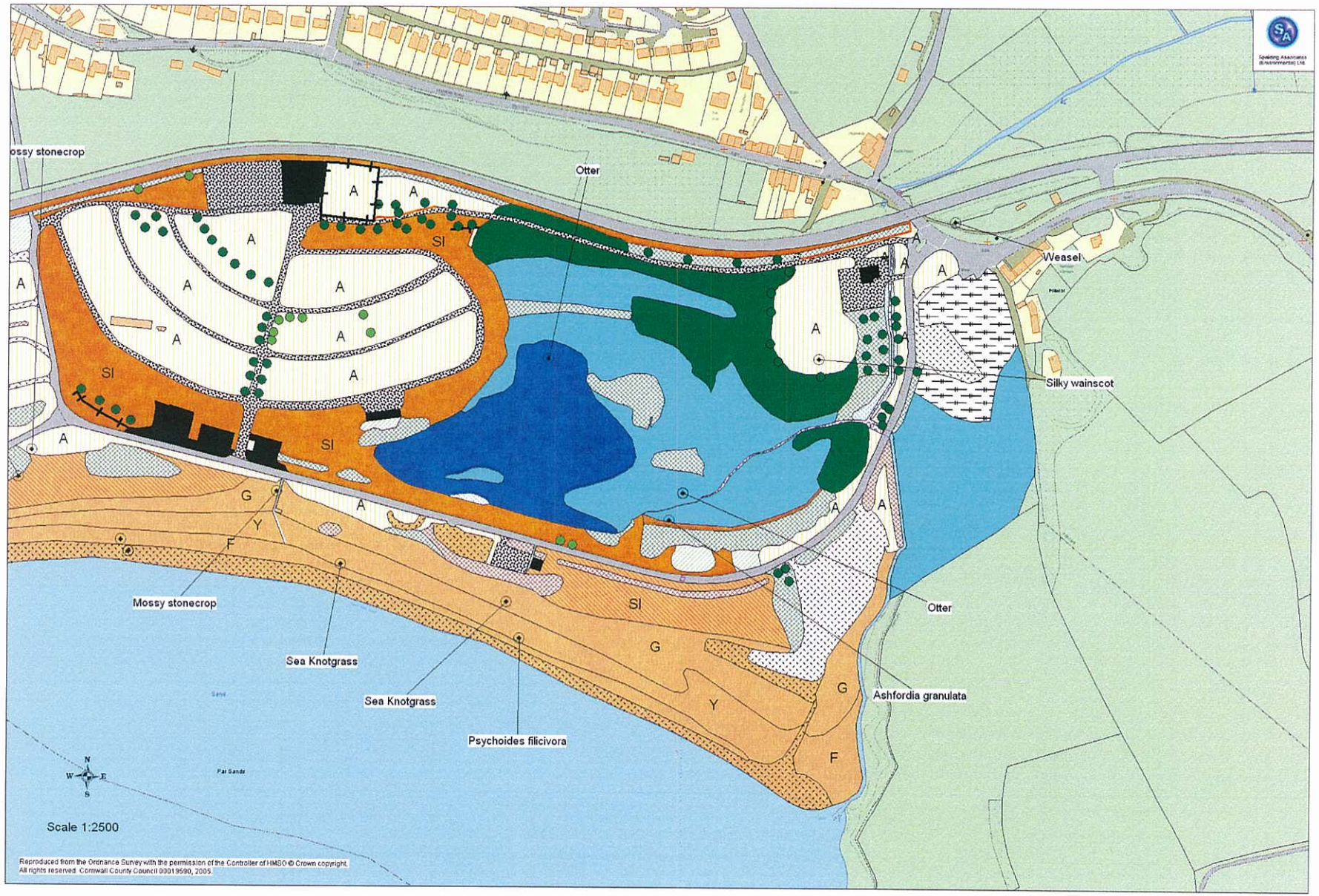
Scale 1:4,900



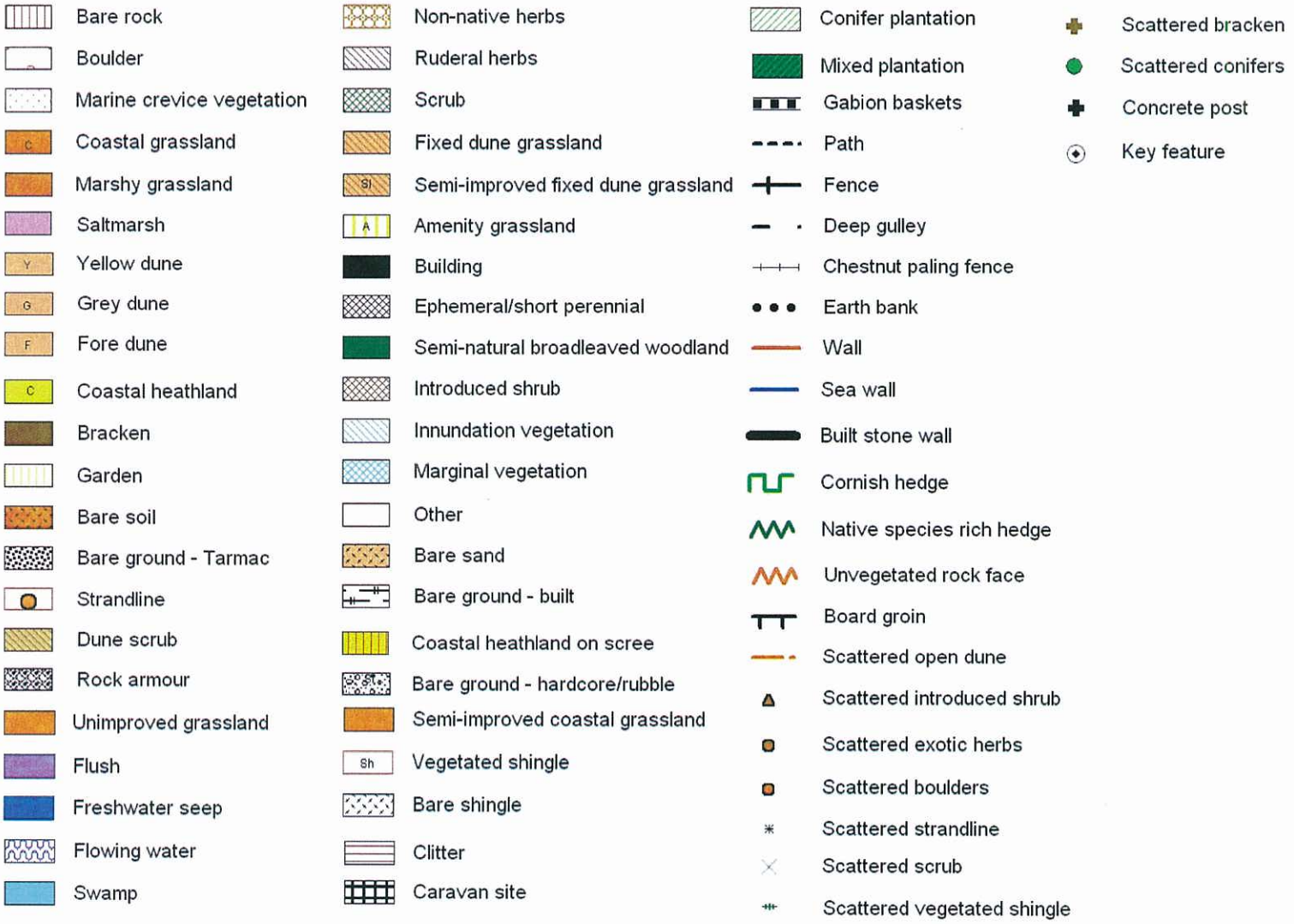
Map 2a. Phase 1 Habitat and Key Features, Par Sands 2005



Map 2b. Phase 1 Habitat and Key Features, Par Sands 2005



Phase 1 habitat legend

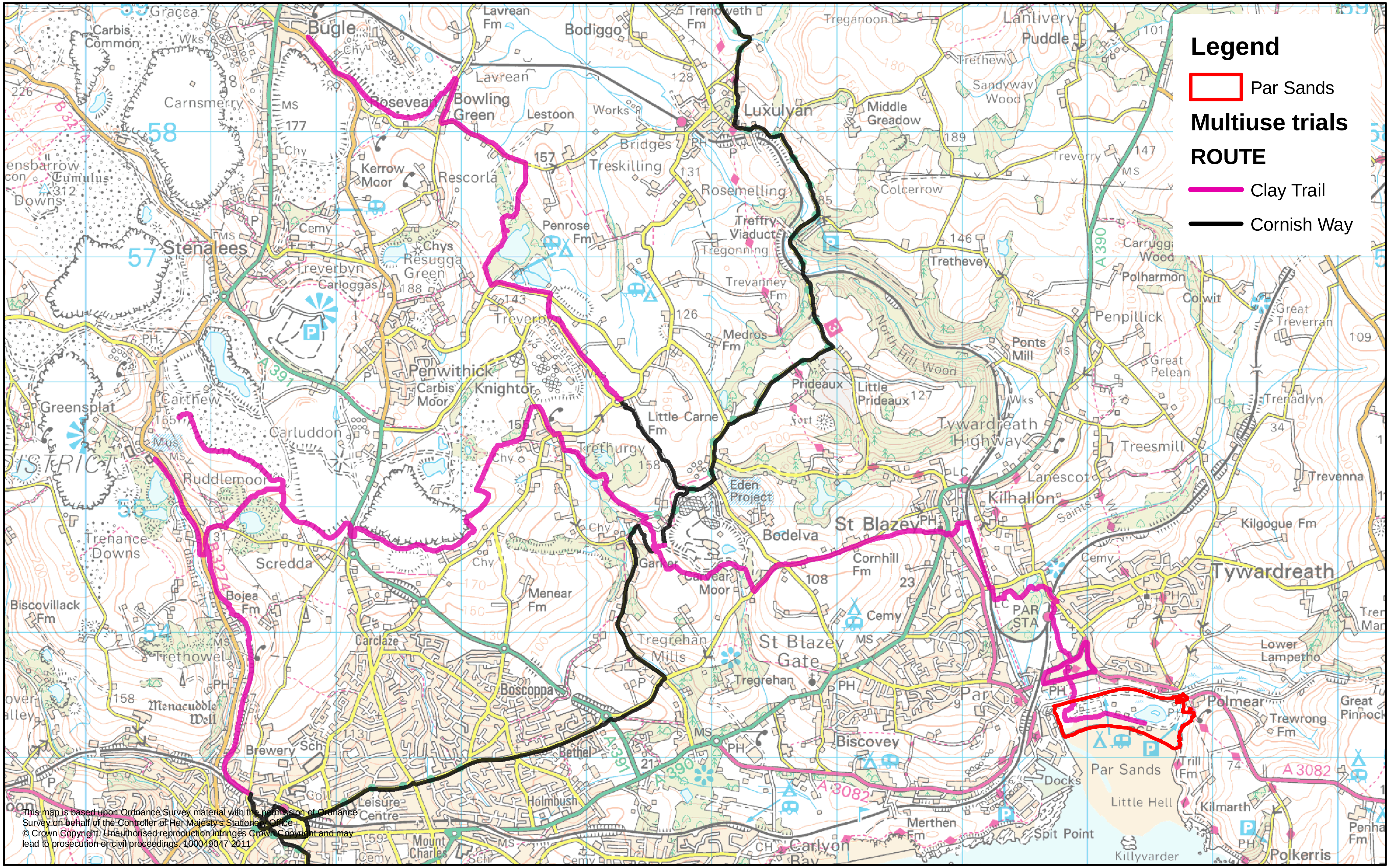


Map 7

Par Sands Multiuse Trails

Scale 1:40,812

CORNWALL COUNCIL



6.2 Reference Documents

6.2.1 Par Sands Community Day data

6.2.2 Species and Habitats list (Spalding Associates Ltd 2005 Habitat Survey report)

Feed back from Par Beach Community Day on 5 Feb 2011

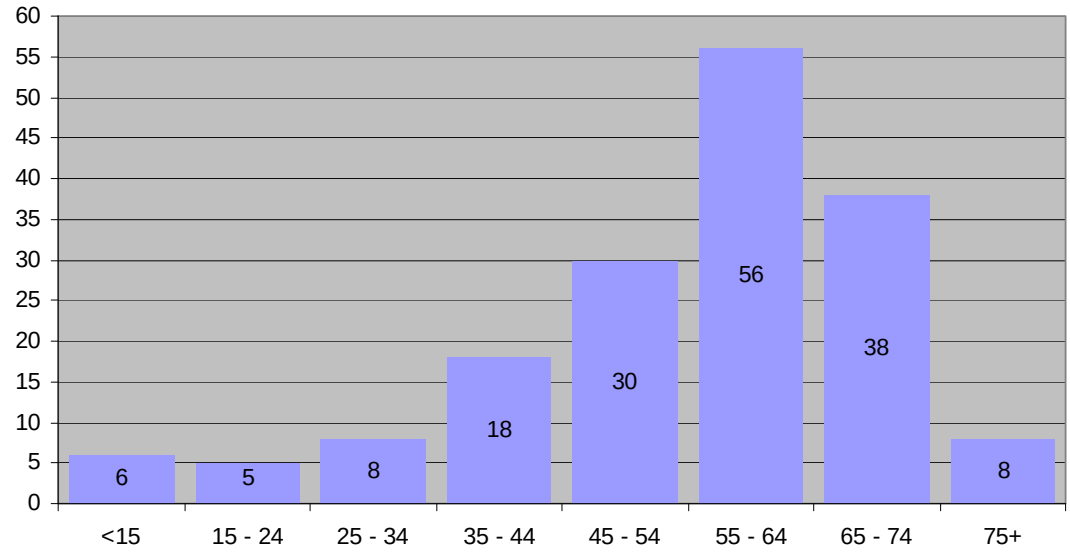
Engagement approach

A drop-in event was designed to include a series of key questions and representation from local community groups and service providers. Lead in activities were carried out with local school children, with 164 young people ranging from 4-19 years old contributing ideas about what they currently love about or would like to be able to do on Par Beach.

At the drop-in event a selection of question cards were given:
How do you currently access Par beach? How could that be improved?
What do you do on Par Beach? What would you like to do on Par Beach?
Additional questions were also asked by local community, service providers and voluntary sector groups. (Data provided separately)

Summary of findings from the drop in event
Number of participants:
285 people attended this event.
Gender:
229 participants contributed data of this 123 put female and 106 put male the rest 51 in total; left the gender box blank.
Age:
169 people gave their age. The average age of was 55.79 or 56 rounded up.
Maximum age: 87, Minimum age: 5.

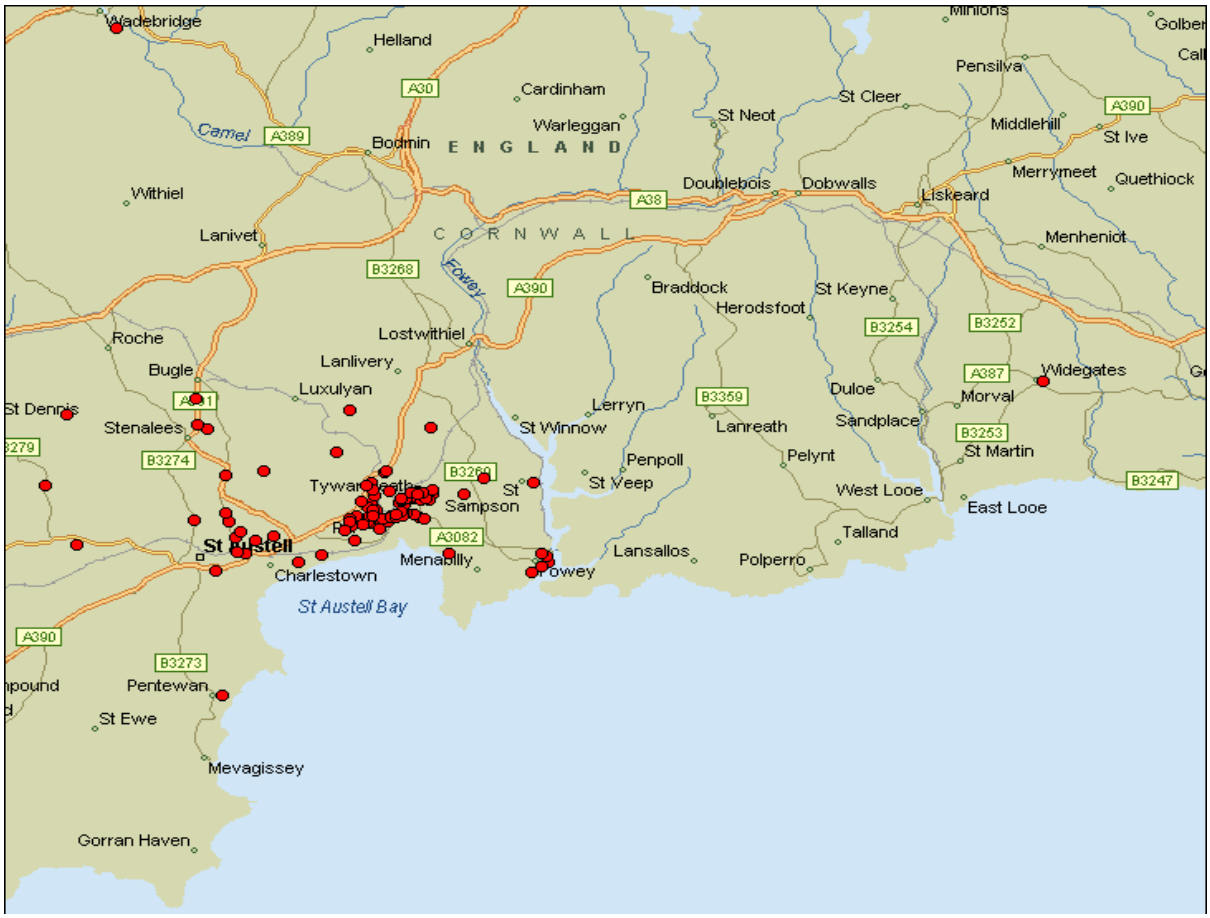
Par Community Attendees Age Group



The majority of people who attended the event were in the age bracket 55 – 64.

Where participants came from:

Postcode map using data given on the sign in sheet:



Question1: How did you hear about this event?

Question 2: How do you currently access Par beach?

Method of access	Total
Bus.	1
Combo	84
Drive	41
Minibus	1
Walk	59

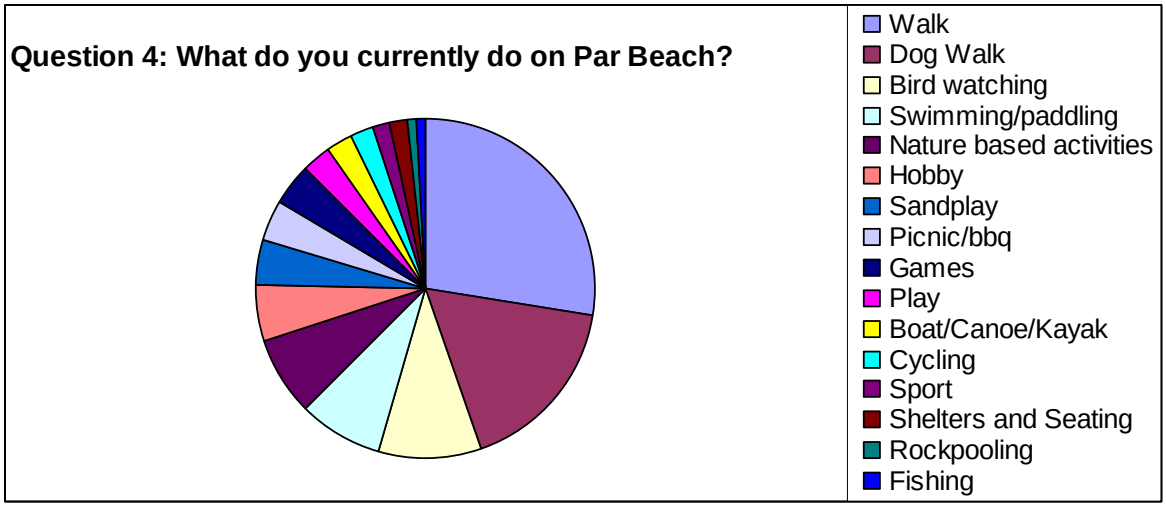
Bus.	Bus.	1
Bus. Total		1
Combo	Bike, Car, Horse, Walk	1
	Bike, Car, Walk	10
	Bike, Horse, Walk	1
	Bike, Walk	5
	Bus, Walk	1
	Car , Walk	4
	Car, Minibus, Walk	2
	Car, Motorbike, walk	1
	Car, Walk	53
	Car, Walk, bike	4
	Walk, car	1
	Walk, cycle, vehicle - to take kayak etc, older relatives	1
Combo Total		84
Drive	By van/ car	1
	Car	38
	Car opposite pond	1
	Drive	1
Drive Total		41
Minibus	Minibus	1
Minibus Total		1
Walk	By foot via Par Green, pathways should be hard & dog foul free	1
	Walk	55
	Walk (via par green)	1
	Walk from Tywardreath 3 or 4 times a week	1
	We walk onto beach	1
Walk Total		59

Question 3: How could access be improved?

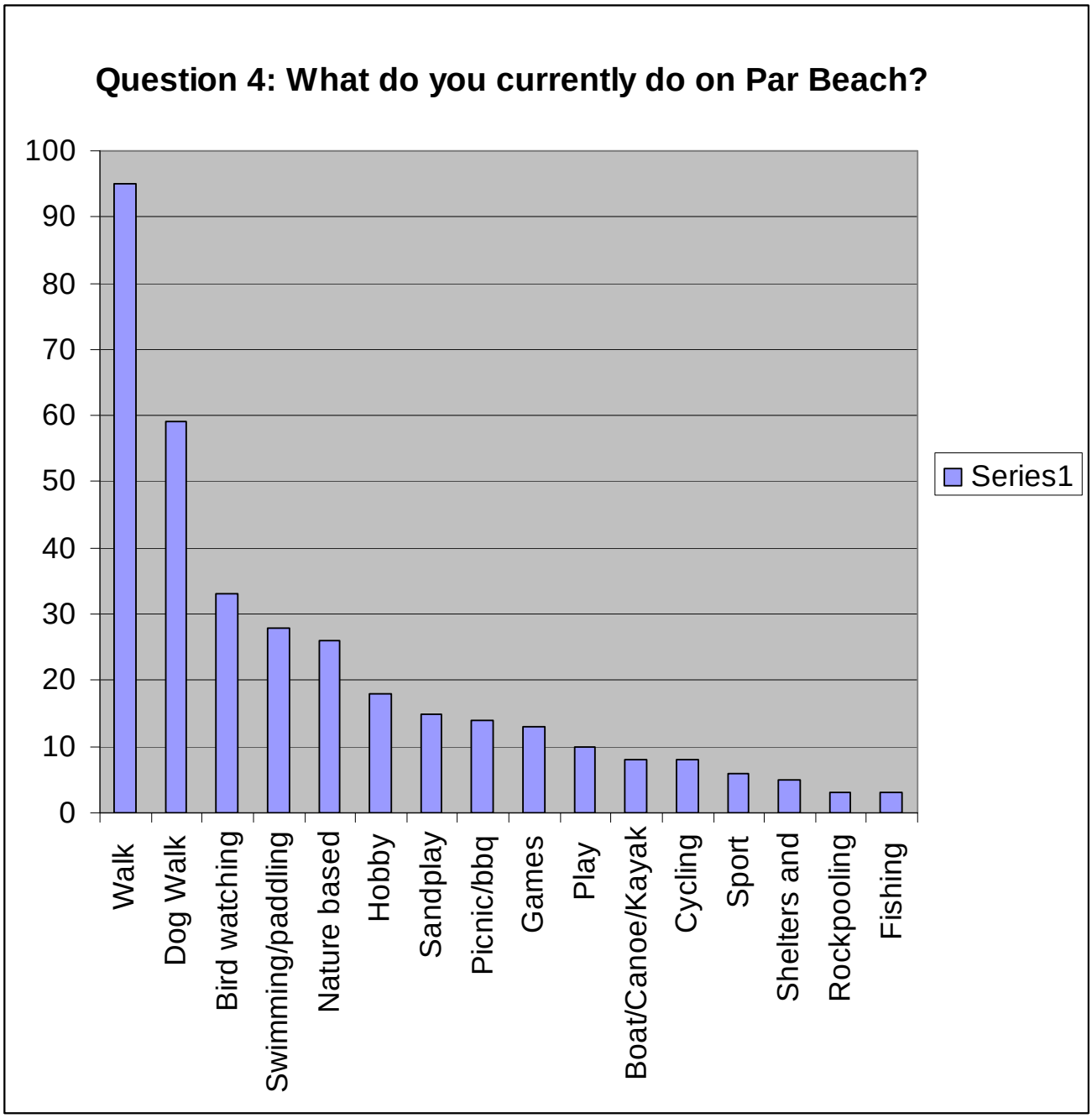
Question 4: What do you do on Par Beach?

Raw data: Word Cloud
Responses as a word cloud e.g. the numbers of times a word is mentioned the larger its size.

Themed Data: Pie Chart
Comments have been grouped together under key themes and the number of comments relating to a particular theme quantified.



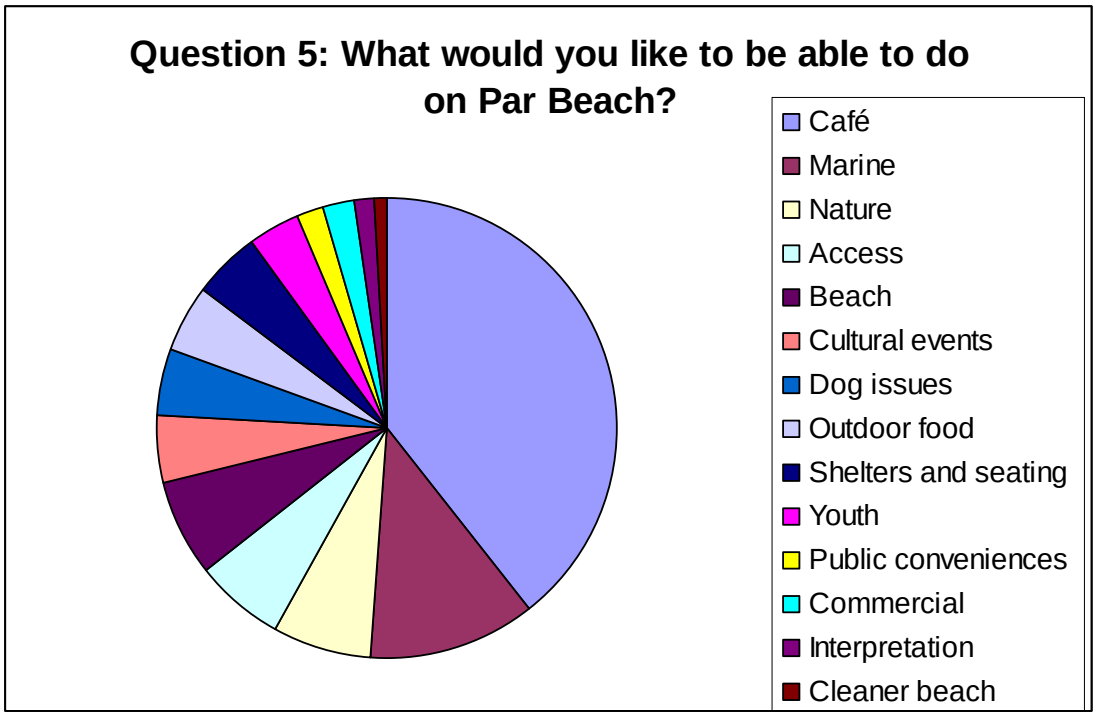
Themed Data: Bar Chart
Comments have been grouped together under key themes and the number of comments relating to a particular theme quantified.



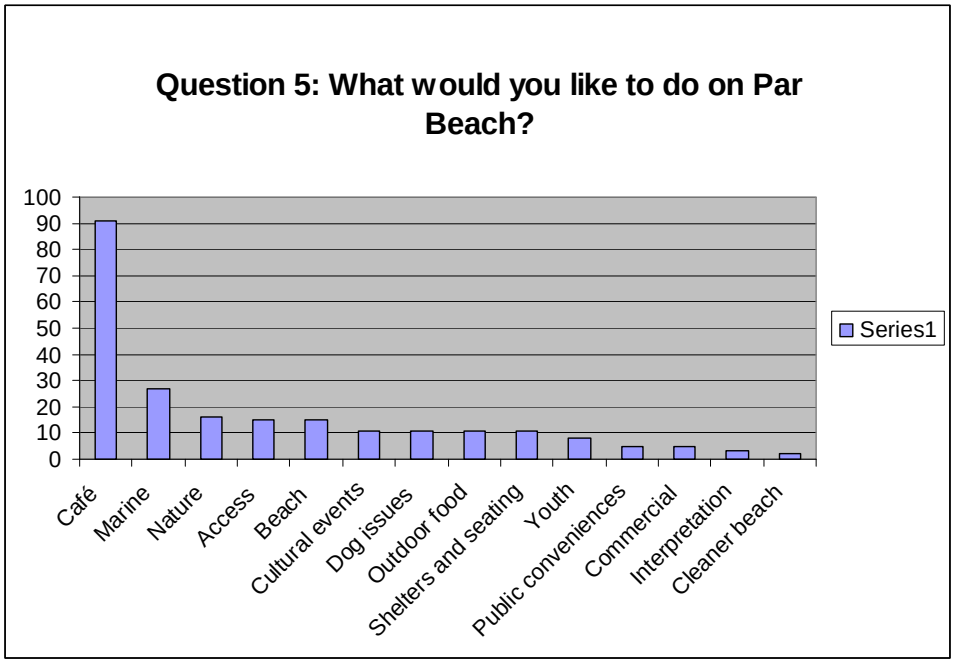
Question 5: What would you like to do on Par Beach?

Raw Data: Word Cloud
Responses as a word cloud e.g. the numbers of times a word is mentioned the larger its size.

Themed data: Pie Chart
Comments have been grouped together under key themes and the number of comments relating to a particular theme quantified.



Themed Data: Bar Chart
Comments have been grouped together under key themes and the number of comments relating to a particular theme quantified.



Café

Comments from participants on Café facilities focussed on:

All year, affordable café provision, including facilities at both ends of the beach, plenty of seating and the capacity to host community based activities and events, ideally 2nd floor access for a sea view a multi-use facility to incorporate a beach shop and environmental interpretation.

Marine activities

Comments from participants on marine based activities focussed on:

Safe swimming and water sports including sailing, kayaking, windsurfing, and kite surfing and a desire to see equipment made available and organised marine activities to give more people a chance to take part, particularly young people.

Nature activities

Comments from participants on nature activities focussed on:

Bird watching, botany, astronomy, nature photography including a desire to see bird hides, and organised stargazing and flora and fauna learning activities.

Access

Comments from participants on beach access focussed on:

Parking, a desire to have improved parking facilities and the cost for parking reduced (for locals or regular users)

Disabled access, a desire to have more disabled access on to the beach environment and providing a clear view of the sea.

Cyclists and horse riders, a desire for cycle trails and horse riding facilities

Beach activities

Comments from participants on beach activities focussed on:

Play, exercise, beach sculpture, beach games, kite flying and camp fires, a desire to have more facilities that could support these activities and a cleaner beach environment particularly for play activities.

Cultural events

Comments from participants on cultural events focussed on:

Open air concerts, theatre and cinema, a desire to use the beach and develop facilities to host more cultural events.

Dog issues

Comments from participants on dog issues focussed on:

Dogs on leads and a cleaner beach, a desire by some participants to have dogs on leads when using the beach and a cleaner beach, with more dog bins.

Outdoor food

Comments from participants on outdoor food focussed on:

BBQ's, picnics and campfires, a desire to see more facilities to support outdoor eating and cooking, such as tables, seating and BBQ facilities.

Shelters and seating

Comments from participants on shelters and seating focussed on:

Beach Huts, a desire to be able to make use of beach huts, owned or hired.

Seating provision, a desire to see more benches and seating at the beach particularly places for reading.

Youth

Comments from participants on youth focussed on:

Play spaces and affordable activities for 13-19 year olds, a desire to see more play and water sports equipment to enable young people to have a more active role on the beach.

Public conveniences

Comments from participants on public conveniences focussed on:

Toilets open all year round, more toilets, more disabled facilities, beach showers.

Commercial

Beach shop and hire facilities, a desire to have a beach equipment hire business and multipurpose shop.

Interpretation

Interpretation boards, a desire to see more information on birds, flowers and fauna (land and marine) and their habitats for school children, local community and visitors.

Comment book word cloud

Appendix

Comment Book raw data:

- Absolutely fantastic, forget to say can anybody please start the bowling club again. Love all the enthusiasm
- Very nice + very informative. Great to see such community shirt
- Very good lots of information
- A good idea to get all 'interests' together well put together 'pigs' idea really good
- A well spent hour! Much more informed now
- Excellent informative morning
- Good day out & informative. Well done everyone
- Very informative and encouraging to take part in the project
- Excellent, vibrant + good to see so many people
- Very informative and well organised, we arrived at peak time & it was well attended. Demographic was largely 40+ Shame not move families apparent!
- Very good way out most interesting
- Good to encourage a community spirit"
- Very good, lots of information, positive atmosphere!
- Lovely idea really enjoyed looking at postcards etc. Thanks very much for all your effort
- I hope that all the effort they ## has put in thing just ##
- Fantastic well advertised. Very interesting lovely community feeling
- Really good having all the right people together in one place to talk to. Got the information I came for thank you
- Very informative
- Very interesting and informative if all that has been discussed comes to fruition then things will have improved immensely
- Really innovative format well done! I am pleased I came to find out about future plans and the hard work local people are investing in the future of the beautiful beach
- Consultation # up good, didn’t see anyone from council just # ranger
- Info very good + generous literative. Well presented
- Lots of information I hope it can all come to fruition
- Most useful conferring with outside organisations!
- Very good great - much appreciated
- Comprosive - very helpful people - lots of information from a varied group. Good to see various sectors of the community together
- Very impressive a lot of questions answered
- Highly successful - relevant. With so much public support the project is bound to succeed
- Look forward to see har I can help. Love this approach - imaginative
- Very informative and useful window of local thought - hope it comes to fruition
- Appreciate the work carried out to provide so much information to the public

- Information appreciated - going away to read all the papers given to us
- Great Enthusium - good information. Thanks
- Very informative! Lots of feedback and great ideas!
- Very impressive drawing the community together. Lots of information
- Very interesting - lots of ideas - good thought positive people
- Very useful. The hard work put into this event has proved very worthwhile. Good luck!
- Very interesting + informative!
- Very informative - Plenty of info from all the right people
- Good turnout lots of ideas good feeling progress
- Good informative day
- Lots of useful information not just about the beach but also associated resources + community
- Very useful. Lots of info to think about
- Lots of hard work gave # this event. Well done
- Loads of information well presented
- Informative + light hearted - a community event!
- Very good to have the people to discuss all various issues with. Lots of info, nice friendly people, good atmosphere, goos tea + cake
- What enthusiasm for a beach that is the people's future for so many activated - we want access - and a wonderful café - marj james rsab from radio St Austell Bay
- Well done for producing all the information, if this is sponsered by the Cornwall County Council - there was little advertising to say so?
- Brilliant day

Method of Access raw data:

- 1st can park on left
- Bike, Car, Horse, Walk
- Bike, Car, Walk x 10
- Bike, Horse, Walk
- Bike, Walk x 5
- Bus, Walk
- Bus.
- By foot via Par Green, pathways should be hard & dog foul free
- By van/ car
- Car x38
- Car opposite pond
- Car, Bike
- Car, Minibus, Walk x 2
- Car, Motorbike, walk
- Car, Walk x 57
- Car, Walk, Bike x 4
- Drive
- Minibus
- Walk x 55
- Walk (via Par Green)
- Walk from Tywardreath 3 or 4 times a week
- Walk, Car
- Walk, Cycle, vehicle - to take kayak etc, older relatives
- We walk onto beach

APPENDICES

Appendix 1
Species records from field survey

Table 1 Vascular plants recorded during field survey

Scientific name	English Name
Acer pseudoplantanus	Sycamore
Achillea millefolium	Yarrow
Agrostis capillaris	Common Bent
Agrostis stolonifera	Creeping Bent
Alnus glutinosa	Alder
Ammophila arenaria	Marram
Anthoxanthum odoratum	Sweet Vernal-grass
Arctium minus	Lesser Burdock
Arrhenatherum elatius	False Oat-grass
Artemisia vulgaris	Mugwort
Aster sp.	Michaelmas Daisy
Aster tripolium	Sea Aster
Atriplex patula	Common Orache
Atriplex prostrata	Spear-leaved Orache
Bellis perennis	Daisy
Beta vulgaris	Sea Beet
Brachypodium sylvaticum	False Brome
Brassica nigra	Black Mustard
Bromus hordeaceus ssp. hordeaceus	Soft Brome
Buddleja davidii	Butterfly Bush
Cakile maritima	Sea Rocket
Calystegia sepium	Hedge Bindweed
Calystegia soldanella	Sea Bindweed
Calystegia sylvaticum	Large Bindweed
Carex arenaria	Sand Sedge
Carex otrubae	False Fox-sedge
Centaurea nigra	Common Knapweed
Cerastium semidecandrum	Little Mouse-ear
Cerastium diffusum	Sea Mouse-ear
Cerastium fontanum	Common Mouse-ear
Chamaecyparis lawsoniana	Lawson’s Cypress [garden plant]
Cirsium arvense	Creeping Thistle
Cirsium palustre	Marsh Thistle
Cirsium vulgare	Spear Thistle
Clematis vitalba	Traveller's-joy
Convolvulus arvensis	Field Bindweed
Cordyline australis	Cabbage Palm
Cortaderia selloana	Pampas- grass
Crataegus monogyna	Hawthorn

Cynosurus cristatus	Crested Dog's Tail
Cytisus scoparius ssp. scoparius	Broom
Dactylis glomerata	Cock's-foot
Daucus carota ssp. gummifer	Wild Carrot
Digitais purpurea	Foxglove
Dipsacus fullonum	Teasel
Dryopteris dilatata	Broad Buckler-fern
Elytrigia atherica	Sea Couch
Elytrigia juncea ssp. boreoatlantica	Sand Couch
Elytrigia repens ssp. repens	Common Couch
Epilobium hirsutum	Great Willowherb
Epilobium sp.	willowherb
Eryngium maritimum	Sea Holly
Escallonia macrantha	Escallonia
Eupatorium cannabinum	Hemp Agrimony
Fallopia japonica	Japanese Knotweed
Festuca rubra	Red Fescue
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Galium mollugo	Hedge Bedstraw
Geranium robertianum	Herb Robert
Griselinia littoralis	New Zealand Broadleaf
Hebe cv	Hedge Veronica
Hedera helix	Ivy
Heracleum sphondylium	Hogweed
Hippophae rhamnoides	Sea Buckthorn
Holcus lanatus	Yorkshire Fog
Honkenya peploides	Sea Sandwort
Hypericum androsaemum	Tutsan
Hypericum perforatum	Perforate St John's-wort
Hypericum tetrapterum	Square-stalked St. John's-wort
Hypochoeris radicata	Common Cat's-ear
Juncus bufonius	Toad Rush
Juncus effusus	Soft Rush
Juncus inflexus	Hard Rush
Lathyrus pratensis	Meadow Vetchling
Leontodon saxatilis	Lesser Hawkbit
Linum catharticum	Fairy Flax
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lotus corniculatus	Common Bird's-foot-trefoil
Lotus pedunculatus	Greater Bird's-foot-trefoil
Lychnis flos-cuculi	Ragged-Robin
Lythrum salicaria	Purple-loosestrife

Mellilotus officinalis	Rbbed Mellilot
Mentha sp	Mint
Myosotis ramosissima	Field Forget-me-not
Nasturtium majus	Nasturtium [garden plant]
Oenanthe crocata	Hemlock Water-dropwort
Oenothera glaznovianum	Large-flowered Evening Primrose
Oenothera sp.	Evening Primrose
Olearia macrodonta	Daisy Bush
Olearia traversii	Daisy Bush
Ononis repens	Restharrow
Petasites fragrans	Winter Heliotrope
Petroselinum crispum	Garden Parsley
Phormium tenax	New Zealand flax
Phragmites australis	Common Reed
Phyllitis scolopendrium	Hart’s-tongue Fern
Plantago coronopus	Buck's-horn Plantain
Plantago lanceolata	Ribwort Plantain
Plantago major	Greater Plantain
Poa annua	Annual Meadow-grass
Poa pratensis	Smooth Meadow-grass
Poa trivialis	Rough Meadow-grass
Polygonum aviculare	Knotgrass
Populus alba	White Poplar
Populus xcanadensis	Hybrid Black Poplar
Populus canescens	Grey Poplar
Potentilla anserina	Silverweed
Potentilla reptans	Creeping Cinquefoil
Pteridium aquilinum	Bracken
Puccinellia maritima	Common Saltmarshgrass
Pulicaria dysenterica	Common Fleabane
Quercus sp.	a native oak
Ranunculus repens	Creeping Buttercup
Raphanus raphanistrum ssp. maritimus	Sea Radish
Rosa canina agg.	Dog Rose
Rosa pimpinellifolia	Burnet Rose
Rosa rugosa	Japanese Rose
Rubus fruticosus agg.	Bramble
Rumex acetosa	Common Sorrel
Rumex crispus	Curled Dock
Rumex obtusifolius	Broad-leaved Dock
Sagina apetala	Annual Petalwort
Sagina procumbens	Procumbent Pearlwort
Salix cinerea ssp.oleifolia	Grey Willow
Salix fragilis	Crack Willow

Salix sp.	a willow
Salsola kali	Prickly Saltwort
Sambucus nigra	Elder
Senecio jacobaea	Ragwort
Silene dioica	Red Campion
Smyrnium olusatrum	Alexanders
Solanum dulcamara	Bittersweet
Sonchus arvensis	Perennial Sow-thistle
Sonchus asper	Prickly Sow-thistle
Sorbus aucuparia	Rowan
Tanacetum vulgare	Tansy
Taraxacum officinale agg.	Dandelion
Tilia sp	a lime
Trifolium arvense	Hare's-foot Clover
Trifolium campestre	Hop Trefoil
Trifolium dubium	Lesser Trefoil
Trifolium repens	White Clover
Tripleurospermum maritimum	Sea Mayweed
Ulex europaeus	European Gorse
Ulmus agg.	Elm
Urtica dioica	Nettle
Valeriana dioica	Marsh Valerian
Veronica chamaedrys	Germander Speedwell
Veronica serpyllifolia	Thyme-leaved Speedwell
Vicia sativa ssp. segetalis	Common Vetch
Yucca recurvifolia	Spanish Daggers

Table 2: Marine species recorded during site survey

FLORA		
Chlorophycota		
Green algae		
	Cladophora rupestris	
	Ulva intestinalis	Gut Weed
	Ulva lactuca	Sea Lettuce
Chromophycota		
Brown algae		
	Ascophyllum nodosum	Egg Wrack
	Dictyota dichotoma	
	Fucus ceranoides	Horned Wrack
	Fucus serratus	Serrated Wrack
	Fucus spiralis	Spiral Wrack
	Fucus vesiculosus	Bladder Wrack
	Laminaria digitata	Oarweed
	Laminaria saccharina	Sugar Kelp
	Leathesia difformis	
	Pelvetia canaliculata	Channel Wrack
	Sargassum muticum	Wireweed
	Scytosiphon lomentaria	Beanweed
Rhodophycota		
Red algae		
	Rhodochorton purpurea	
	Calliblepharis cilliata	
	Ceramium sp.	
	Chondrus crispus	Carragheen
	Corallina officinalis	a calcareous red alga
	Dilsea carnosa	Red Rags
	Dumontia contorta	
	Gelidium latifolium	
	Gelidium pusillum	
	Hildenbrandia sp.	
	Osmundea pinnatifidia	Pepper Dulse
	Lithophyllum sp.	
	Lomentaria articulata	
	Mastocarpus stellatus	
	Palmaria palmata	Dulse
	Plumaria elegans	
	Porphyra dioica	Laver
	Porphyra umbilicalis	Purple Laver
Lichens		
	Lichina pygmaea	
	Verrucaria maura	
	Verrucaria mucosa	

FAUNA		
Porifera		
Sponges		
	Grantia compressa	Purse Sponge
	Halichondria panicea	Breadcrumb Sponge
	Ophlitaspongia seriata	
	Sycon ciliatum	
Cnidaria: Anthozoa		
Sea anemones etc.		
	Actinia equina	Beadlet Anemone
	Actinia fragacea	Strawberry Anemone
	Anemonia viridis	Snakelocks anemone
Cnidaria: Hydrozoa		
Hydrozoans		
	Aglaophenia sp.	
	Dynamena pumila	
Annelida: Polychaeta		
Bristle worms		
	Arenicola marina	Lugworm
	Eulalia viridis	Greenleaf Worm
	Lanice conchilega	The Sand Mason
	Nereis sp.	
	Pomatoceros lamarckii	
	Spirorbis rupestris	a tubeworm
Insecta		
Insects		
	Anurida maritima	
Crustacea: Cirripedia		
	Balanus perforatus	
	Chthamalus montagui	
	Chthalamus stellatus	
	Semibalanus balanoides	
Mollusca: Polyplacophora		
Chitons		
	Acanthochitona crinitus	
Mollusca: Gastropoda		
Sea snails		
	Gibbula umbilicalis	Flat Top Shell
	Littorina littorea	Common Periwinkle
	Littorina saxatilis agg.	Rough Periwinkle
	Melaraphe neritoides	Small Periwinkle
	Osilinus lineata	Thick Top Shell
	Nucella lapillus	Dog Whelk
	Patella vulgata	Common Limpet
Mollusca: Opisthobranchia		
Sea slugs		

	Archidoris pseudoargus	Sea Lemon
Mollusca: Pelecypoda		
Bivalves		
	Angulus tenuis	Thin Tellin
	Anomia ephippium	Saddle Oyster
	Cerastoderma edule	Common Cockle
	Mytilus edulis	Common Mussel
	Spisula solida	Thick Trough Shell
Bryozoa		
Sea mats		
	Bugula sp.	
	Flustrellida hispida	
	Membranipora membranacea	
	Umbonula littoralis	
Echinodermata		
Starfish, sea urchins etc.		
	Asterias rubens	Common Starfish
Urochordata		
Sea squirts		
	Botrylloides leachii	

APPENDIX 2
Details of desktop search undertaken by ERCCIS with map of search area

APPENDIX 3
Copies of relevant pages of previous survey

APPENDIX 4

Map and citation details for statutory nature conservation sites within the survey area

There are no statutory nature conservation sites within the Par Sands survey area

APPENDIX 5
List of key Phase 1 habitats at Par Sands with the equivalent classification at national and European level

SAND DUNES

Phase 1 habitat type	BAP habitat type	European Habitat type
Open dune foredune	Coastal sand dune	Embryonic shifting dunes
Open dune yellow dune	Coastal sand dune	Shifting dunes along the shoreline with *Ammophila arenaria*
Open dune grey dune	Coastal sand dune	Shifting dunes along the shoreline with *Ammophila arenaria*
Dune grassland	Coastal sand dune	Fixed dunes with herbaceous vegetation

Littoral and infralittoral rock

Component habitats defined as all types of consolidated stable rocky habitats, including boulder, cobbles (> 64mm diameter) and biogenic concretions (JNCC, 2005)

MNCR Biotope complex	MNCR Code	BAP broad habitat type	European habitat type
Lichens or small green algae on supralittoral rock	LR.FLR.Lic	Littoral rock	Reef
Mussel and/or barnacle communities	LR.HLR.MusB		
Fucoids on sheltered marine shores	LR.LLR.F		
Barnacles and fucoids on moderately exposed shores	LR.MLR.BF		
Robust fucoid and/or red seaweed communities	LR.HLR.FR		
Ephemeral green or red seaweeds (freshwater or sand-influenced)	LR.FLR.Eph		
Mussels and fucoids on moderately exposed shores	LR.MLR.MusF		
Fucoids in variable salinity conditions	LR.LLR.FVS		

LITTORAL AND INFRALITTORAL SEDIMENT

Component habitats defined as all types of sedimentary habitat located between high and low water.

MNCR Biotope complex	MNCR code	BAP broad habitat type	European habitat type
Strandline	LS.LSa.St	Littoral sediment	Mudflats and sandflats not covered by seawater at low tide
Polychaete/bivalve dominated muddy sand shores	LS.LSa.MuSa		
Barren or amphipod dominated mobile sand shores	LS.LSa.MoSa		
Polychaete/amphipod dominated fine sand shores	LS.LSa.FiSa		

APPENDIX 6
Table of results from assessment of habitats at Par Sands

TABLE 4.1. STRANDLINE, EMBRYO AND MOBILE DUNES (OPEN DUNE fore and yellow dune only)
Reporting cycle: 3 years
Monitoring period: May to October, July for flowering and condition of grasses
Summary: Unfavourable due to presence of non-natives

Feature to monitor		**Method**	**Par Sands selected site specific feature to monitor**	**Target**	**Assessment 2005** **Data**	**Comment**
Extent		GPS and GIS mapping, aerial where available. Indications of dynamic trends to be recorded in field. Extend to Phase 1 sandy shore strandline habitat if apparent, discriminate between bare dune (bare sand within dune limits), vegetated dune types and strandline	Phase 1 strandline, foredune and yellow dune	No net decrease in extent from established baseline, subject to natural change. Strandline to be retained within extent in assessment period but not necessarily permanent	No baseline	No comment-historical research (eg photographic evidence) may provide information
Physical structure (functionality and sediment supply)		Aerial or landscape scale photography and site visit to gain information	Descriptive since hard to quantify	No further anthropogenic increase in factors leading to decrease of natural mobility of system.	No baseline	Insufficient data
Vegetation structure	Range and extent of zones	GPS and GIS mapping, aerial where available. Width of zones to be assessed.	Define area from open beach landward Target refers to existing dune extent in 2005	Zonation from beach to fixed dune should be intact over at least 95% of existing coastal frontage. Overall diversity should be maintained.	Zonation from beach to fixed dune is intact over at least 95% of existing coastal frontage.	Favourable
Vegetation composition	Typical species	Visual assessment of cover using DAFOR	Foredune : *Elytrigia juncea*	Maintain frequency of characteristic species of the main sand dune zones as follows: Fore dune : at least 1 species frequent	Characteristic species at favourable frequency	Favourable

			Mobile dunes: *Ammophila arenarua* *Carex arenaria*	Mobile dunes at least two species frequent		
	Growth form of foredune grasses; condition and fruiting	Visit in July; Visual assessment of plants using DAFOR.	*Ammophila arenaria* and *Elytrigia juncea*	Fruiting heads of foredune grasses should be at least frequent	Fruiting heads of yellow dune grasses frequent	Favourable
	Negative indicator species	Visual assessment of plants over entire feature using DAFOR.	*Hippophae rhamnoides* *Rodsa rugosa* *Cirsium arvense*	Sea Buckthorn should be absent from sites where it is not native Other non-native species no more than rare Any ruderal negative indicator species no more than frequent in sward Or Singly or together the cover of negative indicator species no more than 5%.	Sea Buckthorn occasional Ruderals occasional	Unfavourabe
Other negative indicators		Visual assessment at site visit	Map and count main areas of vehicle or visitor damage	Negative indicator should be absent or rare eg. Vehicle or visitor damage at vulnerable locations such as tracks and access points	No baseline Damage occasional	?Unfavourable
Indicators of local distinctiveness	Presence of notable species of vascular plant	Visual assessment at site visit Fixed point photography	*Salsola kali*	Maintain populations at current levels and/or in current locations	No baseline but present though rare	Favourable

TABLE 4.2. FIXED DUNE GRASSLAND (PHASE 1 - GREY DUNE AND DUNE GRASSLAND)
Summary: Unfavourable due to restricted zonation, lack of short turf, presence of non-natives and frequent scrub

Feature to monitor		**Method**	**Par Sands selected site specific feature to monitor**	**Target**	**Assessment 2005** **Data**	**Comment**
Extent		GPS and GIS mapping, aerial where available. Indications of dynamic trends to be recorded in field. Extend to Phase 1 sandy shore strandline habitat, discriminate between bare sand within dune limits, vegetated dune types and strandline		No net decrease in extent from established baseline, subject to natural change. Net increase at expense of other dune features is not favourable	No baseline No assessment possible	–
Vegetation structure	Range and extent of zones	GPS and GIS mapping, aerial where available. Width of zones to be assessed.		Zonation from beach to fixed dune should be intact over at least 95% of existing coastal frontage. Overall diversity should be maintained.	Zonation from beach to dune grassland <95%	Unfavourable
	Bare ground	GPS and GIS mapping, aerial where available or Visual assessment using DAFOR with up-to-date aerials particularly appropriate		Bare ground present in fixed dune as bare ground or bare sand; 15% maximum cover	<15%	Favourable
	Grassland sward structure	Height of sward at key selected points to reflect range of sward structures. Selected points should on site specific basis reflect distribution of Marram dominated and short turf types.		30 –70% of sward to comprise species rich short turf , 2-10cm tall.	sward comprise 30 –70% of species rich short less than 30%	Unfavourable
	Growth form of dune grasses; condition and fruiting	Visit in July; Visual assessment of plants using DAFOR.		Flowering and fruiting of dune grasses to at least frequent level.	Flowering and fruiting of dune grasses at least frequent	Favourable
Vegetation composition	Typical species	Visual assessment of cover using DAFOR	Assess main dune area *Carex arenaria* *Festuca rubra* *Lotus corniculatus*	At least 6 typical species present at more than occasional level	At least 6 typical species present at occasional level and above	Favourable

			Ononis repens *Plantago lanceolata* *Ammophila arenaria*			
	Negative indicator species	Visual assessment of plants and cover over entire feature using DAFOR.	*Hippophae rhamnoides*	Non-native species no more than rare Any ruderal negative indicator species no more than frequent in sward Or Singly or together the cover of negative indicator species no more than 5%.	Sea Buckthorn present and locally dominant Non-native occasional to locally frequent Ruderals occasional	Unfavourable
	Scrub/trees	Visual assessment of plants and cover over entire feature using DAFOR.	*Ulex europaeus* *Rubus fruticosus*	Scrub/trees no more than occasional or less than 5% cover . Tree invasions from adjacent plantations absent or rare	Scrub/trees more than occasional Tree invasions from adjacent plantations rare	Unfavourable
	Other negative indicators	Visual assessment at site visit		Negative indicator should be absent or rare eg. Vehicle or visitor damage at vulnerable locations such as tracks and access points	No baseline Trampling erosion occasional	Unfavourable
Indicators of local distinctiveness	Presence of notable feature	Visual assessment at site visit at appropriate season (June/July) Fixed point photography	None known	Maintain key species and populations at current levels and/or in current locations	-	-

TABLE 4.3. LITTORAL ROCK
Summary – Probably favourable although non-native species are present and no baseline data exists

Attribute	Method	Par Sands: Selected site specific attributes	Target	Assessment 2005	Comment with respect to target
Extent of littoral rock	*In situ* biotope mapping using GPS and GIS mapping with aerial where available. Ensure mapping to mean low water or ordnance datum Record in field obvious dynamic changes such as shift in sediment/rock distribution or geomorphological changes such as rock fall	GIS and GPS appropriate at this site since access to boundary for mapping is possible	No decrease in extent of littoral rock areas	No baseline data	Probably maintained
Biotope composition	*In situ* biotope mapping using GPS and GIS or aerials for comparison to complex level (equivalent with base line) Identification of a subset of the biotopes from the site listed by Spalding Associates 2005 including set sampling points for identification of biotope	GIS and GPS appropriate at this site since access to boundary for mapping is possible. Key biotopes are: LR.HLR.MusB LR.MLR.BF LR.MLR.MusF LR.HLR.FR LR.LLR.FVS	Maintain presence of site specified suite of biotopes allowing for natural succession/known cyclical change	No baseline data	Probably maintained
Distribution and spatial pattern of biotopes at	*In situ* biotope mapping using GPS and GIS to complex level (equivalent with base line) and determine changes in	Determine monitoring points/transect from	Maintain the distribution and spatial pattern of the biotope complexes	No baseline data	Probably maintained

specified locations		zonations or other distributions on a transect across full shore. Record in field obvious dynamic changes such as shift in sediment/rock distribution or geo-morphological changes such as rock fall. Fixed point photograph for additional information	baseline maps	allowing for natural succession/known cyclical changes		
Presence of subfeature		Site specific selected for nature conservation importance	Upper eulittoral cave walls dominated by the red algae *Rhodochorton purpurea*	Maintain the presence of the specified subfeature	No baseline data	Probably maintained
Extent of representative biotope		Site specific Inferred from *in situ* monitoring	Mussel beds on the lower shore in the west of the site LR.MLR.MusF	No loss in extent of the representative biotope subject to natural change	No baseline data	Probably maintained
Species composition of representative biotope		Site specific selected for nature conservation importance	Key species are: *Fucus serratus* *Mastocarpus stellatus* *Mytilus edulis* *Semibalanus balanoides* *Patella vulgata*	No decline in biotope quality due to change in species composition No loss of specified key species for specified species	No baseline data	Probably maintained
Presence and/or abundance of specified species		Site specific selected for nature conservation importance	Presence and frequency of *Balanus perforatus* Target*:* Presence on >50% of lower shore overhangs	Site specific to reflect successional change, negative changes such as spread of negative species or loss of distinctive species and	No baseline data	No comment

TABLE 4.4. LITTORAL AND INFRALITTORAL SEDIMENT
Summary – Probably unfavourable although no baseline data exists

Attribute		**Method**	**Par Sands: Selected site specific attribute**	**Target**	**Assessment 2005**	**Comment with respect to target**
Extent of littoral sediment		*In situ* mapping using GPS and GIS mapping with aerial where available. Ensure mapping to mean low water or ordnance datum Record in field obvious dynamic changes such as shift in sediment/rock distribution or geomorphological changes such as rock fall	GIS and GPS appropriate at this site since access to boundary for mapping is possible	No decrease in extent of littoral sediment	No baseline data	Probably maintained
Biotope composition		*In situ* biotope mapping using GPS and GIS or aerials for comparison to complex level (equivalent with base line) Identification of a subset of the biotopes from the site listed by Spalding associates 2005 including set sampling points for	GIS and GPS appropriate at this site since access to boundary for mapping is possible. Key biotopes are: LS.LSa.St LS.LSa.MuSa	Maintain presence of site specified suite of biotopes allowing for natural succession/known cyclical change	No baseline data	Strandline habitat is subject to unselective, mechanical beach cleaning during summer months on the majority of this shore

		identification of biotope	LS.LSa.FiSa			
Sediment character; sediment type		*In situ* biotope mapping using GPS and GIS to complex level (equivalent with base line)	Extreme weather events should be incorporated in target for this site	No change in composition of sediment type across the feature, allowing for natural processes such as winter storm	No baseline data	No comment
Presence of representative biotope		Site specific selected for nature conservation importance	Muddy sand shores on the mid and lower eulittoral	Maintain the presence of the specified biotope	No baseline data	Probably maintained
Species composition of representative biotope		Site specific selected for nature conservation importance	Key species within the representative biotope are: *Arenicola marina* *Lanice conchilega* *Angulus tenuis*	No decline in biotope quality due to change in species composition and no loss of specified key species for specified biotope. Please note this biotope is susceptible to 'washout'.	No baseline data	Probably maintained
Topography		Trends in tidal elevation and shore slope to be assessed e.g. lowering of shore slope through sea defence induced scouring 5 yearly monitoring Fixed point photography and transect downshore taking height readings using real time differential GPS	Assessment of shoreline height to west of the sea wall in relation to the remainder of this site.	No change in topography of the littoral sediment allowing for natural responses to the hydrodynamic regime	No baseline data	No comment

Sediment character	Organic carbon content	Organic carbon content assessed in a specified area potentially affected by effluent or enrichment; undertaken by specialists	Assessment along the eastern edge of this shore where possible organic enrichment is occurring	Organic carbon content should not increase in relation to an established baseline	No baseline data	No comment
Sediment character:	Oxidation/reduction layer (redox) layer	Redox boundary should be assessed using a redox probe	Assessment along the eastern edge of this shore where possible organic enrichment is occurring	Average depth to layer should not significantly change in relation to baseline	No baseline data	No comment

APPENDIX 8
GLOSSARY

Anthropogenic	Produced by humans
Base rich	Description of soil chemistry where pH level is above neutral ie tending to be "limey".
Base poor	Description of soil chemistry where pH level is below neutral ie tending to be "acid".
Anoxic	Devoid of oxygen
Bedrock	Stable hard substrate not broken into boulders or smaller
Biota	The plant and animal life, usually of a specified area
Biotope	A term which refers to the physical habitat (eg rock/sand) with its biological community (eg barnacles and mussels)
Biotope complex	Groups of biotopes with similar overall character
Brackish	Water of low salinity, mid way between seawater and fresh water
Broadleaved woodland	Woodland that is dominated by broadleaved species such as Oak, Ash, Sycamore rather than coniferous species such as Pines and Larches.
Climax vegetation	A vegetation type that is not expected to change significantly under natural conditions because there are natural factors limiting the development of other vegetation (succession) such as exposure to sea salt
Crevice	Gap in rock 10mm wide or less
Eulittoral	The main part of the littoral zone between the mean high and low water levels; normally divisible into upper, mid and lower according to tidal level.
Exposed	Habitat that faces the prevailing weather/wind or strong winds
Exposure	Degree of exposure to wave action ranging from very exposed to extremely sheltered
Fissure	Gap in rock greater than 10 mm wide
Fragility	A conservation assessment term indicating the degree of sensitivity of habitats, communities and species to environmental change
Habitat	A place in which a particular plant or animal lives
Infauna	Fauna which live in sediments such as sand or mud
Infralittoral	The shallow water zone immediately below the eulittoral exposed at extreme low water spring tides
Intertidal	A general term for the area between the highest and lowest tides.
Key	Defined here as native species or habitats that have been recognised as rare or scarce and/or are protected and/or are given priority status by recognised organisations
Littoral	The zone of shore occupied by species adapted to or needing alternate exposure to air and wetting by submersion, splash or spray.
Lower shore	The lowest zone of the eulittoral
Mid shore	A zone of the eulittoral mid way between upper and lower shore
MNCR	Marine Nature Conservation Review, part of the Joint Nature Conservation Committee (JNCC)
Moderately exposed	Habitats facing away from prevailing weather/wind but not sheltered by physical features
Non-native	A species which has been introduced by human agency to an area which is outside its natural range, has become established in the wild and has self-maintaining populations.
Noteworthy species	For the purposes of this series of reports the term indicates a species which is of note for its rarity, limited distribution or importance in management or conservation issues.
Phase 1	A first level of survey

Protected sites/species	Sites or species that have statutory (legal) protection
Resilience	The ability of an ecosystem to return to its original state after being disturbed
Rocky shore	Littoral shoreline where rock substrates form the dominant habitat; these may be bedrock and/or boulders
Sedimentary shore	A littoral shore composed of small grade sediments such including pebbles, gravels, sands and muds
Semi-natural woodland	Woodland that does not clearly originate from planted trees; it will be dominated by native species.
Seral	A stage in the natural development of vegetation from which another would be expected to develop unless managed
Sheltered	An area of coast or habitat with a low level of exposure
Southern	Species that has the main part of its distribution to the south of Britain, usually occurring in southwest habitats in Britain.
Splash zone	The supralittoral zone
Supralittoral.	The lowest terrestrial zone, also called the splash zone; of varying width/height depending on profile of shore and exposure to salt water spray.
Typical	Characteristic of a particular habitat or community
Upper shore	A zone of the eulittoral above mid shore
Vascular plants	Flowering plants (including grasses, herbaceous and tree species) and ferns