# Asset enhancement (KMW): Remove network constraint at Longfield (13Ml/d)

Option ID: FWKHAM

## Option Description

System simulation modelling has identified that the KMW Water Resource Zone Deployable Output appears to constrained due to a network capacity issue between Nursted and Pitfield Service Reservoirs. There is also a flow limitation between Cobham and Singlewell Service Reservoirs which restricts the movement of water from the River Medway Scheme. This scheme would undetake further network modelling to remove these network constraints to allow currently locked-in deployable output to be used to support the restricted parts of the network. The potential solutions would be to:

•Validate the network constraint through updated and further exploration and validation of the Pywr System model to determine the optimal solution

•If required, upgrade new transfer valve and/or booster (Northfleet Nurstead WBS) station Between Northfleet WSW and Nurstead Meopham WSR.

•If required, upgrade water treatment process at Longfield WSW (upgrade to Amazon FiltratIon) to allow source to produce higher output up to licence and historical limit (~7Ml/d)

•Increase capacity water main and, if reqiured, an upgraded Booster station at Singlewell or Cobham WSRs

Asset enhancement (KMW): Remove network constraint at Longfield (13Ml/d)

Option ID: FWKHAM

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **North Downs Woodlands SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H91J0: Taxus baccata woods of the British Isles | 3.9 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, scale / location of construction (at existing sites / within roads).<br><br>Operation:<br>No operational effects (network solution). |
| **Peter`s Pit SAC** | | | | |
| - S1166: Great crested newt Triturus cristatus | 6.6 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, scale / location of construction (at existing sites / within roads).<br><br>Operation:<br>No operational effects (network solution). |
| **Thames Estuary and Marshes SPA** | | | | |

| Asset enhancement (KMW): Remove network constraint at Longfield (13Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: FWKHAM | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A672: Dunlin Calidris alpina alpina | 4.4/DS | 0 | 0 | Construction: |
| - A143: Red knot Calidris canutus | | | | Site not exposed to construction effects (distance, no pollutant pathways, scale / location of construction |
| - A082: Hen harrier Circus cyaneus | | | | (at existing sites / within roads). |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | Operation: |
| - A132: Pied avocet Recurvirostra avosetta | | | | No operational effects (network solution). |
| - A137: Ringed plover Charadrius hiaticula | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - WATR: Waterbird assemblage | | | | |
| Medway Estuary and Marshes SPA | | | | |

| Asset enhancement (KMW): Remove network constraint at Longfield (13Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: FWKHAM | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A130: Eurasian oystercatcher Haematopus ostralegus | 7.1/DS | 0 | 0 | Construction: |
| - A056: Northern shoveler Anas clypeata | | | | Site not exposed to construction effects (distance, no pollutant pathways, scale / location of construction |
| - A052: Eurasian teal Anas crecca | | | | (at existing sites / within roads). |
| - A143: Red knot Calidris canutus | | | | |
| - A137: Ringed plover Charadrius hiaticula | | | | Operation: |
| - A132: Pied avocet Recurvirostra avosetta | | | | No operational effects (network solution). |
| - A082: Hen harrier Circus cyaneus | | | | |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | |
| - A001: Red-throated diver Gavia stellata | | | | |
| - A169: Ruddy turnstone Arenaria interpres | | | | |
| - A054: Northern pintail Anas acuta | | | | |
| - A164: Common greenshank Tringa nebularia | | | | |
| - A053: Mallard Anas platyrhynchos | | | | |
| - A017: Great cormorant Phalacrocorax carbo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | |
| - A050: Eurasian wigeon Anas penelope | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| - A672: Dunlin Calidris alpina alpina | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - A098: Merlin Falco columbarius | | | | |
| - A059: Common pochard Aythya ferina | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A160: Eurasian curlew Numenius arquata | | | | |
| - A005: Great crested grebe Podiceps cristatus | | | | |
| - A193: Common tern Sterna hirundo | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - WATR: Waterbird assemblage | | | | |
| - BBA: Breeding bird assemblage | | | | |
| Medway Estuary and Marshes Ramsar | | | | |

| Asset enhancement (KMW): Remove network constraint at Longfield (13Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: FWKHAM | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 7.1/DS | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, scale / location of construction (at existing sites / within roads).<br><br>Operation:<br>No operational effects (network solution). |
| Thames Estuary and Marshes Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 2.9/DS | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, scale / location of construction (at existing sites / within roads).<br><br>Operation:<br>No operational effects (network solution). |

## Bulk export (HSE): **Lower Itchen** WSW to PWC Source A (45Ml/d)

SWS_PRT_EF-TFR_REP_ALL_otterbour-gaters m p

Option Description

The scheme is a potable 90Ml/d bi-directional transfer from Test Surface Water WSW to Lower Itchen WSW. 22h/d operation assumed.

Bulk export (HSE): **Lower Itchen** WSW to PWC Source A (45Ml/d)

SWS_PRT_EF-TFR_REP_ALL_otterbour-gaters m p

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 0/DS | Y | 0 | Construction:<br>Indicative pipeline route crosses this site or nearby tributaries at several points.<br><br>Operation:<br>No pathways for operational effects (water not sourced from Itchen catchment; pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 1.6/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to use habitats affected by pipeline however. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Solent and Southampton Water SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 3.1/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Solent and Southampton Water Ramsar** | | | | |

| Bulk export (HSE): **Lower Itchen** WSW to PWC Source A (45Ml/d)<br>SWS_PRT_EF-TFR_REP_ALL_otterbour-gaters m p | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3.1/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 5.2/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site, although effects likely to be negligible based on distance downstream and likely attenuation. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Emer Bog SAC | | | | |
| - H7140: Transition mires and quaking bogs | 6 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Bulk export (SHZ): Rye to SEW RZ8

Option ID: brede-kingsn p 10

Option Description

A new bi-directional Transfer between SEW RZ8 and Southern Water Brede WSW with a capacity of 10Ml/d.

Bulk export (SHZ): Rye to SEW RZ8

Option ID: brede-kingsn p 10

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Wye and Crundale Downs SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 9.6 | 0 | 0 | Construction:<br>No effect pathways (distance, no pollutant pathways, feature characteristics)<br><br>Operation:<br>No effect pathways (network solution) |
| **Dungeness SAC** | | | | |
| - H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- S1166: Great crested newt Triturus cristatus | 2.6/DS | U* | 0 | Construction:<br>Some site units are downstream from construction areas; effects avoidable with established measures; mobile species of site not exposed (distance, location within site).<br><br>Operation:<br>No effect pathways (network solution) |
| **Hastings Cliffs SAC** | | | | |
| - H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts | 5.9 | 0 | 0 | Construction:<br>No effect pathways (distance, no pollutant pathways, feature characteristics)<br><br>Operation:<br>No effect pathways (network solution) |
| **Dungeness, Romney Marsh and Rye Bay SPA** | | | | |

| Bulk export (SHZ): Rye to SEW RZ8 | | | | |
|---|---|---|---|---|
| Option ID: brede-kingsn p 10 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A056: Northern shoveler Anas clypeata | 2/DS | U* | 0 | Construction: |
| - A082: Hen harrier Circus cyaneus | | | | Some site units are downstream from construction areas; effects avoidable with established measures; |
| - A151: Ruff Philomachus pugnax | | | | mobile features might potentially use habitats temporarily affected by construction, but effects avoidable |
| - A176: Mediterranean gull Larus melanocephalus | | | | with established measures. |
| - A191: Sandwich tern Sterna sandvicensis | | | | |
| - A193: Common tern Sterna hirundo | | | | Operation: |
| - A195: Little tern Sterna albifrons | | | | No effect pathways (network solution) |
| - A294: Aquatic warbler Acrocephalus paludicola | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii | | | | |
| - A021: Great bittern Botaurus stellaris | | | | |
| - A140: European golden plover Pluvialis apricaria | | | | |
| - A081: Eurasian marsh harrier Circus aeruginosus | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - WATR: Waterbird assemblage | | | | |
| Dungeness, Romney Marsh and Rye Bay Ramsar | | | | |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types | 2/DS | U* | 0 | Construction: |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | | | | Some site units are downstream from construction areas; effects avoidable with established measures; mobile features might potentially use habitats temporarily affected by construction, but effects avoidable with established measures. |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | | | | Operation: No effect pathways (network solution) |

## Bulk import (HSE): Havant Thicket Reservoir to **Lower Itchen** WSW (90Ml/d)

SWS_HSE_HI-ROC_WT1_ALL_cpy_ott_exis

**Option Description**

A new raw water transfer (Pumping Station, Pipeline & Break Pressure tank) between Havant Thicket Reservoir and Lower Itchen WSW. The capacity of the first section is for 90Ml/d to the mid point and a possible connection to Portsmouth Water.

Bulk import (HSE): Havant Thicket Reservoir to **Lower Itchen** WSW (90Ml/d)

SWS_HSE_HI-ROC_WT1_ALL_cpy_ott_exis

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 0.3/DS | U* | 0 | Construction:<br>Construction for this option would be required at the existing Lower Itchen operational works; the Itchen runs close to the site and is a downstream receptor for site-derived pollutants; mobile features may be vulnerable to noise / vibration associated with construction. Significant and/or significant adverse effects certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance, effects restricted to Lower Itchen operational site). |
| **Emer Bog SAC** | | | | |
| - H7140: Transition mires and quaking bogs | 6.8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance, effects restricted to Lower Itchen operational site). |
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 8.4/DS | U* | 0 | Construction:<br>Construction for this option would be required at the existing Lower Itchen operational works; this site is a downstream receptor for site-derived pollutants, although the distance is likely to ensure that any effects are attenuated irrespective of mitigtaion. The mobile features of the site will not be reliant on habitats directly affected by construction. Significant and/or significant adverse effects certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance, effects restricted to Lower Itchen operational site). |
| **Solent and Southampton Water SPA** | | | | |

| Bulk import (HSE): Havant Thicket Reservoir to **Lower Itchen** WSW (90Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HSE_HI-ROC_WT1_ALL_cpy_ott_exis | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 10.6/DS | U* | 0 | Construction:<br>Construction for this option would be required at the existing Lower Itchen operational works; this site is a downstream receptor for site-derived pollutants, although the distance is likely to ensure that any effects are attenuated irrespective of mitigtaion. The mobile features of the site will not be reliant on habitats directly affected by construction. Significant and/or significant adverse effects certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance, effects restricted to Lower Itchen operational site). |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 10.6/DS | U* | 0 | Construction:<br>Construction for this option would be required at the existing Lower Itchen operational works; this site is a downstream receptor for site-derived pollutants, although the distance is likely to ensure that any effects are attenuated irrespective of mitigtaion. The mobile features of the site will not be reliant on habitats directly affected by construction. Significant and/or significant adverse effects certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance, effects restricted to Lower Itchen operational site). |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 11.9/DS | 0 | 0 | Construction:<br>Construction for this option would be required at the existing Lower Itchen operational works; this site is a downstream receptor for site-derived pollutants, although the distance downstream (and throught the estuary) will ensure that any effects are attenuated irrespective of mitigtaion.<br><br>Operation:<br>No pathways for operational effects (distance, effects restricted to Lower Itchen operational site). |

## Bulk import (HSE): PWC Source A to **Lower Itchen** WSW (21Ml/d)

SWS_HSE_HI-TFR_PRT_ALL_pwc2

Option Description

A new additional potable water transfer of 21Ml/d capacity using a new pipeline from Portsmouth Water Source A to Lower Itchen . This scheme is dependent on development of Havant Thicket reservoir to provide the

Bulk import (HSE): PWC Source A to **Lower Itchen** WSW (21Ml/d)

SWS_HSE_HI-TFR_PRT_ALL_pwc2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 0/DS | Y | 0 | Construction:<br>Indicative pipeline route crosses this site or nearby tributaries at several points.<br><br>Operation:<br>No pathways for operational effects (water sourced from Havant Thicket; pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 1.5/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (water sourced from Havant Thicket; pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| **Solent and Southampton Water SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 3/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (water sourced from Havant Thicket; pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |

| Bulk import (HSE): PWC Source A to **Lower Itchen** WSW (21Ml/d)<br>SWS_HSE_HI-TFR_PRT_ALL_pwc2 | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (water sourced from Havant Thicket; pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 5.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (water sourced from Havant Thicket; pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| Emer Bog SAC | | | | |
| - H7140: Transition mires and quaking bogs | 6.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from Havant Thicket). |
| The New Forest SAC | | | | |

| Bulk import (HSE): PWC Source A to **Lower Itchen** WSW (21Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HSE_HI-TFR_PRT_ALL_pwc2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H3110: Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)<br>- H3130: Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea<br>- H4010: Northern Atlantic wet heaths with Erica tetralix<br>- H4030: European dry heaths<br>- H6410: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)<br>- H7140: Transition mires and quaking bogs<br>- H7150: Depressions on peat substrates of the Rhynchosporion<br>- H7230: Alkaline fens<br>- H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9190: Old acidophilous oak woods with Quercus robur on sandy plains<br>- H91D0: Bog woodland<br>- H91E0: Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)<br>- S1166: Great crested newt Triturus cristatus<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1083: Stag beetle Lucanus cervus | 10 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment, no risk of functional land for mobile species being affected).<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from Havant Thicket). |

# Bulk import (KTZ): SEW Canterbury to Near Canterbury (20Ml/d)

SWS_KTZ_HI-TFR_RZ8_ALL_canterb-wingha p 20

**Option Description**

Bi-directional transfer between South East Water RZ8 and Kent Thanet WRZ in the vicinity of Southern Water's Canterbury WS. Indirectly supplied from Broad Oak Reservoir. Maximum capacity of 20Ml/d.

Bulk import (KTZ): SEW Canterbury to Near Canterbury (20Ml/d)

SWS_KTZ_HI-TFR_RZ8_ALL_canterb-wingha p 20

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Stodmarsh Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 0.4/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 0.4/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh SPA** | | | | |

| Bulk import (KTZ): SEW Canterbury to Near Canterbury (20Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KTZ_HI-TFR_RZ8_ALL_canterb-wingha p 20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A050: Eurasian wigeon Anas penelope<br>- A056: Northern shoveler Anas clypeata<br>- A394: Greater white-fronted goose Anser albifrons albifrons<br>- A153: Common snipe Gallinago gallinago<br>- A142: Northern lapwing Vanellus vanellus<br>- A082: Hen harrier Circus cyaneus<br>- A021: Great bittern Botaurus stellaris<br>- A051: Gadwall Anas strepera<br>- A059: Common pochard Aythya ferina<br>- A053: Mallard Anas platyrhynchos<br>- A051: Gadwall Anas strepera<br>- A118: Water rail Rallus aquaticus<br>- A061: Tufted duck Aythya fuligula<br>- BBA: Breeding bird assemblage<br>- A048: Common shelduck Tadorna tadorna | 0.5/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Blean Complex SAC | | | | |
| - H9160: Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 2.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only; not a downstream receptor). |
| Thanet Coast and Sandwich Bay Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 5.6/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Thanet Coast and Sandwich Bay SPA | | | | |

| Bulk import (KTZ): SEW Canterbury to Near Canterbury (20Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KTZ_HI-TFR_RZ8_ALL_canterb-wingha p 20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A169: Ruddy turnstone Arenaria interpres<br>- A140: European golden plover Pluvialis apricaria<br>- A195: Little tern Sterna albifrons | 5.6/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Tankerton Slopes and Swalecliffe SAC | | | | |
| - S4035: Fisher's estuarine moth Gortyna borelii lunata | 5.8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor; mobile features have specialised foodplant requirements and will not be functionally associated with habitats affected by option construction).<br><br>Operation: |
| Outer Thames Estuary SPA | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 6.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor; mobile features will not be functionally associated with habitats affected by option construction).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only; not a downstream receptor). |
| The Swale SPA | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A130: Eurasian oystercatcher Haematopus ostralegus<br>- A052: Eurasian teal Anas crecca<br>- A672: Dunlin Calidris alpina alpina<br>- A160: Eurasian curlew Numenius arquata<br>- A051: Gadwall Anas strepera<br>- A141: Grey plover Pluvialis squatarola<br>- A162: Common redshank Tringa totanus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- WATR: Waterbird assemblage<br>- BBA: Breeding bird assemblage<br>- A616: Black-tailed godwit Limosa limosa islandica | 7.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor; mobile features will not be functionally associated with habitats affected by option construction).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only; not a downstream receptor). |

| Bulk import (KTZ): SEW Canterbury to Near Canterbury (20Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KTZ_HI-TFR_RZ8_ALL_canterb-wingha p 20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| The Swale Ramsar | | | | |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 7.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor; mobile features will not be functionally associated with habitats affected by option construction).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only; not a downstream receptor). |
| Margate and Long Sands SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | 8.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor)).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only; not a downstream receptor). |
| Lydden and Temple Ewell Downs SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 9.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| Sandwich Bay SAC | | | | |
| - H2110: Embryonic shifting dunes<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- H2130: Fixed coastal dunes with herbaceous vegetation ("grey dunes")<br>- H2170: Dunes with Salix repens ssp. argentea (Salicion arenariae)<br>- H2190: Humid dune slacks | 9.7/DS | 0 | 0 | Construction:<br>Indicative pipeline route crosses tributaries of the Great Stour, which runs adjacent to this site, although the site and features (dune systems) will not be exposed to environmental changes in this watercourse as a result of construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Bulk import (KTZ): SEW Kingston to Near Canterbury (2Ml/d)

SWS_KTZ_EF-TFR_REP_ALL_win_res

Option Description

A 2Ml/d import from SEW Kingston SWS to SWS Canterbury WSW.

Bulk import (KTZ): SEW Kingston to Near Canterbury (2Ml/d)

SWS_KTZ_EF-TFR_REP_ALL_win_res

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Stodmarsh SPA** | | | | |
| - A050: Eurasian wigeon Anas penelope<br>- A056: Northern shoveler Anas clypeata<br>- A394: Greater white-fronted goose Anser albifrons albifrons<br>- A153: Common snipe Gallinago gallinago<br>- A142: Northern lapwing Vanellus vanellus<br>- A082: Hen harrier Circus cyaneus<br>- A021: Great bittern Botaurus stellaris<br>- A051: Gadwall Anas strepera<br>- A059: Common pochard Aythya ferina<br>- A053: Mallard Anas platyrhynchos<br>- A051: Gadwall Anas strepera<br>- A118: Water rail Rallus aquaticus<br>- A061: Tufted duck Aythya fuligula<br>- BBA: Breeding bird assemblage<br>- A048: Common shelduck Tadorna tadorna | 5.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (network solution only). |
| **Stodmarsh SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 5.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (network solution only). |
| **Stodmarsh Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 5.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (network solution only). |
| **Parkgate Down SAC** | | | | |

| Bulk import (KTZ): SEW Kingston to Near Canterbury (2Ml/d)<br>SWS_KTZ_EF-TFR_REP_ALL_win_res | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 6 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| Lydden and Temple Ewell Downs SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 6.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| Thanet Coast and Sandwich Bay Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 7.6/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Sandwich Bay SAC | | | | |
| - H2110: Embryonic shifting dunes<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- H2130: Fixed coastal dunes with herbaceous vegetation ("grey dunes")<br>- H2170: Dunes with Salix repens ssp. argentea (Salicion arenariae)<br>- H2190: Humid dune slacks | 9.5/DS | 0 | 0 | Construction:<br>Indicative pipeline route crosses tributaries of the Great Stour, which runs adjacent to this site, although the site and features (dune systems) will not be exposed to environmental changes in this watercourse as a result of construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Blean Complex SAC | | | | |
| - H9160: Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 9.8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only; not a downstream receptor). |
| Thanet Coast and Sandwich Bay SPA | | | | |

| Bulk import (KTZ): SEW Kingston to Near Canterbury (2Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KTZ_EF-TFR_REP_ALL_win_res | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A169: Ruddy turnstone Arenaria interpres<br>- A140: European golden plover Pluvialis apricaria<br>- A195: Little tern Sterna albifrons | 9.9/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Bulk import (SBZ): SEW to Rottingdean (20Ml/d)

SWS_SBZ_EF-TFR_REP_ALL_bar_balres

## Option Description

This option is for a pipeline to transfer flow from SEW Barcombe WSW to Rottingdean (20Ml/d)

## Bulk import (SBZ): SEW to Rottingdean (20Ml/d)

SWS_SBZ_EF-TFR_REP_ALL_bar_balres

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Castle Hill SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| **Lewes Down SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |

# Bulk import (SNZ): Havant Thicket Reservoir to Pulborough (50Ml/d)

SWS_SNZ_HI-ROC_WT1_ALL_hardham wt exis

**Option Description**

This is a pipeline to represent reverse flow from Havant Thicket Reservoir to Pulborough through a bidirectional raw water transfer from Pulborough to Havant Thicket. INNS treatment will be provided at Hardham.

Bulk import (SNZ): Havant Thicket Reservoir to Pulborough (50Ml/d)

SWS_SNZ_HI-ROC_WT1_ALL_hardham wt exis

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Duncton to Bignor Escarpment SAC** | | | | |
| - H9130: Asperulo-Fagetum beech forests | 0 | U* | 0 | Construction:<br>Indicative pipeline route is within 50m of this site (note, 0km distance is rounding artefact); significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance, network scheme only). |
| **Kingley Vale SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H91J0: Taxus baccata woods of the British Isles | 0.1 | U* | 0 | Construction:<br>Indicative pipeline route is within 150m of this site; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance, network scheme only). |
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 1.1/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site, plus works required at Hardham. Site features unlikely to utilise habitats affected by pipeline construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Arun Valley SPA** | | | | |

| Bulk import (SNZ): Havant Thicket Reservoir to Pulborough (50Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-ROC_WT1_ALL_hardham wt exis | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 1.1/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site, plus works required at Hardham. Site features unlikely to utilise habitats affected by pipeline construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Arun Valley SAC | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 1.3/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site, plus works required at Hardham. Site features will have a low exposure due to location in site. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 3.3/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Chichester and Langstone Harbours Ramsar | | | | |

| Bulk import (SNZ): Havant Thicket Reservoir to Pulborough (50Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-ROC_WT1_ALL_hardham wt exis | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3.3/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Chichester and Langstone Harbours SPA | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A162: Common redshank Tringa totanus<br>- A169: Ruddy turnstone Arenaria interpres<br>- A193: Common tern Sterna hirundo<br>- A137: Ringed plover Charadrius hiaticula<br>- A050: Eurasian wigeon Anas penelope<br>- A056: Northern shoveler Anas clypeata<br>- A054: Northern pintail Anas acuta<br>- A157: Bar-tailed godwit Limosa lapponica<br>- A052: Eurasian teal Anas crecca<br>- A144: Sanderling Calidris alba<br>- A141: Grey plover Pluvialis squatarola<br>- A069: Red-breasted merganser Mergus serrator<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A160: Eurasian curlew Numenius arquata<br>- A195: Little tern Sterna albifrons<br>- A672: Dunlin Calidris alpina alpina<br>- A048: Common shelduck Tadorna tadorna<br>- WATR: Waterbird assemblage | 3.3/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| The Mens SAC | | | | |

| Bulk import (SNZ): Havant Thicket Reservoir to Pulborough (50Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-ROC_WT1_ALL_hardham wt exis | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus | 3.9 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline partly within Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (up-catchment site; not water resource dependent). |
| Singleton and Cocking Tunnels SAC | | | | |
| - S1323: Bechstein`s bat Myotis bechsteini<br>- S1308: Barbastelle Barbastella barbastellus | 4.5 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline partly within or close to the Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (up-catchment site; not water resource dependent). |
| Solent and Isle of Wight Lagoons SAC | | | | |
| - H1150: Coastal lagoons | 7.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent and Dorset Coast SPA | | | | |

| Bulk import (SNZ): Havant Thicket Reservoir to Pulborough (50Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-ROC_WT1_ALL_hardham wt exis | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 7.9/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise habitats affected by pipeline construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Rook Clift SAC | | | | |
| - H9180: Tilio-Acerion forests of slopes, screes and ravines | 8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| Butser Hill SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Taxus baccata woods of the British Isles | 8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| Portsmouth Harbour Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity | 8.8 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separtae catchment); mobile features of site will not be functionally associated with the habitats affected by pipeline construction.<br><br>Operation:<br>No effect pathways (network scheme). |
| Portsmouth Harbour SPA | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A069: Red-breasted merganser Mergus serrator<br>- A675: Dark-bellied brent goose Branta bernicla bernicla | 8.8 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separtae catchment); mobile features of site will not be functionally associated with the habitats affected by pipeline construction.<br><br>Operation:<br>No effect pathways (network scheme). |

| Bulk import (SNZ): Havant Thicket Reservoir to Pulborough (50Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-ROC_WT1_ALL_hardham wt exis | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Ebernoe Common SAC | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus<br>- S1323: Bechstein`s bat Myotis bechsteini | 9 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment site); pipeline substantially beyond the Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and potentially signficant effects on habitats functionally critical to the feature populations are very unlikely.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Pagham Harbour SPA | | | | |
| - A151: Ruff Philomachus pugnax<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo | 9.4 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separtae catchment); mobile features of site will not be functionally associated with the habitats affected by pipeline construction.<br><br>Operation:<br>No effect pathways (network scheme). |
| Pagham Harbour Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 9.4 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separtae catchment); mobile features of site will not be functionally associated with the habitats affected by pipeline construction.<br><br>Operation:<br>No effect pathways (network scheme). |

# Bulk import (SNZ): SES to SNZ (10Ml/d)

SWS_SNZ_HI-TFR_SES_ALL_outwood-turner p 10

**Option Description**

Proposed new bi-directional transfer from SES Outwood To SWS Buchen Hill, Crawley. 10Ml/d transfer flow rate.

**Bulk import (SNZ): SES to SNZ (10Ml/d)**

SWS_SNZ_HI-TFR_SES_ALL_outwood-turner p 10

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Ashdown Forest SPA** | | | | |
| - A224: European nightjar Caprimulgus europaeus<br>- A302: Dartford warbler Sylvia undata | 6.8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment, no risk of functional land for mobile species being affected).<br><br>Operation:<br>No pathways for operational effects (distance; network scheme only). |
| **Ashdown Forest SAC** | | | | |
| - H4010: Northern Atlantic wet heaths with Erica tetralix<br>- H4030: European dry heaths<br>- S1166: Great crested newt Triturus cristatus | 6.8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment, no risk of functional land for mobile species being affected).<br><br>Operation:<br>No pathways for operational effects (distance; network scheme only). |
| **Mole Gap to Reigate Escarpment SAC** | | | | |
| - H4030: European dry heaths<br>- H5110: Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)<br>- H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H91J0: Taxus baccata woods of the British Isles<br>- S1166: Great crested newt Triturus cristatus<br>- S1323: Bechstein`s bat Myotis bechsteini | 9.6 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment site); pipeline substantially beyond the Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and potentially signficant effects on habitats functionally critical to the feature populations are very unlikely.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Thames Estuary and Marshes SPA** | | | | |

| Bulk import (SNZ): SES to SNZ (10Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-TFR_SES_ALL_outwood-turner p 10 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | DS/DS | 0 | 0 | Construction:<br>Site is ultimate downstream receptor but distance (>100km via the River Mole) hence attenuation ensures that construction-related environmental changes (e.g. from site-derived pollutants) will be unmeasurable at the site boundary.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Thames Estuary and Marshes Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | DS/DS | 0 | 0 | Construction:<br>Site is ultimate downstream receptor but distance (>100km via the River Mole) hence attenuation ensures that construction-related environmental changes (e.g. from site-derived pollutants) will be unmeasurable at the site boundary.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Bulk import (SNZ): SEW RZ5 to Pulborough

SWS_SNZ TFR_RZ5_ALL_tilmore-hardha p 10

**Option Description**

A transfer between Tilmore and Hardham (possible gravity transfer from Tilmore to Hardham).

**Bulk import (SNZ): SEW RZ5 to Pulborough**

SWS_SNZ TFR_RZ5_ALL_tilmore-hardha p 10

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 1.6/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Arun Valley SAC** | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 1.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features unlikely to utilise functional habitats outside the site boundary however. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Arun Valley SPA** | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 1.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **East Hampshire Hangers SAC** | | | | |

| Bulk import (SNZ): SEW RZ5 to Pulborough | | | | |
|---|---|---|---|---|
| SWS_SNZ TFR_RZ5_ALL_tilmore-hardha p 10 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9180: Tilio-Acerion forests of slopes, screes and ravines<br>- H91J0: Taxus baccata woods of the British Isles<br>- S1654: Early gentian Gentianella anglica | 2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution only). |
| Duncton to Bignor Escarpment SAC | | | | |
| - H9130: Asperulo-Fagetum beech forests | 3.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance, network scheme only). |
| The Mens SAC | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus | 3.6 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline partly within Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (up-catchment site; not water resource dependent; network |
| Butser Hill SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H91J0: Taxus baccata woods of the British Isles | 4.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| Wealden Heaths Phase 2 SPA | | | | |

| Bulk import (SNZ): SEW RZ5 to Pulborough | | | | |
|---|---|---|---|---|
| SWS_SNZ TFR_RZ5_ALL_tilmore-hardha p 10 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A302: Dartford warbler Sylvia undata<br>- A224: European nightjar Caprimulgus europaeus<br>- A246: Wood lark Lullula arborea | 4.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment, no risk of functional land for mobile species being affected).<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from Havant Thicket). |
| Rook Clift SAC | | | | |
| - H9180: Tilio-Acerion forests of slopes, screes and ravines | 5.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| Ebernoe Common SAC | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus<br>- S1323: Bechstein`s bat Myotis bechsteini | 5.1 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline partly within Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (up-catchment site; not water resource dependent; network |
| Singleton and Cocking Tunnels SAC | | | | |
| - S1323: Bechstein`s bat Myotis bechsteini<br>- S1308: Barbastelle Barbastella barbastellus | 5.6 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline partly within Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (up-catchment site; not water resource dependent; network |

| Bulk import (SNZ): SEW RZ5 to Pulborough | | | | |
|---|---|---|---|---|
| SWS_SNZ TFR_RZ5_ALL_tilmore-hardha p 10 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Woolmer Forest SAC | | | | |
| - H3160: Natural dystrophic lakes and ponds<br>- H4010: Northern Atlantic wet heaths with Erica tetralix<br>- H4030: European dry heaths<br>- H7140: Transition mires and quaking bogs<br>- H7150: Depressions on peat substrates of the Rhynchosporion | 7.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Kingley Vale SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H91J0: Taxus baccata woods of the British Isles | 9.7 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |

# Desalination (KME): Isle of Sheppey (10Ml/d) phase 2

SWS_KME_HI-DES_ALL_ALL_ios10_p2

## Option Description

The Isle of Sheppy Desalination options comprise a suite of modular options that represent different sizes of desalination plant that could be developed in one or more phases.

This particular option proposes a second phase developing an additional 10Ml/d desalination capacity and is contingent on the 10Ml/d or 20Ml/d first phase options i.e. IoS10 or IoS20.

## Desalination (KME): Isle of Sheppey (10Ml/d) phase 2

SWS_KME_HI-DES_ALL_ALL_ios10_p2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **The Swale SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A130: Eurasian oystercatcher Haematopus ostralegus<br>- A052: Eurasian teal Anas crecca<br>- A672: Dunlin Calidris alpina alpina<br>- A160: Eurasian curlew Numenius arquata<br>- A051: Gadwall Anas strepera<br>- A141: Grey plover Pluvialis squatarola<br>- A162: Common redshank Tringa totanus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- WATR: Waterbird assemblage<br>- BBA: Breeding bird assemblage<br>- A616: Black-tailed godwit Limosa limosa islandica | 0 | U* | U | Construction:<br>Pipeline to Southdown WSR would cross this site, but would already have been constructed under SW022. Potential risk of disturbance effects associated construction at the desalination plant location, although avoidable with established measures.<br><br>Operation:<br>Operation will discharge hypersaline brine in the Medway estuary, although the exposure of the site itself to this is likely to be low; effects are possible for species utilising the Medway however. |
| **Medway Estuary and Marshes SPA** | | | | |

| Desalination (KME): Isle of Sheppey (10Ml/d) phase 2 | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios10_p2 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A130: Eurasian oystercatcher Haematopus ostralegus | 0/DS | U | Y | Construction: |
| - A056: Northern shoveler Anas clypeata | | | | The intake / outfall and pipeline to Southdown WSR will have been constructed under SW022 and so |
| - A052: Eurasian teal Anas crecca | | | | effects would be limited to construction effects (including disturbance effects) associated construction at |
| - A143: Red knot Calidris canutus | | | | the desalination plant location, although these are likely to be avoidable with established measures |
| - A137: Ringed plover Charadrius hiaticula | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | Operation: |
| - A082: Hen harrier Circus cyaneus | | | | Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | |
| - A001: Red-throated diver Gavia stellata | | | | |
| - A169: Ruddy turnstone Arenaria interpres | | | | |
| - A054: Northern pintail Anas acuta | | | | |
| - A164: Common greenshank Tringa nebularia | | | | |
| - A053: Mallard Anas platyrhynchos | | | | |
| - A017: Great cormorant Phalacrocorax carbo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | |
| - A050: Eurasian wigeon Anas penelope | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| - A672: Dunlin Calidris alpina alpina | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - A098: Merlin Falco columbarius | | | | |
| - A059: Common pochard Aythya ferina | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A160: Eurasian curlew Numenius arquata | | | | |
| - A005: Great crested grebe Podiceps cristatus | | | | |
| - A193: Common tern Sterna hirundo | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - WATR: Waterbird assemblage | | | | |
| - BBA: Breeding bird assemblage | | | | |
| Medway Estuary and Marshes Ramsar | | | | |

| Desalination (KME): Isle of Sheppey (10Ml/d) phase 2 | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios10_p2 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 0/DS | U | Y | Construction:<br>The intake / outfall and pipeline to Southdown WSR will have been constructed under SW022 and so effects would be limited to construction effects (including disturbance effects) associated construction at the desalination plant location, although these are likely to be avoidable with established measures<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| The Swale Ramsar | | | | |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 0 | U* | U | Construction:<br>Pipeline to Southdown WSR would cross this site, but would already have been constructed under SW022. Potential risk of disturbance effects associated construction at the desalination plant location, although avoidable with established measures.<br><br>Operation:<br>Operation will discharge hypersaline brine in the Medway estuary, although the exposure of the site itself to this is likely to be low; effects are possible for species utilising the Medway however. |
| Thames Estuary and Marshes Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 1.8 | U* | U | Construction:<br>The intake / outfall will have been constructed under SW022 and so effects would be limited to construction effects (including disturbance effects) associated construction at the desalination plant location, although these are likely to be avoidable with established measures<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| Thames Estuary and Marshes SPA | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 1.9 | U* | U | Construction:<br>The intake / outfall will have been constructed under SW022 and so effects would be limited to construction effects (including disturbance effects) associated construction at the desalination plant location, although these are likely to be avoidable with established measures<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |

| Desalination (KME): Isle of Sheppey (10Ml/d) phase 2 | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios10_p2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Outer Thames Estuary SPA | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 2.5 | U* | U | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are arguably unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres), plus the proportion of the site potentially affected would be very small; however, additional investigation relating to the plume is appropriate. |
| Queendown Warren SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 4.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |
| North Downs Woodlands SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9130: Taxus baccata woods of the British Isles | 7.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |
| Benfleet and Southend Marshes SPA | | | | |

| Desalination (KME): Isle of Sheppey (10Ml/d) phase 2 | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios10_p2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A143: Red knot Calidris canutus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A141: Grey plover Pluvialis squatarola<br>- A672: Dunlin Calidris alpina alpina<br>- A137: Ringed plover Charadrius hiaticula<br>- WATR: Waterbird assemblage | 8.5 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Benfleet and Southend Marshes Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 8.5 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Essex Estuaries SAC | | | | |

| Desalination (KME): Isle of Sheppey (10Ml/d) phase 2 | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios10_p2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H1420: Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi) | 8.6 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Foulness (Mid-Essex Coast Phase 5) Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity | 8.8 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Foulness (Mid-Essex Coast Phase 5) SPA | | | | |

| Desalination (KME): Isle of Sheppey (10Ml/d) phase 2 | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios10_p2 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A130: Eurasian oystercatcher Haematopus ostralegus | 8.8 | U* | 0 | Construction: |
| - A193: Common tern Sterna hirundo | | | | The site itself will not be exposed / affected by environmental changes associated with construction |
| - A195: Little tern Sterna albifrons | | | | (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may |
| - A162: Common redshank Tringa totanus | | | | be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be |
| - A157: Bar-tailed godwit Limosa lapponica | | | | avoided with established measures. |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - A191: Sandwich tern Sterna sandvicensis | | | | Operation: |
| - A132: Pied avocet Recurvirostra avosetta | | | | Operational effects are unlikely due to designated site location relative to assumed location of intake / |
| - A137: Ringed plover Charadrius hiaticula | | | | discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution |
| - A143: Red knot Calidris canutus | | | | of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres |
| - A141: Grey plover Pluvialis squatarola | | | | rather than kilometres). |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A082: Hen harrier Circus cyaneus | | | | |
| - WATR: Waterbird assemblage | | | | |

# Desalination (KME): Isle of Sheppey 20Ml/d

SWS_KME_HI-DES_ALL_ALL_ios20

## Option Description

The Isle of Sheppey Desalination options comprise a suite of modular options that represent different sizes of desalination plant that could be developed in one or more phases.

This particular option proposes a first phase, developing a 20Ml/d desalination capacity.

## Desalination (KME): Isle of Sheppey 20Ml/d

SWS_KME_HI-DES_ALL_ALL_ios20

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **The Swale SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A130: Eurasian oystercatcher Haematopus ostralegus<br>- A052: Eurasian teal Anas crecca<br>- A672: Dunlin Calidris alpina alpina<br>- A160: Eurasian curlew Numenius arquata<br>- A051: Gadwall Anas strepera<br>- A141: Grey plover Pluvialis squatarola<br>- A162: Common redshank Tringa totanus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- WATR: Waterbird assemblage<br>- BBA: Breeding bird assemblage<br>- A616: Black-tailed godwit Limosa limosa islandica | 0/DS | Y | U | Construction:<br>Pipeline to Southdown WSR would cross this site; this will almost certainly follow existing roads in this area although disturbance effects are possible.<br><br>Operation:<br>Operation will discharge hypersaline brine in the Medway estuary, although the exposure of the site itself to this is likely to be low; effects are possible for species utilising the Medway however. |
| **Medway Estuary and Marshes SPA** | | | | |

| Desalination (KME): Isle of Sheppey 20Ml/d | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios20 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A130: Eurasian oystercatcher Haematopus ostralegus | 0/DS | Y | Y | Construction: |
| - A056: Northern shoveler Anas clypeata | | | | Intake / outfall will be located just outsdie this site, so effects on site habitats possible depending on |
| - A052: Eurasian teal Anas crecca | | | | construction approach; mobile features will be vulnerable to disturbance etc. Pipeline to Southdown |
| - A143: Red knot Calidris canutus | | | | WSR would cross this site; this will almost certainly follow existing roads in this area although |
| - A137: Ringed plover Charadrius hiaticula | | | | disturbance effects are possible. |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A082: Hen harrier Circus cyaneus | | | | Operation: |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| - A001: Red-throated diver Gavia stellata | | | | |
| - A169: Ruddy turnstone Arenaria interpres | | | | |
| - A054: Northern pintail Anas acuta | | | | |
| - A164: Common greenshank Tringa nebularia | | | | |
| - A053: Mallard Anas platyrhynchos | | | | |
| - A017: Great cormorant Phalacrocorax carbo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | |
| - A050: Eurasian wigeon Anas penelope | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| - A672: Dunlin Calidris alpina alpina | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - A098: Merlin Falco columbarius | | | | |
| - A059: Common pochard Aythya ferina | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A160: Eurasian curlew Numenius arquata | | | | |
| - A005: Great crested grebe Podiceps cristatus | | | | |
| - A193: Common tern Sterna hirundo | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - WATR: Waterbird assemblage | | | | |
| - BBA: Breeding bird assemblage | | | | |
| Medway Estuary and Marshes Ramsar | | | | |

| Desalination (KME): Isle of Sheppey 20Ml/d | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 0/DS | Y | Y | Construction:<br>Intake / outfall will be located just outsdie this site, so effects on site habitats possible depending on construction approach; mobile features will be vulnerable to disturbance etc. Pipeline to Southdown WSR would cross this site; this will almost certainly follow existing roads in this area although disturbance effects are possible.<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| The Swale Ramsar | | | | |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 0/DS | Y | U | Construction:<br>Pipeline to Southdown WSR would cross this site; this will almost certainly follow existing roads in this area although disturbance effects are possible.<br><br>Operation:<br>Operation will discharge hypersaline brine in the Medway estuary, although the exposure of the site itself to this is likely to be low; effects are possible for species utilising the Medway however. |
| Thames Estuary and Marshes Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 1.8 | U | U | Construction:<br>A small proportion of this site will be within 2km of the likely Intake / outfall location in the Medway estuary; construction effects on site habitats likely to be limited but mobile features will be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| Thames Estuary and Marshes SPA | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 1.9 | U | U | Construction:<br>A small proportion of this site will be within 2km of the likely Intake / outfall location in the Medway estuary; construction effects on site habitats likely to be limited but mobile features will be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |

| Desalination (KME): Isle of Sheppey 20Ml/d | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Outer Thames Estuary SPA | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 2.5 | U* | U | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are arguably unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres), plus the proportion of the site potentially affected would be very small; however, additional investigation relating to the plume is appropriate. |
| Queendown Warren SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 4.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |
| North Downs Woodlands SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9130: Taxus baccata woods of the British Isles | 7.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |
| Benfleet and Southend Marshes SPA | | | | |

| Desalination (KME): Isle of Sheppey 20Ml/d | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A143: Red knot Calidris canutus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A141: Grey plover Pluvialis squatarola<br>- A672: Dunlin Calidris alpina alpina<br>- A137: Ringed plover Charadrius hiaticula<br>- WATR: Waterbird assemblage | 8.5 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Benfleet and Southend Marshes Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 8.5 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Essex Estuaries SAC | | | | |

| Desalination (KME): Isle of Sheppey 20Ml/d | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H1420: Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi) | 8.6 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Foulness (Mid-Essex Coast Phase 5) Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity | 8.8 | U* | 0 | Construction:<br>The site itself will not be exposed / affected by environmental changes associated with construction (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be avoided with established measures.<br><br>Operation:<br>Operational effects are unlikely due to designated site location relative to assumed location of intake / discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres). |
| Foulness (Mid-Essex Coast Phase 5) SPA | | | | |

| Desalination (KME): Isle of Sheppey 20Ml/d | | | | |
|---|---|---|---|---|
| SWS_KME_HI-DES_ALL_ALL_ios20 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A130: Eurasian oystercatcher Haematopus ostralegus | 8.8 | U* | 0 | Construction: |
| - A193: Common tern Sterna hirundo | | | | The site itself will not be exposed / affected by environmental changes associated with construction |
| - A195: Little tern Sterna albifrons | | | | (distance, attenuation provided by the tidal flux of the Thames estuary) although the mobile species may |
| - A162: Common redshank Tringa totanus | | | | be exposed if utilising habitats closer to the construction areas; however, this can almost certainly be |
| - A157: Bar-tailed godwit Limosa lapponica | | | | avoided with established measures. |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - A191: Sandwich tern Sterna sandvicensis | | | | Operation: |
| - A132: Pied avocet Recurvirostra avosetta | | | | Operational effects are unlikely due to designated site location relative to assumed location of intake / |
| - A137: Ringed plover Charadrius hiaticula | | | | discharge and probablity of dilution (noting that many studies have demonstrated that near-field dilution |
| - A143: Red knot Calidris canutus | | | | of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres |
| - A141: Grey plover Pluvialis squatarola | | | | rather than kilometres). |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A082: Hen harrier Circus cyaneus | | | | |
| - WATR: Waterbird assemblage | | | | |

# Desalination (KMW): Thames Estuary (10Ml/d)

SWS_KMW_HI-DES_ALL_ALL_swa10

## Option Description

The Thames Estuary Desalination Options are a modular suite of options to develop a desalination plant of differing capacities that could be developed in one or more phases. The plant would be developed adjacent to Britannia Refined Metal on the Swanscombe Peninsula. Treated water would be transfered to Singlewell WSR for distribution to the Kent Medway WRZ and the plant would combine discharge with Swanscombe WwTW's existing outfall.

This option represents a potential first phase development of a 10Ml/d capacity desalination plant.

## Desalination (KMW): Thames Estuary (10Ml/d)

SWS_KMW_HI-DES_ALL_ALL_swa10

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Thames Estuary and Marshes Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3.8/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **Thames Estuary and Marshes SPA** | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 5.2/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **North Downs Woodlands SAC** | | | | |

| Desalination (KMW): Thames Estuary (10Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KMW_HI-DES_ALL_ALL_swa10 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H91J0: Taxus baccata woods of the British Isles | 5.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |
| Peter`s Pit SAC | | | | |
| - S1166: Great crested newt Triturus cristatus | 10 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment, beyond mobile species dispersal range).<br><br>Operation: |

# Desalination (KMW): Thames Estuary (10Ml/d) Phase 2

SWS_KMW_HI-DES_ALL_ALL_swa10_p2

**Option Description**

The Thames Estuary Desalination Options are a modular suite of options to develop a desalination plant of differing capacities that could be developed in one or more phases.

This option represents a potential second phase development of a 10Ml/d capacity desalination plant contingent on one of the first phase 10Ml/d or 20Ml/d capacity options (Swa10 or Swa20).

**Desalination (KMW): Thames Estuary (10Ml/d) Phase 2**

SWS_KMW_HI-DES_ALL_ALL_swa10_p2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Thames Estuary and Marshes Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3.8/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **Thames Estuary and Marshes SPA** | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 5.2/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **North Downs Woodlands SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H91J0: Taxus baccata woods of the British Isles | 5.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |

| Desalination (KMW): Thames Estuary (10Ml/d) Phase 2 | | | | |
|---|---|---|---|---|
| SWS_KMW_HI-DES_ALL_ALL_swa10_p2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Peter`s Pit SAC | | | | |
| - S1166: Great crested newt Triturus cristatus | 10 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment, beyond mobile species dispersal range).<br><br>Operation: |

# Desalination (KMW): Thames Estuary (20Ml/d)

SWS_KMW_HI-DES_ALL_ALL_swa20

**Option Description**

The Thames Estuary Desalination Options are a modular suite of options to develop a desalination plant of differing capacities that could be developed in one or more phases.
This option represents a potential first phase development of a 20Ml/d capacity desalination plant.

**Desalination (KMW): Thames Estuary (20Ml/d)**

SWS_KMW_HI-DES_ALL_ALL_swa20

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Thames Estuary and Marshes Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3.8/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **Thames Estuary and Marshes SPA** | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 5.2/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **North Downs Woodlands SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H91J0: Taxus baccata woods of the British Isles | 5.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |

| Desalination (KMW): Thames Estuary (20Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KMW_HI-DES_ALL_ALL_swa20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Peter`s Pit SAC | | | | |
| - S1166: Great crested newt Triturus cristatus | 10 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment, beyond mobile species dispersal range).<br><br>Operation: |

# Desalination (KMW): Thames Estuary (20Ml/d) Phase 2

SWS_KMW_HI-DES_ALL_ALL_swa20_p2

**Option Description**

The Thames Estuary Desalination Options are a modular suite of options to develop a desalination plant of differing capacities that could be developed in one or more phases.

This option represents a potential second phase development of a 20Ml/d capacity desalination plant contingent on one of the first phase 10Ml/d or 20Ml/d capacity options (Swa10 or Swa20).

**Desalination (KMW): Thames Estuary (20Ml/d) Phase 2**

SWS_KMW_HI-DES_ALL_ALL_swa20_p2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Thames Estuary and Marshes Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3.8/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **Thames Estuary and Marshes SPA** | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 5.2/DS | U* | U | Construction:<br>This site is a down-estuary receptor; construction effects on site habitats likely to be limited but mobile features may be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine upstream of this site, and althought the distance and dilution provided by the estuary is likely to limit effects (noting that many studies have demonstrated that near-field dilution of brine to ambient levels typically occurs within a relatively short distance (tens or hundreds of metres rather than kilometres)), this may need additional contextual information or plume investigations to confirm this. |
| **North Downs Woodlands SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H91J0: Taxus baccata woods of the British Isles | 5.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation of desalination). |

| Desalination (KMW): Thames Estuary (20Ml/d) Phase 2 | | | | |
|---|---|---|---|---|
| SWS_KMW_HI-DES_ALL_ALL_swa20_p2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Peter`s Pit SAC | | | | |
| - S1166: Great crested newt Triturus cristatus | 10 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment, beyond mobile species dispersal range).<br><br>Operation: |

# Desalination (KTZ): East Thanet (20Ml/d)

SWS_KTZ_HI-DES_ALL_ALL_tha20

**Option Description**

The East Thanet Desalination Options are a modular suite of options to develop a desalination plant of differing capacities near to the North Thanet Coast and could be developed in one or more phases. The plant

Desalination (KTZ): East Thanet (20Ml/d)

SWS_KTZ_HI-DES_ALL_ALL_tha20

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Thanet Coast and Sandwich Bay SPA** | | | | |
| - A169: Ruddy turnstone Arenaria interpres<br>- A140: European golden plover Pluvialis apricaria<br>- A195: Little tern Sterna albifrons | 0/DS | Y | Y | Construction:<br>Intake / outfall will cross this site, so direct and indirect effects on site habitats possible depending on construction approach; mobile features will be vulnerable to disturbance etc. Non-designated areas of functional land used by golden plover present near Minnis Bay, may be present elsewheire on pipeline route.<br><br>Operation: |
| **Outer Thames Estuary SPA** | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 0/DS | Y | Y | Construction:<br>Intake / outfall will be within this site, so direct and indirect effects on site habitats possible depending on construction approach; mobile features will be vulnerable to disturbance etc. although sensitivity may be low.<br><br>Operation:<br>Operation will discharge hypersaline brine into this site; potential to affect supporting habitats for the |
| **Thanet Coast and Sandwich Bay Ramsar** | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 0/DS | Y | Y | Construction:<br>Intake / outfall will cross this site, so direct and indirect effects on site habitats possible depending on construction approach; mobile features will be vulnerable to disturbance etc.<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| **Thanet Coast SAC** | | | | |

| Desalination (KTZ): East Thanet (20Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KTZ_HI-DES_ALL_ALL_tha20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H1170: Reefs<br>- H8330: Submerged or partially submerged sea caves | 0.3/DS | Y | Y | Construction:<br>Intake / outfall will be close to site boundary, indirect effects on site habitats possible depending on construction approach although sensitivity of features is likely to be low.<br><br>Operation:<br>Operation will discharge hypersaline brine close to this site; potential to affect the typical species of the Reefs feature. |
| Margate and Long Sands SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | 1.3 | Y | Y | Construction:<br>Intake / outfall will be close to site boundary, indirect effects on site habitats possible depending on construction approach although sensitivity of features to construction effects is likely to be low.<br><br>Operation:<br>Operation will discharge hypersaline brine close to this site. |
| Sandwich Bay SAC | | | | |
| - H2110: Embryonic shifting dunes<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- H2130: Fixed coastal dunes with herbaceous vegetation ("grey dunes")<br>- H2170: Dunes with Salix repens ssp. argentea (Salicion arenariae) | 2.9 | 0 | 0 | Construction:<br>Site and dune systems effectively in a separate catchment; no pathways for effects.<br><br>Operation:<br>No pathways for operational effects (no exposure due to distance / location relative to discharge). |
| Stodmarsh SAC | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 5.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; site up-catchment). |
| Stodmarsh Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 5.7 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; site up-catchment). |
| Stodmarsh SPA | | | | |

| Desalination (KTZ): East Thanet (20Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KTZ_HI-DES_ALL_ALL_tha20 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A050: Eurasian wigeon Anas penelope | 5.7 | U* | U | Construction: |
| - A056: Northern shoveler Anas clypeata | | | | No pathways for construction effects on site itself (distance, site up-catchment); mobile features may be |
| - A394: Greater white-fronted goose Anser albifrons albifrons | | | | functionally linked to wetland habitats crossed by pipeline (e.g. at Wade Marsh). Significant and/or |
| - A153: Common snipe Gallinago gallinago | | | | significant adverse effects almost certainly avoidable with established measures / normal best-practice, |
| - A142: Northern lapwing Vanellus vanellus | | | | although these must necessarily be accounted for at AA (hence 'screened in'). |
| - A082: Hen harrier Circus cyaneus | | | | |
| - A021: Great bittern Botaurus stellaris | | | | Operation: |
| - A051: Gadwall Anas strepera | | | | No pathways for operational effects on site itself (distance; site up-catchment); some mobile features may |
| - A059: Common pochard Aythya ferina | | | | periodically use habitats of the Thanet Coast and Sandwich Bay SPA / Ramsar that may be exposed to |
| - A053: Mallard Anas platyrhynchos | | | | environmental changes associated with operation, although sensitivity and exposure is likely to be low. |
| - A051: Gadwall Anas strepera | | | | |
| - A118: Water rail Rallus aquaticus | | | | |
| - A061: Tufted duck Aythya fuligula | | | | |
| - BBA: Breeding bird assemblage | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| Blean Complex SAC | | | | |
| - H9160: Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 7.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for construction effects (distance, site in separate catchment). |

# Desalination (KTZ): East Thanet (20Ml/d) Phase 2

SWS_KTZ_HI-DES_ALL_ALL_tha20_p2

**Option Description**

The East Thanet Desalination Options are a modular suite of options to develop a desalination plant of differing capacities near to the North Thanet Coast and could be developed in one or more phases. The plant

**Desalination (KTZ): East Thanet (20Ml/d) Phase 2**

SWS_KTZ_HI-DES_ALL_ALL_tha20_p2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Thanet Coast and Sandwich Bay SPA** | | | | |
| - A169: Ruddy turnstone Arenaria interpres<br>- A140: European golden plover Pluvialis apricaria<br>- A195: Little tern Sterna albifrons | 0/DS | U* | Y | Construction:<br>The intake / outfall for this option will have already been constructed as part of Option SW005 and so construction would be limited to the existing desalination plant location. Mobile features may be vulnerable to disturbance etc. if using non-designated areas of functional land. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| **Outer Thames Estuary SPA** | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 0/DS | U* | Y | Construction:<br>The intake / outfall for this option will have already been constructed as part of Option SW005 and so construction would be limited to the existing desalination plant location (inland); mobile features will not be exposed to disturbance etc. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Operation will discharge hypersaline brine into this site; potential to affect supporting habitats for the interest features, although exposure and sensitivity may be low given the feature characteristics / |
| **Thanet Coast and Sandwich Bay Ramsar** | | | | |

| Desalination (KTZ): East Thanet (20Ml/d) Phase 2 | | | | |
|---|---|---|---|---|
| SWS_KTZ_HI-DES_ALL_ALL_tha20_p2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 0/DS | U* | Y | Construction:<br>The intake / outfall for this option will have already been constructed as part of Option SW005 and so construction would be limited to the existing desalination plant location. Mobile features may be vulnerable to disturbance etc. if using non-designated areas of functional land. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Operation will discharge hypersaline brine offshore from this site; potential to affect supporting habitats. |
| Thanet Coast SAC | | | | |
| - H1170: Reefs<br>- H8330: Submerged or partially submerged sea caves | 0.3/DS | U* | Y | Construction:<br>The intake / outfall for this option will have already been constructed as part of Option SW005 and so construction would be limited to the existing desalination plant location. Few pathways for effects; Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Operation will discharge hypersaline brine close to this site; potential to affect the typical species of the Reefs feature. |
| Margate and Long Sands SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | 1.3 | 0 | Y | Construction:<br>The intake / outfall for this option will have already been constructed as part of Option SW005 and so construction would be limited to the existing desalination plant location; this site will not be exposed to environmental changes as a result of construction.<br><br>Operation:<br>Operation will discharge hypersaline brine close to this site. |
| Sandwich Bay SAC | | | | |
| - H2110: Embryonic shifting dunes<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- H2130: Fixed coastal dunes with herbaceous vegetation ("grey dunes")<br>- H2170: Dunes with Salix repens ssp. argentea (Salicion arenariae) | 2.9 | 0 | 0 | Construction:<br>Site and dune systems effectively in a separate catchment; no pathways for effects.<br><br>Operation:<br>No pathways for operational effects (no exposure due to distance / location relative to discharge). |
| Stodmarsh SAC | | | | |

| Desalination (KTZ): East Thanet (20Ml/d) Phase 2 | | | | |
|---|---|---|---|---|
| SWS_KTZ_HI-DES_ALL_ALL_tha20_p2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 5.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; site up-catchment). |
| Stodmarsh Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 5.7 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; site up-catchment). |
| Stodmarsh SPA | | | | |
| - A050: Eurasian wigeon Anas penelope<br>- A056: Northern shoveler Anas clypeata<br>- A394: Greater white-fronted goose Anser albifrons albifrons<br>- A153: Common snipe Gallinago gallinago<br>- A142: Northern lapwing Vanellus vanellus<br>- A082: Hen harrier Circus cyaneus<br>- A021: Great bittern Botaurus stellaris<br>- A051: Gadwall Anas strepera<br>- A059: Common pochard Aythya ferina<br>- A053: Mallard Anas platyrhynchos<br>- A051: Gadwall Anas strepera<br>- A118: Water rail Rallus aquaticus<br>- A061: Tufted duck Aythya fuligula<br>- BBA: Breeding bird assemblage<br>- A048: Common shelduck Tadorna tadorna | 5.7 | U* | U | Construction:<br>No pathways for construction effects on site itself (distance, site up-catchment); mobile features may be functionally linked to wetland habitats close to desal plant (e.g. at Wade Marsh). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects on site itself (distance; site up-catchment); some mobile features may periodically use habitats of the Thanet Coast and Sandwich Bay SPA / Ramsar that may be exposed to environmental changes associated with operation, although sensitivity and exposure is likely to be low. |
| Blean Complex SAC | | | | |
| - H9160: Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 7.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for construction effects (distance, site in separate catchment). |

# Desalination (SWZ): Tidal River Arun (10Ml/d)

SWS_SWZ_HI-DES_ALL_ALL_aru10

## Option Description

This option proposes a desalination plant to treat seawater abstracted off the coast near Littlehampton to supply treated water to the Sussex Worthing WRZ. It is assumed that the water could be used during drought conditions to meet demand in Sussex Worthing WRZ. There is bi-directional transfer between Sussex Worthing WRZ and Sussex North WRZ which means this option could have result in additional benefit to Sussex North WRZ. This transfer would likely require additional connectivity between Perry Hill WSR and Tennants Hills WSR

An investigation in AMP4 indicated that land adjacent to Littlehampton WwTW showed the greatest potential for a new desalination site because of the existing land use, the availability of services (access roads, power, etc.). Development in this area is progressing rapidly and land allocation for the site would need to be secured within the local plan to ensure its available when the scheme is needed.

## Desalination (SWZ): Tidal River Arun (10Ml/d)

SWS_SWZ_HI-DES_ALL_ALL_aru10

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 2.7 | 0 | 0 | Construction:<br>The eastern edge of this site is relatively close to the proposed desalination plant location, although the interest features of the site are unlikely to be functionally dependent on habitats within the Adur estuary (else this would have been included in the designation, which is recent and based on usage patterns), and site-derived pollutants would have to travel over 8km via the Arun and then west along the coast (against the prevailing currents); the site and features will not therefore be exposed to any environmental changes associated with construction of this scheme.<br><br>Operation:<br>The eastern edge of this site is relatively close to the proposed desalination plant location, although the interest features of the site are unlikely to be functionally dependent on habitats within the Adur estuary (else this would have been included in the designation, which is recent and based on usage patterns), and hypersaline brine would need to travel over 8km via the Arun and then west along the coast (against the prevailing currents) to affect the site itself; the site and features will not therefore be exposed to any environmental changes associated with operation of this scheme. |
| **Arun Valley SPA** | | | | |

| Desalination (SWZ): Tidal River Arun (10Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SWZ_HI-DES_ALL_ALL_aru10 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 4.6 | U* | 0 | Construction:<br>There will be no effects on the site itself (upstream from construction areas); pipeline construction will affect grazing marshes alongside the Arun estuary which may be periodically utilised by assemblage species from the site (although there are no suggestions of signficant functional linkages in the supplementary advice); effects can be be avoided with established measures.<br><br>Operation:<br>The site itself will not be affected by operation (upstream). The environmental changes associated with operation of the scheme will be limited to the estuary itself, and will not affect adjacent grazing marsh, and so interest features from this site will have a very low exposure to the effects due to their habitat preferences (the relatively narrow, embanked Arun estuary will not be a preferred habitat for the interest features of the site). |
| Arun Valley SAC | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 4.6 | 0 | 0 | Construction:<br>There will be no effects on the site itself (upstream from construction areas), hence no effect on the interest features (population not reliant on habitats likely to be affected by construction).<br><br>Operation:<br>There will be no effects on the site itself (upstream) hence no effect on the interest features (population not reliant on habitats likely to be affected by construction). |
| Arun Valley Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 4.6 | U* | 0 | Construction:<br>There will be no effects on the site itself (upstream from construction areas); pipeline construction will affect grazing marshes alongside the Arun estuary which may be periodically utilised by assemblage species from the site (although there are no suggestions of signficant functional linkages in the supplementary advice); effects can be be avoided with established measures.<br><br>Operation:<br>The site itself will not be affected by operation (upstream). The environmental changes associated with operation of the scheme will be limited to the estuary itself, and will not affect adjacent grazing marsh, and so interest features from this site will have a very low exposure to the effects due to their habitat preferences (the relatively narrow, embanked Arun estuary will not be a preferred habitat for the interest features of the site). |
| Duncton to Bignor Escarpment SAC | | | | |

| Desalination (SWZ): Tidal River Arun (10Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SWZ_HI-DES_ALL_ALL_aru10 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H9130: Asperulo-Fagetum beech forests | 7.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance, terrestrial site not exposed or sensitive to environmental changes). |

## Drought option: Pulborough Surface water (Phases 1 to 3 (23Ml/d)

SWS_SNZ_RE-DRO_ALL_ALL_si_har_2

**Option Description**

Pulborough Surface water (Phases 1 to 3) Drought permit/order (2025 onwards).

**Drought option: Pulborough Surface water (Phases 1 to 3 (23Ml/d)**

SWS_SNZ_RE-DRO_ALL_ALL_si_har_2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Castle Hill SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | 7.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |

# Drought option - supply side (HSE): Candover (22Ml/d)

SWS_HSE_RE-DRO_ALL_ALL_si_can2

## Option Description

To allow up to 27Ml/d and 3750Ml/year (average of 20.8Ml/d over 6 months) to be abstracted from the Preston Candover boreholes. Abstraction would be increased over a period of several days up to the full required discharge rate so as to prevent a sudden increase in flow in the River Itchen. Abstraction and discharges will only be permitted when flows in the River Itchen at Allbrook and Highbridge are at or below a trigger flow of 220Ml/d. 2Ml/d environmental support (within the limits above) at the existing discharge to the Candover Stream. Operated during, and potentially after, discharges to the River Itchen.

Drought option - supply side (HSE): Candover (22Ml/d)

SWS_HSE_RE-DRO_ALL_ALL_si_can2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation | 0/DS | 0 | 0 | Construction: |
| - S1096: Brook lamprey Lampetra planeri | | | | |
| - S1106: Atlantic salmon Salmo salar | | | | Operation: |
| - S1163: Bullhead Cottus gobio | | | | |
| - S1044: Southern damselfly Coenagrion mercuriale | | | | |
| - S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes | | | | |
| - S1355: Otter Lutra lutra | | | | |
| **Solent Maritime SAC** | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | DS/DS | 0 | 0 | Construction: |
| - H1130: Estuaries | | | | |
| - H1140: Mudflats and sandflats not covered by seawater at low tide | | | | |
| - H1150: Coastal lagoons | | | | Operation: |
| - H1210: Annual vegetation of drift lines | | | | |
| - H1220: Perennial vegetation of stony banks | | | | |
| - H1310: Salicornia and other annuals colonizing mud and sand | | | | |
| - H1320: Spartina swards (Spartinion maritimae) | | | | |
| - H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae) | | | | |
| - H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | | | | |
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis | DS/DS | 0 | 0 | Construction: |
| - A193: Common tern Sterna hirundo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| | | | | Operation: |
| **Solent and Southampton Water SPA** | | | | |

| Drought option - supply side (HSE): Candover (22Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HSE_RE-DRO_ALL_ALL_si_can2 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A137: Ringed plover Charadrius hiaticula | DS/DS | 0 | 0 | Construction: |
| - A176: Mediterranean gull Larus melanocephalus | | | | |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | |
| - A195: Little tern Sterna albifrons | | | | Operation: |
| - A192: Roseate tern Sterna dougallii | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - A191: Sandwich tern Sterna sandvicensis | | | | |
| - A052: Eurasian teal Anas crecca | | | | |
| - A193: Common tern Sterna hirundo | | | | |
| - WATR: Waterbird assemblage | | | | |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | DS/DS | 0 | 0 | Construction: |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | | | | Operation: |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | | | | |

# Groundwater (HAZ): Recommission Chilbolton (0.5Ml/d)

Option ID: CHILB

**Option Description**

This new option involves recommissioning the mothballed Chilbolton WSW, with the inclusion of a suitable nitrate removal plant. The generated waste stream will require removal by tanker for treatment at a local WwTW (typically less than one tanker movement per month). This would provide a DO benefit of 2.5Ml/d.

**Groundwater (HAZ): Recommission Chilbolton (0.5Ml/d)**

Option ID: CHILB

| Site and Features | Dist (km) | LSE? C | LSE? U | Screening Rationale |
|---|---|---|---|---|
| **Solent Maritime SAC** | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- S1016: Desmoulin`s whorl snail Vertigo moulinsiana | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so project-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Chilbolton is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

| Groundwater (HAZ): Recommission Chilbolton (0.5Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: CHILB | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Solent and Southampton Water Ramsar** | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so project-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Chilbolton is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

| Groundwater (HAZ): Recommission Chilbolton (0.5Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: CHILB | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Solent and Southampton Water SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so project-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Chilbolton is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

| Groundwater (HAZ): Recommission Chilbolton (0.5Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: CHILB | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so project-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Chilbolton is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

# Groundwater (HKZ): Remove constraints at Newbury to increase yield (1.2Ml/d)

SWS_HKZ_HI-ROC_ALL_ALL_ewo

## Option Description

The scheme is located within the Hampshire Kingsclere resource group (which consists of and is served by Kingsclere and Newbury WSWs). The scheme will increase the yield of the Newbury source within the existing licence by removing the present constraint imposed by mains leaving the site. This option will involve the construction of a dedicated, 7.1 km 300mm DN300 pipe from Newbury water supply works (WSW) and additional pumps and treatment facilities to increase the supply to Beacon Hill WSR. Additional high-lift pumping capacity would be required at Newbury WSW abstracts water from the underlying chalk aquifer. It is considered that the River Enbourne will not be affected by the increased abstractions due to its perched nature above the London Clay.

Groundwater (HKZ): Remove constraints at Newbury to increase yield (1.2Ml/d)

SWS_HKZ_HI-ROC_ALL_ALL_ewo

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Kennet Valley Alderwoods SAC** | | | | |
| - H91E0: Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) | 3.3 | 0 | 0 | Construction:<br>No pathways for effects (distance, separate catchment)<br><br>Operation:<br>Closest units of this site are alongsid the River Kennet and are supported by surface flows from the river rather than directly by groundwater; option will be within existing licence. |
| **Kennet and Lambourn Floodplain SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 3.9 | 0 | 0 | Construction:<br>No pathways for effects (distance, separate catchment)<br><br>Operation:<br>Closest units of this site are alongsid the River Kennet and are supported by surface flows from the river rather than directly by groundwater; option will be within existing licence. |
| **River Lambourn SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1163: Bullhead Cottus gobio | 5.4 | 0 | 0 | Construction:<br>No pathways for effects (distance, separate catchment)<br><br>Operation:<br>Closest units of this site are alongsid the River Kennet and are supported by surface flows from the river rather than directly by groundwater; option will be within existing licence. |

# Groundwater (HRZ): New boreholes at Romsey (4.8Ml/d)

SWS_HRZ_HI-GRW_ALL_ALL_nw_gwa_tim_westi

## Option Description

The existing boreholes and well/adits that supply Timsbury WSW are either out of service or operating below their full capacity due to water quality issues. This option proposes 3 replacement boreholes to increase and recover DO on site. Total source output on delivery of the scheme would be 13.7Ml/d. No additional treatment is required. Replacement borehole locations are distant from existing borehole locations and require new pipelines to connect to the WSW.

## Groundwater (HRZ): New boreholes at Romsey (4.8Ml/d)

SWS_HRZ_HI-GRW_ALL_ALL_nw_gwa_tim_westi

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Mottisfont Bats SAC** | | | | |
| - S1308: Barbastelle Barbastella barbastellus | 2.9 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separate catchment); construction likely within Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (separate catchment). |
| **Emer Bog SAC** | | | | |
| - H7140: Transition mires and quaking bogs | 5.7 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>Transition mires are sometimes partially supported by groundwater; in this instance (based on the supplementary advice; data from the Emer Bog and Baddesley Common Hydrology Study (Allen 2017); and the EA WETMECS guidance) the site is primarily valley basin mire supported by surface water inputs and shallow groundwater rather than upwelling from the aquifer. In addition the distance and topography will ensure that recomissioning these boreholes will have no effect on this site. |
| **The New Forest SAC** | | | | |

| Groundwater (HRZ): New boreholes at Romsey (4.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HRZ_HI-GRW_ALL_ALL_nw_gwa_tim_westi | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H3110: Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)<br>- H3130: Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea<br>- H4010: Northern Atlantic wet heaths with Erica tetralix<br>- H4030: European dry heaths<br>- H6410: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)<br>- H7140: Transition mires and quaking bogs<br>- H7150: Depressions on peat substrates of the Rhynchosporion<br>- H7230: Alkaline fens<br>- H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9190: Old acidophilous oak woods with Quercus robur on sandy plains<br>- H91D0: Bog woodland<br>- H91E0: Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)<br>- S1166: Great crested newt Triturus cristatus<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1083: Stag beetle Lucanus cervus | 8.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment, no risk of functional land for mobile species being affected).<br><br>Operation:<br>No pathways for operational effects (distance; separate catchment, mobile features not dependent on habitats potentially affected by scheme). |
| New Forest SPA | | | | |
| - A314: Wood warbler Phylloscopus sibilatrix<br>- A246: Wood lark Lullula arborea<br>- A302: Dartford warbler Sylvia undata<br>- A082: Hen harrier Circus cyaneus<br>- A224: European nightjar Caprimulgus europaeus<br>- A099: Eurasian hobby Falco subbuteo<br>- A072: European honey-buzzard Pernis apivorus | 8.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment, no risk of functional land for mobile species being affected).<br><br>Operation:<br>No pathways for operational effects (distance; separate catchment, mobile features not dependent on habitats potentially affected by scheme). |
| The New Forest Ramsar | | | | |

| Groundwater (HRZ): New boreholes at Romsey (4.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HRZ_HI-GRW_ALL_ALL_nw_gwa_tim_westi | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 8.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment, no risk of functional land for mobile species being affected).<br><br>Operation:<br>No pathways for operational effects (distance; separate catchment, mobile features not dependent on habitats potentially affected by scheme). |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 10/DS | 0 | U | Construction:<br>Construction works are relatively small-scale and minor, and there are no surface water courses linking to the Test; effects from site-derived pollutants would not therefore occur irrespective of additional mitigation measures.<br><br>Operation:<br>Timsbury is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and because of the largest intake on the river downstream at Testwood which is going to be subject to tightened conditions. The freshwater flow conditions for the SSSI river are tighter than what would be reasonable for the transitional Southampton Water, and so effects on this site are uncertain. |
| Solent and Southampton Water SPA | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 10/DS | 0 | U | Construction:<br>Construction works are relatively small-scale and minor, and there are no surface water courses linking to the Test; effects from site-derived pollutants would not therefore occur irrespective of additional mitigation measures.<br><br>Operation:<br>Timsbury is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and because of the largest intake on the river downstream at Testwood which is going to be subject to tightened conditions. The freshwater flow conditions for the SSSI river are tighter than what would be reasonable for the transitional Southampton Water, and so effects on this site are uncertain. |
| Solent Maritime SAC | | | | |

| Groundwater (HRZ): New boreholes at Romsey (4.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HRZ_HI-GRW_ALL_ALL_nw_gwa_tim_westi | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 10.6/DS | 0 | U | Construction:<br>Construction works are relatively small-scale and minor, and there are no surface water courses linking to the Test; effects from site-derived pollutants would not therefore occur irrespective of additional mitigation measures.<br><br>Operation:<br>Timsbury is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and because of the largest intake on the river downstream at Testwood which is going to be subject to tightened conditions. The freshwater flow conditions for the SSSI river are tighter than what would be reasonable for the transitional Southampton Water, and so effects on this site are uncertain. |
| Solent and Dorset Coast SPA | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 11.9/DS | 0 | U | Construction:<br>Construction works are relatively small-scale and minor, and there are no surface water courses linking to the Test; effects from site-derived pollutants would not therefore occur irrespective of additional mitigation measures.<br><br>Operation:<br>Timsbury is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and because of the largest intake on the river downstream at Testwood which is going to be subject to tightened conditions. The freshwater flow conditions for the SSSI river are tighter than what would be reasonable for the transitional Southampton Water, and so effects on this site are uncertain (although the site and features will have a low sensitivity to the likely changes). |

## Groundwater (HRZ): Remove constraints at Kings Sombourne (2.5Ml/d)

Option ID: HORSEB

**Option Description**

This new option involves the development of a new borehole and pump capacity at the Kings Sombourne site to increase the DO from 1.5Ml/d to the licenced 4Ml/d, giving a potential benefit of 2.5Ml/d.

**Groundwater (HRZ): Remove constraints at Kings Sombourne (2.5Ml/d)**

Option ID: HORSEB

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Emer Bog SAC** | | | | |
| - H7140: Transition mires and quaking bogs | 9.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>The site is primarily valley basin mire supported by surface water inputs and shallow groundwater from the local catchment, rather than upwelling from the aquifer. This is because the SAC is located on the confining London Clay, and so there is no mechanism by which abstraction from the chalk aquifer can affect this European site. There will therefore be no effect on this site. |
| **Mottisfont Bats SAC** | | | | |
| - S1308: Barbastelle Barbastella barbastellus | 1.9 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separate catchment); construction likely within Core Sustenance Zone (CSZ; see Appendix B of main HRA report) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of significant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects. |

| **Groundwater (HRZ): Remove constraints at Kings Sombourne (2.5Ml/d)** | | | | |
|---|---|---|---|---|
| Option ID: HORSEB | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Solent Maritime SAC** | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- S1016: Desmoulin`s whorl snail Vertigo moulinsiana | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so preoject-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Kings Sombourne is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

| Groundwater (HRZ): Remove constraints at Kings Sombourne (2.5Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: HORSEB | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Solent and Southampton Water Ramsar** | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so preoject-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Kings Sombourne is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

| **Groundwater (HRZ): Remove constraints at Kings Sombourne (2.5Ml/d)** | | | | |
|---|---|---|---|---|
| Option ID: HORSEB | | | | |
| **Site and Features** | **Dist** | **LSE?** | | **Screening Rationale** |
| | **(km)** | **C** | **U** | |
| **Solent and Southampton Water SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so preoject-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Kings Sombourne is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

| **Groundwater (HRZ): Remove constraints at Kings Sombourne (2.5Ml/d)** | | | | |
|---|---|---|---|---|
| Option ID: HORSEB | | | | |
| **Site and Features** | **Dist** | **LSE?** | | **Screening Rationale** |
| | **(km)** | **C** | **U** | |
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | DS/DS | U* | 0 | Construction:<br>Construction works are relatively small-scale and minor, although the site is close to the Test and so preoject-level measures would likely be required to ensure no effects.<br><br>Operation:<br>Kings Sombourne is part of Southern Water's 'no deterioration' investigations – specifically considering the risk of Recent Actual to Fully Licensed abstraction increases. There is no expectation of significant increase in pumping because of the tightened flow constraints of the River Test SSSI, and the option is therefore essentially a refurbishment. Modelling of the impacts of Timsbury, Horsfield and all other abstractions and discharges on flows at Timsbury has demonstrated that these are compliant with CSMG low flow (Q95) thresholds. Further downstream the additional abstraction impacts of the Test river intake are subject to Hands Off Flow constraints which were designed to protect low flows into the estuary. Under conditions when the HoF is limiting abstraction from the Test, any additional pumping from Timsbury would only further constrain the rates which could be taken from the Test. If the Test abstraction is totally switched off by the HoF, the modelling shows that Fully Licensed abstraction from Timsbury would not be associated with Q95 flow failures against CSMG thresholds into the estuary. Therefore the option will not affect the estuarine sites associated with Southampton Water. |

# Groundwater (HSW): Test MAR (5.5Ml/d)

SWS_HSW_HI-GRW_RE1_ALL_str_asr_tes_westi

## Option Description

This option is a Managed Aquifer Recharge (MAR) scheme. It would provide recharge of the confined chalk aquifer from mains water in winter months, with subsequent onsite abstraction from the same aquifer in summer/autumn critical low flow periods. Treatment is available on site and it is assumed that there is sufficient treatment capacity for the abstracted water. The scheme assumes an extended pilot trial period to prove the viability of yield and water quality, with subsequent development of the MAR scheme.

Expected DO from the developed scheme is ~5Ml/d. The pilot scheme assumes 1 No. abstraction/recharge borehole and 1No. monitoring borehole, each 250m deep. For the duration of the trial, abstracted water will run to waste (River Test). The developed scheme will comprise a total of 5No. boreholes at 250m depth; 3No. abstraction/recharge boreholes and 2No. monitoring boreholes, inclusive of those used in the pilot scheme. Abstracted water from the developed scheme will be treated onsite as required, before entering supply. The suggested WTW site boundary may not support a DO of 5Ml/d. It is understood that SWS own adjacent land to the north of the River Test, and it is proposed that 1 No. abstraction/recharge borehole and 1 No. monitoring borehole be located on this land in order to achieve the desired scheme DO. Groundwater from the confined chalk aquifer is expected to be under artesian pressure and therefore gate valves would be required on all boreholes. Pumped recharge from mains water supply would also be required to overcome artesian

## Groundwater (HSW): Test MAR (5.5Ml/d)

SWS_HSW_HI-GRW_RE1_ALL_str_asr_tes_westi

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Solent and Southampton Water SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 0.3/DS | U* | 0 | Construction:<br>Construction for this option would likely be required at the existing Testwood WSW operational works; this site is a downstream receptor for site-derived pollutants, although the mobile features of the site will not be reliant on habitats directly affected by construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this |
| **Solent and Southampton Water Ramsar** | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 0.3/DS | U* | 0 | Construction:<br>Construction for this option would likely be required at the existing Testwood WSW operational works; this site is a downstream receptor for site-derived pollutants, although the mobile features of the site will not be reliant on habitats directly affected by construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this |
| **Solent Maritime SAC** | | | | |

| Groundwater (HSW): Test MAR (5.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HSW_HI-GRW_RE1_ALL_str_asr_tes_westi | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 1/DS | U* | 0 | Construction:<br>Construction for this option would likely be required at the existing Testwood WSW operational works; this site is a downstream receptor for site-derived pollutants, although the mobile features of the site will not be reliant on habitats directly affected by construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this site. |
| Solent and Dorset Coast SPA | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 2/DS | U* | 0 | Construction:<br>Construction for this option would likely be required at the existing Testwood WSW operational works; this site is a downstream receptor for site-derived pollutants, although the mobile features of the site will not be reliant on habitats directly affected by construction. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this |
| The New Forest SAC | | | | |

| Groundwater (HSW): Test MAR (5.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HSW_HI-GRW_RE1_ALL_str_asr_tes_westi | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H3110: Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)<br>- H3130: Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea<br>- H4010: Northern Atlantic wet heaths with Erica tetralix<br>- H4030: European dry heaths<br>- H6410: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)<br>- H7140: Transition mires and quaking bogs<br>- H7150: Depressions on peat substrates of the Rhynchosporion<br>- H7230: Alkaline fens<br>- H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9190: Old acidophilous oak woods with Quercus robur on sandy plains<br>- H91D0: Bog woodland<br>- H91E0: Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)<br>- S1166: Great crested newt Triturus cristatus<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1083: Stag beetle Lucanus cervus | 3.4 | 0 | 0 | Construction:<br>Construction for this option would likely be required at the existing Testwood WSW operational works; The New Forest is up-catchment of this location and so effects via site derived pollutants would not occur; the scheme will not affect habitats that may be considerd functionally associated with the site or its mobile features.<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this site. |
| New Forest SPA | | | | |
| - A314: Wood warbler Phylloscopus sibilatrix<br>- A246: Wood lark Lullula arborea<br>- A302: Dartford warbler Sylvia undata<br>- A082: Hen harrier Circus cyaneus<br>- A224: European nightjar Caprimulgus europaeus<br>- A099: Eurasian hobby Falco subbuteo<br>- A072: European honey-buzzard Pernis apivorus | 4.9 | 0 | 0 | Construction:<br>Construction for this option would likely be required at the existing Testwood WSW operational works; The New Forest is up-catchment of this location and so effects via site derived pollutants would not occur; the scheme will not affect habitats that may be considerd functionally associated with the site or its mobile features.<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this |
| The New Forest Ramsar | | | | |

| Groundwater (HSW): Test MAR (5.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HSW_HI-GRW_RE1_ALL_str_asr_tes_westi | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 4.9 | 0 | 0 | Construction:<br>Construction for this option would likely be required at the existing Testwood WSW operational works; The New Forest is up-catchment of this location and so effects via site derived pollutants would not occur; the scheme will not affect habitats that may be considerd functionally associated with the site or its mobile features.<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this |
| Emer Bog SAC | | | | |
| - H7140: Transition mires and quaking bogs | 6.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this |
| River Itchen SAC | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 8.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>This option effectively uses the confined aquifer as a reservoir; the aquifer is known to be deeply confined beneath the London Clay and so there are no pathways by which the scheme operation could affect this site. |

# Groundwater (IOW): New borehole at Eastern Yar3 (1.5Ml/d)

SWS_IOW_HI-GRW_ALL_ALL_br_less

**Option Description**

The option is to drill a new replacement borehole, 100m deep, for Lessland Lane Augmenation well on the Isle of Wight. The existing borehole has experienced around a 90%+ loss in performance, and previous well rehabilitation and cleaning has not provided a notable improvement. A replacement well is required to regain resilience within the well field for the river augmentation scheme.

Groundwater (IOW): New borehole at Eastern Yar3 (1.5Ml/d)

SWS_IOW_HI-GRW_ALL_ALL_br_less

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Isle of Wight Downs SAC** | | | | |
| - H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts<br>- H4030: European dry heaths<br>- H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | 4.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>Most of the site features are not sensitive to water resource permissions although the Vegetated sea cliffs feature can be supported by groundwater seepages at some sites. In this instance the closest unit of this site (Ventnor Downs SSSI) is chalk downland located on chalk hills above Ventor that does not support this feature. In addition, the boreholes are accessing the Upper Greensand aquifer which will will not be supporting any groundwater seepages in the chalk. |
| **South Wight Maritime SAC** | | | | |
| - H1170: Reefs<br>- H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts<br>- H8330: Submerged or partially submerged sea caves | 4.4 | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>Site / features will not be exposed or sensitive to the anticipated environmental changes; this site is located outside Bembridge harbour and is predominantly marine at this location, and so exposure to environmental changes associated with the option operation will be inconsequential. |
| **Solent and Dorset Coast SPA** | | | | |

| Groundwater (IOW): New borehole at Eastern Yar3 (1.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-GRW_ALL_ALL_br_less | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 5.1/DS | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>Site / features will not be exposed or sensitive to the anticipated environmental changes; this site is located outside Bembridge harbour and is predominantly marine at this location, and so exposure to environmental changes associated with the option operation will be inconsequential. |
| Briddlesford Copses SAC | | | | |
| - S1323: Bechstein`s bat Myotis bechsteini | 6 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separate catchment); works are very small scale (borehole replacements) located in open fields beyond the Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and so the feature population will not be functionally dependent or associated with the area exposed to environmental changes. There will be 'no effects' on this site or its features.<br><br>Operation:<br>No pathways for operational effects (site not groundwater dependent). |
| Solent and Southampton Water SPA | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 7.8/DS | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>The option would operate within licence. |
| Solent and Southampton Water Ramsar | | | | |

| Groundwater (IOW): New borehole at Eastern Yar3 (1.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-GRW_ALL_ALL_br_less | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 7.8/DS | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>The option would operate within licence. |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 8.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance, site in separate catchment). |
| Solent and Isle of Wight Lagoons SAC | | | | |
| - H1150: Coastal lagoons | 10.1/DS | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>There is likely to be little / no exposure to operational effects due to location / relationship of the lagoon relative to Yar. |

# Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d)

SWS_IOW_HI-GRW_ALL_ALL_nw_gwa_kni_westi

**Option Description**

This option proposes replacing all 3 Lower Greensand boreholes on site so that the source can operate to its licenced capacity. Currently BH4 is non-operational, BH1 and BH2 are operational but at reduced capacity due to screen-dewatering. No additional treatment is proposed. Total Scheme output would be 4.5Ml/d.

Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d)

SWS_IOW_HI-GRW_ALL_ALL_nw_gwa_kni_westi

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Briddlesford Copses SAC** | | | | |
| - S1323: Bechstein`s bat Myotis bechsteini | 2.7 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separate catchment); works are very small scale (borehole replacements) located in open fields, and so the feature population will not be functionally dependent or associated with the area exposed to environmental changes. There will be 'no effects' on this site or its features.<br><br>Operation:<br>No pathways for operational effects (site not groundwater dependent). |
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 3.8/DS | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>Site / features will not be exposed or sensitive to the anticipated environmental changes; this site is located outside Bembridge harbour and is predominantly marine at this location, and so exposure to environmental changes associated with the option operation will be inconsequential. |
| **South Wight Maritime SAC** | | | | |
| - H1170: Reefs<br>- H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts<br>- H8330: Submerged or partially submerged sea caves | 3.9 | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>Site / features will not be exposed or sensitive to the anticipated environmental changes; this site is located outside Bembridge harbour and is predominantly marine at this location, and so exposure to environmental changes associated with the option operation will be inconsequential. |

| Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-GRW_ALL_ALL_nw_gwa_kni_westi | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 4.2/DS | 0 | U | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>The option would operate within licence, although the availability of the licensed volumes vs. recent actual abstraction requires confirmation as CAMS suggests restricted GW available, and restricted or no SW for this location depending on flows. |
| Solent and Southampton Water SPA | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 4.2/DS | 0 | U | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>The option would operate within licence, although the availability of the licensed volumes vs. recent actual abstraction requires confirmation as CAMS suggests restricted GW available, and restricted or no SW for this location depending on flows. |
| Solent and Isle of Wight Lagoons SAC | | | | |
| - H1150: Coastal lagoons | 6.5/DS | 0 | 0 | Construction:<br>Works are very small scale (borehole replacements) located in open fields and so construction effects would not be anticipated irrespective of any additional mitigation measures. There will be 'no effects' on this site or its features.<br><br>Operation:<br>There is likely to be little / no exposure to operational effects due to location / relationship of the lagoon relative to Yar. |
| Solent Maritime SAC | | | | |

| Groundwater (IOW): New boreholes at Newchurch (LGS) (1.9Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-GRW_ALL_ALL_nw_gwa_kni_westi | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | 6.9 | 0 | 0 | Construction: |
| - H1130: Estuaries | | | | No pathways for construction effects (distance, site in separate catchment). |
| - H1140: Mudflats and sandflats not covered by seawater at low tide | | | | |
| - H1150: Coastal lagoons | | | | Operation: |
| - H1210: Annual vegetation of drift lines | | | | No pathways for operational effects (distance, site in separate catchment). |
| - H1220: Perennial vegetation of stony banks | | | | |
| - H1310: Salicornia and other annuals colonizing mud and sand | | | | |
| - H1320: Spartina swards (Spartinion maritimae) | | | | |
| - H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae) | | | | |
| - H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | | | | |
| Isle of Wight Downs SAC | | | | |
| - H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts | 7.6 | 0 | 0 | Construction: |
| - H4030: European dry heaths | | | | No pathways for construction effects (distance, site in separate catchment). |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | | | | Operation: |
| - S1654: Early gentian Gentianella anglica | | | | Most of the site features are not sensitive to water resource permissions although the Vegetated sea cliffs feature can be supported by groundwater seepages at some sites. In this instance the closest unit of this site (Ventnor Downs SSSI) is chalk downland located on chalk hills above Ventor that does not support this feature. In addition, the boreholes are accessing the Lower Greensand aquifer which will will not be supporting any groundwater seepages in the chalk, and so operational effects will not occur. |

# Groundwater (KME): Recommission Gravesend (2.7Ml/d)

Option ID: NW_GWA_Win_EASTN

## Option Description

Gravesend source is a well and adit system that was decomissioned in 2007 due to high nitrate levels. A new nitrate treatment plant was constructed on site in 2006. A Source Investigation & Optimisation Study (SIOS) suggested that the nitrate problem was likely to be a faulty nitrate monitor. The report recommended the source could be recomissioned through a) Undertaking a long-term step test with steps of seven days duration at rates of 3.0Ml/d, 3.3Ml/d and maximum pump capacity (approximately 3.66Ml/d) subject to stabilisation of pumping water levels during each step b) Recalibratiion or repair of the online raw water nitrate monitor, c) Modify the headworks to the satellite well chamber to facilitate improved access. Refurbishment of the exsitng nitrate plant will also be required. Scheme Output: 5Ml/d

Groundwater (KME): Recommission Gravesend (2.7Ml/d)

Option ID: NW_GWA_Win_EASTN

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **North Downs Woodlands SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H91J0: Taxus baccata woods of the British Isles | 7.9 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, site up-catchment).<br><br>Operation:<br>No operational effects (features not water resource sensitive). |
| **Thames Estuary and Marshes SPA** | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 3.3 | 0 | N | Construction:<br>Minor works at existing operational site with no risk of effects on this site.<br><br>Operation:<br>The option would operate within licence, although above recent actual abstraction given the current decommissioned status of the site. On a precautionary basis, there is a plausible, although unlikely, impact pathway resulting from groundwater drawdown adversely affecting the Thames Estuary and Marshes Ramsar / SPA. |
| **Thames Estuary and Marshes Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 2.1 | 0 | N | Construction:<br>Minor works at existing operational site with no risk of effects on this site.<br><br>Operation:<br>The option would operate within licence, although above recent actual abstraction given the current decommissioned status of the site. On a precautionary basis, there is a plausible, although unlikely, impact pathway resulting from groundwater drawdown adversely affecting the Thames Estuary and Marshes Ramsar / SPA. |

# Groundwater (KME): Recommission Gravesend (2.7Ml/d)

Option ID: NW_GWA_Win_EASTN

## Option Description

Gravesend source is a well and adit system that was decomissioned in 2007 due to high nitrate levels. A new nitrate treatment plant was constructed on site in 2006. A Source Investigation & Optimisation Study (SIOS) suggested that the nitrate problem was likely to be a faulty nitrate monitor. The report recommended the source could be recomissioned through a) Undertaking a long-term step test with steps of seven days duration at rates of 3.0Ml/d, 3.3Ml/d and maximum pump capacity (approximately 3.66Ml/d) subject to stabilisation of pumping water levels during each step b) Recalibratiion or repair of the online raw water nitrate monitor, c) Modify the headworks to the satellite well chamber to facilitate improved access. Refurbishment of the exsitng nitrate plant will also be required. Scheme Output: 5Ml/d

Groundwater (KME): Recommission Gravesend (2.7Ml/d)

Option ID: NW_GWA_Win_EASTN

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **North Downs Woodlands SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9130: Taxus baccata woods of the British Isles | 7.9 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, site up-catchment).<br><br>Operation:<br>No operational effects (features not water resource sensitive). |
| **Thames Estuary and Marshes SPA** | | | | |
| - A672: Dunlin Calidris alpina alpina<br>- A143: Red knot Calidris canutus<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A141: Grey plover Pluvialis squatarola<br>- A132: Pied avocet Recurvirostra avosetta<br>- A137: Ringed plover Charadrius hiaticula<br>- A162: Common redshank Tringa totanus<br>- WATR: Waterbird assemblage | 3.3 | 0 | N | Construction:<br>Minor works at existing operational site with no risk of effects on this site.<br><br>Operation:<br>WINEP investigations currently ongoing in relation to North Kent Marshes sites, including this site, due to report in 2027. These studies are at too immature to inform this HRA; however, it is considered that there are unlikely to be significant effects on this site from this option as (a) the operation is within the existing licence; (b) the groundwater body is rated 'good' in relation to GWDTEs and the WFD; (c) the ALS indicates that there is water available for licensing in this unit; (d) the closest units of the SPA/Ramsar are in 'favourable' condition (except for Unti 41, which is in unfavourable no change condition due to ploughing rather than water resource issues); (e) previous hydroloecological studies for the North Kent Marshes (~2006) indicated that some abstractions may affect flows into the sites, but that this did not translate into significant or signficant adverse effects on the features (specifically overwintering bird |
| **Thames Estuary and Marshes Ramsar** | | | | |

| Groundwater (KME): Recommission Gravesend (2.7Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: NW_GWA_Win_EASTN | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 2.1 | 0 | N | Construction:<br>Minor works at existing operational site with no risk of effects on this site.<br><br>Operation:<br>WINEP investigations currently ongoing in relation to North Kent Marshes sites, including this site, due to report in 2027. These studies are at too immature to inform this HRA; however, it is considered that there are unlikely to be significant effects on this site from this option as (a) the operation is within the existing licence; (b) the groundwater body is rated 'good' in relation to GWDTEs and the WFD; (c) the ALS indicates that there is water available for licensing in this unit; (d) the closest units of the SPA/Ramsar are in 'favourable' condition (except for Unti 41, which is in unfavourable no change condition due to ploughing rather than water resource issues); (e) previous hydroloecological studies for the North Kent Marshes (~2006) indicated that some abstractions may affect flows into the sites, but that this did not translate into significant or signficant adverse effects on the features (specifically overwintering bird |

# Groundwater (SBZ): Lewes Road (3.5Ml/d)

Option ID: LEW

## Option Description

Lewes Road is a is a well and adit system that has been out of supply for over 10 years due to poor water quality. The scheme would refurbish the water supply works and add additional water treatment. It would also increase pump capacity and WSR connectivity so that Lewes Road groundwater source works can pump to its Middle or High WSR (output to the Low WSR is currently constrained by the header tanks at Hove ). The current demand constraint is approximately 2.3Ml/d (PDO). If the scheme is introduced, the constraint becomes pump capacity; scheme output is approximately 3.9Ml/d under severe drought conditions.

## Groundwater (SBZ): Lewes Road (3.5Ml/d)

Option ID: LEW

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Castle Hill SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | 4.2 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, site up-catchment).<br><br>Operation:<br>No operational effects (network solution; features not water resource sensitive). |

# Groundwater (SHZ): Reconfigure Rye Wells (1.5Ml/d)

SWS_SHZ_HI-GRW_ALL_ALL_ass_br_bre_eastn

## Option Description

Brede groundwater source is a well & audit system that is over 100 years old, and has reached the end of its asset life. It abstracts from the Ashdown Beds. Operational wells 1 and 3 are to be replaced by boreholes. Additional land may be required for at least one of the boreholes due to space constraints on site. Wells 2 and 4 are out of service and do not require replacement. Scheme output is 1.5Ml/d. There is an existing surface water WSW on site and no further treatment is required.

## Groundwater (SHZ): Reconfigure Rye Wells (1.5Ml/d)

SWS_SHZ_HI-GRW_ALL_ALL_ass_br_bre_eastn

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Dungeness, Romney Marsh and Rye Bay SPA** | | | | |
| - A056: Northern shoveler Anas clypeata<br>- A082: Hen harrier Circus cyaneus<br>- A151: Ruff Philomachus pugnax<br>- A176: Mediterranean gull Larus melanocephalus<br>- A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons<br>- A294: Aquatic warbler Acrocephalus paludicola<br>- A037: Tundra swan Cygnus columbianus bewickii<br>- A021: Great bittern Botaurus stellaris<br>- A140: European golden plover Pluvialis apricaria<br>- A081: Eurasian marsh harrier Circus aeruginosus<br>- A132: Pied avocet Recurvirostra avosetta<br>- WATR: Waterbird assemblage | 7.2/DS | U* | 0 | Construction:<br>Works required at Brede WSW upstream of the site. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option will operate within the existing licence and recently abstracted volumes; it is intended to provide additional resilience and so will not result in additional impacts on this site over baseline. |
| **Dungeness, Romney Marsh and Rye Bay Ramsar** | | | | |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 7.2/DS | U* | 0 | Construction:<br>Works required at Brede WSW upstream of the site. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option will operate within the existing licence and recently abstracted volumes; it is intended to provide additional resilience and so will not result in additional impacts on this site over baseline. |
| **Hastings Cliffs SAC** | | | | |

| Groundwater (SHZ): Reconfigure Rye Wells (1.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SHZ_HI-GRW_ALL_ALL_ass_br_bre_eastn | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts | 7.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; site features not supported by deep groundwater associated with the aquifer, but are fed by surface and shallow groundwater inputs from the local |
| Dungeness SAC | | | | |
| - H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- S1166: Great crested newt Triturus cristatus | 10.6/DS | 0 | 0 | Construction:<br>Features of the site will have a very low exposure to site-derived pollutants that may enter watercourses due to their characteristics / locations within the site. Effects are therefore likely to be nil irrespective of any mitigtation that is applied.<br><br>Operation:<br>No pathways for effects (features of the site not dependent on inputs from ground- or surface-water) |

# Groundwater (SNZ): New borehole at Petworth (4Ml/d)

SWS_SNZ_HI-ROC_RE1_ALL_hsb-rcm

**Option Description**

This scheme would return an existing WSW (Petworth) to service. The site has been out of supply due to poor water quality. The scheme would be to drill a new borehole in the Hythe Formation approximately 700m south of the existing WSW. Borehole to be minimum c. 300mm dia ID, and c. 80m depth. Connection to the treatment works and refurbishment of the treatment works would be required.

Groundwater (SNZ): New borehole at Petworth (4Ml/d)

SWS_SNZ_HI-ROC_RE1_ALL_hsb-rcm

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **The Mens SAC** | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus | 2.3 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline within Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (site not groundwater dependent). |
| **Duncton to Bignor Escarpment SAC** | | | | |
| - H9130: Asperulo-Fagetum beech forests | 3.6 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance, features not GW sensitive). |
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 4.4/DS | U* | U | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Sensitivity of the site habitats is likely to be relatively low due to the active management of water levels in the ditch network; in addition, direct effects from drawdown are unlikely. However, this would require additional characterisation, including details of likely effects on flows in the Rother. |
| **Arun Valley SPA** | | | | |

| Groundwater (SNZ): New borehole at Petworth (4Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-ROC_RE1_ALL_hsb-rcm | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 4.4/DS | U* | U | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Sensitivity of the site habitats is likely to be relatively low due to the active management of water levels in the ditch network; in addition, direct effects from drawdown are unlikely. However, this would require additional characterisation, including details of likely effects on flows in the Rother. |
| Arun Valley SAC | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 4.9/DS | U* | U | Construction:<br>Indicative pipeline route crosses tributaries of this site but site features will have a low exposure to potential effects due to their location within the site. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Sensitivity of the site habitats is likely to be relatively low due to the active management of water levels in the ditch network; in addition, direct effects from drawdown are unlikely. However, this would require additional characterisation, including details of likely effects on flows in the Rother. |
| Ebernoe Common SAC | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus<br>- S1323: Bechstein`s bat Myotis bechsteini | 5.7 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline outside Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, but effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (site not groundwater dependent). |

## Groundwater (SNZ): Petersfield refurbishment (1.6Ml/d)

Option ID: ROGAT

**Option Description**

This WRMP19 option involves the transfer excess water for enhanced treatment near Midhurst (Nightsfield Midhurst high level WSR) with refurbishment of Midhurst and borehole rehabilitation. The scheme will require full refurbishment of the WSW, including boreholes and treatment.

**Groundwater (SNZ): Petersfield refurbishment (1.6Ml/d)**

Option ID: ROGAT

| Site and Features | Dist (km) | LSE? C | LSE? U | Screening Rationale |
|---|---|---|---|---|
| **Butser Hill SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H91J0: Taxus baccata woods of the British Isles | DS | 0 | 0 | Construction:<br>Site not exposed to environmental changes associated with construction (distance; no reasonable effect pathways)<br><br>Operation:<br>Site not exposed and/or sensitive to likely operational outcomes (features not groundwater dependent; distance). |
| **East Hampshire Hangers SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9180: Tilio-Acerion forests of slopes, screes and ravines<br>- H91J0: Taxus baccata woods of the British Isles<br>- S1654: Early gentian Gentianella anglica | DS | 0 | 0 | Construction:<br>Site not exposed to environmental changes associated with construction (distance; no reasonable effect pathways)<br><br>Operation:<br>Site not exposed and/or sensitive to likely operational outcomes (features not groundwater dependent; distance). |

| Groundwater (SNZ): Petersfield refurbishment (1.6Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: ROGAT | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Rook Clift SAC** | | | | |
| - H9180: Tilio-Acerion forests of slopes, screes and ravines | DS | 0 | 0 | Construction:<br>Site not exposed to environmental changes associated with construction (distance; no reasonable effect pathways)<br><br>Operation:<br>Site not exposed and/or sensitive to likely operational outcomes (features not groundwater dependent; distance). |
| **Wealden Heaths Phase 2 SPA** | | | | |
| - A302: Dartford warbler Sylvia undata<br>- A224: European nightjar Caprimulgus europaeus<br>- A246: Wood lark Lullula arborea | DS | 0 | 0 | Construction:<br>Site not exposed to environmental changes associated with construction (distance; no reasonable effect pathways)<br><br>Operation:<br>Site not exposed and/or sensitive to likely operational outcomes (groundwater dependent features present but will not be affected due to the distance / geological characteristics). |

| **Groundwater (SNZ): Petersfield refurbishment (1.6Ml/d)** | | | | |
|---|---|---|---|---|
| Option ID: ROGAT | | | | |
| **Site and Features** | **Dist** | **LSE?** | | **Screening Rationale** |
| | **(km)** | **C** | **U** | |
| **Woolmer Forest SAC** | | | | |
| - H3160: Natural dystrophic lakes and ponds<br>- H4010: Northern Atlantic wet heaths with Erica tetralix<br>- H4030: European dry heaths<br>- H7140: Transition mires and quaking bogs<br>- H7150: Depressions on peat substrates of the Rhynchosporion | DS | 0 | 0 | Construction:<br>Site not exposed to environmental changes associated with construction (distance; no reasonable effect pathways)<br><br>Operation:<br>Site not exposed and/or sensitive to likely operational outcomes (groundwater dependent features present but will not be affected due to the distance / geological characteristics). |
| **Arun Valley SAC** | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | DS/DS | 0 | U | Construction:<br>Construction works are small-scale and minor; site will not be exposed to potentially notable environmental changes irrespective of mitigation due to distance.<br><br>Operation:<br>This option may reduce flows in the River Rother downstream of Petersfield, which has the potential to affect this site - although the exposure of the site is likely to be low due to the relationship of the wetlands with the river and management of water levels within the site, and the low magnitude of abstraction. However, this requires additional data to confirm acceptability. |

| Groundwater (SNZ): Petersfield refurbishment (1.6Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: ROGAT | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Arun Valley SPA** | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | DS/DS | 0 | U | Construction:<br>Construction works are small-scale and minor; site will not be exposed to potentially notable environmental changes irrespective of mitigation due to distance.<br><br>Operation:<br>This option may reduce flows in the River Rother downstream of Petersfield, which has the potential to affect this site - although the exposure of the site is likely to be low due to the relationship of the wetlands with the river and management of water levels within the site, and the low magnitude of abstraction. However, this requires additional data to confirm acceptability. |
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | DS/DS | 0 | U | Construction:<br>Construction works are small-scale and minor; site will not be exposed to potentially notable environmental changes irrespective of mitigation due to distance.<br><br>Operation:<br>This option may reduce flows in the River Rother downstream of Petersfield, which has the potential to affect this site - although the exposure of the site is likely to be low due to the relationship of the wetlands with the river and management of water levels within the site, and the low magnitude of abstraction. However, this requires additional data to confirm acceptability. |

## Groundwater (SNZ): Reinstate West Chiltington (3.1Ml/d)

Option ID: SMOCK

**Option Description**

This WRMP19 option involves bringing the West Chiltington groundwater source back into service by constructing a new borehole, new treatment plant and flood resilience measures at the site.

**Groundwater (SNZ): Reinstate West Chiltington (3.1Ml/d)**

Option ID: SMOCK

| Site and Features | Dist (km) | LSE? C | LSE? U | Screening Rationale |
|---|---|---|---|---|
| **Arun Valley SAC** | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 3.1/DS | U* | U | Construction:<br>Site may be affected by site-derived pollutants from construction, in the absence of mitigation.<br><br>Operation:<br>Site habitats are hydrologically linked to the River Arun. |
| **Arun Valley SPA** | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 3.1/DS | U* | U | Construction:<br>Site may be affected by site-derived pollutants from construction, in the absence of mitigation.<br><br>Operation:<br>Site habitats are hydrologically linked to the River Arun. |

| Groundwater (SNZ): Reinstate West Chiltington (3.1Ml/d) | | | | |
|---|---|---|---|---|
| Option ID: SMOCK | | | | |
| **Site and Features** | **Dist (km)** | **LSE? C** | **U** | **Screening Rationale** |
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 3.1/DS | U* | U | Construction:<br>Site may be affected by site-derived pollutants from construction, in the absence of mitigation.<br><br>Operation:<br>Site habitats are hydrologically linked to the River Arun. |
| **The Mens SAC** | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus | 8.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, no hydrological linkages, construction area outside CSZ of mobile species).<br><br>Operation:<br>No pathways for operational effects (site is up-catchment and does not support mobile species). |

# Interzonal transfer (HAZ-HKZ): Andover to Kingsclere bi-directional (10Ml/d)

SWS_HKZ_HI-TFR_HAZ_ALL_oan3

**Option Description**

Transfer from Lower Itchen to Andover to Kingsclere. This scheme is designed to support network improvements needed for UTMRD transfer to Hampshire and/or the strategic scheme from IoW/South Hampshire.

Interzonal transfer (HAZ-HKZ): Andover to Kingsclere bi-directional (10Ml/d)

SWS_HKZ_HI-TFR_HAZ_ALL_oan3

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 0.3/DS | U* | 0 | Construction:<br>Indicative pipeline route is within the catchment of this site (although surface watercourses conncting to the site are limited by geology) and construction will be required relatively close to the SAC; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only); pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| **Emer Bog SAC** | | | | |
| - H7140: Transition mires and quaking bogs | 6 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Kennet and Lambourn Floodplain SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 8.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Solent and Dorset Coast SPA** | | | | |

| Interzonal transfer (HAZ-HKZ): Andover to Kingsclere bi-directional (10Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HKZ_HI-TFR_HAZ_ALL_oan3 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 8.4/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| River Lambourn SAC | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1163: Bullhead Cottus gobio | 9.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 10.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent and Southampton Water SPA | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 10.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

| Interzonal transfer (HAZ-HKZ): Andover to Kingsclere bi-directional (10Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HKZ_HI-TFR_HAZ_ALL_oan3 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 12/DS | 0 | 0 | Construction:<br>Closest units of this site are a substantial distance downstream and down-estuary from the closest point of construction, and any incidental construction-related environmental changes (e.g. from site run off) are likely to be fully attenuated by this point, irrespective of any mitigtaion.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Interzonal transfer (HRZ-HSW): Romsey Town and Broadlands valve (3.1Ml/d)

SWS_HRZ_HI-TFR_HSW_ALL_bro

**Option Description**

Development and upgrade of existing transfer between Romsey Town & Broadlands valve (HSW-HRZ). This option involves installing a new booster station with 5Ml/d flow capacity to an existing transfer to allow bi-

**Interzonal transfer (HRZ-HSW): Romsey Town and Broadlands valve (3.1Ml/d)**

SWS_HRZ_HI-TFR_HSW_ALL_bro

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Emer Bog SAC** | | | | |
| - H7140: Transition mires and quaking bogs | 3.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Solent and Southampton Water Ramsar** | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 5.1/DS | U* | 0 | Construction:<br>Construction required in parkland within 500m of the River Test; effects on the habitats of this site likely to be nil irrespective of mitigation given the distance downstream and very small scale of the construction; mobile interest features will not be functionally linked to the parkland habitats affected by the scheme. Significant and/or significant adverse effects are certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| **Solent and Southampton Water SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 5.2/DS | U* | 0 | Construction:<br>Construction required in parkland within 500m of the River Test; effects on the habitats of this site likely to be nil irrespective of mitigation given the distance downstream and very small scale of the construction; mobile interest features will not be functionally linked to the parkland habitats affected by the scheme. Significant and/or significant adverse effects are certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| **The New Forest SAC** | | | | |

| Interzonal transfer (HRZ-HSW): Romsey Town and Broadlands valve (3.1Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HRZ_HI-TFR_HSW_ALL_bro | | | | |
| **Site and Features** | **Dist** | **LSE?** | | **Screening Rationale** |
| | (km) | C | U | |
| - H3110: Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)<br>- H3130: Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea<br>- H4010: Northern Atlantic wet heaths with Erica tetralix<br>- H4030: European dry heaths<br>- H6410: Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)<br>- H7140: Transition mires and quaking bogs<br>- H7150: Depressions on peat substrates of the Rhynchosporion<br>- H7230: Alkaline fens<br>- H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9190: Old acidophilous oak woods with Quercus robur on sandy plains<br>- H91D0: Bog woodland<br>- H91E0: Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)<br>- S1166: Great crested newt Triturus cristatus<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1083: Stag beetle Lucanus cervus | 5.7 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separate catchment); works are very small scale (booster station) located in open parkland.<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| **Solent Maritime SAC** | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 5.8/DS | U* | 0 | Construction:<br>Construction required in parkland within 500m of the River Test; effects on the habitats of this site likely to be nil irrespective of mitigation given the distance downstream and very small scale of the construction; mobile interest features will not be functionally linked to the parkland habitats affected by the scheme. Significant and/or significant adverse effects are certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| **The New Forest Ramsar** | | | | |

| Interzonal transfer (HRZ-HSW): Romsey Town and Broadlands valve (3.1Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HRZ_HI-TFR_HSW_ALL_bro | | | | |
| **Site and Features** | **Dist** | **LSE?** | | **Screening Rationale** |
| | (km) | C | U | |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 6.2 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); works are very small scale (booster station) located in open parkland.<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| New Forest SPA | | | | |
| - A314: Wood warbler Phylloscopus sibilatrix<br>- A246: Wood lark Lullula arborea<br>- A302: Dartford warbler Sylvia undata<br>- A082: Hen harrier Circus cyaneus<br>- A224: European nightjar Caprimulgus europaeus<br>- A099: Eurasian hobby Falco subbuteo<br>- A072: European honey-buzzard Pernis apivorus | 6.2 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); works are very small scale (booster station) located in open parkland that will not provide 'functional habitat' for the features of this site.<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| Solent and Dorset Coast SPA | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 7.1/DS | U* | 0 | Construction:<br>Construction required in parkland within 500m of the River Test; effects on the habitats of this site likely to be nil irrespective of mitigation given the distance downstream and very small scale of the construction; mobile interest features will not be functionally linked to the parkland habitats affected by the scheme. Significant and/or significant adverse effects are certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| Mottisfont Bats SAC | | | | |
| - S1308: Barbastelle Barbastella barbastellus | 7.1 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); works are very small scale (booster station) located in open parkland outside the Core Sustenance Zone (CSZ; see Appendix B), and so the feature population will not be functionally dependent or associated with the area exposed to environmental changes. There will be 'no effects' on this site.<br><br>Operation:<br>No pathways for operational effects (network scheme). |
| River Itchen SAC | | | | |

| Interzonal transfer (HRZ-HSW): Romsey Town and Broadlands valve (3.1Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HRZ_HI-TFR_HSW_ALL_bro | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 9.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

## Interzonal transfer (HSE-HWZ): **Lower Itchen** WSW to Yew Hill bi-directional (74Ml/d)

SWS_HWZ_HI-TFR_HSE_ALL_oan1

**Option Description**

Transfer from Lower Itchen to Andover to Kingsclere WRZs. This scheme is designed to support network improvements needed for UTMRD transfer to Hampshire and/or the strategic scheme from IoW/South

Interzonal transfer (HSE-HWZ): **Lower Itchen** WSW to Yew Hill bi-directional (74Ml/d)

SWS_HWZ_HI-TFR_HSE_ALL_oan1

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 0.3/DS | U* | 0 | Construction:<br>Indicative pipeline route is within the catchment of this site (although surface watercourses connecting to the site are limited by geology) and construction will be required relatively close to the SAC; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only); pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| **Emer Bog SAC** | | | | |
| - H7140: Transition mires and quaking bogs | 6 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Kennet and Lambourn Floodplain SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 8.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Solent and Dorset Coast SPA** | | | | |

| Interzonal transfer (HSE-HWZ): **Lower Itchen** WSW to Yew Hill bi-directional (74Ml/d)<br>SWS_HWZ_HI-TFR_HSE_ALL_oan1 | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 8.4/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| River Lambourn SAC | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1163: Bullhead Cottus gobio | 9.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 10.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent and Southampton Water SPA | | | | |

| Interzonal transfer (HSE-HWZ): **Lower Itchen** WSW to Yew Hill bi-directional (74Ml/d)<br>SWS_HWZ_HI-TFR_HSE_ALL_oan1 | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 10.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 12/DS | 0 | 0 | Construction:<br>Closest units of this site are a substantial distance downstream and down-estuary from the closest point of construction, and any incidental construction-related environmental changes (e.g. from site run off) are likely to be fully attenuated by this point, irrespective of any mitigtaion.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

## Interzonal transfer (HWZ-HAZ): Winchester to Andover bi-directional (15Ml/d)

SWS_HAZ_HI-TFR_HWZ_ALL_oan2

**Option Description**

Transfer from Lower Itchen to Andover to Kingsclere. This scheme is designed to support network improvements and/or the strategic scheme from IoW/South Hampshire.

**Interzonal transfer (HWZ-HAZ): Winchester to Andover bi-directional (15Ml/d)**

SWS_HAZ_HI-TFR_HWZ_ALL_oan2

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 0.3/DS | U* | 0 | Construction:<br>Indicative pipeline route is within the catchment of this site (although surface watercourses conncting to the site are limited by geology) and construction will be required relatively close to the SAC; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only); pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| **Emer Bog SAC** | | | | |
| - H7140: Transition mires and quaking bogs | 6 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Kennet and Lambourn Floodplain SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 8.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Solent and Dorset Coast SPA** | | | | |

| Interzonal transfer (HWZ-HAZ): Winchester to Andover bi-directional (15Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HAZ_HI-TFR_HWZ_ALL_oan2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 8.4/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| River Lambourn SAC | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1163: Bullhead Cottus gobio | 9.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 10.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Solent and Southampton Water SPA | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 10.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site at several points; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species of site will not be functionally associated with habitats affected by construction.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

| Interzonal transfer (HWZ-HAZ): Winchester to Andover bi-directional (15Ml/d) | | | | |
|---|---|---|---|---|
| SWS_HAZ_HI-TFR_HWZ_ALL_oan2 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| Solent Maritime SAC | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 12/DS | 0 | 0 | Construction:<br>Closest units of this site are a substantial distance downstream and down-estuary from the closest point of construction, and any incidental construction-related environmental changes (e.g. from site run off) are likely to be fully attenuated by this point, irrespective of any mitigtaion.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Interzonal transfer (KME-KTZ): KME-KTZ bi-directional (15.8Ml/d)

SWS_KME_HI-IMP_KTZ_ALL_sel1

**Option Description**

Conditioning of existing Faversham4 Fleete main to enable bi-directional transfers (and specifically from Kent Thanet to Kent Medway). It is not thought that any additional pipeline would be required, although this is dependent on the existing main being structurally sound.

Interzonal transfer (KME-KTZ): KME-KTZ bi-directional (15.8Ml/d)

SWS_KME_HI-IMP_KTZ_ALL_sel1

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Blean Complex SAC** | | | | |
| - H9160: Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 0 | 0 | 0 | Construction:<br>The existing pipeline is within 50m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >6km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 0.3 | 0 | 0 | Construction:<br>The existing pipeline is within 400m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >20km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 0.4 | 0 | 0 | Construction:<br>The existing pipeline is within 400m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >20km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh SPA** | | | | |

| Interzonal transfer (KME-KTZ): KME-KTZ bi-directional (15.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-IMP_KTZ_ALL_sel1 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A050: Eurasian wigeon Anas penelope<br>- A056: Northern shoveler Anas clypeata<br>- A394: Greater white-fronted goose Anser albifrons albifrons<br>- A153: Common snipe Gallinago gallinago<br>- A142: Northern lapwing Vanellus vanellus<br>- A082: Hen harrier Circus cyaneus<br>- A021: Great bittern Botaurus stellaris<br>- A051: Gadwall Anas strepera<br>- A059: Common pochard Aythya ferina<br>- A053: Mallard Anas platyrhynchos<br>- A051: Gadwall Anas strepera<br>- A118: Water rail Rallus aquaticus<br>- A061: Tufted duck Aythya fuligula<br>- BBA: Breeding bird assemblage<br>- A048: Common shelduck Tadorna tadorna | 0.5 | 0 | 0 | Construction:<br>The existing pipeline is within 400m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >20km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| The Swale Ramsar | | | | |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 2.5/DS | 0 | 0 | Construction:<br>The majority of this option utilises existing infrastructure; however it is possible that a short (~5.6km) section of pipeline will be required between Faversham3 and Faversham4 which is within the catchment of this site (>4.5km from site boundary. However, there are no notable surafec watercourses in this area due to the underlying geology, and so effects on the site through site derived pollutants would not be expected. The interest features of the site are unlikely to be functionally associated with the affected habitats.<br><br>Operation: |
| The Swale SPA | | | | |

| Interzonal transfer (KME-KTZ): KME-KTZ bi-directional (15.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-IMP_KTZ_ALL_sel1 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A137: Ringed plover Charadrius hiaticula<br>- A130: Eurasian oystercatcher Haematopus ostralegus<br>- A052: Eurasian teal Anas crecca<br>- A672: Dunlin Calidris alpina alpina<br>- A160: Eurasian curlew Numenius arquata<br>- A051: Gadwall Anas strepera<br>- A141: Grey plover Pluvialis squatarola<br>- A162: Common redshank Tringa totanus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- WATR: Waterbird assemblage<br>- BBA: Breeding bird assemblage<br>- A616: Black-tailed godwit Limosa limosa islandica | 2.5/DS | 0 | 0 | Construction:<br>The majority of this option utilises existing infrastructure; however it is possible that a short (~5.6km) section of pipeline will be required between Faversham3 and Faversham4 which is within the catchment of this site (>4.5km from site boundary. However, there are no notable surafec watercourses in this area due to the underlying geology, and so effects on the site through site derived pollutants would not be expected. The interest features of the site are unlikely to be functionally associated with the affected habitats.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Thanet Coast and Sandwich Bay SPA | | | | |
| - A169: Ruddy turnstone Arenaria interpres<br>- A140: European golden plover Pluvialis apricaria<br>- A195: Little tern Sterna albifrons | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Thanet Coast and Sandwich Bay Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Sandwich Bay SAC | | | | |

| Interzonal transfer (KME-KTZ): KME-KTZ bi-directional (15.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-IMP_KTZ_ALL_sel1 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H2110: Embryonic shifting dunes<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- H2130: Fixed coastal dunes with herbaceous vegetation ("grey dunes")<br>- H2170: Dunes with Salix repens ssp. argentea (Salicion arenariae)<br>- H2190: Humid dune slacks | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Thanet Coast SAC | | | | |
| - H1170: Reefs<br>- H8330: Submerged or partially submerged sea caves | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation: |
| Outer Thames Estuary SPA | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 3.6/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation: |
| Tankerton Slopes and Swalecliffe SAC | | | | |
| - S4035: Fisher's estuarine moth Gortyna borelii lunata | 4.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor; mobile features have specialised foodplant requirements and will not be functionally associated with habitats affected by option construction).<br><br>Operation: |
| Margate and Long Sands SAC | | | | |

| Interzonal transfer (KME-KTZ): KME-KTZ bi-directional (15.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-IMP_KTZ_ALL_sel1 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | 4.7 | 0 | 0 | Construction:<br>Pipeline crosses watercourses that flow to the north Kent coast (and hence within 1km of this site); however, the marine nature of the site features will ensure that the exposure to possible environmental changes as a result of construction will be effectively nil due to tidal flux etc.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Wye and Crundale Downs SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 8.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |

# Interzonal transfer (KTZ-KME): Utilise full existing transfer capacity (9Ml/d)

SWS_KME_EF-TFR_REP_ALL_kme2kt

## Option Description

The current operational transfer from Kent Medway East to Kent Thanet is limited to the output from Faversham4 WSW. This option enables flows from the Faversham3 groundwater source to be directed, via an existing main, towards Faversham4 WSW. A soakaway is installed at Faversham4 to allow for reconditioning of the existing main and the addition of UV treatment at Faversham4 permits disinfection of the Faversham3 flows.

Interzonal transfer (KTZ-KME): Utilise full existing transfer capacity (9Ml/d)

SWS_KME_EF-TFR_REP_ALL_kme2kt

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Blean Complex SAC** | | | | |
| - H9160: Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli | 0 | 0 | 0 | Construction:<br>The existing pipeline is within 50m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >6km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh SAC** | | | | |
| - S1016: Desmoulin`s whorl snail Vertigo moulinsiana | 0.3 | 0 | 0 | Construction:<br>The existing pipeline is within 400m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >20km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 0.4 | 0 | 0 | Construction:<br>The existing pipeline is within 400m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >20km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Stodmarsh SPA** | | | | |

| Interzonal transfer (KTZ-KME): Utilise full existing transfer capacity (9Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_EF-TFR_REP_ALL_kme2kt | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A050: Eurasian wigeon Anas penelope<br>- A056: Northern shoveler Anas clypeata<br>- A394: Greater white-fronted goose Anser albifrons albifrons<br>- A153: Common snipe Gallinago gallinago<br>- A142: Northern lapwing Vanellus vanellus<br>- A082: Hen harrier Circus cyaneus<br>- A021: Great bittern Botaurus stellaris<br>- A051: Gadwall Anas strepera<br>- A059: Common pochard Aythya ferina<br>- A053: Mallard Anas platyrhynchos<br>- A051: Gadwall Anas strepera<br>- A118: Water rail Rallus aquaticus<br>- A061: Tufted duck Aythya fuligula<br>- BBA: Breeding bird assemblage<br>- A048: Common shelduck Tadorna tadorna | 0.5 | 0 | 0 | Construction:<br>The existing pipeline is within 400m of this site but will not require replacement (all works internal to the pipe); the closest area of construction is therefore >20km from this site, which will not be exposed to any environmental changes as a result of the delivery.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| The Swale Ramsar | | | | |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 2.5/DS | 0 | 0 | Construction:<br>The majority of this option utilises existing infrastructure; however it is possible that minor works will be required at Faversham4 which is within the catchment of this site (>4.5km from site boundary. However, there are no notable surafec watercourses in this area due to the underlying geology, and so effects on the site through site derived pollutants would not be expected. The interest features of the site are unlikely to be functionally associated with the affected habitats.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| The Swale SPA | | | | |

| Interzonal transfer (KTZ-KME): Utilise full existing transfer capacity (9Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_EF-TFR_REP_ALL_kme2kt | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A137: Ringed plover Charadrius hiaticula<br>- A130: Eurasian oystercatcher Haematopus ostralegus<br>- A052: Eurasian teal Anas crecca<br>- A672: Dunlin Calidris alpina alpina<br>- A160: Eurasian curlew Numenius arquata<br>- A051: Gadwall Anas strepera<br>- A141: Grey plover Pluvialis squatarola<br>- A162: Common redshank Tringa totanus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- WATR: Waterbird assemblage<br>- BBA: Breeding bird assemblage<br>- A616: Black-tailed godwit Limosa limosa islandica | 2.5/DS | 0 | 0 | Construction:<br>The majority of this option utilises existing infrastructure; however it is possible that minor works will be required at Faversham4 which is within the catchment of this site (>4.5km from site boundary. However, there are no notable surafec watercourses in this area due to the underlying geology, and so effects on the site through site derived pollutants would not be expected. The interest features of the site are unlikely to be functionally associated with the affected habitats.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Thanet Coast and Sandwich Bay SPA | | | | |
| - A169: Ruddy turnstone Arenaria interpres<br>- A140: European golden plover Pluvialis apricaria<br>- A195: Little tern Sterna albifrons | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Thanet Coast and Sandwich Bay Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Sandwich Bay SAC | | | | |

| Interzonal transfer (KTZ-KME): Utilise full existing transfer capacity (9Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_EF-TFR_REP_ALL_kme2kt | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H2110: Embryonic shifting dunes<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")<br>- H2130: Fixed coastal dunes with herbaceous vegetation ("grey dunes")<br>- H2170: Dunes with Salix repens ssp. argentea (Salicion arenariae)<br>- H2190: Humid dune slacks | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Thanet Coast SAC | | | | |
| - H1170: Reefs<br>- H8330: Submerged or partially submerged sea caves | 2.9/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Outer Thames Estuary SPA | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 3.6/DS | 0 | 0 | Construction:<br>The existing pipeline not require replacement (all works internal to the pipe); minor works (new PS) potentially required at Fleete WSR but this site and its features will not be exposed to environmental changes as a result of these works.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Tankerton Slopes and Swalecliffe SAC | | | | |
| - S4035: Fisher's estuarine moth Gortyna borelii lunata | 4.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, a not downstream receptor; mobile features have specialised foodplant requirements and will not be functionally associated with habitats affected by option construction).<br><br>Operation: |
| Margate and Long Sands SAC | | | | |

| Interzonal transfer (KTZ-KME): Utilise full existing transfer capacity (9Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KME_EF-TFR_REP_ALL_kme2kt | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | 4.7 | 0 | 0 | Construction:<br>Pipeline crosses watercourses that flow to the north Kent coast (and hence within 1km of this site); however, the marine nature of the site features will ensure that the exposure to possible environmental changes as a result of construction will be effectively nil due to tidal flux etc.<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |
| Wye and Crundale Downs SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 8.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; network solution only). |

# Interzonal transfer (SBZ-SWZ): Brighton to Worthing

SWS_SWZ_EF-TFR_REP_ALL_brighton-tenants p

## Option Description

New bi-directional transfer between Sussex Worthing and Sussex Brighton Water Resource Zones.

## Interzonal transfer (SBZ-SWZ): Brighton to Worthing

SWS_SWZ_EF-TFR_REP_ALL_brighton-tenants p

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Castle Hill SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |
| **Lewes Down SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |

# Interzonal transfer (SNZ-SWZ): Pulborough to Worthing

SWS_SWZ_EF-TFR_REP_ALL_hardham-tenants p

**Option Description**

Additional pipeline to provide extra capacity along the existing transfer route between Sussex North and Sussex Worthing

Interzonal transfer (SNZ-SWZ): Pulborough to Worthing

SWS_SWZ_EF-TFR_REP_ALL_hardham-tenants p

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Arun Valley SPA** | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 0.2/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Arun Valley SAC** | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 0.2/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 0.2/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| **The Mens SAC** | | | | |

| Interzonal transfer (SNZ-SWZ): Pulborough to Worthing | | | | |
|---|---|---|---|---|
| SWS_SWZ_EF-TFR_REP_ALL_hardham-tenants p | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus | 4.3 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment site); pipeline partially within the Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest feature of the site (Barbastelle bat), and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (network scheme only). |
| Duncton to Bignor Escarpment SAC | | | | |
| - H9130: Asperulo-Fagetum beech forests | 5.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance, network scheme only). |
| Ebernoe Common SAC | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus<br>- S1323: Bechstein`s bat Myotis bechsteini | 9.6 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment site); pipeline substantially beyond the Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and potentially signficant effects on habitats functionally critical to the feature populations are very unlikely.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Interzonal transfer (SWZ-SBZ): Pulborough winter transfer stage 2 (4Ml/d)

SWS_SBZ_EF-TFR_REP_ALL_har2 res

Option Description

0

Interzonal transfer (SWZ-SBZ): Pulborough winter transfer stage 2 (4Ml/d)

SWS_SBZ_EF-TFR_REP_ALL_har2 res

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| Castle Hill SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | 7.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive; network solution |

## Recycling (HSE): Recharge of Havant Thicket from recycled water from **Portsmouth Harbour** (60Ml/d)

SWS_PWE_HI-REU_RE1_ALL_60toht v0.1

**Option Description**

60Ml/d of recycled water will be sent to Lower Itchen via Havant Thicket Reservoir. Portsmouth Harbour WWTW transfer to new Water Recycling Plant then transfer to Havant Thicket. Direct raw water transfer from Havant Thicket to Lower Itchen for treatment.

### Recycling (HSE): Recharge of Havant Thicket from recycled water from Budds Farm (60Ml/d)

SWS_PWE_HI-REU_RE1_ALL_60toht v0.1

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **River Itchen SAC** | | | | |
| - H3260: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation<br>- S1096: Brook lamprey Lampetra planeri<br>- S1106: Atlantic salmon Salmo salar<br>- S1163: Bullhead Cottus gobio<br>- S1044: Southern damselfly Coenagrion mercuriale<br>- S1092: White-clawed (or Atlantic stream) crayfish Austropotamobius pallipes<br>- S1355: Otter Lutra lutra | 0/DS | Y | 0 | Construction:<br>Indicative pipeline route crosses this site or nearby tributaries at several points.<br><br>Operation:<br>No pathways for operational effects (water not sourced from Itchen catchment; pipeline operation would not result in other environmental changes (e.g. noise, lighting) likely to affect the features of the site). |
| **Solent Maritime SAC** | | | | |
| - H1110: Sandbanks which are slightly covered by sea water all the time<br>- H1130: Estuaries<br>- H1140: Mudflats and sandflats not covered by seawater at low tide<br>- H1150: Coastal lagoons<br>- H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- H1310: Salicornia and other annuals colonizing mud and sand<br>- H1320: Spartina swards (Spartinion maritimae)<br>- H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae)<br>- H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | 0.7/DS | Y | Y | Construction:<br><br>Operation: |
| **Chichester and Langstone Harbours Ramsar** | | | | |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 0.7/DS | Y | Y | Construction:<br><br>Operation: |
| **Chichester and Langstone Harbours SPA** | | | | |

| Recycling (HSE): Recharge of Havant Thicket from recycled water from **Portsmouth Harbour** (60Ml/d) | | | | |
|---|---|---|---|---|
| SWS_PWE_HI-REU_RE1_ALL_60toht v0.1 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A191: Sandwich tern Sterna sandvicensis | 0.7/DS | Y | Y | Construction: |
| - A162: Common redshank Tringa totanus | | | | |
| - A169: Ruddy turnstone Arenaria interpres | | | | |
| - A193: Common tern Sterna hirundo | | | | Operation: |
| - A137: Ringed plover Charadrius hiaticula | | | | |
| - A050: Eurasian wigeon Anas penelope | | | | |
| - A056: Northern shoveler Anas clypeata | | | | |
| - A054: Northern pintail Anas acuta | | | | |
| - A157: Bar-tailed godwit Limosa lapponica | | | | |
| - A052: Eurasian teal Anas crecca | | | | |
| - A144: Sanderling Calidris alba | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | |
| - A069: Red-breasted merganser Mergus serrator | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - A160: Eurasian curlew Numenius arquata | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| - A672: Dunlin Calidris alpina alpina | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| - WATR: Waterbird assemblage | | | | |
| Solent and Isle of Wight Lagoons SAC | | | | |
| - H1150: Coastal lagoons | 2.9 | Y | Y | Construction: |
| | | | | Operation: |
| Solent and Dorset Coast SPA | | | | |
| - A191: Sandwich tern Sterna sandvicensis | 3.6/DS | Y | Y | Construction: |
| - A193: Common tern Sterna hirundo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| | | | | Operation: |
| Portsmouth Harbour Ramsar | | | | |

| Recycling (HSE): Recharge of Havant Thicket from recycled water from **Portsmouth Harbour** (60Ml/d)<br>SWS_PWE_HI-REU_RE1_ALL_60toht v0.1 | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity | 4.1/DS | Y | Y | Construction:<br><br>Operation: |
| Butser Hill SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H91J0: Taxus baccata woods of the British Isles | 4.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive). |
| Solent and Southampton Water Ramsar | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 5/DS | Y | Y | Construction:<br><br>Operation: |
| Solent and Southampton Water SPA | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 5/DS | Y | Y | Construction:<br><br>Operation: |
| Portsmouth Harbour SPA | | | | |

| Recycling (HSE): Recharge of Havant Thicket from recycled water from **Portsmouth Harbour** (60Ml/d)<br>SWS_PWE_HI-REU_RE1_ALL_60toht v0.1 | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A672: Dunlin Calidris alpina alpina<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A069: Red-breasted merganser Mergus serrator<br>- A675: Dark-bellied brent goose Branta bernicla bernicla | 5.3/DS | Y | Y | Construction:<br><br><br>Operation: |
| Emer Bog SAC | | | | |
| - H7140: Transition mires and quaking bogs | 6.5 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (no connectivity with area potentially exposed to operational |
| Kingley Vale SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H91J0: Taxus baccata woods of the British Isles | 8.8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation, which will be limited to the harbours). |

# Recycling (IOW): Sandown (8.5Ml/d)

SWS_IOW_HI-REU_RE1_ALL_sey9

## Option Description

This option proposes the transfer of treated effluent from Sandown WwTW (currently discharged to sea), to support flows in the Eastern River Yar upstream of the Sandown WSW abstraction at Alverstone. Treated water in excess of the local demand will be transferred through a new transfer pipeline to a service reservoir near Newport, for supply to much of the island. This option is reliant on the WSR enlargements carried out in IZT_CSM Cross-Solent upgrade. (2) Option 2 also includes upgrades to Sandown WSW to achieve the extra flow.

## Recycling (IOW): Sandown (8.5Ml/d)

SWS_IOW_HI-REU_RE1_ALL_sey9

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Solent and Dorset Coast SPA** | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 0.8/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site and works likely required in the Yar. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species unlikely to be reliant on non-designated habitats affected by construction.<br><br>Operation:<br>The discharge of treated effluent into the Eastern Yar; this site is located outside Bembridge harbour and is predominantly marine at this location, and so exposure to environmental changes associated with the option operation will be low. It is understood that the treated water would be used on a put and take basis and that flows in the Yar below the abstraction would remain largely the same, and so this site would not be exposed to potentially significant changes in FW input.<br><br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, and therefore, there will be a low risk of impacting the physico-chemical quality elements of this water body (currently at high status). The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status. |
| **South Wight Maritime SAC** | | | | |

| Recycling (IOW): Sandown (8.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-REU_RE1_ALL_sey9 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H1170: Reefs<br>- H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts<br>- H8330: Submerged or partially submerged sea caves | 0.9 | 0 | 0 | Construction:<br>This site is located outside Bembridge harbour and is predominantly marine at this location, and so exposure to environmental changes associated with construction will be low, such that effects would not occur irrespective of mitigation.<br><br>Operation:<br>The discharge of treated effluent into the Eastern Yar; this site is located outside Bembridge harbour and is predominantly marine at this location, and so exposure to environmental changes associated with the option operation will be low. It is understood that the treated water would be used on a put and take basis and that flows in the Yar below the abstraction would remain largely the same, and so this site would not be exposed to potentially significant changes in FW input.<br><br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, and therefore, there will be a low risk of impacting the physico-chemical quality elements of this water body (currently at high status). The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status.<br><br>Effluent from Sandown is currently dishcharged to this SAC via a 3km LSO although all residual discharges will be in accordance with the permit for the WwTWd and the LSO discharges to dispersive waters and so there will be no negative effect on this site as a result of the effluent re-use. |
| Solent and Southampton Water SPA | | | | |

| Recycling (IOW): Sandown (8.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-REU_RE1_ALL_sey9 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A137: Ringed plover Charadrius hiaticula<br>- A176: Mediterranean gull Larus melanocephalus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A195: Little tern Sterna albifrons<br>- A192: Roseate tern Sterna dougallii<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- A191: Sandwich tern Sterna sandvicensis<br>- A052: Eurasian teal Anas crecca<br>- A193: Common tern Sterna hirundo<br>- WATR: Waterbird assemblage | 1.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site and works likely required in the Yar. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species unlikely to be reliant on non-designated habitats affected by construction.<br><br>Operation:<br>The discharge of treated effluent into the Eastern Yar, approximately 9km upstream of Bembridge harbour / Brading Marshes, will need to comply with Environment Agency discharge standards to secure a permit. It is understood that the treated water would be used on a put and take basis and that flows in the Yar below the abstraction would remain largely the same, and so the estuary would not be exposed to potentially significant changes in FW input.<br><br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, and therefore, there will be a low risk of impacting the physico-chemical quality elements of this water body (currently at high status). The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status. |
| Solent and Southampton Water Ramsar | | | | |

| Recycling (IOW): Sandown (8.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-REU_RE1_ALL_sey9 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 1.7/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site and works likely required in the Yar. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in'). Mobile species unlikely to be reliant on non-designated habitats affected by construction.<br><br>Operation:<br>The discharge of treated effluent into the Eastern Yar, approximately 9km upstream of Bembridge harbour / Brading Marshes, will need to comply with Environment Agency discharge standards to secure a permit. It is understood that the treated water would be used on a put and take basis and that flows in the Yar below the abstraction would remain largely the same, and so the estuary would not be exposed to potentially significant changes in FW input.<br><br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, and therefore, there will be a low risk of impacting the physico-chemical quality elements of this water body (currently at high status). The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status. |
| Briddlesford Copses SAC | | | | |
| - S1323: Bechstein`s bat Myotis bechsteini | 3.6 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, separate catchment); pipeline close to Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (separate catchment). |
| Solent and Isle of Wight Lagoons SAC | | | | |

| Recycling (IOW): Sandown (8.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-REU_RE1_ALL_sey9 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H1150: Coastal lagoons | 4/DS | U* | 0 | Construction:<br>Works likely required in / near the Yar. Little / no exposure to construction risks due to location of lagoon relative to Yar; significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The discharge of treated effluent into the Eastern Yar, approximately 9km upstream of Solent and Isle of Wight Lagoon SAC will need to comply with Environment Agency discharge standards to secure a permit. There is likely to be little / no exposure to operational effects due to location / relationship of lagoon relative to Yar; reduced salinity is a key risk for saline lagoons but it is understood that the treated water would be used on a put and take basis and that flows in the Yar below the abstraction would remain largely the same, and so the lagoon would not be exposed to possible increases in FW input.<br><br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, and therefore, there will be a low risk of impacting the physico-chemical quality elements of this water body (currently at high status). The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status. |
| Isle of Wight Downs SAC | | | | |
| - H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts<br>- H4030: European dry heaths<br>- H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | 4.3 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to likely environmental changes associated with operation, which will be limited to the Yar). |
| Solent Maritime SAC | | | | |

| Recycling (IOW): Sandown (8.5Ml/d) | | | | |
|---|---|---|---|---|
| SWS_IOW_HI-REU_RE1_ALL_sey9 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H1110: Sandbanks which are slightly covered by sea water all the time | 6.4 | 0 | 0 | Construction: |
| - H1130: Estuaries | | | | Site not a downstream receptor and not exposed to environmental changes associated with construction |
| - H1140: Mudflats and sandflats not covered by seawater at low tide | | | | or operation. |
| - H1150: Coastal lagoons | | | | |
| - H1210: Annual vegetation of drift lines | | | | Operation: |
| - H1220: Perennial vegetation of stony banks | | | | Site not a downstream receptor and not exposed to environmental changes associated with construction |
| - H1310: Salicornia and other annuals colonizing mud and sand | | | | or operation. |
| - H1320: Spartina swards (Spartinion maritimae) | | | | |
| - H1330: Atlantic salt meadows (Glauco-Puccinellietalia maritimae) | | | | |
| - H2120: Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") | | | | |

# Recycling (KME): Sittingbourne Industrial Water Reuse (7.5Mld)

SWS_KME_HI-REU_RE1_ALL_sit8

## Option Description

This option is to use a water recycling scheme to unlock additional volume in an existing industrial borehole licence to increase the scope of the licence trading. The existing industrial user currently utilises the groundwater in its paper/board making processes. It has been assumed at this stage that the reverse osmosis wastewater can be discharged through Sittingbourne WwTW existing outfall.

## Recycling (KME): Sittingbourne Industrial Water Reuse (7.5Mld)

SWS_KME_HI-REU_RE1_ALL_sit8

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **The Swale SPA** | | | | |
| - A137: Ringed plover Charadrius hiaticula<br>- A130: Eurasian oystercatcher Haematopus ostralegus<br>- A052: Eurasian teal Anas crecca<br>- A672: Dunlin Calidris alpina alpina<br>- A160: Eurasian curlew Numenius arquata<br>- A051: Gadwall Anas strepera<br>- A141: Grey plover Pluvialis squatarola<br>- A162: Common redshank Tringa totanus<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- WATR: Waterbird assemblage<br>- BBA: Breeding bird assemblage<br>- A616: Black-tailed godwit Limosa limosa islandica | 0.1/DS | U* | Y | Construction:<br>Works required close to this site; site features unlikely to utilise habitats affected by option but site may be vulnerable to site-derived pollutants. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The scheme would supply DS Smith with reuse water from Sittingbourne WwTW (discharges to Milton Creek), freeing up an equivalent volume for SWS to abstract from groundwater. There would be no increase in abstraction. A new tertiary treatment plant and groundwater treatment plant would be required, including distribution pipelines and a new discharge. There is a risk of adverse impacts to flows, as a consequence of 7.5Ml/d effluent being re-directed for industrial use. Some freshwater invertebrate taxa are more responsive to changes in flow than others. Relative abundance of certain groups may change locally in response to decreased freshwater flow, although the nature of the invertebrate community in this part of the tidal river is assumed to be strongly linked to the ambient salinity profile and tidal influence. However, the impact of these changes in invertebrate on the qualifying features of the SPA, and how the change in flows could impact the Ramsar features is uncertain. Therefore, adopting the precautionary principle, LSEs are anticipated. |
| **The Swale Ramsar** | | | | |

| Recycling (KME): Sittingbourne Industrial Water Reuse (7.5Mld) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-REU_RE1_ALL_sit8 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 0.1/DS | U* | Y | Construction:<br>Works required close to this site; site features unlikely to utilise habitats affected by option but site may be vulnerable to site-derived pollutants. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The scheme would supply DS Smith with reuse water from Sittingbourne WwTW (discharges to Milton Creek), freeing up an equivalent volume for SWS to abstract from groundwater. There would be no increase in abstraction. A new tertiary treatment plant and groundwater treatment plant would be required, including distribution pipelines and a new discharge. There is a risk of adverse impacts to flows, as a consequence of 7.5Ml/d effluent being re-directed for industrial use. Some freshwater invertebrate taxa are more responsive to changes in flow than others. Relative abundance of certain groups may change locally in response to decreased freshwater flow, although the nature of the invertebrate community in this part of the tidal river is assumed to be strongly linked to the ambient salinity profile and tidal influence. However, the impact of these changes in invertebrate on the qualifying features of the SPA, and how the change in flows could impact the Ramsar features is uncertain. Therefore, adopting the precautionary principle, LSEs are anticipated. |
| Medway Estuary and Marshes SPA | | | | |

| Recycling (KME): Sittingbourne Industrial Water Reuse (7.5Mld) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-REU_RE1_ALL_sit8 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A130: Eurasian oystercatcher Haematopus ostralegus<br>- A056: Northern shoveler Anas clypeata<br>- A052: Eurasian teal Anas crecca<br>- A143: Red knot Calidris canutus<br>- A137: Ringed plover Charadrius hiaticula<br>- A132: Pied avocet Recurvirostra avosetta<br>- A082: Hen harrier Circus cyaneus<br>- A616: Black-tailed godwit Limosa limosa islandica<br>- A001: Red-throated diver Gavia stellata<br>- A169: Ruddy turnstone Arenaria interpres<br>- A054: Northern pintail Anas acuta<br>- A164: Common greenshank Tringa nebularia<br>- A053: Mallard Anas platyrhynchos<br>- A017: Great cormorant Phalacrocorax carbo<br>- A195: Little tern Sterna albifrons<br>- A141: Grey plover Pluvialis squatarola<br>- A050: Eurasian wigeon Anas penelope<br>- A048: Common shelduck Tadorna tadorna<br>- A672: Dunlin Calidris alpina alpina<br>- A162: Common redshank Tringa totanus<br>- A098: Merlin Falco columbarius<br>- A059: Common pochard Aythya ferina<br>- A037: Tundra swan Cygnus columbianus bewickii<br>- A132: Pied avocet Recurvirostra avosetta<br>- A160: Eurasian curlew Numenius arquata<br>- A005: Great crested grebe Podiceps cristatus<br>- A193: Common tern Sterna hirundo<br>- A675: Dark-bellied brent goose Branta bernicla bernicla<br>- WATR: Waterbird assemblage<br>- BBA: Breeding bird assemblage | 2.8/DS | U* | 0 | Construction:<br>Works required close to this site; site features unlikely to utilise habitats affected by option but site may be vulnerable to site-derived pollutants. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The change in freshwater flows is considered to be limited to effects within Milton Creek only, therefore given the distance to the Medway SPA and Ramsar and size of waterbodies inbetween, no likely significant effects are anticipated. |
| Medway Estuary and Marshes Ramsar | | | | |

| Recycling (KME): Sittingbourne Industrial Water Reuse (7.5Mld) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-REU_RE1_ALL_sit8 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 2.8/DS | U* | 0 | Construction:<br>Works required close to this site; site features unlikely to utilise habitats affected by option but site may be vulnerable to site-derived pollutants. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The change in freshwater flows is considered to be limited to effects within Milton Creek only, therefore given the distance to the Medway SPA and Ramsar and size of waterbodies inbetween, no likely significant effects are anticipated. |
| Queendown Warren SAC | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 4.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive or exposed to outcomes of option). |
| Outer Thames Estuary SPA | | | | |
| - A195: Little tern Sterna albifrons<br>- A193: Common tern Sterna hirundo<br>- A001: Red-throated diver Gavia stellata | 8.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to outcomes of option). |
| Thames Estuary and Marshes Ramsar | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 9.9 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not exposed to outcomes of option). |
| Thames Estuary and Marshes SPA | | | | |

| Recycling (KME): Sittingbourne Industrial Water Reuse (7.5Mld) | | | | |
|---|---|---|---|---|
| SWS_KME_HI-REU_RE1_ALL_sit8 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A672: Dunlin Calidris alpina alpina | 10 | 0 | 0 | Construction: |
| - A143: Red knot Calidris canutus | | | | No pathways for construction effects (distance, separate catchment). |
| - A082: Hen harrier Circus cyaneus | | | | |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | Operation: |
| - A141: Grey plover Pluvialis squatarola | | | | No pathways for operational effects (distance; features not sensitive or exposed to outcomes of option). |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A137: Ringed plover Charadrius hiaticula | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - WATR: Waterbird assemblage | | | | |

# Recycling (KMW): Medway WTW to lake (14Ml/d)

SWS_KMW_HI-REU_RE1_ALL_ecc18

## Option Description

This option involves the transfer of 18Ml/d of treated effluent from Medway WWTW to near Rochester WSW's raw water storage reservoir Eccles Lake.

## Recycling (KMW): Medway WTW to lake (14Ml/d)

SWS_KMW_HI-REU_RE1_ALL_ecc18

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Peter`s Pit SAC** | | | | |
| - S1166: Great crested newt Triturus cristatus | 1.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment, beyond mobile species dispersal range).<br><br>Operation: |
| **North Downs Woodlands SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- H9130: Asperulo-Fagetum beech forests<br>- H9150: Taxus baccata woods of the British Isles | 3.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance, not exposed or sensitive to environmental changes). |
| **Queendown Warren SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) | 10 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive or exposed to outcomes of option). |
| **Medway Estuary and Marshes SPA** | | | | |

| Recycling (KMW): Medway WTW to lake (14Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KMW_HI-REU_RE1_ALL_ecc18 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A130: Eurasian oystercatcher Haematopus ostralegus | 10.4/DS | U* | U | Construction: |
| - A056: Northern shoveler Anas clypeata | | | | Works required close to the River Medway; site features unlikely to utilise habitats affected by option |
| - A052: Eurasian teal Anas crecca | | | | but site may be vulnerable to site-derived pollutants. Significant and/or significant adverse effects almost |
| - A143: Red knot Calidris canutus | | | | certainly avoidable with established measures / normal best-practice, although these must necessarily be |
| - A137: Ringed plover Charadrius hiaticula | | | | accounted for at AA (hence 'screened in'). |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A082: Hen harrier Circus cyaneus | | | | Operation: |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | Option will reduce f/w inputs to the tidal River Medway as water is extracted from effluent that would |
| - A001: Red-throated diver Gavia stellata | | | | otherwise be discharged to the estuary; however, the effect of this on the designated site (~20km |
| - A169: Ruddy turnstone Arenaria interpres | | | | downstream) is likely to be limited, particularly in relation to the tidal influx / turnover, within the |
| - A054: Northern pintail Anas acuta | | | | estuary. |
| - A164: Common greenshank Tringa nebularia | | | | |
| - A053: Mallard Anas platyrhynchos | | | | |
| - A017: Great cormorant Phalacrocorax carbo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | |
| - A050: Eurasian wigeon Anas penelope | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| - A672: Dunlin Calidris alpina alpina | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - A098: Merlin Falco columbarius | | | | |
| - A059: Common pochard Aythya ferina | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A160: Eurasian curlew Numenius arquata | | | | |
| - A005: Great crested grebe Podiceps cristatus | | | | |
| - A193: Common tern Sterna hirundo | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - WATR: Waterbird assemblage | | | | |
| - BBA: Breeding bird assemblage | | | | |
| Medway Estuary and Marshes Ramsar | | | | |

| Recycling (KMW): Medway WTW to lake (14Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KMW_HI-REU_RE1_ALL_ecc18 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | 10.4/DS | U* | U | Construction:<br>Works required close to the River Medway; site features unlikely to utilise habitats affected by option but site may be vulnerable to site-derived pollutants. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>Option will reduce f/w inputs to the tidal River Medway as water is extracted from effluent that would otherwise be discharged to the estuary; however, the effect of this on the designated site (~20km downstream) is likely to be limited, particularly in relation to the tidal influx / turnover, within the |

# Recycling (SHZ): Hastings to Darwell (15.3Ml/d)

SWS_SHZ_HI-REU_RE1_ALL_wr_pwr_dar3_conju

## Option Description

This option proposes the transfer of treated effluent from Hastings WWTW, currently being discharged to sea at Pebsham Gap, in order to augment storage in Darwell reservoir. This option includes tertiary treatment of Hastings wastewater, this may include Membrane Bio Reactors and Reverse Osmosis. Additional GAC and UV treatment may be required at Brede WSW.

## Recycling (SHZ): Hastings to Darwell (15.3Ml/d)

SWS_SHZ_HI-REU_RE1_ALL_wr_pwr_dar3_conju

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Dungeness, Romney Marsh and Rye Bay SPA** | | | | |
| - A056: Northern shoveler Anas clypeata<br>- A082: Hen harrier Circus cyaneus<br>- A151: Ruff Philomachus pugnax<br>- A176: Mediterranean gull Larus melanocephalus<br>- A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons<br>- A294: Aquatic warbler Acrocephalus paludicola<br>- A037: Tundra swan Cygnus columbianus bewickii<br>- A021: Great bittern Botaurus stellaris<br>- A140: European golden plover Pluvialis apricaria<br>- A081: Eurasian marsh harrier Circus aeruginosus<br>- A132: Pied avocet Recurvirostra avosetta<br>- WATR: Waterbird assemblage | 1.4/DS | U* | 0 | Construction:<br>Indicative pipeline route crosses tributaries of this site; upgrades at Brede WSW also required. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from effluent otherwise dishcharged to sea). All residual discharges will be in accordance with the permit for the WwTW, and so the quality of discharges at Pebsham Gap would not decrease. |
| **Pevensey Levels SAC** | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 4.7/DS | U* | 0 | Construction:<br>Indicative pipeline route runs along the catchment boundary for tributaries of this site, although surface watercourses are limited. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from effluent otherwise dishcharged to sea). |
| **Pevensey Levels Ramsar** | | | | |

| Recycling (SHZ): Hastings to Darwell (15.3Ml/d)<br>SWS_SHZ_HI-REU_RE1_ALL_wr_pwr_dar3_conju | | | | |
|---|---|---|---|---|
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity | 4.7/DS | U* | 0 | Construction:<br>Indicative pipeline route runs along the catchment boundary for tributaries of this site, although surface watercourses are limited. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from effluent otherwise dishcharged to sea). |
| Hastings Cliffs SAC | | | | |
| - H1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts | 6.4 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site in separate catchment).<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from effluent otherwise dishcharged to sea). |
| Dungeness, Romney Marsh and Rye Bay Ramsar | | | | |
| - Crit. 1: Crit. 1 - sites containing representative, rare or unique wetland types<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds | 12.4/DS | U* | 0 | Construction:<br>Indicative pipeline route runs along the catchment boundary for tributaries of this site, although surface watercourses are limited. Works may be required at Brede WSW upstream of the site. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from effluent otherwise dishcharged to sea). |
| Dungeness SAC | | | | |
| - H1210: Annual vegetation of drift lines<br>- H1220: Perennial vegetation of stony banks<br>- S1166: Great crested newt Triturus cristatus | 16.8/DS | 0 | 0 | Construction:<br>Indicative pipeline route runs along the catchment boundary for tributaries of this site, although surface watercourses are limited. Works may be required at Brede WSW upstream of the site. However, the features of the site will have a very low exposure to site-derived pollutants that may enter watercourses due to their characteristics / locations within the site. Effects are therefore likely to be nil irrespective of any mitigtation that is applied.<br><br>Operation:<br>No pathways for operational effects (distance; water sourced from effluent otherwise dishcharged to sea). |

# Recycling (SHZ): Tonbridge to Bewl (5.7Ml/d)

SWS_SHZ_HI-REU_RE1_ALL_env_cu_bew1_conju

**Option Description**

New resource. This option is a new 8Ml/d water recycling plant producing a DO of 5.7Ml/d near Tunbridge WwTW and a transfer of the treated water to Bewl reservoir, which feeds into Darwell reservoir. Process losses have been included.

**Recycling (SHZ): Tonbridge to Bewl (5.7Ml/d)**

SWS_SHZ_HI-REU_RE1_ALL_env_cu_bew1_conju

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Medway Estuary and Marshes Ramsar** | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | DS/DS | 0 | 0 | Construction:<br>Site is ultimate downstream receptor but distance (>55km via the Medway) hence attenuation ensures that construction-related environmental changes (e.g. from site-derived pollutants) will have no effect on the site itself; effects on mobile species using functionally associated land away from the site will not occur (distance, type of habitats affected by construction).<br><br>Operation:<br>No pathways for operational effects (distance; network scheme only). |
| **Medway Estuary and Marshes SPA** | | | | |

| Recycling (SHZ): Tonbridge to Bewl (5.7Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SHZ_HI-REU_RE1_ALL_env_cu_bew1_conju | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A130: Eurasian oystercatcher Haematopus ostralegus | DS/DS | 0 | 0 | Construction: |
| - A056: Northern shoveler Anas clypeata | | | | Site is ultimate downstream receptor but distance (>55km via the Medway) hence attenuation ensures |
| - A052: Eurasian teal Anas crecca | | | | that construction-related environmental changes (e.g. from site-derived pollutants) will have no effect on |
| - A143: Red knot Calidris canutus | | | | the site itself; effects on mobile species using functionally associated land away from the site will not |
| - A137: Ringed plover Charadrius hiaticula | | | | occur (distance, type of habitats affected by construction). |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A082: Hen harrier Circus cyaneus | | | | Operation: |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | No pathways for operational effects (distance; network scheme only). |
| - A001: Red-throated diver Gavia stellata | | | | |
| - A169: Ruddy turnstone Arenaria interpres | | | | |
| - A054: Northern pintail Anas acuta | | | | |
| - A164: Common greenshank Tringa nebularia | | | | |
| - A053: Mallard Anas platyrhynchos | | | | |
| - A017: Great cormorant Phalacrocorax carbo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | |
| - A050: Eurasian wigeon Anas penelope | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| - A672: Dunlin Calidris alpina alpina | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - A098: Merlin Falco columbarius | | | | |
| - A059: Common pochard Aythya ferina | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A160: Eurasian curlew Numenius arquata | | | | |
| - A005: Great crested grebe Podiceps cristatus | | | | |
| - A193: Common tern Sterna hirundo | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - WATR: Waterbird assemblage | | | | |
| - BBA: Breeding bird assemblage | | | | |

## Recycling (SNZ): Horsham with storage at Pulborough (6.8Ml/d)

SWS_SNZ_HI-REU_RE1_ALL_env_cu_chu2_conju

**Option Description**

New resource. This option is a new 9.5Ml/d water recycling plant producing a DO of 6.8Ml/d near Horsham WwTW and a transfer of the treated effluent to Church Farm reservoir, which feeds into Pulborough WSW. Process losses have been included.

Recycling (SNZ): Horsham with storage at Pulborough (6.8Ml/d)

SWS_SNZ_HI-REU_RE1_ALL_env_cu_chu2_conju

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Arun Valley SAC** | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 0.3/DS | U* | U | Construction:<br>Scheme will involve construction within the catchment of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option will reduce flows in the River Arun downstream of Horsham, which has the potential to affect this site - although the exposure of the site is likely to be low due to the relationship of the wetlands with the river and management of water levels within the site. However, this requires additional data to confirm acceptability. |
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 0.3/DS | U* | U | Construction:<br>Scheme will involve construction within the catchment of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option will reduce flows in the River Arun downstream of Horsham, which has the potential to affect this site - although the exposure of the site is likely to be low due to the relationship of the wetlands with the river and management of water levels within the site. However, this requires additional data to confirm acceptability. |
| **Arun Valley SPA** | | | | |

| Recycling (SNZ): Horsham with storage at Pulborough (6.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-REU_RE1_ALL_env_cu_chu2_conju | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 0.3/DS | U* | U | Construction:<br>Scheme will involve construction within the catchment of this site, although site features will have a very low exposure to site-derived pollutants due to their location within the site (associated with ditches). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>This option will reduce flows in the River Arun downstream of Horsham, which has the potential to affect this site - although the exposure of the site is likely to be low due to the relationship of the wetlands with the river and management of water levels within the site. However, this requires additional data to confirm acceptability. |
| The Mens SAC | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus | 3.7 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline close to Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (separate catchment). |
| Duncton to Bignor Escarpment SAC | | | | |
| - H9130: Asperulo-Fagetum beech forests | 5.8 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance, not exposed or sensitive to environmental changes). |
| Ebernoe Common SAC | | | | |

| Recycling (SNZ): Horsham with storage at Pulborough (6.8Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-REU_RE1_ALL_env_cu_chu2_conju | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus<br>- S1323: Bechstein`s bat Myotis bechsteini | 9.3 | 0 | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment site); pipeline substantially beyond the Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and potentially signficant effects on habitats functionally critical to the feature populations are very unlikely.<br><br>Operation:<br>No pathways for operational effects (network scheme only). |

# Recycling (SNZ): Littlehampton WTW with river discharge (15Ml/d)

SWS_SNZ_HI-REU_RE1_ALL_for20

## Option Description

This scheme proposes the transfer of treated effluent from Littlehampton WwTW to a new discharge point on the western River Rother upstream of the Pulborough Surface Water abstraction. This would support flows over the weir as the MRF is approached, therefore prolong production at Pulborough during a drought. 20Ml/d represents the upper end of the reliable flow that could be expected from Littlehampton WwTW. Once abstracted at Pulborough WSW this water would be used to meet demand in the Sussex North WRZ.

## Recycling (SNZ): Littlehampton WTW with river discharge (15Ml/d)

SWS_SNZ_HI-REU_RE1_ALL_for20

| Site and Features | Dist (km) | LSE? C | LSE? U | Screening Rationale |
|---|---|---|---|---|
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 1/DS | U* | 0 | Construction:<br>Scheme will involve construction within the catchment of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, potentially generating an improvement for the phosphate status (currently moderate). Therefore, there will be negligible risk of impacting the physico-chemical quality elements of this water body. The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status. The discharge will also need to be permitted through the Environment Agency discharge permit controls. Therefore the risk of changes to water quality which could impact the qualifying features (or their food source) are considered to be negligible |
| **Arun Valley SPA** | | | | |

| Recycling (SNZ): Littlehampton WTW with river discharge (15Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-REU_RE1_ALL_for20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 1.1/DS | U* | 0 | Construction:<br>Scheme will involve construction within the catchment of this site; site features may also utilise functional habitats outside the site boundary. Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, potentially generating an improvement for the phosphate status (currently moderate). Therefore, there will be negligible risk of impacting the physico-chemical quality elements of this water body. The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status. The discharge will also need to be permitted through the Environment Agency discharge permit controls. Therefore the risk of changes to water quality which could impact the qualifying features (or their food source) are considered to be negligible |
| Arun Valley SAC | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 1.2/DS | U* | 0 | Construction:<br>Scheme will involve construction within the catchment of this site, although site features will have a very low exposure to site-derived pollutants due to their location within the site (associated with ditches). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>The discharge will be treated to tertiary standards for ammonia, phosphate and BOD, potentially generating an improvement for the phosphate status (currently moderate). Therefore, there will be negligible risk of impacting the physico-chemical quality elements of this water body. The proposed treatment will also include a process (either UV AOP or reverse osmosis) to remove the majority organic chemical contaminants. Therefore, there will be a low risk of organic chemicals such as endocrine disruptors causing deterioration to fish status. The discharge will also need to be permitted through the Environment Agency discharge permit controls. Therefore the risk of changes to water quality which could impact the Ramshorn snail are considered to be negligible. |
| Duncton to Bignor Escarpment SAC | | | | |

| Recycling (SNZ): Littlehampton WTW with river discharge (15Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-REU_RE1_ALL_for20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H9130: Asperulo-Fagetum beech forests | 1.2 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance, not exposed or sensitive to environmental changes). |
| Solent and Dorset Coast SPA | | | | |
| - A191: Sandwich tern Sterna sandvicensis<br>- A193: Common tern Sterna hirundo<br>- A195: Little tern Sterna albifrons | 3.2 | 0 | 0 | Construction:<br>The eastern edge of this site is relatively close to Littlehampton WwTW, although the interest features of the site are unlikely to be functionally dependent on habitats within the Adur estuary (else this would have been included in the designation, which is recent and based on usage patterns), and site-derived pollutants would have to travel over 8km via the Arun and then west along the coast (against the prevailing currents); the site and features will not therefore be exposed to any environmental changes associated with construction of this scheme.<br><br>Operation:<br>The operation of the scheme will reduce 'freshwater' inputs to the estuary from Littlehampton WwTW. The eastern edge of this site is relatively close to Littlehampton WwTW, although the interest features of the site are unlikely to be functionally dependent on habitats within the Adur estuary (else this would have been included in the designation, which is recent and based on usage patterns), and the reduction in freshwater inputs will have no effect on this site; the site and features will not therefore be exposed to any environmental changes associated with operation of this scheme. |
| The Mens SAC | | | | |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus | 3.6 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline partly within Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site, and effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (up-catchment site; not water resource dependent). |
| Ebernoe Common SAC | | | | |

| Recycling (SNZ): Littlehampton WTW with river discharge (15Ml/d) | | | | |
|---|---|---|---|---|
| SWS_SNZ_HI-REU_RE1_ALL_for20 | | | | |
| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
| - H9120: Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion)<br>- S1308: Barbastelle Barbastella barbastellus<br>- S1323: Bechstein`s bat Myotis bechsteini | 7.7 | U* | 0 | Construction:<br>Site not exposed to construction effects (distance, no pollutant pathways, up-catchment); pipeline outside Core Sustenance Zone (CSZ; see Appendix B) defined for the mobile interest features of the site but effects on supporting habitats cannot be excluded at the plan level (although the risk of signficant effects would be low based on the nature of the works). Significant and/or significant adverse effects almost certainly avoidable with established measures / normal best-practice, although these must necessarily be accounted for at AA (hence 'screened in').<br><br>Operation:<br>No pathways for operational effects (up-catchment site; not water resource dependent). |

# Storage (SHZ): Raising Bewl Reservoir 0.4m (3Ml/d)

SWS_KMW_HI-RSR_RE1_ALL_rab1

## Option Description

The scheme involves the raising of Bewl Water, by 0.4m to increase storage and yield. The major works for raising Bewl to higher TWL levels will include: Raising the dam crest and building a new wave wall; Raising the overflow and valve chamber shafts and many ancillary works around the perimeter of the reservoir.

## Storage (SHZ): Raising Bewl Reservoir 0.4m (3Ml/d)

SWS_KMW_HI-RSR_RE1_ALL_rab1

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Medway Estuary and Marshes Ramsar** | | | | |
| - Crit. 6: Crit. 6 - regularly supports 1% of the individuals in a population of one species/subspecies of waterbirds<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds<br>- Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities | DS/DS | 0 | 0 | Construction:<br>Site is ultimate downstream receptor but distance (>55km via the Medway) hence attenuation ensures that construction-related environmental changes (e.g. from site-derived pollutants) will not the site itself; effects on mobile species using functionally associated land away from the site will not occur (distance, type of habitats affected by construction).<br><br>Operation:<br>No pathways for operational effects; all existing operational parameters (e.g. compensation discharges etc.) will be maintained. |
| **Medway Estuary and Marshes SPA** | | | | |

| Storage (SHZ): Raising Bewl Reservoir 0.4m (3Ml/d) | | | | |
|---|---|---|---|---|
| SWS_KMW_HI-RSR_RE1_ALL_rab1 | | | | |
| Site and Features | Dist | LSE? | | Screening Rationale |
| | (km) | C | U | |
| - A130: Eurasian oystercatcher Haematopus ostralegus | DS/DS | 0 | 0 | Construction: |
| - A056: Northern shoveler Anas clypeata | | | | Site is ultimate downstream receptor but distance (>55km via the Medway) hence attenuation ensures |
| - A052: Eurasian teal Anas crecca | | | | that construction-related environmental changes (e.g. from site-derived pollutants) will have no effect on |
| - A143: Red knot Calidris canutus | | | | the site itself; effects on mobile species using functionally associated land away from the site will not |
| - A137: Ringed plover Charadrius hiaticula | | | | occur (distance, type of habitats affected by construction). |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A082: Hen harrier Circus cyaneus | | | | Operation: |
| - A616: Black-tailed godwit Limosa limosa islandica | | | | No pathways for operational effects; all existing operational parameters (e.g. compensation discharges |
| - A001: Red-throated diver Gavia stellata | | | | etc.) will be maintained. |
| - A169: Ruddy turnstone Arenaria interpres | | | | |
| - A054: Northern pintail Anas acuta | | | | |
| - A164: Common greenshank Tringa nebularia | | | | |
| - A053: Mallard Anas platyrhynchos | | | | |
| - A017: Great cormorant Phalacrocorax carbo | | | | |
| - A195: Little tern Sterna albifrons | | | | |
| - A141: Grey plover Pluvialis squatarola | | | | |
| - A050: Eurasian wigeon Anas penelope | | | | |
| - A048: Common shelduck Tadorna tadorna | | | | |
| - A672: Dunlin Calidris alpina alpina | | | | |
| - A162: Common redshank Tringa totanus | | | | |
| - A098: Merlin Falco columbarius | | | | |
| - A059: Common pochard Aythya ferina | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii | | | | |
| - A132: Pied avocet Recurvirostra avosetta | | | | |
| - A160: Eurasian curlew Numenius arquata | | | | |
| - A005: Great crested grebe Podiceps cristatus | | | | |
| - A193: Common tern Sterna hirundo | | | | |
| - A675: Dark-bellied brent goose Branta bernicla bernicla | | | | |
| - WATR: Waterbird assemblage | | | | |
| - BBA: Breeding bird assemblage | | | | |

# Storage (SNZ): River Adur Offline Reservoir (19.5Ml/d)

SWS_SNZ_HI-RSR_RE1_ALL_bla

## Option Description

The option involves the construction of an earth embankment reservoir - River Adur offline Reservoir - with a proposed storage capacity of up to 4,600 Ml. The option will allow treated water to enter the distribution network to supply either the Sussex coastal block or the Pulborough area. The reservoir will be filled with water pumped from the eastern branch of the River Adur. The abstraction of raw water from the river to the reservoir would have a maximum flow of 30Ml/d

## Storage (SNZ): River Adur Offline Reservoir (19.5Ml/d)

SWS_SNZ_HI-RSR_RE1_ALL_bla

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Arun Valley SPA** | | | | |
| - A037: Tundra swan Cygnus columbianus bewickii<br>- WATR: Waterbird assemblage | 7 | 0 | 0 | Construction:<br>No pathways for operational effects (distance; separate catchment; mobile species will not be functionally associated with habitats affected by pipeline or reservoir).<br><br>Operation:<br>No pathways for operational effects (distance; separate catchment; mobile species will not be functionally associated with habitats affected by pipeline or reservoir). |
| **Arun Valley SAC** | | | | |
| - S4056: Ramshorn snail Anisus vorticulus | 7 | 0 | 0 | Construction:<br>No pathways for operational effects (distance; separate catchment; mobile species will not be functionally associated with habitats affected by pipeline or reservoir).<br><br>Operation:<br>No pathways for operational effects (distance; separate catchment; mobile species will not be functionally associated with habitats affected by pipeline or reservoir). |
| **Arun Valley Ramsar** | | | | |
| - Crit. 2: Crit. 2 - supports vulnerable, endangered, or critically endangered species or threatened eco. communities<br>- Crit. 3: Crit. 3 - supports populations of plant/animal species important for maintaining regional biodiversity<br>- Crit. 5: Crit. 5 - regularly supports 20,000 or more waterbirds | 7 | 0 | 0 | Construction:<br>No pathways for operational effects (distance; separate catchment; mobile species will not be functionally associated with habitats affected by pipeline or reservoir).<br><br>Operation:<br>No pathways for operational effects (distance; separate catchment; mobile species will not be functionally associated with habitats affected by pipeline or reservoir). |

# Treatment capacity (SWZ): Pulborough winter transfer stage 1 (2Ml/d)

SWS_SWZ_HI-LRE_ALL_ALL_har1

## Option Description

During the winter there is surplus surface water within the River Rother. This scheme would allow the surplus to be used at Pulborough WSW (within licence constraints) which in turn would allow coastal groundwater sources to be rested. This increase in groundwater can be utilised through new transfer mains from Sussex Worthing WRZ to Sussex Brighton WRZ via Shoreham WSW, providing the additional 2Ml/d of water to Brighton WRZ during the summer and autumn of a drought year. This is Phase 1, which is to provide a permanent sludge treatment facility at Pulborough WSW.

## Treatment capacity (SWZ): Pulborough winter transfer stage 1 (2Ml/d)

SWS_SWZ_HI-LRE_ALL_ALL_har1

| Site and Features | Dist (km) | LSE? C | U | Screening Rationale |
|---|---|---|---|---|
| **Castle Hill SAC** | | | | |
| - H6210: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)<br>- S1654: Early gentian Gentianella anglica | 7.1 | 0 | 0 | Construction:<br>No pathways for construction effects (distance, site up-catchment).<br><br>Operation:<br>No pathways for operational effects (distance; features not water resource sensitive). |