

Habitats Regulations Assessment (HRA)

Application reference:	20/01629/FUL
Application address:	Bargate Shopping Centre and adjoining land In Queensway, East Street, Hanover Buildings and High Street Southampton SO14 1HF
Application description:	Redevelopment of the former Bargate Shopping Centre and multi-storey car park, 77-101 Queensway, 25 East Street, 30-32 Hanover Buildings, 1-16 East Bargate and 1-4 High Street, excluding frontage) for mixed use development comprising 519 new homes (use class C3) and commercial uses (use class E) and drinking establishment/bar uses (Sui Generis), in new buildings ranging in height from 4-storeys to 13-storeys, with associated parking and servicing, landscaping and public realm (Environmental Impact Assessment Development affects a public right of way and the setting of the listed Town Walls).
HRA completion date:	12/03/2021

HRA completed by:	
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Summary
<p>The project being assessed is a mixed use development that will lead to the provision of 519 new homes, commercial uses and bar/cafés. The development is located approximately 1.1km from the Solent and Southampton Water Special Protection Area (SPA)/Ramsar site, 3.25km from the Solent Maritime SAC and approximately 4.7km from the New Forest Special Area of Conservation (SAC)/SPA/Ramsar site.</p> <p>The site previously contained a shopping centre and multi-storey car park however, these were demolished earlier in 2018. It is located a significant distance from the European sites and as such construction stage impacts will not occur. Concern has been raised however, that the proposed development, in-combination with other residential developments across south Hampshire, could result in recreational disturbance to the features of interest of the New Forest SPA/Ramsar site and the Solent and Southampton Water SPA/Ramsar site, and also the release of additional nitrogen and phosphorous, via waste water, which could affect the features of the Solent Maritime SAC and the Solent and Southampton Water SPA/Ramsar site.</p> <p>The findings of the initial assessment concluded that a significant effect was possible. A detailed appropriate assessment was therefore conducted on the proposed development. Following consideration of a number of avoidance and mitigation measures designed to remove any risk of a significant effect on the identified European sites, it has been concluded that the significant effects which are likely in association with the proposed development can be overcome.</p>

Section 1 - details of the plan or project

<p>European sites potentially impacted by plan or project:</p> <p>European Site descriptions are available in Appendix I of the City Centre Action Plan's Habitats Regulations Assessment Baseline Evidence Review Report, which is on the city council's website at</p>	<ul style="list-style-type: none"> ▪ New Forest SAC ▪ New Forest SPA ▪ New Forest Ramsar site ▪ Solent and Southampton Water (SPA) ▪ Solent and Southampton Water Ramsar Site
<p>Is the project or plan directly connected with or necessary to the management of the site (provide details)?</p>	<p>No – the development consists of new residential, hotel, retail and office which is neither connected to, nor necessary for, the management of any European site.</p>
<p>Are there any other projects or plans that together with the project or plan being assessed could affect the site (provide details)?</p>	<ul style="list-style-type: none"> ▪ Southampton Core Strategy (amended 2015) (http://www.southampton.gov.uk/policies/Amended-Core-Strategy-inc-CSPR-%20Final-13-03-2015.pdf) ▪ City Centre Action Plan (http://www.southampton.gov.uk/planning/planning-policy/adopted-plans/city-centre-action-plan.aspx) ▪ South Hampshire Strategy (http://www.push.gov.uk/work/housing-and-planning/south_hampshire_strategy.htm) <p>The PUSH Spatial Position Statement plans for 104,350 net additional homes, 509,000 sq. m of office floorspace and 462,000 sq. m of mixed B class floorspace across South Hampshire and the Isle of Wight between 2011 and 2034.</p> <p>Southampton aims to provide a total of 15,610 net additional dwellings across the city between 2016 and 2035 as set out in the Amended Core Strategy.</p> <p>Whilst the dates of the two plans do not align, it is clear that the proposed development of the Bargate Shopping Centre site is part of a far wider reaching development strategy for the South Hampshire sub-region which will result in a sizeable increase in population and economic activity.</p>

Regulation 68 of the Conservation of Habitats and Species Regulations 2010 (as amended) (the Habitats Regulations) is clear that the assessment provisions, i.e. Regulation 61 of the same regulations, apply in relation to granting planning permission on an application under Part 3 of the TCPA 1990. The assessment below constitutes the city council's assessment of the implications of the development described above on the identified European sites, which is set out in Regulation 61 of the Habitats Regulations.

Section 2 - Assessment of implications for European sites

Test 1: the likelihood of a significant effect

- This test is to determine whether or not any possible effect could constitute a significant effect on a European site as set out in Regulation 61(1) (a) of the Habitats Regulations.

The proposed development is located 1.1km to the west of a section of the Solent and Southampton Water SPA and Solent and Southampton Water Ramsar Site and 3.25km to the east of the Solent Maritime SAC whilst the New Forest SAC, SPA and Ramsar site are approximately 4.7km to the south.

A full list of the qualifying features for each site is provided at the end of this report. The development could have implications for these sites which could be permanent arising from the operational phase of the development.

The following mitigation measures have been proposed as part of the development:

- 4% of the CIL contribution, which will be a minimum of £117,353 will be ring fenced for footpath improvements in the Shoreburs and Weston Greenways and Peartree Green Local Nature Reserve;
- 1% of the CIL contribution, which will be a minimum of £29,338, will be allocated to the New Forest National Park Authority Habitat Mitigation Scheme;
- A contribution of £128,193 towards the Solent Recreation Mitigation Partnership;
- Information on public transport plus pedestrian and cycle route maps will be provided.
- The development will incorporate 348 cycle parking spaces for the private apartments.

Conclusions regarding the likelihood of a significant effect

This is to summarise whether or not there is a likelihood of a significant effect on a European site as set out in Regulation 61(1)(a) of the Habitats Regulations.

The project being assessed would lead to the provision of 519 new homes, commercial uses and bar/cafés approximately 1.1km from the Solent and Southampton Water Special Protection Area (SPA)/Ramsar site, 3.25km from the Solent Maritime SAC and 4.7km from the New Forest Special Area of Conservation (SAC)/SPA/Ramsar site

The site is a former shopping centre and multi-storey car park. It is located a significant distance from the European sites and as such construction stage impacts will not occur. Concern has been raised however, that the proposed development, in-combination with other residential developments across south Hampshire, could result in recreational disturbance to the features of interest of the New Forest SPA/Ramsar site and the Solent and Southampton Water SPA/Ramsar site. In addition, waste water generated by the development could result in the release of nitrogen and phosphate into the Solent leading to adverse impacts on features of the Solent Maritime SAC and the Solent and Southampton Water SPA/Ramsar site.

The applicant has provided details of several avoidance and mitigation measures which are intended to reduce the identified impacts. However, without more detailed analysis, it is not possible to determine whether the proposed measures are sufficient to reduce the identified impacts to a level where they could be considered not to result in a significant effect on the identified European sites. Overall, there is the potential for permanent impacts which could be at a sufficient level to be considered significant. As such, a full appropriate assessment of the implications for the identified European sites is required before the scheme can be authorised.

Test 2: an appropriate assessment of the implications of the development for the identified European sites in view of those sites' conservation objectives

The analysis below constitutes the city council's assessment under Regulation 61(1) of the Habitats Regulations

The identified potential effects are examined below to determine the implications for the identified European sites in line with their conservation objectives and to assess whether the proposed avoidance and mitigation measures are sufficient to remove any potential impact.

In order to make a full and complete assessment it is necessary to consider the relevant conservation objectives. These are available on Natural England's web pages at <http://publications.naturalengland.org.uk/category/6528471664689152>.

The conservation objective for Special Areas of Conservation is to, "Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features."

The conservation objective for Special Protection Areas is to, "Avoid the deterioration of the habitats of the qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Birds Directive."

Ramsar sites do not have a specific conservation objective however, under the National Planning Policy Framework (NPPF), they are considered to have the same status as European sites.

TEMPORARY, CONSTRUCTION PHASE EFFECTS

The designated sites are all located a substantial distance away from the development site and are therefore outside the zone of influence of construction activities. As a consequence, there will be no temporary, construction phase effects.

PERMANENT, OPERATIONAL EFFECTS.

Recreational disturbance

Human disturbance of birds, which is any human activity which affects a bird's behaviour or survival, has been a key area of conservation concern for a number of years. Examples of such disturbance, identified by research studies, include birds taking flight, changing their feeding behaviour or avoiding otherwise suitable habitat. The effects of such disturbance range from a minor reduction in foraging time to mortality of individuals and lower levels of breeding success.

New Forest SPA/Ramsar site/ New Forest SAC

Although relevant research, detailed in Sharp et al 2008, into the effects of human disturbance on interest features of the New Forest SPA/Ramsar site, namely nightjar, *Caprimulgus europaeus*, woodlark, *Lullula arborea*, and Dartford warbler *Sylvia undata*, was not specifically undertaken in the New Forest, the findings of work on the Dorset and Thames Basin Heaths established clear effects of disturbance on these species.

Nightjar

Higher levels of recreational activity, particularly dog walking, has been shown to lower nightjar breeding success rates. On the Dorset Heaths nests close to footpaths were

found to be more likely to fail as a consequence of predation, probably due to adults being flushed from the nest by dogs allowing predators access to the eggs.

Woodlark

Density of woodlarks has been shown to be limited by disturbance with higher levels of disturbance leading to lower densities of woodlarks. Although breeding success rates were higher for the nest that were established, probably due to lower levels of competition for food, the overall effect was approximately a third fewer chicks than would have been the case in the absence of disturbance.

Dartford warbler

Adverse impacts on Dartford warbler were only found to be significant in heather dominated territories where high levels of disturbance increased the likelihood of nests near the edge of the territory failing completely. High disturbance levels were also shown to stop pairs raising multiple broods.

In addition to direct impacts on species for which the New Forest SPA/Ramsar site is designated, high levels of recreation activity can also affect habitats for which the New Forest SAC is designated. Such impacts include trampling of vegetation and compaction of soils which can lead to changes in plant and soil invertebrate communities, changes in soil hydrology and chemistry and erosion of soils.

Visitor levels in the New Forest

The New Forest National Park attracts a high number of visitors (13.3 million annually), and is notable in terms of its catchment, attracting a far higher proportion of tourists and non-local visitors than similar areas such as the Thames Basin and Dorset Heaths. Research undertaken by Footprint Ecology, Sharp et al (2008), indicates that 40% of visitors to the area are staying tourists, whilst 25% of visitors come from more than 5 miles (8km) away from the National Park boundary. The remaining 35% of visitors are local day visitors originating from within 5 miles (8km) of the boundary.

The report states that the estimated number of current annual visits to the New Forest is predicted to increase by 1.05 million annual visits by 2026 based on projections of housing development within 50km of the Forest, with around three quarters (764,000) of this total increase originating from within 10km of the boundary (which includes Southampton).

The application site is located 4.7km from the nearest part of the New Forest SPA and Ramsar site and 2.6km from the National Park boundary in terms of linear distance and as such, residents of the proposed development would appear to fall into the category of local day visitors. However, the actual travel distance is considerably longer with the nearest road access point 11.3km away or by ferry it is a ten minute crossing, with a return fare of £7 or £10 with a bicycle, plus 4.6km along roads. Residents of the Bargate development are therefore unlikely to make this trip on a daily basis.

Characteristics of visitors to the New Forest

In addition to visitor numbers, the report, "Changing patterns of visitor numbers within the New Forest National Park", 2008 also showed that:

- 85% of visitors to the New Forest arrive by car.

- 23% of the visitors travelling more than 5 miles come from the Southampton/Eastleigh area (see para 2.1.1).
- One of the main reasons for visiting the National Park given in the 2005 Visitor Survey was dog walking (24% of visitors - Source New Forest National Park Visitor survey 2005).
- Approximately 68% of visitors to UK National Parks are families. (Source:www.nationalparks.gov.uk).

The majority of the visitors to New Forest locations arriving from Southampton could therefore be characterised as day visitors, car-owners in family groups and many with dogs.

RESIDENTIAL ACCOMMODATION

The residential element of the proposed development consists of small flats (studio, 1 and 2 bed) and 28 family sized flats (3 bed), the development is therefore unlikely to accommodate many families which form the majority of visitors to National Parks. The development also includes just 50 parking spaces for the private apartments and can therefore be considered largely car free. Residents will therefore have to rely on walking, cycling or public transport to visit places beyond the development.

Cycling and walking

The development is located close to Central Parks and a number of cycle routes which make it easy to walk and cycle around the city centre. To encourage new residents to cycle the development will incorporate 348 cycle parking spaces for the residential accommodation.

Visiting the New Forest National Park using public transport

The linear distance to the New Forest SPA/Ramsar site is approximately 4.7km however, by road the distance is somewhat longer. The shortest route, using the Hythe Ferry, is 7.6km whilst the closest section when travelling purely by road is approximately 11.3km. It is unlikely, therefore, that visits made on foot or by bicycle will a frequent occurrence.

Should visitors choose to visit the National Park using public transport they are unlikely to find it a straight forward proposition. Direct travel from the development site is not possible. The first stage of a visit requires a journey to Southampton Central Station or the bus interchange in the city centre.

Travelling onward from Southampton city centre, the destinations for train and bus services are the urban centres which, aside from Beaulieu Road, lie outside the New Forest SPA/Ramsar site. Once at these locations further travel is required to reach the designated site. Table 1 below provides details of the train services available from Southampton Central Railway Station.

Table 1 Train services from Southampton Central to New Forest Locations

Destination	Service frequency (outside of peak hours)	Journey time
Ashurst	1 service per hour	10 mins
Beaulieu Road	6 services between 0900- 1800	14 mins
Lyndhurst	No service	
Brockenhurst	4 services per hour	16 mins

Lymington	2 services per hour (change at Brockenhurst)	20 mins
Burley	No service	

The only direct bus service from Southampton to the locations in the New Forest identified above is the Bluestar 6 service which runs hourly from the city centre (during the day) to Lyndhurst, Brockenhurst and Lymington taking 30-40 minutes. Other services are available throughout the National Park from those locations.

Clearly, whilst it is possible to reach the designated site from the proposed development the process is complicated and likely to be costly.

Dog ownership

It is not feasible to ban the keeping of dogs however, it would be expected that the number of dogs would be lower than for a development with gardens. In addition, these dogs are likely to be smaller breeds that can be exercised easily in parks.

Mitigation

Although the likely frequency of recreational visits to the New Forest, arising from the proposed development, is low, there is still the risk of recreational impacts. Southampton City Council has therefore undertaken to use 5% of Community Infrastructure Levy (CIL) contributions

The majority of this money, 4%, will be used to upgrade footpaths and infrastructure in the City's greenways. The greenways are a series of wooded stream valleys within Southampton's urban area which provide opportunities for walks in a semi-natural environment. Two of the greenways, Shoreburs and Weston, plus Peartree Green Local Nature Reserve (LNR), fall within the 5km cycle catchment area shown in Inset 2.3 of the Transport Assessment. Not only are these within easy cycling distance they can be accessed via quiet roads and National Cycle Route Number 2 directly from the development.

However, even with good quality walking routes available within Southampton, the New Forest's draw as a special destination is likely to attract visitors from the Bargate development. It is therefore proposed that 1% of the CIL contribution will be used to fund the New Forest National Park Habitat Mitigation Scheme. This scheme involves the following elements:

- Access management within the designated sites.
- Alternative recreation sites and routes outside the designated sites.
- Education, awareness and promotion.
- Monitoring and research.

The development will generate a minimum CIL contribution of least £2,933,834 which will result in £146,692 funds to pay for improvements within the two greenways and towards the New Forest National Park Habitat Mitigation Scheme.

Solent and Southampton Water SPA/Ramsar site

In 2008 the Council adopted the Solent Disturbance Mitigation Project's mitigation scheme, in collaboration with other Councils within the Partnership for Urban South Hampshire, in order to mitigate the effects of new residential development on the Solent and Southampton Water SPA

and Ramsar site. This enables financial contributions to be made by developers to fund appropriate mitigation measures. The level of mitigation payment required is linked to the number of bedrooms within the properties.

The residential accommodation of the Bargate development could result in a net increase in the city's population. There is therefore the risk that the development, in-combination with other residential developments across south Hampshire, could lead to recreational impacts upon the Solent and Southampton Water SPA. The likelihood of recreational impacts occurring is clearly linked to residents' ability to access the coast. Results from the Solent Disturbance & Mitigation Project visitor survey, Fearnley, H., Clarke, R. T. & Liley, D. (2011), indicated that 52% of visitors arrived by car. Consequently, residents occupying flats without car parking will have a reduced likelihood of visiting the coast. It is therefore considered to be acceptable to reduce the contribution level to 50%. Calculations of the SRMP contribution for the development are shown below.

Size of Unit	Scale of Mitigation per Unit	Number of units	Total
Studio car free	£356/2	68	£12,104
1 Bed car free	£356/2	216	£38,448
2 Bedroom	£514	22	£11,308
2 Bed car free	£514/2	185	£47,545
3 Bedroom	£671	28	£18,788
	Total	519	£128,193

It is considered that, subject to a level of mitigation, which has been calculated as a total of £128,193, being secured through a legal agreement, appropriate and effective mitigation measures will have been secured to ensure that effects associated with disturbance can be satisfactorily removed. The applicant has agreed to enter into a legal agreement to this effect.

Water quality

In their letter date 6th September 2018, Natural England highlighted concerns regarding, "high levels of nitrogen and phosphorus input to the water environment in the Solent with evidence that these nutrients are causing eutrophication at internationally designated sites."

Eutrophication is the process by which excess nutrients are added to a water body leading to rapid plant growth. In the case of the Solent Maritime SAC and the Solent and Southampton Water SPA/Ramsar site the problem is predominately excess nitrogen arising from farming activity, waste water treatment works discharges and urban run-off.

Features of Solent Maritime SAC and Solent and Southampton Water SPA/Ramsar site that are vulnerable to increases in nitrogen levels are coastal grazing marsh, inter-tidal mud and seagrass.

Evidence of eutrophication impacting the Solent Maritime SAC and Solent and Southampton Water SPA/Ramsar site has come from the Environment Agency data covering estimates of river flow, river quality and also data on WwTW effluent flow and quality.

An Integrated Water Management Study for South Hampshire, commissioned by the Partnership for Urban South Hampshire (PUSH) Authorities, examined the delivery of development growth in relation to legislative and government policy requirements for designated sites and wider biodiversity. This work has identified that there is uncertainty in some locations as to whether there will be enough capacity to accommodate new housing growth. There is uncertainty about the efficacy of catchment measures to deliver the required reductions in nitrogen levels, and/or whether the upgrades to waste water treatment works will be enough to accommodate the quantity of new housing proposed. Considering this, Natural England have advised that a nitrogen budget is calculated for larger developments.

A methodology provided by Natural England has been used to calculate a nutrient budget and the full workings are provided in Appendix 1. The calculations conclude that there is a predicted Total Nitrogen surplus arising from the development of 420.1kg/TN/yr. This is based on the additional population from the residential units using 110litres of waste water per person per day.

Due to the nature of the site, and the surrounding urban environment, there are no further mitigation options on site. At present strategic mitigation measures are still under development and it is therefore proposed that a record of the outstanding amount of 420.1kg/TN/yr nitrogen is made.

Conclusions regarding the implications of the development for the identified European sites in view of those sites' conservation objectives

Conclusions

The following conclusions can be drawn from the evidence provided:

- Residents in the new accommodation will have only limited access to cars making travel to the New Forest and many coastal locations difficult.
- The availability of a wide range of open spaces, including a number of semi-natural sites, within easy cycling reach of the development will reduce the need to travel to the New Forest

The following mitigation measures have been proposed as part of the development:

- 4% of the CIL contribution, which will be a minimum of £117,353 will be ring fenced for footpath improvements in the Shoreburs and Weston Greenways and Peartree Green Local Nature Reserve;
- 1% of the CIL contribution, which will be a minimum of £29,338, will be allocated to the New Forest National Park Authority Habitat Mitigation Scheme;
- A contribution of £128,193 towards the Solent Recreation Mitigation Partnership;
- Information on public transport plus pedestrian and cycle route maps will be provided.
- The development will incorporate 348 cycle parking spaces for the private apartments.
- It can therefore be concluded that, subject to the implementation of the identified mitigation measures, **significant effects arising from recreational disturbance will not occur.**

References

Fearnley, H., Clarke, R. T. & Liley, D. (2011). The Solent Disturbance & Mitigation Project. Phase II – results of the Solent household survey. ©Solent Forum / Footprint Ecology.

Liley, D., Stillman, R. & Fearnley, H. (2010). The Solent Disturbance and Mitigation Project Phase 2: Results of Bird Disturbance Fieldwork 2009/10. Footprint Ecology / Solent Forum.

Sharp, J., Lowen, J. and Liley, D. (2008) Changing patterns of visitor numbers within the New Forest National Park

European Site Qualifying Features

The New Forest SAC

The New Forest SAC qualifies under Article 3 of the Habitats Directive by supporting the following Annex I habitats:

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) (primary reason for selection)
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* (primary reason for selection)
- Northern Atlantic wet heaths with *Erica tetralix* (primary reason for selection)
- European dry heaths (primary reason for selection)
- *Molinia* meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*) (primary reason for selection)
- Depressions on peat substrates of the *Rhynchosporion* (primary reason for selection)
- Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrub layer (Quercion *robori-petraeae* or *Ilici-Fagenion*) (primary reason for selection)
- *Asperulo-Fagetum* beech forests (primary reason for selection)
- Old acidophilous oak woods with *Quercus robur* on sandy plains (primary reason for selection)
- Bog woodland (primary reason for selection)
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (primary reason for selection)
- Transition mires and quaking bogs
- Alkaline fens

The New Forest SAC qualifies under Article 3 of the Habitats Directive by supporting the following Annex II species:

- Southern Damselfly *Coenagrion mercurial* (primary reason for selection)
- Stag Beetle *Lucanus cervus* (primary reason for selection)
- Great Crested Newt *Triturus cristatus*

The New Forest SPA

The New Forest SPA qualifies under Article 4.1 of the Birds Directive by supporting breeding populations of European importance of the following Annex I species:

- Dartford Warbler *Sylvia undata*
- Honey Buzzard *Pernis apivorus*
- Nightjar *Caprimulgus europaeus*
- Woodlark *Lullula arborea*

The SPA qualifies under Article 4.2 of the Birds Directive by supporting overwintering populations of European importance of the following migratory species:

- Hen Harrier *Circus cyaneus*

New Forest Ramsar Site

The New Forest Ramsar site qualifies under the following Ramsar criteria:

- Ramsar criterion 1: Valley mires and wet heaths are found throughout the site and are of outstanding scientific interest. The mires and heaths are within catchments whose uncultivated and undeveloped state buffer the mires against adverse ecological change. This is the largest concentration of intact valley mires of their type in Britain.

- Ramsar criterion 2: The site supports a diverse assemblage of wetland plants and animals including several nationally rare species. Seven species of nationally rare plant are found on the site, as are at least 65 British Red Data Book species of invertebrate.
- Ramsar criterion 3: The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scarce wetland species. The whole site complex, with its examples of semi-natural habitats is essential to the genetic and ecological diversity of southern England.

Solent Maritime SAC

The Solent Maritime SAC qualifies under Article 3 of the Habitats Directive by supporting the following Annex I habitats:

- Estuaries (primary reason for selection)
- Spartina swards (*Spartinion maritimae*) (primary reason for selection)
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (primary reason for selection)
- Sandbanks which are slightly covered by sea water all the time
- Mudflats and sandflats not covered by seawater at low tide
- Coastal lagoons
- Annual vegetation of drift lines
- Perennial vegetation of stony banks
- Salicornia and other annuals colonising mud and sand
- Shifting dunes along the shoreline with *Ammophila arenaria* (“white dunes”)

Solent Maritime SAC qualifies under Article 3 of the Habitats Directive by supporting the following Annex II species:

- Desmoulin's whorl snail *Vertigo moulinsiana*

Solent and Southampton Water SPA

Solent and Southampton Water SPA qualifies under Article 4.1 of the Birds Directive by supporting breeding populations of European importance of the following Annex I species:

- Common Tern *Sterna hirundo*
- Little Tern *Sterna albifrons*
- Mediterranean Gull *Larus melanocephalus*
- Roseate Tern *Sterna dougallii*
- Sandwich Tern *Sterna sandvicensis*

The SPA qualifies under Article 4.2 of the Birds Directive by supporting overwintering populations of European importance of the following migratory species:

- Black-tailed Godwit *Limosa limosa islandica*
- Dark-bellied Brent Goose *Branta bernicla bernicla*
- Ringed Plover *Charadrius hiaticula*
- Teal *Anas crecca*

The SPA also qualifies under Article 4.2 of the Birds Directive by regularly supporting at least 20,000 waterfowl, including the following species:

- Gadwall *Anas strepera*
- Teal *Anas crecca*
- Ringed Plover *Charadrius hiaticula*
- Black-tailed Godwit *Limosa limosa islandica*
- Little Grebe *Tachybaptus ruficollis*
- Great Crested Grebe *Podiceps cristatus*
- Cormorant *Phalacrocorax carbo*

- Dark-bellied Brent Goose *Branta bernicla bernicla*
- Wigeon *Anas Penelope*
- Redshank *Tringa tetanus*
- Pintail *Anas acuta*
- Shoveler *Anas clypeata*
- Red-breasted Merganser *Mergus serrator*
- Grey Plover *Pluvialis squatarola*
- Lapwing *Vanellus vanellus*
- Dunlin *Calidris alpina alpina*
- Curlew *Numenius arquata*
- Shelduck *Tadorna tadorna*

Solent and Southampton Water Ramsar Site

The Solent and Southampton Water Ramsar site qualifies under the following Ramsar criteria:

- Ramsar criterion 1: The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs.
- Ramsar criterion 2: The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site.
- Ramsar criterion 5: A mean peak count of waterfowl for the 5 year period of 1998/99 – 2002/2003 of 51,343
- Ramsar criterion 6: The site regularly supports more than 1% of the individuals in a population for the following species: Ringed Plover *Charadrius hiaticula*, Dark-bellied Brent Goose *Branta bernicla bernicla*, Eurasian Teal *Anas crecca* and Black-tailed Godwit *Limosa limosa islandica*.

Appendix 1 Nutrient Budget

Calculation using water rate of 110 litres waste water per person per day

Step	Measurement	Value	Unit	Explanation
Development Proposal	Development types that would increase the population served by a wastewater system	519	Residential dwellings	519 flats – studio, 1, 2 and 3 bed.
Step 1	Additional Population	1245.6	Persons	Based on the residential mix
Step 2	Wastewater volume generated by development	137,016	Litres/ day	1110 persons x 110 litres
Step 3	Receiving WWTW environmental permit limit for TN	10	Mg/l TN	
Step 4	TN discharged after WWTW	959,112	Mg/TN/day	70% of the consent limit = 7mg/l TN. 137,016 x 7
	Convert mg/TN to kg/TN per day	0.9591	Kg/TN/day	Divide by 1,000,000
	Convert kg/TN per day to kg/TN per year	350.08		x 365 days
Wastewater total nitrogen load	350.08kg/TN/yr			
Net N from land use change	0kg			
Precautionary buffer	70.02kg/TN/yr			
Total	420kg/TN/yr			