SES Water Draft Water Resources Management Plan 2019: Strategic Environmental Assessment (SEA)

Environmental Report Supporting Appendices

Project Number: 60527524

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Quality information

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Revision History

Revision	Revision date	Details	Name	Position
1	09 November 2017	Draft for internal review	Graham McGrath	Assistant Consultant
2	10 November 2017	Revised draft for approval	Alastair Peattie	Principal Consultant
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Appendix I: Regulatory requirements

Environmental report must include:	Where in the Environmental Report has this been addressed?
(a) an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;	Provided in Chapter 2 of the Environmental Report.
(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	Provided in Chapter 3 and Appendix II of the Environmental Report.
(c) the environmental characteristics of areas likely to be significantly affected;	Provided in Chapter 3 and Appendix II of the Environmental Report.
(d) any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC (The Birds Directive) and 92/43/EEC (The Habitats Directive);	Provided in Chapter 3 and Appendix II of the Environmental Report.
(e) the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	Provided in Chapter 3 and Appendix II of the Environmental Report.
(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	These are set out in Chapters 5, 6 and 7 of the Environmental Report as well as Appendix IV.
(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	These are set out in Chapters 5, 6 and 7 of the Environmental Report as well as Appendix IV.
(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	The outline reasons for the selection or rejection of alternatives are provided in Chapter 5 of the Environmental Report.
(i) a description of the measures envisaged concerning monitoring in accordance with Article 10;	There are provided in Chapter 8 of the Environmental Report.
(j) a non-technical summary of the information provided under the above headings.	A separate Non-technical summary has been prepared.

Appendix II Scoping Information

Environmental Baseline Review

Schedule 2 of the SEA Regulations lists the environmental receptors that should be considered when scoping the content of an SEA, as well as the inter-relationship between them. Each of the environmental receptors relevant to this WRMP have been considered as part of the scoping of the SEA for the dWRMP19. The following sections set out those environmental topics which are required under the SEA regulations.

Biodiversity, flora and fauna

Baseline review

A complex relationship exists between water and nature conservation. There are significant inter-relationships between this topic and others, in particular landscape and cultural heritage.

Sites of biodiversity value are generally designated at three levels, international, national and local. Internationally important sites are those designated under the Habitat, and Birds Directive, and the Ramsar Convention. These are collectively known as European sites and include Special Areas of Conservation, Special Protection Areas and Ramsar sites. These have been transposed into national law under the Conservation of Habitats and Species Regulations 2010 (as amended 2012). At a national level, Sites of Special Scientific Interest (SSSI) are designated under the National Parks and Access to the Countryside Act 1949, amended in the Environment Act 1995. At a local level Sites of Importance for Nature Conservation (SINCs) can be designated by Local Planning Authority, and thus are granted protection through the development plan.

Whilst 'designated' biodiversity sites are offered a degree of protection from development and other activities through European and domestic legislation there are still a significant amount of sites designated 'below' European and UK legislation that have biodiversity value locally and cumulatively. The array of designated and non-designated sites forms a network of sites that can be mutually supportive and inter-connected.

Section 41 of the Natural Environment and Rural Communities (NERC) Act highlights the important habitats and species that have declined in coverage over recent decades and are now considered to be threatened. Some of the protected species and habitats within the Study Area (such as wetlands) are identified in Section 41 of the NERC Act.

Ancient woodlands are defined as areas "*that have been wooded continuously since at least 1600 AD*"[1]. These areas are generally protected at a local level through planning policy. There are areas of Ancient Woodland throughout the Study Area.

Nature conservation designations

There are five European sites within the Study Area; this includes Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).[2] These sites are:

Mole Gap to Reigate Escarpment SAC

It covers a relatively large area over the north west of the study area and is predominantly made up of scrub, heath, dry grassland and broad-leaved deciduous woodland. This site hosts the priority habitat type "orchid rich sites". This large but fragmented site on the North Downs escarpment supports a wide range of calcareous grassland types on steep slopes. It exhibits a wide range of structural conditions ranging from short turf through to scrub margins, and is particularly important for rare vascular plants, including orchids. It is also significant in exhibiting transitions to scarce scrub, woodland and dry heath type. There are seven designated features of European interest, most of

[1] DCLG (2012) National Planning Policy Framework [online] @ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf. Accessed November 2016

[2] Collectively these are referred to as European sites (together with Ramsar sites) and are designated as part of the Habitats and Birds Directives (part of the Natura 2000 network of sites).

which are not water-dependent. However, one of the features of interest is the occurrence of great crested newts, for which this area is considered to support a significant presence. This species needs ponds and pools for breeding but also suitable adjacent terrestrial habitats to hibernate and feed for most of the year. This site fulfils these habitat requirements and is considered one of the best sites in Europe for this species.

Thames Basin Heaths SPA

The open heathland habitats overlie sand and gravel sediments which give rise to sandy or peaty acidic soils, supporting dry heathy vegetation on well-drained slopes, wet heath on low-lying shallow slopes and bogs in valleys. The site consists of tracts of heathland, scrub and woodland, once almost continuous, but now fragmented into separate blocks by roads, urban development and farmland. Less open habitats of scrub, acidic woodland and conifer plantations dominate, within which are scattered areas of open heath and mire. The site supports important breeding populations of a number of birds of lowland heathland, especially Nightjar *Caprimulgus europaeus* and Woodlark *Lullula arborea,* both of which nest on the ground, often at the woodland/heathland edge, and Dartford Warbler *Sylvia undata*, which often nests in gorse. Scattered trees and scrub are used for roosting.

South West London Waterbodies SPA

The South-West London Water Bodies SPA comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open water habitats. The reservoirs and gravel pits function as important feeding and roosting sites for wintering wildfowl, in particular Gadwall *Anas strepera* and *Shoveler Anas clypeata*, both of which occur in numbers of European importance.

Wimbledon Common SAC

Wimbledon Common has a large number of old trees and much fallen decaying timber. It is at the heart of the south London centre of distribution for stag beetle Lucanus cervus, and a relatively large number of records were received from this site during a recent nationwide survey for the species (Percy et al. 2000). The site supports a number of other scarce invertebrate species associated with decaying timber.

Richmond Park SAC

Richmond Park has a large number of ancient trees with decaying timber. It is at the heart of the south London centre of distribution for stag beetle Lucanus cervus, and is a site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees.

There are 29 SSSI in the Study Area. Those that are considered to be particularly dependent on water quantity or quality are included in the baseline review below. The condition of the SSSIs in England is assessed by Natural England, using six categories. These categories are outlined in the glossary of terms in this report. Table 1-1 contains a summary of the previous condition of the SSSIs contained within the Study Area compared to the current condition. The current condition description box is shaded **green** where there has been an improvement in condition, **blue** where the condition remains unchanged, **red** where there has been deterioration in condition, and **grey** where no information has been available to update the baseline.

Table 1-1 Previous and current condition of SSSIs within the Study Area

SSSI	2014 condition description[3]	Current condition description[4]
Mole Gap to Reigate Escarpment	50% of the area was in favourable condition, 50% of the area was in unfavourable but recovering condition.	52% of the area is in favourable, 47% of the area is unfavourable but recovering condition, less than 1% of the area is unfavourable no change.
Bookham Commons	85% of the area was in favourable condition, 5% was in unfavourable but recovering condition.	Condition remains unchanged.
Epsom and Ashtead	85% of the area was in favourable	Condition remains unchanged.

[3] Atkins (2012) Water Resources Management Plan SEA Scoping Report Sutton and East Surrey Water [online] available at: https://www.waterplc.com/userfiles/file/SESW_dWRMP_SEA_Scoping_Rept_V4.pdf
[4] Natural England (2016) Designated site details [online] available at: https://designatedsites.naturalengland.org.uk/

Commons	condition 15% was in unfavourable but recovering condition.	
Reigate Heath	Majority of the area in favourable condition, Some of the area was unfavourable and declining, and some of the area was unfavourable, no change.	Condition remains unchanged. In particular, the area of broadleaved woodland remains the same as the previous assessment (unfavourable no change) and that it is severely dried out with corresponding impacts on ground flora. In common with conclusions from the previous SEA, it is considered that water quality and quantity have the potential to affect the condition of this site.
Cowden Meadow	Unfavourable condition.	Condition remains unchanged.
Titsey Woods	80% of the area was in unfavourable, but recovering condition 10% is unfavourable with no change	No information in the Natural England Designated site details database was found to enable the condition of this site to be updated.
Blindley Heath	Unfavourable, recovering condition.	Condition remains unchanged.
Hedgecourt	45% of the area was in favourable condition, 55% unfavourable, recovering condition.	Condition remains unchanged.
Godstone Ponds	45% of the area was in unfavourable no change condition. 21% of the area was in favourable condition. 19% of the area was in unfavourable declining condition. 15% of the area was in unfavourable, recovering condition.	Condition remains unchanged.
Esher Commons	80 % of the area was in unfavourable, recovering condition. 20% of the area was in favourable condition.	Condition remains unchanged.

Summary of change to SSSI condition since previous WRMP SEA

One SSSI (Mole Gap to Reigate Escarpment) has changed condition since the last SEA. The condition of this SSSI has improved marginally to from 50% to 52% favourable condition. However, there has also been a small increase in the percentage of the SSSI deemed to be in unfavourable condition with no change (from 0% to slightly less than 1%. It will be important for the assessment of effects of options proposed through the WRMP to focus on any links with this SSSI.

Flora and fauna

Section 4.2.1.2 of the WRMP2014 SEA[5] identified that the Study Area supports a range of protected terrestrial and aquatic species and habitats, a number of which are potentially vulnerable to changes in water levels and river flows. Given that the baseline review of water availability has not changed materially, the species' vulnerability to changes in water quantity and quality is not considered to have changed materially (see section 0).

The WRMP2014 SEA[6] highlighted that the Thames Basin Heaths SPA is located near Cobham that it supports important breeding populations of vulnerable ground-nesting birds including; Nightjar and Woodlark and is also an important site for Dartford Warbler. However, these habitats are not dependant on the water environment and are therefore very unlikely to be affected by options considered in the WRMP process. The Bough Beech Reservoir is located within the study area and is important for many species of wildfowl with over 150 bird species recorded on a regular basis. The

[5] Atkins (2014) Water Resources Management Plan – Strategic Environmental Assessment, Final SEA Environmental Report
[6] Atkins (2014) Water Resources Management Plan – Strategic Environmental Assessment, Final SEA Environmental Report

reservoir is noted for providing a habitat for migrating ospreys in spring and autumn. Other rare and important species include spotted sandpiper, long-tailed duck and little crake. Any potential effects which options may have on habitats which migratory and breeding birds are dependent on should be considered further as part of the SEA process.

UK Biodiversity Action Plan (BAP) priority habitats cover a wide range of semi-natural habitat types, and were those that were identified as being the most threatened and requiring conservation action under the BAP. In this context, there are a total of nine BAP priority habitats located within the Study Area. These habitats and the area which they make up are outlined below in figure 3.2.

Table 2. BAP priority habitats located within the Study Area

Habitat	Area (Ha)
Deciduous woodland	12862
Good quality semi-improved grassland	692
Lowland calcareous grassland	534
Lowland dry acid grassland	27
Lowland fens	43
Lowland heathland	111
Lowland meadows	91
No main habitat but additional habitats present	1331
Traditional orchard	73

Transfer of non-native species in the freshwater and marine environment through water transfers has the potential to be a key issue in the Study Area. The Great Britain Invasive Non-native Species Strategy[7] notes that as of 2015 there were circa 80 non-native species established in both the freshwater and marine environments in the UK. A briefing paper produced by the Salmon and Trout Association notes that some invasive non-native species can have indirect impacts on native fisheries in the UK by influencing the ecosystems they are located in. There have been recorded instances of invasive Signal Crayfish within the Study Area (in the River Eden, downstream of Caterfield Bridge). The presence of Signal Crayfish could have significant impacts on the native White Clawed Crayfish in the Upper Eden. European eel (Anguilla anguilla) are also present in all of the river systems mentioned and this species is protected under the Eel Regulations 2009/EU Eel Regs, and may also be vulnerable to the impacts of invasive non-native species. These impacts should therefore be considered further as part of the SEA process if WRMP options are likely to have impacts in the vicinity of fisheries.

Fisheries

Section 4.2.1.3 of the WRMP2014 SEA[8] identified that the Study Area supports a range of fish species that are not protected, but are nonetheless vulnerable to changes in water quantity and quality. The rivers Eden, Mole, Hogsmill, Wandle and Beverley Brook all support cyprinid fish populations of varied quality and are therefore designated as Cyprinid Status under the European Freshwater Fisheries Directive (78/659/EE). This designation refers to river reaches and catchments that have water quality that is suitable for supporting salmonid or cyprinid fish.

Future environment without the WRMP

Water-dependent habitats (such as reed beds and wet woodland) are particularly susceptible to changes in water quality and quantity and will be vulnerable to temporary and permanent changes in the water supply as well as the long-term changes as a result of climate change. Given the requirements of the WFD, it has been assumed that the environmental quality of the water bodies and water-dependent habitats in the study zone will be managed to achieve an improvement in the future.

[7] DEFRA (2015): The Great Britain Invasive Non-Native Species Strategy https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/455526/gb-non-native-species-strategy-pb14324.pdf (Accessed July 2017)
[8] Ibid 22

Population and human health

This section sets out the environmental baseline with respect to population (e.g. demographics and population characteristics including future growth) and human health.

Baseline review

Population and human health

There has not been a Census update on population at the required level of detail since the WRMP2014 SEA Environmental Report was produced. Given this, the current population and human health characteristics are assumed to be the same baseline as the WRMP2014 SEA Environmental Report.

The data contained in the WRMP2014 SEA Environmental Report was produced by Experian in 2012 to project population and property figures for the dWRMP planning horizon to 2039/40.

Table 4-3 2011/2012 and future population within the Study Area

	2011/2012		2039/2040		Growth	
Area	Total population	Total properties	Total population	Total properties	Population	Properties
Company boundary	675,289	279,802	846,430	369,047	**171,141**	**89,245**

Source: Atkins (2014) Final WRMP, Sutton and East Surry Water: strategic environment assessment

Table 4.2 below lists the percentage of respondents to the 2011 Census describing their general health as Good, Fairly Good and Not Good for each of the Local Authority areas. Statistics for the South East and England as a whole are also shown for comparison.

Table 4-2 Population health by Local Authority areas

Local Authority	Good General Health (%)	Fair General Health (%)	Bad General Health (%)
Crawley	38,279	12,856	3,679
Croydon	128,634	43,473	12,734
Elmbridge	40,555	12,360	3,213
Epsom & Ewell	25,355	7,988	2,016
Merton	67,098	21,025	5,930
Mole Valley	28,801	9,607	2,437
Reigate & Banstead	46,908	14,866	3,844
Sevenoaks	38,344	13,180	3,569
Sutton	67,563	22,127	6,072
Tandridge	28,514	9,450	2,403
The South East	2,989,920	1,037,592	291,456
England	18,141,457	6,954,092	2,250,446

Source: Office for National Statistics (2011) Census

Baseline information for population and human health will be updated when further information becomes available as SES Water complete forecasts for the 2019 periodic review of the dWRMP2019.

Human health considerations also cross cut a number of other SEA topics, including those relating to biodiversity such as green infrastructure considerations. In this context, guidance from Natural England notes that green infrastructure can support healthier lifestyles by providing green routes for walking and cycling, and green spaces for exercise and play – this in turn can have positive knock on effects for both mental and physical health.

Economy

The majority of the Study Area is located within Surrey, which is one of the largest sub-regional economies in the South East of England[9]. Surrey has some of the highest disposable incomes in the South East. The remainder of the Study Area is located within the boroughs of the Greater London region, which are more densely populated than Surrey.

Given these factors are not considered to have changed materially, this SEA Scoping Report assumes the same baseline as the WRMP2014 SEA Environmental Report. The South East as a whole is the second largest economic contributor among the regions of England and countries of the UK. Its local authorities have some of the highest levels of productivity after London. The region's economy is strong, broad based and predominantly service oriented, allowing it to make a major contribution to the UK economy. Overall, the South East is characterised by generally high levels of education and high employment, leading to gross domestic household disposable incomes per head being above the UK average and a generally high economic well-being of its residents (Office for National Statistics).

The northernmost part of SES Water's supply area, is located within boroughs of the Greater London region. These boroughs are less affluent than Surrey and as such the economy within the area is considered to be not as strong. As a result the impact on water use for example for swimming pools, watering gardens, etc. is considered to be of less importance. However, the area is more densely populated and therefore the pressure on water resources is still high.

Recreation

The WRMP2014 SEA identified that the Study Area supports a range of both aquatic- and terrestrially-based recreational activities, which either directly or indirectly rely on water resources. Given the Study Area's ability to support such activities has not changed materially, this SEA Scoping Report assumes the same baseline as the WRMP2014 SEA Environmental Report.

The WRMP2014 SEA Environmental Report stated that public rights of way of particular note in the study area include:

The North Downs Way National Trail

The Vanguard Way

The Greensand Way

It also noted that rivers and waterbodies in the study area are important sources of recreation. For example, the Wandle is a popular river for canoeing, and Bough Beech Reservoir which is owned by SESW is an important recreational resource for bird watching, coarse fishery and sailing.

In addition to the baseline already outlined in the previous SEA, Sport England, in partnership with national governing bodies of sport, has identified a number of Significant Areas for Sport (SASPs) in the Study Area. A SASP recognises that a particular site is one of the most important sites for individual sports. Those present in the Study Area, and which are directly or indirectly dependent on water quality or quantity include:

For Canoeing:

The River Wey

For Water Skiing:

[9] Surrey County Council (2013) Surrey Economic Overview [online] available at: https://www.surreycc.gov.uk/environment-housing-and-planning/development-in-surrey/economic-development-in-surrey/economic-profile-of-surrey accessed November 2016

John Battleday Water Ski

Future environment without WRMP

The WRMP2014 SEA predicted population growth and growth in households connected to SES Water's distribution system, which suggests that there will be an increase in demand for water within the Study Area that will persist in dWRMP2019 planning period. Baseline information for population and human health will be updated when further information becomes available as SESW complete forecasts for the 2019 periodic review of the dWRMP2019.

Soils

Baseline review

Soils and geologically sites of special scientific interest

The agricultural land classification (ALC) provides a framework for classifying land according to the extent to which its characteristics affect agricultural use. In this context, agricultural land is classified according to five grades, ranging from grade 1 (excellent quality agricultural land) to grade 5 (very poor quality agricultural land) with two additional grades for urban land and non-agricultural land. Land within the urban settlements of the Study Area is predominantly classified as urban and non-agricultural land. Outside these settlements, land is classified as grade 4 (poor quality agricultural land) and grade 3 (agricultural land). Data are only available for the pre-1988 ALC; therefore it is not possible to determine whether this is grade 3a (good quality) or grade 3b (moderate quality) agricultural land.

The previous SEA report notes that there are four SSSIs within the area which have been designated for their geological significance: Mole Gap to Reigate Escarpment; Auclaye; Clock House Brickworks; and Turner's Hill. Table 1-4 provides a summary of the previous and current condition assessment of these SSSIs.

Table 1-4 Previous and current geological condition of SSSIs present in the Study Area

SSSI	2014 condition description[10]	Current condition description[11]
Mole Gap to Reigate Escarpment	Favourable condition	No change
Auclaye	Unfavourable and declining condition due to encroachment of vegetation obscuring the feature	No change
Clock House Brickworks	Favourable condition	No change
Turner's Hill	Favourable condition	No change

Summary of change to SSSI condition since previous WRMP SEA

Geological SSSIs are generally less susceptible to impacts from development when compared to biological SSSIs. This can be seen in the condition of the SSSIs presented in Table 1-4, which shows that none of the geological SSSIs within the Study Area have changed condition from the WRMP2014 SEA. As the Auclaye SSSI is currently assessed as being in unfavourable and declining condition it may continue to decline in condition due to vegetation ingress.

Regionally important geological and geomorphological sites

Sites that are designated as Regionally Important Geological and Geomorphological Site (RIGS) are recognised as important earth science and landscape features for future generations to enjoy. The baseline status of such sites was not reported in the WRMP2014 SEA, because it was considered appropriate to assess impacts on such sites at the scheme level. The same approach is taken in this SEA Scoping Report, and therefore RIGS are not reported.

[10] Atkins (2014) Final WRMP, Sutton and East Surry Water: strategic environment assessment.
[11] Natural England (2016) Designated site details [online] available at: https://designatedsites.naturalengland.org.uk/

Historical Land Use

Information available from the Environment Agency indicates that there are a number of known historic landfill sites throughout the study area, which could cause a risk of contaminated land. Once further details are known about the options, further information on contaminated land will be obtained if required and considered further as the SEA progresses.

Future environment without the WRMP

The condition of sites designated for geodiversity (i.e. SSSIs) is not dependent on either the quality or quantity of water present. Therefore, these sites are unlikely to be affected by the options being proposed through the dWRMP2019. However, agricultural land may come under increasing pressure from development in the Study Area through the identified need for land to support housing and employment. Additionally, the UK Climate Change Risk Assessment[12] identified that *"extreme weather events, such as very high or very low temperatures and changes in precipitation, are likely to become more frequent throughout this century. These changes pose a threat to future productivity and farming and forestry business incomes. In addition, the cumulative effects from soil erosion and disease may affect businesses over many years."*

[12] Department for Environment, Food and Rural Affairs (2012) climate change risk assessment [online] available at: https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-government-report

Water

Baseline review

Water availability

Water availability from both groundwater bodies and surface water bodies is a key consideration in developing the dWRMP2019. The Environment Agency (EA) is responsible for licensing water abstraction in accordance with six year plans known as catchment abstraction management strategies (CAMS). For SEA purposes CAMS documents contain useful information on the baseline water environment of the Study Area.

The Medway catchment and the Mole catchment are the two most significant catchments within the Study Area. However, the upper reaches of the River Wandle, Beverley Brook and River Hogsmill also flow through the north of the Study Area. These are documented in the London CAMS.

The WRMP2014 SEA Scoping Report developed the baseline condition based on the 2005 Medway CAMS, the 2007 Mole CAMS, and the 2009 London CAMS. Since the publication of the previous SEA Scoping Report, the CAMS which cover the SES Water Study Area have been updated (all published in 2013) and have been drawn upon to provide an updated current and future baselines. The relevant CAMS are:

The 2013 Medway CAMS;[13]

The 2013 Mole CAMS;[14] and

The 2013 London CAMS.[15]

Tables 6.1 to 6.3 outline the previous and current water resource availability in the Water Resource Management Units (WRMUs) which make up each catchment.

The resource availability classification used in the previous CAMS documents are defined as follows:

- **Water available –** water likely to be available at all flows including low flows, although some restrictions may apply.
- **No water available –** no water available for further licensing at low flows although water may be available at higher flows with appropriate restrictions.
- **Over-licensed –** current actual abstraction is resulting in no water available at low flows. If existing licences were used to their full allocation, they would have the potential to cause unacceptable environmental impact at low flows. Water may be available at high flows with appropriate restrictions.
- **Over-abstracted –** existing abstraction is causing unacceptable environmental impact at low flows. Water may still be available at high flows with appropriate restrictions.

The resource availability classification used in the most recent (2013) CAMS documents included a number of additional classification types which are defined as follows:

- **High hydrological regime –** there is more water than required to meet the needs of the environment. However, due to the need to maintain the near-pristine nature of the water body, further abstraction is severely restricted.
- **Water available for licensing –** there is more water than required to meet the needs of the environment. New licences can be considered depending on local and downstream impacts.

[13] Environment Agency (2013) Medway abstraction licensing strategy [online] available at: https://www.gov.uk/government/publications/medway-catchment-abstraction-licensing-strategy
[14] Environment Agency (2013) Mole abstraction licensing strategy [online] available at: https://www.gov.uk/government/publications/mole-catchment-abstraction-licensing-strategy
[15] Environment Agency (2013) London abstraction licensing strategy [online] available at: https://www.gov.uk/government/publications/london-catchment-abstraction-licensing-strategy

- **Restricted water available for licensing –** full licensed flows falls below the environmental flow indicator (EFI). If all licensed water is abstracted there will not be enough water left for the needs of the environment. No new consumptive licences would be granted. It may also be appropriate to investigate the possibilities for reducing fully licensed risks. Water may be available for purchase (known as licence trading) from an existing licence holder.
- **Water not available for licensing –** recent actual flows are below the EFI. This scenario highlights water bodies where flows are below the indicative flow requirement to help support Good Ecological Status (as required by the Water Framework Directive).
- **Highly Modified Water Bodies (HMWBs, and /or discharge rich water bodies) –** these water bodies have a modified flow that is influenced by reservoir compensation releases or they have flows that are augmented. These are often known as 'regulated rivers'. They may be managed through an operating agreement, often held by a water company. The availability of water is dependent on these operating agreements.

River flows change naturally throughout the year. The EA have updated the resource availability status in the most recent CAMS documents to reflect this, so as to be able to protect flow variability in rivers from low to high flow conditions. The EA use flow statistics expressed as the percentage of time that flow is exceeded. Resource availability is calculated at four different flows, Q95 (lowest), Q70, Q50 and Q30 (highest). This SEA has taken a precautionary approach to estimating resource availability, and therefore the 2013 status shown in the tables below reflects the lowest status (Q95).

Medway CAMS

Table 1-5 describes the condition of each WRMU at the time of the previous CAMS study in 2005, and provides an updated condition description for the most recent CAMS document (2013). Additionally, the resource availability status is shown both for 2005 and for 2013, to help highlight trends in the baseline condition in each WRMU. The table suggests that, broadly, the condition has not changed significantly since 2005.

Table 1-5 Water resource availability update in the Medway Catchment

Water resource management unit	2005 condition description[16]	2005 resource availability status[17]	2013 condition update[18]	2013 resource availability status[19]
River Eden	A large number of surface water abstractions were occurring upstream of the assessment point, including abstraction for Bough Beech Reservoir.	Over licensed at low flows.	Consumptive abstraction is available less than 30% of the time.	Water not available for licensing at low flows.
Hastings Bed (groundwater)	It was considered that any abstraction at rates necessary for viable public water supply would adversely affect the flow of the headwater streams draining the Hastings Beds. Consequently, there was a presumption against licensing further increases in direct abstraction from the Hastings Bed.	No water available at low flows.	There remains a presumption against further unconstrained consumptive abstraction from the Hastings Bed Aquifer. Any new or varied licence will be likely to have an Antecedent Winter Rainfall Condition. The total volume of abstraction authorised for any water year (12 months from 1st October) will be dependent on the volume of previous winter rainfall.	Water not available for licensing at low flows.
Lower Green sand	The Lower Greensand aquifer was identified to be	No water available at	There remains a presumption against further unconstrained consumptive	Water not available for

[16] Atkins (2014) Final WRMP, Sutton and East Surry Water: strategic environment assessment.
[17] Ibid 20
[18] Environment Agency (2013) Medway Abstraction Licensing Strategy [online] available at: https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process
[19] Ibid 22

Water resource management unit	2005 condition description[16]	2005 resource availability status[17]	2013 condition update[18]	2013 resource availability status[19]
(groundwater)	under stress from abstraction and the EA therefore sought to implement time limited licences. There has been a presumption against licensing for abstraction for consumptive use.	low flows.	abstraction from the Lower Greensand Aquifer. Any new or varied licence will be likely to have an Antecedent Winter Rainfall Condition. The total volume of abstraction authorised for any water year (12 months from 1st October) will be dependent on the volume of previous winter rainfall.	licensing at low flows.

Mole CAMS

Table 1-6 describes the condition of water resources within each WRMU at the time of the previous CAMS in 2007, and updates the condition for the most recent CAMS document (2013). Additionally, the resource availability status is shown both for 2007 and for 2013, to help highlight trends in the baseline condition in each WRMU. The table suggests that there has not been a significant change in condition in the Mole catchment since 2007.

Table 1-6 Water resource availability update in the Mole Catchment

Water resource management unit	2007 condition description[20]	2007 resource availability status[21]	2013 condition description[22]	2013 resource availability status[23]
Lower Mole and Mole Gap	There were low levels of abstraction noted within this sub-catchment. There were small volumes of surface water abstraction for spray and trickle irrigation in the Lower Mole. Discharges into the Mole Gap were small in relation to abstraction amounts.	Water available – overridden to no water available.	There is little abstraction within this sub–catchment. There are small volumes of surface water abstraction for spray and trickle irrigation in the Lower Mole. There are some significant consumptive abstractions especially for public water supply. Discharges into the Mole Gap are small in relation to abstraction volumes.	Water available for licensing – overridden to water not available for licensing.[24]
Middle Mole and Upper Mole	The Middle and Upper Mole drain the urbanised areas of Crawley, Dorking and Horley. There are seven sewage treatment works along its length, the largest of which are in Crawley, Dorking and Horley. In the summer approximately 74% of flow was effluent.	Water available – overridden to no water available.	The Middle Mole has a smaller proportion of flow coming from groundwater sources due to the higher proportion of clay covering the sub-catchment. There are no significant abstractions or discharges within this sub-catchment that have an impact on the Upper Mole. There are only very minor discharges, in the form of treated sewage effluent discharge from private sewage systems.	Water available for licensing – overridden to water not available for licensing[25].
Redhill Brook and Salfords	Redhill Brook rises near Warwick Wold and meets the Salfords Stream just south of Redhill Aerodrome. There are	Water available – overridden to no water	This sub catchment is dominated by artificial influences. In the Holmethorpe area there has been large scale dewatering for sand processing and	Water available for licensing – overridden to

[20] Atkins (2014) Final WRMP, Sutton and East Surry Water: strategic environment assessment.
[21] Ibid 24
[22] Environment Agency (2013) Mole Abstraction Licensing Strategy [online] available at: https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process
[23] Ibid 26
[24] The river and streams in the Mole catchment are tributaries that feed into the Thames Corridor CAMS. River flow in these tributaries will have a cumulative impact on flows within the River Thames. In order to prevent the over-abstracted reaches of the Thames worsening, water abstracted within tributary CAMS must consider the requirements of that water for the River Thames. Consequently, although flow in these tributaries meets requirements to allow water available for licencing, they have been restricted to account for cumulative impacts on the Thames.
[25] Ibid.

Water resource management unit	2007 condition description[20]	2007 resource availability status[21]	2013 condition description[22]	2013 resource availability status[23]
Stream	two surface water abstractions and three sewage treatment works in the WRMU.	available	landfill. This lowered the groundwater levels; however this water was discharged back into the Redhill Brook, which is part of the same sub catchment. In recent years, levels have recovered where dewatering has stopped.	water not available for licensing[26]
Confined Chalk and Confined Lower Green sand	Abstraction from the groundwater does not affect surface water flows. Groundwater flow was generally to the north. There were abstractions at six sites from this unit. The Chalk is the most significant aquifer in the catchment and across southern England, both as a source of supply and for storage capacity.	Water available	Abstraction from the confined aquifers does not impact on surface water flows as they are not in direct hydraulic continuity with the surface water. For new consumptive abstractions from the Confined Chalk and Confined Lower Greensand aquifers, new proposals may be considered on a case by case basis, subject to local assessment. This is on the condition that the Chalk aquifer is full to the base of the overlying clay, and groundwater does not show unacceptable trends of long-term decline.	Water available for licensing.
Un-confined Chalk	Abstraction from this unit impacts surface water flows in the Mole near Leatherhead. There are some significant consumptive abstractions especially for public water supply, which are from the unconfined Chalk aquifer near Leatherhead. These abstractions take water away from what would otherwise supplement the flow through baseflow and flow which would go into the confined Chalk.	Over licensed.	New consumptive abstraction licences from the Unconfined Chalk for large abstractions are unlikely to be granted, but proposals will be considered on a case by case basis. Small scale abstractions with a direct and immediate impact on the river, or where the groundwater flow is towards the river (rather than the Confined Chalk) will only be permitted at times of high flow with suitable constraints to protect the river environment.	Water restricted for licensing.

London CAMS

[26] Ibid.

Table 1-7 describes the condition of water resources within each WRMU at the time of the previous CAMS in 2009, and updates the condition for the most recent CAMS document (2013). Additionally, the resource availability status is shown both for 2009 and for 2013, to help highlight trends in the baseline condition in each WRMU. The table suggest that the conditions in the London CAMS area have not changed significantly since 2009. However, the resource availability status has been changed to 'water not available for licensing' to take account of the flow requirements of the River Thames (of which these rivers are tributaries), and which is currently over-abstracted.

Table 1-7 Water resource availability update in the London Catchment

Water resource management unit	2009 condition description[27]	2009 resource availability status[28]	2013 condition description[29]	2013 resource availability status
Wandle and Ravensbourne	The Ravensbourne and Wandle rise from the unconfined chalk of the North Downs. River levels rise quickly following rainfall due to urbanisation and the clay in the lower catchment. The existing abstractions were considered sustainable as the environment was not being compromised.	No water available.	The Wandle flows into the Thames, which is heavily impacted by abstractions. Therefore, in order to protect this water body, the unit is heavily restricted for licensing. The resource availability of the Ravensbourne is 'restricted water available for licensing.	Water not available for licensing
Beverley Brook and Crane	The Beverley Brook rises between Stoneleigh and Sutton and flows north towards the Thames. The existing abstractions were considered sustainable as the environment was not being compromised.	Water available.	Local abstractions in this catchment are sustainable and the environment is not being compromised. Downstream, the Upper Thames water body is stressed and as a result the licence strategy must account for the flow requirements of the River Thames, ensuring the amount of water flowing into the River Thames will remain protected.	Water not available for licensing.
Hogsmill	This unit comprises the River Hogsmill and the Unconfined Chalk. The existing abstractions were considered sustainable as the environment was not being compromised. No further groundwater resources were considered to be available from this WRMU.	No water available.	The licensing strategy for this river must take into account the flow requirements of the River Thames, ensuring that the amount of water flowing into the River Thames will remain protected.	Water not available for licensing.

Water quality and the Water Framework Directive

As discussed in section **Error! Reference source not found.** there is a requirement for the goals of he WFD to be taken account of as part of the dWRMP2019. The environmental objectives of the WFD are:

- *"to prevent deterioration of the status of surface waters and groundwater*
- *to achieve objectives and standards for protected areas*
- *to aim to achieve good status for all water bodies or, for heavily modified water bodies and artificial water bodies, good ecological potential and good surface water chemical status*
- *to reverse any significant and sustained upward trends in pollutant concentrations in groundwater*
- *the cessation of discharges, emissions and loses of priority hazardous substances into surface waters*

[27] Atkins (2014) Final WRMP, Sutton and East Surry Water: strategic environment assessment.
[28] Ibid 28
[29] Environment Agency (2013) Mole Abstraction Licensing Strategy [online] available at: https://www.gov.uk/government/collections/water-abstraction-licensing-strategies-cams-process
Ibid 30

- *progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants"*[30]

Through the WFD, areas are designated as river basin districts, each with their own management plan which sets objectives for the area. The SES Water Study Area falls within the Thames River Basin. Data from the 2009 Thames River Basin Management Plan (RBMP) were included in the WRMP2014 SEA Scoping Report. These data have been updated in the 2015 Thames RBMP and are incorporated within this SEA Scoping Report.

The Thames RBMP sets out legally binding objectives for both surface water bodies and groundwater bodies covered by the RBMP. For surface waters, objectives are set for ecological and chemical status. For artificial or heavily modified water bodies, objectives are set for ecological potential and chemical status. For groundwater, objectives are set for quantitative and chemical status. The default objective is good status. Less stringent objectives have been set in some cases where natural conditions, technical feasibility or disproportionate cost make improvement impractical. The default deadline for achieving objectives is 2021. However, extended deadlines of 2027 or beyond have been set in some cases where it would be more appropriate, have less impact on existing activities or where the environment will need more time to respond to the planned measures.

Surface water quality

Table 1-8 sets out the current and predicted ecological and chemical status of the surface water bodies within the RBMP area. By 2021, there is predicted to be a general improvement in the quality of the ecological status of surface waterbodies; however the chemical status of surface water bodies is not expected to change.

Table 1-8 Current and predicted 2021 ecological and chemical status of surface water bodies

	Ecological Status				Chemical Status	
Status	**Bad**	**Poor**	**Mod**	**Good or Better**	**Fail**	**Good**
Current status (2015)	27	112	320	39	5	493
Predicted status (2021)	22	109	317	50	5	493
Predicted change	-5	-3	-3	11	0	0

Source: Thames RBMP[31]

The River Mole Catchment is the largest within the Study Area. The WRMP2014 SEA noted that the majority of surface water bodies within this catchment were designated as heavily modified and in poor or moderate ecological status / potential, but in good status in terms of chemical quality. Data from the EA[32] shows that this is generally still the same in 2015; with 13 surface waterbodies in moderate status, six are poor status and two are good status.

The River Eden is the second largest watercourse within the Study Area and is part of the Medway catchment. The WRMP2014 SEA noted that the majority of the River Eden was designated as being heavily modified and in both poor or moderate ecological quality potential and good chemical quality status. Data from the EA[33] shows that this is generally the same as at 2015.

Other significant watercourses within the Study Area include:

[30] Environment Agency (2015) Thames River Basin District River Basin Management Plan [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/500548/Thames_RBD_Part_1_river_basin_management_plan.pdf
[31] Environment Agency (2015) Thames River Basin District River Basin Management Plan [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/500548/Thames_RBD_Part_1_river_basin_management_plan.pdf
[32] Environment Agency (2016) Catchment Data Explorer [online] available at: http://environment.data.gov.uk/catchment-planning/ManagementCatchment/1019
[33] Environment Agency (2016) Catchment Data Explorer [online] available at: http://environment.data.gov.uk/catchment-planning/ManagementCatchment/1019

- River Hogsmill, which is in moderate ecological quality potential and good chemical status, and has not changed since the WRMP2014 SEA;
- Beverly Brook, which has improved from failing chemical quality status and being at poor ecological quality potential since the WRMP2014 SEA. It is now at moderate ecological potential and good chemical status; and
- The River Wandle, which has improved from poor ecological quality potential to poor and moderate ecological potential.

Since the WRMP2014 SEA was published there has been a general, although small, improvement to both the ecological quality and chemical status of surface water bodies in line with requirements of the WFD.

Ground water quality

There are 12 groundwater bodies within the Study Area that are classified under the WFD. Table 1-9 shows the quantitative, chemical, and overall status, of these groundwater bodies, and if there has been an **improvement**, **decrease**, or **no change** in the status, or whether **no new data** has been available since the WRMP2014 SEA was published.

Of these, the Chobham Bagshot Beds and Effingham Tertiaries have shown an overall improvement in status since the WRMP2014 SEA, while the Kent Weald Western Medway has shown a decrease in overall status.

Table 1-9 Groundwater bodies and current status (2015)

Groundwater body	Quantitative status	Chemical status	Overall status
Chobham Bagshot Beds	Good **improvement**	Good **no change**	Good **improvement**
Bromley Tertiaries	Poor **no change**	Good **no change**	Poor **no change**
Epsom North Downs Chalk	Good **improvement**	Poor **decrease**	Poor **no change**
Kent Greensand Western	Poor **no change**	Good **no change**	Poor **no change**
Copthorne Tunbridge Wells Sands	Good **no change**	Good **no change**	Good **no change**
Kent Weald Western – Medway	Poor **decrease**	Poor **no change**	Poor **decrease**
Kent Greensand Middle	Poor **no change**	Poor **no change**	Poor **no change**
Reigate Lower Greensand	Poor **no change**	Good **improvement**	Poor **no change**
Dorking North Downs Chalk	Poor **no change**	Good **no change**	Poor **no change**
Godalming Lower Greensand	Poor **no change**	Poor **no change**	Poor **no change**
Alton Upper Greensand	Poor **no new data**	Poor **no new data**	Poor **no new data**
Effingham Tertiaries	Good **improvement**	Good **no change**	Good **improvement**

Groundwater body	Quantitative status	Chemical status	Overall status

Source: Environment Agency[34]

Flooding

The Environment Agency has completed flood risk assessments for the country and produced flood maps that identify flood zones according to the risk of flooding. The likelihood is described in one of three categories; low, moderate or significant (as used by the insurance industry) and relate to flood zones (1 – low, 2 – moderate and 3 – significant). The flood zones refer to the probability of flooding from rivers, the sea and tidal sources and ignore the presence of existing defences, because these can be breached, overtopped and may not always be in existence.

Some parts of the study area, particularly around the River Mole, are at risk of fluvial (river) flooding. As would be expected, generally areas in close proximity to watercourses are at risk of flooding. The key urban areas within the study area at risk of significant flooding (within zone 3) according to the Environment Agency's Flood Map include; parts of Horley, parts of the centre of Redhill, large parts of Smallfield, parts of the centre of Leatherhead, parts of Cobham, parts of Lingfield and parts of Edenbridge.

The EA also completed flood risk assessments for surface water flood risk. The likelihood is described in one of three categories; low, moderate or significant (as used by the insurance industry) and relate to flood zones (1 – low, 2 – moderate and 3 – significant). Surface water, fluvial, pluvial and groundwater risks are all linked. Consequently, surface water flood risk areas are often geographically linked to areas at risk of flooding from rivers, sea and tidal sources. The key urban areas within the study area at risk of significant surface water flooding (within zone 3) according to the Environment Agency's Flood Map include; parts of Horley, large parts of Smallfield, parts of the centre of Leatherhead, parts of Cobham, parts to the east of Lingfield and parts of Edenbridge in proximity to Kent Brook.

The environment agency has also completed flood risk assessments[35] for groundwater flood risk. At the time of writing (February 2017), the assessments considered that there was little risk of groundwater flooding in the areas covered by the WRMP.

Future environment without the WRMP

There are likely to be significant pressures placed on both groundwater and surface water resources in the future. Climate change is a key pressure, which is predicted to reduce mean summer precipitation and increase mean summer temperatures, and conversely increase precipitation during the winter. In turn, this is likely to result in reductions to flow levels during the summer, which may lower river base levels. While in the winter it may result in more widespread and frequent flooding.

In the absence of the dWRMP2019, future surface water quality may be placed under a higher strain than would otherwise be the case, due to a lower level of preparation for adaptation to climate change. A review of the CAMS has revealed that a high proportion of WRMUs are under stress and have not changed in condition since the WRMP2014 SEA. As such, water licences have been reduced in the area. The Thames RBMP, however, shows that a number of surface water bodies, in particular Beverly Brook and the River Wandle, are improving.[36]

Regarding groundwater bodies, two of the eleven groundwater bodies located in the area have improved quantitative status. This suggests that the reduced abstraction licences imposed by the EA have had a positive effect on the status of groundwater bodies. Further improvements may occur in the short to medium term as reduced abstraction licences may allow groundwater bodies to recharge. However, it is likely that groundwater will continue to experience pressures caused by climate change

[34] Environment Agency (2016) Catchment Data Explorer [online] available at: http://environment.data.gov.uk/catchment-planning/ManagementCatchment/1019
[35] Environment Agency (2017) Groundwater: current status and flood risk [online] available at: https://www.gov.uk/government/collections/groundwater-current-status-and-flood-risk
[36] Environment Agency (2015) Thames River Basin District River Basin Management Plan [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/500548/Thames_RBD_Part_1_river_basin_management_plan.pdf

and population growth in the future. Any sustainability reductions identified and delivered through the dWRMP2019 will play a key role in reducing these pressures.

Overall, water quality over the life of the dWRMP2019 is assumed to improve as a result of actions outlined within the RBMPs and compliance with the WFD.

Air and climatic factors

This section sets out the environmental baseline with respect to air quality and climate factors (e.g. major air pollutants and carbon dioxide emissions). There is an interrelationship between factors which affect air quality and those which affect climate change. For instance nitrogen dioxides which contribute to air pollution in cities can act as indirect greenhouse gases by producing the tropospheric greenhouse gas 'ozone' via photochemical reactions in the atmosphere. As such, it is pertinent to address air quality and climate factors together.

Baseline review

Air quality

The 2008 ambient air quality directive (2008/50/EC) sets legally binding limits for concentrations in outdoor air of major air pollutants that impact public health such as particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO2). Under requirement from this directive, Local Authorities are required to monitor air quality across their area. Where levels are likely to exceed limits set by the National Air Quality Objectives[37] Local Authorities are required to report to The Department for Environment, Food and Rural Affairs (Defra) and take action to reduce the levels of pollutants. Where exceedances occur, areas are declared as Air Quality Management Areas (AQMAs) and Local Authorities are required to produce an Action Plan to improve air quality in the area.

Table 1-10 contains the AQMAs found within the Study Area, and whether there has been an **increase**, **decrease** or **no change** to the number of AQMAs within the relevant Local Authority since the WRMP2014 SEA. It should be noted that the number of AQMAs reflects the total number within each Local Authority rather than the number located solely within the Study Area.

Table 1-10 illustrates that the number of AQMAs in Reigate and Banstead has decreased from eleven to nine. However, in Crawley an AQMA was declared in 2015, while in Sutton, the pre-existing AQMA was expanded to cover the entire Borough.

Table 1-10 AQMAs located within Local authorities found in the Study Area

Local Authority	Change since previous WRMP	Description of change in AQMAs since WRMP2014 SEA
Crawley	**Increase**	Since the previous SEA one AQMA has been declared in 2015 at Crawley Avenue and around the Hazelwick roundabout for exceedances in nitrogen dioxide levels.
Croydon	**No change**	The whole Borough is declared as an AQMA due to exceedances in nitrogen dioxide levels.
Elmbridge	**No change**	Seven AQMAs designated in the Borough due to exceedance in nitrogen dioxide levels.
Epsom and Ewell	**No change**	One AQMA declared on Ewell High Street due to exceedances in nitrogen dioxide levels.
Merton	**No change**	The whole Borough is declared as an AQMA due to exceedances in nitrogen dioxide levels.
Mole Valley	**No change**	No AQMAs located in Mole Valley.
Reigate and Banstead	**Decrease**	Decrease from eleven to nine AQMAs. The air quality management areas covering the M23 to the south of the M25, A217 / Rushworth Road, and the A23 near Dean Lane, orders 2, 4, and 5 respectively, were revoked on 4th September 2013 as the air quality standards for nitrogen dioxide are now being met at these sites.
Sevenoaks	**No change**	Eleven AQMAs in the Borough which have been declared due to exceedances in both nitrogen dioxide and particulate matter.
Sutton	**Increase**	In the previous WRMP period an AQMA was declared around a number of

[37] Defra (2012) national air quality objectives and European Directive limit and target values for the protection of human heath [online] available at: https://uk-air.defra.gov.uk/assets/documents/National_air_quality_objectives.pdf

Local Authority	Change since previous WRMP	Description of change in AQMAs since WRMP2014 SEA
		roads including the High Street, the A232, and Croydon Road. In 2013, the AQMA was expanded to cover the entire Borough.
Tandridge	No change	No AQMAs located in Tandridge.

Climate change

Climate change mitigation

Table 1-11 contains the estimated total carbon dioxide emissions per capita across each Local Authority in the Study Area as well as the national average. The emissions (per capita) presented in Table 1-11 are values for the entire Local Authority Area rather than the number within the Study Area. Across all Local Authority areas, emissions have fallen year on year between 2005 and 2013. In 2013, the majority of Local Authority areas have total emissions similar to, or below, the national average (6.7 t CO_2). However, Mole Valley, Sevenoaks, and Tandridge have per capita emissions which are significantly higher than that of the national average.

Table 1-11 Total carbon dioxide emissions per capita (t CO2)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Crawley	8.7	8.8	8.5	8.4	7.5	7.7	6.9	7.0	6.7
Croydon	5.1	5.0	4.8	4.7	4.2	4.4	3.9	4.1	3.9
Elmbridge	7.4	7.5	7.2	7.2	6.6	6.8	6.3	6.6	6.3
Epsom and Ewell	5.5	5.4	5.2	5.1	4.6	4.8	4.2	4.4	4.3
Merton	4.7	4.6	4.4	4.8	4.3	4.5	4.0	4.2	4.2
Mole Valley	9.9	9.8	9.6	9.1	8.3	8.5	7.9	8.2	7.8
Reigate and Banstead	8.6	8.5	8.2	7.8	7.2	7.3	6.7	6.9	6.7
Sevenoaks	10.1	9.7	9.7	9.4	8.7	8.9	8.3	8.5	8.1
Sutton	4.8	4.7	4.6	4.6	4.2	4.4	3.9	4.2	4
Tandridge	10.8	10.4	10.1	9.7	9.2	9.3	8.7	8.9	8.6
England	8.5	8.4	8.2	7.9	7.1	7.3	6.6	6.9	6.7

Source: National Statistics[38]

[38] UK local authority and regional carbon dioxide emissions national statistics 200-2013 [online] available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2013

Climate change adaptation

Data on the potential effects of climate change are not available at the level of the Study Area, although research on the probable effects of climate change in the UK at a regional level has been undertaken.

ClimateUK[39] produced a summary of the climate change risks for the South East of England. This summary states that:

"The South East's high population and levels of economic activity put considerable pressure on housing, recreation, and natural resources, and the South East has the greatest ecological footprint of all the UK regions. It also features particular vulnerability to climate change. With 1,250 kilometres of coastline featuring dense population, important infrastructure, and important habitats and species, the South East is especially susceptible to sea level rise and flooding, while recent summers have demonstrated the vulnerability of people, buildings, and infrastructure to drought and overheating. The latest climate projections suggest that these impacts are likely to intensify in coming decades."[40]

The recently published UK Climate Change Risk Assessment 2017[41] set out a series of challenges for the water industry. Specifically, it states that:

"Climate change is projected to reduce the amount of water in the environment that can be sustainably withdrawn whilst increasing the demand for irrigation during the driest months. At the same time the growing population will create additional demands on already stretched resources in some parts of the country."

Future environment without the WRMP

Air quality

With regard to air quality, development in the Study Area is likely to result in increased traffic flows. This is likely to lead to increased emissions and worsening air quality. However, this may, in part, be mitigated by actions set out in AQMAs and through the introduction of new technology e.g. electric cars and more fuel efficient engines.

Climate change

Research regarding the future implications of climate change was released in 2009 by the UK Climate Projections (UKCP09) team[42]. UKCP09 provides climate information for the UK up to the end of this century as well as projections of future changes to the climate, based on simulations from climate models. Projections are presented at a regional level across the UK and are shown in probabilistic form, which illustrates the potential range of changes and the level of confidence in each projection.

- The research demonstrates the effects of climate change for the South East by 2050 for a medium emissions scenario are likely to be as follows:
- The central estimate of change in winter mean temperature is + 2.2ºC and summer mean temperature of + 2.8ºC; and
- The central estimate of change in winter mean precipitation is + 16% and summer mean precipitation is –19%.

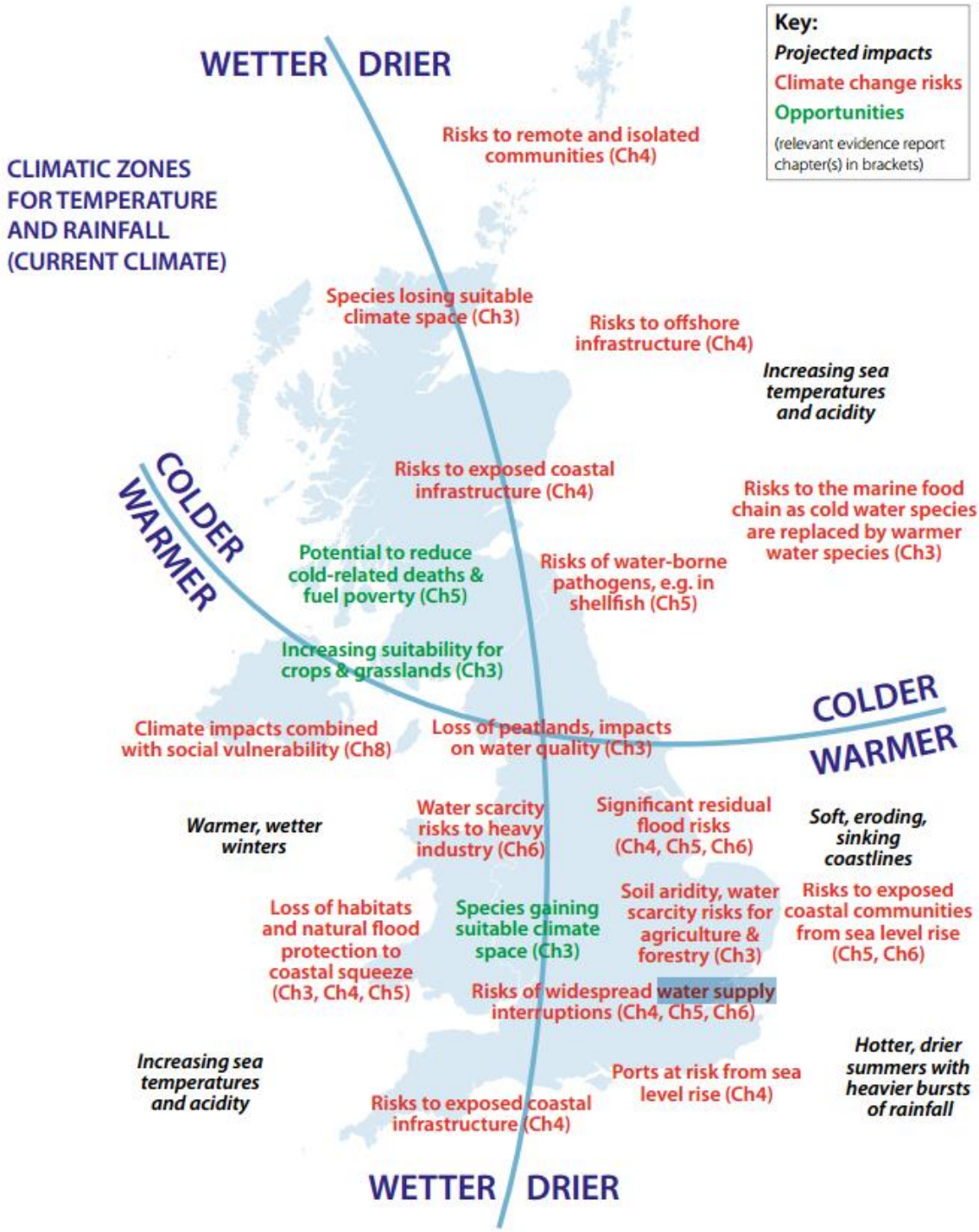
This is likely to increase the risks to water resources and wildlife, including from flooding and drought. As such, there will be an increased need for the resilience and adaptation of water supply infrastructure and wildlife to the effects of climate change. Figure 1-1 sets out the spatial distribution of

[39] More information on ClimateUK is available online at: http://climateuk.net/
[40] ClimateUK (2012) A Summary of Climate Change Risks for South East England [online] @ http://climateuk.net/sites/default/files/SouthEast-NewText-1-A4.pdf. Accessed September 2016
[41] Committee on Climate Change (2016) UK Climate Change Risk Assessment 2017[online] @ https://documents.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf. Accessed September 2016
[42] The data were released on 18th June 2009: See: http://ukclimateprojections.defra.gov.uk/ Accessed September 2016

climate change risks and opportunities for the United Kingdom, including the Study Area covered by the SEA.

In terms of climate change mitigation, per capita emissions are likely to continue to decrease as energy efficiency measures, renewable energy production and new technologies become more widely adopted. The dWRMP2019 will not have a significant bearing on future changes in climate. However, in 2008, the water industry contributed 0.8 per cent of annual UK GHG emissions. As such, there is potential for the dWRMP2019 to reduce emissions through energy efficiency and low carbon measures. Additionally, there is potential to proactively adopt measures for adaptation and resilience.

Figure 1-1 Spatial distribution of climate change risks and opportunities for the United Kingdom[43]



Source: ASC synthesis of the Evidence Report chapters.

Notes: The risks presented are not exhaustive and will not be confined to the area(s) shown. The climate zones indicated are based on the current climate (see: http://www.metoffice.gov.uk/public/weather/climate/). Whilst all parts of the UK are expected to warm, and to become wetter (at least in winter), heat-related impacts are expected to be more pronounced in southern UK areas, and water scarcity and aridity stronger in the east.

[43] Committee on Climate Change (2016) UK Climate Change Risk Assessment 2017 available [online] at https://documents.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf.

Cultural, Architectural and Archaeological Heritage

Baseline review

The previous WRMP2014 SEA Scoping Report reviewed the number of listed buildings; scheduled monuments; conservation areas; and areas of archaeological potential. Since 2014, the numbers of designated heritage assets are not considered to have changed. As such, this SEA Scoping Report assumes the same environmental baseline as the WRMP2014 SEA Environmental Report which is outlined below.

	Scheduled Monument	Listed Buildings	Conservation Areas	Areas of Archaeological Potential
Crawley	4	93	7	13
Croydon	5	145	12	53
Elmbridge	3	750	24	-
Epsom and Ewell	2	400	21	32
Merton	3	315	28	20
Mole Valley	27	<1000	28	(420Ha)
Reigate and Banstead	21	424	15	-
Sevenoaks	23	2116	40	-
Sutton	6	>160	14	21
Tandridge	>20	<600	19	200

Source: Atkins (2014) Final WRMP, Sutton and East Surrey Water: strategic environment assessment

Future environment without the WRMP

Many factors can impact on the condition of cultural, architectural and archaeological heritage assets. This includes air pollution, extreme weather events associated with climate change, and further infrastructure development. In the absence of the dWRMP2019, sites designated for their cultural, architectural and archaeological value may come under pressure from development associated with the implementation of WRMP2014. This should be explored further as part of assessment work.

Landscape

Baseline review

Development in sensitive areas can have negative effects on landscape assets. Sensitive areas include Areas of Outstanding Natural Beauty (AONBs) and also to a lesser extent, National Character Areas (NCAs). Given this, the WRMP2014 SEA Environmental Report provided a review of such designated landscapes present within the Study Area. Since 2014, the extent and number of NCAs and AONBs within the Study Area has not changed. Therefore, this SEA Scoping Report assumes the same environmental baseline as the WRMP2014 SEA Environmental Report.

The WRMP2014 SEA Environmental Report notes that the study area includes three Areas of Outstanding Natural Beauty (AONB) and is covered by a number of National Character Areas.

Areas of Outstanding Natural Beauty

Surrey Hills

This AONB links together a chain of varied upland landscapes including the North Downs. Rising near Guildford as the narrow Hog's Back, the ridge of the downs stretches away to the Kent border, a chalk landscape of swelling hills and beech-wooded combes with a steep scarp crest looking south to the Weald. The downs are paralleled to the south by an undulating wooded greensand ridge, rising at Leith Hill to southeast England's highest point (294m). In the west, sandy open heathland, typified by Frensham Common, stretches away to the Hampshire border. The AONB's fine deciduous woodlands have considerable ecological importance as do the AONB"s surviving stretches of chalk grassland and unimproved heath. Including as it does, showpiece villages such as Shere and Abinger, the AONB's built environment is an intrinsic part of its quality and is hugely popular with visitors. It includes within its borders such famous beauty spots as Box Hill and the Devil's Punch Bowl.

Much of the downland crest is owned by conservation bodies including the National Trust and there is a dense, heavily used network of public and recreational footpaths including the Greensand Way and the North Downs Way National Trail, which run across it.

Kent Downs

Kent Downs AONB forms the eastern end of a great arc of designated landscape stretching from the East Hampshire and Surrey Hills AONBs. The Kent Downs AONB continues from the Surrey border in a widening ribbon of rolling countryside to meet the sea at the cliffs of Dover. Inland, the Downs rise to over 240m, cresting in a prominent escarpment above the Weald to the south. It is traversed by the three prominent river valleys of the Darent, Medway and Stour.

The AONB roughly follows the southeast outcrop of chalk and greensand, the two ridges running parallel with each other to the coast. The chalk ridge, with its characteristic dip slope and dry valleys, has great wildlife importance in its unimproved chalk grassland, scrub communities and broadleaved woodlands. The well-wooded greensand ridge is particularly prominent in the Sevenoaks, Tonbridge and Malling districts and supports heathlands and acidic woodlands.

High Weald

High Weald AONB is the area between the North and South Downs which are the outer chalk rims of the ancient Wealden anticline. The sandstones and clays of the exposed centre of the dome, the 'High Weald' gives rise to a hilly, broken and remote country of ridges and valleys. In contrast, open areas of the AONB include Ashdown Forest and, to the east, the river valleys of the Rother, Brede and Tillingham. The AONB meets the coast at Hastings. The Surrey Hills AONB crosses the middle of the study area, whilst the Kent Downs and High Weald AONBs only cover small areas of the study area to the east and south east respectively.

National Character Areas

National Character Areas divide England into 159 natural areas, which are each defined by a unique combination of landscape, biodiversity, geodiversity and economic and cultural activity. There are 5 National Character Areas that cover the study area which are as follows:

Thames Basin Lowlands

A small-scale farmed landscape sandwiched between the Thames Basin Heaths to the west and the North Downs to the south and east, broadening out towards the London suburbs immediately to the north. In many places the Thames Basin Lowlands retain a typical English farmed countryside, although the landscape itself has been largely lost or fragmented by, the urban expansion of London across the northern parts. The gently, undulating farmland is interspersed with woods and shaws, villages and farmhouses. Fields are small or medium-sized and uneven, usually hedged and with some hedgerow oak. The flatter parts to the north and East tend to be more open and relatively featureless.

North Downs

The North Downs is a dramatic and distinctive Chalk downland with a continuous and steep scarp giving extensive views across Kent and Surrey towards the South Downs. The broad dip slope gradually drops towards the Thames and the English Channel and is incised by a number of valleys or coombes of the rivers Stour, Medway, Darent and Mole. Land use includes a few pockets of traditional downland grazing but (especially in Kent) is largely dominated by arable fields. The North Downs are a rural landscape with scattered flint-walled farmhouses and large houses. In places, it is undulating with dry grassed valleys and ridge top woodlands. In some areas, major motorway and railway corridors introduce a discordant feature into an otherwise quiet and peaceful rural landscape.

Wealdon Greensand

A large belt of Greensand typified by its scarp/dip-slope topography and by extensive belts of ancient mixed woodland of hazel, oak and birch, together with more recent coniferous colonisation and plantations. Settlements are generally scattered villages and hamlets linked by deep, overhanging, winding lanes with some small, irregular fields remnant of Saxon clearances. In east Surrey and western Kent, there are many wooded commons with oak/birch woodland. In the east of Kent, the Wealden Greensand has a gentler and more open aspect than the wooded west. This part of the area is also more marked by development with the presence of major towns and communication corridors such as the M26/M25/M20 and railway lines.

Fruit growing is still a characteristic feature of the area. Older deer parks and more recent 18th century parklands are a distinctive feature of the Wealden Greensand with extensive views out over the Low Weald.

Low Weald

The broad, low lying and gently undulating clay vales underline a small-scale intimate landscape enclosed by an intricate mix of small woodlands and a patchwork of fields and hedgerows. Low Weald generally includes an abundance of ponds and small stream valleys often with wet woodlands of alder and willow. Rural in character with dispersed farmsteads and small settlements, often including mainly timber and brick-built traditional buildings. Historic settlement pattern was dictated by a preference for higher drier outcrops of limestone or sandstone with moated manor houses being a characteristic feature. Hop growing and orchards are still a distinctive land use in the east. The Kentish Low Weald is traversed by numerous narrow lanes with broad verges and ditches; these are continuous with the drove roads of the North Downs.

High Weald

The High Weald is a well-wooded landscape rising above the Low Weald and deeply incised in many places to give a complex pattern of ridges and steep stream valleys. Distinctive and scattered sandstone outcrops or bluffs rise above the farmland and woodland. Large reservoirs are significant features within the High Weald landscape adding to the area's interest and variety. High forest, small woods and copses, and a network of hedges and shaws link small, irregular fields created from cleared woodland. Heavy clay soils have reduced the effect of agricultural change in the area and it is still, in the main, a quiet pastoral landscape with mixed farming.

Future environment without the WRMP

- Drivers for change in the landscape include, but are not limited to:
- Climate change - increased evaporation, changing rainfall patterns, increased risk of flooding, invasive species, and drought;

- Development pressure – a pressure and an opportunity as new development allows for mitigation such as green infrastructure to potentially be delivered.
- Increased recreation – as a result of population growth; and
- Water availability - implementation of the WFD should improve the ecological status or potential of the NCA's rivers and the quality of groundwater.

In the absence of the dWRMP2019, the implementation of WRMP2014 is likely to have ongoing effects on the landscape. Options proposed for dWRMP2019 that include above ground engineering e.g. bunded reservoirs, pumping stations are likely to have some impact on the landscape, temporary or permanent. This will not necessarily be negative as some options will provide opportunities for landscape enhancement.

Material assets

Baseline review

Infrastructure and transport

The Study Area includes major urban areas such as Leatherhead, Dorking, Sutton, Reigate, Redhill, Crawley, South Croydon, and East Grinstead. These areas are supported by an extensive road and rail network that is potentially vulnerable to flooding. The WRMP2014 SEA Environmental Report identified the following key urban areas at risk of significant flooding (within zone 3 of the Environment Agency's flood map): parts of Horley, parts of the centre of Redhill, large parts of Smallfield, parts of the centre of Leatherhead, parts of Cobham, parts of Lingfield and parts of Edenbridge.

Waste

The Study Area includes a number of active landfill sites and is characterised by significant inter-regional movements of waste; for example inward transfers from London to the Study Area as well as waste exports to neighbouring regions. The WRMP2014 SEA Environmental Report highlights that declining capacity associated with the landfill sites within the Study Area and emphasises the need to move from landfill towards processes which reuse and recover material. Since the finalisation of the WRMP2014 SEA Environmental Report, Surrey County Council has released a Joint Municipal Waste Management Strategy, which includes a target of 70% of Surrey's waste being recycled[44].

Future environment without WRMP

Infrastructure and transport

In the absence of the dWRMP2019 transport infrastructure is likely to come under increasing pressure from factors such as population growth. Additionally, threats from climate change such a flooding are likely to increase in frequency and severity.

Waste

In line with requirements of the Surrey County Council Joint Municipal Waste Management Strategy, it is assumed that the number of active landfill sites within the Study Area will not increase during the next five years. However, increases in population will be likely to increase the pressure on existing and future waste and recycling facilities.

[44] Surrey County Council website: https://www.surreywastepartnership.org.uk/our-strategy. Accessed: 28/11/16

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
International				
The EC Directive on the Conservation of Wild Birds (79/409/EEC)	Protection of habitats and species. This Directive addresses the conservation of all wild birds throughout the EU including marine areas. It covers their protection, management, control and exploitation and applies to birds, their eggs, nests and habitats	The aim of this Directive is to contribute towards ensuring biodiversity through the conservation, maintenance and restoration of natural habitats and of wild fauna and flora.	The WRMP must take account of potential detrimental and beneficial effects on protection birds and Special Protection Areas (SPAs) within the WRMP area.	Biodiversity
The Habitats Directive – The EC Directive on Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC)	Protection of habitats and species. Together with the Birds Directive (79/409/EEC), this Directive implements the requirements of the Convention on the Conservation of European Wildlife and Natural Habitats.	The aim of this Directive is to contribute towards ensuring biodiversity through the conservation, maintenance and restoration of natural habitats and of wild fauna and flora. This is by the creation of an ecological network of protected areas across the EU, known as NATURA 2000, for habitats and species considered to be of outstanding international significance.	The WRMP must take account of potential detrimental and beneficial effects on priority species, habitats, Natura 2000 sites and Special Areas of Conservation (SACs) within the WRMP area.	Biodiversity
European Commission (2009) Birds Directive (2009/147/EC)	Protection of wild birds in Europe. Together with the Natural Habitats and of Wild Flora and Fauna (92/43/EEC), this Directive implements the requirements of the Convention on the Conservation of European Wildlife and Natural Habitats.	The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievement are at the discretion of each Member State (in the UK delivery is via several different statutes).	The WRMP and SEA will need to take account of commitments for SPAs within the WRMP area	Biodiversity
The Bonn Convention on the Conservation of Migratory Species of Wild Animals (1983)	This convention is enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	Aims to conserve terrestrial, marine and avian migratory species throughout their range.	The impacts of the WRMP options on important Bird habitats (i.e. Ramsar sites and SPA designated sites) must be considered as part of the SEA.	Biodiversity
The Bern Convention on the Conservation of European Wildlife and	This convention is enforced in European legislation through the Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC).	International convention which aims to ensure conservation of wild flora and fauna species and their habitats.	The potential impacts of the WRMP options on internationally designated sites, species and important Bird	Biodiversity

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Natural Habitats (1979)		Special attention is given to endangered and vulnerable species, including endangered and vulnerable migratory species specified in appendices.	habitats must be considered as part of the SEA.	
The Cancun Agreement (2011) & Kyoto Agreement (1997)	The Cancun Agreements are a set of significant decisions by the international community to address the long-term challenge of climate change collectively and comprehensively over time.	The agreement represent key steps forward in capturing plans to reduce greenhouse gas emissions and to help developing nations protect themselves from climate impacts and build their own sustainable futures. It includes a shared vision to keep global temperature rise to below two degrees Celsius.	The SEA should seek to promote a reduction in greenhouse gas emissions.	Biodiversity
Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, UNESCO 1971	Protection of important wetlands for both ecosystem habitat and species conservation.	The Convention's Mission Statement is the 'conservation of wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world.'	The WRMP must take account of potential detrimental and beneficial effects on Ramsar sites within the WRMP area. Some measures that benefit water resources could have unintended consequences for wetlands or wildlife.	Biodiversity
Water Framework Directive (2000/60/EC)	Integrated approach to the protection, improvement and sustainable use of water bodies. This includes inland surface waters, transitional waters, groundwater and coastal waters.	The Directive introduced a statutory system of analysis and planning based on the River Basin District. Each RBD is assessed and monitored for status; environmental objectives are set and a programme of measures is undertaken to achieve these objectives. The target is for almost all water bodies to reach 'Good Ecological Status' by 2015; or for heavily modified water bodies to reach 'Good Ecological Potential'.	The WRMP must take account of the objectives and targets of the Directive to ensure water bodies meet certain standards. This refers to both ecological status of water bodies and improvements in water quality.	Water, Biodiversity
Nitrates Directive (91/676/EC)	The Directive aims to reduce and prevent the pollution of water caused by nitrates from agricultural sources.	Its objectives are both to safeguard current and future drinking water resources and to prevent wider	The WRMP must take account of any Nitrate Vulnerable Zones within the WRMP area.	Water, Biodiversity

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		ecological damaged in the form of eutrophication. Nitrate Vulnerable Zones (NVZ) are designated where appropriate to project drinking waters from nitrate pollution. Action programmes of protective measures are established for NVZs.		
Bathing Water Quality Directive (76/160/EEC) (In 2015 this directive will be repealed and the revised Bathing Water Directive (2006/7/EC) will into effect)	The quality of designated bathing waters in England is monitored against standards driven by this Directive. The policy is concerned with protecting public health and the environment.	The overall objective of the Directive is the protection of public health whilst bathing. The Directive sets mandatory standards for bathing waters based on certain criteria including number of coliforms per volume of water.	The WRMP must reflect the objectives set out in the Directive to ensure there are no adverse effects on standards for designated sites, and potentially identify measure that will improve the quality of bathing waters.	Water, Population
Drinking Water Quality Directive (98/86/EC) amended 2015	The Directive sets out policy relating to the quality of water intended for human consumption. The policy is concerned with safeguarding and promoting the sustainable use of water, based on quality and human health factors.	The Directive aims to protect the health of consumers and to ensure water is wholesome, clean and has a pleasant appearance. The Directive sets standards for common substances found in drinking water; 48 microbiological and chemical parameters must be monitored and tested regularly.	The WRMP must take account of the drinking water standards in the provision of public water supply.	Water, population
Groundwater Daughter Directive (2006/118/EC)	In connection with the Water Framework Directive, this Directive is for the prevention of pollution of groundwater by controlling of discharges.	The Directive sets out certain substances to be controlled in order to prevent the pollution of groundwater.	The WRMP must take account of the main objective of the Directive to prevent pollution of groundwater.	Water
EU 6th Environmental Action Plan, 2002	This Plan sets out the framework for environmental policy-making in the EUR and outlines action that needs to be taken to achieve them.	Key objectives include: Reducing greenhouse gas emissions by certain targets Averting threats to the survival of many species and their habitats. Protecting landscape character Protecting the marine environment	The WRMP must take account of potential beneficial and detrimental effects upon numerous elements of the environment, in line with the objectives of this Directive.	Population, Biodiversity, Landscape, Cultural Heritage, Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		Protecting soil quality Sustainable use of natural resources including water		
EU Sustainable Development Strategy, 2001 (reviewed in 2009)	A single, coherent strategy outlining how the EU will meet long-standing commitments to sustainable development.	Key objectives of the strategy are: Environmental protection Social equity and cohesion Economic prosperity Meeting international responsibilities Particular targets and actions include: Climate change by reduction carbon emissions Sustainable consumption and production Public health Natural resources and the protection of habitats and species Transport, services and infrastructure for development	The WRMP must reflect the principles and objectives of this strategy. The WRMP must take account of potential beneficial and detrimental effects upon the target areas of the strategy including climate change, public health and environmental protection.	Population
EU Biodiversity Action Plan, 1998	Concerned with the prevention of biodiversity loss across Europe and beyond.	Objectives include: Conservation of wild flora and fauna by the protection of habitats and species Preventing biodiversity loss and preserving water quality by the sustainable management of water, soil, forests and wetlands	The WRMP must take account of potential beneficial and detrimental effects upon biodiversity according to the objectives of this Directive.	Biodiversity
The European Landscape Convention, 2006	Concerned with developments that affect the landscape.	The protection and development of landscapes and their sustainable management.	The WRMP must consider potential beneficial and detrimental effects upon the landscape.	Landscape
The European Convention on the Protection of Archaeological Heritage (Revised), 2001	Concerned with archaeological and cultural heritage.	The preservation of archaeological heritage by protection of important sites. Promotion of public awareness by the protection of historic and cultural sites and improved access to them.	The WRMP must consider potential beneficial and detrimental effects upon archaeological and cultural heritage sites within the WRMP area.	Cultural Heritage

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
European Commission (2008) The 2008 Ambient Air quality Directive (2008/50/EC)	It describes the basic principles as to how air quality should be assessed and managed in the Member States.	The 2008 ambient air quality directive (2008/50/EC) sets legally binding limits for concentrations in outdoor air of major air pollutants that impact public health such as particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO2). As well as having direct effects, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems.	The implementation of options within the WRMP may have some influence on air quality, either directly or indirectly through construction or operation activities. The WRMP and SEA should seek to ensure that the region's air quality is maintained or enhanced, and that emissions of air pollutants are kept to a minimum.	Air and Climate
Council of Europe (2003) European Soils Charter	This pertains to soil and agricultural processes which may impact on it and is a result of growing chemical, physical and biological degradation of many soils in Europe,	Sets out common principles for protecting soils across Europe	The SEA should seek to ensure that the quality of the regions land, including soils is protected or enhanced	Soils
The Environment Noise Directive (Directive 2002/49/EC)	This requires a common policy approach across Europe in order to prevent both exposure to harmful environmental noise and also addresses the sources of such noise.	The Environment Noise Directive aims to define a common approach intended to avoid prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to the exposure to environmental noise. It also aims to provide the basis for developing EU measures to reduce noise emitted by major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery.	The SEA assessment framework should include for the protection against excessive noise	Noise
Environment Agency (2015) Creating a Better Place: Environment Agency Corporate Strategy 2014-2016	The strategy sets out the EA's ambitions for the environment between 2014 and 2016.	Priority areas include: A changing climate Increasing the resilience of people, property and businesses to the risks of flooding and coastal erosion Protecting and improving water, land	There is considerable links between the core themes of the strategy and the WRMP. The SEA should seek to maintain, protect and improve water quality across the region and ensure efficient use of resources. The SEA should seek to ensure that strategy	Population

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		and biodiversity Improving the way the EA works as a regulator to protect people and the environment and support sustainable growth	objectives are also reflected in the SEA objectives particularly regarding the protection and improvement of water, land and biodiversity.	
Defra, Environment Agency, Natural England, Forestry Commission England (2016) Creating a great place for living	This strategy document sets out a shared vision and set of strategic objectives for the whole of Defra for the period up to 2020. It is intended to provide staff across the whole group of Defra organisations (including non-ministerial departments, executive agencies, non-departmental and other public bodies) with a clear, shared framework.	Strategic objectives include: Environment: a cleaner, healthier environment, benefitting people and the economy; Food and farming: A world leading food and farming industry; Rural: A thriving rural economy, contributing to national prosperity and wellbeing; Protection: a nation better protected against floods, animal and plant diseases and other hazards, with strong response and recovery capabilities.	The WRMP and SEA needs to take account of these objectives	Population
Defra (2016) Guiding principles for water resources planning for water companies operating wholly or mainly in England	Provides an overview of Government policy and advice to water companies and other interested groups on the process involved in preparing a water resources management plan, the legal requirements that must be met as well as the role and responsibilities of Government, regulators, water companies and their customers.	This identifies the key policy priorities to be addressed in WRMPs. This includes protecting and enhancing the environment and the promotion of efficient water use and reducing leakage.	The WRMP and SEA needs to take account of this guidance	Water
Defra and Welsh Government (2014) River Basin Planning Guidance	This guidance from the Secretary of State and the Welsh Ministers (the Appropriate Authorities) to the Agencies applies to river basin management planning in all river basin districts in England and Wales and the Northumbria river basin district. It sets out the principles of river basin management planning.	Objectives include: Encourage active involvement of a broad cross section of stakeholders and enable the exchange of knowledge (including information and data) between regulators, planners, stakeholders and the research community. Set out and communicate in a clear, transparent and accessible process of analysis and decision making.	The WRMP will need to ensure that it is consistent with the principles of river basin management plans and that it does not adversely affect the issues identified as significant water management issues.	Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		Focus at the river basin district level. Work in partnership with other public bodies. Integrate and streamline plans and processes. Make use of the alternative objectives to bring about sustainable development. Use Better Regulation principles and consider the cost-effectiveness of the full range of possible measures and mechanisms. Seek to be even handed across different sectors of society and sectors of industry. Seek to be even handed and transparent in the management of uncertainty. Develop methodologies and refine analyses as more information becomes available.		
United Nations (1992) Convention on Biological Diversity (CBD)	The Convention on Biological Diversity (CBD), known informally as the Biodiversity Convention, is a multilateral treaty.	The main objectives are: Conservation of biological diversity Sustainable use of its components Fair and equitable sharing of benefits arising from genetic resources	The commitment to conserving biological diversity must be considered in any WRMP options and the SEA should seek to promote the protection and enhancement of biodiversity.	Biodiversity
United Nations Economic Commission for Europe (1998) Aarhus Convention - Convention on Access to Information, Public Participation in Decision-making and Access to Justice in	The Aarhus Convention has been ratified by the European Community, which has begun applying Aarhus-type principles in its legislation, notably the Water Framework Directive (Directive 2000/60/EC).	The Aarhus Convention grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the local, national and transboundary environment. It focuses on interactions between the public and public authorities.	The Convention is designed to improve the way ordinary people engage with government and decision-makers on environmental matters. It helps to ensure that environmental information is easy to get hold of and easy to understand. The WRMP and SEA Environmental Report should seek to provide easily	Population

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Environmental Matters			understood information to the public on the environmental implications of the WRMP and its constituent options.	
United Nations (2002) Commitments arising from the World Summit on Sustainable Development, Johannesburg	The World Summit on Sustainable Development proposed broad-scale principles which should underlie sustainable development and growth.	It included objectives such as: Greater resource efficiency Work on waste and producer responsibility New technology development Push on energy efficiency Integrated water management plans Minimise significant adverse effects on human health and the environment from chemicals by 2020.	WRMP should be influenced strongly by all of these themes and should seek to take its aims into account. The SEA should seek to promote the achievement of the sustainable development objectives outlined in this plan.	Population
Urban Waste Water Treatment Directive (91/271/EEC)	Objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors (see Annex III of the Directive).	It concerns the collection, treatment and discharge of: Domestic waste water Mixture of waste water Waste water from certain industrial sectors	The WRMP should take account of the aims and objectives set out in the Urban Waste Water Treatment Directive and ensure that the plan does not have an adverse effect on these objectives.	Water
European Commission (2009) Promotion of the use of energy from renewable sources Directive (2009/28/EC)	The Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources in the EU. It requires the EU to fulfil at least 20% of its total energy needs with renewables by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020.	The Directive promotes cooperation amongst EU countries (and with countries outside the EU) to help them meet their renewable energy targets. This cooperation can take the form of: statistical transfers of renewable energy joint renewable energy projects joint renewable energy support schemes	The WRMP involves options with power requirements and should seek to promote energy efficiency, as well as seeking to reduce the effects of climate change through greenhouse gas emissions. The SEA should also promote the use of renewable energy, where relevant.	Climate
European Commission, Environmental Liability Directive (2004/35/EC)	The Directive establishes a framework for environmental liability based on the "polluter pays" principle, with a view to preventing and remedying environmental damage.	The Environmental Liability Directive entered into force on 30 April 2004. The EU Member States had three years to transpose the Directive in domestic law. The transposition of ELD was	The WRMP will need to take account of the Directive. SEA should seek to ensure that the WRMP avoids causing direct or indirect damage to the aquatic environment or contamination of land	Population

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		completed by July 2010.	that creates a significant risk to human health.	
European Commission, Animal Health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals (2006/88/EC)	The Directive establishes: Animal health requirements for the placing on the market, importation and transit of aquaculture animals and their products; Minimum measures to prevent diseases in aquaculture animals; Minimum measures to be taken in response to suspected or established cases of certain diseases in aquatic animals.	The directive aims to prevent the spread of diseases in certain aquatic animals.	The implementation of the WRMP may influence biodiversity in the Thames River Basin District and as such the SEA should seek to maintain or enhance the quality of habitats and biodiversity.	Biodiversity
European Commission (2006) Fresh Water Fish Directive (2006/44/EC)	The Directive seeks to protect those fresh waterbodies identified by Member States as waters suitable for sustaining fish populations. The Directive is designed to protect and improve the quality of rivers and lakes to encourage healthy fish populations.	It sets physical and chemical water quality objectives for salmonid waters and cyprinid waters.	The WRMP should cause no adverse effects on rivers and lake water quality, such that these waterbodies are able to sustain healthy and appropriate fish populations.	Water Biodiversity
European Commission, Floods Directive (2007/60/EC)	The Directive shall be carried out in coordination with the Water Framework Directive, notably by flood risk management plans and river basin management plans being coordinated, and through coordination of the public participation procedures in the preparation of these plans.	The Directive's aim is to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity	The WRMP may have some linkages with the aims of the Flood Directive, although flood control coastal erosion remains outside of the remit of the WRMP. The SEA objectives should ensure that flood risk is included to ensure that environmental and social benefits are gained.	Population
National				
National Biodiversity Action Plan, UK Biodiversity Action Plan Group, 1994	A commitment and plan to protect the UK's biological resources in order to protect and enhance biodiversity.	To ensure that development has minimal adverse impacts on biodiversity and enhance it where possible.	The WRMP must consider the priorities and objectives of the BAP and should complement it through habitat and ecosystem enhancement and protection wherever possible.	Biodiversity

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
England Biodiversity Strategy: "Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services"	The strategy seeks to make biodiversity part of mainstream thinking and emphasises that healthy, thriving and diverse ecosystems are essential to everybody's quality of life and wellbeing. An important aim of the strategy is to deliver the UK BAP.	The Strategy has five themes: Protecting the best wildlife sites Promoting the recovery of declining species and habitats Embedding biodiversity in all sectors of policy and decision making Enthusing people Developing the evidence base	The WRMP must consider the key themes of the strategy and compliment it through habitat and ecosystem conservation wherever possible.	Biodiversity
Working with the Grain of Nature: A Biodiversity Strategy for England, 2011	This strategy sets out a series of actions to be taken by the Government and its partners to make biodiversity a fundamental consideration across public policy.	To ensure that biodiversity conservation is integral to development.	The WRMP must consider the objectives of the strategy and compliment it through habitat and ecosystem conservation wherever possible.	Biodiversity
The Conservation of Habitats and Species Regulations, 2010 (as amended 2012).	Protection of European protected species and sites. Makes provision for potential requirement of Appropriate Assessment for relevant water abstraction plans.	The protection of habitats and species.	The protection of habitats and species. The WRMP must take account of potential beneficial and detrimental effects upon biodiversity. There may be potential for an Appropriate Assessment to be necessary in certain cases.	Biodiversity
Salmon & Fresh Water Fisheries Act (SAFFA) 1976	Protection of salmon and freshwater fisheries.	Improvements in habitats and water quality for aquatic biodiversity and fisheries.	The WRMP must take account of potential beneficial and detrimental effects upon salmon and freshwater fisheries.	Water, Biodiversity
Water Industry Act 1991 and Water Act 2003 (s.63 of the Water Act 2003 inserted new sections 39B & 39C into the Water Industry Act 1991) (s.62 of the Water Act 2003 inserted new sections 37B–D into Water	Sets out the responsibilities of the Environment Agency in relation to water pollution, flood defence, fisheries, navigation and abstraction from controlled waters. Requirement for water companies to develop and publish Water Resource Management and Drought Plans.	Improvements in habitats and water quality for aquatic biodiversity and fisheries. Improvements in water quality and sustainable use of water resources.	The WRMP must be prepared in accordance with these Acts.	Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Industry Act 1991)				
Flood and Water Management Act 2010 (s.36; amends the Water Industry Act 1991 by substituting a new s.76)	Policy for sustainable water management for people, homes and businesses. The Act allows water companies further powers to manage domestic uses of water during drought.	The Act aims to provide better and more sustainable management of flood risk and reliable and affordable water supply and drainage.	The WRMP must be prepared in accordance with this Act.	Water
Water Use (Temporary Bans) Order 2010	The Order relates to the Flood and Water Management Act and Water Industry Act	It provides definitions and exceptions to the categories of use which can be temporarily banned by water companies during periods of drought.	The WRMP must take this document into account.	Water
Wildlife and Countryside Act 1981 (as amended)	This Act is the principle mechanism for providing legislative protection of wildlife in Great Britain.	Protection of wild birds, their eggs and nests. Protection of wild animals and plants. Specific protection of certain listed plants and species. Protection of Sites of Special Scientific Interest (SSSI)	There are a number of protected sites (SSSIs) and wildlife within the WRMP area. The WRMP must take account of the need to protect and enhance wildlife and habitats and the potential effects of the Plan upon these.	Biodiversity
Environment Act 1995	The establishment of the Environment Agency for the responsibility for environmental management in England and Wales.	Includes contaminated land regime, protection of the aquatic environment, air quality management and producer responsibility.	The WRMP must take account of potential beneficial and detrimental effects on the environment and engage in dialogue with the Environment Agency.	Biodiversity
Environmental Protection Act 1990	Integrated pollution control to prevent pollution from emissions to air, land or water from processes.	Protection of coastal, inland and groundwater quality. Protection of air quality. Protection of soil quality.	The WRMP must take account of potential beneficial and detrimental effects relating to pollution and emissions to air, land and water.	Biodiversity
Protection of Badgers Act, 1992	The protection of badgers from deliberate harm and ill-treatment.	Maintenance of badger population and protection of badger setts.	The WRMP must take account of potential beneficial and detrimental effects upon this aspect of biodiversity.	Biodiversity
Countryside and Rights of Way Act 2000	This Act provides for increased public access to the countryside and strengthens protection for wildlife.	Management of the public's ability to enjoy the countryside while	The WRMP must take account of potential beneficial and detrimental	Population, Biodiversity

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		providing safeguards for landowners such as through the statutory Rights of Way system. Protection of Areas of Outstanding Natural Beauty (AONB). Protection of Sites of Special Scientific Interest (SSSI). Protection of a list of species and habitats.	effects on SSSIs and AONBs and protected habitats and species in the WRMP area. Proposed schemes should not conflict with the protection or management of designated sites or protected habitats and species.	
Natural Environment and Rural Communities Act 2006	Establishes Natural England as the independent body responsible for conserving, enhancing and managing England's natural environment for the benefit of current and future generations.	Includes provisions regarding rights of way, inland waterways, wildlife, sites of special scientific interest, National Parks and the Broads. Objectives include: Protection of habitats and species Enhancement of landscape character in rural, urban and coastal areas Promoting access and recreation	The WRMP must take account of the objectives in this act and engage in dialogue with Natural England.	Biodiversity, Population
National Planning Policy Framework, Department for Communities and Local Government, 2012	This framework sets out the Government's planning policies for England and forms the basis on which councils are to produce Local Plans. Its overarching theme is one of achieving sustainable development. The document replaces the wide portfolio of Planning Policy Statements and Planning Policy Guidance documents.	The framework aims to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. A set of 12 core land-use planning principles have been identified to underpin both plan-making and decision taking.	The WRMP must take account of the principles and guidance in the framework.	Biodiversity, Land use, Population, Air quality, climate factors
Directing the Flow – Priorities for Future Water Policy, DEFRA, 2002	This policy defines the Government's strategic vision for the direction of water policy and its place among broader Governmental objectives in England. It identifies the main future priorities and direction over the long term for inland and coastal waters, for water resources and for the water and sewerage industry.	The aims for water policy include: Further improvements in water quality standards wherever costs are proportionate to the benefits and risks. Long-term risk management.	This document forms the basis of national water management policy and the WRMP must follow the policy direction set within it.	Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
	Recognises the importance of the Water Framework Directive.	Prudent and efficient use of water resources; reduced leakage. Integration between water and other related policies such as biodiversity, so that they can complement each other. A strong and efficient water and sewerage industry, delivering a fair deal for customers based on sustainable development principles and investor requirements.		
Future Water, The Government's Water Strategy for England, Defra, 2008	This strategy presents a vision for the water sector in 2030, together with provisions of what needs to be done to achieve this vision.	Sustainable delivery of high-quality water supplies alongside an enhanced and protected water environment.	This strategy maintains that a 'twin-track' approach is appropriate to water resource management. The WRMP should examine tools to reduce demand such as water efficiency, reduced consumption and metering. The WRMP must seek to improve water quality in the natural environment.	Water
Managing Water Abstraction: The Catchment Abstraction Management Strategy, Environment Agency, 2010	This new Managing Water Abstraction sets out the national policy and regulatory framework within which the EA manages water resources. Forms the basis for Catchment Abstraction Management Plans.	Efficient use of water resources. Protection of water quality and resources and water dependent species and habitats.	The WRMP must take account of this document and its objectives.	Water
Future Environment Priorities for the Water Industry Asset Management Plans, Environment Agency, 2004	EA's advice to the government on the water industry. Delivery of our European obligations and government targets as cost effectively as possible. Water Framework Directive requirements.	Objectives include: Treatment works, pipelines and sewers perform well. Companies have sound plans to provide enough water, consistent with the needs of all water users and the environment. Environmental impact of abstractions and discharges is	The WRMP must take account of this document and its objectives.	Water, Population

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		reduced. Actions proposed are good value for money and promote sustainable development.		
A Better Environment, Healthier Fisheries, Better Fisheries for our Nations: Our Strategy, Environment Agency, 2006	A strategy for the encouragement of sustainable fisheries.	Improved fish stocks and a better environment for wildlife and people. Increased accessibility for people to fish and improved fisheries performance. Sustainable fisheries boosting the local economy.	The WRMP must take account of potential beneficial and detrimental effects with regard to fisheries in the WRMP area.	Water, Population
A Better Place to Play – Our Strategy For Water Related Sport And Recreation, Environment Agency, 2006	A strategy for sustainable water-based recreation.	Creating a better place to live by improving the water environment. Improving access to all and promoting the outdoors. Making recreation sustainable.	The WRMP must take account of potential beneficial and detrimental effects with regard to access to and water quality of water bodies in the WRMP area.	Water, Population
Water for People and the Environment – water resources strategy for England and Wales, Environment Agency, 2009	Recognising the key role of the Water Framework Directive, the strategy sets out the approach to water resource management to meet the needs of people while protecting the natural environment.	Protection of the water environment and enhancement of water related biodiversity. The strategy aims for: Adaptation to and mitigation of climate change A better water environment Sustainable planning and management of water resources. People valuing water and the water environment	The WRMP must take account of this document and its objectives	Water, Population, Biodiversity
Water Resources Planning Guidelines, Environment Agency, 2012	The updated framework for water companies to follow in developing and presenting their statutory Water Resource Management Plans	The WRMP must follow the guidance in this document	Water	

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
National Infrastructure Plan, HM Treasury, 2011	This sets out the government's strategy for coordinating and planning public and private investment in UK infrastructure. It is for the purposes of investors, builders and operators of infrastructure	Objectives relating to water include: Maintaining the security and performance of the water and sewerage system while reducing its environmental impacts Mitigating the impacts of flooding and coastal erosion as part of a well-managed, coordinated and affordable risk management system	The WRMP must be aligned with this document	Water
Climate Change Act, Department of Energy and Climate Change, 2008	The Climate Change Act outlines the approach to managing and responding to climate change in the UK.	The Act aims to improve carbon management, helping the transition towards a low-carbon economy in the UK. It sets ambitious, legally binding targets and contains provisions with regard to trading carbon emissions and government powers.	The WRMP must take account of potential beneficial and detrimental effects with regard to greenhouse gas emissions	Climate
Department of Energy and Climate Change, Planning our electric future: a White Paper for secure, affordable and low carbon electricity (2011)	This white paper outlines a package of reforms so that by 2030 there will be a flexible, smart and responsive electricity system, powered by a range of low carbon sources of electricity. This includes engaging with consumers on energy use. Decarbonisation is important in meeting the 2050 targets.	Objectives include: long-term contracts for both low-carbon energy and capacity; institutional arrangements to support this contracting approach; continued grandfathering, supporting the principle of no retrospective change to low-carbon policy incentives, within a clear and rational planning cycle; and ensuring a liquid market that allows existing energy companies and new entrants to compete on fair terms	The implementation of the WRMP may have an influence upon Thames Water's total energy use. The SEA should seek to promote energy efficiency, as well as seeking to reduce the effects of climate change through greenhouse gas emissions. The SEA should also promote the use of renewable energy, where relevant.	Climate

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Water White Paper – Water for Life, Defra, 2011	Government vision for the water sector.	Vision for future water management in which the water sector is resilient, water companies are more efficient and customer focused and in which water is duly valued. Objectives include tackling water pollution and over abstraction; protecting the environment while meeting demand effectively and affordably	The WRMP must be aligned with this document	Water, Population
The Water (Financial Assistance) Bill, Defra, 2012	The Bill contains measures to enable the Government to meet commitments made in the Water White Paper: Water for Life.	To make provision for the giving of financial assistance for the purpose of securing the reduction of charges for the supply of water and the provision of sewerage services and in connection with the construction of, and the carrying out of works in respect of, water and sewerage infrastructure.	The WRMP must be aligned with this bill.	Water, Population
Water Resources Management Plan Regulations, 2007	Sets out the statutory requirements a water undertaker must follow with respect to publishing and consulting on its draft and final Water Resources Management Plans.	Broadly, to ensure effective water resources management planning that maintains a balance between the needs of the public water supply and the environment.	The WRMP must follow these regulations.	Water, Population
The Climate Change and Sustainable Energy Act, 2006	Enacted following publication of the UK Climate Change Programme (2006).	The Act places an obligation on the government to report UK greenhouse gas emissions and actions taken to reduce these.	The WRMP must take into account whether schemes increase or decrease greenhouse gas emissions, thus contributing to meeting the objectives or conflicting with the purposes of this Act	Climate Change
Defra (2012) The UK Climate Change Risk Assessment 2012 Evidence Report	Draws together and interprets the evidence gathered by CCRA regarding current and future threats and opportunities for the UK posed by the impacts of climate change up until 2100.	It sets out the main priorities for adaptation in the UK under 5 key themes identified in the CCRA 2012 Evidence Report - Agriculture and Forestry;	The WRMP is closely linked to some of the impacts of climate change and can also influence the magnitude of such impacts. The SEA should seek to ensure that	Climate

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		Business, industries and Services; Health and Wellbeing; Natural Environment and Buildings and Infrastructure - and describes the policy context, and action already in place to tackle some of the risks in each area.	the WRMP considers the findings of the CCRA as part of WRMP formulation and selection of options.	
Securing the Future; Delivering the UK Sustainable Development Strategy, 2005	The strategy reaffirms the Government's commitment to achieving sustainable development and sets out a long-term agenda for development and growth that is not in conflict with sustainability.	One of the five principles is: Living within environmental limits – respecting the limits of the planet's environment, resources and biodiversity, to improve our environment and ensure the natural resources needed for life are unimpaired and remain so for future generations. The four priorities are: Sustainable consumption and production Natural resource protection Environmental enhancement Sustainable communities	The WRMP must take account of the principles and priorities set out in the strategy	Water, Population
Ancient Monuments and Archaeological Areas Act 1979	The Act consolidates and amends the law relating to ancient monuments and makes provision for the investigation, preservation and recording of matters of archaeological or historical interest.	Identifying, protecting, conserving and investigating nationally important archaeological site	The WRMP must take into account whether schemes could impact on ancient monuments or areas of archaeological / heritage interest	Cultural Heritage
Department for Culture, Media and Sport (2001) The Historic Environment – A Force for the Future	This strategy outlines the Governments policy regarding the historic environment. The strategy has key aims and objectives that demonstrate the contribution the historic environment makes to the country's economic and social well-being.	Objectives include: Public interest in the historic environment is matched by firm leadership, effective partnerships, and the development of a sound knowledge base from which to develop policies; The full potential of the historic environment as a learning	The implementation of the WRMP may have an influence on the heritage of the region. The SEA should seek to ensure any adverse effects on heritage assets are minimised or avoided.	Cultural Heritage

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		resource is realised; The historic environment is accessible to everybody and is seen as something with which the whole of society can identify and engage; The historic environment is protected and sustained for the benefit of our own and future generations; The historic environment's importance as an economic asset is skilfully harnessed.		
Town and Country Planning Act 1990	Planning legislation for England and Wales.	The Act regulates development of land to ensure a balance between economic development and the environment.	The WRMP must take account of the Act in relation to whether any schemes would require planning permission.	Population, Biodiversity, Landscape, Cultural Heritage, Water
Natural Environment White Paper, 2011	The paper outlines the Government's vision for the natural environment over the next 50 years and is backed up by regular updates of actions taken to deliver the vision.	The paper sets out four ambitions: Protecting and improving our natural environment Growing a green economy Reconnecting people and nature International and EU leadership	The WRMP must take account of the ambitions set out by this strategy	Population, Biodiversity
Water Industry National Environment Programme (NEP) for PR09, Environment Agency	A key component of a periodic review is the NEP. It is a list of environmental improvement schemes that ensure that water companies meet European and national targets related to water.	Each water company has its own NEP but generally they require water companies to undertake improvement schemes, or where more evidence is required, to investigate a particular problem. SESW had 2 investigation actions under PR09.	The WRMP must take account of the NEP	Water
Historic England (2015) The Setting of Heritage	Applies to local authorities, planning and other consultants, owners, applicants and	This provides advice on the settings of heritage assets in	The SEA should take into account effects on the setting of heritage	Heritage

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Assets, Historic Environment Good Practice Advice in Planning note 3	other interested parties in implementing historic environment policy.	accordance with the NPPF.	assets.	
Defra (2015) The Great Britain Invasive Non-native Species Strategy	The Strategy is intended to provide a strategic framework, updated from the 2008 framework, within which the actions of government departments, their related bodies and key stakeholders can be better coordinated.	Its overall aim is to minimise the risks posed, and reduce the negative impacts caused, by invasive non-native species in Great Britain.	Some options in the WRMP could influence the negative impacts caused by invasive non-native species in the region. The SEA should seek to ensure that options within the WRMP do not increase the risks posed or impacts caused by invasive non-native species.	Biodiversity
Natural England (2014) Site Improvement Plans (SIPs) for Natura 2000 Sites	SIPs have been developed for each Natura 2000 site in England.	SIPs provide high level overviews of the issues affecting the condition of the Natura 2000 features on these sites and outline the priority measures that are needed to improve the condition of the features. SIPs are live documents.	The SEA should take into account the relevant SIPs for Natura 2000 sites that may be affected by the WRMP and include the conservation and enhancement of designated sites in the SEA objectives.	Biodiversity
Defra (2011) Government Review of Waste Policy in England 2011	The review is guided by the “waste hierarchy”, EU obligations and targets on waste management, carbon impacts, environmental objectives and the costs and benefits of different policy options.	The Governments vision includes a move beyond the current throwaway society to a “zero waste economy” in which material resources are reused, recycled or recovered wherever possible, and only disposed of as the option of very last resort.	The WRMP may involve options that involve the generation of waste (e.g. either through construction requirements or operation of supply side options). The SEA should seek to enhance recycling and minimise the amount of waste going to landfill.	Population
HM Treasury (2015) Fixing the Foundations: Creating a More Prosperous Nation	This report refers to the importance of productivity.	The government’s framework for raising productivity has two pillars: Encouraging long term investment in economic capital, including infrastructure, skills and knowledge; Promoting a dynamic economy that encourages innovation and helps resources	The SEA should take into account the need to raise productivity via long term investment and a dynamic economy	Population

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		flow to their most productive use. A fifteen point plan for productivity is provided.		
Regional (South East Region) and County (Surrey, Kent, West Sussex and Greater London)				
The Thames River Basin Management Plan, Environment Agency, 2009	This sets out how the water environment will be managed and provides a framework for more detailed decisions to be made as part of the Water Framework Directive.	Targets are set with respect to the improvement in the ecological, biological and physical status of surface and groundwaters.	The WRMP must reflect the targets set out in the Plan	Water, Biodiversity
Thames Waterways Plan 2015 – 2021, EA for the River Thames Alliance (2015)	Developed by the EA in consultation with members of the River Thames Alliance (RTA).	The objectives include: To ensure that the best possible flood risk management procedures are being followed and that resources are sufficient. To conserve, improve and restore a natural and biodiverse river environment wherever possible for the benefit nature and people, as well as maintaining the character of the urban landscapes and countryside within the River Thames corridor. The River Thames and its corridor should be promoted effectively as a visitor destination for the benefit of visitors and the regional economy. To ensure that the non-tidal River Thames remains as navigable as possible for commercial and recreational boats, that the rules around navigation are enforced, that the supporting infrastructure and facilities are fit for purpose and adequate staff are available. To increase the use of the Thames for water-based sport and physical recreation, focussing particularly on better access for people for whom	The WRMP operation may have the potential to affect the water environment and river levels and therefore access to the River Thames. The SEA should include objectives that take into account navigation, recreation and tourism.	Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		current provision is less readily available.		
London Infrastructure Plan 2050	The London Infrastructure Plan 2050 identifies, prioritises and costs London's future infrastructure. It considers how it might be delivered and funded, in order to support future growth.	Water is a key element of this plan. A variety of demand and supply side measures will be required.	The WRMP should be aligned to these objectives.	Landscape
Defra (2015) Climate adaptation reporting second round: South East Water	Progress report by South East Water on their climate change adaptations. This report sets out their progress in adapting to the current and future predicted effects of climate change on their organisation.	Four areas of development are identified in this report: Embedding and quantifying climate change into routine management and monitoring of risks Updated assessment of climate change impacts on water supply and demand Greater collaborative long term planning and understanding of regional impacts Experience of recent winter storms enabling investigating of the level of resilience and adaptive capacity of current infrastructure and therefore better understanding	The SEA should consider the potential to include adaptive measures for climate change	Climate
Port of London Authority (2016) The mar for the Tidal Thames	The Thames Vision is a 20 year view of the river's future, developed with stakeholders with the goal of making the most of its potential, for the benefit of all. The Vision sees the value of the Thames better understood and its potential realised.	Goals and priority actions: Port of London: more trade, more jobs Inland Freight: more goods off roads onto the river Passenger Transport: more journeys Sport and recreation: more participants Environment & heritage: Improved tidal Thames environment Community and Culture: More people enjoying the Thames and its banks	The WRMP may have the potential to affect the water environment and river levels and therefore access to the River Thames. The SEA should include objectives that take into account navigation and recreation.	Water
Water Resource Management Plan, Sutton and East	Previously published version of SES Water's WRMP.	An Environmental Report and SEA Statement were produced alongside the publication of the WRMP as part of	The WRMP must build on this document and its SEA.	Water, Population

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Surrey Water, 2009		the SEA process.		
Drought Plan, Sutton and East Surrey Water, 2012	The plan outlines operational aspects of SESWs supply system that relate specifically to drought management.	It aims to minimise any potential for impact on the environment if a drought occurs, but where potential impacts are identified presents a balance of measures. It presents an assessment of the potential environmental impacts that may result from the implementation of drought permits on the River Eden and at three groundwater sources: Hackbridge/Goatbridge, the Woodmansterne Group and the Kenley Group.	This plan has been closely aligned with the current WRMP. The proposed WRMP will need to do the same.	Water, Biodiversity and Population
Water Resources in the South East Group; progress towards a shared water resources strategy in the South East of England, April 2010	The strategy was set up to explore how existing and new water resources can be shared in the most efficient and effective way whilst maintaining security of supply, protecting the environment and minimising costs to customers.	The WRMP must take account of the findings of this strategy	Water	
State of the Environment – South East England, Environment Agency, 2010	A review of the environmental health for the South East of England.	Topics include sustainability, climate change, flood risk, water resources, waste, water quality, land, air quality and wildlife.	The WRMP must take account of the regional context and indicators where appropriate.	Water
State of the Environment – London, 2011	A joint report produced by the Greater London Authority, Environment Agency, Natural England and Forestry Commission. It reviews the health of the London environment.	The state of the environment is discussed under the following themes: Climate change, Flood risk, Water quality, Water resources, Waste, Air quality, noise and transport, Biodiversity, and Landscape and green infrastructure.	The WRMP must take account of the regional context and indicators where appropriate	Water
Water Resources Strategy, Regional Action Plan for	Stemming from the National Strategy, 'Water for People and the Environment', this plan takes the aims and objectives of the national strategy and identifies actions	Overarching aim is 'enough water for people and the environment'. The sustainable management and use of	The plan states that the EA intends to work with water companies and others to	Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Southern Region, Environment Agency, 2009	for the Southern region.	water and land – environmentally, socially and economically. The right amount of good quality water for people, agriculture, commerce and industry, and the environment. Objectives include: Water to be abstracted, supplied and used efficiently The water environment to be restored, protected and improved so that habitats and species can better adapt to climate change Water supplies to be more resilient to the impact of climate change, including droughts and floods Water to be shared more effectively Improved water efficiency Water to be valued and demand reduced Additional resources to be developed where and when they are needed Sustainable, low carbon solutions Stronger integration of water resources management with land, energy, food and waste	understand and quantify the scale of the challenge for the region and the solutions needed to address it. The WRMP must take account of this document and its objectives at the regional level	
Water Resources Strategy, Regional Strategy Actions for South East Region, Environment Agency, 2012	Stemming from the National strategy 'Water for People and the Environment', this strategy states how the Agency is going to meet the demands for water in the South East Region whilst protecting the environment over the next 25 years.	Overarching aim is 'enough water for people and the environment'. The sustainable management and use of water and land - environmentally, socially and economically. The right amount of good quality water for people, agriculture, commerce and industry, and the environment. Objectives include: Water to be abstracted, supplied and used efficiently.	The strategy states that some of the actions in this Regional Action Plan will be delivered by implementing the WRMPs: for example, the actions on metering and tariff developments, leakage reduction and achieving the best public water supply solutions for the south east. The WRMP must take account	Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		The water environment to be restored protected and improved so that habitats and species can better adapt to climate change. Water supplies to be more resilient to the impact of climate change, including droughts and floods. Water to be shared more effectively. Improved water efficiency. Water to be valued and demand reduced. Additional resources to be developed where and when they are needed. Sustainable, low-carbon solutions. Stronger integration of water resources management with land, energy, food and waste	of this document and its objectives at the regional level	
State of the Natural Environment in London: securing our future (NE132), Natural England, 2007	The report sets out the current state of the natural environment of London and the unique challenges that require a long-term and sustainable solution. The overarching aim is to ensure that the natural environment is at the heart of the city today and in the future.	This report highlights Natural England's position on some of the most crucial issues concerning the natural environment in London. It describes how NE will work with a range of people and organisations to deliver their vision for Natural London, helping to ensure London is a world leader in improving the environment.	The WRMP must take account of the key indicators / issues raised within the report	Water, Biodiversity and Population
State of the Natural Environment in the South East (NE135), Natural England, 2009	The report sets out the current state of the South East's natural environment and the challenges and opportunities of the region.	It sets out key proposals for action by Natural England and partners required to address the issues focused around landscape, biodiversity and enjoying the natural environment.	The WRMP must take account of the key indicators / issues raised within the report	Water, Biodiversity and Population
Enjoying Water – Strategic Priorities for Water Related Recreation in London and South East	Vision: More people in London and the South East enjoy new and improved water related recreation, contributing to a better quality of life, health and environment.	The strategic priorities are designed to: Encourage action by a range of interested parties and individuals; Deliver well managed, new and better opportunities for more people to enjoy	The WRMP must take account of the key indicators/issues raised within the report. Opportunities to contribute to the vision should be sought	Population and water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
England, February 2011.		water environments; Tackle some of the issues that arise from changes in the demand for recreation, the supply of water bodies and gaps in provision; Ensure everyone can enjoy water environments.	where possible.	
Surrey Structure Plan, Surrey County Council, adopted 2004	The Plan, together with local plans prepared by the 11 borough and district councils, and the Minerals and Waste Local Plans prepared by the County Council, form the Development Plan for Surrey. It does not have a formal status but is still retained on the Surrey website.	Guided development and protected various important features of the environment.	Although the Structure Plan no longer has formal status some policies are still relevant and therefore the WRMP should align with these. The WRMP must also take account of the plans and policies coming out of the emerging Local Development Frameworks at Local Planning Authority level (see Local section below).	Population, Biodiversity, Landscape, Cultural Heritage, Water
West Sussex Structure Plan, West Sussex County Council, 2001–2016	Although the Structure Plan has no formal status in the statutory planning system, it, together with the Minerals and Waste Development Scheme (2012–15), remains West Sussex's strategic policy statement on development into the future.	Guided development and protected various important features of the environment.	Although the Structure Plan no longer has formal status some policies are still relevant and therefore the WRMP should align with these. The WRMP must also take account of the plans and policies coming out of the emerging Local Development Frameworks at Local Planning Authority level (see Local section below).	Population, Biodiversity, Landscape, Cultural Heritage, Water
The London Plan, Spatial Development Strategy for Greater London, July 2011	The London Plan is the overall strategic plan for London, and sets out a fully integrated economic, environmental, transport and social framework for the development of the capital to 2031. It forms part of the development plan for Greater London. London boroughs' local plans need to be in general conformity with the London Plan.	Its policies guide decisions on planning applications by councils and the Mayor.	The WRMP should align with the key policies set out in the plan.	Population, Biodiversity, Landscape, Cultural, Heritage, Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Securing London's water future: The Mayor's Water Strategy, 2011	A strategic framework for enhancing quality of life in London and protecting the environment.	The Water Strategy is part of a series of strategies that together set out actions and policies to make London the 'best big city in the world'. The environment strategies and programmes are built on three policy pillars; retrofitting London, greening London and cleaner air for London.	The WRMP should align with this set of strategies	Population, Water
Managing risks and increasing resilience: The Mayor's climate change adaptation strategy, 2011	A strategic framework for enhancing quality of life in London and protecting the environment.	The Climate Change Adaption Strategy is part of a series of strategies that together set out actions and policies to make London the 'best big city in the world'. The environment strategies and programmes are built on three policy pillars; retrofitting London, greening London and cleaner air for London.	The WRMP should align with this set of strategies	Population, Climate Factors
Leading to a Greener London: An environment programme for the future, 2009	The Mayor wants London to be recognised as a world leader in improving the environment locally and globally, by tackling climate change, reducing pollution, developing a low carbon economy, consuming fewer resources and using resources more effectively.	The document focuses on three key challenges: improving quality of life for Londoners, mitigating climate change and adapting London to the impact of irreversible climate change.	The WRMP should align with this strategy	Population, Biodiversity
Kent Biodiversity Action Plan, Kent Biodiversity Partnership	This is an off-shoot from the UK BAP. It sets out what needs to be achieved in order to safeguard a future for biodiversity. It is a separate form of conservation to the protection of biodiversity offered by statutory legislation.	The primary objective of this plan is to enable the conservation and enhancement of biodiversity in Kent and so contribute to the maintenance of national and global biodiversity. This Local BAP identifies where action needs to be taken to implement national targets for habitats and species and it also identifies appropriate delivery mechanisms.	The WRMP must be aligned with this plan	Biodiversity
Sussex Biodiversity Action Plan, Sussex	This is an off-shoot from the UK BAP. It sets out the actions needed for protecting and enhancing wildlife in	The plan provides a framework for conserving and enhancing the species	The WRMP must be aligned with this plan.	Biodiversity

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Biodiversity Partnership	Sussex.	and spaces of Sussex to ensure future generations can continue to enjoy them.		
Surrey Biodiversity Action Plan, Surrey Biodiversity Partnership	An off-shoot from the UK BAP, it sets out the current state and the future requirements for the biodiversity of Surrey.	It ensures that national targets for species and habitats, as specified in the UK BAP are translated into effective action at the local level.	The WRMP must be aligned with this plan.	Biodiversity
London's Biodiversity Action Plan, London Biodiversity Partnership	An off-shoot from the UK BAP, the London Biodiversity Partnership delivers the London BAP for important habitats and species within the Great London area.	The London BAP identifies priority habitats and species that are of particular importance for biodiversity in London.	The WRMP must be aligned with this plan.	Biodiversity
A Strategy for the West Sussex Landscape, West Sussex County Council, 2005	The purpose of the Strategy is to protect and enhance the landscape of West Sussex as an asset for future generations.	It is based on the Landscape Character Assessment and through a variety of visions and objectives aims to improve development and land management for the benefit of the landscape.	The WRMP must have regard for this strategy and ensure no detrimental impact on the landscape.	Landscape
High Weald AONB Management Plan, adopted 2004, reviewed 2008 and readopted 2009	It sets the overall policy approach to the management of the landscape and provides the framework for all of the AONB Unit's activities. It sets out local authority policy for the AONB and will be used to assess how public bodies, statutory undertakers and holders of public office fulfil their duty to have regard for the purpose of conserving and enhancing the natural beauty of the High Weald.	The primary purpose of this designation is to conserve and enhance natural beauty. In pursuing the primary purpose of designation, account should be taken of the needs of agriculture, forestry, and other rural industries and of the economic and social needs of local communities. Particular regard should be paid to promoting sustainable forms of social and economic development that in themselves conserve and enhance the environment. Recreation is not an objective of designation, but the demand for recreation should be met so far as this is consistent with the conservation of natural beauty and the needs of agriculture, forestry and other uses.	The WRMP must take account of potential detrimental and beneficial effects on this AONB in line with the objectives of this plan.	Landscape

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Kent Downs AONB Management Plan, 2014-2019	The management plan sets in place clear aims, policies and actions for the conservation management and enhancement of the AONB for a five year period and sets a longer term vision.	The ultimate goal of the Management Plan is to ensure that the natural beauty and special character of the landscape and vitality of the communities are recognised, maintained and strengthened well into the future. An action plan will be published shortly to support the management plan.	The WRMP must take account of potential detrimental and beneficial effects on this AONB in line with the vision and objectives of this plan.	Landscape
Surrey Hills AONB Management Plan, 2014-2019	The plan formulates the policy for the management of the area. This Management Plan was prepared by the Surrey Hills AONB Board and independently adopted by Guildford Borough Council, Mole Valley District Council, Reigate and Banstead Borough Council, Tandridge District Council, Waverley Borough Council and Surrey County Council.	The Management Plan seeks to ensure that the natural beauty, special character and the vitality of its communities are recognised, maintained and strengthened.	The WRMP must take account of potential detrimental and beneficial effects on this AONB in line with the vision and objectives of this plan.	Landscape
South East Marine Plan (forthcoming) Marine Management Organisation	The purpose of the Marine Plan is to set out how the UK Marine Policy Statement will be implemented in the South East. Marine plan will cover a 20 year period and will be reviewed regularly.	It will provide greater coherence in policy and a forward looking, proactive and spatial planning approach to the management of the marine area, its resources and the activities and interactions that take place within it. They will also seek to take account of social, economic and environmental factors that affect the plan and the communities that have an interest in them.	The WRMP and SEA should take account of this plan subject to when it becomes available	Water
River Medway Catchment Flood Management Plan, Environment Agency, 2004 and Summary Report, 2009	Flood risk management policies which will deliver sustainable flood risk management for the long term.	The main source of flood risk in the Medway CFMP area is from localised river flooding. Risks to people, property and infrastructure are dispersed throughout the catchment. In many parts of the catchment, flooding brings environmental benefits to habitats such as wet woodland and reed bed. Control	CFMPs should be used to inform planning and decision making by stakeholders such as water companies in the context of the catchment and local level issues. The WRMP must be aligned with this CFMP.	Water, Population

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
		of water is also vital for navigation and recreation within the catchment.		
Thames Catchment Flood Management Plan, Summary Report, 2009	Flood risk management policies which will deliver sustainable flood risk management for the long term.	The Thames CFMP focuses on risks of flooding from fluvial sources. It divides the area into a number of sub-areas and sets an appropriate flood risk management policy for the area. A number of internationally and nationally designated sites benefit from flooding.	CFMPs should be used to inform planning and decision making by stakeholders such as water companies in the context of the catchment and local level issues. The WRMP must be aligned with this CFMP.	Water, Population
The London Catchment Abstraction Management Strategy, 2006	The Wandle, Beverley Brook and Hogsmill rivers fall within the London CAMS. CAMS look at managing water resources at a local level.	The vision of the CAMS is to manage existing pressures on water resources within the catchment and to protect the flow requirements of the river environment whilst considering the needs of existing and future abstractors.	The WRMP must be aligned with this CAMS	Water, Biodiversity
The Mole Catchment Abstraction Management Strategy, 2007	CAMS look at managing water resources at a local level.	The vision for the River Mole CAMS is to ensure a fair share of water for abstractors, river users and the environment. This will be achieved by: ensuring that abstraction licences allow realistic volumes of water to be abstracted investigating the water requirements of the River Mole, Gatwick Stream, Redhill Brook and Salfords Stream; having regard for water resources in the groundwater supplies of the Chalk and Lower Greensand aquifers; Considering the needs of the River Thames when licensing in the Mole catchment.	The WRMP must be aligned with this CAMS.	Water, Biodiversity
Medway Catchment	CAMS look at managing water resources at a local	In all over licensed and over abstracted	The WRMP must be aligned	Water, Biodiversity

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Abstraction Management Strategy, 2005	level.	units, the EA will seek to secure downward variations of existing licences. Specific action involving SES Water Water include: Assess the yield of Reservoir A and licence appropriately, as the resource assessment showed that the original licence needed verification.	with this CAMS.	
Relevant Landscape Character Assessments	Landscape character assessment (LCA) is the process of identifying and describing variation in character of the landscape. These are produced by relevant Local Authorities	LCA documents identify and explain the unique combination of elements and features that make landscapes distinctive by mapping and describing character types and areas.	Relevant LCAs should be taken into account when options are determined to have significant effects on the local Landscape.	Population, Landscape
Local				
Crawley Borough Council, Local Development Framework Core Strategy, October 2008 revision	The Core Strategy is the central document of the Local Development Framework, and sets out the spatial vision, objectives, and policies for managing development in Crawley up to 2016 and beyond.	It largely supersedes the Crawley Local Plan (2000), although a number of Local Plan policies have been 'saved' until the adoption of the Core Strategy Review.	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
Elmbridge Borough Council, Local Development Framework Core Strategy, adopted July 2011	The Core Strategy is the principal document in the new Elmbridge Local Plan and sets the long-term vision and overarching policies for the Borough.	It includes saved policies in the Replacement Elmbridge Local Plan 2000 but eventually these will be completely replaced by the new Local Plan.	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
Epsom and Ewell Borough Council, Local Development Framework Core Strategy, adopted July 2007	The Core Strategy document sets the overall planning framework for the Borough and contains a number of key strategic policies.	Like other Core Strategies it includes saved policies from the previous Local Plan (2000).	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
London Borough of Croydon, Local	The Core Strategy sets the overarching strategic	The LDF documents are currently in	The WRMP must take account of the Core Strategy and the	Population,

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Development Framework Core Strategy, Emerging	policies for Croydon's growth to 2031.	preparation.	emerging Local Development Framework to ensure it aligns with the key policies.	Biodiversity, Landscape, Cultural Heritage, Water
London Borough of Merton, Merton's Core Planning Strategy, adopted July 2011	The Core Strategy is the key policy document in Merton's LDF. It sets out the spatial strategy for the Borough and the key elements of the planning framework. It will be supported by other Development Plan Documents (DPDs).	The Core Strategy will replace Merton's Unitary Development Plan but currently some of the policies are still saved.	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
London Borough of Sutton, Core Planning Strategy, adopted December 2009	The Core Strategy sets out a long-term vision, spatial strategy and core policies for shaping the Borough's development up to 2024 and is key to the delivery of Sutton's sustainable community strategy.	It is the first of a suite of Development Plan Documents (DPDs) that will replace the Unitary Development Plan. The saved policies of the UDP will continue to provide the detailed policy framework for the borough, with the exception of those policies which have been replaced or superseded by the Core Strategy.	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
Mole Valley District Council, Core Strategy, adopted October 2009	The Core Strategy sets out a vision, objectives, spatial strategy and overarching planning policies that guide new development in the District up until 2026.	The Core Strategy is one of a series of 'Local Development Documents' that together will make up the Local Development Framework (LDF) for Mole Valley. It sets out a vision for the District and guides the type, level and location of future development.	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
Reigate and Banstead Borough Council, Core Strategy, submitted for examination May 2012	Once adopted, the Core Strategy provides the spatial strategy for Reigate & Banstead for the next 15 years. It will be the first in a series of planning documents that will together make up the Reigate & Banstead Local Development Framework (the LDF).	It covers a wide range of spatial planning issues, including economic development, regeneration, housing, environmental protection, transport, health and education.	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
Sevenoaks District Council, Core Strategy	The Core Strategy is the key Development Plan Document in the District Council's Local Development Framework. It draws together the objectives of a wide	It sets out what development will happen, where it will be located, when it will take place and what requirements	The WRMP must take account of the Core Strategy and the emerging Local Development	Population, Biodiversity, Landscape,

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic
Development Plan Document, adopted February 2011	range of plans, programmes and strategies and provides the overarching principles that will deliver the essential development needs of the District up to 2026.	it has to meet. It also explains what areas will be protected from development and explains how the environment will be safeguarded. The Strategy directs most development to land within existing urban areas, with only minor development within villages, while the District's countryside and its biodiversity will continue to be protected.	Framework to ensure it aligns with the key policies.	Cultural Heritage, Water
Tandridge District Council, Core Strategy, adopted October 2008	The Core Strategy is the first Development Plan Document (DPD) in the LDF and sets out a vision for the District and a set of key policies within which other more detailed policies can be prepared and set out in future Local Development Documents. It will run until 2026.	Like many other LPAs Tandridge has been able to 'save' a number of its Local Plan policies. Over time these will be replaced by other DPDs.	The WRMP must take account of the Core Strategy and the emerging Local Development Framework to ensure it aligns with the key policies.	Population, Biodiversity, Landscape, Cultural Heritage, Water
Relevant Local Authority Green Infrastructure Strategies	There is a need to develop, preserve and enhance healthy green infrastructure to help stop the loss of biodiversity and enable ecosystems to deliver services to people and nature. The greater the scale, coherence and connectivity of the green infrastructure network, the greater its benefits.	The protection and enhancement objectives are unique to each strategy.	Where relevant the WRMP should seek to meet the objectives and aims of any green infrastructure strategies which may be in place when outlining green infrastructure approaches.	Population, Biodiversity, Landscape,
Relevant Local Authority Rights of Way Improvement Plans	Most local authorities will already have a rights of way improvement plan. Plans explain how improvements made by the local authority to the public rights of way network provide better experience for users.	Where the WRMP is likely to affect Public Rights of Way the effects should be considered.	Where relevant the WRMP should seek to meet the objectives and aims of any Rights of Way Improvement Plans which may be in place when outlining green infrastructure approaches.	Population, Landscape, Cultural Heritage,
Relevant Local Authority Flood Risk Management Plans	Flood Risk Management Plans (FRMPs) highlight the hazards and risks of flooding from rivers, the sea, surface water, groundwater and reservoirs, and set out how Risk Management Authorities (RMAs) work together with communities to manage flood risk	Each EU member country must produce FRMPs as set out in the EU Floods Directive 2007. FRMPs provide a joint and integrated approach to catchment planning for water.	Where a potential effect on flood risk has been identified and where relevant the WRMP should seek to meet the objectives and aims of any FRMPs	Population, Biodiversity, Cultural Heritage, Water

Plans, Programmes, Policy and Legislation	Significant policy issues identified	Environment protection objectives established	Relationship to the WRMP and implications for the WRMP	SEA Topic

Appendix III: Statutory Consultee Responses

Scoping Report (2017)

Ref	Ref and/ or Question	Comment	Response
Environment Agency			
1	Are there other policies, plans and strategies or relevant legislation or regulation that you feel may be relevant to the SEA of the WRMP?	The review is detailed and focussed on the relevant plans and policies. It would be beneficial to refer to the review in the appendix and signpost it from the main body of the early text in the report, otherwise there is a risk that it won't be seen as integral to the SEA process. The review demonstrates good practice identifying the key implications for the WRMP.	Noted.
		This section could be further strengthened by reviewing: • Species through raw water transfers. This guidance should be considered and any associated risks which may increase the spread of invasive species through their activities. There is new national guidance on managing the risk of spread of Invasive Non-Native species	Noted, the scoping information has been updated to reflect this comment.
		• There is a Water Framework Directive (WFD) climate change review that was done for RBMP/Cost Benefit Analysis review.	Noted.
		• The KSLES WFD Cycle 2 Delivery Plans (shared through the Catchment Improvement Groups) could be useful in highlighting high risk waterbodies.	Noted.
		• KCC have recently completed a future water availability study, this highlights the waterbodies, which will be at the highest risk of low flows and where waste water treatment works (WWTW) will exceed their current capacity, causing a deterioration on WFD element water quality.	Noted.
2	Do you agree that the key environmental issues affecting the SESW Study Area that are relevant to the WRMP have been identified? If not, are there others which you think should be included?	Could also be strengthened by reviewing the below: • Non-native Invasive species (INNS) should be considered as well as the risk of their spreading through any associated activities.	Noted, as above the scoping information has been updated to reflect this comment.
		• We would also like to see in the report the likely significant effects on WFD and the environment identified, described and evaluated through implementation of the plan and reasonable alternatives taken into account.	Noted, the WFD and 'environment' are referred to within the scoping report and addressed within the SEA Framework. The likely significant effects of the draft WRMP and any reasonable alternatives will be evaluated through the subsequent stages of the SEA process as per the SEA Regulations. The Environmental Report will describe and set out the findings of this work.
		• We would like some more detail regarding the protection of fisheries.	Noted, the scoping information has been updated to reflect this comment. It should be noted that fisheries are identified as a key issue and there is a specific SEA objective relating to them.

Ref	Ref and/ or Question	Comment	Response
		• The table on page 30 refers to the River Eden as "the only surface water resource in the area" and that "water is only likely to be available at high flows". We would like some more clarity and detail regarding the other watercourses are described on page 20 (Rivers Mole, Eden, Hogsmill and Wandle; and Beverley Brook), as water availability is also restricted in those water features.	Noted, information included below table 6.4 to reflect this comment.
		• Sites of Importance for Nature Conservation are identified as a local designation in section 3.1 but no such sites are subsequently scoped into the assessment. We would like to see these sites scoped in. They are also referred to as Local Wildlife Sites and data can be requested from Local Biodiversity Records Centres.	Noted; however, it is important that the assessment is proportional.
		• Section 3.1.2 indicates any flora or fauna beyond those scoped into the 2014 SEA report have not been considered. We would like to flag up that the 2014 scoping report omitted any consideration of impacts to breeding or overwintering wading birds (e.g. those using Bough Beech Reservoir and its environs); or bats using affected water bodies as foraging sites or commuting routes (e.g. are there any known daubentons bat roosts in the vicinity of an option for which an impacted water body is the only connected foraging site?). We would like to see those species scoped in.	Noted, the scoping information under flora and fauna has been updated to reflect this comment
3	Do you agree that the draft SEA objectives put forward provide an appropriate framework for assessing the environmental effects of the WRMP?	• We would like to see mentioned in the objectives the prevention the spread of non -native invasive species. Under the objective "To protect and, where feasible, enhance biodiversity including designated and other important habitats and species" we would suggest adding a question along the lines of: "Does the option avoid spreading invasive non-native species? "	Noted, the SEA Framework has been updated to reflect this comment.
		• We would recommend to include “Meet UK Biodiversity Action Plan objectives” as an objective in the report.	Noted, the SEA Framework has been updated to reflect this comment.
4	Are the number, focus and level of detail of the proposed objectives and sub-objectives appropriate and proportionate given the aims, geographical scope and likely influence of the WRMP?	One of the key objectives is to enhance where feasible the biodiversity and ecological quality of the SESW area. We would like to see more detail on any schemes/plans which are being planned/implemented/funded as part of this objective.	Noted.
		Please see previous comment regarding INNS.	Noted, please refer to previous response with regard to INNS.
		The objective to maintain and enhance Biodiversity Action Plan habitats and species in line with targets is stated but only with the caveat of where feasible.	Noted, the SEA Framework has been updated to reflect this comment.
5	Do you agree with the broad method outlined above for assessing significant effects of the plan, and reasonable alternatives?	The methodology section is generally clear and well laid out referencing the previous 2014 report methodology and tabulating the SEA framework. This chapter however, would benefit from a more detailed explanation for the method of assigning magnitude, sensitivity and significance of effect to help the reader understand the process with reference to table 12.3 and 12.4 within the text description. The tables should be seen as a summary of the methodology proposed but still requires an accompanying explanation.	Noted, the Environmental Report will provide additional text to explain the method.
		The statement for assessing cumulative effects does not explain the methodology to be used.	Noted, the method for assessing cumulative effects

Ref	Ref and/ or Question	Comment	Response
		The general approach of what will be considered is provided but no information regarding how the significance of cumulative effects is to be determined.	will be more clearly explained within the Environmental Report.
		Consider whether the assessment methodology could be modified to provide greater clarity on the spatial distribution of the environmental effects of the plan rather than just the performance against objectives.	Noted, the method for assessing cumulative effects will be more clearly explained within the Environmental Report.
		We would suggest to include a monitoring plan, even if a basic outline at this stage, to include a baseline and post drought monitoring following the principle set out in national guidance.	Noted, proposed monitoring will be set out within the Environmental Report once an assessment of the alternatives and Draft WRMP has been carried out.
		We would recommend to include the commitments to monitor all the significant effects and proposed mitigation identified by the SEA, as well as recording and monitoring any unforeseen effects that arise from the implementation of the plan.	Noted, proposed monitoring will be set out within the Environmental Report once an assessment of the alternatives and Draft WRMP has been carried out.
		We would recommend to seek to minimise the overall monitoring burden and avoid duplication by integrating with existing monitoring regimes where appropriate.	Noted.
		We can provide advice on which of our data sets may be suitable for monitoring the proposed plan and whether the plan covers the key areas of impact. Where our monitoring data is not sufficient or our existing monitoring sites not appropriate for monitoring for drought, the water company should consider how they will cover the gaps.	Noted.
		We would also like to highlight there are White Clawed Crayfish in the Upper Eden and signal crayfish recorded from downstream Caterfield Bridge (TQ4020347840). We would like the plan to consider the risk to White clawed Crayfish and any increased risk through the spread of invasive species.	Noted. Considered under flora and fauna
		A rationale for the spatial scope is provided and figure 2.1 clearly shows the extent of the Company Boundary. However, the study area is stated to also include the transfer locations which do not have a clear spatial extent defined upon figure 2.1.	Noted.
		The report would benefit from a an introductory paragraph at the beginning of chapter three outlining the need for scoping the contents and how each of the topics covered are requirements of the SEA Directive. Section 1.3 sets out the structure of the report and refers to chapters 3-10 as setting out the scope but this is not referred to in the chapter heading. Consider the use of a main title to include scoping and a sub title for the specific topic baseline.	Noted.
		Section 2.2.1 could highlight where this scoping report falls in to place with the development of the WRMP process.	Noted, this is set out earlier in Figure 1-1.
6	Biodiversity, flora and fauna	Avoid damage to designated wildlife sites (national, international and local) and protected species appears to have been addressed. Overall, the SEA scoping report accurately identified the likely key areas to consider for impacts to biodiversity (protected sites, species and wider impacts such as habitat connectivity). We would be very interested in having some more detail on the methodologies that will be used.	Noted.
		Achieve favourable condition on internationally, nationally and locally important wildlife sites is stated more weakly, through stating that it will be done where feasible. It could be strengthened	Noted, the SEA Framework has been updated to reflect this comment.

Ref	Ref and/ or Question	Comment	Response
		as an objective for the plan.	
		Maintain, develop and improve salmon, freshwater fish and eel fisheries in freshwaters, estuaries and/or coastal waters. • European eel (*Anguilla anguilla*) are present in all of the river systems mentioned and this species is protected under the Eel Regulations 2009/EU Eel Regs. • Water is currently unavailable for licensing in the Mole, Hogsmill, Beverley Brook and Wandle catchments, therefore we do not envisage any direct impacts upon these systems. • We could see no mention of the water recirculation system that is operated on the Carshalton arm of the Wandle. Possibly that it is out of scope of the SEA. However, if there were any changes to this, or any proposals to change water quantities or flow rates, then we would need to be consulted.	Noted, the scoping information has been updated to reflect this comment.
7	Water	To meet WFD Objectives p35 – we would like consideration of whether the option will affect the ability of surface water bodies to reach the RBMP 2021 objectives, where relevant. Also whether the option would affect the ability of surface water bodies to improve in WFD status. Would like also consideration of whether the option will place waterbodies 'at risk of deterioration'.	Noted, the assessment questions have been amended to reflect this comment.
8	Flood & Coastal Risk Management	Under the Section Population & Human Health- Annex I (f): We would like the document to include consideration of the Caterham Bourne Project (Multi-agency project led by London Borough of Croydon) as this has a direct bearing on the operation of the Kenley site. SESW are also a member of the project board as a Risk Management Authority. Under the FWMA 2010 they have a duty to cooperate and as such should ensure that their future investment plans reflect this. This will ensure that a holistic approach is taken to the reducing the groundwater flood risk issues in the area.	Noted; however, cannot find any available information on this project.
		Under European Floods Directive 2007: Managing the risk of flooding by all sources should be addressed. There is nowhere in the scoping document where a consideration for surface water flood risk is being assessed. The issues along the Caterham Valley are inextricably linked to a combination of fluvial, pluvial and groundwater risks. We would like a Consideration of the Updated Flood Map for Surface Water to be included in the scope particularly along the Caterham valley.	Noted, further information on surface water flooding has been incorporated into the flooding section.
Natural England			
9	Designated sites	The SEA Environmental Report should assess the potential for the proposal to affect nationally and internationally important designated sites, including Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs) and Marine Conservation Zones (MCZ). SSSI citations, site conservation objectives, favourable condition tables (FCT) and condition assessments can be viewed online on the Designated Sites View database.	Noted.
		We note that section 1.2 of the submitted WRMP SEA Scoping report discusses the necessary 'compliance with other environmental legislation'. In this section both the Habitats Regulations and the Water Framework Directive (paragraphs 1.2.1 and 1.2.2, respectively) are specifically mentioned.	Noted.

Ref	Ref and/ or Question	Comment	Response
		We would advise including in this section the necessity to also adhere to the Wildlife and Countryside Act 1981 as amended by Countryside and Rights of Way Act 2000, when scoping your WRMP. The Wildlife and Countryside Act (as amended) refers specifically to the protection of Sites of Special Scientific Interest (SSSI), and should be considered alongside any potential SSSI- only sites (i.e. those without a European designation), which the WRMP may have a potential impact on.	Noted.
		Natural England note that there is heavy reliance on the evidence presented within the previous WRMP14. Such evidence must be presented within the current dWRMP19 SEA, and updated where relevant, if it is not necessary to update the evidence base a brief explanatory summary should be provided. This will ensure that the most pertinent evidence is used within the SEA.	Noted, the scoping information has been updated to reflect this comment.
10	Habitats Regulations Assessment (HRA)	European sites (e.g. designated SACs and SPAs) fall within the scope of the Conservation of Habitats and Species Regulations 2010 (as amended). In addition paragraph 118 of the National Planning Policy Framework requires that potential SPAs, possible SACs, listed or proposed Ramsar sites, and any site identified as being necessary to compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites. Under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended) an appropriate assessment needs to be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site.	Noted.
		Should a likely significant effect on a European/Internationally designated site be identified or be uncertain, the competent authority (in this case SES Water) will need to prepare an Appropriate Assessment (AA), in addition to consideration of impacts through the SEA process. Natural England note that a HRA will be undertaken at latter stages of the development of the dWRMP2019 to identify the likely significant effects on any European sites within the plans area. This is discussed in paragraph 1.2.1 of the Scoping Report. However, there is no mention of the statutory requirement to consult Natural England during this process, in order to agree any conclusions of no likely significant effect, or at the AA stage. We would advise including this caveat to avoid any confusion over the necessity of Natural England's involvement with the Habitats Regulations Assessment.	Noted.
11	Regionally and locally important sites	SES Water will need to consider impacts of the dWRMP2019 on local wildlife and geological sites. Local Sites are identified by the local wildlife trust, geo -conservation group or a local forum established for the purposes of identifying and selecting local sites. They are of county importance for wildlife or geo-diversity.	Noted.
12	Protected Species	Protected Species are those protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2010 (as amended). SES Water will need to consider the impacts of the drought plan on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats). Natural England does not hold comprehensive information regarding the locations of species protected by law, but advises on the procedures and legislation relevant to such species. Records of protected	Noted.

Ref	Ref and/ or Question	Comment	Response
		species should be sought from appropriate local biological record centres, nature conservation organisations, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment. Consideration should be given to whether sites have been used as receptor sites for protected species from other developments.	
		As with regionally and locally important sites, it may not be practical to assess impacts on protected species within the SEA. However, sufficient information should be available through the SEA or the option specific environmental assessments to make meaningful decisions about water resources planning and show how the SEA has informed the WRMP process.	Noted.
		The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System. If a potential risk to protected species is identified for any water resource plan option, then the area likely to be affected by the water resource option should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of any option species environmental report. Note that impacts on protected species are a material consideration for planning authorities, and failure to consider them at the strategic WRMP stage may result in subsequent delay or in most serious cases, refusal of permissions at the implementation stage.	Noted.
		In order to provide this information there may be a requirement for a survey at a particular time of year. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and where necessary, licensed, consultants. Natural England has adopted Standing Advice for protected species which includes links to guidance on survey and mitigation.	Noted.
13	Rights of way, access land, coastal access and National Trails	The SEA Environmental Report should consider potential impacts of the WRMP options on access land, public open land, rights of way and coastal access routes. Consideration should also be given to the potential impacts on National Trails (e.g. the Ridgeway National Trail and the Thames Path). The National Trails website www.nationaltrail.co.uk provides information including contact details for the National Trail Officer. Appropriate mitigation measures should be incorporated for any adverse impacts. We also recommend reference to the relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way that should be maintained or enhanced.	Noted.
14	Landscape and visual impacts	SES Water will need to consider the potential impacts of the drought plan on local landscape character. The SEA should include sufficient baseline information to make meaningful and strategic decisions about the use of the strategic options elected for the dWRMP2019. For many options, it may be straightforward to screen out any potential landscape and visual impacts. The SEA should explain where any gaps in baseline information are, and how the water company will fill these gaps in sufficient time.	Noted.
		Landscape assessment methodologies should be used to assess the potential impacts of the	Noted.

Ref	Ref and/ or Question	Comment	Response
		drought plan on local landscape character. We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.	
		Natural England supports the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.	Noted.
		Throughout the SEA scoping document, welcome reference is made to National Character Areas (NCAs) which can be found on our website. Information on Landscape Character Assessment is also available on our website.	Noted.
15	Air quality	Information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.	Noted.
16	Contacts for local records	Natural England does not hold local information on local sites, local landscape character and local or national biodiversity priority habitats and species. We recommend that you seek further information from the appropriate bodies (which may include the local records centre, the local wildlife trust, local geo-conservation group or other recording society and a local landscape characterisation document).	Noted.
17	Cumulative and in-combination assessment	Natural England would like to highlight the importance of including other water companies' water resource and drought plan options in this assessment, including any bulk water transfers which are being considered. It may be helpful to take account of the work of Water Resources South East on cumulative and in combination assessment. For the sake of clarity such an assessment should be outlined within paragraph 15.3 of the current SEA Scoping Report.	Noted. The work carried out by WRSE on cumulative effects will be taken into account.
		The SEA Environmental Report should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the proposed options in combination with any other large or locally-significant projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information): a. existing completed projects; b. approved but uncompleted projects; c. ongoing activities; d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and e. plans and projects which are reasonably foreseeable, ie projects for which an application has not yet been submitted, but which are likely to progress before completion of the drought plan period and for which sufficient information is available to assess the likelihood of cumulative and in -combination effects.	Noted.
18	General comments	All the relevant legislation should be included within each SEA section discussed throughout the Scoping Report. Overall, Natural England would expect a summary of the key issues and the	Noted. A summary of legislation under each topic is not a requirement of the SEA Regulations.

Ref	Ref and/ or Question	Comment	Response
		relevant scope present under each SEA category, to provide a concise summary of the most relevant aspects to cover in the SEA. Much of the evidence used to support the SEA Scoping Report is from the WRMP14 Environmental Report. This information is not included within the current Scoping Report, neither in the main text nor as an appendix. Natural England advise that all relevant evidence must be presented within the full SEA documentation, without relying on information that is available elsewhere. This includes any assumptions and conclusions that remain unchanged due to the fact there has not been a material change in circumstance since this time.	
19	Section 3 Biodiversity, flora and fauna Policies, plans and programmes	The following amendments must be made to the legislative drivers identified within the baseline review of section 3. International: • Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species • Regulation (EC) No 1100/2007of 18 September 2007 on establishing measures for the recovery of the stock of European eel • Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on the environmental liability with regard to the prevention and remedying of environmental damage. National: • Natural England's standing advice on protected species. • The Natural Environment and Rural Communities Act 2006 • The Wildlife and Countryside Act 1981 (as amended) Regional/local: • National Character Area (NCA) profiles as these also concern biodiversity as well as landscape In addition to the above, we would advise making amendments to paragraph 3.1 of the Scoping Report; to make sure that the most relevant and up to date legislation is referenced in relation to the conservation of protected sites. Specifically, it refers to the Habitat and Birds Directive for internationally designated sites, and the National Parks and Access to the Countryside Act 1940 for nationally designated sites. It should be made clear that the former has been transposed into national law under the Conservation of Habitats and Species Regulations 2010 (as amended 2012), while SSSIs were re-designated under the Wildlife and Countryside Act 1981.	Noted, the scoping information has been updated to reflect this comment.
20	Review of baseline (Section 3 paragraph 3.1)	Natural England would expect more detail surrounding the protected sites implications of the dWRMP19. While this section references the current baseline for SSSIs within SES Water's operational area (e.g. those in favourable or favourable/ recovering condition), it does not discuss the conservation status of the relevant Ramsar sites, SPAs and SACs associated. We note that it states the following in paragraph 3.1.1: "…description of the contents and character of these sites [Ramsar, SAC and SPA] is available in the WRMP14 SEA Scoping Report." We advise that such detail must be updated for the dWRMP19 SEA, in order to ensure that all	Noted, the scoping information has been updated to reflect this comment.

Ref	Ref and/ or Question	Comment	Response
		potential impacts on internationally designated sites are addressed.	
21	Designated sites and the WRMP Spatial Scope (Section 2 paragraph 2.1.1)	Paragraph 2.1.1of the Scoping Report the spatial extent of the SEA area is identified and "…includes all areas within the company boundary". However, we would advise expanding this scope outside of the operational boundary, to ensure that all new strategic options and their cumulative impacts to downstream environments. This would ensure that all SSSIs outside of SES Water's boundaries will be assessed appropriately. We would advise clarifying that this must be a consideration within latter stages of the dWRMP2019 development in the current SEA Scoping report.	Noted, this will be made clear within the Environmental Report.
22	Priority habitats and species (Paragraph 3.1.2)	Natural England note that reference has been made to the importance of priority species and habitats within paragraph 3.1.2 of this Scoping report. However, a breakdown of the priority habitats and species throughout the regions of SES Water's operational area has not been provided. This would be an advantageous addition to this report, as it would allow for a cross reference between local priority habitats and any relevant upcoming strategic options. We would advise highlighting within the Scoping report, and subsequent SEA documentation, the importance of identifying priority habitats and species, and working to enhance these features as part of SES Water's WRMP option creation. We would encourage a focus on the priority habitats and species important to the water environment and diversity of the area. It would be good to include a link to the maps of priority lake and river habitat published by Natural England. It is important that the list of S41 habitats and species to be considered should reflect those most relevant to the supply area.	Noted.
23	Section 4 Population and human health Plans, policies and programmes	The following policies, plans and programmes should also be included in the regional/local list: • Rights of Way Improvement Plans (ROWIPs) • Local Authority green infrastructure strategies	Noted, the scoping information has been updated to reflect this comment.
24	Section 4 Population and human health SEA Scope	It may be worth including, within the scope of this section of the SEA, how enhancing green infrastructure can support a healthy environment for people to live in. As such, we would advise considering this within the SEAs scope and key questions. This could extend to the considerations around natural capital included within the SEA.	Noted, the scoping information has been updated to reflect this comment.
25	Section 5 Soils Baseline review (Paragraph 5.1)	Reference to the geological SSSIs present within SES Water's operational area is welcome in this section.	Noted.
26	Section 5 Soils Key issues and proposed scope	Again, the key issues and proposed scope of the SEA have not been expressly identified within the dWRMP19 Scoping Report, and we advise that these aspects are included. The SEA objective could be expanded to reference the need to prevent soil erosion (which can be greatly exacerbated when normally wet soils are dried).	Noted.
27	Section 6 Water Plans, policies and programmes	The following policies, plans and programmes should also be included in this section: Regional/local: • Any relevant local authority water management plans or strategies (e.g. strategic flood alleviation strategies, water cycle assessments)	Noted, the scoping information has been updated to reflect this comment.

Ref	Ref and/ or Question	Comment	Response
28	Section 6 Water Review of baseline (Paragraph 6.1)	It would be worth including the work being carried out by relevant Local Planning Authorities with in the surface water baseline of this section. Specifically looking into Local Plan policies intending to create schemes to enhance local drainage, this would be especially pertinent through flood alleviation strategies and green infrastructure mechanisms, i.e. the development of sustainable drainage within the region. This would allow for a better understanding of how the expanding townscapes within the SEAs scope is handling surface water.	Noted, all LPAs will seek to manage surface water runoff and drainage through policies in their Local Plans.
		It would seem sensible to provide summaries, where available, of the "sustainable catchment" work being undertaken by the Environment Agency. This will give an overview of the baseline position of water resources for different catchments.	Noted.
		The need to meet protected area targets for flow and water quality, and the baseline percentage of protected areas that are currently meeting these standards should be referred to in this section.	Noted.
		With regards to the groundwater baseline, it would be relevant to discuss any works being undertaken to enhance or establish local environments to aid in local ground percolation (e.g. the establishment of chalk grasslands through countryside stewardship schemes). This would provide a more holistic view of not only the abstraction pressures through the SES Water operational region, but also the work being undertaken that may be aiding in recharging such aquifers, and highlight areas where more work would be advantageous.	Noted.
		Flood risk is addressed within the surface water baseline assessment for this chapter, but not within that for groundwater issues. Clarification should be provided within the groundwater baseline as to whether flooding presents a serious concern within the scope of the WRMP. If not, this should be explained and noted.	Noted, the scoping information has been updated to reflect this comment.
29	Section 6 Water Key issues and proposed scope	As previously mentioned in this letter, a summary of the key issues and subsequent SEA scope for each SEA topic would be very helpful, for both surface and groundwater implications. Within this, we would advise including any environmental implications and impacts surrounding surface and ground waters as a key issue, as well as the consequences of climate change and the potential enhancements of biodiversity. When discussing biodiversity, Natural England would expect the SEA to cover both the protected sites and species aspects, as well as the potential to enhance general biodiversity (including priority species and habitats), under the relevant environmental legislation. We consider that options can be created that will be beneficial for both biodiversity enhancement while improving aspects of SES Water's delivery (e.g. through improved water quality while meeting biodiversity targets), and this should be explored within the SEA.	Noted.
30	Section 7 Air and climatic factors Plans, policies and programmes	The following policies, plans and programmes should also be included in this section: National: For relevant policy on this issue paragraph 99 of the NPPF should be included within this baseline review. Paragraph 99 relates specifically to considering climate change long term, and how this will affect biodiversity.	Noted, the scoping information has been updated to reflect this comment.

Ref	Ref and/ or Question	Comment	Response
31	Section 7 Air and climatic factors Air quality baseline review (Paragraph 7.1.1)	Also relevant to regional/local programmes is the Air Pollution Information System (www.apis.ac.uk). This provides information on air pollution impacts and the sensitivity of different habitats/designated sites, this should be included within the baseline review to assess any potential from air quality impacts.	Noted, this will be used for analysis purposes where necessary in the environmental report.
32	Section 7 Air and climatic factors Climate change baseline review (Paragraph 7.1.2)	Natural England note that climate change adaptation and mitigation has been included within the air quality chapter. As such the proposed scope of this topic for the SEA is quite heavily focused on the effects of carbon output. Natural England requests that further consideration is given to climate change within the dWRMP19 SEA scope, especially in relation to adaptation measures through enhanced biodiversity. Climate change poses a risk to the natural assets utilised by SES Water, and works to help alleviate this pressure and enhance resilience for both the water environment and biodiversity must be adequately explored. Looking at current green infrastructure and sustainable drainage schemes may be useful to allow for an understanding of the work currently being undertaken within the operational area. For reference, it may be useful to utilise Natural England's Climate Change Adaptation Manual. To afford clarity on this issue, it may be worthwhile including a distinct climate change section within the SEA scope in which to discuss the above.	Noted.
33	Section 8 Cultural, Architectural and Archaeological Heritage	Natural England has no comments to make on coverage of this SEA topic.	Noted.
34	Section 9 Landscape Plans, policies and programmes	The following policies, plans and programmes should also be included in the regional/local list: • Landscape Character Assessments (where available)	Noted, the scoping information has been updated to reflect this comment.
35	Section 9 Landscape Baseline review (Paragraph 9.1)	The baseline review mentions the following: "Since 2014, the extent and number of NCAs and AONBs within the study area have not changed. Therefore, this SEA Scoping Report assumes the same environmental baseline as the WRMP2014 SEA Scoping Report (see SESW WRMP2014 Environmental Report for further detail)." Natural England would expect more consideration within the baseline assessment for landscape issues within the dWRMP19 SEA scope. While the extent and number of protected landscapes has not changed since the previous WRMP, there may be additional options proposed now that would influence the level of impact envisaged at these sites e.g. the potential expansion of the reservoir at Bough Beech). Additionally, and as previously mentioned, the information on which this assumption relies should be included within the current dWRMP19 SEA scoping and subsequent documentation. Natural England note that there are two Areas of Outstanding Natural Beauty (AONBs) within SES Water's operational area, specifically the Kent Downs AONB and the High Weald AONB. The SEA scoping report should reflect the need to fully assess all potential impacts on these sites, along with a discussion around any mitigation efforts required. Such an assessment	Noted, the scoping information has been updated to reflect this comment.

Ref	Ref and/ or Question	Comment	Response
		should be undertaken via a Landscape Visual Impact Assessment (LVIA) and form part of the SEA scope. Acknowledgement of this needs to be included within the SEA Scoping Report.	
36	Next steps and consultation (Section 13)	The iterative process described is welcome. In relation to the future assessment of the dWRMP2019, Natural England advise including: Developing strategic alternatives, expressly stating that should any negative impacts be identified through the SEA process, that alternative options to those elected will be considered.	Noted.
37	Summary of the Scope of the SEA (Section 14)	Natural England would expect the additions to this SEA Scoping report discussed above be incorporated, where necessary, into the final summary of the scope (table 14.1).	Noted, the scoping information will be updated where necessary and presented as an appendix within the Env Report.
38	Proposed method (Section 15)	Natural England is happy with the proposed methods for assessment as set out in the SEA scoping report.	Noted.
39	Ecosystem services and the WRMP	Natural England encourages the inclusion of ecosystem services and natural capital within this SEA scoping. We advise that this concept be seriously considered with the dWRMP19 SEA, and would encourage its recognition within the current Scoping Report.	Noted.
		SEA Objectives (Sections 13.4 and 13.5) Our natural capital supports the provision of a wide range of ecosystem services, which provide benefits to people in terms of health, wealth and well-being. This includes the provision of water supply. It is stated within the report that the dWRMP2019 has the potential to impact on natural capital and its provision of multiple ecosystem services and we therefore fully welcome the proposed assessment of this impact is included in the SEA, as stated in section 13.5. In this respect we would like to suggest the following: • We recommend reference to the UK National Ecosystem Assessment follow-on work on tools, which looks at how SEA can incorporate consideration of ecosystem services/ecosystem approach. Here is the link, it is part of the NEAT Tree toolkit: http://neat.ecosystemsknowledge.net/pdfs/strategic_environmental_assessment_ecosystem_proofed_tool.pdf • Impact on ecosystem services needs to take account of impact on the natural capital assets and importantly the ecological processes/functions that underpin the provision of ecosystem services. • We recommend that impact is assessed against a broad framework of ecosystem services (e.g. UK National Ecosystem Assessment (UKNEA), or Common International Classification of Ecosystem Services (CICES)) rather than a limited selection of ecosystem services. • Due consideration needs to be given to impacts on the cultural ecosystem services, which can often be ignored or down-played in ecosystem service assessment, as they are difficult to quantify. In this respect we suggest the use of a narrative to report the impact on cultural ecosystem services in the assessment. • We also recommend reference to our Climate Change Adaptation Manual - Evidence to support nature conservation in a changing climate - NE546 and in particular the chapter on ecosystem services in the main report.	Noted.

Ref	Ref and/ or Question	Comment	Response
Historic England			
40	Section 8. Cultural, Architectural and Archaeological Heritage	As regards the SEA Scoping Report for your Draft WRMP, Historic England is disappointed that the opportunity has not been taken to review and update the historic environment and heritage assets within the area. Chapter 8 implies that no change in the status or condition of the heritage has occurred since 2014 but does not provide evidence of this. We would be very surprised if no additional designations or assessments have occurred that have added to the knowledge and understanding of the historic environment during this time. It would be equally surprising if there had been no change in the condition of heritage assets, either positive or negative, since the last review of the evidence baseline.	Noted, the baseline information presented in the SEA Scoping Report SWRMP14 was reviewed and it was considered to still be valid. The baseline information will be presented within the Env Report and updated where necessary.
		Overall, Historic England would like to see a more detailed baseline for the historic environment in the Scoping Report, with further quantification and qualification of the heritage assets in the two resource zones covered by the plan. In an updated report, reference could be made to the threats to the historic environment, i.e. development pressures, social pressures, natural and environmental threats, and the impact of resource exploitation and infrastructure provision on the historic environment.	Noted, the scoping information has been updated to reflect this comment.
		Information about heritage resources can be found from a number of sources, the main ones being the National Heritage List for England, Historic Environment Records, national and local archives, and local authorities. We would also strongly suggest the involvement of local authority conservation staff in scoping the report as they are best positioned to advise on local aspects of heritage that may not be readily identifiable through the sources mentioned above.	Noted, the scoping information has been updated to reflect this comment.
41	General	In summary, Historic England believes that the scoping proposal inadequately addresses the requirements of a SA/SEA report in respect of the historic environment and should have a more robust and comprehensive heritage evidence base. It should also demonstrate how the needs of the historic environment are to be addressed in taking forward the proposals in the WRMP.	Noted.

Environmental Report (2017)

Ref	Ref	Comment	Response
Environment Agency			
1	WFD	The Habitats Regulation Assessment (HRA) and WFD have been incorporated into the SEA. It is not clear within the strategic environment assessment (SEA) which parts are WFD assessment or HRA screening, or what the outcomes are (e.g. will further HRA assessment be required or not).	A separate HRA report has been produced. The Environmental Report has been revised to more clearly set out how WFD issues have been integrated into the SEA and wider options appraisal process. The findings of this work are also more clearly set out.
Natural England			
2	General	Natural England is happy with the overall approach to assessment of options in the SEA, which includes an assessment of in-combination and cumulative effects.	Noted.
3	Chapter 5 and 6	To some extent, the findings of the SEA have informed the selection of preferred options in the plan. However two supply schemes (N5 and N8) which the SEA identified as having moderate or major adverse effects on biodiversity and landscape have been selected for delivery late in the plan (2063 onwards).	These options are included to provide resilience and may not be utilised. SES Water intends to carry out a detailed feasibility study in the next five year business planning period to explore the environmental impacts of the proposed scheme and potential mitigation measures in more detail.
4	Chapter 5 and 6	N5 and N8 have the potential to lead to permanent loss of ancient woodland. SES Water should look for pipeline routes and a borehole location outside the boundary of ancient woodland sites.	Noted. The SEA recommends that the pipeline route should avoid the Ancient Woodland to the north of Duckpit Wood close to the M25. The detailed feasibility study to be carried out in the next five year business planning period will explore the environmental impacts of the proposed scheme in more detail. This should explore route options for the pipeline that avoids the Ancient Woodland and minimises potential impacts.
5	Chapter 6	The plan acknowledges that further investigation into the environmental effects of the supply options is required in preparation for WRMP24. Natural England would be happy to provide the company with further advice on these options.	Noted.

Appendix IV: SEA of constrained options

Significance key

Major positive	+++
Moderate positive	++
Minor positive	+
Neutral	0
Uncertain	?
Minor adverse	-
Moderate adverse	--
Major adverse	---

1. Groundwater/ Surface Water

1.1 R1

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	Abstraction from the Eden would remain within existing licence limits and as such would not impact on minimum river levels. The reservoir is a wildlife nature reserve, and it is expected that the construction work would have a short term adverse impact on the nature reserve and its associated biodiversity. In the long term there is likely to be a gain in the amount of freshwater habitat, but some loss of terrestrial habitats. Raised water levels will be of benefit to some species and adverse to others. There will be a greater littoral margin which means a great area of exposed mud, when water levels drop in summer, which is important habitat for birds. There is no expected adverse effect with regard to invasive species or algal blooms. The greater volume of water might provide a buffer against potential climate change effects of lower summer water levels, which is of benefit to local species and habitats. The surface area of the reservoir after the water level has been raised, is expected to increase by ~11%. The expected land take will be mostly in the eastern and western edges. The land or habitat in the places expected to be affected by the proposal comprises rough grass, scrub and small areas of woodland; there are few marshy areas. The wider area around Reservoir A is agricultural and includes arable field and pasture. The woodland areas would be expected to support a range of species, which would be affected by the wetting or inundation. Mobile species would be able to migrate to other woodland habitat in the locality. Some woodland and scrub areas would be able to migrate; other areas would transform into wet woodland which could add to the habitat mosaic around the reservoir. Additional planting of new scrub and woodland habitat will be undertaken to mitigate those areas that would be lost as	Embankments will be placed around a large proportion of the perimeter to control the outward spread of water and protect local features including habitats. The embankments will be either be formed of, or covered by, natural materials, allowing grass to establish on top and help blend the embankment into the background. Biodiversity enhancements will be incorporated into the detailed design of the scheme to offset adverse effects and to enhance the current habitats features. There is potential to enable better management of the pond to the north of the reservoir, allowing enhancements to that area. If the scheme is required, it will be implemented in the long term, allowing for a programme of additional investigation and study to be completed and the results assessed (including hydrological and ecological surveys) to generate detailed information about the scheme across a range of topics including the effects on biodiversity, water levels,	Medium	Medium	Short-term and long-term	Temporary and permanent	--	+

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	a result of the scheme. Reservoir raising will also result in the loss of marginal habitats such as reedbeds, although these are expected to be temporary effects as the existing reedbed stands will be able to migrate and potentially extend, with higher water levels. Potential impacts on birds and other species from raising the water level of the reservoir include the potential disturbance to nests/breeding areas and feeding grounds if they become submerged. Such impacts can be avoided by raising water levels gradually, and outside of the breeding season. These impacts will also be mitigated due to an increased reservoir perimeter providing an increased area for the development of marginal habitats. The raised embankment and greater surface area will however increase the 'wetted perimeter'' of the reservoir such that overall wetland habitat should increase, which is a positive outcome. There are potential opportunities for biodiversity enhancements that can be incorporated into the detailed design for the scheme. These include the ability to design reservoir margins in places to increase their suitability for marginal habitat development (for example wet marshy areas); planting tree species to create new pockets of wet woodland and scrub in areas that will become wet; and installation of bird and bat boxes to provide additional nesting and roost spaces.	surface water extent amongst others. These studies will be used to identify and inform the optimal design, feasibility and the detailed mitigation measures required to minimise any potential effect, as well as the potential for new or improved habitats to compensate for, or enhance existing terrestrial and aquatic habitats. In order to mitigate effects on the River Eden, water to fill the additional capacity of the reservoir will only to be undertaken during high flows, thus negating any ecological impact during low flow periods.						
2. To maintain and where possible improve freshwater fisheries	Abstraction from the Eden would remain within existing licence limits and as such would not impact on river flow or levels critical to fisheries. The construction phase may have adverse impacts on freshwater fisheries through potential water pollution. Raising the embankment would enable an increase to the area of water coverage and should reduce the impact of dropping water levels during the summer. This would have a positive impact on freshwater fisheries.	Good construction practices and adherence to PPGs would minimise the risk of water pollution. Further mitigation would also be guided by further baseline studies. Increased abstraction from the Eden only to be undertaken during high flows.	Low	Low	Long-term	Permanent	**0**	**+**
3. Minimise adverse impacts on communities and households	The large construction phase would create temporary impacts such as noise, dust and disruption to traffic. In the long term there would be changes to land use due to increased water levels that may affect a small number of	Good construction practices and detailed pre-works consultation would help to reduce construction impacts.	Medium	Medium	Short-term and long-term	Permanent	**--**	**--**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
especially the most vulnerable groups	landowners. Realignment of the embankment at the west end could impact on the small housing estate.	Consultation with landowners will occur to discuss the scheme and agree compensation and changes would need to be completed. Embankment to be designed to reduce impact on housing estate.						
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	Recreation takes place now at the site, primarily in the form of walking along permissive footpaths, and bird watching using roadside car parking. There is also a large angling recreational activity on the reservoir, who currently fish approximately 6 km of the banks. There is a Kent Wildlife Trust visitor centre alongside the Nature Reserve (adjacent to the northern end of Reservoir A), which attracts people to the area between March and November. There is also a sailing club that operates on the reservoir. The expected change to the water's edge or flood outline of the reservoir after the embankment has been raised is expected to deviate from the current outline in the eastern and western edges. There are current facilities that may be directly affected and would need to be relocated such as the sailing club house and mooring area; and potential fishing platforms. The construction phase may result in short-term impacts on recreational users of the reservoir and its surrounds. In the long term there may be permanent loss of some natural features, however there is also the potential in other areas for planting and other interventions to offset any lost habitat areas. Further, there would also be positive long term effects such as increased sailing area for the sailing club and an increased water area for angling.	Continuation of liaison and communication between SESW and the local population and amenity/special interest groups (such as the Kent Wildlife Trust, local fishing club, local sailing club and others) to discuss the scheme, potential impacts and mitigation measures, and potential enhancements. Good construction practices would reduce the impact. The works would have to be designed so as to maximise recreational enhancements whilst minimising impacts on existing amenities.	Medium	Medium	Short-term and long-term	Permanent	**-**	**+**
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
6. To protect and where possible enhance river flows and groundwater resources	Abstraction from the Eden would be within existing licence limits. Studies have already been undertaken in support of the modification of the current abstraction licence; in particular, to ensure no adverse effects on downstream abstractors or users. The modified licence was issued by the Environment Agency following the completion of a programme of investigations and research that was undertaken to assess the effect of the abstractor and the river. The work included an in-combination assessment to assess the effect upon other users. Abstraction from the Eden would be within existing licence limits and as such would not impact on minimum river levels. Long term, the ability to have a greater volume of stored water to draw upon at peak times is a positive benefit to water resource management, as it allows water to be used appropriately in times of shortage minimising the potential environment effect of abstraction from stressed environments at times of low flow.	A current abstraction licence granted by the Environment Agency ensures that abstraction to fill the enlarged capacity of the reservoir will take place during times of high flow in the River Eden, thus negating any ecological impact, and minimising the impact on the existing operations of any downstream abstractors.	N/A	N/A	N/A	N/A	**0**	**+**
7. To protect and where feasible enhance the quality of surface waters	Possible positive impact as reservoir would be less susceptible to low water levels in the summer.	Increased abstraction from the Eden only to be undertaken during high flows.	Low	Low	Long-term	Permanent	**0**	**+**
8. To protect and enhance groundwater quantity and quality	No impact expected	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where	There is potential for the additional reservoir to provide flood storage capacity thus minimising flood risk.	N/A	Medium	Medium	Long-term	Permanent	**0**	**+**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
feasible to do so								
10. To meet WFD Objectives	Compliant with WFD objective for water bodies to meet good status. The option does not affect the reasons for which the Lower Eden and the Reservoir A surface water body are classed as Poor status. The option could assist towards Good status if actions are incorporated within the works to address the identified WFD mitigation measures that are not currently in place. Compliant with WFD 'no deterioration' objective, as the abstraction from the Lower Eden to fill the reservoir, will be undertaken during high flows in the river, within the current abstraction licence allowance.	N/A	Medium	Medium	Long-term	Permanent	**0**	**++**
11. To reduce greenhouse gas emissions	The construction phase would require the importation of large quantities of material and would lead to increased emissions due to use of plant and vehicles. The reservoir relies on water being pumped in from the River Eden. With a higher reservoir capacity, pumping would be increased and therefore there would be increased emissions. As a result of the large construction phase, embodied carbon is high. Once operational there would be some carbon use from pumping water from the River Eden.	Mitigation could be to source waste material for reuse or to win onsite so as to reduce transportation impacts. Good construction practices will also help to reduce impacts. Mitigation could include energy efficiency measures on pumping from the River Eden	Medium	Medium	Short-term and long-term	Permanent	**--**	**-**
12. To avoid adverse effects on key transport routes, significant	Large quantities of material would be required and therefore there would be construction impacts on local transport routes.	Good construction practices would help reduce impacts.	Medium	Medium	Short-term	Temporary	**--**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
land use and critical infrastructure								
13. To promote sustainable use of resources	The construction phase would require the importation of large quantities of material to build the embankment.	Mitigation could be to source waste material for reuse or to win onsite so as to reduce use of primary sources.	Low	Low	Short-term	Temporary	-	**0**
14. To maintain and enhance local air quality	The construction phase would result in dust and noise and therefore a localised impact on air quality.	Good construction practices would reduce the impact.	Low	Low	Short-term	Temporary	-	**0**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	It is assumed that all works will be completed on the existing embankment and therefore there will be no impact. There are a couple of listed buildings located around the reservoir but it is assumed that water levels will not be permitted to rise to the point where they would be impacted upon.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
16. To maintain and where feasible enhance landscape character and visual amenity	The raising of Reservoir A is estimated to result in an 11% increase in surface area of water. The increased water level of the reservoir will result in an enlarged surface area of water; with the current edges of the reservoir extended and embanked in places to accommodate the increased water volume. The area that would potentially be flooded should the embankment be raised lies on the eastern and western edges of the reservoir. The scheme will involve embankments to protect current local infrastructure, and residential houses. The reservoir sits within the Low Weald National Character area; a small-scale intimate rural landscape enclosed by an intricate mix of small woodlands and a patchwork of fields and hedgerows, with narrow lanes with broad verges and ditches. The local area around the reservoir is not densely populated, and contains abundant small areas of mixed woodland and a number of farms. The land use is predominantly agricultural. A section of the current reservoir, at its northern edge, is located within the Kent Downs AONB. The qualities and distinctive features of the Kent Downs AONB, comprise the dramatic south-facing scarp, secluded dry valleys, network of tiny lanes, isolated farmsteads and buildings, orchards, dramatic cliffs, the ancient woodlands and delicate chalk grassland. The special landscape components draw heavily upon the dramatic and diverse topography of the area which is a function of its underlying geology, which gives rise to long-distance panoramas across open countryside, with the valleys providing more intimate and enclosed vistas. Diverse natural and man-made features create distinctiveness at a local level. These landscape components are heavily aligned with the special biodiversity components which include rich mosaics of habitats, plant and animal communities although may are isolated and exist in fragments in the agricultural landscape. The High Weald AONB is located to the south of the embankment. The High Weald AONB can be characterized by dispersed settlements; ancient routeways edged with trees, hedges, wildflower-rich	Embankments will be placed around a large proportion of the perimeter to control the outward spread of water and protect local features. The raised embankment will be designed sympathetically to help blend in with the existing landscape, and include appropriate screening to minimise any adverse effect on views and protected landscapes. For example, the embankments will be either be formed of, or covered by, natural materials, allowing grass to establish on top and help blend the embankment into the background landscape. If required, this scheme will be implemented in the long term, allowing for a programme of additional investigation and studies to be completed and the results assessed (including a Landscape and Visual Impact Assessment) to generate detailed information about the scheme across a range of topics including the effects on long range views. These studies will be used to identify and inform the optimal design, feasibility and the detailed mitigation measures required to minimise any potential effect. Part of this programme will comprise the development of a landscape mitigation strategy	Medium	Very High	Long-term	Permanent	---	--

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	verges and boundary banks; and an abundance of small ancient woods, and small, irregularly shaped and productive fields. These are all draped over a deeply incised and ridged landform of clays and sandstones. The short term effect i.e. the construction phase will result in temporary landscape impacts, due to the activity needed to raise the height of the embankment. While there may be a slight effect on local road use and tranquillity due to the passage of construction vehicles, it is not expected that construction activity will significantly affect the special features and components of the AONBs, as the activity is self-containing at a single location, and comprises works to an existing single feature in the landscape; it does not involve new permanent buildings, road widening; or changes to settlement or agricultural patterns. The exception is the potential adverse effect on long distance views. Raising the embankment and creating a larger surface area of water could create a potential adverse effect upon long-range views, from the perception of people at the edge of the AONB, looking out of the AONB and towards the reservoir, particularly if the constructive activity occurs during winter when trees have lost leaves and do not form an effective screen. However the scale and timescale of the activity is such that it is not expected to be a major disruptive element in the landscape as the activity will take place in one location, which is small relative to the extent of, and distance to the AONB area. The long-term effect can be either positive or adverse, depending on the viewer's opinion. Initial research by SESW show that few viewpoints would be affected, and that some would be enhanced. The Environment Agency's Benefits Assessment Guidance recommends viewing the area in terms of the relative scarcity of the different land use types. Using this approach, the landscape currently comprises a far greater proportion of agricultural land than open water. Therefore, it is assumed that an increase in reservoir area would be perceived to be a benefit, as it is a relatively small loss of agricultural land in return for a relatively large area of	which will be integrated into construction method statements to minimise the adverse effects of the construction phase to the protected landscape. The strategy will include details such as locating construction facilities sensitively; the location of existing and any proposed planting, the import and storage of equipment and materials, and the nature of post-construction hard and soft landscaping works. It will also set out the time period needed of the planting and growth of vegetation used for screening purposes, should this be identified as required. Good construction practice will be employed to minimise the potential visual disturbance and impacts.						

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	water. The effect of increasing the water surface by ~11% would add to the favoured features of both AONBs, i.e. each comprises a mosaic of habitats and landscape features. In addition to this, some people would see this as a positive effect to the landscape, because they may place a higher value on the water landscape, however, others may place a higher value on the terrestrial landscape thus would see the raising as an adverse impact.							

1.2 R5

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	There are no statutory designated conservation sites in the vicinity of the scheme. Local habitats along the site comprise amenity open grassland space, patches of trees and woodland scrub, aquatic feature (the Mill Pond); the potential impact pathway on these sites would be for construction works to perturb undisturbed areas and cause damage to plants and vegetation, and disrupt the presence and habits of nesting birds and other local wildlife including protected species. The scheme would increase production within licence limits. However the abstraction may take Chalk groundwater that would otherwise flow into the Mill Pond as upwelling springflow, and the Mill Stream that flows round the northern side of the pond and then joins the River Mole. This effect could also adversely impact on the River Mole Local Nature reserve which is nearby and its associated aquatic biodiversity. There is also the potential for the reduced springflows to adversely impact on the adjacent Mill Pond and its associated aquatic biodiversity. There are no expected adverse effects with regard to invasive species or algal blooms. However the potentially reduced springflow and effect on available habitat may affect the ability of local aquatic species and habitats to respond to any further environmental changes caused by climate change.	Hydrological studies will be undertaken to quantify the effects upon the Mill Pond and spring flow to the River Mole, and inform the most appropriate and effective mitigation measures that can be put in place. For example, lining the pond could mitigate the adverse effect of reduced spring flow. Ecological surveys to identify any notable or protected species locally will be undertaken to set out appropriate working practise and mitigation measures during construction will be informed by ecological surveys completed at scheme level.	Medium	Medium	Short-term	Permanent	-	--
2. To maintain and where possible improve freshwater	Scheme would reduce springflow to the River Mole which could have an adverse impact on fisheries.	If scheme was only to operate during high flows then impacts could be minimised.	Medium	Medium	Long-term	Permanent	-	--

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
fisheries								
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	Construction may cause local disturbance such as noise and dust. No operational impacts.	Only minor construction and good construction practices will reduce impact.	Low	Low	Short-term	Temporary	-	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	Public footpath runs in close proximity to the area – potential for minor disruption during construction. No operational impact expected.	Good construction practice will minimise impact.	Low	Low	Short-term	Temporary	-	**0**
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
6. To protect and where possible enhance river flows and groundwater resources	The abstraction may take Chalk groundwater that would otherwise flow into the Mill Pond as upwelling springflow, and the Mill Stream that flows round the northern side of the pond and then joins the River Mole. The scheme therefore may reduce springflow to the River Mole which could impact on flows/resources. There is potential for an adverse impact on the WFD status of this section of the River Mole.	If scheme was only to operate during high flows then impacts could be minimised. Further studies required on potential impacts on surface waters.	Low	Medium	Long-term	Permanent	**0**	**--**
7. To protect and where feasible enhance the quality of surface waters	The scheme may reduce springflow to the River Mole which could impact on water quality. Potential for adverse impact on WFD status of this section of the River Mole.	If scheme was only to operate during high flows then impacts could be minimised. Further studies required on potential impacts on surface waters.	Low	Medium	Long-term	Permanent	**0**	**--**
8. To protect and enhance groundwater quantity and quality	Interception of spring flow would mean no drawdown on ground water so no impact.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Interception of spring flow may have a positive impact on localised flood risk.	N/A	Low	Low	Long-term	Permanent	**0**	**+**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective, as the proposed infrastructure would intercept natural spring flow and minimise drawdown thereby reducing the environmental impact on natural groundwater flow to the River Mole. The option may not assist towards the attainment of Good status: the surface water current ecological status is poor; and the groundwater body current quantitative status is Poor and therefore further abstraction may affect the attainment of Good Status, however further study is required.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of abstraction.	Low	Medium	Long-term	Permanent	**0**	**-**
11. To reduce greenhouse gas emissions	Minor increase in emissions during construction and small scale construction means low carbon footprint. Minimal impacts from additional boreholes during operation.	No mitigation available.	Low	Low	Short-term and long-term	Temporary and permanent	**-**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	No significant impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
13. To promote sustainable use of resources	No significant impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
14. To maintain and enhance local air quality	No significant impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	Potential for construction to impact on hidden or as yet undiscovered archaeology during excavation. No operational impact expected.	Further investigation and discussion with local authority at scheme level to define mitigation.	Low	Low	Short-term	Temporary	-	0
16. To maintain and where feasible enhance landscape character and visual amenity	The scheme is located in a highly urban (residential and business) area, and therefore will have a negligible impact upon landscape character. The construction period may adversely affect local visual amenity for a short time period. No long term impacts are expected.	Good construction practices and considerate site management will reduce the effects upon local visual amenity.	Low	Low	Short-term	Temporary	-	0

1.3 R21

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	The scheme is located in a highly urban (residential and business) area, near Bennet's Hole Local Nature Reserve and the River Wandle. Bennet's Hole LNR has a variety of habitats such as woodland, scrub, marsh, open ditch, tall herbs and rough land. The northern side of Bennett's Hill is dominated by a wide selection of amenity trees, while the south is home to a selection of semi-mature crack-willow and oak trees. Other local habitats in the area comprise amenity grass and dense tree cover that follows the line of the River Wandle, with green spaces for parks and leisure activities. While there may be some localised disturbance to birds and other wildlife in the trees, there are other similar habitats that can be used elsewhere in the locality, which will be unaffected. The new infrastructure expected to be small scale with minor potential for impacts on habitats and species during construction. The potential impact pathway on these sites would be for construction works to cause damage to plants and vegetation, and disrupt the presence and habits of nesting birds and other local wildlife including protected species. While there may be some localised disturbance to birds and other wildlife in the trees, there are other similar habitats that can be used elsewhere in the locality, which will be unaffected. Therefore it is expected that there will be a minor impact upon local habitats and species during the construction and operation of the scheme. There will be no adverse effects with regard to invasive species or algal blooms. The option will not affect the ability of local species and habitats to respond to any environmental changes caused by climate change. Although there would be increased drawdown in the confined chalk aquifer (within existing licence limits), no discernible impact on springflow to the River Wandle is expected. Therefore there is limited potential for long-term impact on aquatic biodiversity.	Good construction practices and adherence to PPGs would minimise the impact to biodiversity such as disturbance to local habitats and species, including nesting birds, minimising trampling, the movement of materials and any dust that may arise. Site mitigation will be guided by surveys at the scheme level to determine the presence of protected species, and opportunities for enhancements where appropriate.	Low	Low	Short-term	Temporary	-	-
2. To maintain and where possible improve freshwater	Potential for increased abstraction to reduce springflows into the Wandle and therefore have an adverse impact on fisheries.	Further studies required as to potential impacts on springflows.	N/A	N/A	N/A	N/A	-	-

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
fisheries								
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	Localised construction but still potential for noise and disturbance. Once operational no significant impact expected.	Good construction practices to minimise impact.	Low	Low	Short-term	Temporary	-	0
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	New borehole located in/on the boundary of a sports ground – potential for construction to impact on use of ground. Assumed that borehole will not impact on area once operational.	Good construction practices and considerate site management to reduce impact.	Low	Low	Short-term	Temporary	-	0
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected	N/A	N/A	N/A	N/A	N/A	0	0
6. To protect and where possible enhance river flows and groundwater resources	Although there would be increased drawdown in the confined chalk aquifer, no discernible impact on spingflow is expected and therefore there would be limited potential for impact on surface waters. Potential for abstraction to affect other abstractors.	Further studies required to ensure no impact on springflow. Further studies required to investigate possible impacts on other abstractors.	Medium	Medium	Long-term	Permanent	0	-
7. To protect and where feasible enhance the quality of surface waters	Although there would be increased drawdown in the confined chalk aquifer, no discernible impact on spingflow is expected and therefore there would be limited potential for impact on surface waters.	Further studies required to ensure no impact on springflow.	N/A	N/A	N/A	N/A	0	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
8. To protect and enhance groundwater quantity and quality	The London CAMS identifies the chalk aquifer as no water available. However, additional water would be in the system due to the recharge at Source 13. This option is therefore not expected to significantly impact on groundwater quality and quantity.	Further studies required to assess impacts.	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective, as the water is abstracted is that which had been artificially recharged. The option will not prevent the attainment of Good status as the option is to abstract water that has been artificially recharged, rather than existing groundwater.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of abstraction.	Low	Medium	Long-term	Permanent	**0**	**0**
11. To reduce greenhouse gas emissions	Minor increase in emissions during construction but small scale construction means low carbon footprint. New borehole so minor increase during operation.	No mitigation available.	Low	Low	Long-term	Permanent	**-**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical	No impacts expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
infrastructure								
13. To promote sustainable use of resources	Use of resources associated with construction of borehole. Waste production expected to be minimal as excavated material reused in reinstatement.	Seek sustainable resources.	Low	Low	Short-term	Temporary	-	0
14. To maintain and enhance local air quality	Minimal construction so no impact expected.	N/A	N/A	N/A	N/A	N/A	0	0
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	Excavation during construction has the potential to impact on hidden or as yet undiscovered archaeology. No operational impacts.	Minor construction so risk expected to be small. Further investigation required to identify mitigation.	Low	Low	Short-term	Temporary	-	0
16. To maintain and where feasible enhance landscape character and visual amenity	The scheme is small scale and located in a highly urban (residential and business) area, and therefore there will be a negligible impact upon the wider landscape character. The construction period may adversely affect local visual amenity for a short time period. There will be no significant long term/operational impacts.	Good construction practices and considerate construction to minimise impacts.	Low	Low	Short-term	Temporary	-	0

1.4 R22

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	This scheme requires an increase in abstraction that may reduce springflows into the Wandle and therefore have an adverse impact on associated and dependant habitats and species. The option is close to Chipstead Downs SSSI (approximately 0.5 km at its closest point). Chipstead Downs SSSI includes areas of steeply sloping chalk grassland with associated scrub and secondary woodland, as well as large areas of ancient woodland over clay-with-flints on the plateau. The potential impact pathway would be for any water dependant features of the SSSI to suffer due to the potentially reduced upwelling groundwater. The interest features of the SSSI however are not water dependant, and so will not be affected by the operation of the scheme, and are unlikely to be affected by construction effects due to the distance. Local habitats in the area comprise agricultural fields including pasture or rough grass with lines and small pockets of trees. The potential impact pathway would be for construction activity to perturb undisturbed areas and cause damage to plants and vegetation, and disrupt the presence and habits of nesting birds and other local wildlife including protected species. The option will not affect ability of local species and habitats to respond to any environmental changes caused by algal blooms or climate change. It is considered that there will be adverse effects with regard to invasive species. There is no significant construction activity so a negligible risk to localised habitats and species. Long term no adverse impact is expected.	Good construction practices and adherence to PPGs would minimise the impact to biodiversity such as disturbance to local habitats and species, including nesting birds, minimising trampling, the movement of materials and any dust that may arise. Site mitigation will be guided by surveys at the scheme level to determine the presence of protected species, and opportunities for enhancements where appropriate.	Medium	Medium	Long-term	Permanent	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
2. To maintain and where possible improve freshwater fisheries	No impact is expected as there will no works in the vicinity of surface watercourses.	N/A	Medium	Medium	Long-term	Permanent	**0**	**0**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	Potential for increased abstraction to reduce springflows into the Wandle and therefore have an adverse impact on river flows/resources.	Further studies required as to potential impacts on springflows from increased drawdown of groundwater.	Medium	Medium	Long-term	Permanent	**0**	**--**
7. To protect and where feasible enhance the quality of surface waters	Potential for increased abstraction to reduce springflows into the Wandle and therefore have an adverse impact on surface waters.	Further studies required as to potential impacts on springflows from increased drawdown of groundwater.	Medium	Medium	Long-term	Permanent	**0**	**--**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
8. To protect and enhance groundwater quantity and quality	Scheme would result in additional drawdown of groundwater which may adversely impact on downstream company sources. Furthermore, the London CAMS identifies the chalk aquifer as no water available and therefore there would be greater pressure on the groundwater source.	Further studies required as to potential impacts of increased groundwater drawdown.	Medium	Medium	Long-term	Permanent	**0**	**---**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Potential for reduced springflow into the Wandle which at times of high water levels could have a positive impact on flood risk.	N/A	Low	Low	Long-term	Permanent	**0**	**+**
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective, as the expected down draw will not shift WFD status classes. The option involves an increase in abstraction and therefore may not assist towards the attainment of Good status: the groundwater body's current quantitative status is Poor and therefore further abstraction may affect the attainment of Good Status.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of abstraction.	Low	Medium	Long-term	Permanent	**0**	**-**
11. To reduce greenhouse gas emissions	Increased pump capacity would not have a discernible increase in greenhouse gas or carbon production.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
13. To promote sustainable use of resources	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
14. To maintain and enhance local air quality	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	The scheme is location within the North Down National Character Area. In the area of the scheme this rural landscape is characterised by undulating dry downland valleys and hill top woodlands. As the scheme is to increase abstraction, no landscape effects are expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

1.5 R28

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	Some of the boreholes, in particular borehole No 6 are in close proximity to the Riddlesdown SSSI. The interest features of the SSSI includes its herb rich chalk grassland, its size (it is the largest single expanse of long-established calcareous scrub in Greater London) its downland habitats and its variety of shrub and tree species including mature yew, and four nationally scarce species of chalk plant. The interest features are not water dependant. Given the separation of the boreholes from the SSSI by existing infrastructure no adverse impact to the SSSI is expected. Construction works could result in some localised disturbance to birds and other wildlife in the trees, there are other similar habitats that can be used elsewhere in the locality, which will be unaffected. Increasing the PDO would be within licence but the large quantity of abstraction could adversely impact on the springline of local rivers. In turn this could adversely impact on aquatic habitats and species, and therefore the option may affect the ability of local species and habitats to respond to any additional environmental changes caused by climate change.	Good construction practices and adherence to PPGs would minimise the impact to biodiversity such as disturbance to local habitats and species, including nesting birds, minimising trampling, the movement of materials and any dust that may arise. Detailed mitigation would be guided by further baseline studies at the scheme level to determine the presence of protected species, and opportunities for enhancements where appropriate. Further studies required as to the impacts of increased abstraction and potential impacts on surface water habitats and species.	Low	Medium	Short-term and long-term	Temporary and permanent	-	-
2. To maintain and where possible improve freshwater fisheries	Large increase in abstraction although within licence has potential to adversely affect springflows of local rivers and therefore impact on freshwater fisheries.	Further studies required as to the impacts of increased abstraction and potential impacts.	Medium	Low	Long-term	Permanent	**0**	-
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	Potential for temporary impacts such as noise and dust during construction.	Good construction practices to minimise impact.	Low	Medium	Short-term	Temporary	-	**0**
4. Protect and, where possible, enhance	No impact	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
recreation and amenity facilities and increase access and enjoyment of the countryside								
5. To protect the quality of land and soils, and maintain geological diversity	No impact	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	Although within licence, the large increase in abstraction could reduce surface water flows within the River Wandle and have an adverse impact on water resources. Increased abstraction may also impact on other abstractors within the area.	Further investigation required into proposed abstraction and potential impact on surface waters and other abstractors.	Medium	Medium	Long-term	Permanent	**0**	**--**
7. To protect and where feasible enhance the quality of surface waters	Although within licence, the large increase in abstraction could adversely impact on surface water quality by reducing flows.	Further investigation required into proposed abstraction and potential impact on surface waters.	Medium	Medium	Long-term	Permanent	**0**	**--**
8. To protect and enhance groundwater quantity and quality	Potential risk of pollution during lowering of existing boreholes. The London CAMS identifies this area as being no water available: further abstraction could exacerbate this situation further.	Good construction practices will minimise pollution risks. Further investigations required into impacts of abstraction on groundwater status and condition.	Medium	Medium	Short-term and long-term	Temporary and permanent	**-**	**--**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Increased abstraction could help to reduce springflow and therefore peak flows in the River Wandle. This could have a positive impact on flood risk.	N/A	Medium	Low	Long-term	Permanent	**0**	**+**
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective. The magnitude of the option may not assist towards the attainment of Good status: the associated surface water body and ground water body current status is Poor and therefore further abstraction may affect the attainment of Good Status.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of	Medium	Low	Long-term	Permanent	**-**	**-**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
		abstraction.						
11. To reduce greenhouse gas emissions	Additional energy use from increased pumping.	Use energy efficient equipment during operation.	Low	Low	Short-term and long-term	Temporary and permanent	-	-
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	No impact	N/A	N/A	N/A	N/A	N/A	0	0
13. To promote sustainable use of resources	No impact	N/A	Medium	Medium	Short-term	Temporary	--	0
14. To maintain and enhance local air quality	The construction could result in dust and noise production.	Good construction practices will help limit impacts.	Low	Medium	Short-term	Temporary	-	0
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact	N/A	N/A	N/A	N/A	N/A	0	0
16. To maintain and where feasible enhance landscape character and visual amenity	No impacts on landscape or townscape.	N/A	Low	Low	Short-term	Temporary	0	0

1.6 N4

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	The scheme makes use of existing infrastructure. It is predicted that there will be no significant changes to water quality/ WFD status and scheme is to make us of CAMS availability, unused licence headroom from 3rd party licence holders, so no new water abstracted from catchment. Screening work identified that the Bookham Commons and Mole Gap to Reigate Escarpment SSSIs are within 2km of the abstraction. It is not considered that additional abstraction from this location would have a detrimental impact on these habitats not being situated along the River Mole but on chalk slope and plateau environments. Norbury Park local wildlife site nearby, containing grassland habitats adjacent River Mole. Citation does not specify groundwater dependence (wet grassland or wetland) so understood to be not at risk from abstraction.	N/A	Low	Medium	Long-term	Permanent	**0**	**0**
2. To maintain and where possible improve freshwater fisheries	It is predicted that there will be no significant changes to water quality/ WFD status and scheme is to make us of CAMS availability, unused licence headroom from 3rd party licence holders, so no new water abstracted from catchment. It is therefore predicted that there will be no significant impact on freshwater fisheries.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
5. To protect the quality of land and soils, and maintain geological diversity	The scheme makes us of existing infrastructure so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	It is predicted that there will be no significant changes to water quality/ WFD status and scheme is to make us of CAMS availability, unused licence headroom from 3rd party licence holders, so no new water abstracted from catchment. It is therefore predicted that there will be no significant impact on river flows or groundwater resources.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
7. To protect and where feasible enhance the quality of surface waters	The scheme makes use of existing infrastructure. It is predicted that there will be no significant changes to water quality/ WFD status and scheme is to make us of CAMS availability, unused licence headroom from 3rd party licence holders, so no new water abstracted from catchment. It is therefore predicted that there will be no significant impact on the quality of surface waters.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
8. To protect and enhance groundwater quantity and quality	The scheme makes use of existing infrastructure. It is predicted that there will be no significant changes to water quality/ WFD status and scheme is to make us of CAMS availability, unused licence headroom from 3rd party licence holders, so no new water abstracted from catchment. It is therefore predicted that there will be no significant impact on groundwater quality of quantity.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Scheme will only abstract water during high flows so there is the potential to improve outcomes in groundwater flooding. Catchment susceptible but no significant groundwater flood recorded to date. Potential for a minor positive effect.	N/A	Low	Low	Medium-term and long-term	Temporary	**0**	**+**
10. To meet WFD Objectives	Scheme is to use unused licence headroom from 3rd party licence holders so no new water abstracted from catchment. Therefore no change in status, opportunity for local improvement if abstraction reduced higher in catchment and taken lower in catchment where River Eden has higher flow.	N/A	Low	Medium	Medium-term and long-term	Temporary	**0**	**+**
11. To reduce greenhouse gas emissions	No infrastructure required. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	No infrastructure required. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
13. To promote sustainable use of resources	This scheme will make use of existing infrastructure.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
14. To maintain and enhance local air quality	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	The scheme makes use of existing infrastructure. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

1.7 N5

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	Scheme is a new abstraction (2 Ml/d) to take make use of CAMS water availability (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). There is an Ancient Woodland within the identified area of search for the borehole. As long as the Ancient Woodland is avoided during construction there should not be any impacts. It is not predicted that the construction of the borehole, pumps and pipeline would have a significant impact on the River Mole itself. It is assumed that the pipeline would follow existing roads and good construction practices will ensure that impacts are avoided or minimised. Small scheme that will make use of CAMS water availability (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity. As a result it is not anticipated that there will be any significant effects on biodiversity in operational phase.	Pipeline should avoid the Ancient Woodland in the search area. Further more detailed ecological survey work will be required. This will help to inform the precise location of the borehole and route of the pipeline as well as any specific mitigation required.	Low	Medium	Short-term	Temporary	-	**0**
2. To maintain and where possible improve freshwater fisheries	The River Mole supports cyprinid fish populations of varied quality. Small scheme that will make use of CAMS water availability (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is predicted that there will not be any	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	significant impacts on river flows/ quality or groundwater quality/quantity and therefore freshwater fisheries.							
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase could create temporary impacts such as noise, dust and disruption to traffic. In the long term no change to the baseline is predicted as the pipeline will be buried.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The construction phase could create temporary impacts such as noise and dust on recreational areas. In the long term no significant change to the baseline is predicted.	Pipeline should follow existing roads wherever possible to minimise disturbance to recreational areas. Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	**0**
5. To protect the quality of land and soils, and maintain geological diversity	There is the potential for disturbance to soil and loss of a small amount of greenfield land during construction. land take is expected to be minimal. It is assumed that the pipeline route will follow existing roads where possible and therefore minimise disturbance to soil. Potential for a short-term negative effect during construction. In the long-term no negative effects are predicted as the pipeline will be buried.	Pipeline should follow existing roads wherever possible to minimise disturbance to greenfield land.	Low	Low	Short-term	Temporary	-	**0**
6. To protect and where possible enhance river flows and groundwater resources	Small scheme that will make use of CAMS water availability (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
7. To protect and where feasible enhance the quality of surface waters	Small scheme that will make use of CAMS water availability (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity.							
8. To protect and enhance groundwater quantity and quality	Small scheme that will make use of CAMS water availability (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Scheme will only abstract water during high flows so there is the potential to improve outcomes in groundwater flooding. Catchment susceptible but no significant groundwater flood recorded to date. Potential for a minor positive effect.	N/A	Low	Low	Medium-term and long-term	Temporary	**0**	**+**
10. To meet WFD Objectives	Mole (Horley to Hersham) Surface Water Body. Moderate Ecological Status and Good chemical status. Scheme based on making use of CAMS water availability so should not affect status if surface water abstraction. Groundwater abstraction from confined Chalk so no impact to stream environment. Mole (Horley to Hersham) Surface Water Body classified Probably Not at Risk of not supporting Good Ecological Status but considered Probably at Risk of Deterioration. Groundwater Body considered At Risk for the Water Balance test and Probably at Risk for the Impact to Surface Waters. Scheme based on making use of CAMS water availability so should not change risk of deterioration. Confined Chalk abstraction will have no surface impacts.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	New abstraction requiring new infrastructure and connections to mains network. Some construction and therefore carbon footprint. Additional energy use from new pumping station and other infrastructure.	Seek low carbon construction methods. Use energy efficient equipment during operation.	Low	Low	Short-term and long-term	Temporary and permanent	**-**	**-**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Import of material would be required for the new pumps and pipeline. Main roads will be used and could result in minor disruption to local transport routes. There is also likely to be minor destruction during the construction of the pipeline which is assumed will run along existing roads. No operational impacts.	Good construction practices would help reduce construction impacts.	Low	Low	Short-term	Temporary	-	**0**
13. To promote sustainable use of resources	Import of resources would be required for infrastructure construction. Waste production expected to be minimal.	Seek sustainable resources.	Low	Low	Short-term	Temporary	-	**0**
14. To maintain and enhance local air quality	It is assumed that the pipeline will follow existing highways infrastructure where possible. Potential for dust and disturbance to residents/businesses along the route as well as increased traffic during construction. This is unlikely to be significant given that the majority of the pipeline will be delivered along rural roads. However, there is the potential for construction impacts to the A25 which links to the A22 and Junction 6 of the M25. It is assumed that there will be no disturbance to the M25.	Good construction practices will help limit impacts.	Low	Low	Short-term	Temporary	-	**0**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	The construction of the new pipeline is likely to be visible from at least one listed buildings. Potential a for short-term, temporary negative effect during construction. Pipeline will be buried so it is predicted that there will be a residual neutral effect during operation.	Good construction practices will help limit impacts.	Low	Medium	Short-term	Temporary	-	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	New infrastructure will not be situated within any designated landscapes or important views. Potential for impacts in the short-term during construction. Pipeline will be buried during operation so should not have any significant negative effects in the medium to long-term.	Pipeline should follow existing highways infrastructure where possible. Screening/planting should ensure that the borehole kiosk and any pumps required do not have significant effects during operation.	Low	Low	Short-term	Temporary	-	**0**

1.8 N6

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	There are a number of Ancient Woodlands within the search area. Glover's Wood SSSI and Reigate Heath SSSI fall just within the area of search in the north and south. It is assumed that the borehole and pumps will be located outside of these designated areas. It also assumed that the pipeline will avoid designated sites where possible and follow existing highways infrastructure. Potential for the loss of and disturbance to local habitats and species during construction of the borehole and pipeline. These impacts will be in the short-term and temporary. Scheme based on making use of CAMS water availability upstream of the Dorking assessment point AP3 which includes surface water and the Lower Greensand aquifer (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity. As a result it is not anticipated that there will be any significant effects on biodiversity in operational phase.	The borehole and pipeline should avoid designated habitats such as Ancient Woodland. Further more detailed ecological survey work will be required. This will help to inform the precise location of the borehole and route of the pipeline as well as any specific mitigation required.	Low	Very High	Short-term	Temporary	--	0
2. To maintain and where possible improve freshwater fisheries	Scheme based on making use of CAMS water availability upstream of the Dorking assessment point AP3 which includes surface water and the Lower Greensand aquifer (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity. As a result	N/A	N/A	N/A	N/A	N/A	0	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	it is not anticipated that there will be any significant effects on freshwater fisheries.							
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction of the pipeline could create temporary impacts such as noise, dust and disruption to traffic. In the long term no change to the baseline is predicted as the pipeline will be buried. The construction and operation of the borehole will not significantly effect communities given the rural nature of the search area.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The construction phase could create temporary impacts such as noise and dust on recreational areas. In the long term no change to the baseline is predicted as the pipeline will be buried.	Pipeline should follow existing roads wherever possible to minimise disturbance to recreational areas. Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	**0**
5. To protect the quality of land and soils, and maintain geological diversity	There is the potential for disturbance to soil and loss of a small amount of greenfield land during construction. land take is expected to be minimal. It is assumed that the pipeline route will follow existing roads where possible and therefore minimise disturbance to soil. Potential for a short-term negative effect during construction. In the long-term no negative effects are predicted as the pipeline will be buried.	Pipeline should follow existing roads wherever possible to minimise disturbance to greenfield land.	Low	Low	Short-term	Temporary	-	**0**
6. To protect and where possible enhance river flows and groundwater resources	Scheme based on making use of CAMS water availability upstream of the Dorking assessment point AP3 which includes surface water and the Lower Greensand aquifer (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
7. To protect and where feasible enhance the quality of surface	Potential for pollution of watercourses during river crossings of the pipeline. Scheme based on making use of CAMS water	Good construction practice will reduce risk.	Low	Medium	Short-term	Temporary	-	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
waters	availability upstream of the Dorking assessment point AP3 which includes surface water and the Lower Greensand aquifer (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity.							
8. To protect and enhance groundwater quantity and quality	Scheme based on making use of CAMS water availability upstream of the Dorking assessment point AP3 which includes surface water and the Lower Greensand aquifer (Surface water available 50% of the time, not groundwater unless groundwater is close to river due to lag times with surface water interaction). Using this source for the 50% of water availability reduces the ADO on other sources which means they can be increased above current ADO when in use to meet existing annual licence. It is therefore predicted that there will not be any significant impacts on river flows/ quality or groundwater quality/quantity.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Groundwater flood risk in Lower Greensand around Dorking. Additional abstraction may help moderate flooding.	N/A	Low	Medium	Medium-term	Temporary	**0**	**+**
10. To meet WFD Objectives	Mole (Horley to Hersham) Surface Water Body to east of Dorking. Moderate Ecological Status and Good chemical status. Pipp Brook Surface Water Body to west of Dorking. Moderate ecological status with moderate status for flow element. Scheme based on making use of CAMS water availability so should not affect status if surface water abstraction. Probably Not at Risk of not supporting Good Ecological Status but considered Probably at Risk of Deterioration. Groundwater Body considered At Risk for the Water	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	Balance test and Probably at Risk for the Impact to Surface Waters. Pipp Brook Surface Water Body At Risk of not supporting Good Ecological Status and At Risk of Deterioration. Therefore best location to the east of Dorking outside Pipp Brook catchment.							
11. To reduce greenhouse gas emissions	New abstraction requiring new infrastructure and connections to mains network. Some construction and therefore carbon footprint. Additional energy use from new pumping station and other infrastructure.	Seek low carbon construction methods. Use energy efficient equipment during operation.	Low	Low	Short-term and long-term	Temporary and permanent	-	-
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Import of material would be required for the new pumps and pipeline. Main roads will be used and could result in minor disruption to local transport routes. There is also likely to be minor destruction during the construction of the pipeline which is assumed will run along existing roads. No operational impacts.	Good construction practices would help reduce impacts.	Low	Low	Short-term	Temporary	-	0
13. To promote sustainable use of resources	Import of resources would be required for infrastructure construction. Waste production expected to be minimal.	Seek sustainable resources.	Low	Low	Short-term	Temporary	-	0
14. To maintain and enhance local air quality	It is assumed that the pipeline will follow existing highways infrastructure where possible. Potential for dust and disturbance to residents/businesses along the route as well as increased traffic during construction. This is unlikely to be significant given that the majority of the pipeline will be delivered along rural roads. However, there is the potential for construction impacts to the A25 which links to the A22 and Junction 6 of the M25. It is assumed that there will be no disturbance to the M25.	Good construction practices will help limit impacts.	Low	Low	Short-term	Temporary	-	0
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	There are a number of listed buildings within the proposed area of search for the new borehole. There is also a Registered Park and Garden within Dorking. The construction of the new pipeline is likely to be visible from a number of listed buildings. It could also pass close to a Registered Park and Garden. Potential for short-term, temporary negative effect during construction. Pipeline will be buried so it is predicted that there will be a residual neutral effect during operation. Element of uncertainty until the precise location of the borehole and pipeline are known.	Good construction practices will help limit impacts.	Low	Medium	Short-term	Temporary	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
16. To maintain and where feasible enhance landscape character and visual amenity	New infrastructure will not be situated within any designated landscapes or important views. Potential for impacts in the short-term during construction. Pipeline will be buried during operation so should not have any significant negative effects in the medium to long-term.	Pipeline should follow existing highways infrastructure where possible. Screening/planting should ensure that the borehole kiosk and any pumps required do not have significant effects during operation.	Low	Low	Short-term	Temporary	-	0

2. Treatment

2.1 R8

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	New infrastructure located within existing water company site and is only small scale so minor potential for impacts on habitats and species in local area. Increased abstraction will be within existing licences but will still increase drawdown on the greensand aquifer. In turn this may reduce baseflow to streams and thus have potential adverse impacts on aquatic biodiversity. There is the potential for operational impacts on Reigate Heath SSSI (located to the south) from reduced groundwater baseflow inputs. The interest features of this SSI include wet habitats and species. The site currently suffers from severe adverse hydrological impacts due to quarrying works outside its boundary, and is currently partly classed as being in unfavourable condition. This SSSI is reliant on water levels and is already suffering due to lack of water (subject of a study at present). A possible impact pathway could occur if the option reduced upwelling groundwater or water flowing into the site, and exacerbate the problem. The Wallace Brook, which could be affected by the increased abstraction, runs along the edge of this site and is an important habitat. The reduced baseflow may affect the ability of local species and habitats to respond to any environmental changes caused by climate change, or algal blooms. It is not expected that there will be any adverse effects with regard to invasive species.	The quarrying work outside of the SSSI boundary appears to be several impacting upon the site's interest features. Therefore further study is needed to determine whether or not the option can proceed with no adverse effects. There is an ongoing NEP investigation at the site that will quantify the current impacts on the SSSI habitats and species and associated ground and surface water bodies and knock on impacts on habitats and species, particularly within SSSI. This will help define what, if any specific mitigation will be needed. Potential mitigation can take the form of conditions attached to the operation of the source to limit the potential effect on the site.	High	Very High	Short-term and long-term	Temporary and permanent	-	---
2. To maintain and where possible improve freshwater fisheries	Although within existing licence limits, once operational, increased abstraction could result in increased drawdown on groundwater and reduced baseflow in streams and potential for adverse impacts on fisheries.	Further surveys and research required into impacts on surface water bodies and to identify mitigation measures.	High	Medium	Short-term and long-term	Temporary and permanent	0	--
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	Potential for noise and disturbance during construction of infrastructure. Only expected to be minor and located on existing water company site.	Good construction practices to minimise impact.	Low	Low	Short-term	Temporary	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	Although within existing licences, once operational, increased abstraction would result in increased drawdown on groundwater and reduced baseflow into streams. This could have an adverse impact on river flows/resources.	Further investigation required into impacts of abstraction on baseflows and surface waters.	Medium	Medium	Long-term	Permanent	**0**	**--**
7. To protect and where feasible enhance the quality of surface waters	Although within existing licences, once operational, increased abstraction would result in increased drawdown on groundwater and reduced baseflow into streams. This could have an adverse impact on water quality.	Further investigation required into impacts of abstraction on baseflows and surface waters.	Medium	Medium	Long-term	Permanent	**0**	**--**
8. To protect and enhance groundwater quantity and quality	The Lower Greensand aquifer is under stress from abstraction and therefore this option would further exacerbate the impact. Thames RBMP identifies the GW body to be in poor condition and therefore additional abstraction could adversely affect achievement of WFD objectives.	No mitigation	Medium	Medium	Long-term	Permanent	**0**	**--**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Reduced baseflow during high water levels could have a positive impact on flood risk in the River Eden.	N/A	Low	Medium	Long-term	Permanent	**0**	**+**
10. To meet WFD Objectives	The option is considered compliant with the WFD 'no deterioration' objective, due to the scale of the volume abstracted. The groundwater current quantitative status, and the surface water body current ecological status, is Poor and therefore further abstraction may affect the achievement of Good status.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of	Medium	Medium	Long-term	Permanent	**0**	**--**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
		abstraction.						
11. To reduce greenhouse gas emissions	Limited construction and therefore relatively low carbon use. Once operational some additional energy use for new infrastructure.	Seek low carbon construction methods.	Low	Low	Short-term and long-term	Temporary and permanent	-	-
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	All works within existing water company site so no impacts expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
13. To promote sustainable use of resources	Limited construction and therefore relatively low carbon use. Once operational limited additional energy use for pesticide treatment and increase pumping capacity. Waste expected to be produced by GAC absorbers.	No mitigation	Low	Low	Short-term and long-term	Temporary and permanent	-	-
14. To maintain and enhance local air quality	Minimal construction so no impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	Excavation during construction has the potential to impact on hidden or as yet undiscovered archaeology. No operational impacts.	Minor construction so risk expected to be small. Further investigation required to identify mitigation at scheme level.	Low	Low	Short-term	Temporary	-	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	This option takes place within an existing company site located within approximately half a kilometre from the boundary of the Surrey Hills AONB. The local area is characterised by low density housing and agricultural fields. The required plant will be added to the existing works footprint and so has the potential to cause minor adverse short-term construction impacts on landscape and views. A small unit is expected, and so the long term impact is considered to be minor.	The nature of the construction required is relatively small scale. Any new building that may be required will be designed to have minimal intrusion to the landscape. Prior to construction, a landscape mitigation strategy will be developed if required and integrated into construction method statements to minimise the adverse effects of the construction phase to the	Low	High	Short-term and long-term	Temporary and permanent	-	-

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
		protected landscape. The strategy will include details such as sensitive location of any new building and its sympathetic design; the location of existing and any proposed planting, the import and storage of equipment and materials, and the nature of post-construction hard and soft landscaping works. Good construction practice will be employed to minimise the potential visual disturbance and impacts.						

2.2 R26

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	The scheme is located in a highly urban (residential and business) area. There are no designated or local wildlife sites in the area. Local habitats in the area comprise amenity grass, small pockets of trees fringing open areas, gardens and allotments. The potential impact pathway on these habitats would be for construction works to cause noise and movement disturbance and cause damage to plants and vegetation, as this would disrupt the presence and habits of nesting birds and other local wildlife including protected species. All works expected to be completed within existing water company site so while there may be some localised disturbance to birds and other wildlife in the immediate vicinity, this will be minor, and there are other similar habitats that can be used elsewhere in the locality, which will be unaffected and can be used as refuge areas. The option will not cause adverse effects with regard to invasive species or algal blooms, nor affect the ability of local species and habitats to respond to any environmental changes caused by climate change due to reduced habitat.	Good construction practices and adherence to PPGs would minimise the impact to biodiversity such as disturbance to local habitats and species, including nesting birds, minimising trampling, the movement of materials and any dust that may arise.	Low	Low	Short-term	Temporary	-	0
2. To maintain and where possible improve freshwater fisheries	The scheme may lead to reduced groundwater levels. This may in turn reduce springflow and surface water flow, and therefore potential impact on fisheries. However, the Environment Agency believe that increased abstraction at this source would be at the expense of northward flow to the confined Chalk rather than baseflow in the Rivers Hogsmill or Wandle. As such the effect on surface water is negligible.	Further study to identify the quantitative effects on surface waters to determine operational parameters or other measures to mitigate the adverse effects.	Low	Low	Long-term	Permanent	0	-
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	WTW A located within residential area and adjacent to parkland. Although all works are expected to be within existing water company site, construction may cause local disturbance such as noise and dust.	Good construction practices to minimise impact.	Low	Low	Short-term	Temporary	-	0
4. Protect and, where possible, enhance recreation and amenity facilities	No impact expected.	N/A	N/A	N/A	N/A	N/A	0	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
and increase access and enjoyment of the countryside								
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	The increase in abstraction could lead to increased drawdown on groundwater, potential reduced springflow and therefore potential impacts on river flows and resources.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of abstraction.	Medium	Medium	Long-term	Permanent	**0**	**--**
7. To protect and where feasible enhance the quality of surface waters	The increase in abstraction could lead to impacts on surface water quantity and quality. However, the Environment Agency believe that increased abstraction at this source would be at the expense of northward flow to the confined Chalk rather than baseflow in the Rivers Hogsmill or Wandle. As such the effect on surface water is negligible.	Further study to identify the quantitative effects on surface waters to determine operational parameters or other measures to mitigate the adverse effects.	Medium	Medium	Long-term	Permanent	**0**	**-**
8. To protect and enhance groundwater quantity and quality	The London CAMS identifies the confined chalk aquifer as over-licensed and therefore further abstraction would exacerbate the situation further. Thames RBMP identifies the GW body to be in poor condition and therefore additional abstraction may not assist the achievement of WFD objectives.	No mitigation.	Medium	High	Long-term	Permanent	**0**	**--**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	Reduced springflows during high water levels could have a positive impact on flood risk in surface water.	N/A	Low	Low	Long-term	Permanent	**0**	**+**
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective, as the expected effect will not shift WFD status classes. The option may not assist towards the attainment of Good status: the associated surface water body and ground water body current status is Poor and therefore further abstraction may affect the attainment of Good Status.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of abstraction.	Low	Medium	Long-term	Permanent	**0**	**-**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
11. To reduce greenhouse gas emissions	Minor increase in emissions during construction and relatively small scale construction means low carbon footprint. Minor increase in emissions during operation of new infrastructure.	No mitigation available.	Low	Low	Short-term and long-term	Temporary and permanent	-	-
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	No impact expected as all works on existing water company site.	N/A	N/A	N/A	N/A	N/A	0	0
13. To promote sustainable use of resources	Use of resources associated with new infrastructure. Waste production expected to be minimal as excavated material used in reinstatement.	Seek sustainable resources.	Low	Low	Short-term	Temporary	-	0
14. To maintain and enhance local air quality	Although construction is within existing water company site, the area is located within a residential area. Potential for minor impacts on local air quality from dust and construction plant during works. No operational impacts.	Good construction practices to minimise impact.	Low	Low	Short-term	Temporary	-	0
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	Potential for construction to impact on hidden or as yet undiscovered archaeology during excavation. No operational impact expected.	Further investigation and discussion with local authority at scheme level to define mitigation.	Low	Low	Short-term	Temporary	-	0
16. To maintain and where feasible enhance landscape character and visual amenity	The construction work will take place within a heavily urban area, at the existing water company site, and be at street level: there will be little impact on landscape and long range views, though there will be disturbance and visual intrusion at a local level. Therefore there will be a low short term impact during the construction phase but no operational or long term impacts.	Considerate site management to minimise disturbance to local residents.	Low	Low	Short-term and long-term	Temporary and permanent	-	0

2.3 P1C

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	Abstraction from the Eden would increase (at high flows) but would remain within existing licence limits and as such would not impact on minimum river levels. Modelling has shown that there would be no impact on low flows and no significant impact on medium flows. This assessment focuses on the River Eden down to its confluence with the River Medway. The reason for this is that the relative absolute changes in flow volume which may result will be negligible in the River Medway, given the size of the Medway, the contribution of flow from other Medway tributaries and the fact that abstraction would only be during the winter when flows throughout the Medway catchment would be expected to be high. As negligible impact is expected downstream of the confluence, there is no mechanism for impact on designated areas and habitats further downstream on the Medway. Furthermore, in many cases there are significant distances and a large number of artificial influences between the Eden–Medway confluence and designated sites. Reservoir A is an important wildlife nature reserve. The slight increase in reservoir drawdown during the peak week is not anticipated to cause a significant change in reservoir levels. Construction work would take place on existing SESW land and therefore should not have an adverse impact on the nature reserve and its associated biodiversity. The habitat surrounding the existing infrastructure comprises amenity grass with a screen of trees forming a small woodland. The grass is of negligible ecological interest; however there may be some localised disturbance to birds and other wildlife in the trees, but there are other similar habitats that can be used elsewhere in the locality, which will be unaffected. There will be no adverse effects with regard to invasive species or algal blooms. The option will not affect the ability of local species and habitats to respond to any environmental changes caused by climate change. No operational impacts are expected.	Abstraction from the River Eden will only be undertaken during high flows. And from within licensed limits. Best construction practices will be followed to minimise disturbance to nesting birds, minimising trampling movement of materials and any dust that may arise.	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
2. To maintain and where possible improve freshwater fisheries	Abstraction from the Eden remains within existing licence limits and as such would not impact on river flow or levels critical to fisheries.	Abstraction from the Eden only to be undertaken during high flows.	N/A	N/A	N/A	N/A	**0**	**0**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase could create temporary impacts such as noise, dust and disruption to traffic (during importation of materials). In the long term no change to noise impacts are expected from new infrastructure as all will be located on existing large site that is fairly remote from residential properties.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	**-**	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The slight increase in reservoir drawdown during the peak week is not anticipated to cause a significant change in reservoir levels and should not affect the use of the reservoir for sailing and other recreational pursuits. It should be noted that this is a storage reservoir providing water for the public water supply. Levels for recreation are not guaranteed. However, the potential effect of the reservoir drawdown will be discussed with the sailing club and other local recreational groups should it be implemented, and checks made during option investigation to ensure no significant adverse impact occurs.	Discussions and monitoring during operation, leading to changes if significant adverse effects on recreation are experienced.	Low	Low	Long-term	Permanent	**0**	**-**
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	Abstraction from the Eden would be within existing licence limits and as such would not impact on minimum river levels. Long term, the ability to have a greater volume of stored water to draw upon at peak times is a positive benefit to water resource management, as it allows an alternative to abstracting water from stressed environments at times of low flow.	Abstraction from the Eden would only be undertaken during high flows.	N/A	N/A	N/A	N/A	**0**	**+**
7. To protect and where feasible enhance the quality of surface waters	Abstraction from the Eden would be within existing licence limits and as such would not impact on minimum river levels and therefore water quality.	Abstraction from the Eden would only to be undertaken during high flows.	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
8. To protect and enhance groundwater quantity and quality	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	Compliant with WFD objective for a water body to meet good status, as the option does not affect the reasons for which the Lower Eden and the Reservoir A surface water body are classed as Poor status. The option could assist towards Good status if actions are incorporated within the works to address the identified WFD mitigation measures that are not currently in place. Compliant with the WFD 'no deterioration' objective, as the abstraction from the Lower Eden to fill the reservoir, will be undertaken during high flows in the river, within the current abstraction licence allowance.		Medium	Medium	Long-term	Permanent	**0**	**++**
11. To reduce greenhouse gas emissions	The construction phase would require the importation of resources and would lead to increased emissions due to use of plant and vehicles. As a result of the construction phase, embodied carbon is high. Once in operation there would be ongoing energy and carbon use due to increased infrastructure. Additional energy use from pumping station upgrades.	Good construction practices will also help to reduce impacts. Seek carbon efficient resources. Mitigation could include energy efficiency measures during pumping operation.	Low	Low	Short-term and long-term	Permanent	**-**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Construction of infrastructure on existing site but potential for construction impacts on local transport routes during importation of materials.	Good construction practices would help reduce impacts	Low	Low	Short-term	Temporary	**-**	**0**
13. To promote sustainable use of resources	The construction phase would require the importation of materials.	Seek sustainable/efficient sources.	Low	Low	Short-term	Temporary	**-**	**0**
14. To maintain and enhance local air quality	The construction phase would result in dust and noise and therefore a localised impact on air quality. No operational impacts expected.	Good construction practices would reduce the impact.	Low	Low	Short-term	Temporary	**-**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	Excavation during construction has the potential to impact on hidden or as yet undiscovered archaeology.	Risk considered low as within existing water company site. Further investigation required to identify mitigation at scheme level.	Low	Low	Short-term	Temporary	-	0
16. To maintain and where feasible enhance landscape character and visual amenity	Additional infrastructure built within existing water company site, which is not within any areas of designation for landscape. The site is within the Low Weald National Character Area; a small-scale intimate rural landscape enclosed by an intricate mix of small woodlands and a patchwork of fields and hedgerows, with narrow lanes with broad verges and ditches. The construction activity will be much screened by the fringe of trees; long term the proposed scheme will not affect the local landscape characteristics.	Good design and construction practices would help to mitigate any small local impact.	Low	Low	Short-term	Temporary	-	0

3. Transfer / Bulk Supply

3.1 R2

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	The scheme is located in a highly urban (residential and business) area, near the Ravensbury Park local nature reserve. Previously one large amenity park, part of Ravensbury is now a nature reserve, featuring a riverside walk along the River Wandle, and a good mix of habitats for wildlife. Local habitats in the area comprise amenity grass and dense tree cover that follows the line of the River Wandle, with green spaces for parks and leisure activities. While there may be some localised disturbance to birds and other wildlife in the trees, there are other similar habitats that can be used elsewhere in the locality, which will be unaffected. Therefore it is expected that there will be a low impact upon local habitats and species during the construction and operation of the scheme. There will be no adverse effects with regard to invasive species or algal blooms. The option will not affect the ability of local species and habitats to respond to any environmental changes caused by climate change. Although there would be increased drawdown in the confined chalk aquifer, no discernible impact on springflow to the River Wandle is expected. Thus there is limited potential for long-term impact on biodiversity.	A study to quantify the potential impact of the scheme on spring flow to the River Wandle will be undertaken to identify mitigation measures to ensure no impact on spring flow.	Medium	Low	Short-term	Temporary	-	0
2. To maintain and where possible improve freshwater fisheries	No impacts expected as the option will not affect surface water bodies.	N/A	N/A	N/A	N/A	N/A	0	0
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	Construction may cause local disturbance such as noise and dust. No operational impacts.	Good construction practices will reduce impact.	Low	Low	Short-term	Temporary	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	Construction activity may impact on public rights of way and localised areas of the nearby recreation areas. No operational impact.	Good construction practices will reduce impact.	Low	Low	Short-term	Temporary	-	0
5. To protect the quality of land and soils, and maintain geological diversity	Pipeline to follow existing roads and so no impact expected.	N/A	N/A	N/A	N/A	N/A	0	0
6. To protect and where possible enhance river flows and groundwater resources	Abstraction would be within the existing annual licence. Although there would be increased drawdown in the confined chalk aquifer, no discernible impact on spingflow is expected and therefore no impact on surface waters is expected.	Further studies completed to ensure no impact on springflow.	N/A	N/A	N/A	N/A	0	0
7. To protect and where feasible enhance the quality of surface waters	Although there would be increased drawdown in the confined chalk aquifer, no discernible impact on spingflow is expected and therefore no impact on surface waters is expected.	Further studies completed to ensure no impact on springflow.	N/A	N/A	N/A	N/A	0	0
8. To protect and enhance groundwater quantity and quality	The London CAMS identifies the chalk aquifer as no water available, however, additional water would be in the system due to the recharge at Source 13. This option is therefore not expected to significantly impact on the groundwater quality and quantity.	Further studies required to assess impacts.	Low	Medium	Long-term	Permanent	0	-
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact expected.	N/A	N/A	N/A	N/A	N/A	0	0
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective, as the water is abstracted from a confined aquifer; any reductions in spring flow is likely to be negligible. Further investigations will be required to ensure that the option will not affect the attainment the potential of improvement from current Poor Status.	Further investigation into the hydrological effects of the option is required to quantify the potential effect and to determine the appropriate mitigation in the form of the timing and volume of abstraction.	Low	Medium	Long-term	Permanent	0	-

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
11. To reduce greenhouse gas emissions	Minor increase in emissions during construction and small scale construction means low carbon footprint. No significant change to current operational impact.	No mitigation available.	Low	Low	Short-term	Temporary	-	0
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Construction of pipeline will follow existing roads and therefore there will be disruption to transport routes. Minor roads affected by new pipeline. No operational impacts.	Good construction practices will reduce impacts.	Medium	Medium	Short-term	Temporary	-	0
13. To promote sustainable use of resources	Use of resources associated with construction of pipeline. Waste production expected to be minimal as excavated material reused in reinstatement.	Seek sustainable resources.	Low	Low	Short-term	Temporary	-	0
14. To maintain and enhance local air quality	No impact expected.	N/A	N/A	N/A	N/A	N/A	0	0
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact expected as construction of pipeline will be within existing roads in a built up areas and disturb made ground. No operational impact is therefore expected.	N/A	N/A	N/A	N/A	N/A	0	0
16. To maintain and where feasible enhance landscape character and visual amenity	The scheme is located in a highly urban (residential and business) area, at an existing site, and therefore there will be a negligible impact upon landscape character. The construction period may adversely affect local visual amenity for a short time period.	Considerate site management will help reduce visual impacts.	Low	Low	Short-term	Temporary	-	0

3.2 R10

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	This scheme is located within a highly urban area, in south London, with little green space or habitat areas. Transfer pipelines will follow main roads and do not cross any designated areas. There is a potential for localised impacts on natural areas and therefore flora and fauna. There will be no adverse effects with regard to invasive species or algal blooms. The option will not affect the ability of local species and habitats to respond to any environmental changes caused by climate change. Pumping station and ion-exchange plant works will be on existing SESW land. It is assumed that the water available from TWUL will be surplus and therefore no extra demand on water resources in the TWUL regions. There will be no operational impact expected on biodiversity.	Pre-construction ecology surveys and good construction practices will ensure any potential impacts are identified and minimised.	Low	Low	Short-term	Temporary	-	0
2. To maintain and where possible improve freshwater fisheries	The construction phase may have adverse impacts on freshwater fisheries through potential water pollution, where transfer route crosses the Pyl Brook at two locations. However, it is assumed that the river is culverted under the road and any pipeline works will take place below the level of the culvert. Long term, a transfer of water between companies from areas of surplus to those of need reflects positive water resource management, minimising the potential effect on freshwater fisheries at times of low flow.	Good construction practices and adherence to PPGs would minimise the risk of water pollution. Further mitigation would also be guided by further baseline studies.	Low	Low	Short-term	Temporary	-	+
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase would create temporary impacts such as noise, dust and disruption to traffic. In the long term there may be increased noise from new pumping station and ion-exchange plant.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Consultation with landowners to agree compensation and changes would need to be completed.	Medium	Low	Short-term and long-term	Temporary and permanent	--	-
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment	The construction phase may result in short-term impacts to public footpaths	Good construction practices would reduce the impact.	Low	Low	Short-term	Temporary	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
of the countryside								
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected. Transfer pipelines will follow main roads and do not cross any designated areas. Pumping station and ion-exchange plant works will be on existing SESW land.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	Minor short term impact expected as it is assumed that directional drilling under watercourses will be undertaken. Long term, a transfer of water between companies from areas of surplus to those of need would be a positive adaptation to water resource management, providing water across areas in times of shortage.	N/A	N/A	N/A	N/A	N/A	**-**	**+**
7. To protect and where feasible enhance the quality of surface waters	The construction phase may have adverse impacts on surface water quality through pollution when the pipeline crosses the Pyl Brook. No impact to the WFD status of Pyl Brook is expected.	Directional drilling under the brook and Good construction practices will minimise potential for impact. Detailed pre-works consultation would further help to reduce construction impacts.	Low	Low	Short-term	Temporary	**-**	**0**
8. To protect and enhance groundwater quantity and quality	No impact expected. Works will not take place through any groundwater sources.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	This is assessed by Thames Water in its WRMP.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	Significant construction and therefore carbon footprint. Additional energy use from new pumping station and other infrastructure.	Seek low carbon construction methods. Use energy efficient equipment during operation.	Medium	Medium	Short-term and long-term	Temporary and permanent	**--**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Construction of pipelines will follow existing roads but will also need to cross major road networks. Therefore there will be large impacts during construction. No operational impacts.	Good construction practices will reduce impacts. Directional drilling under major infrastructure will help reduce impacts.	Medium	Medium	Short-term	Temporary	**--**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
13. To promote sustainable use of resources	Use of resources associated with large scale construction of pipeline and other infrastructure. Waste production expected to be minimal as excavated material will be reused or reinstated.	Seek sustainable resources.	Medium	Medium	Short-term	Temporary	--	0
14. To maintain and enhance local air quality	The construction phase would result in dust and noise production. Potential for new pumping station to cause noise disturbance.	Good construction practices will help limit impacts. Good design will help reduce operational impacts.	Medium	Medium	Short-term and long-term	Temporary and permanent	--	-
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact expected. None of these features are present for this option. Potential for excavation to impact on unknown or as yet undiscovered archaeological remains.	Majority of excavation within existing roads/made ground. Further investigation at scheme level will guide mitigation further.	Low	Low	Short-term	Temporary	-	0
16. To maintain and where feasible enhance landscape character and visual amenity	The construction of pipeline will take place within a heavily urban area and be at street level: there will be little impact on landscape and long range views, though there will be disturbance and visual intrusion at a local level. Therefore there will be a low short term impact during the construction phase but no operational or long term impacts.	Majority of works through urban areas and considerate site management will help reduce construction impacts. Pipelines will be below ground and new infrastructure within existing water company sites so the effects on the wider landscape are negligible.	Medium	Low	Short-term	Temporary	-	0

3.3 R12

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	Banstead Downs SSSI comprises undulating downland with extensive areas of dense and scattered scrub, woodland and areas of open chalk grassland most of which are golf course and public open space. Habitat diversity promotes breeding and overwintering birds, and several groups of invertebrates are also present. In addition the site supports a rich chalk flora, including a number of locally rare plants. The Mole Gap to Reigate Escarpment SAC comprises scrub, heath, dry grassland and broad-leaved deciduous woodland. There are seven designated features of European interest, particularly a significant presence of great crested newts. Further to the designated sites, it should be noted that the Surrey Hills AONB's deciduous woodlands and surviving stretches of chalk grassland and unimproved heath have considerable ecological importance. The sites are not water dependant, and so the potential impact pathway on these sites would be for construction works to perturb undisturbed chalk grassland and cause damage to chalk flora and trees; plus disturbance to local populations of bird, and great created newts. Best practice working will be needed to prevent the potential spread of any invasive species along the long length of the new pipeline into the protected sites. Local habitats along the route comprise patches of trees and woodland, scrub, agricultural fields and margins and pasture or rough grass; the potential impact pathway on these sites would be for construction works to perturb undisturbed areas and cause damage to plants and vegetation, and disrupt the presence and habits of nesting birds and other local wildlife including protected species. To avoid biodiversity impacts, the transfer pipelines will cross through the Banstead Downs SSSI along the existing road conduit of the A217, and also and along (adjacent to) the roads that border the Mole	As the pipeline will follow the road that sits just outside the boundary of the Mole Gap to Reigate Escarpment SAC no significant environmental effect is expected that there will be no likely significant effects. All pipelines are expected to run along roads through h AONB and SSSI. Countryside and Rights of Way consent may still be required for crossing through Banstead Downs SSSI. The pipeline through the SSSI will run alongside the existing road, using the existing infrastructure/utility corridor thought the site in order to minimise the disturbance to the SSSI. As a result no significant environmental effect is expected in the long term, as no pristine chalk grassland habitat will be disrupted. SESW has direct experience of pipeline construction in such fragile chalk habitat environments, and has an established approach to ensuring appropriate mitigation is put in place, and ecological enhancements are implemented where possible. Good construction practices and adherence to PPGs would minimise the impact to biodiversity such as disturbance to local habitats	Low	Very High	Short-term	Temporary	--	-

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	Gap to Reigate Escarpment SSSI and SAC. The pipeline route will also follow existing road networks through the AONB. New pumping stations and service reservoir will be located on existing SESW land. The construction of the pipeline may enable the spread of invasive species. The option will not cause algal blooms, or affect the ability of local species and habitats to respond to any environmental changes caused by climate change.	and species, including nesting birds, minimising trampling, the movement of materials and any dust that may arise. Further mitigation would also be guided by further baseline studies at the scheme level to determine the presence of protected species, and opportunities for enhancements where appropriate.						
2. To maintain and where possible improve freshwater fisheries	No impact expected. No works in vicinity to surface watercourses. Long term, a transfer of water between water resource zones from areas of surplus to those of need reflects positive water resource management, minimising the potential effect on freshwater fisheries at times of low flow.	N/A	N/A	N/A	N/A	N/A	**0**	**+**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase would create temporary impacts such as noise, dust and disruption to traffic. In the long term there may be increased noise from new pumping stations	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Consultation with landowners to agree compensation and changes would need to be completed.	Medium	Low	Short-term and long-term	Temporary and permanent	**--**	**-**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The construction phase may result in short-term impacts to public footpaths	Good construction practices would reduce the impact	Low	Low	Short-term	Temporary	**-**	**0**
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected. Transfer pipelines will follow main roads. Pumping station works will be on existing SESW land.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	No impact expected. No works in vicinity to surface watercourses. Long term, a transfer of water between water resource zones from areas of surplus to those of need would be a positive adaptation to water resource management, providing water across areas in times of shortage.	N/A	N/A	N/A	N/A	N/A	**0**	**+**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
7. To protect and where feasible enhance the quality of surface waters	No impact is expected as there will be no works in the vicinity to surface watercourses. To minimise the potential for adverse environmental impacts, the transfer pipelines will cross through the Banstead Downs SSSI along the existing road conduit of the A217, and also and along (adjacent to) the roads that border the Mole Gap to Reigate Escarpment SSSI and SAC. Existing drainage infrastructure will be used.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
8. To protect and enhance groundwater quantity and quality	No impact expected. Works will not take place through any groundwater sources. New reservoir at distribution node E will be on existing SESW land	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact expected. No works in vicinity to surface watercourses	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective, as the scheme involves improved network configuration and a pumping station: no new abstraction is required. The Option will not hinder the attainment of Good status.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	Large construction and therefore carbon footprint. Additional energy use from new pumping stations..	Seek low carbon construction methods. Use energy efficient equipment during operation.	Medium	Medium	Short-term and long-term	Temporary and permanent	**--**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Construction of pipeline will follow existing roads but will also need to cross major road networks. Therefore there will be large impacts during construction. No operational impacts.	Good construction practices will reduce impacts. Directional drilling under major infrastructure will help reduce impacts.	Medium	Medium	Short-term	Temporary	**--**	**0**
13. To promote sustainable use of resources	Use of resources associated with large scale construction of pipeline and other infrastructure. Waste production expected to be minimal as excavated material reused in reinstatement.	Seek sustainable resources.	Medium	Medium	Short-term	Temporary	**--**	**0**
14. To maintain and enhance local air quality	The construction phase would result in dust and noise, with potential traffic disruption and therefore affect localised impact on air quality. Potential for new pumping stations to cause noise disturbance during operation.	Good construction practices would reduce the impact.	Low	Low	Short-term and long-term	Temporary and permanent	**-**	**-**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact expected. None of these features are present for this option. Potential for excavation to impact on unknown or as yet undiscovered archaeological remains.	Majority of excavation within existing roads/made ground. Further investigation at scheme level will guide mitigation further.	Low	Low	Short-term	Temporary	-	0
16. To maintain and where feasible enhance landscape character and visual amenity	The route passes through areas classed as having different characters: it starts in the North Downs National Character Area (NCA); passes the through the Surrey Hills AONB and finishes in the Wealden Greensand NCA. The North Downs is a rural landscape comprising Chalk downland giving extensive views across Kent and Surrey towards the South Downs. The Wealdon Greensand is typified by its scarp/dip-slope topography, extensive belts of ancient mixed woodland, scattered small settlements linked by deep, overhanging, winding lanes with some small, irregular fields. The Surrey Hills AONB is a diverse landscape characterised by hills and valleys, traditional mixed farming, a patchwork of chalk grassland and heathland, sunken lanes, picturesque villages and market towns. The construction of the pipeline will incur a short-term adverse effect on the environment and landscape during the construction phase as it will introduce activity to the area due to the movement of construction vehicles and workers to the area. The construction phase will require works within the Surrey Hills AONB, however, for the most part this will take place on existing roads. The effects upon landscape has been minimised by restricting the pipeline route is areas that are currently disturbed in terms of visual and tranquillity amenity that are used as infrastructure and traffic corridors or conduits, plus ensuring construction occurs during the least sensitive times of the year where possible. The basis of this was to prevent undisturbed areas of the protected landscape from being used for the route, and thus prevent disturbance and intrusion to tranquil areas of the AONB and wider landscape. The particular area through which the proposed	SESW has direct experience of pipeline construction in areas of outstanding natural beauty, and has an established approach to ensuring appropriate mitigation is put in place, to minimise adverse effects. Prior to construction, a landscape mitigation strategy will be developed and integrated into construction method statements to minimise the adverse effects of the construction phase to the protected landscape. The strategy will include details such as locating construction facilities sensitively; the location of existing and any proposed planting, the import and storage of equipment and materials, and the nature of post- construction hard and soft landscaping works. The use of best practice construction practices would minimise the impact to the landscape and as the pipelines are buried no long-term impact is expected. Further mitigation would also be guided by baseline studies at scheme level.	Low	Very High	Short-term	Temporary	--	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	pipeline route would pass is marked by development with the presence of major towns and infrastructure corridors, and so comprises a bustling section of the landscape that is already developed. In particular, the passage through the Surrey Hills AONB is via a strip of less than 1 km in width, containing urban areas, the M25 corridor, and agricultural areas. The pipeline will be constructed within existing developed area or infrastructure corridors, and not traverse areas consider comprising the valued special components of the different landscape units. New pumping stations will be constructed on existing SESW land. As such, it is expected that there will be minimal disruption to unspoilt areas of the AONB and to the recreational use of high quality landscapes. Long term there will be a negligible effect upon landscape quality and amenity.							

3.4 R13

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	Transfer pipelines will cross through the Banstead Downs SSSI and along the road that borders the Mole Gap to Reigate Escarpment SSSI and SAC. Banstead Downs SSSI comprises undulating downland with extensive areas of dense and scattered scrub, woodland and areas of open chalk grassland most of which are golf course and public open space. Habitat diversity promotes breeding and overwintering birds, and several groups of invertebrates are also present. In addition the site supports a rich chalk flora, including a number of locally rare plants. The Mole Gap to Reigate Escarpment SAC comprises scrub, heath, dry grassland and broad-leaved deciduous woodland. There are seven designated features of European interest, particularly a significant presence of great crested newts. Further to the designated sites, it should be noted that the Surrey Hills AONB's deciduous woodlands and surviving stretches of chalk grassland and unimproved heath have considerable ecological importance. The sites are not water dependant however and so the potential impact pathway on these sites would be for construction works to perturb undisturbed chalk grassland and cause damage to chalk flora and trees; plus disturbance to the presence and behaviour of local bird populations and other including great created newts. Local habitats along the route comprise patches of trees and woodland, scrub, field margins and pasture or rough grass, and the same impact pathway is applicable to these. New pumping stations and service reservoir will be located on existing SESW land. The construction of the pipeline may enable the spread of invasive species, and so best practice working will be needed to negate any spread along the long length of the new pipeline into the protected sites. The option will not cause algal blooms, or affect the ability of local species and habitats to respond to any environmental changes caused by climate	As the pipeline will follow the road that sits just outside the boundary of the Mole Gap to Reigate Escarpment SAC no significant environmental effect is expected that there will be no likely significant effects. All pipelines are expected to run along roads but Countryside and Rights of Way consent may still be required for crossing through Banstead Downs SSSI. The pipeline through the SSSI will run alongside the existing road, using the existing infrastructure/utility corridor thought the site in order to minimise the disturbance to the SSSI. As a result no significant environmental effect is expected in the long term, as no pristine chalk grassland habitat will be disrupted. Good construction practices and adherence to PPGs would minimise the impact to biodiversity such as disturbance to local habitats and species, including nesting birds, minimising trampling, the movement of materials and any dust that may arise. Further mitigation would also be guided by further baseline studies at the scheme level to determine the presence of protected species,	Low	Very High	Short-term	Temporary	--	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	change.	and opportunities for enhancements where appropriate.						
2. To maintain and where possible improve freshwater fisheries	No impact expected. No works in vicinity to surface watercourses. Long term, a transfer of water between water resource zones from areas of surplus to those of need reflects positive water resource management, minimising the potential effect on freshwater fisheries at times of low flow.	N/A	N/A	N/A	N/A	N/A	**0**	**+**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase would create temporary impacts such as noise, dust and disruption to traffic. In the long term there may be increased noise from new pumping stations.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Consultation with landowners to agree compensation and changes would need to be completed.	Medium	Low	Short-term and long-term	Temporary and permanent	**--**	**-**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The construction phase may result in short-term impacts to public footpaths	Good construction practices would reduce the impact.	Low	Low	Short-term	Temporary	**-**	**0**
5. To protect the quality of land and soils, and maintain geological diversity	No impact expected. Transfer pipelines will follow main roads. Pumping station works will be on existing SESW land.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	No impact expected. No works in vicinity to surface watercourses. Long term, a transfer of water between water resource zones from areas of surplus to those of need would be a positive adaptation to water resource management, providing water across areas in times of shortage.	N/A	N/A	N/A	N/A	N/A	**0**	**+**
7. To protect and where feasible enhance the quality of surface waters	No impact expected. No works in vicinity to surface watercourses	N/A	N/A	N/A	N/A	N/A	**0**	**0**
8. To protect and enhance groundwater quantity and quality	No impact expected. Works will not take place through any groundwater sources. New reservoir at distribution node E will be on existing SESW land.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact expected. No works in vicinity to surface watercourses.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	Compliant with the WFD 'no deterioration' objective, as the scheme involves improved network configuration and a pumping station: no new abstraction is required. The Option will not hinder the attainment of Good status.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	Large construction and therefore carbon footprint. Additional energy use from new pumping stations.	Seek low carbon construction methods. Use energy efficient equipment during operation.	Medium	medium	Short-term and long-term	Temporary and permanent	**--**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Construction of pipeline will follow existing roads but will also need to cross major road networks. Therefore there will be large impacts during construction. No operational impacts.	Good construction practices will reduce impacts. Directional drilling under major infrastructure will help reduce impacts.	Medium	Medium	Short-term	Temporary	**--**	**0**
13. To promote sustainable use of resources	Use of resources associated with large scale construction of pipeline and other infrastructure. Waste production expected to be minimal as excavated material reused in reinstatement.	Seek sustainable resources.	Medium	Medium	Short-term	Temporary	**--**	**0**
14. To maintain and enhance local air quality	The construction phase would result in dust and noise and therefore a localised impact on air quality. Potential for new pumping stations to cause noise disturbance during operation.	Good construction practices would reduce the impact.	Low	Low	Short-term and long-term	Temporary and permanent	**-**	**-**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact expected. None of these features are present for this option. Potential for excavation to impact on unknown or as yet undiscovered archaeological remains.	Majority of excavation within existing roads/made ground. Further investigation at scheme level will guide mitigation further.	Low	Low	Short-term	Temporary	**-**	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	The route passes through areas classed as having different characters: it starts in the Thames Basin Lowlands National Character Area (NCA), passes through the North Downs NCA; the Surrey Hills AONB and finishes in the Wealden Greensand NCA. Thames Basin Lowlands retain a typical English undulating farmed countryside, with small to medium fields with hedgerows although the	Prior to construction, a landscape mitigation strategy will be developed and integrated into construction method statements to minimise the adverse effects of the construction phase to the protected landscape. The strategy will include details	Low	Very High	Short-term	Temporary	**--**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	landscape has been largely lost or fragmented by urban expansion. The North Downs is a rural landscape comprising Chalk downland giving extensive views across Kent and Surrey towards the South Downs. The Wealdon Greensand is typified by its scarp/dip-slope topography, extensive belts of ancient mixed woodland, scattered small settlements linked by deep, overhanging, winding lanes with some small, irregular fields. The Surrey Hills AONB is a diverse landscape characterised by hills and valleys, traditional mixed farming, a patchwork of chalk grassland and heathland, sunken lanes, picturesque villages and market towns. The construction of the pipeline will incur a short-term adverse effect on the environment and landscape during the construction phase as it will introduce activity to the area due to the movement of construction vehicles and workers to the area. The construction phase will require works within the Surrey Hills AONB, however, for the most part this will take place on existing roads. The effects upon landscape has been minimised by restricting the pipeline route is areas that are currently disturbed in terms of visual and tranquillity amenity that are used as infrastructure and traffic corridors or conduits, plus ensuring construction occurs during the least sensitive times of the year where possible. The basis of this approach was to prevent undisturbed areas of the protected landscape from being used for the route, and thus prevent disturbance and intrusion to tranquil areas of the AONB and wider landscape. The particular area through which the proposed pipeline route would pass is marked by development with the presence of major towns and infrastructure corridors, and so comprises a bustling section of the landscape that is already developed. In particular, the passage through the Surrey Hills AONB is via a strip of less than 1 km in width, containing urban areas, the M25 corridor, and agricultural areas. The pipeline will be constructed within existing developed area or infrastructure corridors, and not traverse areas	such as locating construction facilities sensitively; the location of existing and any proposed planting, the import and storage of equipment and materials, and the nature of post-construction hard and soft landscaping works. Good construction practices and adherence would minimise the impact to the landscape and as the pipelines are buried no long-term impact is expected. Further mitigation would also be guided by baseline studies at scheme level.						

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	consider comprising the valued special components of the different landscape units. New pumping stations will be constructed on existing SESW land. As such, it is expected that there will be minimal disruption to unspoilt areas of the AONB and to the recreational use of high quality landscapes. Long term there will be a negligible effect upon landscape quality and amenity.							

3.5 R12-Reverse

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	This scheme makes use of existing infrastructure delivered through R12. It is a resilience scheme so no new abstractions. As a result, it is predicted that there will be no impacts on biodiversity.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
2. To maintain and where possible improve freshwater fisheries	This scheme makes use of existing infrastructure delivered through R12. It is a resilience scheme so no new abstractions. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
5. To protect the quality of land and soils, and maintain geological diversity	The scheme makes us of existing infrastructure so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	The scheme makes us of existing infrastructure so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
7. To protect and where feasible enhance the quality of surface waters	The scheme makes us of existing infrastructure delivered through R12 so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
8. To protect and enhance groundwater quantity and quality	The scheme makes us of existing infrastructure so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	The scheme makes us of existing infrastructure delivered through R12 so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
10. To meet WFD Objectives	This scheme makes use of existing infrastructure delivered through R12. It is a resilience scheme so no new abstractions. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	No infrastructure required. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	No infrastructure required. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
13. To promote sustainable use of resources	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
14. To maintain and enhance local air quality	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	The scheme makes use of existing infrastructure. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

3.6 R13-Reverse

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	This scheme makes use of existing infrastructure delivered through R13. It is a resilience scheme so no new abstractions. As a result, it id predicted that there will be no impacts on biodiversity.	N/A	N/A	N/A	N/A	N/A	0	0
2. To maintain and where possible improve freshwater fisheries	This scheme makes use of existing infrastructure delivered through R13. It is a resilience scheme so no new abstractions. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
5. To protect the quality of land and soils, and maintain geological diversity	The scheme makes us of existing infrastructure so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
6. To protect and where possible enhance river flows and groundwater resources	The scheme makes us of existing infrastructure so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
7. To protect and where feasible enhance the quality of surface waters	The scheme makes us of existing infrastructure delivered through R13 so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
8. To protect and enhance groundwater quantity and quality	The scheme makes us of existing infrastructure so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	The scheme makes us of existing infrastructure delivered through R13 so will not lead to the loss of or disturbance to soil. No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
10. To meet WFD Objectives	This scheme makes use of existing infrastructure delivered through R13. It is a resilience scheme so no new abstractions. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0
11. To reduce greenhouse gas emissions	No infrastructure required. No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	No infrastructure required. No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
13. To promote sustainable use of resources	No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
14. To maintain and enhance local air quality	No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact predicted.	N/A	N/A	N/A	N/A	N/A	0	0
16. To maintain and where feasible enhance landscape character and visual amenity	The scheme makes use of existing infrastructure. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0

3.7 R15

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	The new pumping station and softening plant will be on existing SESW land which currently comprises an area of amenity grass covering a sunken service reservoir, with grassed sloping edges. There are no statutory designated conservation sites in the vicinity of the scheme Transfer pipelines will follow along existing roads for the majority of the route but there is potential for localised impacts on natural areas and therefore flora and fauna; therefore there is a possibility that the construction of the pipeline may enable the spread of invasive species. Local habitats along the site comprise amenity open grassland space, patches of trees and woodland scrub, and roadside and field margins and verges. The potential impact pathway on these sites would be for construction works to perturb undisturbed areas and cause damage to plants and vegetation, and disrupt the presence and habits of nesting birds and other local wildlife including protected species. The option will not cause algal blooms, or affect the ability of local species and habitats to respond to any environmental changes caused by climate change.	Good construction practices and adherence to PPGs would minimise the impact to biodiversity such as disturbance to local habitats and species, including nesting birds, minimising trampling, the movement of materials and any dust that may arise. Detailed mitigation during construction will be guided by further baseline studies at scheme level.	Low	Medium	Short-term	Temporary	--	0
2. To maintain and where possible improve freshwater fisheries	No impact expected. No works in vicinity to surface watercourses. Long term, a transfer of water between companies from areas of surplus to those of need reflects positive water resource management, minimising the potential effect on freshwater fisheries at times of low flow.	N/A	N/A	N/A	N/A	N/A	0	+
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase would create temporary impacts such as noise, dust and disruption to traffic. In the long term there may be increased noise from new pumping station and softening plant.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Consultation with landowners to agree compensation and changes would need to be	Low	Low	Short-term and long-term	Temporary and permanent	-	-

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
		completed.						
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The construction phase may result in short-term impacts to public footpaths	Good construction practices would reduce the impact.	Low	Low	Short-term	Temporary	-	0
5. To protect the quality of land and soils, and maintain geological diversity	Pipeline will cross in close proximity (possibly within 10 m) of Turner's Hill Geological SSSI. The interest feature of the geological SSSI lies partly in its plane-cut walls and floor, as leftover from the quarry workings. This allows the ability to view the complex formation in three dimensions. As the pipeline will not cross or touch the geological SSSI, the risk of impact is expected to be minimal. The site is not water dependant, so the potential impact pathway is that of dust covering the SSSI, and mitigation can be provided in the form of suitable screening of the pipeline construction area, to present the rising and settling of dust which may obscure visibility of its interest features. The pumping station and softening plant works will be on existing SESW land, and so will not affect the SSSI.	Suitable mitigation in the form of barriers or shields to screen off the constructions works from the SSI to minimise any transfer of dust. Specific mitigation will be identified at scheme level.	Low	High	Short-term	Temporary	-	0
6. To protect and where possible enhance river flows and groundwater resources	No short-term impact expected. No works in vicinity to surface watercourses. Long term, a transfer of water between companies from areas of surplus to those of need would be a positive adaptation to water resource management, providing water across areas in times of shortage.	N/A	N/A	N/A	N/A	N/A	0	+
7. To protect and where feasible enhance the quality of surface waters	No impact expected. No works in vicinity to surface watercourses. Long term, a transfer of water between companies from areas of surplus to those of need reflects positive water resource management, minimising the potential effect on freshwater fisheries	N/A	N/A	N/A	N/A	N/A	0	0
8. To protect and enhance groundwater quantity and quality	No impact expected. Works will not take place through any groundwater sources.	N/A	N/A	N/A	N/A	N/A	0	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact expected. No works in vicinity to surface watercourses.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	This is assessed by South East Water in its WRMP.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	Significant construction and therefore carbon footprint.	Seek low carbon construction methods.	Medium	Medium	Short-term and long-term	Temporary and permanent	**--**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Major works will be required along main roads for the transfer route and could result in significant impacts on local transport routes.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts	Medium	Medium	Short-term	Temporary	**--**	**0**
13. To promote sustainable use of resources	Use of resources associated with large scale construction of pipeline and other infrastructure. Waste production expected to be minimal as excavated material reused in reinstatement.	Seek sustainable resources.	Medium	Medium	Short-term	Temporary	**--**	**0**
14. To maintain and enhance local air quality	The construction phase would result in dust and noise and therefore a localised impact on air quality. Potential for new infrastructure to cause noise disturbance.	Good construction practices would reduce the impact. Good design will help reduce operational impacts.	Low	Low	Short-term and long-term	Temporary and permanent	**-**	**-**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	No impact expected. None of these features are present for this option Potential for excavation to impact on unknown or as yet undiscovered archaeological remains.	Majority of excavation within existing roads/made ground. Further investigation at scheme level will guide mitigation further.	Low	Low	Short-term	Temporary	**-**	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	The construction phase will require works within the High Weald AONB, and through the High Weald NCA, and the Low Weald NCA. In the part of the AONB affected by the scheme, the High Weald AONB is characterized by dispersed settlements; an abundance of woods, and small, irregularly shaped fields. These landscape features	Prior to construction, a landscape mitigation strategy will be developed and integrated into construction method statements to minimise the adverse effects of the construction phase to the protected landscape. The strategy will include details such as locating construction facilities	Low	Very High	Short-term	Temporary	**--**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	continue into the section of the High Weald NCA and the Low Weald NCA through which the pipeline traverses. The impact to the AONB and other noted landscapes has been minimised by designing the scheme such that the pipeline infrastructure will be paid adjacent to existing roads and the new pumping station and softening plant will be constructed on an existing water company site, and thus avoiding the introduction of a new feature into the landscape. Much of the area is wooded which will also offset the potential impact on long views. The construction of the pipeline will incur a short-term detrimental effect on the environment and landscape during the construction phase. These effects are minimised by restricting the pipeline route to areas that are currently disturbed, in terms of visual and tranquillity amenity, and which are used as infrastructure and traffic corridors or conduits, plus ensuring construction occurs during the least sensitive times of the year where possible. The rational for this is to prevent undisturbed areas of the protected landscape from being used for the route, which would create new areas of activity and noise and cause a greater disturbance to the AONB and its users.	sensitively; the location of existing and any proposed planting, the import and storage of equipment and materials, and the nature of post- construction hard and soft landscaping works. Good construction practices and adherence to PPGs would minimise the impact to the landscape. Further mitigation would also be guided by further baseline studies.						

3.8 R16

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	At this stage the proposed route of the pipeline passes in close proximity to a number of Ancient Woodlands and the Sheepleas SSSI. It is assumed that it will follow existing infrastructure (roads and mains) where possible and not pass through any sites designated for biodiversity. The new pumping station will be in close proximity to Wey Valley Meadows SSSI. There is also the potential for impacts to local habitats and species during construction of the pipeline and pumping station. There is also no source water associated with this scheme so it will not have impacts on biodiversity as a result of reduced flow or water quality.	Pipeline should avoid designated sites, including the Ancient Woodland, and follow existing infrastructure where possible. Further more detailed ecological survey work will be required. This will help to inform the precise route of the pipeline and any specific mitigation required.	Medium	Very High	Short-term and long-term	Temporary and permanent	--	0
2. To maintain and where possible improve freshwater fisheries	No source water associated with this scheme. No impact on freshwater fisheries.	N/A	N/A	N/A	N/A	N/A	0	0
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase could create temporary impacts such as noise, dust and disruption to traffic. In the long term no change to the baseline is predicted as the pipeline will be buried.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	0
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The construction phase could create temporary impacts such as noise and dust on recreational areas. In the long term no change to the baseline is predicted as the pipeline will be buried.	Pipeline should follow existing roads wherever possible to minimise disturbance to recreational areas. Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	0
5. To protect the quality of land and soils, and maintain geological diversity	Proposed pipeline route at this stage follows existing infrastructure where possible. However, it also passes through greenfield and agricultural areas. Potential for a short-term negative effect during construction. In the long-term no negative effects are	Pipeline should follow existing infrastructure wherever possible to minimise disturbance to greenfield and agricultural land.	Low	Low	Short-term	Temporary	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	predicted as the pipeline will be buried.							
6. To protect and where possible enhance river flows and groundwater resources	No source water associated with this scheme. No impacts predicted.	N/A	Low	Low	Short-term	Temporary	-	0
7. To protect and where feasible enhance the quality of surface waters	Potential for pollution of watercourses during river crossings for the pipeline.	Good construction practice will reduce risk.	Low	Low	Short-term	Temporary	-	0
8. To protect and enhance groundwater quantity and quality	No source water associated with this scheme. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	The scheme will not be at significant risk from flooding and is unlike to reduce flood risk.	N/A	N/A	N/A	N/A	N/A	0	0
10. To meet WFD Objectives	No source water associated with this scheme. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0
11. To reduce greenhouse gas emissions	Relatively large construction (approx 16 km pipeline and pumping station) and therefore carbon footprint. The construction phase would require the importation of resources and would lead to increased emissions due to use of plant and vehicles. As a result of the construction phase, embodied carbon is high. Once in operation there would be minor impacts as a result of the pumping station.	Seek low carbon construction methods. Use energy efficient equipment during operation.	Medium	Medium	Short-term	Temporary	--	-
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Potential for construction impacts on predominantly local/ rural transport routes.	Good construction practices would help reduce impacts.	Low	Low	Short-term	Temporary	-	0
13. To promote sustainable use of resources	Use of resources associated with construction of pipeline and new pumping station. Waste production expected to be minimal as excavated material reused in reinstatement.	Seek sustainable resources.	Medium	Low	Short-term	Temporary	--	0
14. To maintain and enhance local air quality	Potential for dust and disturbance to traffic during construction. This is unlikely to be significant given that the majority of the pipeline will be delivered along rural fields and roads.	Good construction practices will help limit impacts.	Low	Low	Short-term	Temporary	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	The construction of the new pipeline and pumping station is likely to be visible from a number of listed buildings. Potential a for short-term, temporary negative effect during construction. Pipeline will be buried so it is predicted that there will be a residual neutral effect during operation once mitigation is taken into account.	Good construction practices will help limit impacts.	Low	High	Short-term	Temporary	-	0
16. To maintain and where feasible enhance landscape character and visual amenity	The majority of the pipeline falls within the Surrey Hill AONB and the new pumping station would fall just outside. The construction of the new pipeline will be visible from within the AONB and there is the potential for negative effect on the landscape and the AONB in the short-term. The pipeline will eventually be buried so will not have any impacts during operation. Screening/planting should ensure that the residual effects of the pumping station are minimised during operation.	If required, further study will be undertaken to generate detailed information about the option across a range of topics including the effects on long range views. These studies will be used to identify and inform the optimal design and the detailed mitigation measures required to minimise any potential effect. Prior to construction, a landscape mitigation strategy will be developed and integrated into construction method statements to minimise the adverse effects of the construction phase to the protected landscape. The strategy will include details such as locating construction facilities sensitively; the location of existing and any proposed planting, the import and storage of equipment and materials, and the nature of post-construction hard and soft landscaping works. Good construction practice will be employed to minimise the potential visual disturbance and impacts. The new infrastructure will be appropriately designed to help blend in with the existing landscape, and include appropriate screening to minimise any adverse effects on views and on protected landscapes.	Low	Very High	Short-term and long-term	Temporary and permanent	---	--

3.9 N a 2

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	No source water associated with this scheme and no new pipeline required. Scheme does involve the construction of a new pumping facility on the existing site at Outwood Reservoir. No designated site are likely to affected during construction or operation of the pumping station. Potential for disturbance to local habitats and species but unlikely to be of significance. There is also no source water associated with this scheme so it will not have impacts on biodiversity as a result of reduced flow or water quality.	Good construction practices will minimise impacts on biodiversity. Further more detailed ecological survey work may be required.	N/A	N/A	N/A	N/A	**0**	**0**
2. To maintain and where possible improve freshwater fisheries	No source water associated with this scheme. No impact on freshwater fisheries.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
5. To protect the quality of land and soils, and maintain geological diversity	Construction of the new pump station will be on an existing SES Water site. No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	No source water associated with this scheme. No impact on river flows.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
7. To protect and where feasible enhance the quality of surface waters	No source water associated with this scheme and construction of the new pumping station unlikely to significantly affect water quality.	Good construction practice will reduce risk.	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
8. To protect and enhance groundwater quantity and quality	No source water associated with this scheme so no impact on river flows. No impacts likely on groundwater sources.	Good construction practice will reduce risk.	N/A	N/A	N/A	N/A	**0**	**0**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impacts predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	No impacts predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	Other than construction of new pumping facility at Outwood, no additional construction works required. Additional energy use from new pumping station.	Seek low carbon construction methods. Use energy efficient equipment during operation.	Low	Low	Short-term and long-term	Temporary	**-**	**-**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Import of material would be required for the new pump station. However, there may be an opportunity to reuse materials from the old pump station. Main roads will be used and could result in minor disruption to local transport routes but this is unlikely to be of significance.	Good construction practices would help reduce impacts.	N/A	N/A	N/A	N/A	**0**	**0**
13. To promote sustainable use of resources	Import of resources would be required for infrastructure construction; however, there may be potential for reuse of materials from the old pump station building. Waste production expected to be minimal.	If possible reuse building material from the old pump station.	Low	Low	Short-term	Temporary	**-**	**0**
14. To maintain and enhance local air quality	There is an existing pump house on site so no significant impacts predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	There is a listed building approximately 200m away from the site. Given existing vegetation and trees between the listed building and site it is unlikely that there will be any impacts during construction or operation.	Screening/planting will help to reduce any impacts during operation.	Low	Medium	Short-term and long-term	Temporary and permanent	**0**	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	The construction of the new pump station will be on an existing SES Water site and does not fall within any designated landscapes. There is the potential for minor impacts on landscape during construction but these are unlikely to be of significance.	Screening/planting will help to reduce any impacts during operation.	Low	Low	Short-term	Temporary	**-**	**0**

3.10 N8

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	The route of the pipeline follows roads where possible. However, the proposed route does pass through an Ancient Woodland as well as run adjacent to a number of Ancient Woodland sites. Potential for the permanent loss of some Ancient Woodland and short-term disturbance to a number of Ancient Woodland sites during construction. There are no European sites or SSSIs that are likely to be affected by the new pipeline. Potential for disturbance to local habitats and species.	Pipeline should avoid the Ancient Woodland to the north of Duckpit Wood near to the M25. Further more detailed ecological survey work will be required. This will help to inform the precise route of the pipeline and any specific mitigation required.	Medium	Very High	Short-term and long-term	Temporary and permanent	---	--
2. To maintain and where possible improve freshwater fisheries	No source water associated with this scheme. No impact on freshwater fisheries.	N/A	N/A	N/A	N/A	N/A	0	0
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The construction phase could create temporary impacts such as noise, dust and disruption to traffic. In the long term no change to the baseline is predicted as the pipeline will be buried.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	0
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The construction phase could create temporary impacts such as noise and dust on recreational areas. In the long term no change to the baseline is predicted as the pipeline will be buried.	Pipeline should follow existing roads wherever possible to minimise disturbance to recreational areas. Good construction practices and detailed pre-works consultation would help to reduce construction impacts. Good design and latest equipment would ensure reduce noise impacts.	Low	Low	Short-term	Temporary	-	0
5. To protect the quality of land and soils, and maintain geological diversity	Proposed pipeline route at this stage follows existing roads where possible. However, it also passes through greenfield areas. Potential for a short-term negative effect during construction. In the long-term no negative effects are predicted as the pipeline will be buried.	Pipeline should follow existing roads wherever possible to minimise disturbance to greenfield and agricultural land.	Low	Low	Short-term	Temporary	-	0
6. To protect and where possible enhance river flows and groundwater resources	No source water associated with this scheme. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
7. To protect and where feasible enhance the quality of surface waters	Potential for pollution of watercourses during river crossings of the pipeline. Particularly for the River Eden.	Good construction practice will reduce risk.	Low	Low	Short-term	Temporary	-	0
8. To protect and enhance groundwater quantity and quality	No source water associated with this scheme. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	The scheme is not at risk from flooding and is unlike to reduce flood risk.	N/A	N/A	N/A	N/A	N/A	0	0
10. To meet WFD Objectives	No source water associated with this scheme. No impacts predicted.	N/A	N/A	N/A	N/A	N/A	0	0
11. To reduce greenhouse gas emissions	Relatively large construction (12 km pipeline) and therefore carbon footprint. The construction phase would require the importation of resources and would lead to increased emissions due to use of plant and vehicles. As a result of the construction phase, embodied carbon is high. Once in operation there would be minimal impacts.	Seek low carbon construction methods. Use energy efficient equipment during operation.	Medium	Medium	Short-term	Temporary	--	0
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	Potential for construction impacts on predominantly local transport routes. However, there is the potential for construction impacts to the A25 which links to the A22 and Junction 6 of the M25. It is assumed that there will be no disturbance to the M25.	Good construction practices would help reduce impacts.	Medium	Medium	Short-term	Temporary	--	0
13. To promote sustainable use of resources	Use of resources associated with construction of pipeline. Waste production expected to be minimal as excavated material reused in reinstatement.	Seek sustainable resources.	Low	Low	Short-term	Temporary	-	0
14. To maintain and enhance local air quality	The construction of the new pipeline follows existing highways infrastructure where possible. Potential for dust and disturbance to traffic during construction. This is unlikely to be significant given that the majority of the pipeline will be delivered along rural roads. However, there is the potential for construction impacts to the A25 which links to the A22 and Junction 6 of the M25. It is assumed that there will be no disturbance to the M25.	Good construction practices will help limit impacts.	Low	Low	Short-term	Temporary	-	0

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	The construction of the new pipeline is likely to be visible from a number of listed buildings, including a Grade I listed building. It also passes close to a Registered Park and Garden. Potential a for short-term, temporary negative effect during construction. Pipeline will be buried so it is predicted that there will be a residual neutral effect during operation.	Good construction practices will help limit impacts.	Low	Very High	Short-term	Temporary	--	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	New pipeline passes through the Surrey Hills AONB. Potential for impacts in the short-term during construction. Pipeline will be buried during operation so should not have any significant negative effects in the medium to long-term.	If required, further study will be undertaken to generate detailed information about the option across a range of topics including the effects on long range views. These studies will be used to identify and inform the optimal design and the detailed mitigation measures required to minimise any potential effect. Prior to construction, a landscape mitigation strategy will be developed and integrated into construction method statements to minimise the adverse effects of the construction phase to the protected landscape. The strategy will include details such as locating construction facilities sensitively; the location of existing and any proposed planting, the import and storage of equipment and materials, and the nature of post-construction hard and soft landscaping works. Good construction practice will be employed to minimise the potential visual disturbance and impacts. The new infrastructure will be appropriately designed to help blend in with the existing landscape, and include appropriate screening to minimise any adverse effects on views and on protected landscapes.	Medium	Very High	Short-term	Temporary	--	**0**

4. Demand Options

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
1. To protect and, where feasible, enhance biodiversity including designated and other important habitats and species	The demand management options could result in some short term disturbance primarily in areas where there is existing development and infrastructure. Leakage options could possibly result in some short term disturbance to habitats and species if it involves earthworks to access a leak in a pipeline and fix it. However, the location of works at this stage is not known and the impact is likely to minimal.	Good construction practices will minimise impacts on biodiversity.	Low	N/A	Short-term	Temporary	**0**	**0**
2. To maintain and where possible improve freshwater fisheries	The demand management options will help to reduce demand and therefore reduce pressure on water resources. This could have a positive effect on water levels which could have an indirect minor positive effect for fisheries in the medium and longer term.	N/A	Low	Low	Medium-term and long-term	Permanent	**0**	**+**
3. Minimise adverse impacts on communities and households especially the most vulnerable groups	The demand options have the potential to result in some disturbance to communities in the short term through the installation of meters, water efficient devices and works to fix leaks.	Good construction practices and detailed pre-works consultation would help to reduce construction impacts.	Low	Low	Short-term	Temporary	**-**	**0**
4. Protect and, where possible, enhance recreation and amenity facilities and increase access and enjoyment of the countryside	The demand options are not predicted to have a significant effect on any recreational areas or amenity facilities.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
5. To protect the quality of land and soils, and maintain geological diversity	The demand management options could result in some short term disturbance primarily in areas where there is existing development and infrastructure. It is considered unlikley that there would be any significant effects on the quality of land or soils as a result of the proposed schemes.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
6. To protect and where possible enhance river flows and groundwater resources	The demand management options will help to reduce demand and therefore reduce pressure on water resources. This could have a minor positive effect on water levels in the medium to long term.	N/A	Low	Low	Medium-term and long-term	Permanent	**0**	**+**
7. To protect and where feasible enhance the quality of surface waters	Demand management options are unlikley to have a significant effect on water quality.	N/A	N/A	N/A	N/A	N/A	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
8. To protect and enhance groundwater quantity and quality	The demand management options will help to reduce demand and therefore reduce pressure on water resources. This could have a minor positive effect on water levels in the medium to long term.	N/A	Low	Low	Medium-term and long-term	Permanent	**0**	**+**
9. To minimise the risk of flooding, and reduce flood risk where feasible to do so	No impact predicted.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
10. To meet WFD Objectives	Demand management options are unlikley to significantly impact the meeting of WFD Objectives.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
11. To reduce greenhouse gas emissions	The demand options wil require travel to properties in order to install meters and water efficient devices. In the longer term there is the potential for a carbon saving associated with the reduced water requirement.	Careful operation of schemes will help to maximise efficiencies and minimise travel.	Low	Medium	Short-term and long-term	Temporary and permanent	**-**	**+**
12. To avoid adverse effects on key transport routes, significant land use and critical infrastructure	There is the potential for some disturbance to transport routes in the short term.	Careful operation of the schemes will minimise disturbance to transport routes.	Low	Low	Short-term	Temporary	**-**	**0**
13. To promote sustainable use of resources	Minimal impacts on waste expected.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
14. To maintain and enhance local air quality	The demand options wil require travel to properties in order to install meters and water efficient devices. The potential impact on local air quality is considered to be minimal and not of significance.	N/A	N/A	N/A	N/A	N/A	**0**	**0**
15. To protect and where feasible enhance sites and features of archaeological, historical and architectural interest, and their settings	The demand management options could result in some short term disturbance to the historic environment; however, this is likley to be minimal and temporary. There is an element of uncertainty as the location of schemes is not known at this stage.	Good construction/ installation practices will minimise impacts on the landscape/ townscape. Additional mitigation may be required for any schemes that are being carried out at or in close proximity to properties that are designated for their historic importance.	Low	N/A	Short-term	Temporary	**0**	**0**
16. To maintain and where feasible enhance landscape character and visual amenity	The demand management options could result in some short term disturbance to the landscape/ townscape; however, this is likley to be minimal and temporary. There is an element of uncertainty as the location of schemes is not	Good construction/ installation practices will minimise impacts on the landscape/ townscape.	Low	N/A	Short-term	Temporary	**0**	**0**

SEA objective	Description of effect	Mitigation	Characterisation of residual effect				Significance of residual effect	
			Magnitude	Sensitivity	Timescale	Permanence	Short-term	Medium to long-term
	known at this stage.							