Water Resources Management Plan 2019

Annex 15: Habitats Regulations Assessment

Non-Technical Summary

December 2019

Version 1

from Southern Water

Contents

1. Introduction

Water companies in England and Wales are required to produce a Water Resources Management Plan (WRMP) every five years. The WRMP19 sets out how Southern Water intends to maintain the balance between supply and demand for water over the long-term planning horizon in order to ensure a secure, resilient water supply service to its customers in each of the water resource zones making up its supply area. The revised draft WRMP19 and Statement of Response were subject to a further request for information from Defra in March 2019. An Addendum to the Statement of Response, providing the information requested, was published in June 2019. The Secretary of State approved the publishing of the final WRMP19 on 4 November 2019.

As part of the development of the WRMP19, a Habitats Regulations Assessment (HRA) has been carried out by Southern Water to consider the potential effects of alternative options and strategies on designated European sites, and to use this information to help inform the decisions on the most appropriate strategies to be included in its draft WRMP19. The HRA has been undertaken in parallel with a Strategic Environmental Assessment (SEA) and Water Framework Directive (WFD) assessment to ensure an integrated approach to environmental assessment of the options and strategies to include in the WRMP19 and ensure overall compliance with relevant environmental legislation and national water resource planning guidance.

2. Requirement for Habitats Regulations Assessment (HRA)

Southern Water has carried out a Habitats Regulations Assessment (HRA) of its WRMP19 to assess the potential implications of the plan on nature conservation sites designated under:

- the EU Habitats Directive (Special Areas of Conservation or SAC)
- the EU Birds Directive (Special Protection Areas or SPA)
- the Ramsar Convention on Wetlands of International Importance (Ramsar sites).
- For the purposes of this summary report, all sites designated under these European Union or international laws, including candidate or proposed sites, are referred to collectively as “European sites” (noting that the Ramsar Convention reflects an inter-governmental treaty rather than EU legislation).

The Conservation of Habitats and Species Regulations 2017 (as amended) require that any plan or project which is likely to have a significant effect on a European site (either alone or in-combination with other plans or projects) and is not directly connected with, or necessary for the management of the site, must be subject to a HRA to determine the implications for the site in view of its conservation objectives. For the purposes of this summary report, these regulations are referred to as the “Habitats Regulations”. Responsibility for undertaking the Habitats Regulations Assessment lies with Southern Water as the plan making authority.

Best practice HRA guidance for the appraisal of plans (Tyldesley, D. & Chapman, C., 2015), summarises the Habitats Regulations and provides practical advice on how to assess a strategic plan such as the revised draft WRMP19. Regulation 63(5) states that the plan making authority (in this case Southern Water) shall adopt, or otherwise give effect to, the plan only after having ascertained that it will not adversely affect the integrity of a European site, subject to Regulation 63 or 105 of the Habitats Regulations.

If there are no alternative solutions and if, in exceptional circumstances, it is proposed that a plan be adopted despite the fact that it may adversely affect the integrity of a European site, the HRA will need to address and explain the Imperative Reasons of Overriding Public Interest (IROPI) which the plan making authority considers to be sufficient to outweigh the potentially adverse effects on the European site(s). This latter step has not been necessary in respect of the Southern Water WRMP19.

3. Consultation

Natural England and the Environment Agency were consulted on the proposed HRA methodology for the draft WRMP19 in summer 2016 and feedback provided on the methodology was used to finalise the assessment approach. Additionally, a series of consultation meetings have been held with the Environment Agency and Natural England between 2016 and 2018 to discuss the development of Southern Water's revised draft WRMP19 and the options being considered, including identified potential risks to European sites either from construction and/or operational activities. Regular stakeholder meetings have been held over the period 2015 to 2018 which have provided the opportunity to discuss emerging findings from the HRA process with a wide range of stakeholders and regulatory bodies.

Natural England was informally consulted on the initial screening outputs of key options during summer and autumn 2017. Comments received from Natural England have been taken into account in preparing the HRA report. The draft WRMP19 was consulted on between March and May 2018. Comments from Natural England, the Environment Agency and other stakeholders were taken into account when preparing the updated HRA Report for the revised draft WRMP19.

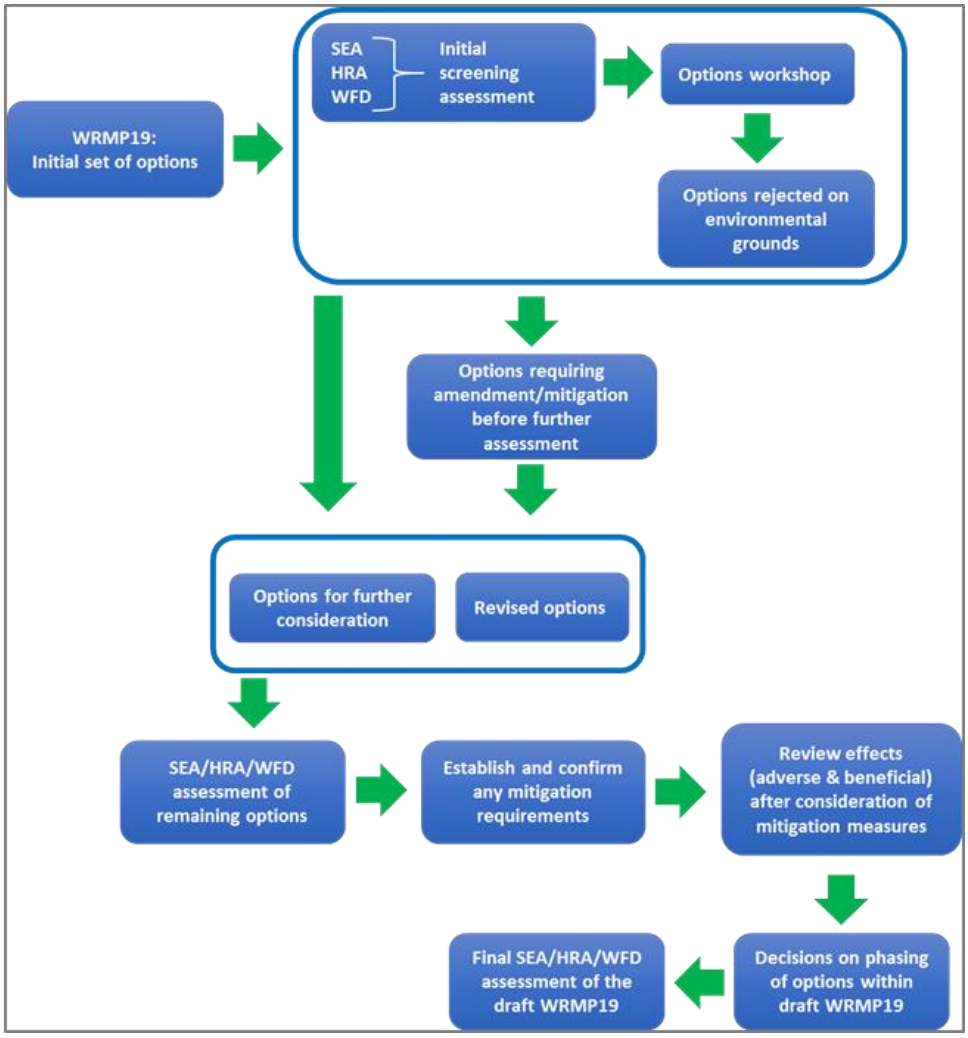
Further consultation was held with the Environment Agency and Natural England during the preparation of the response to Defra's request for further information between March and May 2019.

4. HRA approach

The HRA has been undertaken in accordance with available guidance for England (European Commission Environment DG, 2001; DCLG, 2006; English Nature, 1997: Defra, 2012; Tyldesley, D. & Chapman, C., 2015; UKWIR, 2012) and based on a precautionary approach. It follows the staged HRA approach, as discussed below.

The WRMP19 proposes a range of demand management and supply augmentation options which Southern Water would take forward for further investigation and development in order to maintain a supply-demand balance over the long-term planning period. The HRA (alongside the SEA and WFD assessment) has helped to inform the development of the WRMP19. The diagram below shows how the HRA process has been integrated with the Strategic Environmental Assessment (SEA) and WFD assessment process in developing the WRMP19.

Figure 1 Integrating HRA into WRMP decision-making alongside SEA and WFD assessments



The Habitats Regulations and associated national HRA guidance require that a staged assessment approach is followed for the HRA. Progression through each stage is dependent on the findings of the assessment in the preceding stage. Stage 1 requires screening for likely significant effects on any European site. Where the Stage 1 screening indicates such likelihood, a second stage Appropriate

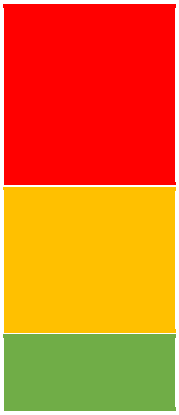
Assessment is required to consider in more detail whether the option, programme or plan may lead to an adverse effect on the integrity of relevant European site(s), taking account of any mitigation measures. To provide an indication of those measures with a likely significant effect on a European site(s), all of the large number of 'constrained' list of options considered by Southern Water for possible inclusion in the draft WRMP19 were initially reviewed to establish whether there were any European sites within 10km of the option location and/or where there might be any hydrological or environmental connectivity over a longer distance that might affect European sites and their qualifying features.

The outcome of this initial HRA review, in consideration with other factors (e.g. planning and technical risks, other environmental impacts and the effectiveness of option), led to removal of some options and helped with the identification of a ***feasible list*** of WRMP options.

HRA was carried out on all of the options on the feasible list as described below:

- **Stage 1 - HRA screening: Draft WRMP (2017/18)**

This step identified whether each option (either alone or in combination with other measures or other plans or projects) is likely to have any significant adverse effects on a European site. The findings of the screening assessment were presented using a 'red', 'amber', 'green' classification as for each option as follows:



Likely Significant Effect with strong potential for residual adverse effects to be identified at Stage 2 Appropriate Assessment, even with developed mitigation measures. To be avoided, but Stage 2 Appropriate Assessment required if the option is selected for inclusion in any draft WRMP19 strategy.

Likely Significant Effect even after consideration of Stage 1 incorporated mitigation measures. Stage 2 Appropriate Assessment required if the option is selected for inclusion in any draft WRMP19 strategy

No Likely Significant Effect after consideration of incorporated mitigation measures. Stage 2 Appropriate Assessment not required.

Screening assessments were based on a rigorous application of the 'precautionary principle': where uncertainty or doubt remained as to whether an adverse effect may arise, the option was flagged as requiring Stage 2 Appropriate Assessment if the option was selected for potential inclusion in a draft WRMP19. The screening stage included assessment of any in-combination effects that might result from the concurrent implementation of different options in the feasible list, or in-combination with other plans, activities and projects.

- **Stage 1 - HRA screening: Revised Draft WRMP (2018)**

Following consultation comments on the draft WRMP, a significant amount of work has been undertaken to review those options with long pipeline routes that may impact on European sites (and other environmentally sensitive features) to establish whether the routes can be further optimised at this strategic planning stage to reduce environmental impacts. We have also reviewed some other asset site locations and design assumptions (e.g. for the Fawley desalination plant option, reuse scheme options affecting the River Itchen) in order to reduce environmental impacts. These options have been re-screened for any likely significant effects in light of the revisions made to the scheme design.

Since the publication of the draft WRMP19, there was an important judgement in the Court of Justice of the European Union (CJEU) in April 2018[1] (the "People over Wind" or "Sweetman" judgment) which ruled that Article 6(3) of the Habitats Directive must be interpreted as meaning that mitigation measures should be assessed within the framework of an Appropriate Assessment and that it is not permissible to take account of mitigation measures at the screening stage. In dialogue with Natural England, we reviewed the screening decisions that had been included in the draft WRMP19 and, where necessary, we amended the screening assessment to note the requirement to take the option through to Stage 2 Appropriate Assessment if it was considered for inclusion in the revised draft WRMP19. This remains the approach taken in the final WRMP19.

■ **Stage 2 - Appropriate Assessment:** Where a likely significant effect could not be ruled out at the screening stage (and noting the precautionary principle), but the option was selected for potential inclusion in the revised draft WRMP19, information to inform an Appropriate Assessment was provided to further examine the likely significant effect in more detail to determine whether the impact could adversely affect the integrity of the European site(s), taking into account available mitigation measures.

Certain assumptions have been made regarding **mitigation** in carrying out the HRA Stage 1 Screening assessments, notably:

- Where suitable mitigation measures have been identified in the outline design of the option (e.g. pipeline routed to avoid groundwater dependant sites), these have been taken into account, such that the resultant residual effects have been determined in the HRA screening; and

- Following the "People over Wind" judgement, implementation of reasonable mitigation measures that Southern Water commits to carry out as "standard good practice", such as the application of good construction practices and noise abatement measures to protect local wildlife are no longer applicable at Stage 1 Screening. These are considered within the Stage 2 Appropriate Assessment.

- Additional mitigation measures, being those specifically required for an option to avoid an adverse effect to a European sites' integrity, are also considered within the Stage 2 Appropriate Assessment.

The Appropriate Assessment will determine whether the option should continue to be included in the WRMP19 or be rejected.

[1] Court of Justice of the European Union Case C-323/17: People over Wind & Sweetman

5. Summary of HRA findings

5.1 Stage 1 Screening Assessment: Feasible list of options

There were a number of options which were identified as having an '***amber***' or '***red***' Likely Significant Effect on one or more European sites and which required Appropriate Assessment if the option was selected for potential inclusion in the WRMP19.

Table 1 summarises those feasible options assessed as '***amber***' or '***red***' in the Stage 1 Screening assessment. The remaining options on the feasible list were assessed as having no likely significant effects (LSEs) on any European site ('green' rating in Table 1).

The findings of this Stage 1 Screening assessment were used to help Southern Water decide which options to consider for inclusion in its WRMP19 for each of its three operational areas.

Table 1 HRA Stage 1 findings for the feasible options

Option Name	Area	Option Group	Arun Valley SAC	Briddlesford Copses SAC	Dorset Heaths SAC	Duncton to Bignor Escarpment SAC	Dungeness SAC	Ebernoe Common SAC	Emer Bog SAC	Great Yews SAC	Essex Estuaries SAC	Hasting Cliff SAC	Isle of Wight Downs SAC	Kennet & Lambourn Floodplain SAC	Kennet Valley Alderwoods SAC	Margate & Longsands SAC	Mottisfont Bats SAC	The New Forest SAC	North Downs Woodlands SAC	Peter's Pit SAC	Queendown Warren SAC	River Avon SAC	River Itchen SAC	River Lambourn SAC	Sandwich Bay SAC	Solent & Isle of Wight Lagoons SAC	Solent Maritime SAC	South Wight Maritime SAC	Stodmarsh SAC	Thanet Coast SAC	The Mens SAC	Arun Valley SPA & RAMSAR	Avon Valley SPA & RAMSAR	Benfleet & Southern Marshes SPA & RAMSAR	Chichester & Langstone Harbours SPA & RAMSAR	Dorset Heaths SPA & RAMSAR	Dungeness, Romney Marsh & Rye Bay SPA & RAMSAR	Foulness (Mid-Essex Coast Phase 5) SPA & RAMSAR	Medway Estuary and Marshes SPA & RAMSAR	New Forest SPA & RAMSAR	Outer Thames Estuary SPA & RAMSAR	Portsmouth Harbour SPA & RAMSAR	Solent & Southampton Water SPA & RAMSAR	Solent and Dorset Coast pSPA	Stodmarsh SPA & RAMSAR	Thames Estuary & Marshes SPA & RAMSAR	Thanet Coast & Sandwich Bay SPA & RAMSAR	The Swale SPA & RAMSAR
Import from Bournemouth Water	Western	TW																																												
Additional import from Portsmouth Water (Havant Thicket reservoir development)	Western	TW																																												
Test to Lower Itchen - potable water	Western	ASS																																												
Test Estuary WTW Industrial reuse (9Ml/d)	Western	WR																																											
Fawley desalination (modular to 75Ml/d)	Western	NW																																											
Fawley desalination (50 Ml/d)	Western	NW																																												
Fawley desalination (100 Ml/d)	Western	NW																																											
Southampton link main (reversible link HSW-HSE)	Western	ASS																																												
Abingdon–Basingstoke–Lower Itchen (30 Ml/d)	Western	TW																																												
Abingdon–Basingstoke–Lower Itchen (80 Ml/d)	Western	TW																																												
Portsmouth Harbour WTW (40 Ml/d)	Western	WR																																												
Portsmouth Harbour WTW (60 Ml/d)	Western	WR																																												
Portsmouth Harbour WWTW & Fareham WWTW Indirect Potable Reuse (90 Ml/d)	Western	WR																																												
Combined Woolston and Portswood WWTW Indirect Potable Reuse (13.5 Ml/d)	Western	WR																																												
Combined Woolston and Portswood WWTW Indirect Potable Reuse (20.5 Ml/d)	Western	WR																																												
Desalination plant at Sholling (10 Ml/d)	Western	NW																																												
Desalination plant at Sholling (100 Ml/d)	Western	NW																																												

Option Name	Area	Option Group	Arun Valley SAC	Briddlesford Copses SAC	Dorset Heaths SAC	Duncton to Bignor Escarpment SAC	Dungeness SAC	Ebernoe Common SAC	Emer Bog SAC	Great Yews SAC	Essex Estuaries SAC	Hasting Cliff SAC	Isle of Wight Downs SAC	Kennet & Lambourn Floodplain SAC	Kennet Valley Alderwoods SAC	Margate & Longsands SAC	Mottisfont Bats SAC	The New Forest SAC	North Downs Woodlands SAC	Peter's Pit SAC	Queendown Warren SAC	River Avon SAC	River Itchen SAC	River Lambourn SAC	Sandwich Bay SAC	Solent & Isle of Wight Lagoons SAC	Solent Maritime SAC	South Wight Maritime SAC	Stodmarsh SAC	Thanet Coast SAC	The Mens SAC	Arun Valley SPA & RAMSAR	Avon Valley SPA & RAMSAR	Benfleet & Southern Marshes SPA & RAMSAR	Chichester & Langstone Harbours SPA & RAMSAR	Dorset Heaths SPA & RAMSAR	Dungeness, Romney Marsh & Rye Bay SPA & RAMSAR	Foulness (Mid-Essex Coast Phase 5) SPA & RAMSAR	Medway Estuary and Marshes SPA & RAMSAR	New Forest SPA & RAMSAR	Outer Thames Estuary SPA & RAMSAR	Portsmouth Harbour SPA & RAMSAR	Solent & Southampton Water SPA & RAMSAR	Solent and Dorset Coast pSPA	Stodmarsh SPA & RAMSAR	Thames Estuary & Marshes SPA & RAMSAR	Thanet Coast & Sandwich Bay SPA & RAMSAR	The Swale SPA & RAMSAR
Desalination plant at Sholling (20 Ml/d)	Western	NW																																											
Desalination plant at Sholling (50 Ml/d)	Western	NW																																												
Fawley desalination (150 Ml/d)	Western	NW																																											
Fawley desalination (200 Ml/d)	Western	NW																																											
Test Estuary Desalination (100 Ml/d)	Western	NW																																											
Test Estuary Desalination (150 Ml/d)	Western	NW																																											
Test Estuary Desalination (200 Ml/d)	Western	NW																																											
Test Estuary Desalination (50 Ml/d)	Western	NW																																											
Portswood WWTW Indirect Potable Water Reuse (13 Ml/d)	Western	WR																																											
Portswood WWTW Indirect Potable Water Reuse (8.5 Ml/d)	Western	WR																																											
Sandown Coastal desalination IOW (20 Ml/d)	Western	NW																																											
Sandown Coastal desalination IOW (8.5 Ml/d)	Western	NW																																											
Test WSW	Western	DO																																											
Transfer from UTMRD to Lower Itchen (30 Ml/d)	Western	TW																																											
Transfer from UTMRD to Lower Itchen (80 Ml/d)	Western	TW																																											
Triplicate Cross Solent Main	Western	ASS																																											
Woolston WWTW Indirect Potable Reuse (5 Ml/d)	Western	WR																																											
Woolston WWTW Indirect Potable Reuse (7.5 Ml/d)	Western	WR																																											

Option Name	Area	Option Group	Arun Valley SAC	Briddlesford Copses SAC	Dorset Heaths SAC	Duncton to Bignor Escarpment SAC	Dungeness SAC	Ebernoe Common SAC	Emer Bog SAC	Great Yews SAC	Essex Estuaries SAC	Hasting Cliff SAC	Isle of Wight Downs SAC	Kennet & Lambourn Floodplain SAC	Kennet Valley Alderwoods SAC	Margate & Longsands SAC	Mottisfont Bats SAC	The New Forest SAC	North Downs Woodlands SAC	Peter's Pit SAC	Queendown Warren SAC	River Avon SAC	River Itchen SAC	River Lambourn SAC	Sandwich Bay SAC	Solent & Isle of Wight Lagoons SAC	Solent Maritime SAC	South Wight Maritime SAC	Stodmarsh SAC	Thanet Coast SAC	The Mens SAC	Arun Valley SPA & RAMSAR	Avon Valley SPA & RAMSAR	Benfleet & Southern Marshes SPA & RAMSAR	Chichester & Langstone Harbours SPA & RAMSAR	Dorset Heaths SPA & RAMSAR	Dungeness, Romney Marsh & Rye Bay SPA & RAMSAR	Foulness (Mid-Essex Coast Phase 5) SPA & RAMSAR	Medway Estuary and Marshes SPA & RAMSAR	New Forest SPA & RAMSAR	Outer Thames Estuary SPA & RAMSAR	Portsmouth Harbour SPA & RAMSAR	Solent & Southampton Water SPA & RAMSAR	Solent and Dorset Coast pSPA	Stodmarsh SPA & RAMSAR	Thames Estuary & Marshes SPA & RAMSAR	Thanet Coast & Sandwich Bay SPA & RAMSAR	The Swale SPA & RAMSAR
Littlehampton WTW Indirect Potable Water Reuse (10Ml/d)	Central	WR	■			■		■																						■		■															
Littlehampton WTW Indirect Potable Water Reuse (MET 10Ml/d)	Central	WR	■			■		■																						■		■															
Littlehampton WTW Indirect Potable Water Reuse (MET 20Ml/d)	Central	WR	■			■		■																						■		■															
Camber Desalination near Rye Bay (10 Ml/d)	Eastern	NW					■					■																									■									
Camber Desalination near Rye Bay (5 Ml/d)	Eastern	NW					■					■																									■									
Desalination in Thanet (10 Ml/d)	Eastern	NW														■									■				■	■								■			■			■		
Desalination in Thanet (20 Ml/d)	Eastern	NW														■									■				■	■								■			■			■		
Emergency Desalination - Sheerness	Eastern	NW									■																						■					■		■			■		■
Isle of Sheppey Desalination Plant 10 Ml/d	Eastern	NW									■																						■				■	■		■			■		■
Isle of Sheppey Desalination Plant 20 Ml/d	Eastern	NW									■																						■				■	■		■			■		■
Medway Estuary WWTW (20Ml/d)	Eastern	WR																		■	■																	■					■		■
Medway Estuary WWTW (37Ml/d)	Eastern	WR																		■	■																	■					■		■
Medway Estuary WWTW (MET 20 Ml/d)	Eastern	WR																		■	■																	■					■		■
Medway Estuary WWTW (MET 37 Ml/d)	Eastern	WR																		■	■																	■					■		■
Stourmouth WSW New WSW near Minster	Eastern	NW														■									■				■	■											■			■		
River Stour Desalination (10 Ml/d)	Eastern	NW																											■	■											■			■		
River Stour Desalination (20 Ml/d)	Eastern	NW																											■	■											■			■		

Option Name	Area	Option Group	Arun Valley SAC	Briddlesford Copses SAC	Dorset Heaths SAC	Duncton to Bignor Escarpment SAC	Dungeness SAC	Ebernoe Common SAC	Emer Bog SAC	Great Yews SAC	Essex Estuaries SAC	Hasting Cliff SAC	Isle of Wight Downs SAC	Kennet & Lambourn Floodplain SAC	Kennet Valley Alderwoods SAC	Margate & Longsands SAC	Mottisfont Bats SAC	The New Forest SAC	North Downs Woodlands SAC	Peter's Pit SAC	Queendown Warren SAC	River Avon SAC	River Itchen SAC	River Lambourn SAC	Sandwich Bay SAC	Solent & Isle of Wight Lagoons SAC	Solent Maritime SAC	South Wight Maritime SAC	Stodmarsh SAC	Thanet Coast SAC	The Mens SAC	Arun Valley SPA & RAMSAR	Avon Valley SPA & RAMSAR	Benfleet & Southern Marshes SPA & RAMSAR	Chichester & Langstone Harbours SPA & RAMSAR	Dorset Heaths SPA & RAMSAR	Dungeness, Romney Marsh & Rye Bay SPA & RAMSAR	Foulness (Mid-Essex Coast Phase 5) SPA & RAMSAR	Medway Estuary and Marshes SPA & RAMSAR	New Forest SPA & RAMSAR	Outer Thames Estuary SPA & RAMSAR	Portsmouth Harbour SPA & RAMSAR	Solent & Southampton Water SPA & RAMSAR	Solent and Dorset Coast pSPA	Stodmarsh SPA & RAMSAR	Thames Estuary & Marshes SPA & RAMSAR	Thanet Coast & Sandwich Bay SPA & RAMSAR	The Swale SPA & RAMSAR
Littlehampton WTW Indirect Potable Water Reuse (10Ml/d)	Central	WR																																											
River Thames Desalination (10 Ml/d)	Eastern	NW																																												
River Thames Desalination (20 Ml/d)	Eastern	NW																																											
Sittingbourne Industrial Water Resue (17.5 Ml/d)	Eastern	WR																																										
Sittingbourne Industrial Water Resue (7.5 Ml/d)	Eastern	WR																																										

5.2 Stage 1 Screening Assessment: Preferred Programme

The outcome of the Stage 1 Screening assessments of the options included in the preferred programme is summarised in Table 2.

5.2.1 Western area

Error! Reference source not found.**2** shows that in the Western area there are four options i ncluded in the preferred programme ("Strategy A") that have been assigned a '***red***' rating at Stage 1 Screening and therefore Stage 2 Appropriate Assessments are required for these options; Bournemouth Water Import, Additional import from Portsmouth Water (Havant Thicket reservoir development), Fawley Desalination (75Ml/d), and Southampton Link Main. Stage 2 Appropriate Assessments have been completed for these options and are detailed in Appendices B to E.

The remaining resource development and bulk supply options, demand management (leakage reductions) and catchment management were screened out as having no LSEs. The drought management options, and drought permits and orders have been already assessed in the Drought Plan 2019 HRA Report.

A number of strategic alternatives are proposed for the Western area. These may be required if a strategic option in the preferred programme cannot be delivered following more detailed planning and further environmental assessment studies. The six options being considered are: Fawley desalination (100Ml/d), Sandown desalination (8.5Ml/d), Test Estuary Industrial Water Reuse (9Ml/d), Woodside transfer valve, and the Itchen indirect potable reuse schemes; Portsmouth Harbour and Fareham WwTWs indirect potable reuse (90Ml/d) and Woolston and Portswood WwTW indirect potable reuse (20.5Ml/d). Of these schemes, LSEs were identified for Fawley desalination (modular to 100Ml/d), Test Estuary Industrial Water Reuse and the two Itchen indirect potable reuse schemes. These have therefore been subject to Stage 2 Appropriate Assessment and these are detailed in Appendices B (Fawley desalination), F (Test Estuary Industrial Water Reuse), G (Portsmouth Harbour and Fareham WwTWs indirect water reuse) and H (Woolston and Portswood WwTW indirect potable reuse). No LSEs were identified for the Sandown desalination and the Woodside transfer valve alternative options.

Table 2 Stage 1 Screening of the WRMP19 preferred programme: Western area

Option Name	Area	Option Group	Briddlesford Copses SAC	Dorset Heaths SAC	Emer Bog SAC	Great Yews SAC	Isle of Wight Downs SAC	Kennet & Lambourn Floodplain SAC	Kennet Valley Alderwoods SAC	Mottisfont Bats SAC	The New Forest SAC	River Avon SAC	River Itchen SAC	River Lambourn SAC	Solent & Isle of Wight Lagoons SAC	Solent Maritime SAC	Avon Valley SPA & RAMSAR	Dorset Heaths SPA & RAMSAR	New Forest SPA & RAMSAR	Solent & Southampton Water SPA & RAMSAR	Solent and Dorset Coast pSPA
Import from Bournemouth Water	Western	TW																			
Additional import from Portsmouth Water (additional 9Ml/d)	Western	TW																			
Additional import from Portsmouth Water (Havant Thicket reservoir development)	Western	TW																			
Fawley desalination (modular to 75Ml/d)	Western	NW																			
Southampton link main (reversible link HSW-HSE)	Western	ASS																			
WSW near Cowes - reinstate & additional treatment	Western	NW																			
Hampshire grid (reversible link HSE-HW)	Western	ASS																			
Hampshire grid (reversible link HW-HA)	Western	ASS																			
Sandown WwTW Indirect Potable Reuse (8.5Ml/d)	Western	WR																			
Newbury WSW asset enhancement	Western	ASS																			
Romsey Town and Broadlands valve (HSW-HR reversible)	Western	ASS																			
Romsey Town and Broadlands valve (HSW-HR reversible)	Western	ASS																			

5.2.2 Central area

Table 3 shows that there are no LSEs arising from the options included in the preferred programme (strategy) for the Central area. The remaining resource development and bulk supply options, demand management (leakage reductions) and catchment management were screened out as having no LSEs. The drought management options, and drought permits and orders have already been assessed in the Drought Plan 2019 HRA Report.

Four strategic alternative options are being considered for the Central area: Brighton WTW indirect potable reuse (10Ml/d), Coastal desalination-Shoreham Harbour (up to 30Ml/d), Tidal River Arun desalination (10Ml/d), and the Pulborough Winter Transfer Stage 1 scheme. These options may be required if an option in the preferred programme cannot be delivered following more detailed planning and further environmental assessment studies. Since the draft WRMP19 and representations made by Natural England, the treated water pipeline route for the Brighton WwTW indirect potable reuse option has been reviewed and completely re-routed to avoid impacting the Lewes Downs SAC and surrounding habitat used by a designated

species. As a result of this significant change to the pipeline route, no LSEs have been identified for the option (see Appendix A for details). No LSEs have been identified in respect of the Coastal desalination – Shoreham Harbour (up to 30Ml/d), Tidal River Arun desalination (10Ml/d) or Pulborough Winter Transfer Stage 1 scheme.

Table 3 Stage 1 Screening of the WRMP19 preferred programme: Central area

Option Name	Area	Option Group	Arun Valley SAC	Buster Hill SACI=	Castle Hill SAC	Duncton to Bignor Escarpment SAC	East Hampshire Hangers SAC	Ebernoe Common SAC	Rook Clift SAC	The Mens SAC	Woolmer Forest SAC	Arun Valley SPA & RAMSAR	Wealden Heaths Phase II
Littlehampton WTW Indirect Potable Water Reuse (20Ml/d)	Central	WR											
ASR (Sussex Coast - Lower Greensand)	Central	STR											
Coastal Desalination - Shoreham Harbour (10 Ml/d)	Central	NW											
Pulborough groundwater licence variation	Central	ENV											
Winter transfer Stage 2: New main Shoreham/North Shoreham and Brighton A	Central	ASS											
Transfer to Midhurst WSW & Petersfield BH rehabilitation	Central	BR											
Scheme to bring West Chiltington back into service	Central	BR											

5.2.3 Eastern area

Table 4 shows that no option in the preferred programme (strategy) for the Eastern area has an 'amber' or 'red' Stage 1 Screening rating and therefore no Stage 2 Appropriate Assessments were required.

The remaining resource development and bulk supply options, demand management (leakage reductions) and catchment management were screened as having no LSEs. The drought management options, and drought permits and orders have been already assessed in the Drought Plan 2019 HRA Report.

One strategic alternative option is proposed for the Eastern area. This option may be required if an option in the preferred programme cannot be delivered following more detailed planning and further environmental assessment studies. The option is the Sittingbourne Industrial Water Reuse (7.5Ml/d). Construction and operation impacts to The Swale SPA and Ramsar site could not be ruled out at the HRA Stage 1 screening assessment and therefore a Stage 2 Appropriate Assessment has been completed for this option (see Appendix I).

Table 4 Stage 1 Screening of the WRMP19 preferred programme: Eastern area

Option Name	Area	Option Group	Blean Complex SAC	Margate & Longsands SAC	Lydden and Temple Ewell Downs SAC	North Downs Woodlands SAC	Parkgate Down SAC	Peter's Pit SAC	Sandwich Bay SAC	Stodmarsh SAC	Thanet Coast SAC	Wye and Crundale Down SAC	Medway Estuary and Marshes SPA & RAMSAR	Stodmarsh SPA & RAMSAR	Thames Estuary & Marshes SPA & RAMSAR	Thanet Coast & Sandwich Bay SPA & RAMSAR	The Swale SPA & RAMSAR
Stourmouth WSW (10Ml/d with 20Ml covered storage)	Eastern	NW		■					■	■	■			■		■	
Medway WTW Indirect Potable Water Reuse (18 Ml/d)	Eastern	WR				■		■					■				
West Sandwich & Sandwich WSW licence variation	Eastern	NW				■		■					■				
Recommission Meopham Greensand groundwater source	Eastern	ASS				■		■							■		
Utilise full existing transfer capacity (from Faversham4)	Eastern	ASS	■									■					■
SEW bulk supply near Canterbury	Eastern	TW			■		■		■	■				■		■	

5.3 Stage 2 Information to inform Appropriate Assessment

Stage 2 assessments were carried out on the following eight options (and variant options where shown):

- Fawley desalination scheme (75Ml/d and 100Ml/d)
- Bournemouth Water import
- Additional import from Portsmouth Water (Havant Thicket reservoir development)
- Southampton Link Main
- Test Estuary industrial reuse
- Portsmouth Harbour and Fareham WwTW to River Itchen Indirect Potable Reuse (90Ml/d)
- Woolston and Portswood WwTW Indirect Potable Reuse (10Ml/d)
- Sittingbourne industrial water reuse (7.5Ml/d)

The Stage 2 assessments concluded that **none of the options assessed would, individually, lead to an adverse effect on the integrity of a European site** after taking account of the additional proposed mitigation measures to address identified effects on one or more of the European site features, subject to implementation of mitigation.

Southern Water recognises that there a range of uncertainties and risks that need to be managed, relating to the Fawley desalination option and the strategic alternatives. As such, Southern Water has identified a timeline of further survey, modelling and assessment work required to reduce uncertainties and further assess the environmental risks of each option. This was provided as an Addendum to the Statement of Response to Defra in June 2019.

The HRA provides a strategic, plan-level assessment to support the WRMP and is not an application-specific ("project" level) assessment. A more detailed, application-specific HRA (with Stage 2 Appropriate Assessment where required) will be needed to support any actual planning application and environmental permits/consents for the options taken forward.

6. Cumulative effects of WRMP19

The options in the preferred programme (strategies) were also assessed to determine if any likely significant effects might arise when implemented in combination with any of the other options in the WRMP19, irrespective of the operational area in which they would be implemented so as to check for any inter-area effects. This included consideration of both the cumulative effects of construction and operation, for example if construction dates would overlap or if operation of multiple options that have minor effects on the same European site(s) may in-combination lead to a likely significant effect.

Those options that were considered in the cumulative, in-combination HRA screening assessment were:

- Fawley desalination (75 and 100 Ml/d options)
- Bournemouth Water import
- Test Estuary Industrial reuse
- Southampton Link Main
- Additional import from Portsmouth Water (Havant Thicket reservoir development)
- Portsmouth Harbour and Fareham WwTW to River Itchen Indirect Potable Reuse (90Ml/d)
- Woolston and Portswood WwTW indirect potable reuse (20.5Ml/d)

These options could cumulatively impact the following European sites:

- The New Forest SAC
- New Forest SPA and Ramsar
- Solent Maritime SAC
- Solent and Southampton Water SPA and Ramsar
- River Itchen SAC

Investigations and assessment of these potential cumulative effects however concluded that there would be **no cumulative likely significant effects on any European designated site from implementation of the WRMP19 preferred programme (strategies), subject to mitigation measures being applied in some cases to avoid likely significant effects.**

7. Potential in-combination effects of the WRMP19 with other plans and projects

As well as in-combination effects between the options included in the WRMP19 preferred programme (strategies), the HRA also considered the potential for in-combination, cumulative effects with other relevant plans and projects as set out below.

7.1 Southern Water Drought Plan 2019

The HRA of the Southern Water Drought Plan 2019 identified no likely significant effects in combination with other plans or projects. It also concluded that only one Drought Plan measure may have an adverse effect on the integrity of one European site (River Itchen SAC) in severe drought conditions (though the precise magnitude and duration of the effects are subject to further review).

Possible in-combination effects between the WRMP19 and the Drought Plan 2019 were identified for the following European sites; however, the HRA findings were that there were **no likely significant in-combination effects**:

- Solent Maritime SAC, Solent and Southampton Water SPA and Ramsar plus Potential Solent to Dorset Coast SPA
- River Itchen SAC
- Arun Valley SAC, SPA and Ramsar
- Medway Estuary and Marshes SPA and Ramsar

7.2 Other water company Drought Plans

Assessment of the potential for in-combination effects of the WRMP19 with drought management measures listed in neighbouring water companies' drought plans was undertaken.

The HRA concluded there would be no cumulative effects on any European sites identified in relation to supply-side (including Drought Orders and Permits) Drought Plan options of the following neighbouring water companies:

- Affinity Water (Southeast Region)
- South West Water (Bournemouth Water)
- Thames Water
- Wessex Water
- Cholderton and District Water Company
- SES Water
- South East Water
- Portsmouth Water

7.3 Other water company Water Resources Management Plans

All of the neighbouring water companies to Southern Water are also preparing revised draft and final 2019 WRMPs to the same timeframe. The plan-level assessment completed has used information available as at November 2019. Cumulative assessments are an iterative process and have been developed between the draft, revised draft and the final WRMP19 strategies as more information on the confirmed options included in the other companies' plans has become available.

The HRA cumulative assessment has also made use of outputs of a Water Resources South East group (WRSE) project. The WRSE group includes six south east England water companies (Affinity Water, Portsmouth Water, South East Water, Southern Water, Sutton and East Surrey Water and Thames Water).

Based the information available in November 2019, the following schemes were identified as potentially giving rise to in-combination effects:

- Southern Water Stourmouth WSW (10Ml/d with 20Ml covered storage) and South East Water Broad Oak larger reservoir size - 5,126 Ml: construction and operation.
- Southern Water Medway WwTW Indirect Potable Water Reuse (18 Ml/d) and South East Water Bewl-Darwell Option 1c: Transfer of 8Ml/d from Bewl to Hazards Green via a Southern Route: construction.
- Southern Water Recommission Meopham Greensand groundwater source and Thames Water's Southfleet/Greenhithe disaggregation: operation.

Affinity Water's draft final WRMP19 has removed a number of the groundwater abstractions that were considered to have potential in-combination effects with Southern Water's West Sandwich and Sandwich WSW licence variation. Those remaining have no impact pathways to designated sites and as such, no in-combination effects have been identified

Potential for in-combination effects to the following European designated sites were considered; Stodmarsh SAC, SPA and Ramsar, Sandwich Bay SAC, Thanet Coast and Sandwich Bay SPA and Ramsar, and the Medway Estuary and Marshes SPA and Ramsar. No LSEs during construction or operation were identified.

For other water companies outside of the WRSE group, but neighbouring Southern Water (South West Water (Bournemouth Water), Cholderton and District Water and Wessex Water), we have reviewed the information available at mid-August 2018. No cumulative likely significant effects on European sites are anticipated in relation to these WRMPs. The South West Water (Bournemouth Water) WRMP19 includes the Bournemouth Water import option to Southern Water's Western area: the HRA implications of this scheme have been considered earlier in this HRA Report.

7.4 Other identified regional and local level plans and projects

The potential for in-combination effects of the Southern Water WRMP19 with the following other plans and projects has been assessed.

- Environment Agency National Drought Plan
- Thames River Basin District and South East River Basin District: River Basin Management Plans 2015
- Canal & River Trust: Putting Water into Waterways Water Resources Strategy 2015-2020
- Lower Tidal River Arun Flood Management Strategy (Environment Agency, 2012)
- Other relevant regional and local level projects implemented within close proximity

    - Fawley desalination scheme – Fawley Power Station site redevelopment scheme

    - Pipelines for various schemes in the Marchwood/Dibden area – potential for further Port development at Marchwood Military Port / Dibden Bay (Port of Southampton)

    - Test Estuary Industrial Water Re-Use – Planned residential allocations to the South and West of the existing WWTW in the emerging New Forest District Council Local Plan

- Littlehampton Water Re-Use and Tidal Arun Desalination schemes – Planned residential development on the former Ford Aerodrome site (as set out in Local Plan)

- Pipeline construction near Arundel – Highways England is currently consulting on routes currently for the Arundel bypass

Assessment of these plans and projects indicate that no operational in-combination effects on any European sites are likely. However, depending on the relative timing and specific spatial proximity of any construction works associated with these plans and projects with construction works for the relevant WRMP19 schemes, there may be a risk of some in-combination effects on some European sites during construction which would require careful planning and consideration of appropriate mitigation measures to ensure no in-combination effects. It is however likely that the majority of the above requiring construction will have been implemented before the WRMP19 schemes.

8. Conclusions

The HRA has been undertaken in parallel with the Strategic Environmental Assessment (SEA) and Water Framework Directive (WFD) assessments to ensure an integrated approach to environmental assessment of the WRMP19 and to ensure its overall compliance with international and national environmental legislation.

The HRA Stage 1 Screening assessment concluded that four options in the preferred programme included within the WRMP19 required a Stage 2 Appropriate Assessment. The information to inform the Appropriate Assessments concluded that, with the proposed mitigation measures in place for each scheme, there would be no adverse effects on the integrity of any European site. As these schemes are taken forward for further detailed design, the finer details of the required mitigation measures will need to be developed in dialogue with Natural England and the site operators/owners, and secured during the project-stage HRA when a detailed design and construction method statement will be developed.

If the mitigation measures described in the assessments are implemented, then it can be reasonably concluded that the proposed WRMP19 schemes will not have an adverse effect on the integrity of any SACs, SPAs and Ramsar sites.

The HRA Stage 1 Screening assessment for the remaining options included within the WRMP19, both individually and in combination, confirmed that there would be no likely significant adverse effects on any European site, thereby meeting "the no likely significant effect" HRA test.

Strategic alternative options to those included in the proposed strategies for the WRMP19 have also been considered as part of the HRA. The Stage 1 HRA screening concluded that for all but four of these options, there would be no LSEs on any European site. The Appropriate Assessments for the remaining four options concluded there would be no adverse effects on site integrity.

Southern Water recognises that there a range of uncertainties and risks that need to be managed, relating to the Fawley desalination option and the strategic alternatives; Itchen indirect potable reuse schemes. As such, Southern Water has identified a timeline of further survey, modelling and assessment work required to reduce uncertainties and further assess the environmental risks of each option. This was provided as an Addendum to the Statement of Response to Defra in June 2019.

This report provides a strategic, plan-level assessment to support the WRMP and is not an application-specific ("project" level) assessment. A more detailed, application specific HRA will need to be carried out as and when each of the schemes is brought forward by Southern Water for promotion and applications are subsequently made for planning permission and environmental permits. At that stage, the HRA will need to be revisited to take account of any changes to scheme design, construction and operational arrangements, as well as the package of mitigation measures proposed at that stage. Cumulative, in-combination effects will also need to be re-assessed to take account of prevailing, updated information on other projects, programmes and plans, including those highlighted in the HRA report.

9. References

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