Hampshire Water Transfer and Water Recycling Project

Environmental Statement – Chapter 4 Consideration of alternatives

VOLUME NUMBER: 6

PLANNING INSPECTORATE SCHEME NUMBER: WA010002

APPLICATION DOCUMENT REFERENCE: 6.1

APFP REGULATION: 5(2)(a)

May 2026

Version 0

from Southern Water

Contents

Tables

Graphics

4 Consideration of alternatives

4.1 Introduction

4.1.1 This chapter provides a summary of the evolution of the Hampshire Water Transfer and Water Recycling Project (hereafter referred to as the 'Proposed Development') and a description of the alternatives considered by the Applicant, including how environmental considerations have informed the decision-making process.

4.1.2 In doing so, it sets out the background to the identification of the need for a new strategic water resource solution in the Applicant's Water Resources Management Plan 2019 (WRMP19) [1], and how the solution identified in WRMP19 to meet that need subsequently evolved into the Proposed Development.

Legislative and policy context

4.1.3 Regulation 14(2)(d) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the 'EIA Regulations') requires that an Environmental Statement (ES) must include "*a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment".* Paragraph 2 of Schedule 4 to the EIA Regulations provides examples of 'reasonable alternatives', including development design, technology, location, size and scale.

4.1.4 The National Policy Statement for water resources infrastructure (NPSWRI) [2] also advises that applicants should comply with all legal and policy obligations on the assessment of alternatives including the requirements of the EIA Regulations as specifically addressed in this chapter. Other legal and policy requirements in relation to alternatives are set out in the NPSWRI (for example through the Habitats Regulations and policies relating to National Parks, flood risk and landscape designations as set out in a non-exhaustive list at NPSWRI paragraph 3.5.1), and have informed the overarching approach as described in this chapter. The Planning Policy Statement (Document reference 5.5, DCO Volume 5) submitted with the Development Consent Order (DCO) application provides an assessment of conformity against the policies in the NPSWRI. The process has also considered requirements in relation to alternatives set out in the Conservation of Habitats and Species Regulations 2017 (as amended) and the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended). The process also considers alternatives to justify the need for Compulsory Acquisition of land as per Government guidance [3].

4.1.5 The Planning Inspectorate (2020) Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements, (Version 7) [4] states that the Planning Inspectorate considers a good ES is one that "*explains the reasonable alternatives considered and the reasons for the chosen option taking into account the effects of the Proposed Development on the environment*". This chapter sets out a summary of the reasonable

alternatives considered, having regard to any relevant responses to consultation and engagement, and the decision-making process, having specific regard to likely environmental effects.

Need for the Proposed Development

4.1.6 The Applicant operates in a part of the United Kingdom that is classified by the Environment Agency (EA) as 'seriously water stressed' and the South East of England faces the greatest pressures on water resources of all the English regions. Projections undertaken by the Applicant in developing its emerging Water Resources Management Plan 2024 (emerging WRMP24) [5] and Water Resources South East[1] (WRSE) [6] for its regional plan identify that without action there is an urgent and significant deficit of available water supplies for customers, particularly taking into account future river abstraction licence changes, population growth and climate change.

4.1.7 Currently, the Applicant's water supplies are largely reliant on groundwater from the widespread chalk aquifer that sits under much of the region. However, Hampshire, which forms the Applicant's Western Area of supply (which includes parts of Hampshire and Isle of Wight), has a greater reliance on river abstractions, including from the River Test and River Itchen.

4.1.8 The NPSWRI [7] notes that a water company's WRMP will identify the need for water resources and determine the specific technology solutions required to meet that identified water resources need. Paragraph 2.5.2 of the NPSWRI states that "*if a water company identifies a future deficit in supply, it will need to assess the water resources and demand management options to eliminate the deficit and justify its preferred option in its WRMP*". This emphasises the role of the statutory duty to prepare, publish and maintain a WRMP (s37A Water Industry Act 1991) to set out the plan for how water companies will manage and develop water resources so that they can meet their supply obligations in considering and identifying the preferred solution type for meeting that need.

4.1.9 The Applicant's current WRMP19 was prepared to meet a projected water supply deficit in its Western Area of supply of 192Ml/d during a 1 in 200-year drought up to 2029/30.

4.1.10 In line with the Water Resources Planning Guideline [8] the Applicant now plans for increased drought resilience, up to an extreme (1-in-500-year) drought in its emerging WRMP24. The most up to date figures in the Applicant's emerging WRMP24 indicate a water supply deficit of approximately 203Ml/d by 2040, rising to approximately 211Ml/d by 2050 in a 1-in-500 year drought within the Western Area.

4.1.11 The primary cause of the projected water supply deficit in the western supply area is the river abstraction licence changes for the River Itchen and River Test. These are chalk streams that provide a large proportion of water supply in this area. The river abstraction licence changes are driven by the need to secure additional

[1] WRSE comprises six constituent water companies including the Applicant.

environmental protection for the River Itchen Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) and the River Test SSSI.

Background to the evolution of the Proposed Development from WRMP19

4.1.12 The NPSWRI states at 2.4.1 that *"To meet future needs, water resources infrastructure will be required to supplement demand management action".* Due to the size of the supply-demand deficit faced and limited opportunities for abstracting more water from surface water and groundwater, the WRMP process needs to rely on solutions that deliver resilience by using new sources, such as desalination and water recycling, together with bulk imports from neighbouring WRSE members. The NPSWRI recognises at Table 1 that "*Water storage systems will be required to support transfers, along with other schemes such as desalination and effluent re-use that provide a high level of resilience to longer term drought periods."*

4.1.13 The Applicant's published 2019 WRMP [1] considered a range of strategic water resources infrastructure solutions to help meet the identified need for a large infrastructure solution in its western supply area, including a large-scale desalination plant and water re-use options (referred to as water recycling). A 75Ml/d desalination plant at Fawley was identified as the preferred strategic water resources infrastructure solution, which was the largest element of a wider package of solutions that formed the WRMP19 preferred strategy.

4.1.14 WRMP19 also identified a water recycling option that would transfer highly treated wastewater to increase flows in the Lower Itchen as a strategic alternative to desalination at Fawley as part of an adaptive planning approach to water resources management. The need to carry out further investigations into this alternative strategic solution was reported in WRMP19 and subsequently mandated through the progression of the desalination solution through the RAPID (Regulators Alliance for Progressing Infrastructure Development) gated process, which provides regulatory oversight and funding for investigations and development of strategic water resources solutions in light of the urgent national need to deliver such infrastructure.

4.1.15 The Proposed Development emerged as the preferred strategic alternative long-term alternative to desalination through an extensive options appraisal undertaken as part of the RAPID gated process and was subsequently confirmed as the preferred solution through the WRMP19 Annual Review 2020-21 published in December 2021 [9]. It remains It remains the preferred solution through the WRSE Regional Plan [10] and the Applicant's emerging WRMP24 which sets out the strategy for addressing the water supply deficit in the Western Area up to a 1-in-500 year drought.

4.1.16 No alternative solutions to the Proposed Development that are available and deliverable in the required timescales to provide the scale of deployable output to meet the required need have been identified in either the WRSE Regional Plan or the Applicants emerging WRMP24. The final WRSE Regional Plan modelling has also identified that no other companies have surplus water of the volume required to transfer to the Applicant within the available timescale as an alternative to the Proposed Development.

4.1.17 The Applicant continues to progress the RAPID gated process as the single and only strategic resource solution available to help address its water supply deficit.

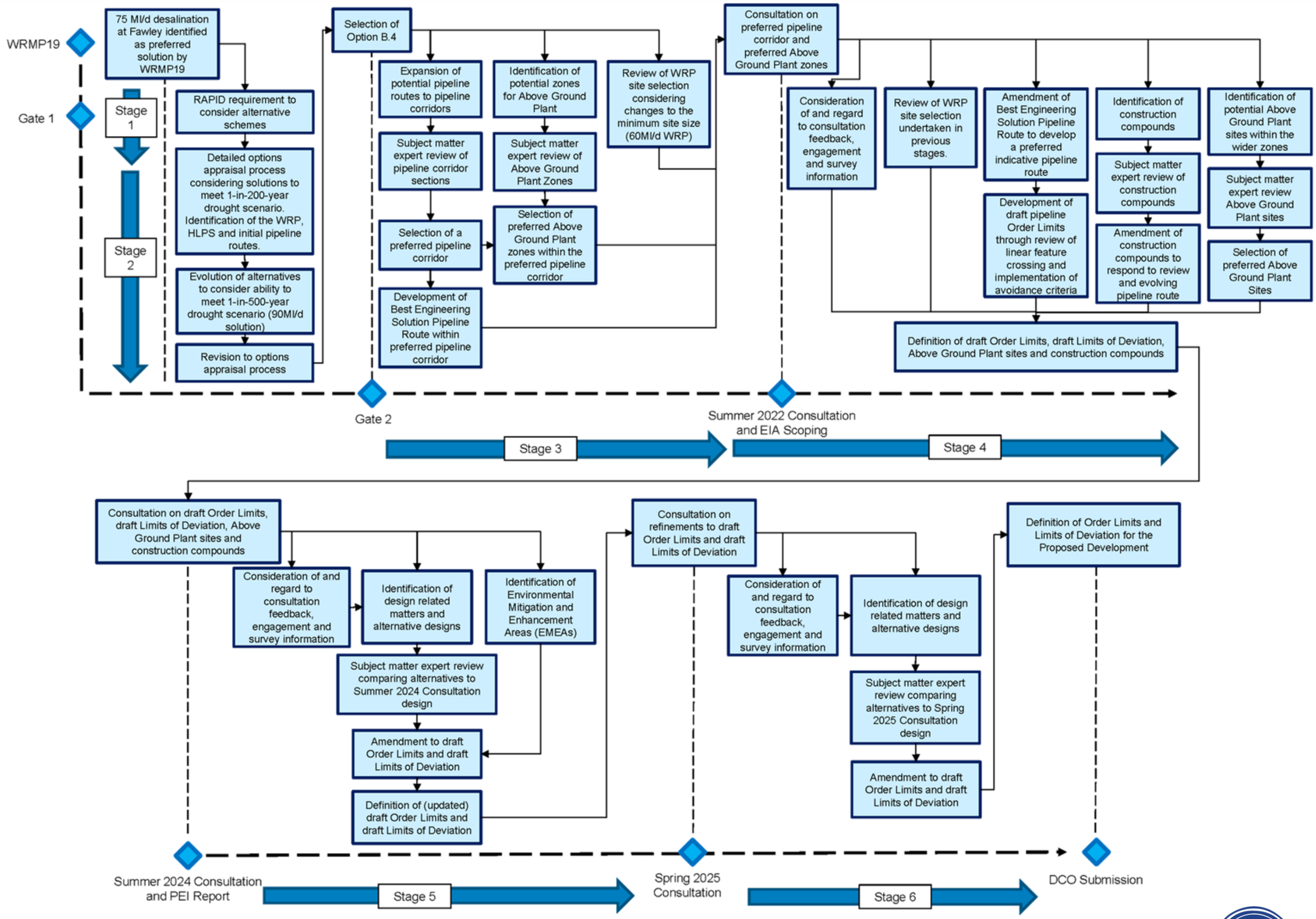
The NPSWRI states at Paragraph 2.5.19, "*In summary, the Environment Agency's National Framework for water resources sets out the strategic water resources need. Regional groups will then develop a more detailed assessment of need and develop optimal solutions to meet it, and this will be reflected in companies' individual preferred plans. RAPID will assist with the timely development of the strategic options*."

Approach to considering alternatives

4.1.18 The Proposed Development emerged through an extensive options appraisal process undertaken as part of the Applicant's Gate 2 investigations, arising from the requirement to further consider alternatives to the preferred desalination solution identified in WRMP19. The options appraisal process identified the Proposed Development as a strategic alternative to the WRMP19 preferred desalination solution, and as a variant to the water reuse strategic alternative also identified in WRMP19. The Proposed Development, alongside a number of other alternative options, progressed through a number of stages of detailed review, considering a range of technical, environmental, planning, social and economic criteria. The outcome of the options appraisal process led to the selection of a water recycling and water transfer option, then known as Option B.4, as the preferred water resources solution for the Western Area.

4.1.19 A range of alternative options for the required infrastructure components were then considered as part of identifying the preferred design for the Proposed Development. Further, a methodological approach was followed to identify and test alternative designs and locations for the components of the Proposed Development, having regard to consultation feedback, engagement with stakeholders and engineering and environmental surveys and investigations. The process to develop and consider alternatives for the Proposed Development is set out within Graphic 4-1 following the selection of Option B.4 as the preferred option.

Graphic 4-1 Consideration of alternatives process



4.1.20 Details of the Applicant's consideration of alternatives and design development of the Proposed Development were presented and consulted on at the Summer 2022 Consultation, Summer 2024 Consultation and Spring 2025 Consultation.

4.1.21 The Scheme Development Report (Document reference 5.10, DCO Volume 5) provides a detailed overview of the process the Applicant has undertaken to identify a preferred strategic solution to address the water supply challenges in Hampshire (Stages 1 and 2 of the process which are explained in section 4.2 and section 4.3 of this chapter). The outcome of this process was the identification of the Proposed Development as the preferred strategic water resources infrastructure solution for the Applicant's western supply area.

4.1.22 The Applicant submitted an Environmental Impact Assessment (EIA) Scoping Report (ES Appendix 5.1 EIA Scoping Report, Volume II (Document reference 6.2, DCO Volume 6)) for the Proposed Development to the Secretary of State (SoS) on 25 July 2023 and in line with the Planning Inspectorate (2020) Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental Statements, (Version 7) [4]. This included a summary of the consideration of alternatives that had been undertaken for the Proposed Development at that stage, taking into account the potential effects on the environment. An EIA Scoping Opinion (ES Appendix 5.2 EIA Scoping Opinion, Volume II (Document reference 6.2, DCO Volume 6)) was adopted by the Planning Inspectorate on behalf of the SoS on 31 August 2023.

4.1.23 Comments received in relation to the consideration of alternatives comprise:

1. *The ES should include an explanation of any changes made following the EIA Scoping Opinion, including how environmental effects have been considered in finalising the Order Limits.*
2. *The EIA Scoping Report referenced the Scheme Development Summary presented as part of the Summer 2022 Consultation on the Proposed Development. The Planning Inspectorate on behalf of the SoS [Secretary of State], considers that this and other related documentation should be submitted as part of the ES as a technical appendix.*

4.1.24 In line with the EIA Scoping Opinion (ES Appendix 5.2 EIA Scoping Opinion, Volume II (Document reference 6.2, DCO Volume 6)), this chapter provides a summary of the changes made to the Proposed Development since the EIA Scoping Opinion. The Scheme Development Report (Document reference 5.10, DCO Volume 5) formas part of the DCO application.

4.1.25 Table 4-1 outlines the stages of the process to consider alternatives following from the strategic options identified in WRMP19, and the sections of this chapter where these stages are summarised.

Table 4-1 Description of consideration of alternatives stages and corresponding Environmental Statement sections

Stage	Project phase	ES section
Stage 1	RAPID Gate 1, development and assessment of initial options (informed by WRMP19).	Section 4.2

Stage	Project phase	ES section
Stage 2	RAPID Gate 2, options appraisal process to select a preferred option (WRMP19 annual review 2020-2021 [9] confirmed change of preferred option to the Proposed Development).	Section 4.3
Stage 3	RAPID Gate 2 to Summer 2022 Consultation, development of the preferred option.	Section 4.4
Stage 4	Summer 2022 Consultation to Summer 2024 Consultation, refinement of the Proposed Development following consultation.	Section 4.5
Stage 5	Summer 2024 Consultation to Spring 2025 Consultation, further refinement of the Proposed Development following consultation.	Section 4.6
Stage 6	Spring 2025 Consultation to DCO application, further refinement of the Proposed Development following consultation (Proposed Development confirmed as the preferred option in the emerging WRMP24).	Section 4.7

4.1.26 This chapter sets out the six key stages in the consideration of alternatives for the Proposed Development, which are summarised below and detailed within section 4.2 to section 4.7, and within the Scheme Development Report (Document reference 5.10, DCO Volume 5):

1. **Stage 1 RAPID Gate 1 (September 2020) – development and assessment of initial options**: Gate 1 of the RAPID gated process required the Applicant to further review the desalination and water re-use schemes identified in WRMP19. These were considered alongside a number of alternative options for strategic water resources infrastructure solutions that were not identified in the Applicant's WRMP19. A high-level review of technical, environmental, commercial and other considerations was undertaken and the alternative options that were deemed not suitable were not progressed any further; those that were considered feasible were progressed to Gate 2. Stage 1 is explained in more detail in section 4.2 of this chapter.
2. **Stage 2 RAPID Gate 2 (December 2021) – options appraisal process**: The Applicant presented the outcomes of the options appraisal process which assessed the remaining alternative options against technical, environmental, planning and other criteria [11]. This resulted in the selection of a preferred option to be taken forward for further design and assessment (i.e. the Proposed Development). Stage 2 is explained in more detail in section 4.3 of this chapter.
3. **Stage 3 RAPID Gate 2 to Summer 2022 Consultation – preferred scheme development**: A scheme development and consideration of alternatives process was undertaken following the Applicant's Gate 2 submission to develop the sites and routes for the required infrastructure and pipelines for the preferred option (being the components of the Proposed Development). This resulted in the selection of a preferred pipeline corridor, a preferred site for the Water Recycling Plant (WRP), the pumping station for the transfer of source water to Otterbourne WSW and initial zones for the Above Ground Plant (AGP). The outcome of this scheme development process was presented and consulted on at the Summer 2022 Consultation for the Proposed Development as part of the DCO pre-application process. This consultation informed further

refinement of the Proposed Development at subsequent stages. Stage 3 is explained in more detail in section 4.4 of this chapter.

4. **Stage 4 Summer 2022 Consultation to Summer 2024 Consultation – refinement of the Proposed Development**: Having regard to the responses to and outcomes of the Summer 2022 Consultation as well as further environmental and engineering surveys and investigations, further refinement of the Proposed Development and consideration of alternatives was undertaken to inform the development of draft Order Limits, draft Limits of Deviation, sites for AGP and sites for temporary construction compounds for the Summer 2024 Consultation. Stage 4 also includes the Applicant's Gate 3 submission within the RAPID gated process. Stage 4 is explained in more detail in section 4.5 of this chapter.
5. **Stage 5 Summer 2024 Consultation to Spring 2025 Consultation – refinement of the Proposed Development**: Following the Summer 2024 Consultation, the Proposed Development was refined further (which included the consideration of alternatives), responding to and having regard to consultation feedback, further environmental assessment work and engineering design development. Consultation feedback and outputs of further assessments and investigations were considered to identify whether any new information would affect decision making from previous stages. Stage 5 is explained in more detail in section 4.6 of this chapter.
6. **Stage 6 Spring 2025 Consultation to DCO application – further refinement of the Proposed Development**: Following the Spring 2025 Consultation, which included consultation on design refinements made at Stage 5, the Proposed Development was refined further (which included the consideration of alternatives), responding to and having regard to consultation feedback, further environmental assessment work and engineering design development. Stage 6 is explained in more detail in section 4.7 of this chapter.

4.2 Stage 1: RAPID Gate 1 – development and assessment of initial options

4.2.1 Within the Applicant's WRMP19, a 75Ml/d desalination plant at Fawley in the New Forest was identified as the preferred long-term water resource solution for the Hampshire area (referred to in the Applicant's Gate 1 submission as the 'Base Case'). WRMP19 also considered a number of strategic alternative options to the Base Case. The principal alternative in WRMP19 was an indirect water recycling scheme (referred to as water re-reuse in WRMP19) that transferred recycled water into the lower River Itchen, which would act as an environmental buffer, before being abstracted again and transferred to Otterbourne WSW. An environmental buffer would allow for recycled water to be blended with existing water sources such as a lake, reservoir, pond or river and provide opportunities for attenuation. This is a key component of indirect water recycling (compared to direct water recycling which does not use an environmental buffer).

4.2.2 Following Ofwat's Price Review 19 final determination[2] which allocated funding to investigate and develop water resource infrastructure solutions and established

[2] Ofwat's Price Review is undertaken every five years and checks and challenges spending in the business plans that water companies submit to Ofwat.

RAPID and its 'gated process', the Applicant was required to consider a number of additional alternative solutions to the Base Case, including the alternative indirect water re-use scheme in WRMP19, as well as alternatives that were not specifically included in WRMP19. In total at Gate 1, the Applicant considered eight other options for large-scale strategic water resources infrastructure solutions for its western supply area in addition to the Base Case. These are set out in Table 4-2. The general locations of these options were shown in a consultation undertaken by the Applicant in 2021 [12].

Table 4-2 Strategic water resources infrastructure solution options considered at Gate 1

Configuration type	Option no.	Option description
Desalination	A.1 (Base Case)	75Ml/d of drinking water produced by desalination plant in the Fawley area and transferred to the distribution system at Testwood WSW.
	A.2	61Ml/d of drinking water produced by desalination plant in the Fawley area and transferred to the distribution system at Testwood WSW.
	D.1	40Ml/d desalinated water for dedicated industrial use at an existing large coastal industrial facility. The existing 30Ml/d supplied by South West Water to this facility would be redirected to the Applicant at Testwood WSW. It would then be re-purposed for drinking water supply, in addition to the proposed 20Ml/d bulk supply from Knapp Mill. This would be supplemented by an additional 40Ml/d WRP utilising treated wastewater from Budds Farm Wastewater Treatment Works (WTW). In total, this would provide a cumulative 81Ml/d when both the desalination and water recycling components are operating at full capacity.
Water Recycling	B.1	Budds Farm WTW transfer to new 61Ml/d WRP. Bulk transfer of recycled water to Lower Itchen and a new 61Ml/d abstraction of source water from the Lower Itchen. Raw water is then transferred for treatment at Otterbourne WSW.
	B.2	Budds Farm WTW transfer to new 61Ml/d WRP. Bulk transfer of recycled water to a new constructed and lined environmental buffer (see paragraph 4.2.1 for an explanation for this). Abstraction of source water and transfer for treatment at Otterbourne WSW.
	B.3	Budds Farm WTW transfer to new 61Ml/d WRP. Direct transfer of recycled water direct to Otterbourne WSW for treatment.
	B.4	Budds Farm WTW transfer to new 61Ml/d WRP. Transfer to Havant Thicket Reservoir which acts as an environmental buffer, then 75Ml/d direct raw water transfer to Otterbourne WSW for treatment.
	B.5	Peel Common WTW and Budds Farm WTW transfer to a new 75Ml/d WRP. Bulk transfer of recycled water to a new lake that provides an environmental buffer at Otterbourne WSW for treatment.

Configuration type	Option no.	Option description
Water Transfer	D.2	61Ml/d source water transfer from the Havant Thicket Reservoir to Otterbourne WSW for treatment.

4.2.3 The Applicant also submitted a joint proposal at Gate 1 with Wessex Water and Bristol Water for a regional water transfer option called 'West Country North Sources and Transfer' which would provide a maximum output of 16Ml/d. This option was considered alongside the other options set out in Table 4-2 prior to Gate 1. However, it was reported in the Gate 1 submission that this was not considered as an alternative to the Base Case as it could not deliver water supplies to address the forecast deficit by 2027, which at the time of Gate 1 was the delivery date for the preferred solution and reflected the date by which significant limits would be placed on the Applicant's abstractions on the Rivers Test and Itchen. This option was also not progressed for further assessment prior to Gate 2 as compared to the desalination, water recycling and water transfer options set out in Table 4-2, its capacity was too low for it to be a like for like comparison and to be a reasonable alternative. Additionally, the costs and carbon footprint were considered to be very high for the modest volume of water resources it would provide relative to other options.

4.2.4 All the options set out in Table 4-2 were progressed following Gate 1 for further assessment of their feasibility prior to Gate 2. Three options were deemed to be unfeasible by the Applicant and were not taken forward to Gate 2, as set out below.

4.2.5 Option D.1 was not progressed as part of this option relies on a South West Water abstraction from the River Avon, which is a chalk stream that already has significant pressures on its abstractions. This meant that there would be considerable uncertainty as to whether the Applicant could rely on the 30Ml/d supply from South West Water. Additionally, the cost of supply for the desalination element of this option was potentially unviable as it would require a considerable increase in the cost of supplying the industrial facility compared to its existing commercial arrangements. These risks made it too unreliable to be a genuine and reasonable alternative to the desalination Base Case in the context of the urgent need to meet the supply deficit.

4.2.6 Option B.1 was not progressed further following Ofwat's decision not to fund further investigations as part of its Gate 1 Final Determination. This was due to significant environmental concerns about the potential impact of the recycled water release on the integrity of the River Itchen SAC and SSSI and the scheme's ability to support the water resource deficit.

4.2.7 Option B.3 was a direct water recycling solution that involved transfer of recycled water direct to Otterbourne WSW without the use of an environmental buffer to mix the recycled water with water already in the environment. Direct water recycling is not a technology that is currently used in the UK. As a result, there would be significant regulatory lead-in times to demonstrate the suitability of direct water recycling in terms of building regulatory acceptance, public support and operational experience. Therefore Option B.3 was not considered to be a reasonable alternative to the desalination Base Case, particularly in the context of the urgent need to meet the supply deficit. Therefore, work on this option ceased in July 2021 and it was not progressed through the options appraisal process to Gate 2.

4.2.8 Following Gate 1, further water resources modelling of options was undertaken. This identified that for Option B.4, a 61Ml/d WRP in combination with water held within Havant Thicket Reservoir would be oversized when considering the water resources need during a 1-in-200-year drought scenario, which was the required level of drought resilience that needed to be planned for in WRMP19. Therefore, the output of the WRP in Option B.4 was reduced from 61Ml/d to 15Ml/d.

4.2.9 Table 4-3 summarises the options that were progressed for further assessment prior to Gate 2.

Table 4-3 Strategic water resources infrastructure solutions progressed for further assessment prior to Gate 2

Configuration type	Option no.	Progressed for further assessment?
Desalination	A.1	✓
	A.2	✓
	D.1	✗
Water Recycling	B.1	✗
	B.2	✓
	B.3	✗
	B.4	✓
	B.5	✓
Water Transfer	D.2	✓

4.3 Stage 2: RAPID Gate 2 – options appraisal process

4.3.1 Prior to the Applicant's RAPID Gate 2 submission, a detailed options appraisal process was undertaken to evaluate the remaining options. The aim of this was to identify a preferred option and a back-up option. The options appraisal process was developed in consultation with key stakeholders and undertaken by subject matter experts. The options appraisal process comprised of the following components:

1. **Site and route selection**: This stage identified sites and initial pipeline routes and selected a configuration of components for each option.
2. **Interim business evaluation**: Each option was ranked relative to each other based on the outcomes of a consenting evaluation, multi-criteria decision analysis, and assessments against legal, policy and strategic objectives and their ability to meet the necessary levels of solution resilience for a 1-in-200-year drought event. The ranking was determined by professional judgement of subject matter experts.
    a. **Consenting evaluation**: This assessed each of the options for consenting risks (based on the recommended configurations and the information available at this time) and ranked the options relative to each other in terms of levels of consenting risk.
    b. **Multi-criteria decision analysis**: Each option was assessed in a multi-criteria decision analysis against criteria relevant to considering a 'Best

Value' solution informed by HM Treasury Green Book guidance. This included customer, environmental, societal and deliverability criteria. In terms of the environment, the multi-criteria decision analysis considered a range of factors including the Biodiversity Net Gain and Environmental Net Gain potential, HRA considerations, climate regulations and other factors which are set out in the Applicant's Gate 2 submission [13]. The outcome of the multi-criteria decision analysis was a ranking of the options relative to each other based on these criteria.

c. **Assessment against legal and policy objectives**: Each option was assessed against the Water for Life Hampshire (WfLH) legal and policy objectives. This included considerations such as the Applicant's supply duty, compliance with existing and future environmental legislation, compliance with the Section 20 agreement between the Applicant and the EA, limiting the use of drought orders, ensuring the implementation of biodiversity and environmental net gain, and delivering requirements within the NPSWRI.

d. **Assessment against strategic objectives**: Each option was assessed against the WfLH strategic objectives which included considering delivering best value for customers, adaptability and performance in supporting meeting operational net zero carbon by 2030.

3. **Future needs assessment**: This stage revised the required resilience that the solution needs to plan to align with the requirements of WRMP24, from a 1-in-200 to a 1-in-500 year drought event in accordance with the Water Resources Planning Guideline. This is explained further in paragraph 4.1.7. Consideration was therefore given to whether the options could be amended to provide resilience to a 1-in-500 year drought event to ensure that the preferred option could meet the need.
4. **Final business evaluation**: The amended options that had been revised to consider resilience to a 1-in-500 year drought event were re-assessed against the consenting evaluation, multi-criteria decision analysis, and assessments against legal, policy and strategic objectives. The options were then ranked relative to each other based on the outcomes of the re-assessment of the consenting evaluation, multi-criteria decision analysis, and assessments against legal, policy and strategic objectives. This stage resulted in the selection of Option B.4 as the preferred option (the Proposed Development) and Option B.5 as the back-up option.

Site and route selection

4.3.2 Prior to evaluation and comparison of the options that were taken forward from Gate 1, infrastructure sites and pipeline routes for each option needed to be identified. This is because a number of the criteria considered in the options appraisal process would be dependent on the geographic location of the construction and operation of the associated infrastructure and pipelines.

4.3.3 This section provides an overview of the outcomes of the options appraisal process and explains how Option B.4 was identified as the preferred option which became the Proposed Development. As a result, this site and route selection section only reports on the sites and routes that were considered for Option B.4. Site and route

selection was undertaken for all options within the options appraisal process, however these are not reported in this chapter as these are not relevant to options that progressed to be the Proposed Development.

Water Recycling Plant site

4.3.4 To select the site of the WRP, firstly a terrestrial search area was identified using the following two parameters:

1. A search radius of 1.5km around Budds Farm WTW. Budds Farm WTW was identified as the primary source for water recycling options in WRMP19 as this site is the only WTW in the Applicant's western supply area that could provide the required volume of treated wastewater to enable the WRP to operate at maximum output. The 1.5km search radius was established by increasing the search area from Budds Farm WTW in 500m increments to identify the closest potentially feasible areas for sites. Proximity to Budds Farm WTW is a key parameter in order to reduce the distance for the transfer of treated wastewater to the WRP and the return transfer of reject water back to Budds Farm WTW. Minimising the length of these two pipelines would reduce the carbon emissions associated with constructing the pipeline and pumping water between Budds Farm WTW and the WRP and reduce potential land interests impacted by the transfers.
2. Areas of coastline susceptible to sea flooding and coastal erosion were excluded from the search area as major infrastructure development in these locations would not be resilient or suitable against a number of policy tests and considerations. This was informed by an assessment of coastal geomorphology and management policies, to identify projected future rates of coastal change and flooding susceptibility.

4.3.5 Within these general areas, sites were then identified in this search area by applying the criteria outlined in Table 4-4.

Table 4-4 Water Recycling Plant site identification criteria

Element	Details
Land use	Avoidance of the following areas: • Densely populated residential areas, private residences, care homes, hospitals, schools, universities, places of worship, burial grounds, holiday parks, hotels, retail parks and leisure parks • Key transport infrastructure • Key utilities
Land conditions	Avoidance of the following areas due to significant construction and engineering challenges: • Marsh • Mudflat • Cliff face • Open water
Site size	61Ml/d WRP - Minimum of 40,470m^2 (4ha) + 4,047m^2 (0.4ha) for construction

4.3.6 Seventeen sites for the WRP that met the criteria set out in Table 4-4 within the 1.5km search radius were identified which are shown in Figure 3-1 of the Scheme Development Report (Document reference 5.10, DCO Volume 5). These sites were then assessed against a number of environmental, planning and engineering criteria. This included considering the proximity of these sites to the following key consenting criteria that have a high level of protection under legislation and national planning policy:

1. National Site Network (NSN) sites which includes: SAC and Special Protection Areas (SPA), and Ramsar sites (including potential and candidate sites).
2. SSSI/National Nature Reserve.
3. Scheduled monuments.
4. National Parks/Areas of Outstanding Natural Beauty (AONB) (now National Landscapes)/Green Belt.
5. Ancient woodland.
6. Grade 1 and 2* Registered Parks and Gardens and Listed Buildings and Battlefield Sites.
7. Residential properties.
8. Hospitals, care homes, schools.
9. Amenity spaces e.g. allotments, public parks, playgrounds, playing fields.

4.3.7 This assessment resulted in seven sites being progressed for further review. Ten sites were not progressed on account of their location within, or in proximity to international, national and local ecological and landscape designations. Additionally, some sites were either consented or under construction for residential developments.

4.3.8 Following this, further assessment was undertaken which reviewed considerations including flood risk, ground conditions, ground contamination, historic environment and transport accessibility. Two sites were not progressed following this further assessment stage.

4.3.9 Table 4-5 sets out the remaining five sites that were progressed for further detailed review, which were then assessed against additional environmental, planning and engineering considerations. These sites are shown in Figure 3-2 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

Table 4-5 Water Recycling Plant site evaluation outcomes

Site	Description	Considerations and outcomes
WRP_68	The site is on Southmoor Nature Reserve, east of Southmoor Lane and north of Langstone Harbour.	The site is adjacent to a Site of Importance for Nature Conservation (SINC) and is identified as a Secondary Support Area in the Solent Waders and Brent Goose Strategy. The site is within approximately 20m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 550m from the Chichester Harbour National Landscape.

Site	Description	Considerations and outcomes
		The site is partially located in Agricultural Land Classification (ALC) Grade 1 land. The site is partially located in flood zones 2 and 3.
WRP_70	The site is located west of Langstone Road and south of The Mallards.	The site is identified as a Secondary Support Area in the Solent Waders and Brent Goose Strategy and is approximately 30m from the Chichester Harbour National Landscape. The site is approximately 90m from the Langstone Harbour SSSI and approximately 240m from the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar. The site is partially located in ALC Grade 1 land.
WRP_71	The site is located south of the A27, north of Harts Farm Way and west of Brockhampton Road.	The site currently consists of a number of existing warehousing and office uses that are in occupation, but it does not have any major environmental and planning constraints and it is considered that this site could be suitable for the WRP. The site is approximately 400m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar and the Langstone Harbour SSSI. The site is approximately 1.1km from the Chichester Harbour National Landscape. The site is located in ALC Grade 1 land.
WRP_72	The site is located south of the A27 and north of Harts Farm Way.	The west of the site is identified as a low use site in the Solent and Waders Brent Goose Strategy, which may require mitigation measures to be put in place. The site is allocated for employment development. Following mitigation, it is considered that the site could be suitable for the WRP. The site is approximately 170m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar and the Langstone Harbour SSSI. The site is approximately 1.4km from the Chichester Harbour National Landscape. The site is a former landfill site. Construction mitigation measures would need to be implemented. The site is partially located in ALC Grade 1 land.
WRP_75	The site is located west of Harts Farm Way and south of the A27.	The site is identified as a Core Area in the Solent Waders and Brent Goose Strategy. The site is within approximately 20m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.8km from the Chichester Harbour National Landscape. The site is located in ALC Grade 1 land. The site is partially located in flood zones 2 and 3.

4.3.10 The assessment resulted in the identification of WRP_71 and WRP_72 as the most suitable options for the WRP. The other sites were not progressed as they were considered to have greater environmental impacts than WRP_71 and WRP_72. WRP_71 is currently developed and comprises existing/active warehousing and office uses and is considered to be more difficult to deliver than WRP_72 as it requires displacement of existing businesses and redevelopment of the site. WRP_72 was therefore identified as the preferred site, with WRP_71 as an alternative, should WRP_72 not be deliverable.

4.3.11 Regarding the presence of historic landfill at WRP_72, the evaluation considered that the potential risks could be mitigated to an acceptable level. There is no restriction in the legislative and policy framework on the use of former landfill sites and the NPSWRI [2] and the National Planning Policy Framework (NPPF) [14] starting principle is to make use of previously developed 'brownfield' land. It was also considered that ecological effects at WRP_72 could be mitigated to an acceptable level.

4.3.12 ES Chapter 8 Terrestrial and freshwater biodiversity, Volume I (Document reference 6.1, DCO Volume 6) and ES Chapter 11 Land quality and ground conditions, Volume I (Document reference 6.1, DCO Volume 6) conclude that there would be no residual likely significant effects. Due to the proximity of the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar, the DCO application includes a Habitats Regulations Assessment – Stage 2 Appropriate Assessment and Marine Conservation Zone – Stage 1 Assessment (Document reference 5.2, DCO Volume 5).

4.3.13 WRP_72 is classified as partially ALC Grade 1 land, however due to the historical use of WRP_72 as a landfill and based on the geology encountered during ground investigations that began in 2022, soils previously considered to represent ALC Grade 1 land are no longer present (for additional detail, see ES Chapter 11 Land quality and ground conditions, Volume I (Document reference 6.1, DCO Volume 6)).

4.3.14 The principle of built development at WRP_72 is demonstrated through the allocation of the site for employment development in the Havant Borough Council (HBC) Allocations Plan (2014) [15] [16], which was considered at the time of the assessment. It should be noted that WRP_72 is not allocated for employment development in the HBC draft Building a Better Future Plan (HBCs Regulation 18 draft local plan) [17].

4.3.15 WRP_72 was therefore progressed as the site for the WRP.

Pipelines

4.3.16 The site and route selection stage also included an assessment of the initial pipeline routes that had been developed for Gate 1 at Stage 1. A number of initial pipeline routes had been identified for each option having regard to environmental constraints and relevant planning policy. At this stage, the initial pipeline routes were reviewed to consider their proximity to the following:

1. NSN sites which includes: SAC and SPA, and Ramsar sites (including potential and candidate sites).
2. SSSIs/National Nature Reserve.
3. Scheduled monuments.
4. National Parks/AONBs (now National Landscapes)/Green Belt.
5. Ancient woodland.
6. Grade 1 and 2* Registered Parks and Gardens and Listed Buildings and Battlefield Sites.
7. Residential.
8. Hospitals, care homes, schools.
9. Amenity spaces e.g. allotments, public parks, playgrounds, playing fields.

4.3.17 Further considerations included flood risk, ground conditions, ground contamination, historic environment and transport accessibility.

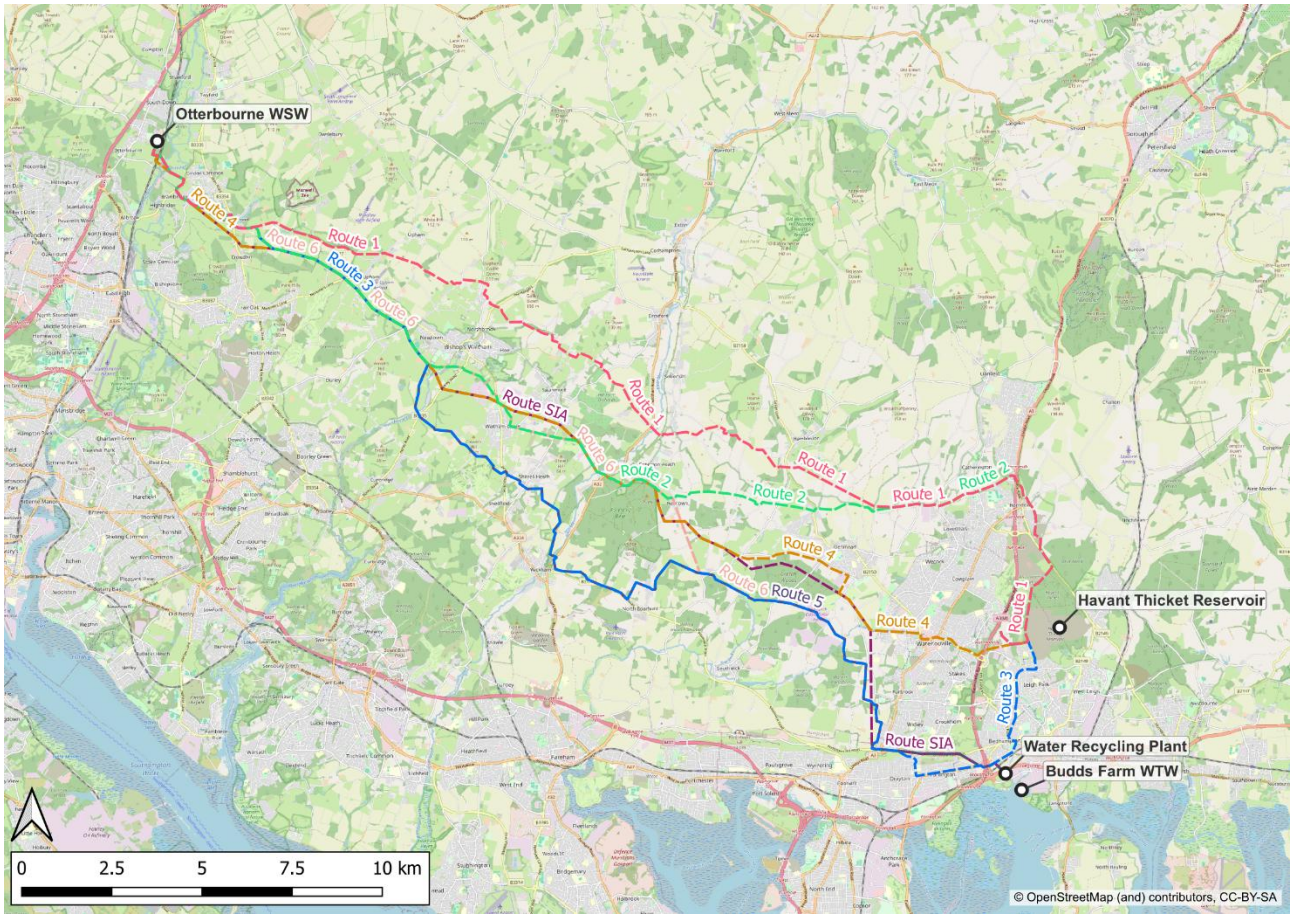
4.3.18 As set out in paragraph 4.3.2, this section sets out the pipeline route selection that is relevant to Option B.4 which became the Proposed Development.

Havant Thicket Reservoir and Water Recycling Plant site to Otterbourne Water Supply Works Pipeline

4.3.19 Option B.4 required pipelines to connect from Havant Thicket Reservoir or the WRP site to Otterbourne WSW. This is because the pipeline could either be routed directly from Havant Thicket Reservoir to Otterbourne WSW, or the pipeline could be routed from the WRP site to Otterbourne WSW, with separate pipelines providing the connection between the WRP site and Havant Thicket Reservoir. The route selection for the pipelines between the WRP site and Havant Thicket Reservoir is set out later in this section of this chapter.

4.3.20 The initial pipeline routes relevant to Option B.4 and the Proposed Development are shown in Graphic 4-2.

Graphic 4-2 Initial pipeline routes relevant to the Proposed Development



4.3.21 Table 4-6 sets out the outcomes for the review of initial pipeline routes for a pipeline from Havant Thicket Reservoir or the WRP site to Otterbourne WSW.

Table 4-6 Summary of review of initial pipeline routes for a pipeline from Havant Thicket Reservoir or the Water Recycling Plant site to Otterbourne Water Supply Works

Initial pipeline route	Considerations and outcomes
Route 1	Appropriate routing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the River Itchen SAC and Solent and Southampton Water SPA. Potential effects on ancient woodland would also need to be further assessed and appropriate mitigation implemented to avoid potentially unacceptable effects. Route 1 would have a significant impact on the South Downs National Park (SDNP).
Route 2	Appropriate routing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the River Itchen SAC and Solent and Southampton Water SPA. Potential effects on ancient woodland would also need to be considered further and appropriate mitigation implemented to avoid likely unacceptable effects. This route would have impacts on the SDNP due to sections of the route falling within the national park.
Route 3	Appropriate routing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the River Itchen SAC and Solent and Southampton Water SPA. Potential effects on ancient woodland would also need to be considered further and appropriate mitigation implemented to avoid

Initial pipeline route	Considerations and outcomes
	potentially unacceptable effects. This route would have a limited impact on the SDNP.
Route 4	Appropriate routing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the River Itchen SAC and Solent and Southampton Water SPA. Effects on ancient woodland would also need to be considered further and appropriate mitigation implemented to avoid potentially unacceptable effects. This route would have impacts on the SDNP due to sections of the route falling within the national park.
Route 5	Appropriate routing and mitigation for the crossing of the River Itchen SAC would be required. The route is in close proximity to ancient woodland where there is potential for adverse effects that would require appropriate mitigation, including micro-siting the route at later stages. This route would have impacts on the SDNP due to sections of the route falling within the national park.
Route 6	Appropriate routing and mitigation for the crossing of the River Itchen SAC would be required. The route is in close proximity to ancient woodland where there is potential for adverse effects that would require appropriate mitigation, including micro-siting the route at later stages. This route would have impacts on the SDNP due to sections of the route falling within the national park. Appropriate routing would be required to reduce potential impacts on nationally designated cultural heritage features.
Route SIA[3]	Appropriate routing and mitigation for the crossing of the River Itchen SAC would be required. The route is in close proximity to ancient woodland where there is potential for adverse effects that would require appropriate mitigation, including micro-siting the route at later stages. This route would have impacts on the SDNP due to sections of the route falling within the national park.

4.3.22 All initial pipeline routes partially intersected the SDNP. However, route 1 and route SIA would have a greater impact than the other initial pipeline routes. Therefore, route 1 and route SIA were not considered a preferred option in view of the availability of other alternatives.

4.3.23 The remaining initial pipeline routes considered had the potential to impact on the designated sites associated with the crossings of watercourses. As such, all routes would have required appropriate design of the crossings to avoid impacts to the integrity of these designated sites where possible. All options had the potential to affect areas of ancient woodland, with routes 1 and 2 potentially having a greater impact on ancient woodland in proximity to the northern edge of Staunton Country Park, which is where Havant Thicket Reservoir is located (at this stage the Proposed Development was considering delivering a pipeline between the WRP site and Havant Thicket Reservoir).

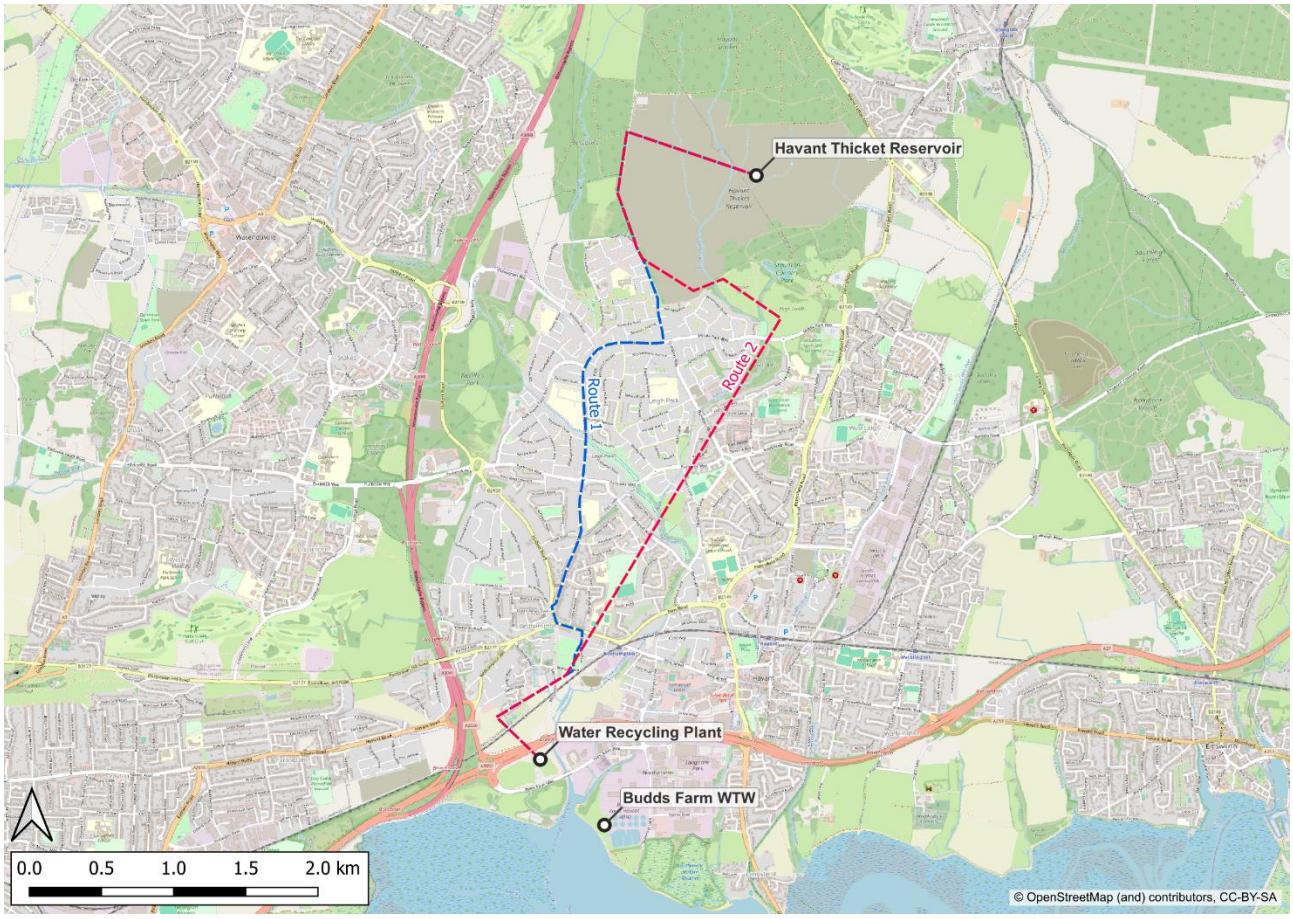
4.3.24 Following the evaluation, it was recommended that routes 3, 4, 5 and 6 were progressed. West of Havant and Waterlooville, route 3 takes a similar route to route 5, and route 4 takes a similar route to route 6.

[3] SIA is the Stantec Insight Analytics GIS tool which was used following Gate 1 to identify further initial pipeline routes.

Water Recycling Plant site to Havant Thicket Reservoir

4.3.25 Option B.4 comprised two routes to transfer recycled water from the WRP to Havant Thicket Reservoir, which were also reviewed. The risks associated with these routes were similar. Both routes potentially impacted ancient woodland, although this would be possible to mitigate through the type of construction technique. Both routes also had an interface with Staunton Country Park which is a grade II* Registered Park and Garden. There were no significant differentiators that meant only one route should be progressed at this stage over the other. Therefore, it was recommended that both routes were progressed.

Graphic 4-3 Option B.4 routes from the Water Recycling Plant site to Havant Thicket Reservoir



The pumping station for the transfer of source water to Otterbourne Water Supply Works

4.3.26 The site selection for a pumping station for the transfer of source water to Otterbourne WSW was also undertaken at Stage 2 and informed by the identified initial pipeline routes. At this stage, the pumping station for the transfer of source water to Otterbourne WSW was referred to as the High Lift Pumping Station (HLPS). The following criteria were used to identify a search area for potential sites:

1. Within 500m of the initial pipeline routes between the WRP site and Havant Thicket Reservoir.

2. Within 4km of the footprint of the Havant Thicket Reservoir, but not within the footprint, to ensure that water from Havant Thicket Reservoir would have sufficient hydraulic energy to reach the HLPS.
3. Ground level of equal or less than 30m above sea level to enable sufficient hydraulic connectivity with Havant Thicket Reservoir.
4. Not within areas of coastline susceptible to sea flooding and coastal erosion as major infrastructure development would not be resilient or suitable in these areas.

4.3.27 Sites within the search area were then identified using the criteria set out in Table 4-7.

Table 4-7 High Lift Pumping Station site identification criteria

Element	Details
Land use	Avoidance of the following areas: • Densely populated residential areas, private residences, care homes, hospitals, schools, universities, places of worship, burial grounds, holiday parks, hotels, retail parks and leisure parks • Key transport infrastructure • Key utilities
Land conditions	Avoidance of the following areas due to significant construction and engineering challenges: • Marsh • Mudflat • Cliff face • Open water
Site size	Minimum of 4,620m^2 (0.4 ha)

4.3.28 Nine sites that met the criteria set out in Table 4-7 were identified. These sites were then assessed against a number of environmental, planning and engineering considerations. The nine sites were reviewed to consider their proximity to the following:

1. NSN sites which includes: SAC and SPA, and Ramsar sites (including potential and candidate sites).
2. SSSIs/National Nature Reserve.
3. Scheduled monuments.
4. National Parks/AONBs (now National Landscapes)/Green Belt.
5. Ancient woodland.
6. Grade 1 and 2* Registered Parks and Gardens and Listed Buildings and Battlefield Sites.
7. Residential.
8. Hospitals, care homes, schools.
9. Amenity spaces e.g. allotments, public parks, playgrounds, playing fields.

4.3.29 Further considerations included flood risk, ground conditions, ground contamination, historic environment and transport accessibility.

4.3.30 Table 4-8 sets out the five sites that were progressed for further review which were then assessed against additional environmental, planning and engineering considerations. These sites are shown in Figure 3-3 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

Table 4-8 High Lift Pumping Station site evaluation outcomes

Site	Description	Considerations and outcomes
S_HLPS_5	The site is located east of the Hermitage Stream and north of Harts Farm Way	The site currently consists of employment space but does not have any major environmental and planning constraints and therefore could be suitable for the HLPS.
S_HLPS_9	The site is located within woodland north of the A27 and south of the West Coastway railway line.	Site is located on land between a railway line, A3(M) and a major roundabout and would therefore be difficult to access. Development of the HLPS would also result in the loss of woodland.
S_HLPS_10	The site is located within woodland south of a roundabout at the junction between the A3(M) and the A27 and is north of the West Coastway railway line.	Site is located on land between a railway line, A3(M) and a major roundabout and would therefore be difficult to access. Development of the HLPS would also result in the loss of woodland.
S_HLPS_17	The site is located south of the A27 and north of Harts Farm Way. This is the same site as WRP_72.	The west of the site is identified as a low use site in the Solent and Waders Brent Goose Strategy, which may require mitigation measures to be put in place. The site also has outline planning permission for employment uses. Following mitigation, it is considered that the site could be suitable for the HLPS.
S_HLPS_19	The site is located within woodland north of the A27 and south of the West Coastway railway line.	Site is located on land between a railway line, A3(M) and a major roundabout and would therefore be difficult to access. Development of the HLPS would also result in the loss of woodland.

4.3.31 On the basis of the site assessment, it was considered that site S_HLPS_17 would be the preferred site for the HLPS. S_HLPS_17 is the same site as the selected site for the WRP, which would reduce the need for multiple sites and therefore reduce the overall construction and operation phase impacts. As such, the HLPS is hereafter reported as part of the WRP site.

4.3.32 Sites S_HLPS_10, S_HLPS_9 and, S_HLPS_19 were located on land with dense woodland which may lead to a loss of trees and subsequent landscape and visual amenity impacts. These sites were therefore considered to have the potential for significant adverse environmental impacts and as such were not progressed. Site S_HLPS_5 was constrained by the size of the site and the existing business use.

Option configurations

4.3.33 The selected sites and routes were combined to build a configuration for each option that was progressed for further assessment in the interim business evaluation, the future needs assessment and the final business evaluation. The preferred option that was progressed following Stage 2 comprised of the following components:

1. Site WRP_72 for the WRP.
2. Initial pipeline routes 3, 4, 5 and 6 from Havant Thicket Reservoir and the WRP site to Otterbourne WSW.
3. Both initial pipeline routes between the WRP site and Havant Thicket Reservoir.

Interim business evaluation

4.3.34 Table 4-9 shows the ranking of the options at the interim business evaluation stage which comprised a consenting evaluation, multi-criteria decision analysis, and a review against legal, policy and strategy objectives as set out in paragraph 4.3.1. The interim business evaluation considered options that had been scaled to meet the water supply need in a 1-in-200 year drought event.

Table 4-9 Strategic water resources infrastructure solutions ranking at the interim business evaluation stage

Option	Configuration type	Overall ranking
D.2	Water transfer	1
B.4	Water recycling	2
B.2	Water recycling	3
B.5	Water recycling	4
A.1 (Base Case)	Desalination	=5
A.2	Desalination	=5

4.3.35 Options D.2 and B.4 were ranked first and second respectively, with Option D.2 considered the most favourable option as it had a lower capital cost and had fewer environmental constraints compared to the other options. This was because Option D.2 did not comprise the same scale of infrastructure development as the other options, as Option D.2 would solely transfer source water from Havant Thicket Reservoir to Otterbourne WSW. Options D.2 and B.4 were also considered the most adaptable and able to meet future needs which the Applicant needed to consider in line with Water Resources Planning Guideline, because of the flexibility and ability to evolve as a result of being integrated with Havant Thicket Reservoir.

4.3.36 Options B.2 and B.5 were ranked third and fourth respectively, with neither option performing as well under the ‘adaptability’ criteria in the WfLH strategic objectives as Options D.2 and B.4.

4.3.37 Compared to other alternatives, Options A.1 and A.2 had a greater risk of a range of potentially significant environmental impacts requiring mitigation, including the

potential to harm the integrity of the Solent and Southampton Waters SPA, Solent and Dorset Coast SPA and Ramsar and the Solent Maritime SAC, which are NSN sites and afforded the highest level of protection under legislation and the NPSWRI. Options A.1 and A.2 were therefore not preferable options, as they were not considered to be consentable at this location at this time. These options were ranked the joint fifth and least favoured options and not progressed further.

Future needs assessment

4.3.38 Following the interim business evaluation, a future needs assessment was undertaken which established whether the options could meet the needs of a larger supply deficit in a 1-in-500-year drought event. The requirement for companies to plan for suppling water in an extreme drought event (1-in-500 year drought event) in their WRMP24 is set out in the EAs National Framework for Water Resources Policy [18] and the Water Resources Planning Guideline [8]. As set out in the NPSWRI [2], if a company identifies a future deficit it will need to assess the options to eliminate this deficit and justify its preferred options within their WRMP. The Applicant's emerging WRMP24 selects the Proposed Development as part of a package of solutions to meet the need to deliver water resources during an extreme drought event. The future needs assessment tested whether the required capacity of the options could be expanded to meet a supply deficit of between 87Ml/d and 95Ml/d which a preferred water resources infrastructure solution would need to supply in an extreme drought. At the time of the future needs assessment, 87Ml/d was identified as the output the solution would need to meet, and specifying an upper limit of up to 95Ml/d would provide a factor of safety and tolerance for any future unknowns. The emerging WRMP24 has confirmed that the Proposed Development needs to provide an output of 90Ml/d.

4.3.39 Options B.2 and D.2 were not capable of meeting the updated deployable output of 87Ml/d and could not be adapted to do so. Therefore, neither option was considered further. Options B.4 and B.5 could be adapted to provide a transfer of 87Ml/d which would meet the updated deployable output requirement that was considered at the time. As such, both options were considered viable options. Option B.4 was regarded as more preferable than Option B.5 in adaptability terms as the integration with Havant Thicket Reservoir, which is also filled with spring water, provides greater resilience.

Final business evaluation

4.3.40 At the final business evaluation stage, the options were re-assessed and no changes to the outcomes of the interim business evaluation were identified. However, by also considering future needs, Option B.4 was ranked first on account of the following:

1. Option B.4 was considered to carry a marginally lower consenting risk compared to Option B.5 as a new environmental buffer is not required. Option B.4 would better utilise Havant Thicket Reservoir as an environmental buffer, therefore reducing the need for multiple sites and therefore reducing the overall construction and operation impacts.
2. Option B.4 would result in a shorter construction and commissioning duration for the new solution and therefore reduced the need for the Applicant to use

drought orders and drought permits to maintain compliance with their water supply obligations.

3. Option B.4 was considered to have the ability to meet the identified future need of planning for a 1-in-500-year extreme drought event that the Applicant is now required to plan for in line with the Water Resources Planning Guideline. This option also offered potential supply resilience beyond the Applicant's western supply area because of the flexibility afforded by the integration of Havant Thicket Reservoir and the water recycling technology as a solution. Unlike Option B.5, Option B.4 was not wholly reliant on a single water resources technology which could become a single point of failure.

4.3.41 Option B.5 was ranked second on account of its higher cost relative to Option B.4, its lower flexibility in scalability terms and its lesser ability to act as a regional asset.

4.3.42 At the Applicant's Gate 2 submission, Option B.4 was selected as the preferred option, and became the Proposed Development, and Option B.5 was selected as the back-up option. The WRMP19 annual review 2020-2021 [9] confirmed the selection of the Proposed Development as the preferred option.

4.3.43 Additionally, the Applicant's emerging WRMP24 selects Option B.4 (the Proposed Development) as the preferred water resources infrastructure solution for the western supply area. This is explained in greater detail from paragraph 4.1.6.

4.3.44 Following the Gate 2 submission, the Applicant undertook a technical appraisal to interpret technical challenges associated with Option B.5. The principal difference between Option B.5 and Option B.4 is that Option B.5 would involve building a new environmental buffer lake near Otterbourne WSW, whereas Option B.4 would utilise Havant Thicket Reservoir as an environmental buffer. Havant Thicket Reservoir is fully funded and contract awarded (being delivered by Portsmouth Water), therefore the delivery risk to Option B.4 was considered to be lower. Further, Option B.5 has less flexibility to meet both Portsmouth Water's and the Applicant's future needs.

4.3.45 The scale of the environmental buffer lake required for Option B.5 was initially planned to store 90Ml/d of recycled water (a volume equivalent to 24 hours of maximum WRP flows). However, following discussion with the Drinking Water Inspectorate, it was identified that the environmental buffer lake would be required to store at least 630Ml/d (a volume equivalent to seven days of maximum WRP flows). This larger environmental buffer lake would require approximately 15Ha land take.

4.3.46 At this stage, no location for the larger environmental buffer lake (either as one new site or two smaller sites) had been identified. It was therefore considered that the consenting risks associated with Option B.5 were increased compared to Option B.4. Option B.5 was also determined to have an increased whole life cost, delivery schedule, energy usage and carbon footprint compared to Option B.4. As such, further work on Option B.5 was suspended due to the aforementioned issues which surround deliverability, flexibility, land take, consenting, timescales and carbon.

Review of the options appraisal process

4.3.47 The Applicant undertook a review in 2025/2026 of the options appraisal process that was undertaken at Stage 2 to confirm that the outcomes remained valid, given

the time that had passed since Stage 2 was initially undertaken. This reviewed whether there had been any material changes to the criteria that were considered throughout the options appraisal process, and re-evaluated Option B.4 and Option B.5. The review confirmed that Option B.4 remained the preferred option. A report setting out this review of the options appraisal process is appended to the Scheme Development Report (Document reference 5.10, DCO Volume 5).

4.4 Stage 3: Gate 2 to the Summer 2022 Consultation – preferred scheme development

4.4.1 Following Gate 2, the Proposed Development (Option B.4) was progressed to further develop the components of the project. A detailed description of the process for considering alternatives at Stage 3 is set out in section 4 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

4.4.2 The preferred site for the WRP was selected at Gate 2 using a site selection exercise that identified suitable sites for the infrastructure and then evaluated these sites against a range of environmental, planning, constructability and engineering considerations which is set out in section 4.3.

4.4.3 As set out in paragraph 4.3.24, initial pipeline routes 3, 4, 5 and 6 Option B.4 were identified at Gate 2, and the route selection of these initial pipeline routes is set out in the Scheme Development Report (Document reference 5.10, DCO Volume 5). It should be noted that these initial pipeline routes had not undergone a detailed consenting or engineering review but formed a starting point for these further reviews and evaluations.

4.4.4 At this stage, the initial pipeline routes were expanded into pipeline corridors to allow for micro-siting and refinement of the pipeline route taking account of local constraints identified at later stages. The pipeline corridors were divided into sections so that each section could be evaluated and compared against other pipeline corridor sections. The outcome of this process was the selection of a preferred 'chain' of corridors.

4.4.5 To select sites for the AGP, wider zones were identified within the pipeline corridor sections which were areas within which the AGP could feasibly be sited from an engineering perspective. At later stages of the process, sites would then be identified within the AGP zones. The parameters used to identify the AGP zones were as follows:

1. Hydraulics data
2. Dimensions – land take/maximum envelope for the infrastructure
3. Proximity requirements, especially in relation to the pipeline
4. Access arrangements
5. Energy requirements
6. Other works required

4.4.6 The pipeline corridor sections and AGP zones were then evaluated against criteria developed by subject matter experts in consultation with stakeholders. The evaluation identified potential impacts pre- and post-mitigation of developing the pipeline within the pipeline corridor sections or locating an Intermediate Pumping Station (IPS) or Break Pressure Tank (BPT) within an AGP zone. The evaluation

comprised of assessments against defined criteria from the following subject matter experts:

1. Agricultural land classification
2. Constructability
3. Biodiversity and nature conservation
4. Flood risk
5. Geology and soils
6. Historic environment
7. Hydraulics and engineering
8. Interface with other planned developments
9. Interface with Special Categories of Land, open space and other land uses
10. Landscape and visual amenity
11. Socio-economics
12. Water quality and resources

4.4.7 The criteria used to undertake the assessments were agreed with relevant stakeholders including local planning authorities, the EA and Natural England (NE).

4.4.8 The pipeline corridor sections that were assessed at this stage are shown in ES Figure 4.1 Pipeline corridor sections assessed at Stage 3, Volume III (Document reference 6.3, DCO Volume 6).

4.4.9 The evaluation resulted in a number of pipeline corridor sections not being progressed, and the selection of a preferred pipeline corridor which was considered to perform the best against the criteria.

4.4.10 A breakdown of the evaluation outcomes for each pipeline corridor section is set out in Appendix C of the Scheme Development Report (Document reference 5.10, DCO Volume 5). This identifies relevant constraints in line with the criteria and details which pipeline corridor sections were selected as part of the preferred pipeline corridor and which pipeline corridor sections were not progressed.

4.4.11 A number of pipeline corridor sections were not progressed as they intersected with the SDNP. National parks have the highest status of protection in relation to landscape and scenic beauty as set out in the NPSWRI. The preferred pipeline corridor that was selected was located outside of the SDNP, except from at the north-west of pipeline corridor Section Z, where optionality had been retained at the River Itchen crossing so that further investigations could be undertaken considering its nature conservation importance and designation as a SAC and SSSI. It was proposed that tunnelling or trenchless construction will be used for parts of the preferred pipeline corridor to avoid or reduce environmental impacts and constructability challenges in particular sensitive locations, and to reduce surface level construction in residential areas.

4.4.12 During the evaluation of pipeline corridor sections, the potential for AGP to be introduced as a result of selecting pipeline corridor sections with greater topographical variation was also considered. The construction and operation effects are considered to be greater for AGP than for the pipeline. This is because the AGP are permanent above-ground assets and would have a permanent impact

on certain receptors relative to construction and operation of the pipeline. Therefore, pipeline corridor sections that would introduce greater topographical variation were not progressed as a result of requiring additional AGP sites to support the flow of water in the pipeline, which increases the overall impacts of the solution compared to those pipeline corridor sections that had less topographical variation.

4.4.13 The identified AGP zones were assessed using the same evaluation criteria that were used for the pipeline corridor selection set out in paragraph 4.4.8. As some pipeline corridors were not progressed, the AGP zones associated with these sections were not considered any further. Additionally, other AGP zones were not progressed because of their proximity to the SDNP and scheduled monuments, which are afforded a high level of protection under the NPSWRI.

4.4.14 The evaluation process resulted in the selection of the preferred pipeline corridor and AGP zones. These were then developed further as part of Stage 4. A Best Engineering Solution Pipeline Route (BESPR) was also shown in the preferred pipeline corridor. The BESPR represented a pipeline route that was hydraulically optimal considering the topography of the preferred pipeline corridor.

4.4.15 The preferred pipeline corridor is shown in ES Figure 4.2 Preferred pipeline corridor selected at Stage 3, Volume III (Document reference 6.3, DCO Volume 6).

4.4.16 Following Gate 2 and prior to the Summer 2022 Consultation, the design and requirements of the WRP were developed. At Stage 1, as described in section 4.2, the output of the WRP for Option B.4 was reduced from the initial capacity of 61Ml/d to 15Ml/d as 61Ml/d would be oversized for the required need. However, the future needs assessment identified that Option B.4 could be scaled up to meet an increased water resources need in line with the Water Resources Planning Guideline that the Applicant is now required to comply with as part of its emerging WRMP24. To ensure the WRP could be adaptable to respond to this larger supply deficit required for the future, the minimum site size for the WRP was increased from 40,470m^2 (4ha) to 60,000m^2 (6ha) to provide more space for a 60Ml/d WRP which is the size selected by the emerging WRMP24. This larger site size was based on a more developed understanding of the WRP, and the size of site required to deliver and operate it. It also provided sufficient additional space for locating tunnel shafts for connecting pipelines, on site construction working areas and site access arrangements.

4.4.17 A review was undertaken to consider if alternative site locations were available to meet the revised minimum size requirement, as well as considering the sites that were assessed in Stage 2. The remaining sites were then reviewed using the same methodology as set out in Stage 2 in section 4.3. The outcomes of the revised site selection remained as WRP_72 being the preferred site for the WRP.

4.5 Stage 4: Summer 2022 Consultation to Summer 2024 Consultation – refinement of the Proposed Development

4.5.1 Following the Summer 2022 Consultation on the Proposed Development, further scheme development and consideration of alternatives was undertaken to identify draft Order Limits and other parameters for the Proposed Development. This stage considered feedback from the Summer 2022 Consultation on the preferred pipeline corridor and areas of optionality within this. At this stage, the naming for the

preferred pipeline corridor was updated and divided into smaller pipeline sections. The naming of the AGP was also updated to reflect the pipeline section these were located in. Additional information on these updates is provided in section 5 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

Approach

4.5.2 The approach to the further design evolution and consideration of alternatives of the Proposed Development was as follows:

1. Development of the BESPR identified at Stage 3 using environmental survey outcomes, technical investigations and feedback from Summer 2022 Consultation and ongoing stakeholder engagement.
2. Development of preferred AGP sites within the wider zones that were defined at Stage 3.
3. Continual review of the site selection process for the WRP to consider any new information and consultation feedback.
4. Development of draft Order Limits, draft Limits of Deviation and temporary construction compounds for the proposed pipeline route.

4.5.3 The outcome of Stage 4 was the identification of draft Order Limits for the Proposed Development, which were shown at the Summer 2024 Consultation. The following were also defined at this stage and shown alongside the draft Order Limits:

1. Draft Limits of Deviation for the pipelines associated with the Proposed Development.
2. Draft Limits of Deviation for the AGP.
3. The location and development zones for the WRP.
4. The location of other works including temporary construction compounds and temporary or permanent access routes.

4.5.4 Section 5 of the Scheme Development Report (Document reference 5.10, DCO Volume 5) sets out the design development that was undertaken for each pipeline section at Stage 4, as well as the micro-siting to define the draft Order Limits and temporary construction compounds.

Development of a proposed pipeline route within the preferred corridor

4.5.5 The preferred pipeline corridor presented at Summer 2022 Consultation provided a corridor of land to allow for flexibility later in the scheme development process. This was developed following environmental and engineering assessments, as well as feedback from the consultation. This part of the process aimed to refine and develop the preferred pipeline corridor and amend the BESPR to identify a proposed pipeline route within the preferred corridor.

4.5.6 This stage also allowed for the BESPR to be amended by considering alternative options in areas where environmental and engineering assessments and Summer 2022 Consultation feedback identified constraints or sensitivities that could be avoided, or potential impacts reduced by amending the route of the BESPR. Additionally, it refined areas of optionality and flexibility within the preferred pipeline corridor.

4.5.7 Where options were available in the preferred pipeline corridor, or where constraints were identified on the route of the BESPR, alternative hydraulically feasible routes were identified to consider against the BESPR.

4.5.8 Following the identification of alternative routes, an evaluation to compare the BESPR with the alternative route for that particular location was undertaken. The evaluations comprised of assessments undertaken by subject matter experts in the following topics. They considered a range of criteria and sub-criteria developed from evaluation criteria used as part of the options appraisal process prior to Gate 2:

1. Air quality
2. Biodiversity and nature conservation
3. Carbon and climate change
4. Geology and soils
5. Historic environment
6. Interface with other developments
7. Landscape and visual amenity
8. Noise and vibration
9. Resource and waste management
10. Socio-economics
11. Special category land[4]
12. Traffic and transport
13. Water quality, resources and flood risk

4.5.9 Additional information on the criteria used for the evaluation of alternative routing options to the BESPR is provided in section 5.1 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

4.5.10 Table 4-10 sets out the main areas where the BESPR was refined following the evaluations where alternative options were considered in order to select the best performing pipeline route against the criteria above to avoid and reduce impacts on constraints, respond to feedback from the Summer 2022 Consultation and respond to engagement with stakeholders. ES Figure 4.3 Best Engineering Solution Pipeline Route amendments at Stage 4, Volume III (Document reference 6.3, DCO Volume 6), highlights the locations described in Table 4-10.

4.5.11 It should be noted that at this stage, the BESPR comprised two options to transfer recycled water from the WRP site to Havant Thicket Reservoir, and source water from Havant Thicket Reservoir back to the WRP site. These two options are outlined below:

1. Pipelines between the WRP site and Bedhampton Springs would be developed which would then connect into separate Portsmouth Water pipelines to enable the transfer between the existing Bedhampton Springs site and Havant Thicket Reservoir (preferred option). This option was dependent on Portsmouth Water

[4] Special category land is defined as land held inalienably by the National Trust, land forming part of a common (including a town or village green), open space, or fuel or field garden allotment and statutory undertakers' land within the Planning Act 2008 Guidance related to procedures for the compulsory acquisition of land [2].

securing a separate planning consent for its pipelines between Bedhampton Springs and Havant Thicket Reservoir.

2. In the event Portsmouth Water did not receive consent for their pipelines, the Applicant proposed to develop continuous pipelines between the WRP site and Havant Thicket Reservoir (backup option).

4.5.12 In May 2025, (following design development at Stage 4 and Stage 5, and both the Summer 2024 Consultation and Spring 2025 Consultation), HBC approved Portsmouth Water's planning application (APP/20/00991 and APP/24/00405) for two new pipelines between Bedhampton Springs and Havant Thicket Reservoir. The application was approved with conditions in September 2025. These pipelines are needed by Portsmouth Water to enable the filling and abstraction of spring water from the Havant Thicket Reservoir. With the approval of Portsmouth Water's pipelines, there was no longer a need to progress or develop the backup option any further.

4.5.13 As such, the backup option between the WRP site and Havant Thicket Reservoir was removed from the Proposed Development and the preferred option, the Pipelines between the WRP site and Bedhampton Springs, was progressed.

4.5.14 Before the approval of Portsmouth Water's pipeline application, scheme development for the backup option continued in the interim between Stage 4 and Stage 6; reporting on this scheme development is contained within Appendix D of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

Table 4-10 Indicative pipeline route amendments

Location	ES Figure 4.3 (see Volume III)	Considerations and outcome
Proposed WRP to Portsdown Hill tunnel – part of Section D: The WRP site to Portsdown Hill of the Pipeline between the WRP site and Otterbourne WSW	Sheet 3	The preferred pipeline corridor included three options (a northern option, a short southern option, and a long southern option, as depicted in Figure 5-9 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)) for a tunnel between the WRP site and the ridge of Portsdown Hill. The southern options passed under Drayton and followed the alignment of Portsdown Hill Road (B2177) to the ridge of Portsdown Hill. The short southern option terminated north of Portsdown Hill Road (B2177), and the long southern option terminated further north, beyond the ridge of Portsdown Hill. The northern option passed under Drayton and continued north under Widley to a location north of the ridge of Portsdown Hill (the same termination point as the long southern option). The northern option was not progressed as it would be located within a Source Protection Zone (SPZ) 2 which protects groundwater abstractions, and therefore tunnelling work would have a greater potential to adversely impact on groundwater compared to the southern options. The intermediate tunnel shafts that were required for the northern route were located in Gauntlett's Park and Portsmouth Golf Course which are open spaces used for recreational purposes and are therefore given a higher level of protection within the NPSWRI. Alternatively, the southern options had fewer environmental constraints. The short southern option was preferred over the long southern option as the tunnel would be shorter, and the termination point for the long option would have been located within a SPZ (though not in a chalk aquifer therefore effects would be reduced). The termination point of the short southern option was considered to be more hydraulically optimal, as this would be located in close proximity to an AGP site at the ridge of Portsdown Hill, which needs to be located at a high topographical point. The short southern tunnel option was progressed and comprises Section D of the Pipeline between the WRP site and Otterbourne WSW.
South of Wickham and north of Knowle – part of Section E: Portsdown Hill to Boarhunt, Section F Boarhunt to Crockerhill and Section G: Crockerhill to Wickham of the	Sheet 4	The preferred pipeline corridor intersects with land being used as part of the Welborne Garden Village development, which will deliver 6,000 dwellings, retail and employment space, a secondary school, three primary schools, open space and various other uses. Further engagement with the developers of Welborne Garden Village was undertaken following the Summer 2022 Consultation, and this identified further construction challenges that were not identified at Stage 3 when the preferred pipeline corridor was selected and identified that some

Location	ES Figure 4.3 (see Volume III)	Considerations and outcome
Pipeline between the WRP site and Otterbourne WSW		phases of the development may be complete when the pipeline was being constructed. These challenges comprised constructing a pipeline route within land that may be under construction or developed into a residential area. Throughout the evolution of the Proposed Development, avoiding direct impacts to residential properties was a key part of the methodology. This prompted the need to consider whether there were any alternative routes with less interface with proposed residential areas while also presenting fewer construction challenges. A number of potential alternative routes (as depicted in Figure 5-17 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)) were identified to the north of the Welborne Garden Village site, and these utilised some of the earlier pipeline corridor sections that were not progressed at Stage 3 as set out in section 4.4. These corridors were not progressed primarily as a result of increased flood risk, proximity to ancient woodland and locally designated ecological sites and the increased topographical variation. A review of the BESPR (which was within Welborne Garden Village) against these alternative options was undertaken, considering the further understanding of the challenges associated with Welborne Garden Village. The evaluation of these alternative routes and the BESPR resulted in the identification of a pipeline route that was the best performing of all options (out of the BESPR and the alternative options) against the evaluation criteria. This routes north through Crockerhill and west through Wickham Park Golf Club. This would avoid intersecting the Welborne Garden Village site and was therefore progressed as part of the indicative pipeline route. It was noted that the draft Order Limits and draft Limits of Deviation, when defined, would need to provide flexibility at Wickham Park Golf Club so that the route could be refined further with the aim to reduce impact on land that is used for sports and recreation, given the protection provided in the NPSWRI. It was also considered that the flood risk and ecological constraints previously identified on these routes at Stage 3 could be adequately mitigated. Further refinement took place following the Summer 2024 Consultation which is explained in section 4.6.
Titchfield Lane – part of Section G: Crockerhill to Wickham of the Pipeline between the WRP site and Otterbourne WSW	Sheet 4 and Sheet 5	The preferred pipeline corridor and BESPR presented at the Summer 2022 Consultation routed along a section of Titchfield Lane to the west of Wickham. Construction of a pipeline route in this location would result in disruption to Titchfield Lane and nearby residential properties. Therefore, four alternative pipeline routes were identified, namely Eastern Alternative Route 1, Eastern Alternative Route 2, Western Alternative Route 1 and Western Alternative Route 2 (as depicted

Location	ES Figure 4.3 (see Volume III)	Considerations and outcome
		in Figure 5-18 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)). These were located to the north-west and south-east of Titchfield Lane. The four alternative pipeline routes and the BESPR were evaluated, resulting in the selection of Eastern Alternative Route 2 which performed the best against the evaluation criteria and routed to the south-east of Titchfield Lane. The other alternative pipeline routes were not progressed as they were in close proximity to ancient woodland and known protected species.
South of Waltham Chase and north of Shedfield – part of Section H: Wickham to Shedfield and Section J: Shedfield to the River Hamble of the Pipeline between the WRP site and Otterbourne WSW	Sheet 5	Feedback from the Summer 2022 Consultation identified that the BESPR could have an impact on an existing business located east of Winchester Road. An alternative route was identified to the south-west of the BESPR (as depicted in Figure 5-21 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)) and was evaluated against the BESPR. The alternative route performed the best against the evaluation criteria as it had fewer interfaces with known protected species and avoided the crossing of Black Horse Lane. The alternative route was therefore progressed as part of the indicative pipeline route.
Sandy Lane – part of Section J: Shedfield to the River Hamble of the Pipeline between the WRP site and Otterbourne WSW	Sheet 5	The BESPR was located in close proximity to a residential property. Construction of a pipeline route in this location could result in disruption and access restrictions to the residential property. An alternative pipeline route within the preferred pipeline corridor was identified to the north of the BESPR (see Figure 5-24 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)). The evaluation of the alternative pipeline route and BESPR identified that although the alternative pipeline route reduced the potential for impact to residential properties, it would be located in close proximity to known protected species. The alternative pipeline route was progressed as part of the preferred pipeline corridor, however it was noted that further micro-siting of the pipeline may be required and mitigation measures may be needed, as a result of the presence of protected species. These measures were subsequently included in the Proposed Development at later stages in the process.
Woodmans Farm – part of Section J: Shedfield to the River Hamble of the Pipeline	Sheet 5	The BESPR was located in close proximity to known protected species to the west of Woodmans Farm. An alternative route at the east of the preferred pipeline corridor, north-east of the BESPR was identified (see Figure 5-25 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)). The evaluation of the alternative route and BESPR identified that the alternative did not have any major constraints and performed better against the

Location	ES Figure 4.3 (see Volume III)	Considerations and outcome
between the WRP site and Otterbourne WSW		evaluation criteria. The alternative route was therefore progressed as part of the indicative pipeline route.
Wintershill – part of Section K: The River Hamble to Lower Upham of the Pipeline between the WRP site and Otterbourne WSW	Sheet 5 and Sheet 6	The BESPR intersected the Southampton to London Pipeline Project in this location, which secured a DCO in 2020 for the development of an aviation fuel pipeline from the Fawley Refinery to Hounslow. The Southampton to London Pipeline was constructed between 2021 and 2023. The BESPR intersects the Southampton to London Pipeline Project at Winters Hill in close proximity to a watercourse and a Roman road. As the Southampton to London Pipeline Project crosses Winters Hill in this location, construction of the Pipeline between the WRP site and Otterbourne WSW would need to be deeper than it would usually be in undeveloped land to ensure the required stand-off distances from the Southampton to London Pipeline Project infrastructure is implemented. This could require larger temporary construction compounds and more construction equipment. As a result of the construction challenges on the BESPR, an alternative route was identified within the west of the preferred pipeline corridor, to the west of the BESPR (see Figure 5-28 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)). The alternative pipeline route also intersects the Southampton to London Pipeline Project, however the intersection is within an open field, and therefore presents fewer construction challenges than the proposed location for the BESPR which is in a more constrained area. The evaluation of the BESPR and alternative pipeline route did not identify any major environmental or planning constraints. The alternative route passed through parkland landscape associated with Wintershill Hall which presented ecology and landscape constraints; however, it was considered that potential impacts could be reduced through micro-siting and mitigation. The BESPR intersected the Upper Hamble watercourse which is upstream of the Solent and Southampton Water SPA and Ramsar and the Solent Maritime SAC, whereas the alternative does not. The alternative route was progressed as it presented fewer constraints that could be reduced through further development and mitigation and does not present as significant construction challenges as the BESPR.
South of Fisher's Pond and north of Crowdhill – part of Section L: Lower Upham to	Sheet 6	Two BESPR options (a northern option and a southern option, as depicted in Figure 5-31 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)) were presented at the Summer 2022 Consultation south of Fisher's Pond and north of Crowdhill. The northern

Location	ES Figure 4.3 (see Volume III)	Considerations and outcome
Brambridge of the Pipeline between the WRP site and Otterbourne WSW		option is located within Portsmouth Road (B2177) and construction of a pipeline route in this location may require the temporary closure of this road. The southern option is located primarily within agricultural land and passes in close proximity to ancient woodland and the Park Pale at Marwell scheduled monument. The two pipeline route options were evaluated. The evaluation identified that the southern option performed best against the evaluation criteria, as the pipeline route could be developed to reduce impacts through design and mitigation on ancient woodland (through the implementation of 15m buffers in line with NE and Forestry Commission (FC) guidance [19]), the scheduled monument, and other areas of buried archaeology that were identified through the evaluation. It was considered that impacts from disruption to Portsmouth Road (B2177) and nearby residential properties as a result of construction of the northern route could not be mitigated as successfully as the southern route. The southern option was therefore progressed as part of the indicative pipeline route.
River Itchen tunnel – part of Section M: Brambridge to Otterbourne WSW of the Pipeline between the WRP site and Otterbourne WSW	Sheet 7	Two BESPR options (a northern option and a southern option, as depicted in Figure 5-36 of the Scheme Development Report (Document reference 5.10, DCO Volume 5)) were presented at the Summer 2022 Consultation west of Colden Common and south of Otterbourne. In this location, a tunnel would be constructed under the River Itchen and the South West Main Line railway. The northern tunnel option was between a location north of Brambridge Park to a location north of Kiln Lane. The southern tunnel option would be between a location east of Highbridge Road to a location east of Otterbourne Park Wood. The northern option comprised a small section on the edge of the SDNP and would be located within chalk bedrock which poses a greater risk to water quality within the River Itchen SAC and SSSI. The southern option is not located in the SDNP or chalk bedrock. Whilst the west of the southern option is in close proximity to ancient woodland, it was considered that suitable buffers could be implemented from the ancient woodland to avoid any direct impacts in line with NE and FC guidance [19]. The southern route was therefore progressed as part of the indicative pipeline route, as it avoided the SDNP and posed a reduced risk to the River Itchen SAC and SSSI, which are also protected by the NPSWRI and the Conservation of Habitats and Species Regulations 2017.

4.5.15 Following the amendments to the BESPR set out in Table 4-10, an indicative pipeline route was identified which is shown in ES Figure 4.4 Indicative Pipeline Route following amendments to the Best Engineering Solution Pipeline Route at Stage 4, Volume III (Document reference 6.3, DCO Volume 6).

Development of preferred Above Ground Plant sites

4.5.16 Following the Summer 2022 Consultation, hydraulic modelling was undertaken on the updated design of the Proposed Development which resulted in changes to the number of AGP required to support the transfer of water. The hydraulic modelling considered the topography of the updated pipeline route, the diameter of the Pipeline between the WRP site and Otterbourne WSW and the water quality requirements relating to the time it takes to transfer water between Havant Thicket Reservoir and Otterbourne WSW.

4.5.17 The outcome of the hydraulic modelling resulted in the following AGP zones[5] being considered for further scheme development:

1. **BPT/IPS-E**: Located on the ridge of Portsdown Hill, north of Portsdown Hill Road and east of New Down Lane.
2. **IPS-F**: Located to the east of Albany Farm.
3. **IPS-G**: Located south-east of Titchfield Lane.
4. **BPT-K**: Located north of Wintershill Hall.

4.5.18 The wider zones for the AGP were evaluated (as described in section 4.4) to identify the most suitable zones in line with the evaluation criteria. The most suitable zones were presented at the Summer 2022 Consultation.

4.5.19 At Stage 4, once the configuration of AGP was confirmed (see paragraph 4.5.17) through the hydraulic modelling, optimal sites from an engineering perspective were first identified. These sites were identified by applying the following criteria:

1. Locating the site in close proximity to the existing road network to reduce access road lengths.
2. Locating the site on even topography for ease of construction and to minimise any required earthworks.
3. Avoiding flood zones 2 and 3.
4. Avoiding any existing major utilities including gas mains and electrical lines.
5. Locating the sites to utilise any existing vegetation as screening from visual receptors where practicable.

4.5.20 Following the identification of initial optimal sites, an evaluation was undertaken by subject matter experts using the same criteria and sub-criteria referenced in paragraph 4.5.8. The evaluation also considered the impact on best and most versatile agricultural land as development of the AGP could result in the permanent loss of agricultural land, dependent on their final location. Impacts on best and most versatile agricultural land were not considered for the development of pipelines as it was assumed that agricultural land could be reinstated following the completion of construction works. Where major constraints were identified through

[5] It is noted that the naming of the AGP was amended prior to the Summer 2024 Consultation to align with the sections of the Pipeline between the WRP site and Otterbourne WSW. Additional information is provided in section 5.12 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

this evaluation, alternative sites were sought initially within the AGP zones, and then outside of these zones if the constraints could not be avoided or accommodated. The outcomes of the site selection are set out in Table 4-11. Further details on the site selection process are set out in section 5.12 of the Scheme Development Report (Document reference 5.10, DCO Volume 5), which includes figures.

Table 4-11 Proposed Above Ground Plant site selection outcomes

Proposed Above Ground Plant	Considerations and outcome
BPT/IPS-E	As a result of the location of the AGP zone on the ridge of Portsdown Hill, which is an elevated and exposed landscape, it was identified that the BPT/IPS-E should be located west of Portsmouth Water's existing Water Service Reservoir (WSR) which is north of Portsdown Hill Road and west of Dellcrest Path. This would avoid BPT/IPS-E being visually isolated in this sensitive landscape. Existing vegetation could be retained in this location to screen the BPT/IPS-E from views from the south. Other constraints identified include main badger setts at the north-eastern corner of the AGP zone which were avoided. A corridor was retained between the BPT/IPS-E and the WSR to accommodate a pipeline that Portsmouth Water are developing between their Farlington Works and the WSR next to Fort Nelson. According to the ALC, the site is located on land that is a combination of Grade 3 and other land (non-agricultural, urban).
IPS-F	The AGP zone was constrained by an existing overhead electricity line and residential development proposals as part of the Welborne Garden Village development. The IPS-F was located at the south-east of the AGP zone adjacent to a woodland copse which will provide screening whilst avoiding the overhead electricity line. The site is located in ALC Grade 2 land.
IPS-G	The initial AGP zone for the IPS-G was located on land north-west of Titchfield Lane and west of Winchester Road (A334), however this land is currently used by two existing businesses as a dog walking paddock and a wedding venue, which would be permanently displaced by the development of the IPS-G. Four alternative AGP zones were therefore considered for the IPS-G to identify whether there were any more suitable alternative locations. This was undertaken alongside the consideration of alternative pipeline routes at Titchfield Lane set out in Table 4-10. The first alternative was south of Blind Lane and west of Mill Lane, however this was adjacent to the SDNP and therefore it was not considered to be suitable. The second alternative was located north-east of Winchester Road (A334) and south-east of Blind Lane, and the third alternative was located south-west of Winchester Road (A334) and south of Titchfield Lane. These sites were not considered to be suitable due to their close proximity to residential properties. The fourth alternative was located south-east of Titchfield Lane and north of Wickham Park Golf Club. This was progressed as existing access was available, and it was a greater distance from residential properties and the SDNP. This site is located in ALC Grade 3 land.
BPT-K	The AGP zone was located north of Wintershill Hall. The evaluation identified that the best performing location for the BPT-K in line with the evaluation criteria was at the centre of the AGP zone to utilise existing vegetation as screening. It was identified that the east of the AGP zone should be avoided to reduce direct and indirect impacts to parkland landscape associated with Wintershill Hall, which is a locally designated historic park and garden. The site is located in a combination of Grade 3 and Grade 4 agricultural land.

4.5.21 Following the evaluation of the sites of the AGP zones, preferred AGP sites were identified which are shown in ES Figure 4.5 Above Ground Plant sites at Stage 4 and presented at the Summer 2024 Consultation, Volume III (Document reference 6.3, DCO Volume 6).

Review of the Water Recycling Plant site selection

4.5.22 The site selection for the WRP was undertaken as part of the site and route selection stage, which formed a stage of the options appraisal process at Stage 2 and this was reviewed as a result of the amendments to the WRP capacity and minimum site size at Stage 3 - which is set out in sections 4.3 and 4.4.

4.5.23 The WRP site selection was subject to review to test and verify that the site selection decisions remained valid and to ensure that new information was considered, both for potential sites already considered and for new sites in case of a change which meant they could be suitable, including feedback from the Summer 2022 Consultation and through ongoing stakeholder engagement.

4.5.24 The review consisted of three key elements:

1. All sites that had been identified through the site selection for the WRP at Stage 2 and Stage 3 were re-reviewed.
2. New sites that had not been identified previously were identified and their suitability reviewed. The new sites were identified by considering land comprising existing employment development and by amending sites identified at Stage 2 and Stage 3 through adjusting site boundaries or combining them with nearby sites.
3. An availability and deliverability review was undertaken on sites where no potential significant risks or impacts had been identified in the previous stages.

4.5.25 The review tested whether any sites less than the 60,000m^2 (6ha) minimum site size, but larger than 32,000m^2 (3.2ha) could be suitable for the WRP. 32,000m^2 (3.2ha) is considered to be the minimum area required to develop the WRP but would not be large enough to accommodate space for temporary construction compounds or tunnel shafts for the pipelines. Additional land would therefore be required if a site below 6ha was identified. As well as not progressing sites if they did not meet the minimum site size requirement of 3.2ha, sites were also not progressed further if they were located on land being developed for housing, within existing open space or within sensitive environmental designations. This was because locating the WRP in such locations would result in significant adverse environmental impacts that could require extensive mitigation including additional land or may displace housing or open space. Locating the WRP in these locations could also result in non-compliance with the NPSWRI.

4.5.26 The second element of the review included testing whether further alternative sites would be identified if the site selection criteria set out in Table 4-4 was applied to include existing employment sites and not setting a maximum site size. When sites for the WRP were initially identified at Stage 2, land that comprised existing development was not included as the developments would likely need to have been displaced to accommodate the WRP. However, during engagement with HBC following the Summer 2022 Consultation, they highlighted the potential for existing employment sites within the 1.5km search area from Budds Farm WTW to

become available for the WRP and therefore should be considered as previously developed sites that could be suitable for the WRP.

4.5.27 Once sites had been longlisted in the first and second elements of the review, these sites were evaluated to identify whether development of the WRP at these sites would result in any significant adverse environmental, planning, constructability or engineering impacts. Where significant risks of impacts were identified, these sites were not progressed to the third element of the review.

4.5.28 The third element of the review considered the potential of the remaining WRP sites to become available for development (where the sites comprised existing development) and also considered best value criteria which the Applicant is required to consider under its statutory duties as a water undertaker.

4.5.29 The outcomes of the three elements of the review were then considered alongside each other to understand whether WRP_72 remained the most suitable site for the WRP.

4.5.30 Engagement with HBC, who are the host authority for the WRP (as described in section 2.3 of ES Chapter 2 Planning legislation and policy, Volume I (Document reference 6.1, DCO Volume 6)), was undertaken throughout this review process to set out the approach and outcomes, and to understand whether there were any additional sites that were not considered earlier in the process that may be suitable.

4.5.31 Table 4-12 sets out the review outcomes for sites that had been previously identified as well as the new and amended sites. These sites are shown in Figure 5.45 and Figure 5.46 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

Table 4-12 Review of Water Recycling Plant site selection review outcomes

Site	Description	Consideration and review outcomes
WRP_58	This site is located on agricultural and grassland between Havant Road to the south and Portsdown Hill Road to the north.	The site is located in the Fields off Havant Road SINC. The site consists of a steeply sloping topography and may be partially visible from the Chichester Harbour National Landscape. The creation of level working platforms would be required due to the topography. The site is a Candidate Site in the Solent Waders and Brent Goose Strategy. The site is in close proximity to residential properties to the east and west where there may be adverse air quality and noise impacts. The site is approximately 550m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 2.4km from the Chichester Harbour National Landscape. The site is within ALC Grade 3 land.
WRP_68	The site is on Southmoor Nature Reserve, east of Southmoor Lane and north of Langstone Harbour.	The site is adjacent to a SINC and is identified as a Secondary Support Area in the Solent Waders and Brent Goose Strategy. The site is within approximately 20m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 550m from the Chichester Harbour National Landscape. The site is within flood zone 2 and 3 and is subject to tidal flooding. Engineering works may be required to mitigate flood risks. The site is partially within ALC Grade 1 land.
WRP_70	The site is located west of Langstone Road and south of The Mallards.	The site is identified as a Secondary Support Area in the Solent Waders and Brent Goose Strategy and is approximately 30m from the Chichester Harbour National Landscape. The site is approximately 90m from the Langstone Harbour SSSI and approximately 240m from the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar. The site is partially within ALC Grade 1 land.
WRP_71	The site is located south of the A27, north of Harts Farm Way and west of Brockhampton Road.	The site consists of a number of existing warehousing and office uses in occupation that would need to be vacated, demolished and remediated prior to construction of the WRP, but it does not have any major environmental and planning constraints. It was considered that this site could be suitable for the WRP.

Site	Description	Consideration and review outcomes
		The site is approximately 400m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar and the Langstone Harbour SSSI. The site is approximately 1.05km from the Chichester Harbour National Landscape. The site is within ALC Grade 1 land.
WRP_72	The site is located south of the A27 and north of Harts Farm Way.	The west of the site is identified as a low use site in the Solent and Waders Brent Goose Strategy, which may require mitigation measures to be put in place. The principle of built development at WRP_72 is demonstrated through the allocation of the site for employment development in the HBC Allocations Plan (2014) [4] and through the granting of the previous outline planning permission (since expired and not implemented) for use classes E (commercial, business and service), B2 (general industrial) and B8 (storage or distribution). It was considered that, following mitigation, the site could be suitable for the WRP. The site is approximately 170m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar and the Langstone Harbour SSSI. The site is a former landfill site. Construction mitigation measures would need to be implemented. The site is approximately 1.45km from the Chichester Harbour National Landscape. The site is partially located in ALC Grade 1 land.
WRP_73	The site is located to the south of Harts Farm Way, west of the Hermitage Stream and north of Langstone Harbour.	The site is located within 20m of the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.35km from the Chichester Harbour National Landscape. Parts of the site are within flood zone 2 and 3. The site is not within an ALC area.
WRP_74	The site is located south of Harts Farm Way and north of Langstone Harbour.	The site is located within 20m to the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is a Secondary Support Area in the Solent Waders and Brent Goose Strategy which could be habitat that is functionally linked to the SPA. The site is approximately 1.35km from the Chichester Harbour National Landscape. Parts of the site are within flood zone 2 and 3. The site is partially within ALC Grade 1 land but otherwise not within an ALC area.

Site	Description	Consideration and review outcomes
WRP_75	The site is located south of the A27 and north of Langstone Harbour.	The site is located adjacent to the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is a core area in the Solent Waders and Brent Goose Strategy which could be habitat that is functionally linked to the SPA. The site is approximately 1.8km from the Chichester Harbour National Landscape. Parts of the site are within flood zone 2 and 3. The site is within ALC Grade 1 land.
WRP_76	The site is located west of Mill Lane, north of the A27 and south of the West Coastway railway line.	Access to this site is constrained and construction of a new access would likely reduce the developable area to below 32,000m^2 (3.2ha). A buffer zone from the railway to the north would also need to be implemented which would further reduce the developable area. The site is in close proximity to residential properties on Mill Lane where there may be adverse air quality and noise impacts. The northern part of the site is within a source protection zone. Development of the WRP could adversely impact groundwater. The site is approximately 560m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.6km from the Chichester Harbour National Landscape. The site is within ALC Grade 1 land.
WRP_146	The site is located north of the A27, north-west of employment units on Marples Way and Ridgway and south of the Hermitage Stream.	The site is within flood zone 3 and floodplain grazing marsh priority habitat. The site is also within a SPZ 1 and therefore construction of the WRP could result in adverse groundwater impacts. The site is approximately 650m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.35km from the Chichester Harbour National Landscape. Parts of the site are within flood zone 2 and 3. The site is partially within ALC Grade 1 land.
WRP_149	The site is located within open space used by Havant Rugby Football Club, south of Hook's Farm Way and west of Hook's Lane.	Development of this site would result in the permanent loss of open space used by Havant Rugby Football Club. The site is also located within a SPZ 1 and therefore construction of the WRP could result in adverse groundwater impacts. The site is approximately 1.55km from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI.

Site	Description	Consideration and review outcomes
		The site is approximately 1.7km from the Chichester Harbour National Landscape. The site is classed as other land (non-agricultural, urban) according to the ALC.
WRP_153	The site comprises WRP_146 as well as the employment units on Marples Way and Ridgway.	The site is within flood zone 3 and floodplain grazing marsh priority habitat. The site is also within a SPZ 1 and therefore construction of the WRP could result in adverse groundwater impacts. There are a number of employment spaces and existing businesses at the east of the site that would need to be vacated, demolished and remediated prior to construction of the WRP. The site is within approximately 650m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.2km from the Chichester Harbour National Landscape. According to the ALC, the site is partially classed as Grade 1 land and partially classed as other land (non-agricultural, urban).
WRP_154	This site comprises an amended WRP_71 and covers employment uses and the household waste recycling centre north of Harts Farm Way.	The site consists of a number of existing warehousing and office uses in occupation that would need to be vacated, demolished and remediated prior to construction of the WRP, but it does not have any major environmental and planning constraints. It was considered that this site could be suitable for the WRP. The site is approximately 400m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.05km from the Chichester Harbour National Landscape. The site is located in ALC Grade 1 land.
WRP_155	The site comprises a combined WRP_73, WRP_74 and WRP_75.	The site is located adjacent to the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is a core and Secondary Support Area in the Solent Waders and Brent Goose Strategy which could be habitat that is functionally linked to the SPA. The site is within approximately 20m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.35km from the Chichester Harbour National Landscape. Parts of the site are within flood zone 2 and 3. According to the ALC, the site is partially classed as Grade 1 land but is otherwise not within an ALC area.

Site	Description	Consideration and review outcomes
WRP_157	The site comprises the Southmoor Industrial Estate south of the A27, east of Southmoor Lane and north of Penner Road.	The site consists of employment space and existing businesses that would need to be vacated, demolished and remediated prior to construction of the WRP. The site is approximately 200m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 370m from the Chichester Harbour National Landscape. According to the ALC, the site is partially classed as Grade 1 land but is otherwise not within an ALC area.
WRP_158	The site comprises industrial and office space south of Penner Road and east of Southmoor Lane.	The site consists of employment space and existing businesses that would need to be vacated, demolished and remediated prior to construction of the WRP. The site is approximately 200m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 370m from the Chichester Harbour National Landscape. The site is located in ALC Grade 1 land.
Budds Farm WTW	The site comprises the existing Budds Farm WTW.	The site is located adjacent to the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. When considering the need for future expansion and development at Budds Farm WTW to ensure that the Applicant can adequately fulfil their wastewater obligations, there is insufficient space to accommodate the WRP at Budds Farm WTW without significant redevelopment of the WTW. The site is within approximately 20m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 770m from the Chichester Harbour National Landscape. According to the ALC, the site is partially classed as Grade 1 land and partially classed as other land (non-agricultural, urban).

4.5.32 Following the review set out in Table 4-12, the following sites were progressed:

1. WRP_72
2. WRP_154
3. WRP_157
4. WRP_158

4.5.33 Table 4-12 sets out that WRP_71 could be suitable for the WRP, however this site was amended to become WRP_154. WRP_71 is therefore not included in the list above.

4.5.34 The sites set out in Table 4-12 that were not progressed were not taken forward as a result of the potential for impacts to ecological sites including SINCs and designated sites within Langstone Harbour. Other sites were not progressed as a result of engineering challenges which would limit the developable area or require extensive works to resolve or mitigate.

4.5.35 The final element of the review considered the availability and the deliverability of the remaining four sites. It was identified that an outline planning permission for employment uses (planning application ref: APP/21/00189) had been granted at WRP_72 in June 2022. Whilst the application has since expired and was not implemented, alongside the allocation of the site for employment development in the HBC Allocations Plan 2014 [16], this further demonstrated that the principle of built development is considered acceptable at WRP_72. It was considered that WRP_72 performed best against the considerations as it is undeveloped, whereas the other sites contained existing employment development which would firstly be displaced, prior to the demolition and clearance of any structures and development.

4.5.36 The conclusions regarding the presence of historical landfill at WRP_72 remain as per Stage 2, section 4.3.

4.5.37 The review of the site selection for the WRP confirmed that WRP_72 remained the preferred site. This is because of the limited environmental and planning constraints identified by the site selection review, and it does not contain any existing built employment uses that would be displaced by the development of the WRP. Many of the new sites considered by this further review had environmental or engineering constraints that would have to be overcome through extensive mitigation measures to ensure that environmental impacts could be reduced to an acceptable level and ensure that construction and operation of the WRP would be possible. Other sites comprised existing employment uses that would need to be vacated, demolished and remediated prior to construction of the WRP. WRP_72 was not identified to have the same level of constraints and therefore remained the preferred site for the WRP.

Micro-siting of the indicative pipeline route and definition of draft Order Limits, draft Limits of Deviation and temporary construction compounds

4.5.38 This stage of the process involved further micro-siting of the indicative pipeline route to respond to local constraints at a greater detail to the amendments set out in Table 4-10. Micro-siting of the indicative pipeline route resulted in identifying a preferred pipeline route from which draft Order Limits, draft Limits of Deviation and temporary construction compounds could be identified, as shown in ES Figure 4.6

Draft Order Limits at the Summer 2024 Consultation, Volume III (Document reference 6.3, DCO Volume 6).

4.5.39 The micro-siting stage comprised a review of the following linear features that were intersected by the indicative pipeline route:

1. Vegetation including hedgerows, trees and woodland.
2. Watercourses including Main Rivers and Ordinary Watercourses.
3. Roads, access roads and Public Rights of Way (PRoW).

4.5.40 Each linear feature was reviewed and assigned a level of sensitivity considering the likely level of impact resulting from the intersection of a 40m working width, which is the maximum working width required for trenched open-cut construction in agricultural and undeveloped land for the Pipeline between the WRP site and Otterbourne WSW (as set out in ES Chapter 3 Description of the Proposed Development, Volume I (Document reference 6.1, DCO Volume 6)). The following criteria were considered:

1. Biodiversity and nature conservation
2. Geology and soils
3. Historic environment
4. Landscape and visual amenity
5. Socio-economics
6. Traffic and transport
7. Water quality and resources

4.5.41 The review of the linear features and assigning of a sensitivity level allowed for a number of different actions to be taken to reduce potential impacts depending on the sensitivity level assigned for that linear feature. These potential actions were:

1. Micro-siting to make minor amendments to the draft Limits of Deviation to avoid the linear feature or intersect it, at a location that would have less impact.
2. Reduction to the working width. ES Chapter 3 Description of the Proposed Development, Volume I (Document reference 6.1, DCO Volume 6), sets out that the working area for the Pipeline could be reduced to 20m when intersecting sensitive linear features to reduce the scale of potential impacts, for example vegetation loss at hedgerows.
3. Use of trenchless methods of construction to pass under the linear feature. This would require temporary construction compounds on either side of the linear feature. Trenchless methods of construction would be used for linear features assigned the highest level of sensitivity.

4.5.42 The outcome following the review of linear features was the identification of a preferred pipeline route. The preferred pipeline route was expanded into the draft Order Limits and draft Limits of Deviation to represent the area required to construct the preferred pipeline route and the area within which the pipeline would be located respectively. The draft Order Limits were amended to respond to environmental constraints as far as reasonably practicable. For example, this included implementing 15m buffers from ancient woodland in line with NE and FC guidance [19] and 30m from identified badger setts in line with Badger Trust guidance [20], and allowing for appropriate mitigation within the draft Order Limits

and draft Limits of Deviation if it was not possible to implement buffers due to other constraints.

4.5.43 Temporary construction compounds were also identified at intervals along the preferred pipeline route and at locations where trenchless and tunnelling methods of construction would be utilised. The locations of the temporary construction compounds were iterated alongside the micro-siting of the pipeline route, and an evaluation was undertaken using the criteria set out in paragraph 4.5.8. The outcomes of the evaluation were reviewed, and the temporary construction compounds were micro-sited to reduce environmental effects as far as reasonably practicable. Locations of the temporary construction compounds at this stage and the micro-siting of these are addressed in section 5 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

4.6 Stage 5: Summer 2024 Consultation to Spring 2025 Consultation – refinement of the Proposed Development

4.6.1 Following the Summer 2024 Consultation, further scheme development and consideration of alternatives was undertaken to refine the draft Order Limits, draft Limits of Deviation and other elements of the Proposed Development. This design evolution process was undertaken in accordance with the NPSWRI (section 3.6), the design approach as set out in the Design Approach Document (Document reference 5.12, DCO Volume 5), and to ensure the implementation of good design (Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on Good Design [21]), through having regard to consultation feedback, stakeholder engagement and any additional requirements for mitigation and enhancement identified since Stage 4. This process resulted in the identification of a number of design refinements which were presented at the Spring 2025 Consultation.

Approach

4.6.2 Scheme development undertaken at Stage 5 was informed by the following:

1. Feedback from the Summer 2024 Consultation.
2. Feedback from ongoing engagement with landowners and stakeholders including local planning authorities and statutory environmental bodies.
3. Information from further environmental assessments and surveys.
4. Engineering design development, including the interface between the Proposed Development and existing Southern Water and Portsmouth Water assets.
5. Consideration of additional security requirements at AGP sites.
6. Identified approved or planned development.

4.6.3 Design related matters identified from the above inputs were considered and where required, alternative designs were identified. The alternatives were then evaluated against the design as presented at the Summer 2024 Consultation (Stage 4 design).

4.6.4 The evaluations comprised of assessments undertaken by the following subject matter experts. They considered a range of criteria and sub-criteria developed from

evaluation criteria used as part of the options appraisal process prior to Gate 2 and Stage 4:

1. Air quality
2. Biodiversity and nature conservation
3. Carbon and climate change
4. Geology and soils
5. Historic environment
6. Interface with other developments
7. Landscape and visual amenity
8. Noise and vibration
9. Resource and waste management
10. Socio-economics
11. Special category land[4]
12. Traffic and transport
13. Water quality, resources and flood risk

4.6.5 Subject matter experts in engineering, planning and land matters also supported the evaluations.

4.6.6 In addition to the above, the mitigation and enhancement proposals for the Proposed Development were developed, which resulted in the identification of new land and amendments to the draft Order Limits. The mitigation and enhancement proposals were developed having regard to feedback from the Summer 2024 Consultation and alongside ongoing engagement with key stakeholders. The mitigation and enhancement areas also consider opportunities for environmental enhancements identified by the Hampshire County Council (HCC) Biodiversity Information Centre [22].

4.6.7 To develop and identify the mitigation and enhancement proposals, findings from the EIA were considered and opportunities were identified as close as reasonably practicable to where potential impacts are likely to occur.

4.6.8 Consideration was given to identifying proposals that would be multifunctional in order to maximise benefits provided. For instance, where land was identified to be required for mitigation purposes, it was considered whether enhancement proposals could take place at the same location to complement the mitigation, provide additional benefit and incorporate good design.

4.6.9 Environmental Mitigation and Enhancement Areas (EMEAs) were identified for inclusion within the draft Order Limits and the location and characteristics of the EMEAs would be developed further at Stage 6 following consultation feedback and the ongoing EIA process.

4.6.10 Section 6 of the Scheme Development Report (Document reference 5.10, DCO Volume 5) contains additional information on the scheme development process, the criteria used to evaluate the alternatives against the Stage 4 design and other minor amendments to the design which occurred during Stage 5.

Outcomes

4.6.11 The key Stage 5 design refinements are set out in Table 4-13 below. ES Figure 4.7 Key design refinements implemented at Stage 5, Volume III (Document reference 6.3, DCO Volume 6), highlights the locations described in Table 4-13. Further detail on the design refinements at Stage 5 can be found in section 6 of the Scheme Development Report (Document reference 5.10, DCO Volume 5).

Table 4-13 Outcomes from Stage 5 – key design refinements

Location	ES Figure 4.7 (see Volume III)	Considerations and outcome
Design Refinement 1 – Budds Farm WTW	Sheet 2	Further engineering design development confirmed that due to the topography, a pumping station is likely to be required at Budds Farm WTW in order to pump the treated wastewater to the WRP site. The draft Limits of Deviation for the pumping station were identified on the western side of Budds Farm WTW. This location was selected as it was the closest to the WRP site and the treated wastewater connection point. The exact location of the pumping station will be determined at the detailed design stage post-consent, therefore the draft Limits of Deviation for the pumping station provide for a sufficient level of flexibility. This flexibility is being sought due to uncertainty around new infrastructure that is being delivered by the Applicant at the Budds Farm WTW site, separate to the Proposed Development as part of its wider business operations. Two additional temporary construction compounds were also identified at Budds Farm WTW which would support construction of the pumping station and the Pipelines between Budds Farm WTW and the WRP site. One was located at the site of the pumping station, and another was at the east of Budds Farm WTW and west of Southmoor Lane, which is currently used for laydown and storage.
Design Refinement 2 – WRP site	Sheet 2	Following the Summer 2024 Consultation, the requirement to incorporate habitat mitigation and enhancement into the design of the WRP site was confirmed through environmental surveys and assessments. A green roof on the main process building was identified as a suitable approach to provide this. To accommodate a green roof, the maximum building height was increased from 13m to 14.5m due to the associated engineering requirements (see Table 3-1 of ES Chapter 3 Description of the Proposed Development, Volume I (Document reference 6.1, DCO Volume 6)). Water quality modelling was undertaken following the Summer 2024 Consultation and presented at the Spring 2025 Consultation. This identified that the addition of recycled water from the WRP to Havant Thicket Reservoir could increase phosphorus in the reservoir, which was predicted to stimulate the growth of algae in the reservoir. Phosphorus treatment measures were therefore required to mitigate this. It was identified that this phosphorus treatment could be accommodated at the WRP site without needing to alter the dimensions of buildings or external appearances. As explained at section 3.6 of ES Chapter 3

Location	ES Figure 4.7 (see Volume III)	Considerations and outcome
		Description of the Proposed Development, Volume I (Document reference 6.1, DCO Volume 6), the water recycling process would reduce phosphorus contents of the recycled water by using membranes within the WRP site. An EMEA was identified at the WRP site for the provision of environmental mitigation and enhancements, including landscaping to assist screening views of the WRP.
Design Refinement 3 – Pipeline Sections A and B	Sheet 2	Preferred option (as described at paragraph 4.5.11): To ensure that the route of Portsmouth Water's pipelines between Bedhampton Springs and Havant Thicket Reservoir are entirely within the draft Order Limits (given the use of Portsmouth Water pipeline by the Proposed Development), minor refinements were made to the draft Order Limits at Staunton Country Park and Havant Rugby Football Club (to reflect amendments to Portsmouth Water's pipelines). At Bedhampton Springs, the draft Order Limits were extended to include an existing access road and an additional temporary construction compound. The need for this amendment was identified through ongoing engagement with Portsmouth Water on the approach to construction of the Proposed Development within the Bedhampton Springs site. An additional temporary construction access was included within the draft Order Limits as it was identified that some abnormal and/or heavy vehicles may not be able to access temporary construction compound B1-1 due to uncertainty about weight limits on the Mill Lane railway bridge. This new access would utilise an existing access point on the A27 on-slip road. Further engineering design development identified that temporary highway works may be required to facilitate some of the abnormal and/or heavy construction vehicles at the Bedhampton Road and Brookside Road junction and the West Street and Meyrick Road junction. However, no changes to the draft Order Limits were required.
Design Refinement 6 – BPT/IPS-E	Sheet 3	Updated security and emergency measures requirements set out by the Department for Environment, Food and Rural Affairs (Defra) identified the need for additional fencing around BPT/IPS-E. To accommodate this, the footprint and draft Limits of Deviation for BPT/IPS-E were increased, whilst maintaining sufficient flexibility within the draft Limits of Deviation to avoid potential conflicts with a new pipeline that Portsmouth Water is installing in this location between their Farlington Works and the WSR next to Fort Nelson.

Location	ES Figure 4.7 (see Volume III)	Considerations and outcome
		Further ecology surveys identified the presence of additional badger setts in the vicinity of BPT/IPS-E. To reduce impacts on this protected species, amendments to the draft Order Limits and draft Limits of Deviation were made, including identifying areas for mitigation and adding an alternative pipeline route option to the west of BPT/IPS-E to provide flexibility to reduce impacts on protected species at the construction stage, given the potential mobility of this species. Mitigation and enhancement proposals at BPT/IPS-E were also included within the design. An EMEA was identified for landscaping and planting to mitigate visual effects associated with BPT/IPS-E, as well as for protected species mitigation. The field to the west of BPT/IPS-E was additionally identified as an EMEA for chalk grass habitat enhancement and interspersed planting to help blend the new landscaping and promote habitat connectivity.
Design Refinement 9 – IPS-F	Sheet 4	Updated security and emergency measures requirements set out by Defra identified the need for additional fencing around IPS-F. To accommodate this, the footprint and draft Limits of Deviation for IPS-F were increased. In updating the draft Limits of Deviation for IPS-F, it was not possible to avoid overlap with PRoW Fareham 103. The draft Order Limits were therefore amended to ensure the PRoW can be diverted during the construction and operational phases of the Proposed Development. Mitigation and enhancement proposals at IPS-F were included in the design. An EMEA was identified to help integrate IPS-F into the landscape and reduce visual impacts.
Design Refinement 13 – Wickham Park Golf Club and River Meon	Sheet 4	Through ongoing engagement with Wickham Park Golf Club, sections of the golf course were removed from the draft Order Limits, and an access track to the east of the clubhouse was included in the draft Order Limits, which may be used to construct and install the Pipeline. The existing access to the golf club from Titchfield Lane was additionally included within the draft Order Limits for access use during construction. Flexibility is being retained within the draft Order Limits at Wickham Park Golf Club to ensure that the detailed design of the pipeline and construction works post-consent can reduce impacts on the operations of the golf course as far as reasonably practicable. To support the approach to flexibility at the golf course, an additional trenchless construction option underneath the River Meon was included in the draft Order Limits and is assessed in this ES. This additional option is east of the trenchless crossing location presented in the

Location	ES Figure 4.7 (see Volume III)	Considerations and outcome
		Summer 2024 Consultation design. Both options would utilise temporary construction compound G-3 as the southern temporary construction compound. As the northern temporary construction compound, the western trenchless route would use temporary construction compound G-4 whilst the eastern trenchless route would use temporary construction compound G-5 (situated within Wickham WTW, an asset of the Applicant).
Design Refinement 14 – IPS-G	Sheet 4	Updated security and emergency measures requirements set out by Defra identified the need for additional fencing around IPS-G. To accommodate this, the footprint and draft Limits of Deviation for IPS-G were increased. Mitigation and enhancement proposals at IPS-G were included in the design. An EMEA was identified to help integrate IPS-G into the landscape and reduce visual impacts. At the Summer 2024 Consultation, it was proposed to access IPS-G and the surrounding area via an existing access track from Titchfield Lane, which is next to the Park Place Farm Nursery. At the Summer 2024 Consultation, feedback was received from HCC and the local community raising concerns about the use of this access track as a construction access. The Applicant also undertook further investigations following the consultation and identified that it may not be suitable for the required construction vehicle movements. An alternative construction access point was therefore identified, which would require the creation of a new access from a location further to the north along Titchfield Lane. The access point identified is considered more suitable for construction vehicles and was the most appropriate option identified from a traffic and transport, noise and air quality perspective, as it would mean construction vehicles would leave the highway earlier along Titchfield Lane and avoid passing residential properties further along the highway. However, creating a new temporary access would result in the loss of trees and woodland that are protected by a Tree Preservation Order. This temporary access was progressed on the basis that it was the only suitable construction access for IPS-G, and that the loss of trees and woodland would be reinstated. IPS-G would continue to be accessed via the existing access track next to Park Place Farm Nursery during operation, as originally proposed. As a result of amending the construction access point and further engineering design development, temporary construction compounds G-7 and G-8 were consolidated to one, G-7. The southern extent of the draft Order Limits were subsequently reduced to the east and west of Winchester Road (A334) (north-east of IPS-G) to remove land no longer required for the Proposed Development.

Location	ES Figure 4.7 (see Volume III)	Considerations and outcome
		The draft Order Limits were amended to ensure a buffer from trees is maintained, and root protection zones are avoided, at temporary construction compound H-1 to the east of Winchester Road (A334) in order to avoid impacts to these trees.
Design Refinement 18 – The River Hamble and Ford Farm	Sheet 5	The trenchless construction underneath the River Hamble was realigned to a location further north. This amendment was required as environmental surveys identified two veteran trees close to the Pipeline and temporary construction compound K-1, Category A trees were identified at the construction access point to temporary construction compound J-3; and consultation feedback was received from a soft fruit farm business at Ford Farm to the north of the River Hamble which had received planning permission for new polytunnels. The realignment to the trenchless crossing was selected as it had the least engineering and environmental constraints compared to alternatives and minimised impact to the soft fruit farm business. Mitigation and enhancement proposals in the area were developed alongside this amendment. An EMEA was identified for wet grassland and habitat connectivity improvements on the north bank of the River Hamble.
Design Refinement 20 – BPT-K	Sheet 5	Feedback from local residents and HCC during and following the Summer 2024 Consultation raised concerns about using Scivier's Lane as a construction vehicle route. Following the consultation, further investigation of construction routes and accesses was undertaken which confirmed that this road may be unsuitable for the required construction vehicle movements. Therefore, an alternative construction access point was identified from Winchester Road (B2177) to the north of BPT-K and was included in the draft Order Limits. The access from Scivier's Lane remains within the draft Order Limits as it may be required for use during operation. An alternative operational access route from Winters Hill to the south-east was identified through engagement with landowners and was additionally included in the draft Order Limits. The operational access for BPT-K (either from Scivier's Lane or Winters Hill) would be determined at the detailed design stage post-consent. The pipeline route to the south of BPT-K within Winters Hill Park was amended slightly to avoid a veteran tree and its associated root protection area. Updated security and emergency measures requirements set out by Defra identified the need for additional fencing around BPT-K. To accommodate this, the footprint and draft Limits of Deviation for BPT-K were increased.

Location	ES Figure 4.7 (see Volume III)	Considerations and outcome
		Mitigation and enhancement proposals at BPT-K were included in the design. An EMEA was identified to support the integration of BPT-K into the landscape and reduce visual impacts. Two further EMEAs were also identified to enhance existing woodland in order to mitigate tree and woodland removal during construction.
Design Refinement 22 – construction compound L-1	Sheet 6	The layout of temporary construction compound L-1 was amended to have regard to feedback received from Ashbourne Stables at the Summer 2024 Consultation, and the identification of a veteran tree following further ecology surveys. The draft Order Limits have therefore been updated to reduce impact to the existing business by avoiding land used as grazing paddocks and to avoid the veteran tree.
Design Refinement 24 – Pipeline Section L	Sheet 6	South of Portsmouth Road (B2177), feedback from the Summer 2024 Consultation identified that the pipeline route intersected land used as a garden at a residential property near Lowhill Farm. One of the Proposed Development's preliminary design principles is to avoid impacts on residents as far as reasonably practicable (see section 6 of the Design Approach Document (Document reference 5.12, DCO Volume 5)), alternative options were therefore considered. The draft Order Limits were amended to move the pipeline route and temporary construction compounds further north and to adopt a new trenchless crossing in order to cross underneath a woodland and watercourse. This option was the least constrained in environmental and engineering terms. Following further environmental surveys east of Fisher's Pond, the draft Order Limits were amended to avoid veteran trees, reduce vegetation loss and reduce impacts on a SINC. An EMEA was incorporated into the draft Order Limits to provide for new tree and woodland planting for mitigation purposes. At Fisher's Pond the draft Order Limits were amended to avoid two veteran trees identified to the south of Fisher's Pond through further ecology surveys. An EMEA was incorporated into the draft Order Limits to provide for grassland/meadow enhancements which would provide benefit to the existing Fielders Farm Meadows SINC. Following consultation feedback and ongoing engagement with HCC, the draft Order Limits were updated south of Colden Common and west of Fisher's Pond to include a construction access point from Church Lane as opposed to using Bishopstoke Lane which was found to be unsuitable for construction vehicles. Church Lane is considered suitable for construction vehicles and is the next closest road to this section of the Pipeline. The draft Order Limits

Location	ES Figure 4.7 (see Volume III)	Considerations and outcome
		were also amended to have regard to landowner feedback, aligning the pipeline route to field boundaries to reduce disruption from construction activity on existing land use. Wet grassland habitat enhancements at an EMEA were additionally proposed to improve ecological conditions on the south side of the Bow Lake watercourse. In addition, the draft Order Limits North of Wardle Road were extended to include an EMEA to provide for an enhancement opportunity identified by the HCC Biodiversity Information Centre [22].
Design Refinement 25 – Otterbourne WSW	Sheet 6	Following further engineering design development, the draft Order Limits were extended to the north to include optionality for construction access. This optionality is required to ensure access can be provided during the construction phase alongside other future works proposed by the Applicant at Otterbourne WSW, separate to the Proposed Development. In order to temporarily divert a PRoW crossed by the Pipeline during the construction phase, the draft Order Limits were extended to the north of Kiln Lane. Continued engineering design development clarified where the Pipeline will connect into Otterbourne WSW. As such, the draft Order Limits were reduced to the south of Oakwood Park Recreational Ground to remove surplus land. Further engineering design development also identified temporary highway works may be required to facilitate access for some abnormal and/or heavy construction vehicles. The draft Order Limits were therefore amended to include the junction between Kiln Lane and Main Road junction in Otterbourne. Two EMEAs were included in the draft Order Limits to accommodate mitigation and enhancement proposals. One EMEA was identified for wet grassland enhancement at an existing watercourse and the other EMEA would provide woodland and scrub enhancement and mitigation for habitat losses associated with the construction access.

Review of the Water Recycling Plant site selection

4.6.12 Following the Summer 2024 Consultation, environmental surveys of the WRP site were undertaken as part of the EIA process. This identified the presence of open mosaic habitat, which is a priority habitat, at the WRP site.

4.6.13 A check of the previous stages of the WRP site selection process was therefore undertaken to verify whether the presence of open mosaic habitat would result in WRP_72 being viewed as less preferable for locating the WRP.

4.6.14 This check did not result in any changes to the WRP site selection process, as it was considered that the presence of open mosaic habitat could be mitigated to an acceptable level, and therefore the environmental reviews in the previous stages of the WRP site selection remained unchanged.

4.7 Stage 6: Spring 2025 Consultation to DCO application – further refinement of the Proposed Development

4.7.1 Following the Spring 2025 Consultation, further scheme development and consideration of alternatives was undertaken to refine the draft Order Limits, draft Limits of Deviation and other elements of the Proposed Development in order to establish the Order Limits and Limits of Deviation for the DCO application.

4.7.2 The Scheme Development Report (Document reference 5.10, DCO Volume 5) details the complete process of design development and consideration of alternatives for the Proposed Development up to DCO application (Stage 1 to Stage 6).

Approach

4.7.3 The design was developed at Stage 6 by having regard to the following:

1. Feedback from the Spring 2025 Consultation.
2. Feedback from ongoing engagement with landowners and stakeholders including local planning authorities and statutory environmental bodies.
3. Information from ongoing environmental assessments and surveys.
4. Engineering design development, including the interface between the Proposed Development, the Applicant's existing assets and Portsmouth Water assets.
5. Identified approved or planned development.

4.7.4 The approach followed at Stage 6 to identify and evaluate alternative designs (where required) was consistent with the approach at Stage 5, explained in section 4.6. The evaluations compared the alternative designs against the Stage 5 design.

Outcomes

4.7.5 The Stage 6 design development process resulted in further design development to several of the Stage 5 design refinements and the identification of some additional design refinements. The key outcomes are set out in Table 4-14, and ES Figure 4.8 Key design refinements implemented at Stage 6, Volume III (Document reference 6.3, DCO Volume 6) highlights the locations described in the

table. Section 7 of the Scheme Development Report (Document reference 5.10, DCO Volume 5) sets out all refinements to the design of the Proposed Development at Stage 6.

Table 4-14 Outcomes from Stage 6 – further design refinements

Location	ES Figure 4.8 (see Volume III)	Considerations and outcome
Design Refinement 1 Continued – Budds Farm WTW	Sheet 2	Part of Budds Farm WTW, including an area containing existing infrastructure that the Proposed Development would connect into, is within a Solent Waders and Brent Goose strategy site. The draft Order Limits were amended to reduce the overlap with the Solent Waders and Brent Goose strategy site as far as reasonably practicable. This amendment reduced the amount of existing vegetation within the draft Order Limits. The draft Limits of Deviation for the pumping station at Budds Farm WTW were refined to remove an existing vegetated bund towards the west and to ensure that temporary construction compound C-1 reflects the area required during construction.
Design Refinement 2 Continued – WRP	Sheet 2	A footpath and pedestrian crossing of Harts Farm Way was added to the Proposed Development to ensure workers at the WRP site can cross from the south side to the north side of Harts Farm Way.
Design Refinement 3 Continued – Pipeline Sections A and B	Sheet 2	Preferred option (as described at paragraph 4.5.11): At the Spring 2025 Consultation, feedback was received from National Highways which raised concerns about the proposals for some abnormal and/or heavy vehicles to use an existing access point on the A27 slip road during construction. Contrastingly, consultation feedback from the local community queried whether the existing access point on the A27 slip road could be used by all construction traffic to avoid routing through Brookside Road, Bidbury Lane and Mill Lane; this was objected by National Highways during further engagement. Alternative construction access options were considered, however no viable options were identified. Therefore, no amendments were made to the design presented at Stage 5, given the need for abnormal and/or heavy vehicles to infrequently access the site. The Applicant is continuing to engage with National Highways and HCC on this matter. Further arboricultural surveys identified a veteran tree within the draft Order Limits in the vicinity of Bedhampton Springs. Following consideration by the ecology and engineering specialists, it was confirmed that a pipeline route could be accommodated within the draft Order Limits which would not result in the loss or deterioration of the veteran tree. No changes to the design were made.

Location	ES Figure 4.8 (see Volume III)	Considerations and outcome
Design Refinement 9 Continued – IPS-F	Sheet 4	Following continued engagement with the landowner and developer of Welborne Garden Village, the environmental mitigation and landscaping around IPS-F was refined to avoid proposed planting extending into the Welborne Garden Village application boundary.
Design Refinement 20 Continued – BPT-K	Sheet 5	At the Spring 2025 Consultation, two options for the operational access to BPT-K were presented (either from Scivier's Lane or Winters Hill). Further engineering design development confirmed that the existing access track from Winters Hill can accommodate the operational requirements for vehicle movements, without requiring any upgrades. As such, the Scivier's Lane option was removed from the draft Order Limits.
Design Refinement 22 Continued – construction compound L-1	Sheet 6	Feedback from the Spring 2025 Consultation identified that the shape of temporary construction compound L-1 would impact on the ability of a landowner to use the agricultural land. The shape of temporary construction compound L-1 and the draft Order Limits were amended to retain a greater area of agricultural land during construction to reduce the impact on the existing land use. This amendment was possible to make without resulting in other major impacts.
Design Refinement 24 Continued – Pipeline Section L	Sheet 6	Following feedback received at the Summer 2024 Consultation, the pipeline route and temporary construction compounds were moved further north within the vicinity of Lowhill Farm (south of Portsmouth Road (B2177)) to avoid intersecting a residential garden. Feedback from the Spring 2025 Consultation identified that this design alteration would impact the operations of an arable farming enterprise and a carriage driving business. To reduce the impact on these businesses, an alternative design was identified which moves the pipeline route and temporary construction compounds L-2 and L-3 back to the south and implements a trenchless crossing beneath the residential garden. This option was selected as it had the least engineering constraints and environmental impact compared to the other alternatives. At Fisher's Pond, further environmental assessment identified a pond to the east of Winchester Road and a veteran tree was identified to overlap with temporary construction compound L-4. The draft Limits of Deviation were amended to avoid the pond and temporary construction compound L-4 was amended to avoid the overlap with the veteran tree root protection area; the remainder of the root protection area is within an EMEA. These amendments were possible to make without resulting in other major impacts.

Location	ES Figure 4.8 (see Volume III)	Considerations and outcome
		Amendments were made to temporary construction compounds L-6, L-7 and L-8 in response to further environmental assessment. Temporary construction compounds L-7 and L-8 are associated with the trenchless crossing beneath the Bow Lake watercourse, whilst temporary construction compound L-6 is in close proximity to the Bow Lake watercourse. To reduce the interface between these temporary construction compounds and flood zone 2 land, a 30m buffer was implemented between L-8 and Bow Lake and a 15m buffer was implemented between Bow Lake and L-6 and L-7. It is not possible for the temporary construction compounds to completely avoid the flood zone 2 land however, the trenchless shafts at L-7 and L-8 can be micro-sited to be outside of flood zone 2. Flood zone 2 land is avoided as far as reasonably practicable at this location. Following feedback received at the Summer 2024 Consultation, the draft Order Limits were updated to include a construction access point from Church Lane and to align the pipeline route to field boundaries. Feedback from the Spring 2025 Consultation identified that the construction access from Church Lane intersected a site allocated for residential development in the emerging Winchester City Council local plan. In addition, feedback from a landowner identified that the alterations to the pipeline route impacted on land used for equestrian purposes. The draft Order Limits were amended to avoid the emerging residential allocation, moving the construction access point from Church Lane immediately west of the Spring 2025 Consultation design. Further, the pipeline route was amended to have regard to conflicting feedback from landowners received at the Summer 2024 Consultation and Spring 2025 Consultation as far as reasonably practicable.
Design Refinement 26 – Wickham Meadows SINC	Sheet 4	Feedback was received from WCC at the Spring 2025 Consultation, indicating that the draft Order Limits clipped the south-eastern corner of the Wickham Meadows SINC. The draft Order Limits were accordingly amended to avoid the SINC site.
Design Refinement 27 – Barley Mow/Pricketts Hill	Sheet 4 and 5	The draft Order Limits were widened in this location to provide flexibility to undertake further engagement in order to reduce impacts to landowners.
Design Refinement 28 – Five Oaks Farm	Sheet 4 and 5	The pipeline route intersects an area of land at Five Oaks Farm classed as a Minerals Consultation Area (MCA) and previously subject to a planning application for a soft sand quarry which was refused in 2022 (reference 20/01483/HCS).

Location	ES Figure 4.8 (see Volume III)	Considerations and outcome
		Further engagement with HCC following the Spring 2025 Consultation indicated that planning for a soft sand quarry would be pursued in this area and HCC have indicated that more weight should be given to its location within a MCA. The draft Order Limits were accordingly widened to provide flexibility for refinement of the pipeline route through continued engagement to reduce the effects of the Proposed Development on the quarry proposal.
Invasive Non-Native Species (INNS) Treatment at Otterbourne WSW	Sheet 6	Works are proposed at Otterbourne WSW as part of the Proposed Development to ensure the addition of source water transferred from Havant Thicket Reservoir would not introduce pathways for the spread of INNS. A location within the existing Otterbourne WSW was selected for the treatment infrastructure.

References

[1] Southern Water Services Limited, “Securing a resilient future for water in the South East. Our Water Resources Management Plan for 2020-70,” 2019. [Online]. Available: https://www.southernwater.co.uk/media/nfrellg1/our-wrmp-for-2020-70.pdf. [Accessed 8 January 2024].

[2] Department for Environment, Food and Rural Affairs, “National Policy Statement for water resources infrastructure,” July 2025. [Online]. Available: https://assets.publishing.service.gov.uk/media/6874ca77c831dea2b152cfe9/E03400114_National_Policy_Statement_for_Water_Resources_Web_Accessible.pdf. [Accessed August 2025].

[3] Department for Communities and Local Government, “Planning Act 2008: Guidance related to procedures for the compulsory acquisition of land,” 3 September 2013. [Online]. Available: https://www.gov.uk/government/publications/planning-act-2008-procedures-for-the-compulsory-acquisition-of-land. [Accessed April 2025].

[4] Planning Inspectorate, “Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements,” March 2025. [Online]. Available: https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an. [Accessed August 2025].

[5] S. W. S. Ltd, “Water Resources Management Plan 2020-70,” November 2022. [Online]. Available: https://www.southernwater.co.uk/about-us/our-plans/water-resources-management-plan/. [Accessed January 2022].

[6] Water Resources South East, “Final Regional Plan (2025),” 2025. [Online]. Available: https://www.wrse.org.uk/. [Accessed August 2025].

[7] Department for Environment, Food and Rural Affairs, “National Policy Statement for water resources infrastructure,” 2025. [Online]. Available: https://www.gov.uk/government/publications/national-policy-statement-water-resources-infrastructure.

[8] Environment Agency, Natural Resources Wales and Office for Water Services, “Water resources planning guideline,” 2023. [Online]. Available: https://www.gov.uk/government/publications/water-resources-planning-guideline/water-resources-planning-guideline.

[9] Southern Water Services Limited, “Southern Water’s Water Resources Management Plan - Annual Review 2020-21,” 2021. [Online]. Available: https://www.southernwater.co.uk/media/chbhmj32/annual-review-2020-21.pdf. [Accessed September 2024].

[10] Water Resources South East, *Final Regional Plan (2025),* 2025.

[11] Southern Water Services Limited, “Water for life - Hampshire technical documents,” [Online]. Available: https://www.southernwater.co.uk/our-story/our-plans/water-for-life-hampshire/technical-documents. [Accessed September 2024].

[12] Southern Water Services Limited, “Water for Life - Hampshire - Consultation brochure 2021,” 2021. [Online]. Available: https://www.southernwater.co.uk/media/utfeec2x/5391_wflh_non-statutory_consultation_brochure_210x210mm_2.pdf. [Accessed 23 February 2024].

[13] Southern Water Services Limited, “Gate 2 Submission Technical Report, Annex 5: Options Appraisal Process Future Needs Update,” 6 December 2021. [Online]. Available: https://www.southernwater.co.uk/media/pr5hm04q/gate-2-annex-5-options-appraisal-process_redacted.pdf. [Accessed September 2024].

[14] Ministry of Housing, Communities and Local Government, “National Planning Policy Framework,” 2025. [Online]. Available: https://www.gov.uk/government/publications/national-planning-policy-framework--2. [Accessed May 2025].

[15] Havant Borough Council, “Havant Borough Core Strategy,” 2011. [Online]. Available: https://www.havant.gov.uk/planning-services/planning-policy/local-plan/core-strategy-and-allocations-plan-adopted-local-plan. [Accessed September 2024].

[16] Havant Borough Council, “Havant Borough Local Plan (Allocations),” 23 July 2014. [Online]. Available: https://www.havant.gov.uk/planning-services/planning-policy/local-plan/core-strategy-and-allocations-plan-adopted-local-plan. [Accessed September 2024].

[17] Havant Borough Council, “Building a Better Future,” May 2025. [Online]. Available: https://www.havant.gov.uk/planning-services/planning-policy/local-plan/building-better-future-plan. [Accessed August 2025].

[18] Environment Agency, “Meeting our future water needs: a national framework for water resources,” 16 March 2020. [Online]. Available: https://www.gov.uk/government/publications/meeting-our-future-water-needs-a-national-framework-for-water-resources. [Accessed September 2024].

[19] Natural England and Forestry Commission, “Ancient woodland, ancient trees and veteran trees: advice for making planning decisions,” 14 January 2022. [Online]. Available: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions. [Accessed April 2025].

[20] Badger Trust, “Badger Protection: Best practice guidance for developers, ecologists and planners (England),” August 2023. [Online]. Available: https://ebpg.co.uk/sites/ebpg.co.uk/files/Badger%20Trust%20Badger%20Protection%20Best%20Practice%20Guidance%20for%20Developers%20Ecolo...IGITAL.pdf#:~:text=This%20guide%20aims%20to%20widen%20knowledge%20and%20make,for%20badger%20protection%20are%20properl. [Accessed September 2024].

[21] Planning Inspectorate, “Nationally Significant Infrastructure Projects: Advice on Good Design,” 2025. [Online]. Available: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-good-design. [Accessed August 2025].

[22] Hampshire Biodiversity Information Centre, “Hampshire Biodiversity Information Centre,” [Online]. Available: https://www.hants.gov.uk/landplanningandenvironment/environment/biodiversity/informationcentre. [Accessed April 2025].


WATER
for LIFE®
from
Southern
Water®