

Hampshire Water Transfer and Water Recycling Project

Consultation Report

Appendix F – Statutory Summer 2024 Consultation 2 of 7 Documents

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The Southern Water logo graphic consists of three stylized, wavy blue lines of varying lengths, positioned to the right of the text 'Southern Water'.

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F.6 2024 Scheme Development Summary



Hampshire Water Transfer and Water Recycling Project

2024 Scheme Development Summary
Summer 2024 Consultation



from
**Southern
Water** 

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1. Introduction

1.1. Background and Purpose

This document summarises the development of the Hampshire Water Transfer and Water Recycling Project (the Project) for the period from the Project's Summer 2022 Consultation to the Summer 2024 Consultation. It provides an overview of the scheme development processes that have been undertaken and the outcomes that are now being presented as part of the Summer 2024 Consultation.

1.2. Scheme Development Stages

Overall, the Project has progressed through a detailed development process which has considered a number of different alternative water resources infrastructure options as well as different configurations of these options. The options went through a number of stages of detailed review, considering a range of technical, environmental, planning, social and economic criteria.

The Project is also progressing through the Regulators Alliance for Progressing Infrastructure Development (RAPID) gated process, which provides bespoke funding for and the development of strategic water resources solutions. The RAPID gated process has required us to consider a range of water resources options for addressing the water supply challenges in Hampshire, and our approach to considering alternatives has been undertaken in alignment with the RAPID gated process.

The process for considering alternatives for the Project is as follows:

- **Stage 1: Development and Assessment of Initial Options** – Gate 1 of the RAPID gated process required us to further review the desalination and water re-use (also known as water recycling) schemes identified in our Water Resources Management Plan 2019 (WRMP19). These were considered alongside a number of other options that were not identified in our WRMP19. A high level review of technical, environmental, commercial and other considerations was undertaken - the options that were deemed not suitable were not progressed and those that were considered feasible were progressed to the next stage at Gate 2.
- **Stage 2: Options Appraisal Process** – Prior to our Gate 2 submission to RAPID, we undertook an options appraisal process that considered the remaining options that were progressed from Gate 1. A water transfer and water recycling option, previously referred to as Option B.4) and now known as the Hampshire Water Transfer and Water Recycling Project, was selected as the preferred option (the Project).
- **Stage 3: Scheme development (up to the Summer 2022 Consultation)** – Above ground plant sites and pipeline corridors for the Project were further developed at Stage 3. A preferred pipeline corridor was selected, along with a proposed site for the water recycling plant and high lift pumping station. Potential zones for the above ground plant were identified. The outcomes of this process were presented at the Summer 2022 Consultation.
- **Stage 4: Scheme development (between the Summer 2022 Consultation and the Summer 2024 Consultation)** – Having regard to the responses received at the Summer 2022 Consultation, as well as further engagement with relevant bodies, further development of the Project was undertaken to inform the development of draft Order Limits for the Project, and proposed sites for the above ground plant and construction compounds, the outcomes of which are now presented in this document. Environment, land and engineering surveys and investigations continued to inform the development of the Project at this stage. This stage also included reviewing earlier site selection work to identify the water recycling plant site.
- **Stage 5: Scheme development (Summer 2024 Consultation to DCO Submission)** – Following the Summer 2024 Consultation, the Project will be refined further, having regard to consultation feedback received, further engagement with relevant bodies, and environmental assessments prior to the submission of our Development Consent Order (DCO) application. Land and

engineering surveys and investigations will continue to inform the development of the Project at this next stage.

Stages 1, 2 and 3 were undertaken prior to our Summer 2022 Consultation, and the 2022 Scheme Development Summary¹ provides a detailed overview of these stages. Stages 1, 2 and 3 are also summarised in Section 2 of this document.

This 2024 Scheme Development Summary represents the outcomes of Stage 4, undertaken following the Summer 2022 Consultation.

Stage 5 will be undertaken following, and having regard to, the Summer 2024 Consultation, the outcomes of which will be reported on as part of our Development Consent Order (DCO) application upon submission to the Planning Inspectorate.

Figure 1 provides an overview of the process for considering alternatives up to the Summer 2024 Consultation, which comprises Stages 1, 2, 3 and 4.

¹ [hampshire-wtrp-2022-scheme-development-summary-v2.pdf \(southernwater.co.uk\)](https://www.southernwater.co.uk/hampshire-wtrp-2022-scheme-development-summary-v2.pdf)

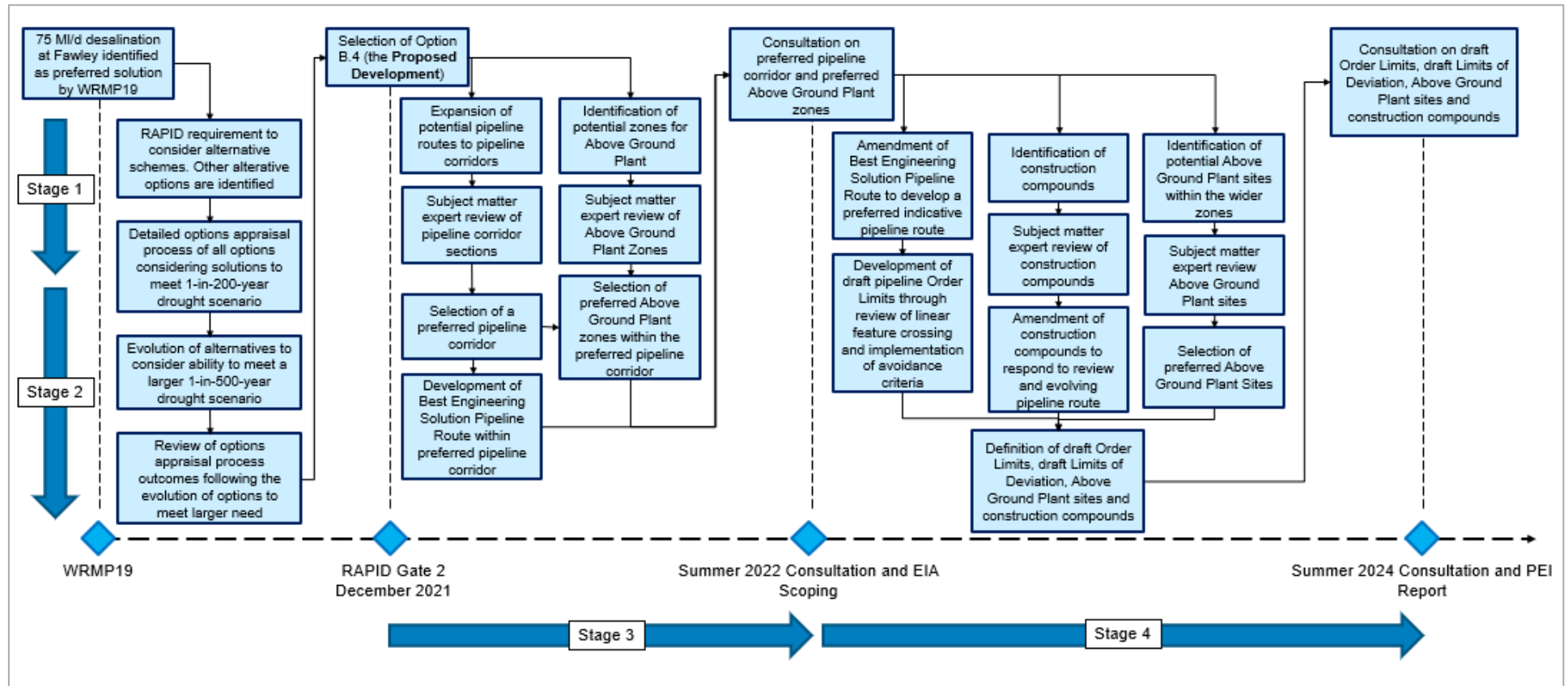


Figure 1 - Process for considering alternatives up to the Summer 2024 Consultation

2. Scheme Development (Stage 1 to Stage 3)

2.1. Stage 1: Development and Assessment of Initial Options

Table 1 details the strategic water resources infrastructure options that we identified and submitted as part of our Gate 1 submission to RAPID. This includes the 75MI/d (million litres per day) desalination scheme which was the preferred solution identified in WRMP19 (referred to as the 'Base Case'), alongside eight alternative options.

At Gate 1, we also submitted a joint proposal with Wessex Water and Bristol Water to RAPID for a regional water transfer solution called 'West Country North Sources and Transfer'. This solution was not considered as an alternative to the Base Case as it could not deliver water supplies to address our forecast deficit by 2027 which was the required delivery date at the time of Gate 1. This solution 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 1, its capacity was too low for it to be a realistic alternative to the Base Case. The costs and carbon footprint were also considered to be very high for the modest volume of water resources it would provide relative to other options. It was therefore not included in the alternative options that were considered further and is not shown in Table 1.

Table 1 - Options at Gate 1

Configuration Type	Option	Option Description
Desalination	A.1 (Base Case)	75 MI/d of drinking water produced by desalination plant in the Fawley area supplying the Hampshire Southampton West Water Resource Zone, with the interface between the new and existing distribution system located at Testwood Water Supply Works.
	A.2	61 MI/d of drinking water produced by desalination plant in the Fawley area supplying the Hampshire Southampton West Water Resource Zone, with the interface between the new and existing distribution system located at Testwood Water Supply Works.
	D.1	Proposed to provide 40 MI/d desalinated water for dedicated industrial use at an existing large coastal industrial facility. The existing 30 MI/d supplied by South West Water to this facility was then intended to be released and redirected to Southern Water at Testwood Water Supply Works and re-purposed for drinking water supply. The remaining existing 10 MI/d supplied by Southern Water to this facility was then intended to be released and redirected to Testwood Water Supply Works and re-purposed for drinking water supply. The option is supplemented by an additional 40 MI/d water recycling plant utilising treated wastewater from Budds Farm Wastewater Treatment Works. This option provides a cumulative 81 MI/d when both the desalination and water recycling components are operating at full capacity.
Water Recycling	B.1	Budds Farm Wastewater Treatment Works transfer to new 61 MI/d water recycling plant. Bulk transfer to Lower Itchen and a new 61 MI/d abstraction from the Lower Itchen. Water is then transferred for treatment at Otterbourne Water Supply Works.

Configuration Type	Option	Option Description
	B.2	Budds Farm Wastewater Treatment Works transfer to new 61 MI/d water recycling plant. Bulk transfer to a new constructed and lined environmental buffer. Abstraction and transfer for treatment at Otterbourne Water Supply Works.
	B.3	Budds Farm Wastewater Treatment Works transfer to new 61 MI/d water recycling plant. Direct transfer direct to Otterbourne Water Supply Works for treatment.
	B.4	Budds Farm Wastewater Treatment Works transfer to new 61 MI/d water recycling plant. Transfer to Havant Thicket Reservoir which acts as an environmental buffer, then 75 MI/d direct raw water transfer to Otterbourne Water Supply Works for treatment. .
	B.5	Peel Common Wastewater Treatment Works and Budds Farm Wastewater Treatment Works transfer to a new 75 MI/d water recycling plant. Bulk transfer to a lake that provides an environmental buffer at Otterbourne Water Supply Works for treatment.
Water Transfer	D.2	61 MI/d raw water transfer from the Havant Thicket Reservoir to Otterbourne Water Supply Works for treatment.

We progressed each of the options in Table 1 beyond Gate 1 to further understand and assess their feasibility. Three of the options were not continued to the next stage:

- Option D.1 was not progressed as it 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 we could rely on the 30 MI/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 their 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.
- Option B.1 was not progressed further following Ofwat’s decision not to fund further investigations into this option as part of the Gate 1 Final Determination. This was due to environmental concerns about the potential impact of the recycled water release on the integrity of the River Itchen Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) and the options ability to meet the resource deficit.
- Option B.3 was a direct water recycling solution that involved transfer of recycled water direct to Otterbourne Water Supply Works (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 England and Wales. As a result, it is anticipated that there would be significant regulatory lead-in times to demonstrate the suitability of direct water recycling relating to 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.

Table 2 sets out the options taken forward to the options appraisal process at Stage 2. The options that were not progressed are highlighted in red.

Table 2 - Options taken forward to Gate 2

Configuration Type	Option No.
Desalination	A.1
	A.2
	D.1 – Not progressed
Water Recycling	B.1 – Not progressed
	B.2
	B.3 – Not progressed
	B.4
	B.5
Water Transfer	D.2

2.2. Stage 2: Options Appraisal Process

The options appraisal process considered the options to identify a preferred option and a back-up option in order to inform our Gate 2 submission to RAPID. It was important that the process was robust so that an appropriate option was selected, having regard to relevant planning policy tests. The process was developed in consultation with stakeholders and was undertaken by qualified individuals. The process comprised the following steps:

- Site and route selection
- Consenting evaluation
- Multi-criteria decision analysis
- Assessment against legal and policy objectives
- Assessment against Water for Life Hampshire strategic objectives
- Interim business evaluation
- Future needs assessment
- Final business evaluation

2.2.1. Site and Route Selection

At the site and route selection stage, individual infrastructure components were identified to build a configuration that would be progressed to the following stages of the options appraisal process. Infrastructure sites and pipeline routes for the desalination, water recycling and water transfer options were developed. The 2022 Scheme Development Summary presented at the Summer 2022 Consultation details the site and route selection for all options that were considered in the options appraisal process. The initial site selection for the water recycling plant and high lift pumping station was undertaken at this stage. Initial pipeline routes were also identified at this stage, and these later formed the basis of the pipeline corridors that were identified for the Project and assessed at Stage 3. This document therefore sets out the high level site selection process for the water recycling plant and the initial pipeline routes for the water transfer and water recycling options as these informed the options that were used for Project.

Water Recycling Plant Site Selection

A water recycling plant was required for Option B.2, B.4 and Option B.5. A terrestrial search parcel was first defined to identify sites for the water recycling plant which was determined by two factors:

- A search radius of 1.5km around Budds Farm WTW. This distance was established by increasing the search area from Budds Farm WTW in 500 m increments to identify the closest potentially feasible sites. Proximity to Budds Farm WTW is a key parameter in order to reduce the distance for the transfer of treated wastewater to the water recycling plant as this would reduce the carbon emissions associated with constructing the pipelines and pumping water between Budds Farm WTW and the water recycling plant and reduce potential land interests.
- Areas of coastline susceptible to sea flooding and coastal erosion were excluded as major infrastructure development in these locations would not be resilient or suitable against a number of policy tests and considerations.

Within this terrestrial search area, sites were then identified using the criteria set out in Table 3.

Table 3 - Criteria for terrestrial water recycling plant sites

Element	Details
Land use	Avoidance of the following areas: <ul style="list-style-type: none"> ■ 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: <ul style="list-style-type: none"> ■ Marsh ■ Mudflat ■ Cliff face ■ Open water
Site size	61 Ml/d water recycling plant - Minimum of 40,470 m ² (4ha) + 4,047 m ² (0.4ha) for construction

Seventeen sites for the water recycling plant that met the criteria set out in Table 3 within the 1.5km search radius were identified, which are shown in Figure 5 of the 2022 Scheme Development Summary that was presented at the Summer 2022 Consultation. These sites were then assessed against a number of environmental, planning and engineering criteria.

Following the assessment, five sites progressed for further detailed review. The outcomes are set out in Table 4.

Table 4 - Water recycling plant site review outcomes

Site	Description	Considerations and Outcomes
WRP_68	The site is on Southmoor Nature Reserve, east of Southmoor Lane and	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.

Site	Description	Considerations and Outcomes
	north of Langstone Harbour.	The site is within approximately 20 m from the Solent Maritime SAC, the Chichester and Langstone Harbours Special Protection Area (SPA) and Ramsar, and the Langstone Harbour SSSI. The site is approximately 550 m from the Chichester Harbour National Landscape.
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 30 m from the Chichester Harbour National Landscape. The site is approximately 90 m from the Langstone Harbour SSSI and approximately 240 m from the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar.
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 water recycling plant. The site is approximately 400 m 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.
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 also has outline planning permission for employment uses. Following mitigation, it is considered that the site could be suitable for the water recycling plant. The site is approximately 170 m 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.
WRP_75	The site is located west of Harts Farm Way and the 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 20 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.8 km from the Chichester Harbour National Landscape.

The assessment resulted in the identification of WRP_71 and WRP_72 as the most suitable options for the water recycling plant. WRP_71 is currently developed and comprises existing / active warehousing and office uses and is considered to be more difficult to deliver and develop than WRP_72, which is an undeveloped, former landfill site. WRP_72 was therefore chosen as the preferred site, with WRP_71 as an alternative should WRP_72 not be deliverable.

The principle of built development at WRP_72 is considered to be acceptable in planning terms. It is an allocated site with an existing planning permission for employment development which is a similar industrial use to the water recycling plant. WRP_72 was therefore progressed as the site for the water recycling plant as part of Option B.2, B.4 and B.5.

High Lift Pumping Station

A high lift pumping station was required for Option B.4 and Option D.2 which both utilise water transfer from Havant Thicket Reservoir.

The site selection for the high lift pumping station was also undertaken at this stage and informed by the identified initial pipeline routes. The following criteria were used to identify a search area for potential sites:

- Within 500 m of the initial pipeline routes;
- Within 4 km 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 high lift pumping station;
- Ground level of equal or less than 30 metres above sea level to enable sufficient hydraulic connectivity with Havant Thicket Reservoir; and
- 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.

Within this terrestrial search area, sites were then identified using the criteria set out in Table 5.

Table 5 - Criteria for terrestrial high lift pumping station sites

Element	Details
Land use	Avoidance of the following areas: <ul style="list-style-type: none"> ■ 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: <ul style="list-style-type: none"> ■ Marsh ■ Mudflat ■ Cliff face ■ Open water
Site size	Minimum of 4,620 m ² (0.4 ha)

Nine sites that met the criteria set out in Table 6 were identified. These sites were then assessed against a number of environmental, planning and engineering considerations. Five sites were progressed for further review. These are set out in Table 6.

Table 6 - High lift pumping station review 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 existing built employment space but does not have any major environmental and planning constraints and therefore could be suitable for the high lift pumping station.
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 high lift pumping station 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 high lift pumping station 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 high lift pumping station.
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 high lift pumping station would also result in the loss of woodland.

On the basis of the site assessment, it was considered that site S_HLPS_17 would be the preferred site for the high lift pumping station for Option B.4 and D.2. S_HLPS_17 is the same site as that selected for the water recycling plant. Locating the high lift pumping station at the same site as the water recycling plant would reduce the need for multiple sites and therefore reduce construction and operation phase impacts.

Sites S_HLPS_11, S_HLPS_9, S_HLPS_19 are located on land with dense woodland which could 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 is also constrained by the size of the site and the existing business use.

Initial Pipeline Routes

For the water recycling and water transfer options, a number of initial pipeline routes were developed between the infrastructure components that made up the options. Figure 2 shows the initial pipeline routes for the water recycling options, and Figure 3 shows the initial pipeline routes for the water transfer options.

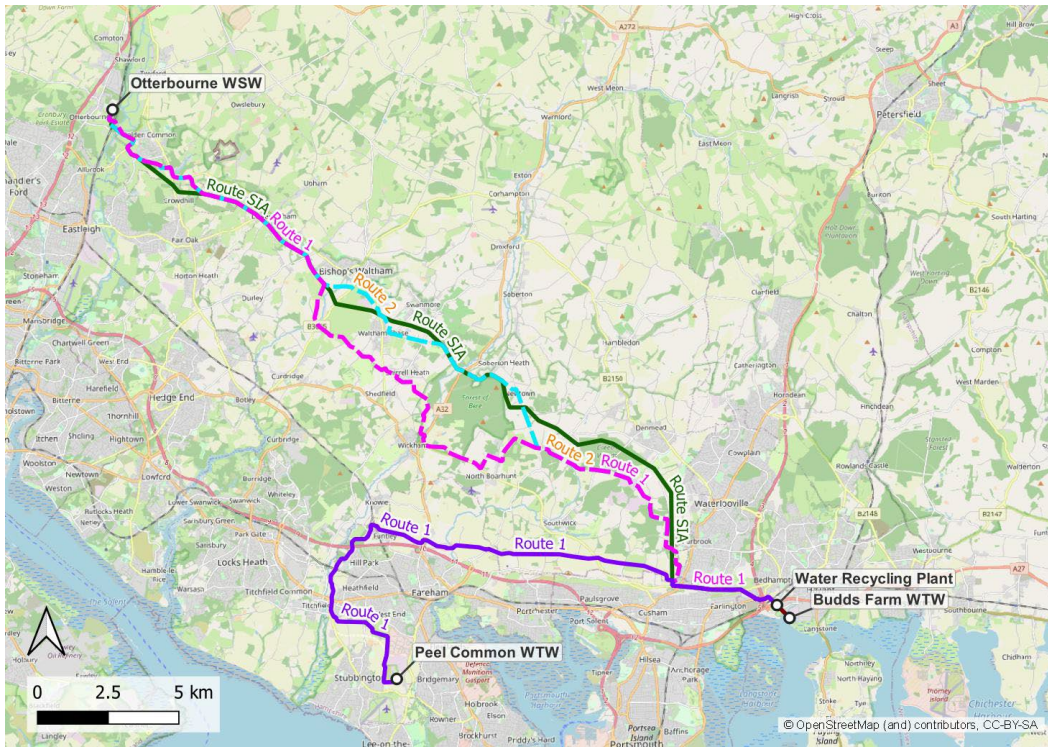


Figure 2 - Water recycling initial pipeline routes

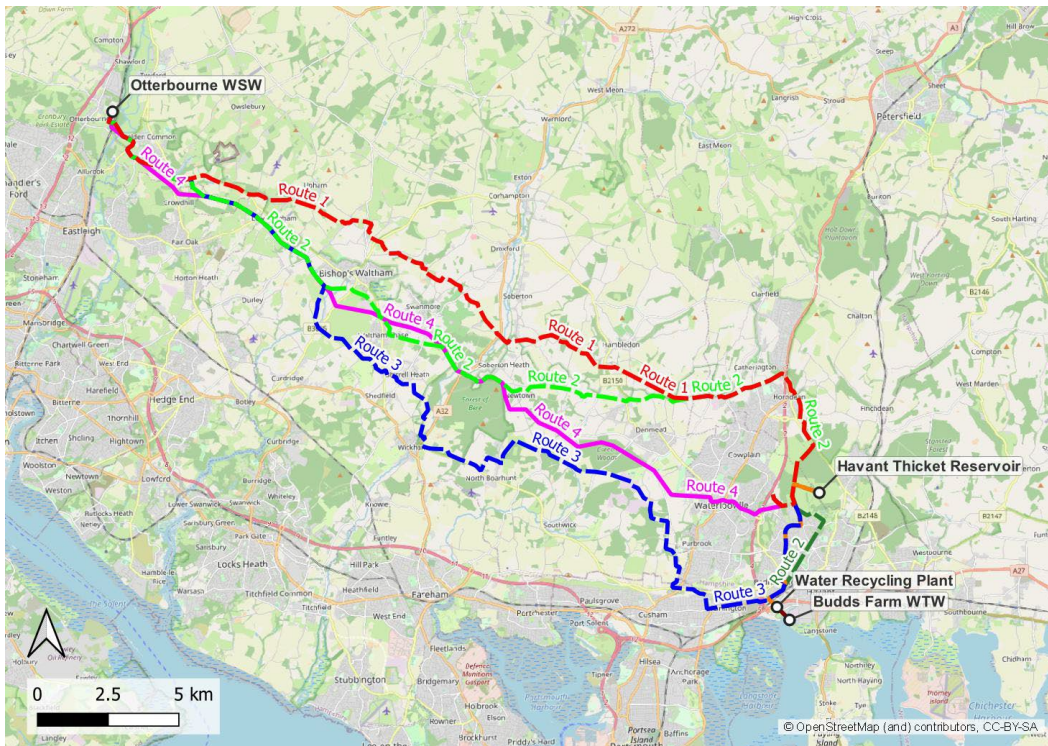


Figure 3 - Water transfer initial pipeline routes

The initial pipeline routes were then assessed against environmental, planning and engineering considerations. The criteria used for this assessment is set out in Table 13 of our Gate 2 Annex 5

Options Appraisal Process report. Table 7 sets out the outcomes for the water recycling initial pipeline routes and Table 8 sets out the outcomes for the water transfer initial pipeline routes.

Table 7 - Water recycling initial pipeline route outcomes

Water Recycling (B.2, B.4 and B.5) Initial Pipeline Route	Environmental and planning considerations
Initial Pipeline Route 1	<p>Appropriate routing and mitigation for the crossing of the River Itchen SAC would be required.</p> <p>Potential effects on ancient woodland would require appropriate mitigation to avoid potentially unacceptable effects.</p> <p>The pipeline is within the National Park but would be underground. Further work would be needed to identify siting requirements for potential pumping stations.</p>
Initial Pipeline Route 2	<p>Appropriate routing and mitigation for the crossing of the River Itchen SAC would be required.</p> <p>Potential effects on ancient woodland would require appropriate mitigation to avoid potentially unacceptable effects.</p> <p>The pipeline is within the National Park but would be underground. Further work would be needed to identify siting requirements for potential pumping stations.</p> <p>Appropriate routing would be required to reduce potential impacts on nationally designated cultural heritage features.</p>
Initial Pipeline Route SIA	<p>Appropriate routing and mitigation for the crossing of the River Itchen SAC would be required.</p> <p>Potential effects on ancient woodland would require appropriate mitigation to avoid potentially unacceptable effects.</p> <p>The pipeline is within the National Park but would be underground. Further work would be needed to identify siting requirements for potential pumping stations.</p>

Table 8 - Water transfer initial pipeline route outcomes

Water Transfer (B.4 and D.2) Initial Pipeline Route	Environmental and planning considerations
Initial Pipeline Route 1	<p>Appropriate routeing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the SPA.</p>

Water Transfer (B.4 and D.2) Initial Pipeline Route	Environmental and planning considerations
	<p>Potential effects on ancient woodland would also need to be further assessed and appropriate mitigation implemented to avoid potentially unacceptable effects.</p> <p>Initial pipeline route 1 would have a significantly impact on the National Park and greater environmental impacts when compared to the other considered initial pipeline routes and was therefore not considered a preferred initial pipeline route.</p>
Initial Pipeline Route 2	<p>Appropriate routeing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the SPA.</p> <p>Potential effects on ancient woodland would also need to be considered further and appropriate mitigation implemented to avoid likely unacceptable effects. There would be a potentially greater impact on ancient woodland associated with this initial pipeline route owing to the routing north along the edge of Staunton Country Park.</p> <p>This initial pipeline route would have the least impact on the South Downs National Park out of all the options, and would have fewer environmental impacts from a landscape perspective compared to initial pipeline route 1.</p>
Initial Pipeline Route 3	<p>Appropriate routeing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the SPA.</p> <p>Potential effects on ancient woodland would also need to be considered further and appropriate mitigation implemented to avoid potentially unacceptable effects. The environmental impact associated with this initial pipeline option is considered to be lower than for initial pipeline routes 1 and 2, including the potential impact on ancient woodland.</p> <p>This initial pipeline route would have a limited impact on the South Downs National Park and would have fewer environmental impacts from a landscape perspective compared to initial pipeline route 1.</p>
Initial Pipeline Route 4	<p>Appropriate routeing and mitigation of watercourse crossings would be required to avoid potential impacts on the integrity of the SPA.</p> <p>Effects on ancient woodland would also need to be considered further and appropriate mitigation implemented to avoid potentially unacceptable effects.</p> <p>This initial pipeline route would have a limited impact on the South Downs National Park and would have fewer environmental impacts from a landscape perspective compared to initial pipeline route 1.</p>

The outcomes of the initial pipeline route evaluation were as follows:

- **Water recycling options** - All three initial pipelines route options performed in a comparable way and each needed to cross the River Itchen SAC prior to connecting into Otterbourne Water Supply Works. All routes ran partially through the South Downs National Park and would have required appropriate siting to avoid impacts on ancient woodland. It was concluded that initial pipeline route 1 and initial pipeline route 2 would be progressed. Initial pipeline route SIA was not progressed as it would have intersected the South Downs National Park for a greater distance. Initial pipeline route 1 would have provided optionality around the Forest of Bere to take a northern route which intersected the South Downs National Park, whilst initial pipeline route 2 would take a southern route outside of the National Park which would have been longer.
- **Water transfer options** - All initial pipeline routes considered at this stage in the process would have intersected the South Downs National Park. However, initial pipeline route 1 would have a significantly greater impact than the other initial pipeline routes. Therefore, it was not considered a preferred option in view of the availability of other alternatives. All initial pipeline routes considered at this stage had potential to impact on the SPA associated with the crossings of designated watercourses. As such, all routes would have required appropriate design of the crossings to avoid impacts to the integrity of the SPA where possible. All options had the potential to affect areas of ancient woodland, with initial pipelines routes 1 and 2 potentially having a greater impact on ancient woodland where they were in proximity to the northern edge of Staunton Country Park. As a result initial pipeline routes 1 and 2 were not progressed further.

Option Configurations

Following the site and route selection, the sites and routes that were selected were combined to build a configuration for each option that was evaluated in further detail as summarised in the following subsections. For example, Option B.4 (which became the Project) comprised of the following components:

- Site WRP_72 for the water recycling plant.
- S_HLPS_17 for the high lift pumping station.
- Water recycling initial pipeline routes 1 and 2 and water transfer initial pipeline routes 3 and 4.

2.2.2. Evaluation and Assessment of Options

Following the site and route selection which identified a configuration for each solution, various evaluations and assessments were undertaken to consider the suitability of the options against a range of factors. This comprised a consenting evaluation, a multi-criteria decision analysis which reviewed the options against best value criteria, and a review against legal, policy and Water for Life Hampshire strategic objectives.

The process and outcome of these evaluations and assessments are set out in the 2022 Scheme Development Summary.

2.2.3. Interim Business Evaluation

Following the evaluation and assessment of options, at the interim business evaluation stage, the options were then ranked in relation to each other on their performance in these evaluations and assessments. The interim business evaluation was undertaken on options that had been scaled to meet a 1-in-200-year drought event, which at the time of Stage 2 was the drought scenario that we had to plan for as part of WRMP19. Table 9 sets out the ranking of options at the interim business evaluation.

Table 9 - Ranking of options at the interim business evaluation

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	Desalination	=5
A.2	Desalination	=5

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. Options D.2 and B.4 were also considered the most adaptable because of the flexibility and ability to evolve as a result of being integrated with Havant Thicket Reservoir.

Options B.2 and B.5 were ranked third and fourth respectively, with neither option performing as well against the 'adaptability' objectives in the WfLH strategic objectives as Options D.2 and B.4.

Option A.1 and A.2 had a greater likelihood of leading to a range of significant environmental impacts, including the potential to harm the integrity of a SPA, which is a European designated site and afforded the highest level of protection under legislation and the National Policy Statement for Water Resources Infrastructure (NPSWRI). Therefore, they were not considered preferable, as there were other options that would lead to fewer impacts. These options were therefore ranked the joint fifth and least favoured options and not progressed further.

2.2.4. Future Needs Assessment

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 water companies to plan for supplying water in an extreme drought event (1-in-500-year drought event) in their WRMPs is set out in the EA's National Framework for Water Resources Policy and the Water Resources Planning Guideline. As set out in the NPSWRI, if a company identifies a future deficit it will need to assess the options to eliminate this deficit and justify its preferred options within its WRMP. Our draft WRMP (which will replace WRMP19) selects the Project as part of a package of solutions to meet future need, including the need to deliver water resources during an extreme drought event. The future needs assessment undertaken as part of Stage 2 tested whether the required capacity of the options could be expanded to meet a deployable output requirement of between 87 to 95 MI/d.

Options B.2 and D.2 were not capable of meeting the updated deployable output of 87 MI/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 87MI/d which would have met the updated deployable output requirement. As such, both options were considered viable. Option B.4 was regarded as more preferable than Option B.5 in adaptability terms as the integration with Havant Thicket Reservoir offered greater resilience.

2.2.5. Final Business Evaluation

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:

- Option B.4 was considered to carry a marginally lower consenting risk compared to Option B.5 as a new environmental buffer was not required. Development of a new environmental buffer could result in additional adverse environmental impacts, whereas Option B.4 would utilise Havant Thicket Reservoir.
- Option B.4 would likely have a shorter construction and commissioning duration than Option B.5 which reduces the length of time that temporary measures are needed, such as using Drought Orders and Drought Permits to maintain water supply obligations.
- 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. This is because the flexibility afforded by the integration of Havant Thicket Reservoir and the water recycling technology as an integrated solution offering potential beyond Southern Water's Hampshire supply zones. Unlike Option B.5, Option B.4 is not wholly reliant on a single water resource technology which could become a single point of failure.

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 resilient solution with benefits beyond Southern Water's Hampshire supply zone.

At our Gate 2 submission, Option B.4 was confirmed as the selected option, and became the Project which is being progressed through the consenting process, and Option B.5 was selected as the back-up option.

2.3. Stage 3: Scheme development (up to Summer 2022 Consultation)

At Stage 3, the initial pipeline routes selected at Stage 2 were expanded into pipeline corridors to allow for micro siting and refinement of the pipeline route at later stages, taking account of local constraints. We also identified some new routes in the proximity of the initial pipeline routes to ensure that all potential options were considered. Where new routes were identified, these were checked against the criteria for identified pipeline routes used at Stage 2. The selection of pipeline routes to be taken forward for development into pipeline corridors, and the process undertaken to develop pipeline corridors, is set out in Section 4.3 the 2022 Scheme Development Summary.

The pipeline corridors avoided existing development and environmental designations including ancient woodland, where possible. 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 pipeline corridor which was presented and consulted upon at the Summer 2022 Consultation.

To identify sites for the above ground plant, wider zones were identified within the pipeline corridor sections where the above ground plant could feasibly be sited from an engineering perspective. At later stages of the process, sites would then be identified within the above ground plant zones. The factors used to identify the above ground plant zones were as follows:

- Hydraulics data
- Emergency discharge availability/impact
- Dimensions – land take/maximum envelope for the infrastructure
- Proximity requirements, especially in relation to the pipeline
- Access arrangements
- Energy requirements
- Other associated development required.

The pipeline corridor sections and above ground plant zones were then evaluated against criteria developed by subject matter experts in consultation with stakeholders. The evaluation comprised of assessments from the following subject matter experts to identify any constraints that may pose risks in terms of deliverability and conflicts with relevant planning and environmental legislation, regulations and policy:

- Constructability
- Biodiversity and nature conservation
- Flood risk
- Geology and soils
- Historic environment
- Hydraulics and engineering
- Landscape and visual amenity
- Socio-economics
- Land
- Water quality and resources.

The pipeline corridor sections that were identified and assessed are shown in Figure 4.

Hampshire Water Transfer and Water Recycling Project
2024 Scheme Development Summary

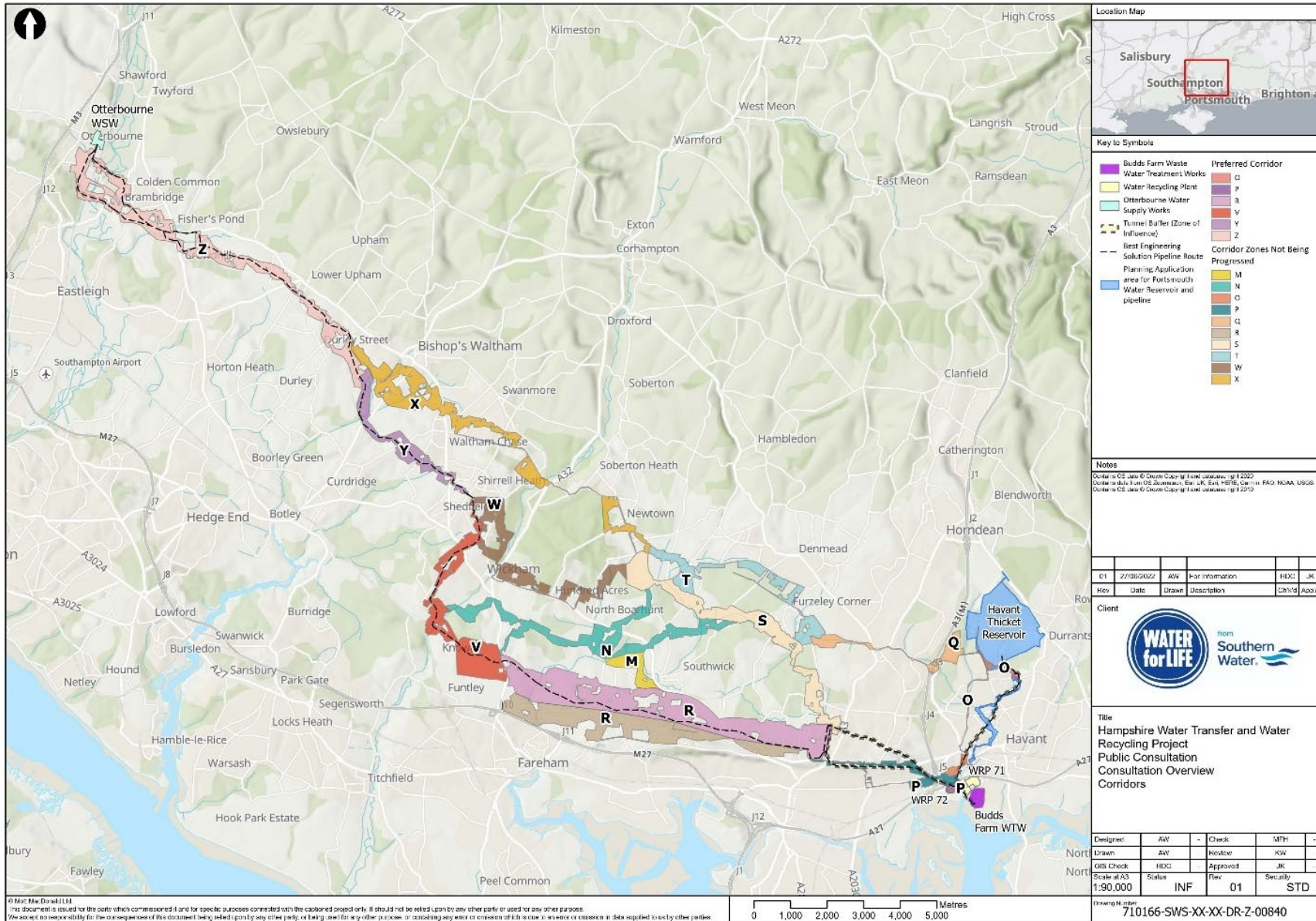


Figure 4 - Pipeline corridor sections identified and assessed prior to the Summer 2022 Consultation

Some pipeline corridor sections were not progressed as they intersected with the South Downs National Park, which is a national landscape designation that is afforded the highest level of protection in the NPSWRI. The selection of a preferred pipeline corridor sought to reduce intersections with and proximity to sensitive environmental designations including ancient woodland, priority habitats, designated ecological sites and flood risk zones, as far as practicable.

The potential for introducing additional above ground plant as a result of selecting pipeline corridor sections that would have greater topographical variation was also considered in the evaluation of pipeline corridor sections, as it was considered that the effects of the above ground plant during the construction and operation phases would be greater than those effects for the pipeline. This is because the above ground plant would have a permanent presence and associated impact, in comparison to the pipeline which would be buried underground and would have reduced impacts during the operational period of the Project. Impacts associated with the permanent presence of above ground plant may include landscape and visual impacts to certain receptors. Therefore, pipeline corridor sections that would introduce greater topographical variation were not progressed as a result of requiring more above ground plant sites (and therefore more impacts) to support the flow of water in the pipeline, compared to those pipeline corridor sections that had less topographical variation.

The identified zones were assessed using the same evaluation criteria that were used for the pipeline corridor sections. As some pipeline corridors were not progressed, the above ground plant zones identified just for these sections were not considered any further. Additionally, other above ground plant zones were not progressed because of their proximity to the South Downs National Park and Scheduled Monuments.

The evaluation process resulted in the selection of the preferred pipeline corridor and above ground plant 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.

The preferred pipeline corridor as presented at the Summer 2022 Consultation is shown on Figure 5.

**Hampshire Water Transfer and Water Recycling Project
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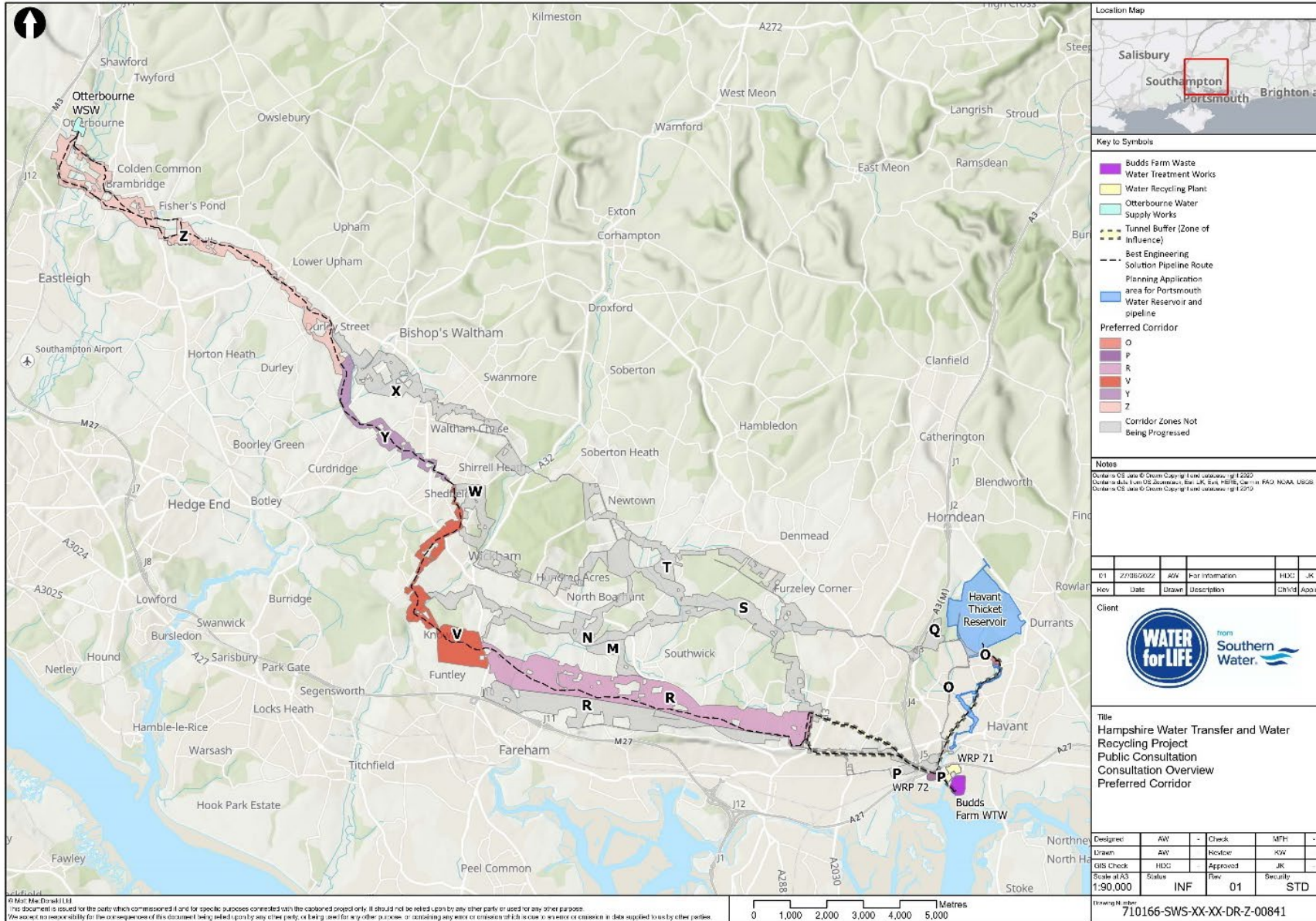


Figure 5 - Preferred pipeline corridor presented at the Summer 2022 Consultation

2.4. Pipeline Section Naming Updates

Following the identification of the preferred pipeline corridor at Stage 3, new section boundaries were defined to better align with Local Authority district boundaries, and physical features such as significant roads. The naming of the pipeline sections making up the preferred pipeline corridor were updated to avoid any confusion with pipeline corridor sections not proposed to be progressed at that time. The updated naming also enabled the sections to be ordered sequentially.

The preferred pipeline corridor as presented at the Summer 2022 Consultation consisted of the following pipeline corridor sections as show in Figure 5:

- Section O
- Section P
- Section R
- Section V
- Section Y
- Section Z

The updated naming of the pipeline corridor sections is set out in Table 10 and Figure 6 below.

Table 10 - Pipeline section naming updates

Previous Section Naming	Updated Section Naming	Local Planning Authority
Section O	Section A	Havant Borough Council
	Section B	Havant Borough Council
Section P	Section C	Havant Borough Council
	Section D	Havant Borough Council
		Portsmouth City Council
Winchester City Council		
Section R	Section E	Portsmouth City Council
	Section F	Winchester City Council
Section V	Section F	Fareham Borough Council
	Section G	Winchester City Council
	Section H	Winchester City Council
Section Y	Section H	Winchester City Council
	Section J	Winchester City Council
	Section K	Winchester City Council
Section Z	Section K	Winchester City Council
	Section L	Eastleigh Borough Council
		Winchester City Council
Section M	South Downs National Park Authority Winchester City Council	

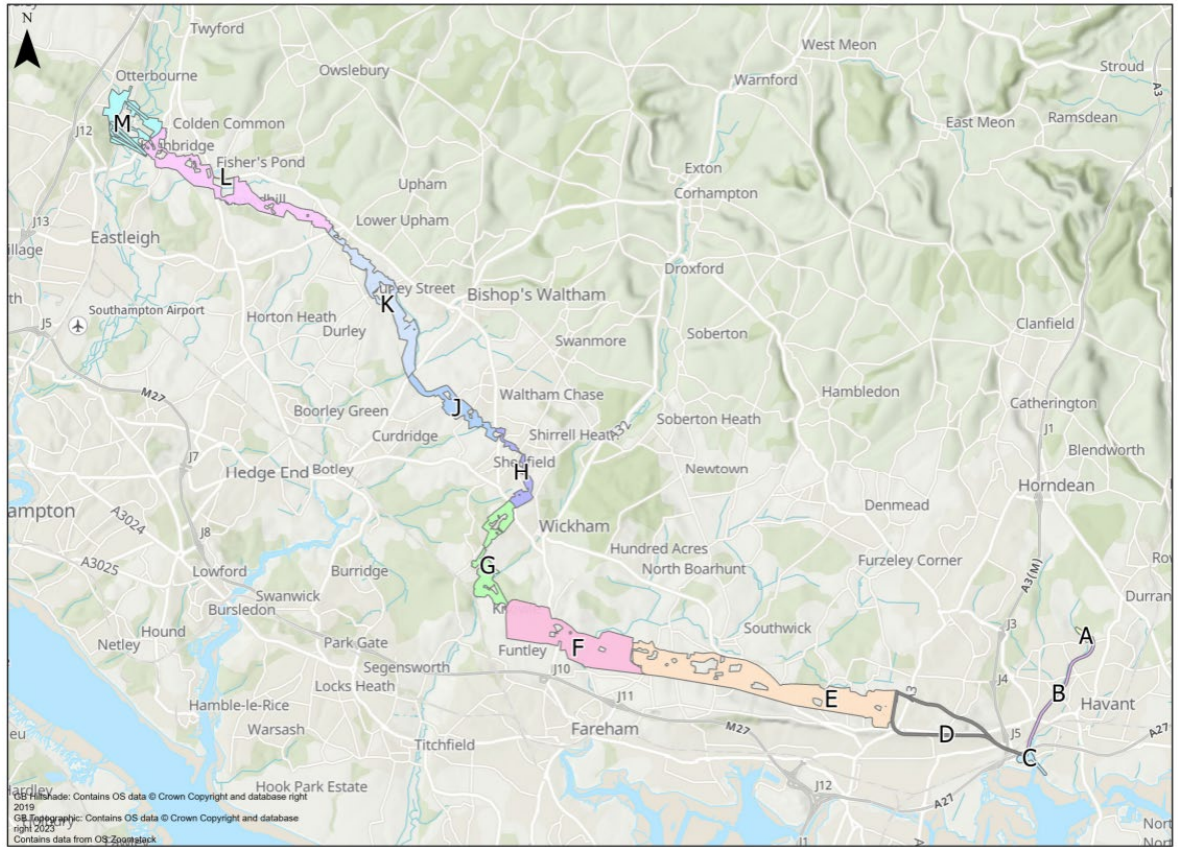


Figure 6 - Updated pipeline section naming

3. Stage 4: Scheme Development (Summer 2022 Consultation to Summer 2024 Consultation)

3.1. Design Development approach and methodology

3.1.1. Identification of the proposed pipeline route

At the Summer 2022 Consultation, feedback was sought on the preferred pipeline corridor including on several areas of optionality. Within the preferred pipeline corridor, a BESPR was also presented which indicated a hydraulically optimal location for the pipeline, considering the topography of the preferred pipeline corridor.

The starting point in developing a pipeline route at Stage 4 was the BESPR. Locations where amendments or consideration of different construction methods may be required were identified, such that the optimum routing of the pipeline could be achieved, including taking account of known local factors and constraints. This was informed by feedback received from the Summer 2022 Consultation, ongoing engagement with stakeholders and statutory bodies, ongoing environmental surveys and assessments, and engineering and land investigations. Areas of optionality in the BESPR were also refined at Stage 4.

At locations where routing refinements or amendments, or consideration of different construction methods for the BESPR were identified, evaluations were undertaken by a multi-disciplinary team made up of environmental specialists, engineers and planners, to determine whether changes to the BESPR were required to refine the route to avoid constraints and sensitivities. Examples of these changes include;

- Identification of protected species or valuable habitats in close proximity to the BESPR;
- Identification of veteran or ancient trees in close proximity to the BESPR; and
- Identification of existing businesses on land intersected by the BESPR.

This was informed primarily by identifying whether the construction and operation of BESPR had any conflicts with the NPSWRI, however it also considered a range of other environmental legislation, policy and guidance including:

- National Planning Policy Framework (2023) (NPPF).
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.
- The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitat Regulations).

If constraints on the BESPR were identified, we developed potential alternative pipeline routes within the preferred pipeline corridor, or alternative construction methodologies which could reduce conflicts with the identified constraints. When developing potential alternative pipeline routes or construction methodologies, we considered engineering factors to ensure that the alternatives were practical and deliverable. These engineering factors comprised of:

- The hydraulic feasibility of the option. Routing that had introduced large topographical changes and therefore large impacts on the overall hydraulic profile of the pipeline between Havant Thicket Reservoir and Otterbourne WSW were not considered as they may require additional above ground plant.
- The constructability of the option in relation to the availability of access and the availability of space within the surrounding area to undertake construction tasks.

- Whether there were interfaces with existing utilities that would pose significant constructability challenges.

Where feasible alternative routing options to the BESPR were identified in line with the above, an environmental and planning evaluation was undertaken to determine which option was preferred against the criteria that are informed by the NPSWRI and environmental legislation, policy and guidance. The evaluation considered the criteria and sub-criteria set out in Table 11.

Table 11 - Evaluation criteria and sub-criteria for considering pipeline and site options

Evaluation Topic	Sub-criteria
Air Quality	Impact of dust emissions
	Impact of non-road mobile machinery (NRMM)
	Impact of vehicular emissions
	Impact of odour emissions
Biodiversity and Nature Conservation	Impact on internationally designated sites
	Impact on priority habitats
	Impact on nationally designated sites
	Protected species
	Regional and local designated sites
Carbon and Climate Change	Embodied carbon
	Other emissions (road transport, plant and equipment)
	Operational carbon emissions
	Climate adaptation and resilience
Geology and Soils	Impact on designated sites
	Risk of mobilisation of contaminants as a result of proximity to landfills, other contaminating industry etc.
Historic Environment	Impact on nationally important historic environment assets including scheduled monuments, grade I and II* listed buildings, grade I and II* registered park and gardens.
	Impact on regionally important historic environment assets
	Impact on areas of high archaeological potential and complexity
	Impact on buildings and other non-designated heritage assets of local interest
	Historic landscapes
	Historic Environment Record (HER) data
Interface with Other Development	Interface with existing development (not brownfield land)
	Interface with consented Nationally Significant Infrastructure Projects (NSIPs) NSIPs in the pre-application process
	Interface with development consented under the Town and Country Planning Act (TCPA) (other development)
	Interface with TCPA development applications.
	Interface with Minerals and Waste sites
	Interface with strategic land allocations (Strategic Housing Land Availability Assessment (SHLAA) / Strategic Housing and Economic Land Availability Assessment (SHELAA) etc)

Evaluation Topic	Sub-criteria
	Interface with Minerals and Waste allocations
	Interface with neighbourhood plan policy specific areas – housing/ employment sites
Landscape and Visual Amenity	Impacts on nationally designated areas, National Landscapes, National Parks and Areas of Outstanding Natural Beauty (AONB)
	Impact on regional/county/local landscape designations
	Impacts on landscape/townscape character
	Impact on visual amenity
Noise and Vibration	Direct airborne noise
	Direct ground-borne noise impacts from tunnelling
	Direct vibration impacts
	Indirect noise impacts due to traffic
Resource and Waste Management	Waste generation (landfill)
	Impact on Mineral Safeguarding Areas and sterilisation of mineral resources
	Impact on Minerals and Waste Safeguarded Sites
Socio-economic Impact	Residential and commercial property
	Recreation, open space and tourism
	Community facilities
	Population and health
Special Category Land	Impact on Crown Land
	Impact on Statutory Undertaker Land
	Impact on Open Space
	Impact on National Trust Land
	Impact on common land
Traffic and Transport	Impact on shipping and navigation
	Impact on marine vessel users
	Impact on road users (including bus)
	Impact on rail users
	Impact on airfields and airports
	Impact on pedestrians
	Impact on cyclists
	Impact on equestrians
Water quality and resources and flood risk	Impact on sediment and water quality in terrestrial waters
	Impact on watercourse geomorphology and hydrology
	Impact on groundwater bodies
	Impacts on water-dependent protected areas
	Impact on flood risk comprising fluvial flood risk, surface water flood risk (including surface water flow paths), groundwater flood risk and reservoir flood risk.

The outcomes from the evaluations identified which option would likely have the least potential environmental impacts alongside any engineering and constructability constraints.

Once amendments or refinements to routing, or changes to construction methods, had been undertaken to the BESPR, a pipeline route was identified. Micrositing was then undertaken to further define the preferred location for the pipeline route and determine the draft Order Limits, which represents the area required to implement the Project. Construction compounds were also identified and developed at this stage.

To undertake micrositing, all linear features intersected by the pipeline route were reviewed to determine the environmental sensitivity of the linear feature. This considered the potential impacts that could occur as a result of a 40 m open cut trench construction working width intersecting the linear feature. A 40 m working width is considered to be the typical maximum working width that would be required to construct the water transfer pipelines. The review aimed to identify whether amendments could be undertaken to further avoid or reduce potential environmental impacts. The following linear features intersected by the preferred pipeline route were reviewed:

- Vegetation including hedgerows, trees and dense scrub.
- Watercourses.
- Roads.
- Private access routes.
- Public Rights of Way (PRoW).

Following the review and assignment of environmental sensitivity to the linear features, the following actions were considered to determine if environmental impacts could be further reduced:

- Whether an alternative route or minor amendment would reduce the potential for environmental impacts.
- Whether a reduced working width of 20 m (the minimum reduced working width) when intersecting the linear feature would reduce the potential for environmental impacts.
- Whether use of trenchless construction under the linear feature would reduce the potential for environmental impacts.

The choice of action was informed by the environmental sensitivity of the linear feature. For example, for linear features with greater environmental sensitivity, it was identified that a trenchless crossing would be needed to avoid or minimise the potential environmental impact.

The micrositing stage also included implementing buffers from key features in the proximity of the pipeline route and draft Order Limits that were being determined. This included implementing 15 m buffers from ancient woodland, and 30 m from particular protected species. Buffers were implemented where technically feasible considering other constraints and whether there would be sufficient space to construct the water transfer pipelines following implementation of the buffers.

In some locations we have retained flexibility within the draft Order Limits. This is either to allow for refinement following further investigations, engagement and consultation feedback following the Summer 2024 Consultation, or to allow for the final pipeline route to be selected at the detailed design stage following completion of surveys prior to construction. Where flexibility is being retained in the Order Limits at the Development Consent Order application stage, the justification for this will be set out.

Section 3.2 to Section 3.12 set out the outcomes of the process that has been undertaken to identify the pipeline route within each pipeline section. Within these subsections, any amendments and

refinements made to the BESPR are outlined, as well as a summary of any micro-siting that was undertaken, including how the draft Order Limits and locations of construction compounds were identified.

3.1.2. Above Ground Plant

At the Summer 2022 Consultation, potential zones for above ground plant (which include intermediate pumping stations and break pressure tanks) were presented. This included an overview of the process to develop and evaluate these above ground plant zones. Following the Summer 2022 Consultation, above ground plant sites within these wider zones were identified, having regard to feedback from the Summer 2022 Consultation, ongoing engagement with relevant stakeholders and statutory bodies, environmental surveys and assessments, and engineering investigations.

Throughout the development of the pipeline route, for which the approach is set out in Section 3.1.1, the hydraulic profile of the developing pipeline route was reviewed. This was undertaken at regular intervals to identify whether any developments of the pipeline route would necessitate any changes to the above ground plant that would be required to support the transfer of water within the pipelines. Therefore, this process included incorporating any additional above ground plant zones where required to ensure that water could be transferred from Havant Thicket Reservoir to Otterbourne WSW. Where additional above ground plant zones were identified, the identification and evaluation of these to determine their suitability was undertaken in line with the process set out at Stage 3 in Section 2.3.

To refine above ground plant siting within the wider zones, optimal sites from an engineering perspective were first identified. These sites were identified by applying the following criteria:

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

Following the identification of the initial optimal sites, an evaluation was undertaken to identify constraints. The evaluation used the same methodology and sub-criteria as the evaluation of alternative pipeline routes set out in Section 3.1.1. Where major constraints were identified, consideration was given to whether an alternative above ground plant site within the wider zone would avoid or minimise those major constraints without giving rise to any further major constraints. Major constraints are considered to arise when construction and operation of the above ground plant would have the potential for environmental impacts that could not be mitigated through the design or treatment of the above ground plant, or standard mitigation measures. If it was not possible to identify an alternative site within the zone that would avoid major constraints, consideration was given to whether an alternative site in the proximity of the zone would avoid or minimise those major constraints without introducing any further major constraints. These steps were undertaken considering the impacts on the hydraulics of the pipeline route, and the siting criteria set out above. Where selecting an alternative site that would not avoid major constraints, consideration was then given to mitigation or design measures that could be implemented to reduce or avoid the major constraints.

3.1.3. Construction Compounds

The following construction compounds are required across the Project.

- Sectional site compounds: Located at intervals along the underground pipeline between Havant Thicket Reservoir and Otterbourne WSW.
- Trenchless construction compounds: Required where trenchless construction is proposed.
- Tunnelling construction compounds: Required to accommodate tunnel launch, intermediate or reception shafts.
- Above ground plant and water recycling plant construction compounds: Land required to facilitate construction of the above ground plant and water recycling plant.
- Water storage lagoon construction compounds: To facilitate commissioning of the water transfer pipelines.

These construction compounds have been developed alongside the development of the pipeline routes as the location of the construction compounds is informed by the pipeline route. However, the pipeline route has also been influenced by the site selection of the construction compounds. This is because in some locations, potential environmental effects associated with activities undertaken at construction compounds may be greater than the potential environmental effects associated with activities undertaken to construct the pipeline route.

Construction compounds were initially identified by considering the optimal location from an engineering perspective. This was done in consideration of the following factors:

- Locating the site in close proximity to the existing road network to reduce access road lengths.
- Locating the site on even topography for ease of construction and to minimise any required earthworks.
- Avoiding high risk flood zones.
- Avoiding any existing utilities.
- Locating the sites to utilise any existing vegetation as screening from visual receptors.

Following the identification of optimal construction compounds, the construction compounds were evaluated. The evaluation used the same methodology and sub-criteria as the evaluation of alternative pipeline routes set out in Section 3.1.1. Where major constraints were identified, consideration was given to whether the locations of construction compounds could be amended to avoid or reduce the identified constraints.

3.2. Section A and Section B

Section A and Section B comprise the pipeline route sections containing the pipelines between the water recycling plant and Havant Thicket Reservoir. Two pipelines would be required, one pipeline would transfer recycled water from the water recycling plant to Havant Thicket Reservoir, and the other pipeline would transfer source water from Havant Thicket Reservoir back to the high lift pumping station which would be located at the site of the water recycling plant, for onwards transfer to Otterbourne WSW.

3.2.1. Summer 2022 Consultation

At the Summer 2022 Consultation, our tunnelled option between the water recycling plant and south of Havant Thicket Reservoir was presented and consulted on. A tunnelled option was chosen as this would minimise construction works at surface level in Havant which is a densely populated area.

Open cut construction was proposed to connect the tunnel reception shaft to Havant Thicket Reservoir.

Figure 7 shows Section A and Section B of the Project as presented at the Summer 2022 Consultation.

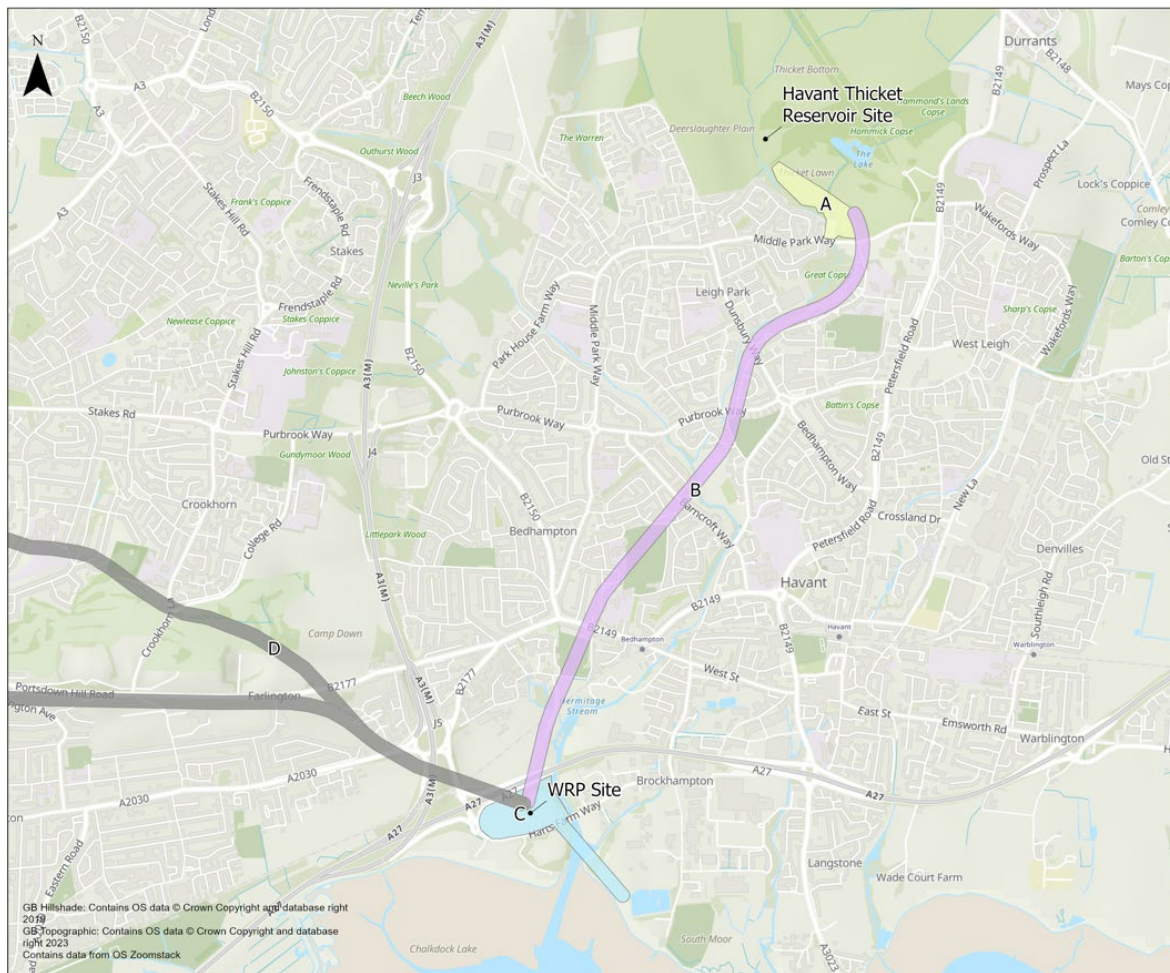


Figure 7 - Section A and B as shown at the Summer 2022 Consultation

3.2.2. Design development following the Summer 2022 Consultation

Design development of the pipelines within Section A and Section B between Havant Thicket Reservoir and the water recycling plant site has comprised:

- Considering opportunities to collaborate with Portsmouth Water and integrate the Project with new pipeline infrastructure being proposed for the Havant Thicket Reservoir Project between Bedhampton Springs and the reservoir. A pipeline route for additional pipelines between the water recycling plant and Bedhampton Springs were developed as part of this integrated solution with Portsmouth Water.
- Selection of a tunnel reception shaft for our tunnelled option between the water recycling plant and Havant Thicket Reservoir as presented at the Summer 2022 Consultation.
- Selection of an intermediate tunnel shaft for our tunnelled option between the water recycling plant and Havant Thicket Reservoir as presented at the Summer 2022 Consultation.

These developments are explained below.

Preferred option between the water recycling plant and Bedhampton Springs

Following the Summer 2022 Consultation, we have been exploring opportunities in collaboration with Portsmouth Water to realise efficiencies from the integration of our Project with Portsmouth Water's Havant Thicket Reservoir scheme. Portsmouth Water is proposing twin pipelines to transfer spring water from Bedhampton Springs to Havant Thicket Reservoir and bring source water from the reservoir back to Bedhampton Springs (effectively inlet and outlet pipes to and from the reservoir). Portsmouth Water already has consent for a single bidirectional pipeline between Bedhampton Springs and the reservoir but is now proposing twin pipelines to provide additional resilience and to futureproof for potential integration with our Project, if consented. Bedhampton Springs is an existing groundwater abstraction site operated by Portsmouth Water and Havant Thicket Reservoir is a new reservoir north of Havant which Portsmouth Water received planning permission for in October 2021 (Havant Borough Council planning application reference: APP/20/00990 and East Hampshire District Council planning application reference: 51680/001).

Should Portsmouth Water receive consent for its twin pipelines between Bedhampton Springs and Havant Thicket Reservoir, we would seek to utilise these pipelines to transfer recycled water from the water recycling plant to Havant Thicket Reservoir and source water from Havant Thicket Reservoir back to the high lift pumping station (located at the site of the water recycling plant). To do this, we would need to construct our own pipelines between the water recycling plant and Bedhampton Springs so that we can connect into the inlet and outlet pipelines that Portsmouth Water is proposing between Bedhampton Springs and Havant Thicket Reservoir.

The combined approach involving the use of pipelines being proposed by Portsmouth Water is our clear preference as it would remove the need for us to construct our own tunnel under Havant to transfer water to and from the Havant Thicket Reservoir. Utilising pipelines being proposed by Portsmouth Water would demonstrate effective partnership working between neighbouring water companies in the interests of a delivering a better value solution. Constructing one set of pipelines would reduce overall disruption on local communities and the environment and would reduce resource use and costs. Therefore, the Southern Water tunnelled option presented at the Summer 2022 Consultation is regarded as our backup option.

If Portsmouth Water is not able to secure consent for or deliver its pipelines, we will need to rely on our backup tunnel option to transfer water between the water recycling plant and Havant Thicket Reservoir. We are currently including both options within the Project to ensure future flexibility, however only one option would be constructed and delivered. If the consenting and delivery of Portsmouth Water's twin pipelines is confirmed, we may consider de-scoping our tunnelled (backup) option from our DCO application, but this would depend on the stage we are at in the consenting process.

As part of developing the preferred option where we use Portsmouth Water's proposed pipelines from Bedhampton Springs, we have identified and assessed routes for the pipelines required between the water recycling plant and Bedhampton Springs. Figure 8 shows the location of the water recycling plant, Bedhampton Springs, Havant Thicket Reservoir and the preferred and backup options for the pipelines.

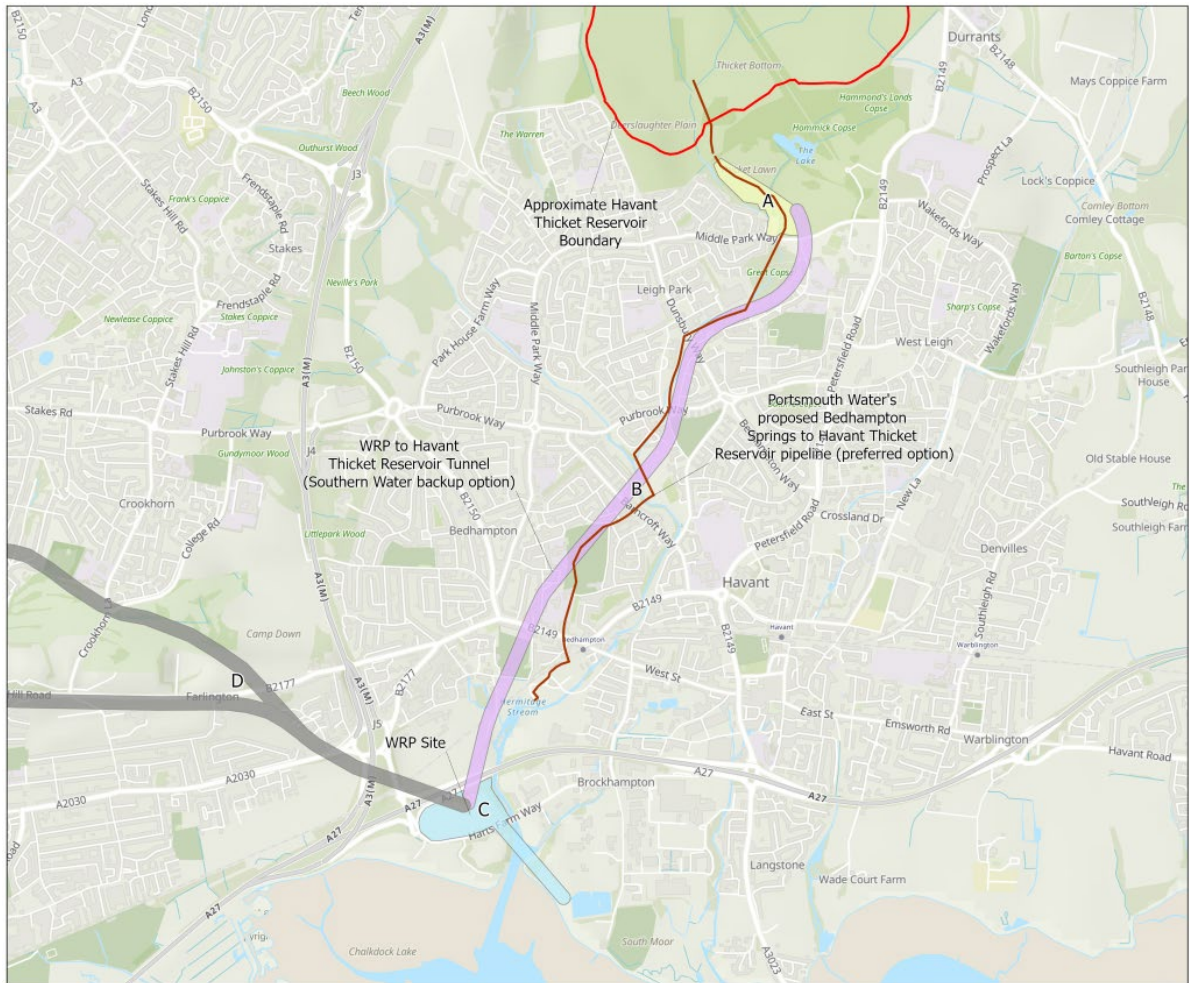


Figure 8 - Portsmouth Water pipelines alongside Section A and B

Two route options for our back-up option were identified for the pipelines between the water recycling plant and Bedhampton Springs. Option 1 is shown in Figure 9 and Option 2 is shown in Figure 10. Further options were considered but they did not align with the engineering considerations that were applied to identify alternative pipeline route options as set out in Section 3.1.1.

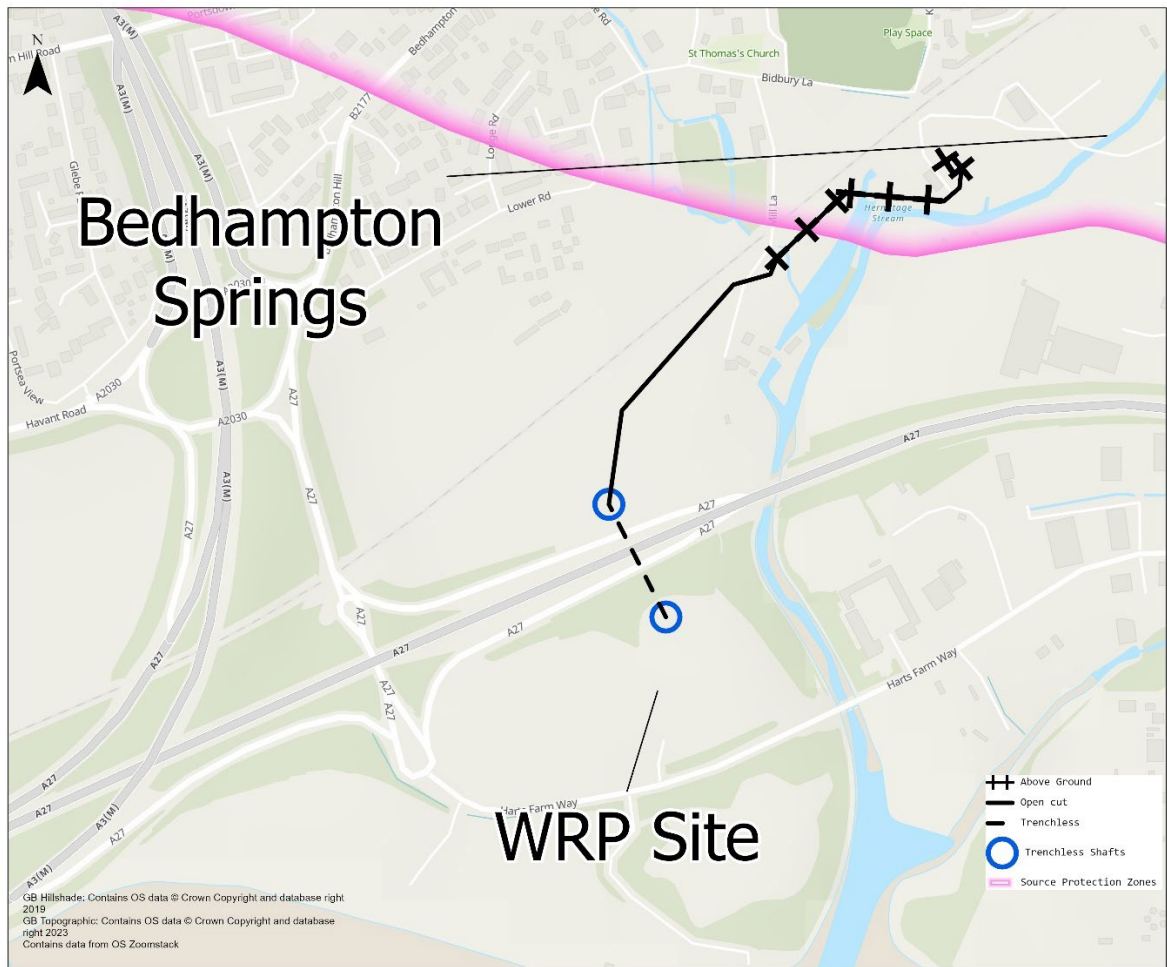


Figure 9 - Water recycling plant to Bedhampton Springs Option 1

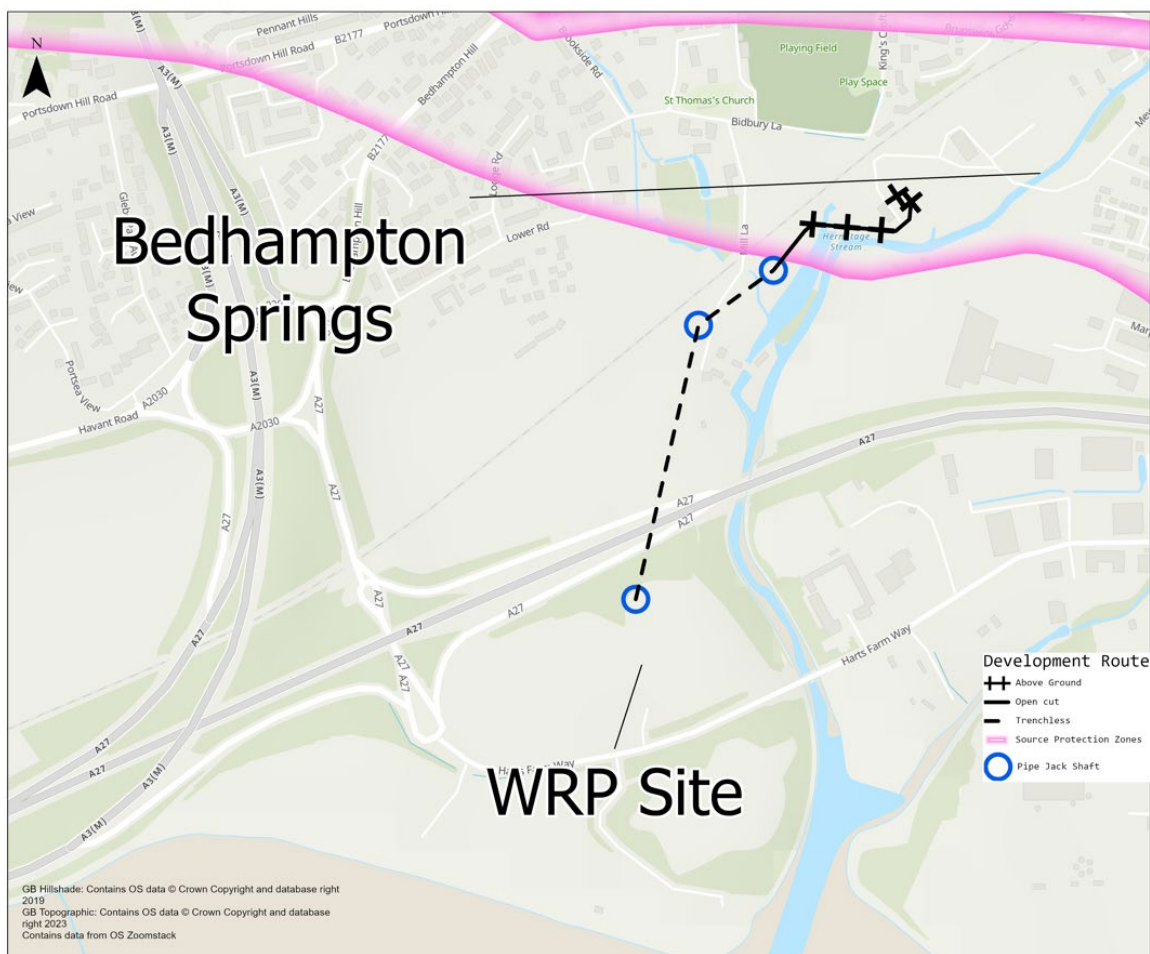


Figure 10 - Water recycling plant to Bedhampton Springs Option 2

Option 1 comprises trenchless construction north from the water recycling plant site under the A27, to agricultural land north of the A27. Open cut construction would then be used through the agricultural land, across Mill Lane. The pipeline would be constructed within Portsmouth Water’s Bedhampton Springs site (northeast of Mill Lane) using construction techniques that are sensitive to the Source Protection Zone (SPZ) which protects groundwater abstraction at Bedhampton Springs.

Option 2 comprises trenchless construction north from the water recycling plant site under the A27, to agricultural land west of Mill Lane. Trenchless construction would then be used under Mill Lane to a location northeast of Mill Lane. From here, the pipeline would be constructed above ground within Portsmouth Water’s Bedhampton Springs site as above.

Table 12 sets out the outcomes of the review of Option 1 and Option 2.

Table 12 - Pipelines between the water recycling plant and Bedhampton Springs evaluation outcomes

Topic	Option 1	Option 2
Air Quality	<ul style="list-style-type: none"> Closest residential properties are located 30 m south which may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Closest residential properties are located 35 m south which may be subject to adverse air quality impacts.
Biodiversity	<ul style="list-style-type: none"> Approximately 370 m from Chichester and Langstone Harbours SPA and Ramsar and Solent Maritime SAC. 	<ul style="list-style-type: none"> Approximately 370 m from Chichester and Langstone Harbours SPA and Ramsar and Solent Maritime SAC.

Topic	Option 1	Option 2
	<ul style="list-style-type: none"> Intersects a hedgerow with trees as a result of open cut construction. Approximately 7 m from floodplain grazing marsh priority habitat at the Hermitage Stream. 	<ul style="list-style-type: none"> In close proximity to hedgerow with trees Approximately 7 m from floodplain grazing marsh priority habitat at the Hermitage Stream.
Carbon	<ul style="list-style-type: none"> For both options, construction and operation of the pipelines would result in the generation of carbon, however these are anticipated to be equal for both options. 	
Geology & soils	<ul style="list-style-type: none"> The route is within a historic landfill. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> The route is within a historic landfill and would comprise trenchless construction within a potential former sewage works. Construction within these areas could expose contaminants and therefore suitable mitigation would be employed.
Historic Environment	<ul style="list-style-type: none"> The route is approximately 100 m north west of Grade II listed Old Mill House and approximately 200 m south east of Grade II listed Old Rectory and Bidbury House. The route is within the Old Bedhampton conservation area. Archaeological remains have been identified including late-prehistoric remains and the location of a historic village recorded. 	<ul style="list-style-type: none"> The route is approximately 100 m north west of Grade II listed Old Mill House and approximately 200 m south east of Grade II listed Old Rectory and Bidbury House. The route is within the Old Bedhampton conservation area. Archaeological remains have been identified including late-prehistoric remains and the location of a historic village recorded.
Interface with other development	<ul style="list-style-type: none"> No conflicts with other developments have been identified for either option. 	
Landscape & Visual	<ul style="list-style-type: none"> The route intersects the Old Mill House Tree Preservation Order (TPO) group. Construction works may impact the setting and landscape character of the area. Closest residential properties are located 30 m south. The route intersects a Public Right of Way (PRoW) which connects Bedhampton with Broadmarsh Coastal Park. Open cut construction would result in a temporary loss of vegetation which would require reinstatement. 	<ul style="list-style-type: none"> Construction works may impact the setting and landscape character of the area. Closest residential properties are located 30 m south.
Noise & Vibration	<ul style="list-style-type: none"> Closest residential property is 30 m away which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> Closest residential property is 35 m away which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> No major constraints have been identified however it is anticipated that both options would generate a similar volume of materials. 	
Socio-economics	<ul style="list-style-type: none"> Potential for amenity impacts to 2-3 residential properties approximately 30 m south. The route intersects a Public Right of Way (PRoW) which connects Bedhampton with Broadmarsh Coastal Park. 	<ul style="list-style-type: none"> Potential for amenity impacts to 2-3 residential properties approximately 35 m south.
Special category land	<ul style="list-style-type: none"> The pipeline intersects statutory undertaker land including that owned by Portsmouth Water, National Highways and Network Rail. 	
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users and residents of Mill Lane temporarily during construction. 	<ul style="list-style-type: none"> No major constraints have been identified.

Topic	Option 1	Option 2
	<ul style="list-style-type: none"> The route intersects a Public Right of Way (PRoW) which connects Bedhampton with Broadmarsh Coastal Park. 	
Water quality, resource & flood risk	<ul style="list-style-type: none"> Construction works for both options would take place in close proximity to the Hermitage Stream there is potential for impacts to the water quality of the Hermitage Stream and Langstone Harbour. Both options intersect flood zone 2 and 3. 	

Both options have the potential for adverse impacts on ecology, landscape and the historic environment. It is considered that Option 1 would have a greater impact as open cut trench construction would be used between the water recycling plant site and Mill Lane, therefore vegetation loss and construction works at surface level would be greater compared to Option 2. Option 2 was therefore progressed for the connection between the water recycling plant and Bedhampton Springs.

Back-up option between the water recycling plant site and Havant Thicket Reservoir – tunnel reception shaft

For the back-up option between the water recycling plant and Havant Thicket Reservoir, a tunnel reception shaft would be required in the proximity of Havant Thicket Reservoir in order to remove the Tunnel Boring Machine (TBM) from the tunnel. The tunnel reception shaft would have a diameter of 12 m and be located in a construction compound that would need to be a minimum of 10,000 m². The pipeline corridor that was presented at the Summer 2022 Consultation identified that the tunnel would pass through Staunton Country Park before reaching Havant Thicket Reservoir.

Staunton Country Park is an area of open space and is also the location of the Leigh Park Grade II* Registered Park and Garden and is therefore an important historic environment and community asset. As a result of these constraints and the potential for adverse impacts during the construction phase, further site selection has been undertaken to determine the preferred site for the tunnel shaft, as well as the route for the remainder of the pipelines to connect into Havant Thicket Reservoir that is proposed to be constructed using open cut trenched methods.

Figure 11 shows the pipeline corridor at the north of the tunnel between the water recycling plant and Havant Thicket Reservoir, as presented at Summer 2022 Consultation, as well as the four options that have been considered for the tunnel shaft site.



Figure 11 - Back up option tunnel reception shaft options

The four tunnel shaft site options are all located within Staunton Country Park and the Leigh Park Grade II* Registered Park and Garden (RPG) as this is the only land available outside of residential areas and woodland at Great Copse (ancient woodland) and east of High Lawn Way in close proximity to Havant Thicket Reservoir, which is the connection point for the pipelines.

Option 1 and Option 2 are located in the parkland area of Staunton Country Park north of Middle Park Way. Option 3 is located within land adjacent to Bitterne Close that was previously used as a playground. Option 4 is located further north in Staunton Country Park and is close to the boundary of Havant Thicket Reservoir.

Table 13 sets out the evaluation outcomes for the four tunnel shafts and the associated pipeline to connect to Havant Thicket Reservoir.

Table 13 - Back-up option tunnel reception shaft evaluation outcomes

Topic	Option 1	Option 2	Option 3	Option 4
Air Quality	<ul style="list-style-type: none"> Closest residential properties are located 130 m west which may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Closest residential properties are located 130 m west which may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Closest residential properties are located 30 m west which may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Closest residential properties are located 100 m south which may be subject to adverse air quality impacts.
Biodiversity	<ul style="list-style-type: none"> Located in the High Lawn Site of Importance for Nature Conservation (SINC) and intersects priority habitats. Potential for construction works to intersect habitats supporting badgers, dormouse, nesting birds and reptiles (protected species). 			
Carbon	<ul style="list-style-type: none"> For all options construction and operation of the pipeline would result in the generation of carbon, however these are considered to be equal for both options. 			
Geology & soils	<ul style="list-style-type: none"> No major constraints have been identified for any option. 			
Historic Environment	<ul style="list-style-type: none"> Approximately 240 m from Staunton Memorial grade II* listed building. Within the Leigh Park grade II* registered park and garden. Approximately 300 m of a number of grade II listed buildings. Within the Sir George Staunton Conservation Area. Within an area with potential for buried archaeology. 			
Interface with other development	<ul style="list-style-type: none"> No conflicts with other developments have been identified for any option. 			
Landscape & Visual	<ul style="list-style-type: none"> The options are within public open space at Staunton Country Park and have the potential for adverse visual and setting impacts on this open space. Construction works have the potential for adverse impacts to the landscape character. 130 m east of residential receptors 90 m east of the E9 European Long Distance Route. 		<ul style="list-style-type: none"> The option is within public open space at Staunton Country Park and have the potential for adverse visual and setting impacts on this open space. Construction works have the potential for adverse impacts to the landscape character. 30 m east of residential receptors 20 m from the E9 European Long Distance Route. 	<ul style="list-style-type: none"> The option is within public open space at Staunton Country Park and have the potential for adverse visual and setting impacts on this open space. Construction works have the potential for adverse impacts to the landscape character. 100 m north of residential receptors 300 m from the E9 European Long Distance Route.
Noise & Vibration	<ul style="list-style-type: none"> Closest residential properties are located 130 m west which may be subject to adverse noise and vibration impacts. 		<ul style="list-style-type: none"> Closest residential properties are located 30 m west which may be subject to adverse noise and vibration impacts. 	<ul style="list-style-type: none"> Closest residential properties are located 100 m south which may be subject to adverse noise and vibration impacts.
Resource & Waste	<ul style="list-style-type: none"> No major constraints have been identified however it is anticipated that both options would generate a similar volume of materials. 			
Socio-economics	<ul style="list-style-type: none"> Potential for construction to cause access restrictions to users of Staunton Country Park Potential for amenity impacts and human health impacts as a result of an increase in emissions to residential properties which are 130 m away at their closest. 		<ul style="list-style-type: none"> Potential for construction to cause access restrictions to users of Staunton Country Park 	<ul style="list-style-type: none"> Potential for construction to cause access restrictions to users of Staunton Country Park

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Topic	Option 1	Option 2	Option 3	Option 4
			<ul style="list-style-type: none"> Potential for amenity impacts and human health impacts as a result of an increase in emissions to residential properties which are 30 m away at their closest. 	
Special category land	<ul style="list-style-type: none"> All options are located in land that is owned and operated by Hampshire County Council. 			
Traffic & Transport	<ul style="list-style-type: none"> There would be an increase in local traffic levels during construction. There is potential for temporary disruption to a PRoW and cycleway south of Middle Park Way during construction. 			
Water quality, resource & flood risk	<ul style="list-style-type: none"> The pipeline route to Havant Thicket Reservoir for both options intersect an ordinary watercourse. 		<ul style="list-style-type: none"> The pipeline route to Havant Thicket Reservoir intersects an ordinary watercourse. The shaft construction compound is within flood zone 2 and 3. 	<ul style="list-style-type: none"> The shaft construction compound is within flood zone 2 and 3.

Option 3 is located in very close proximity to residential properties and therefore could have significant adverse visual, noise, vibration and other amenity impacts on nearby residents. This option is also located within a high risk flood zone and the pipeline route to Havant Thicket Reservoir would have to pass through dense vegetation located on the south west boundary of Staunton Country Park. As a result of these constraints, Option 3 was not considered to be a suitable tunnel shaft site location.

Option 4 is located further north in Staunton Country Park than the other options. It is considered that the only suitable access for Option 4 would be from Middle Park Way to the south of Staunton Country Park, and therefore to construct the tunnel shaft for Option 4, an access road would be required across the park from Middle Park Way. This access road would need to be in place while the tunnel and tunnel shaft are being constructed. During the construction of the tunnel shaft for Option 4, there would be increased effects to the landscape and historic environment setting of Staunton Country Park and the Leigh Park Grade II* registered park and garden as a result of the access road and construction traffic extending across the parkland landscape. Option 1 and Option 2 are located closer to Middle Park Way and therefore the access road to the shaft site would be considerably shorter. Option 1 and 2 would have a longer section of pipeline to connect to Havant Thicket Reservoir that would need to be constructed using open cut trench construction compared to Option 4, however it is considered that construction of the pipeline from the tunnel shaft to Havant Thicket Reservoir would be shorter than the duration that the access road for Option 4 would need to be in place. As a result of these access, landscape and historic environment constraints, Option 4 was considered to be a less suitable tunnel shaft site location against the criteria.

Option 1 and Option 2 have similar impacts and constraints due to their similar location. Option 1 and Option 2 were progressed due to the lesser landscape and historic environment impacts, and impacts on nearby residential properties. However, bespoke mitigation measures would also need to be developed for Option 1 or Option 2 to reduce construction effects if the back-up tunnel option is required for the Project.

Back-up option between the water recycling plant site and Havant Thicket Reservoir – intermediate reception shaft

To construct a direct tunnel between the water recycling plant and Havant Thicket Reservoir for the Southern Water back-up option, an intermediate tunnel shaft may be required to make changes to the TBM as a result of changes in geology, or in the event of an emergency given the length of the tunnel. The intermediate tunnel shaft would be 12 m in diameter.

Two potential intermediate tunnel shafts sites were identified. Option 1 is located within Bidbury and Bedhampton Park east of King's Croft Lane and north of Bidbury Lane. Option 2 is located within open green space north of Havant Rugby Football Club and west of Hooks Lane. The tunnel shaft site options are shown in Figure 12.

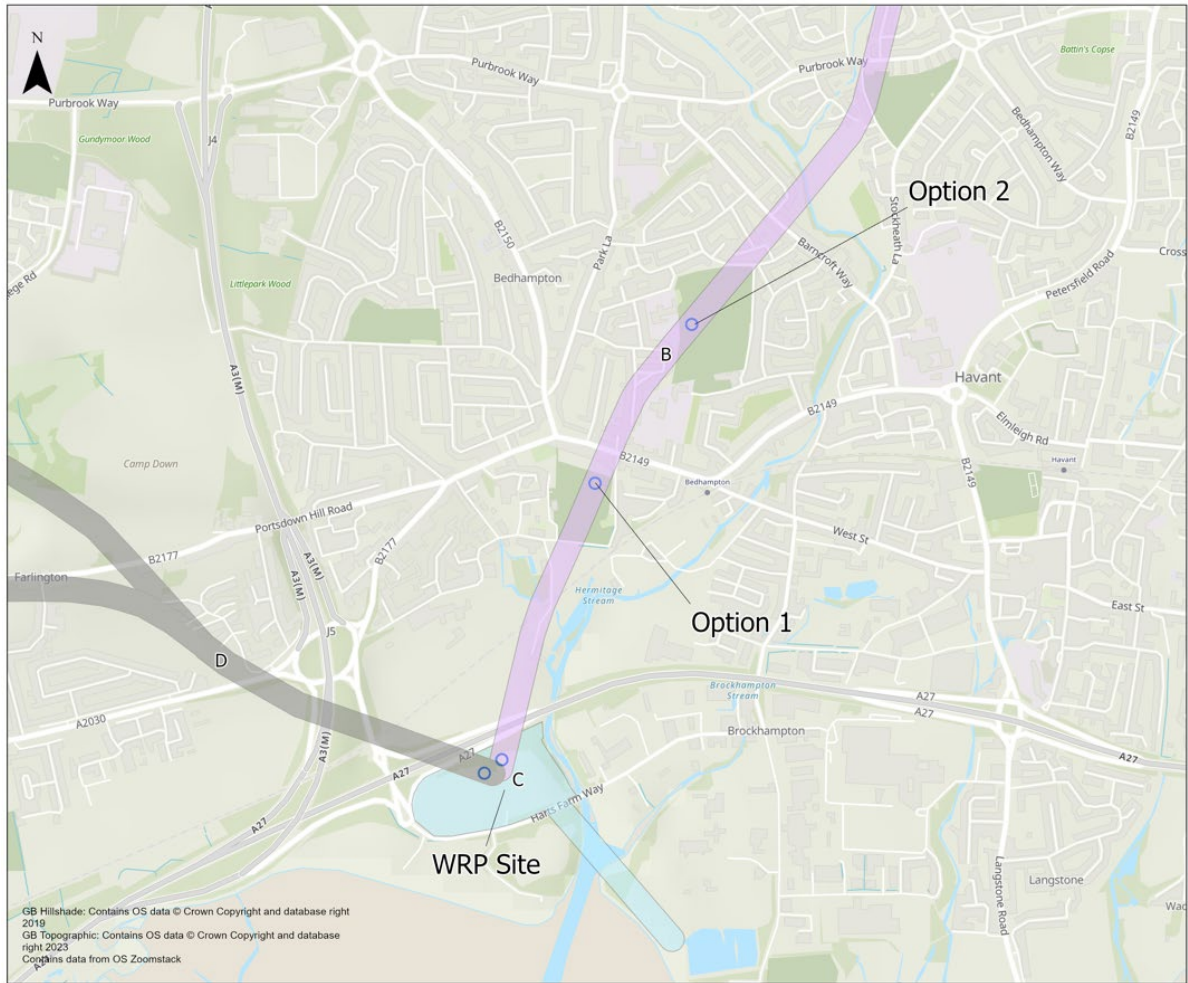


Figure 12 - Back up option tunnel intermediate shaft options

Table 14 sets out the evaluation outcomes for the intermediate tunnel shaft site options.

Table 14 - Back-up option intermediate tunnel shaft evaluation outcomes

Topic	Option 1	Option 2
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 	
Biodiversity	<ul style="list-style-type: none"> Approximately 1.2 km from Chichester and Langstone Harbours SPA and Ramsar. Approximately 1.2 km from the Solent Maritime SAC. 	<ul style="list-style-type: none"> Approximately 1.6 km from Chichester and Langstone Harbours SPA and Ramsar. Approximately 1.6 km from the Solent Maritime SAC.
Carbon	<ul style="list-style-type: none"> For both options construction and operation of the pipeline would result in the generation of carbon, however these are anticipated to be equal for both options. 	
Geology & soils	<ul style="list-style-type: none"> No major constraints have been identified for either option. 	
Historic Environment	<ul style="list-style-type: none"> Approximately 120 m south west of the Bedhampton Arts Centre grade II listed building Within the Old Bedhampton Conservation Area No archaeological records however unknown remains could be present. 	<ul style="list-style-type: none"> There is a record of 'Site of Post Medieval Ridge and Furrow' at the site of the shaft compound

Topic	Option 1	Option 2
Interface with other development	<ul style="list-style-type: none"> No major constraints have been identified for either option. 	
Landscape & Visual	<ul style="list-style-type: none"> Within Bidbury and Bedhampton Park Within the Bedhampton and Brockhampton LCA area There are residential properties located approximately 40 m east, 80 m north, and 100 m west Wayfarer's Walk national trail passes through Bidbury and Bedhampton Park 	<ul style="list-style-type: none"> Within greenspace in the centre of a residential part of Havant Within the Leigh Park West LCA area There are residential properties located approximately 70 m west, 140 m north and 160 m east
Noise & Vibration	<ul style="list-style-type: none"> Closest residential properties are located 40 m east which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> Closest residential properties are located 70 m west which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> No major constraints have been identified. 	
Socio-economics	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties to the east, north and west of Bidbury and Bedhampton Park. Bidbury and Bedhampton Park is used by the Bedhampton Mariners Cricket Club; construction may impact their activities. 	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties to the east, north and west of the greenspace. The land is used by Havant Rugby Football Club; construction may impact their activities.
Special category land	<ul style="list-style-type: none"> Located within open space land, therefore special category land legislative provisions may apply. 	
Traffic & Transport	<ul style="list-style-type: none"> No major constraints have been identified. 	
Water quality, resource & flood risk	<ul style="list-style-type: none"> Located within a chalk aquifer. Construction and operation may impact: a Water Framework Directive groundwater body; Source Protection Zone (SPZ) 1; public water supplies at Bedhampton Springs and the Langstone Harbour SINC & SSSI. 	<ul style="list-style-type: none"> No major constraints have been identified.

Option 1 is located within chalk geology and therefore poses a greater risk of impact to the SPZ which protects groundwater abstractions at Bedhampton Springs as compared to Option 2.

Both Option 1 and Option 2 are located within green space that would likely fall within the definition of open space under the Planning Act 2008. Option 1 is allocated within the Havant Borough Council (HBC) local plan as Bidbury and Bedhampton Park and Option 2 is located within an area of green space used by Havant Rugby Football Club however, this green space is not allocated within the HBC local plan. Option 2 is also further from residential properties and does not impact any National Trails. Option 2 was therefore preferred in terms of minimising community, landscape and visual effects, however it is noted that this shaft would be located in open space land therefore special category land legislative provisions in the Planning Act 2008 may apply.

Option 2 was selected to be progressed as the intermediate tunnel shaft site for the back-up option between the water recycling plant and Havant Thicket Reservoir.

3.2.3. Micrositing

Figure 13 shows the draft Order Limits in Section A and Section B.

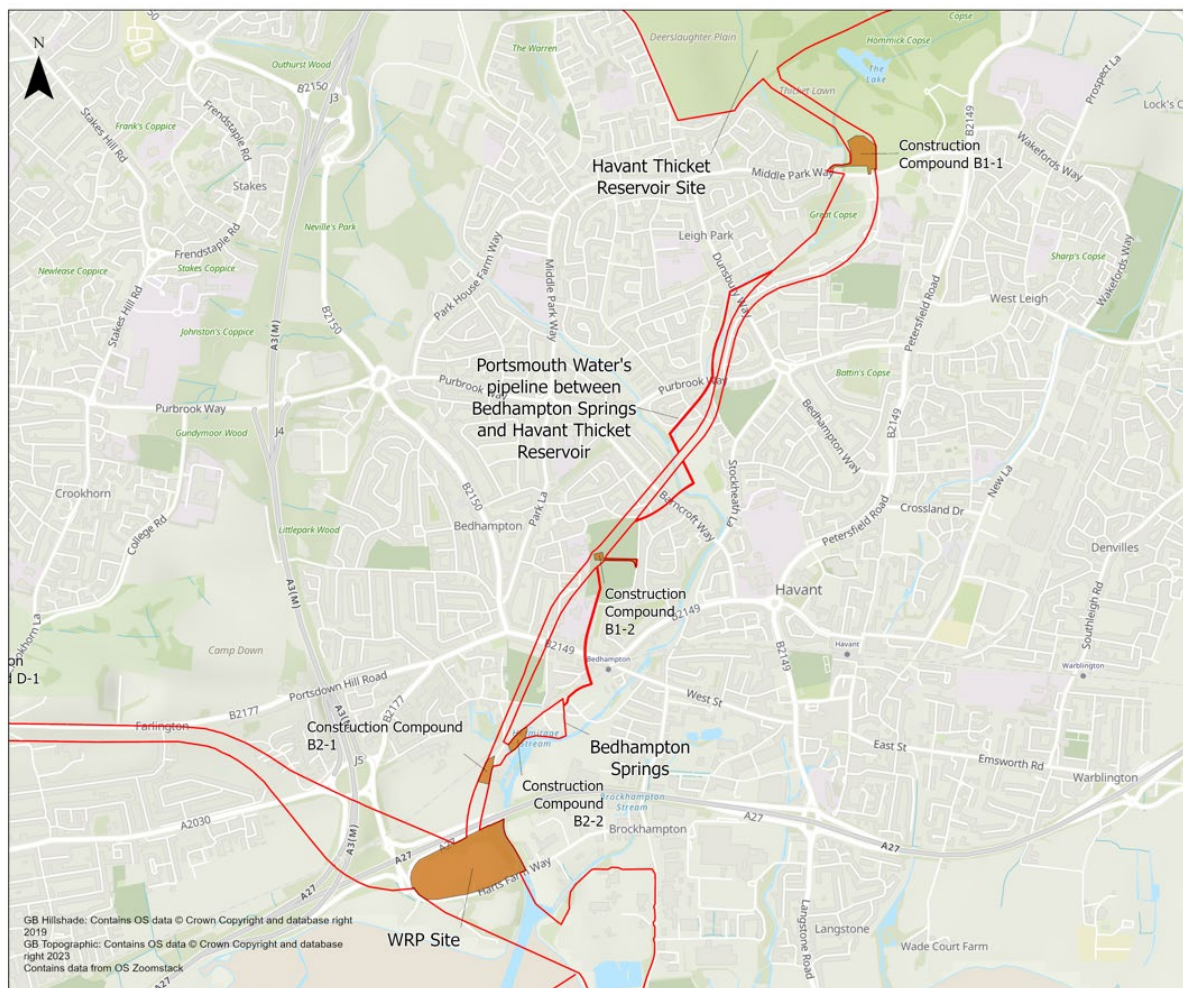


Figure 13 - Section A and B draft Order Limits and construction compounds

The draft Order Limits in Section A and Section B include both for the back-up tunnel option between the water recycling plant and Havant Thicket Reservoir, and the pipelines between the water recycling plant and Bedhampton Springs, which would connect to pipelines being proposed by Portsmouth Water between Bedhampton Springs and Havant Thicket Reservoir.

The draft Order Limits have been widened at the north of the back-up option between the water recycling plant and Havant Thicket Reservoir to provide flexibility in the route of the tunnel as it passes under ancient woodland at Great Copse. The tunnel depth would be over 20 m in this location, and therefore sufficient to avoid impacts to the ancient woodland and associated root protection zones. Where the pipelines pass underneath ancient woodland, we have applied a 4 m vertical buffer to avoid direct impacts to tree roots.

Settlement zones around the locations of tunnel shafts for the back-up option have also been included in the draft Order Limits, however, it is expected that any settlement would be contained to the immediate vicinity surrounding the tunnel shafts.

As both the preferred and back up options are currently being included within the Project to ensure future flexibility, we have identified construction compounds for both options. Not all of these construction compounds would be required as only one option would be delivered. Construction compounds have been located in the following locations:

For the preferred option between the water recycling plant and Bedhampton Springs:

- To the west and east of Mill Lane to support trenchless construction between the water recycling plant and Bedhampton Springs.

For the back-up tunnel route between the water recycling plant and Havant Thicket Reservoir:

- Within open space north of Havant Rugby Football Club to locate the intermediate tunnel shaft for the tunnel between the water recycling plant and Havant Thicket Reservoir. Engagement with Havant Rugby Football Club and Havant Borough Council is ongoing to determine a location for a construction compound and associated access that would reduce effects on this open space and identify any mitigation that may be required.
- North of Middle Park Way within Staunton Country Park to locate the reception tunnel shaft for the tunnel between the water recycling plant and Havant Thicket Reservoir. This construction compound would also support construction of the open cut section between the reception tunnel shaft and Havant Thicket Reservoir. The construction compound has been located to avoid the line of trees to the north of Middle Park Way where possible.

3.3. Section C

3.3.1. Summer 2022 Consultation

At the Summer 2022 Consultation we explained that two underground pipelines would be required to connect Budds Farm Wastewater Treatment Works (WTW) and the water recycling plant. One pipeline would transfer treated wastewater from Budds Farm WTW to the water recycling plant, and one pipeline would transfer reject water from the water recycling plant back to Budds Farm WTW where it would be released into the Solent using the existing Eastney Long Sea Outfall (LSO) via Budds Farm WTW.

We initially considered an open cut pipeline to connect the water recycling plant and Budds Farm WTW in Section C, however a trenchless pipeline option under the Hermitage Stream and Harts Farm Way was selected as this would avoid works in the local road network and avoid direct intersections with the Hermitage Stream.

Figure 14 shows Section C of the Project as presented at the Summer 2022 Consultation.



Figure 14 - Section C as shown at the Summer 2022 Consultation

3.3.2. Design development following the Summer 2022 Consultation

No major refinements to Section C have been undertaken following the Summer 2022 Consultation, however the design of the water recycling plant has evolved which has necessitated the need to consider a wider area for this pipeline. This is because the design of the water recycling plant would affect where the treated wastewater from Budds Farm WTW would need to be received by the water recycling plant, and where the reject water would be produced.

3.3.3. Micrositing

Figure 15 shows the draft Order Limits in Section C.

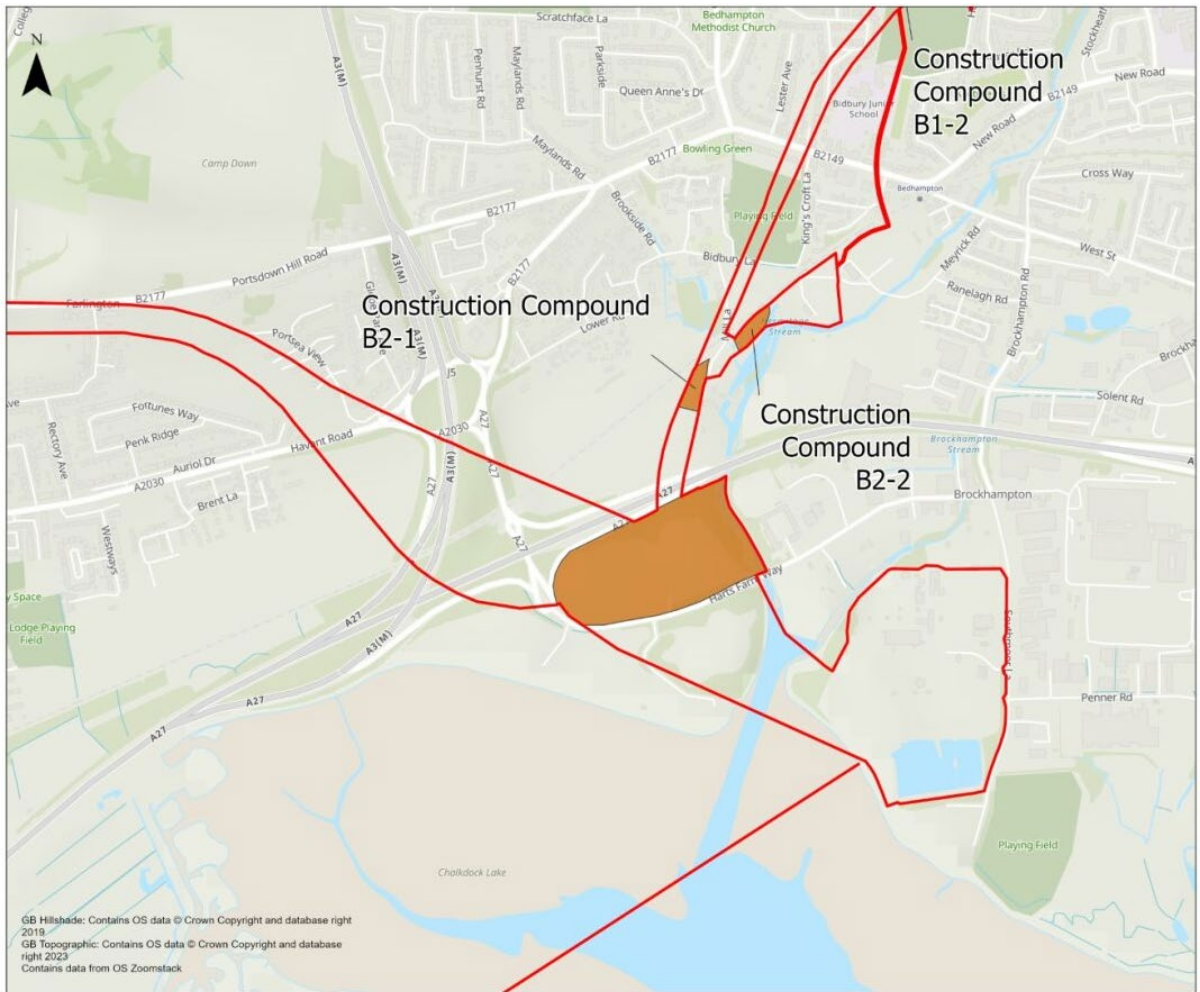


Figure 15 - Section C draft Order Limits and construction compounds

The draft Order Limits in Section C have been kept wide to allow for flexibility in the route of the pipelines between the water recycling plant and Budds Farm WTW. As set out above, this is as a result of the evolving design of the water recycling plant. This also provides flexibility to ensure that the pipelines and the trenchless construction can be designed so that any effects to the Hermitage Stream and Langstone Harbour can be reduced or avoided.

3.4. Section D

3.4.1. Summer 2022 Consultation

At the Summer 2022 Consultation we explained that a tunnel would be used for the pipeline between the high lift pumping station (located at the site of the water recycling plant) and the ridge of Portdown Hill, where the pipeline would then continue west through Section E. Tunnelling was selected in favour of an open cut route within the road network to reduce disruption on the road network and adjacent residential properties as this is a densely populated area.

Two tunnel options were shown at the Summer 2022 Consultation. Both tunnel launch shafts would be located at the site of the water recycling plant. The two tunnel options were:

- A southern option which would follow the route of Portsdown Hill Road (B2177). The tunnel reception shaft would either be located at the ridge of Portsdown Hill north of Portsdown Hill Road (B2177) or further north to the west of London Road (A3).
- A northern option which would pass under Widley. The tunnel reception shaft would be located to the west of London Road (A3).

Figure 16 shows Section D of the Project as presented at the Summer 2022 Consultation.

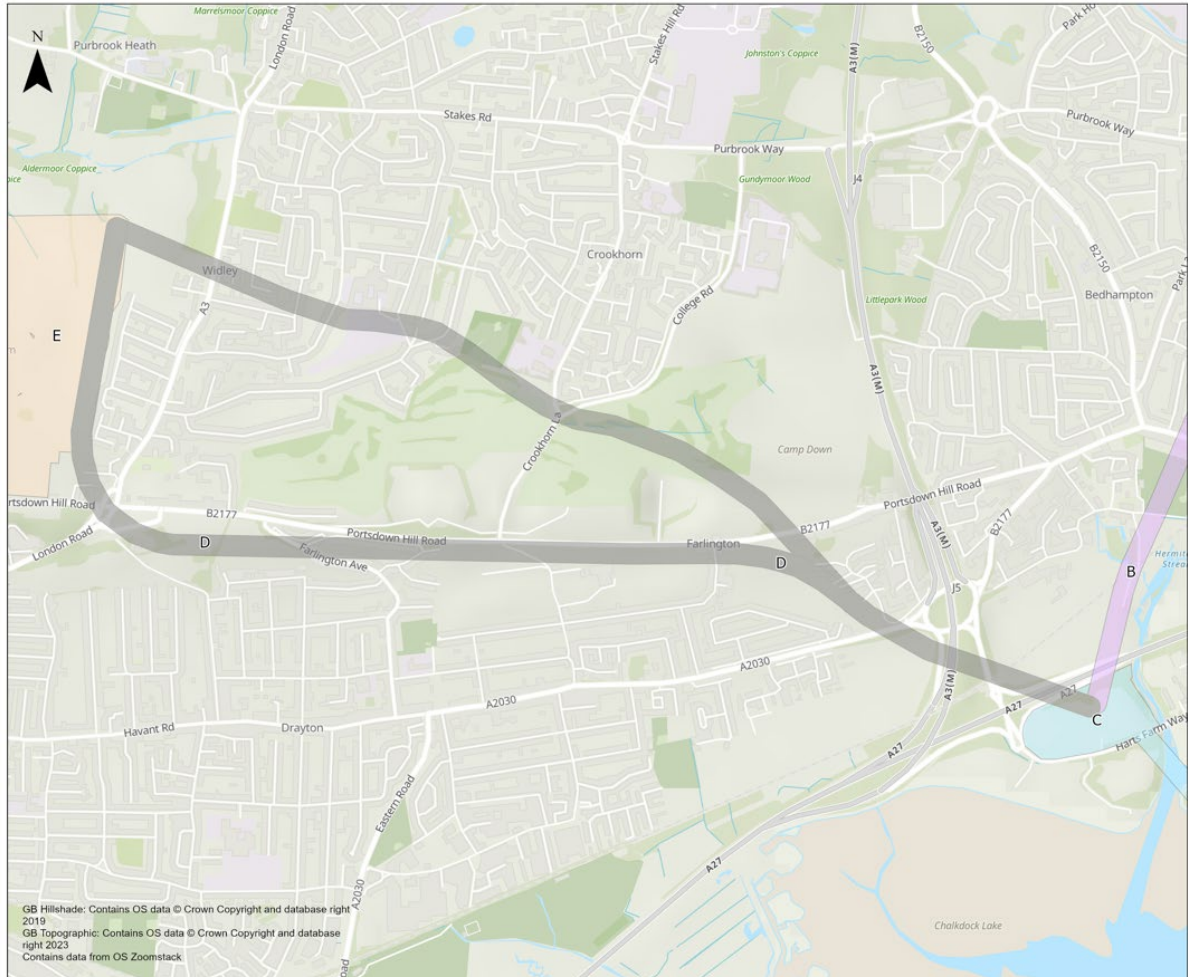


Figure 16 - Section D as shown at the Summer 2022 Consultation

3.4.2. Design development following the Summer 2022 Consultation

Following the Summer 2022 Consultation, further development and refinement of Section D and the tunnel options between the high lift pumping station and the ridge of Portsdown Hill has been undertaken. The aim was to refine the options presented at the Summer 2022 Consultation and identify the locations of reception and intermediate tunnel shafts; in all options the tunnel launch shaft would be located at the site of the water recycling plant as this is the beginning of the tunnel. The options were as follows:

- **Southern Short Tunnel:** The option would follow the route of Portsdown Hill Road (B2177). The tunnel reception shaft would be located at the ridge of Portsdown Hill north of Portsdown Hill Road (B2177). The intermediate tunnel shaft would be located on land south of Portsdown Hill Road (B2177), west of Gillman Road, and north of Portsmouth Water’s Farlington Works site.

- **Southern Long Tunnel:** The option would follow the route of Portsdown Hill Road (B2177). The tunnel reception shaft would be located west of London Road (A3). The intermediate tunnel shaft would be located on land south of Portsdown Hill Road (B2177), west of Gillman Road, and north of Portsmouth Water’s Farlington Works site.
- **Northern Tunnel:** The option would pass under Widley. The tunnel reception shaft would be located to the west of London Road (A3). Three intermediate tunnel shaft options were identified - one is located north of Portsdown Hill Road (B2177) within Camp Down, the second is located within Portsmouth Golf Course south of College Road, and the third is located within Gauntlett Park west of Morelands Primary School. If the northern tunnel option was to be progressed, only one of the intermediate tunnel shaft options would be required and further assessment work would be undertaken to identify the preferred option.

The tunnel options are shown in Figure 17.

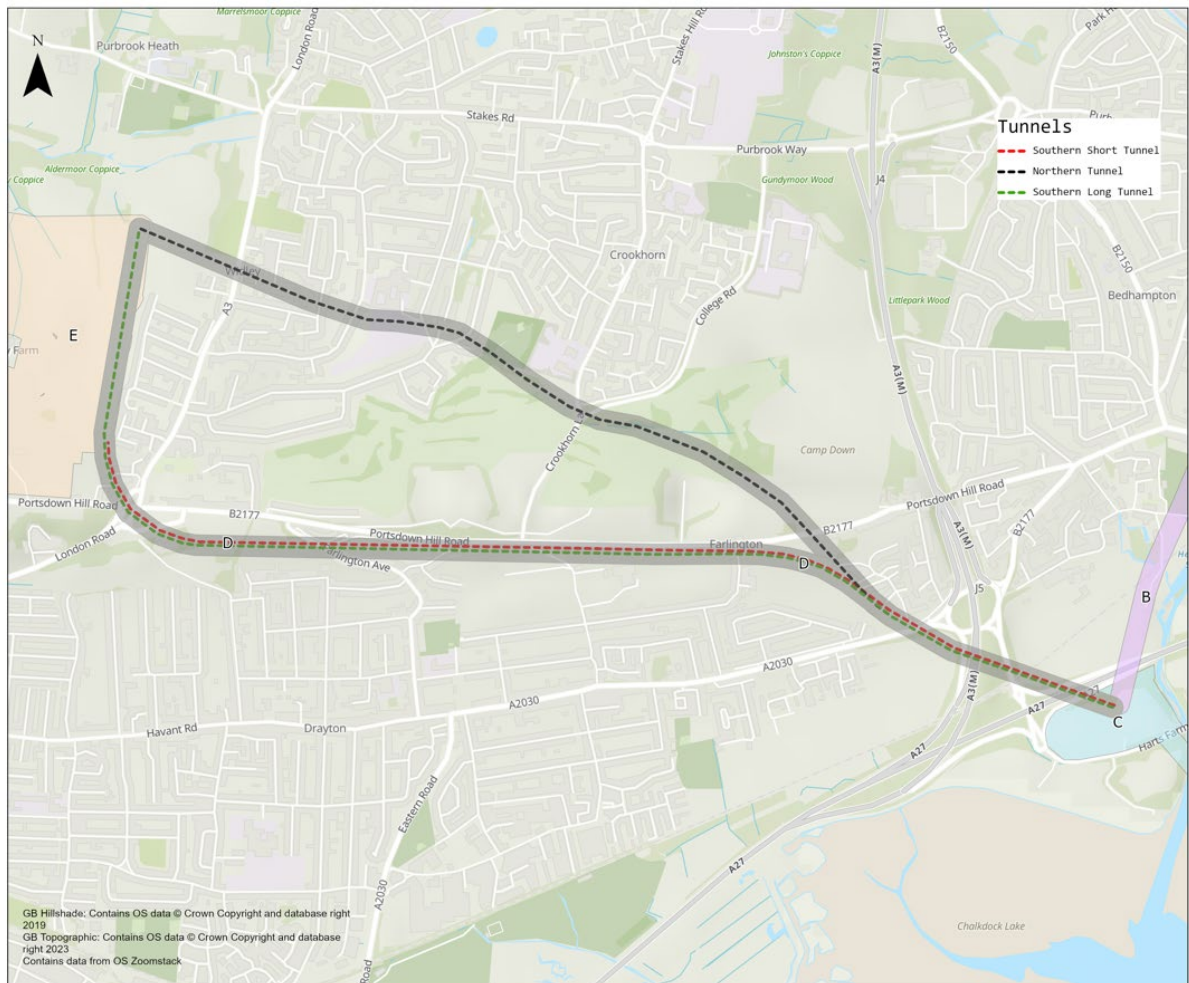


Figure 17 - Section D tunnel options

Table 15 sets out the evaluation outcomes for the tunnel options.

Table 15 - Section D tunnel route evaluation outcomes

Topic	Southern Short Tunnel	Southern Long Tunnel	Northern Tunnel
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 		

Topic	Southern Short Tunnel	Southern Long Tunnel	Northern Tunnel
Biodiversity	<ul style="list-style-type: none"> Approximately 350 m from Chichester and Langstone Harbours SPA and Ramsar. Approximately 350 m from Solent Maritime SAC. Tunnel launch shaft is within a Solent Waders and Brent Goose Strategy Site. The intermediate tunnel shaft is within lowland calcareous grassland priority habitat and a SINC. 		<ul style="list-style-type: none"> Approximately 350 m from Chichester and Langstone Harbours SPA and Ramsar. Approximately 350 m from Solent Maritime SAC. The tunnel launch shaft, and two of the intermediate tunnel shaft options are within a Solent Waders and Brent Goose Strategy site. One intermediate tunnel shaft is in close proximity to deciduous woodland priority habitat.
Carbon	<ul style="list-style-type: none"> For both options, construction and operation of the pipeline would result in the generation of carbon, however these are anticipated to be equal for both options. 		
Geology & soils	<ul style="list-style-type: none"> The tunnel launch shaft is within the Harts Farm Way historic landfill. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 		<ul style="list-style-type: none"> The tunnel shaft is within the Harts Farm Way historic landfill and one of the intermediate tunnel shafts is in close proximity to an old chalk pit which may contain contaminated material. Construction within this area could expose contaminants and therefore suitable mitigation would be employed.
Historic Environment	<ul style="list-style-type: none"> The intermediate tunnel shaft is approximately 170 m south east of the Fort Purbrook scheduled monument and Grade II* listed building. The reception tunnel shaft is approximately 750 m of Fort Widley scheduled monument and Grade II* listed building. 		<ul style="list-style-type: none"> Two of the intermediate tunnel shaft options are within approximately 330 m north of the Fort Purbrook scheduled monument and Grade II* listed building. The other intermediate tunnel shaft is approximately 150 m west of Bevis's Grave long barrow and early medieval cemetery scheduled monument, and in close proximity to the Sunspan Grade II listed building.
Interface with other development	<ul style="list-style-type: none"> The tunnel route and intermediate tunnel shaft have an interface with the Farlington to Nelson Reservoir pipeline route which is being delivered by Portsmouth Water as permitted development. Engagement with Portsmouth Water will be required to align the two projects. 		<ul style="list-style-type: none"> No interfaces with other development have been identified.
Landscape & Visual	<ul style="list-style-type: none"> The intermediate tunnel shaft is in a location that is visible from Chichester Harbour Area of Outstanding Natural Beauty (AONB). There is potential for construction of the tunnel shafts to impact landscape character. 	<ul style="list-style-type: none"> The intermediate tunnel shaft is in a location that is visible from Chichester AONB. There is potential for construction of the tunnel shafts to impact landscape character. 	<ul style="list-style-type: none"> One of the intermediate tunnel shafts are in a location that is visible from Chichester Harbour AONB. There is potential for construction of the tunnel shafts to impact landscape character. There is potential for visual amenity impacts to residential properties that are within approximately 70 m of the intermediate tunnel shafts.

Topic	Southern Short Tunnel	Southern Long Tunnel	Northern Tunnel
	<ul style="list-style-type: none"> There is potential for visual amenity impacts to residential properties approximately 60 m east of the reception tunnel shaft. 		
Noise & Vibration	<ul style="list-style-type: none"> The tunnel route passes under residential areas which could experience vibration if sufficient mitigation is not implemented during the construction phase. The tunnel reception shaft is located approximately 60 m from residential properties which may be subject to noise and vibration during construction if sufficient mitigation is not implemented during the construction phase. 	<ul style="list-style-type: none"> The tunnel route passes under residential areas which could experience vibration if sufficient mitigation is not implemented during the construction phase. 	<ul style="list-style-type: none"> The tunnel route passes under residential areas which could experience vibration if sufficient mitigation is not implemented during the construction phase. The intermediate tunnel shafts are all located within 70 m of residential properties which may be subject to noise and vibration during construction if sufficient mitigation is not implemented during the construction phase.
Resource & Waste	<ul style="list-style-type: none"> No adverse impacts identified however it is anticipated that both options would generate a similar volume of materials. The tunnel route and launch shaft are within a Sharp Sand and Gravel Mineral Consultation Area (MCA). 		
Socio-economics	<ul style="list-style-type: none"> No major constraints have been identified. 		<ul style="list-style-type: none"> One intermediate tunnel shaft is located within open space at Gauntlett Park and would be accessed using a route adjacent to Morelands Primary School. Another intermediate tunnel shaft is located within Portsmouth Golf Course. Construction of the shafts in these areas would result in temporary loss of these open spaces.
Special category land	<ul style="list-style-type: none"> The tunnel route and the intermediate tunnel shaft are located within land owned by Portsmouth Water who are a statutory undertaker, however it is assumed that most of this land is non-operational and engagement on any land required would be undertaken with Portsmouth Water. 		<ul style="list-style-type: none"> Two of the intermediate tunnel shafts are located within open space at Gauntlett's Park and Portsmouth City Golf Course, therefore special category land legislative provisions may apply.
Traffic & Transport	<ul style="list-style-type: none"> There is potential for traffic generation during construction which may impact the local road network. 		

Topic	Southern Short Tunnel	Southern Long Tunnel	Northern Tunnel
Water quality, resource & flood risk	<ul style="list-style-type: none"> The tunnel route, intermediate tunnel shaft and reception tunnel shaft are located within a chalk aquifer. There is potential for adverse impacts to groundwater. 	<ul style="list-style-type: none"> The tunnel route and intermediate tunnel shaft are located within a chalk aquifer. There is potential for adverse impacts to groundwater. Parts of this option are located with a groundwater Source Protection Zone (SPZ) and therefore there is potential for impacts to groundwater that is used for groundwater abstraction. 	<ul style="list-style-type: none"> The tunnel route and intermediate tunnel shaft are located within a chalk aquifer. There is potential for adverse impacts to groundwater. Parts of this option are located with a groundwater Source Protection Zone (SPZ) and therefore there is potential for impacts to groundwater that is used for groundwater abstraction.

The northern tunnel option was not progressed as two of the intermediate tunnel shaft options are located within open space where public access would temporarily be lost during the construction phase. The option is also located within a chalk aquifer and groundwater SPZ at the same location and therefore poses a risk to groundwater flows that are used for public water supplies.

The southern short tunnel option and southern long tunnel option have similar constraints, however the tunnel reception shaft for the southern long tunnel option is located further north within a groundwater SPZ, but not within a chalk aquifer. However, this poses a greater potential risk for impacts to groundwater when compared to the southern short tunnel option.

The southern short tunnel option is also located in a more optimal location when considering the remaining sections of the pipeline between Havant Thicket Reservoir and Otterbourne WSW further west of Section D. This is because the reception shaft for the southern short tunnel option is located at a higher topographical point than the reception shaft for the southern long tunnel option. The reception shaft for the southern short tunnel option is also located in close proximity to the above ground plant, located at the ridge of Portsdown Hill, which needs to be located at a topographical high point. This is shown in Figure 18. Progressing the southern short tunnel option would therefore result in a shorter pipeline route which would likely result in less overall impacts. Given the above, the southern short tunnel option was progressed.

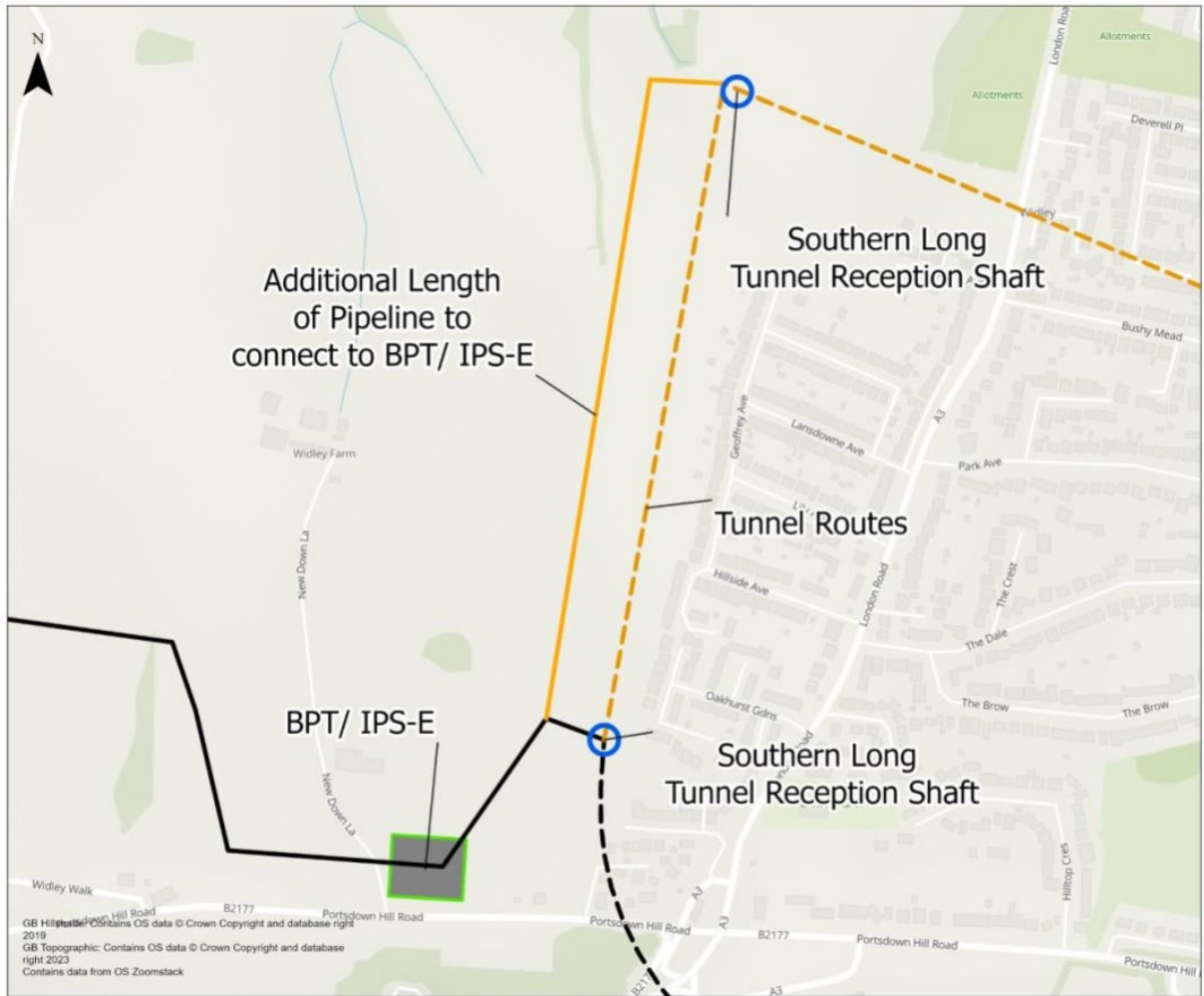


Figure 18 - Section D southern tunnel option reception shafts and interface with Break Pressure Tank/Intermediate Pumping Station E

3.4.3. Micrositing

Figure 19 shows the draft Order Limits in Section D.

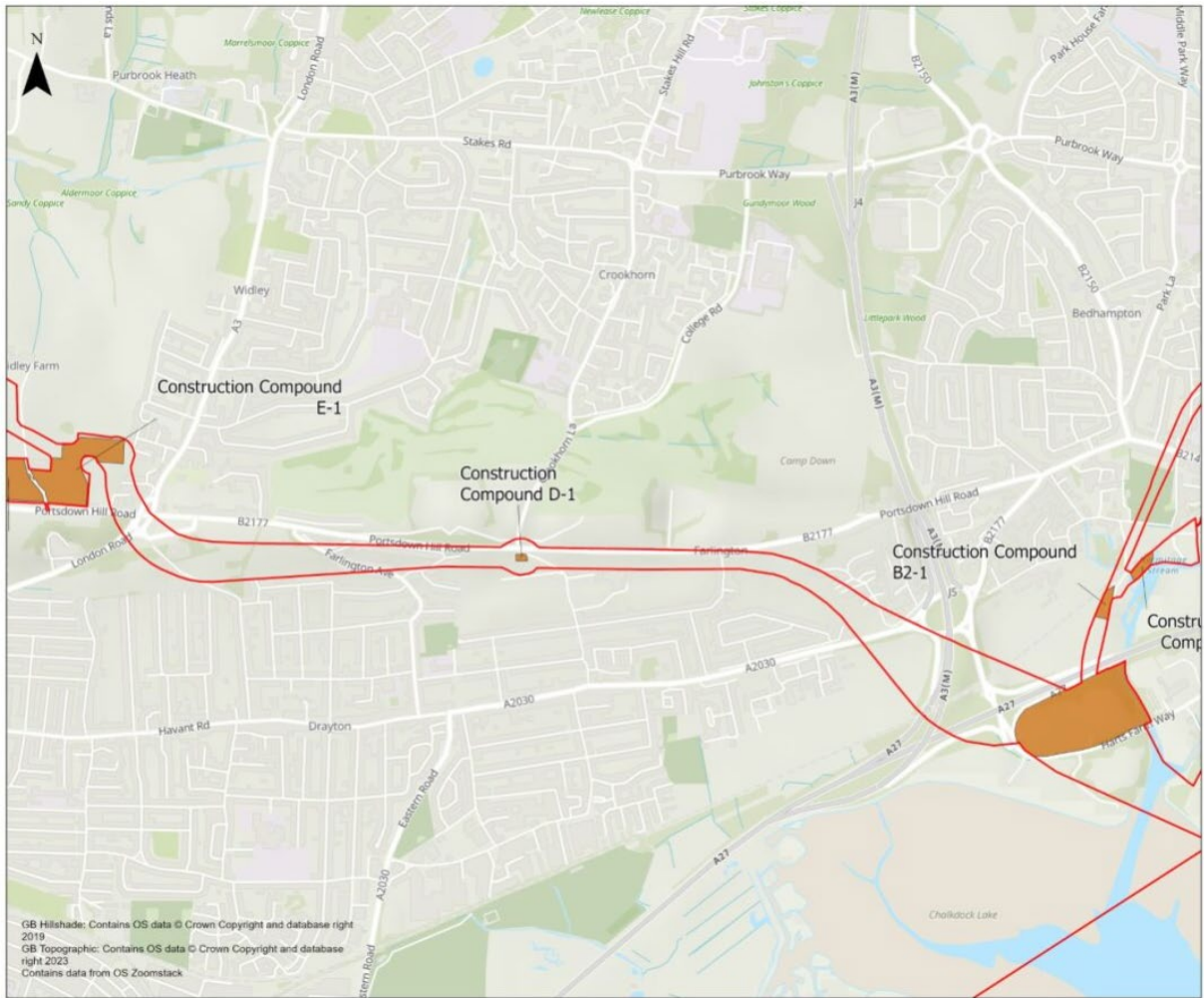


Figure 19 - Section D draft Order Limits and construction compounds

The draft Order Limits have been determined to provide flexibility in the tunnel alignment at the east and west of Section D where the tunnel would change direction. Settlement zones around the locations of tunnel shafts have also been included in the draft Order Limits, however it is expected that any settlement would be contained to the immediate vicinity surrounding the tunnel shafts.

Construction compounds have been located in the following locations:

- South of Portsdown Hill Road (B2177) and west of Gillman Road to facilitate the intermediate tunnel shaft.
- West of Widley and north of Portsdown Hill Road (B2177) to facilitate the reception tunnel shaft. This construction compound is located within Section E as it is the same construction compound used for Break Pressure Tank / Intermediate Pumping Station E and construction of the pipeline in Section E, however it is also used for the tunnel in Section D.

3.5. Section E

3.5.1. Summer 2022 Consultation

At the Summer 2022 Consultation, Section E comprised a wide area spanning east to west along the ridge of Portsdown Hill. The pipeline section was cropped at the south (prior to the Summer 2022 Consultation) to provide a buffer between the Project and the Palmerston Forts that are located on the ridge of Portsdown Hill, which are designated as scheduled monuments.

Figure 20 shows Section E of the Project as presented at the Summer 2022 Consultation.

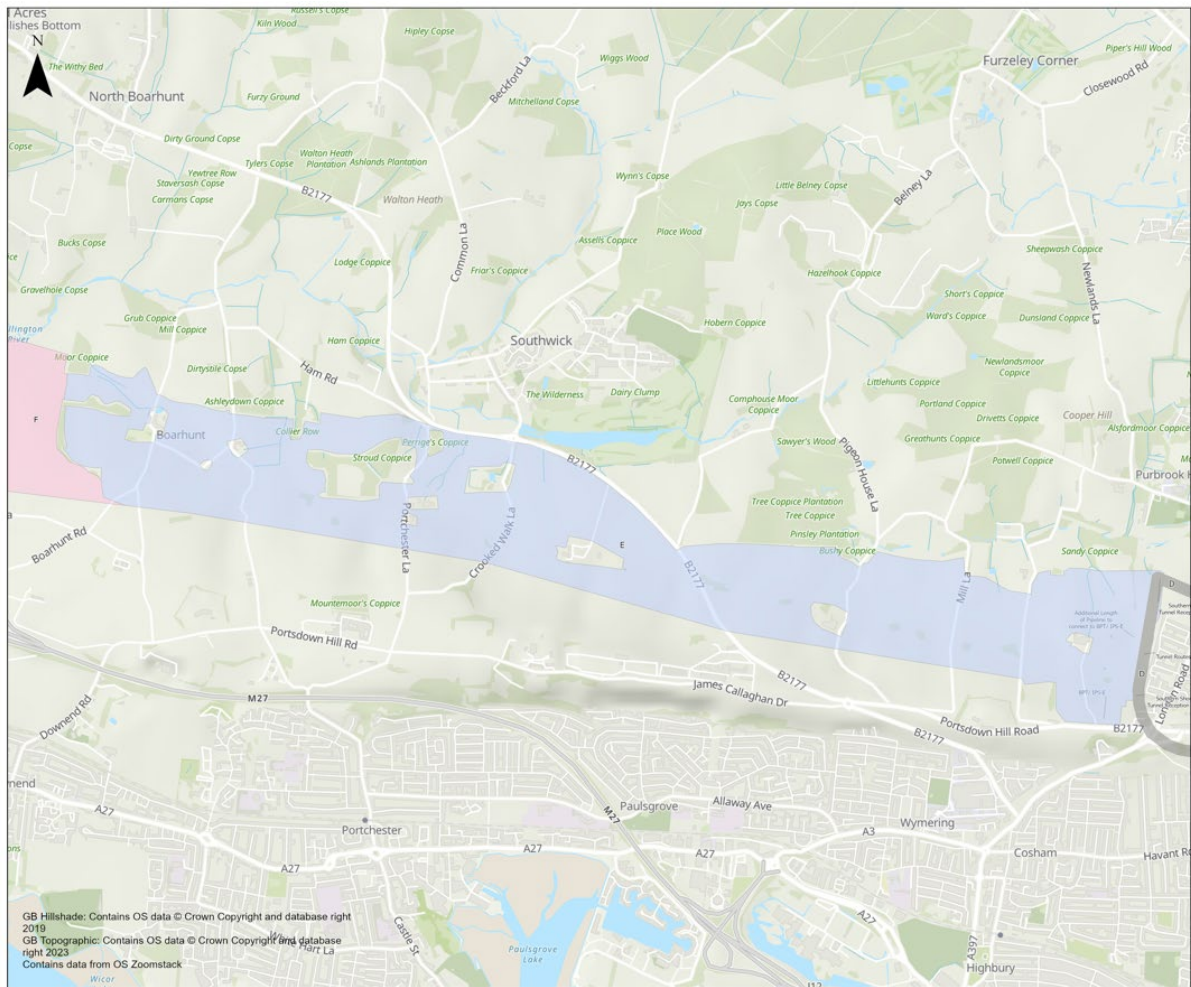


Figure 20 - Section E as shown at the Summer 2022 Consultation

3.5.2. Design development following the Summer 2022 Consultation

Following the Summer 2022 Consultation, refinements to the BESPR were undertaken at the eastern end of Section E. This part of Section E is one of the highest topographic high points in the pipeline route between Havant Thicket Reservoir and Otterbourne WSW; and it was identified that there was potential for adverse landscape character and visual impacts, especially considering the visibility of South Downs National Park to the north. This area is also in close proximity to Fort Widley, which is designated as a scheduled monument and Grade II* listed building; it is therefore afforded a high level of protection in planning policy.

The BESPR was located at the south of Section E as this was considered hydraulically optimal, as water within the pipeline could gravitate along the declining gradient as it travelled further west in Section E. As a result of the potential for environmental impacts relating to the historic environment and the landscape character of the area, an alternative route in this area was identified which took the pipeline further north to a lower topographical point and further away from Fort Widley. The BESPR and alternative route are shown in Figure 21.



Figure 21 - Section E pipeline options at Fort Widley

Table 16 sets out the evaluation outcomes for the BESPR and alternative route.

Table 16 - East of Section E evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 	
Biodiversity	<ul style="list-style-type: none"> Approximately 2km from Portsmouth Harbour Ramsar and SPA. Approximately 2km from Solent and Dorset Coast SPA Approximately 2km from Chichester and Langstone Harbours SPA and Ramsar. Approximately 2km from the Solent Maritime SAC. 	<ul style="list-style-type: none"> Approximately 2km from Portsmouth Harbour Ramsar and SPA. Approximately 2km from Solent and Dorset Coast SPA Approximately 2km from Chichester and Langstone Harbours SPA and Ramsar. Approximately 2km from the Solent Maritime SAC.

Topic	BESPR	Alternative
	<ul style="list-style-type: none"> Potential for impacts to habitats of principal importance as it intersects 10 hedgerows with trees. 	<ul style="list-style-type: none"> Intersects the eastern corner of a Solent Waders and Brent Goose Strategy site (W03G) which is functionally linked land to Portsmouth Harbour Ramsar and SPA. Surveys have not recorded any birds at this site and identified that habitats are of poor quality. Potential for impacts to habitats of principal importance as it intersects 12 hedgerows with trees.
Carbon	<ul style="list-style-type: none"> For both options, construction and operation of the pipeline would result in the generation of carbon, however these are considered to be equal for both options. 	
Geology & soils	<ul style="list-style-type: none"> No major constraints have been identified. 	
Historic Environment	<ul style="list-style-type: none"> Approximately 150 m north of Fort Widley Scheduled Monument and Grade II* listed building and a further Grade II listed building associated with Fort Widley. Approximately 300 m west of George Inn, Grade II listed. Within an Area of Archaeological Restraint and Palaeolithic Predictive Model area. Geophysical surveys have confirmed the route crosses cropmarks and have indicated further potential for buried archaeology along the route. Approximately 60 m north of a prehistoric burial site. 	<ul style="list-style-type: none"> Approximately 420 m north of Fort Widley Scheduled Monument and Grade II* listed building and a further Grade II listed building associated with Fort Widley. Approximately 300 m west of George Inn, Grade II listed. Within an Area of Archaeological Restraint and Palaeolithic Predictive Model area. Geophysical surveys have confirmed the route crosses cropmarks and have indicated further potential for buried archaeology along the route. Approximately 300 m north of a prehistoric burial site.
Interface with other development	<ul style="list-style-type: none"> No conflicts with other developments have been identified for either option. 	
Landscape & Visual	<ul style="list-style-type: none"> Approximately 2.2 km from the Portsdown Hill Area of Special Landscape Quality (ASLQ) Approximately 100-150 m north of open access land around Portsdown Hill Road (B2177) which are popular recreation areas with views to the north and south. Potential for impacts to landscape character especially given the elevated position on Portsdown Hill. Potential visual amenity impacts to: <ul style="list-style-type: none"> Portsdown Hill Viewpoint 75 m away Residencies of Widley and west of the A3 Nearby businesses The Pilgrims' Long Distance Trail and Cycle Route There is potential for temporary scarring effects as a result of vegetation loss / replanting which will take time to establish. 	<ul style="list-style-type: none"> Approximately 2.2 km from the Portsdown Hill ASLQ Approximately 350 m north of open access land around Portsdown Hill Road (B2177) which are popular recreation areas with views to the north and south. Potential for impacts to landscape character. Potential visual amenity impacts to: <ul style="list-style-type: none"> Portsdown Hill Viewpoint 75m away Residencies of Widley and west of the A3 Nearby businesses The Pilgrims' Long Distance Trail and Cycle Route Southwick and Wildey 28/1 footpath There is potential for temporary scarring effects as a result of vegetation loss / replanting which will take time to establish.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential properties are approximately 30 m west which may be subject to adverse noise and vibration impacts. 	
Resource & Waste	<ul style="list-style-type: none"> No adverse impacts identified however it is anticipated that both options would generate a similar volume of materials. Both options are located with a Brick Clay MCA. 	

Topic	BESPR	Alternative
Socio-economics	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties approximately 30 m to the west. Potential for amenity impacts to local businesses including the equestrian centre and other businesses at Fort Widley 200 m away and the Churchillian pub 75m away. 	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties approximately 30 m to the west. Potential for amenity impacts to local businesses including the equestrian centre and other businesses at Fort Widley 460 m away and the Churchillian pub 280 m away.
Special category land	<ul style="list-style-type: none"> No major constraints have been identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Construction works have the potential to temporarily impact road users of Mill Lane and Widley Walk and users of the Pilgrims' Trail. 	<ul style="list-style-type: none"> Construction works have the potential to temporarily impact road users of Mill Lane and Widley Walk and users of the Pilgrims' Trail and a PRow.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No major constraints have been identified. 	

The BESPR is closer to the Fort Widley scheduled monument and Grade II* listed building and is located on a more elevated position on Portsdown Hill. The alternative is a greater distance from Fort Widley and construction works could utilise existing vegetation to screen views from high ground to the north. The alternative route was therefore identified to be more suitable from the historic environment and landscape and visual reviews.

The alternative route intersects a Solent Waders and Brent Goose Strategy site whereas the BESPR is circa 20 m away. The BESPR would therefore likely have a lesser impact on land that is functionally linked land with Portsmouth Harbour SPA. However, our surveys have not recorded any bird activity at this site, they also identified that the habitat is of poor quality and therefore may not be suitable for Solent Waders and Brent Geese. It is therefore considered that mitigation could be undertaken to reduce any potential impacts as a result of construction within this land.

Given the protection afforded to designated scheduled monuments and listed buildings in the NPSWRI and the ability to mitigate potential impacts to the Solent Waders and Brent Goose Strategy site, the alternative route has been progressed in this location.

3.5.3. Micrositing

Figure 22 shows the draft Order Limits in Section E.

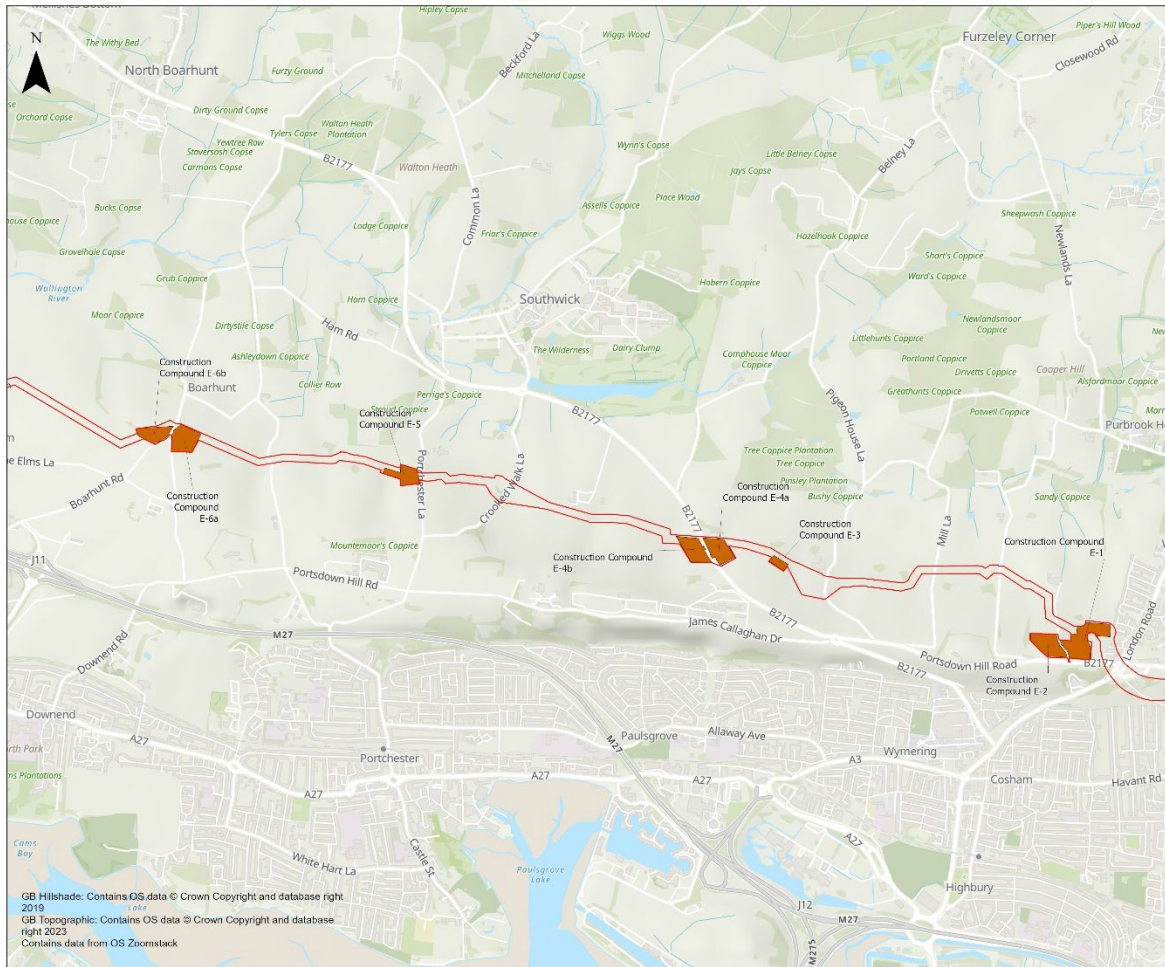


Figure 22 - Section E draft Order Limits and construction compounds

The pipeline route is primarily located within agricultural land in Section E and therefore the draft Order Limits have been based on a 40 m working width to construct the pipeline, however at certain locations the draft Order Limits have been widened where there is the potential for adverse environmental impacts:

- South of Pigeon House Farm, where it is understood there is a World War Two aircraft crash site. The draft Order Limits have been widened so that micrositing can be undertaken once further information about the crash site is known.
- At Crooked Walk Lane where the pipeline is in close proximity to vegetation and known protected species. The draft Order Limits have been widened so that micrositing can be undertaken following further surveys.

The land around Section E contains a number of former chalk pits which have been backfilled with material that may be contaminated. These former chalk pits also contain copses of trees. The pipeline route and draft Order Limits have been designed to avoid these chalk pits and associated vegetation.

Micrositing has also been undertaken to align the pipeline route with the route of a pipeline that is being delivered by Portsmouth Water between the Farlington Works and Nelson Reservoir. Continual engagement will be undertaken with Portsmouth Water as the Farlington to Nelson pipeline design is progressed to retain alignment.

Construction compounds have been located in the following locations:

- Construction Compound E-1: Containing the site and construction compound for Intermediate Pumping Station / Break Pressure Tank E and the tunnel reception shaft for the tunnel in Section D. The construction compound and draft Order Limits have been located considering identified protected species to the east of the construction compound.
- Construction Compound E-2: To support construction of Intermediate Pumping Station / Break Pressure Tank E and construction of the pipeline within Section E.
- Construction Compound E-3: Water storage lagoon for commissioning and testing of the pipeline.
- Construction Compound E-4a: To support construction of the pipeline within Section E. The construction compound has been located to avoid trees and vegetation east of Southwick Road (B2177). This construction compound is one option for a construction compound alongside Southwick Road (B2177), the other option is Construction Compound E-4b.
- Construction Compound E-4b: To support construction of the pipeline within Section E. This construction compound is one option for a construction compound alongside Southwick Road (B2177), the other option is Construction Compound E-4a.
- Construction Compound E-5: To support the construction of the pipeline within Section E and for a water storage lagoon for commissioning and testing of the pipeline. The two uses have been combined into one wider construction compound to reduce land take.
- Construction Compound E-6a: To support construction of the pipeline within Section E. The construction compound has been located to avoid vegetation to the east of Boarhunt Road. This construction compound is one option for a construction compound alongside Boarhunt Road, the other option is Construction Compound E-6b.
- Construction Compound E-6b: To support construction of the pipeline within Section E. The construction compound has been located to avoid vegetation to the west of Boarhunt Road. This construction compound is one option for a construction compound alongside Boarhunt Road, the other option is Construction Compound E-6a.

3.6. Section F and Section G

3.6.1. Summer 2022 Consultation

Section F and Section G have been combined as the developments to the BESPR following the Summer 2022 Consultation overlapped both pipeline sections.

At the Summer 2022 Consultation, Section F continued west from Section E and crossed the River Wallington, Hoad's Hill (A32) and the site of the Welborne Garden Village development. Section G continued to the north and crosses the River Meon before passing through Wickham Park Golf Club and following the route of Titchfield Lane.

Figure 23 shows Section F and Section G of the Project as presented at the Summer 2022 Consultation.

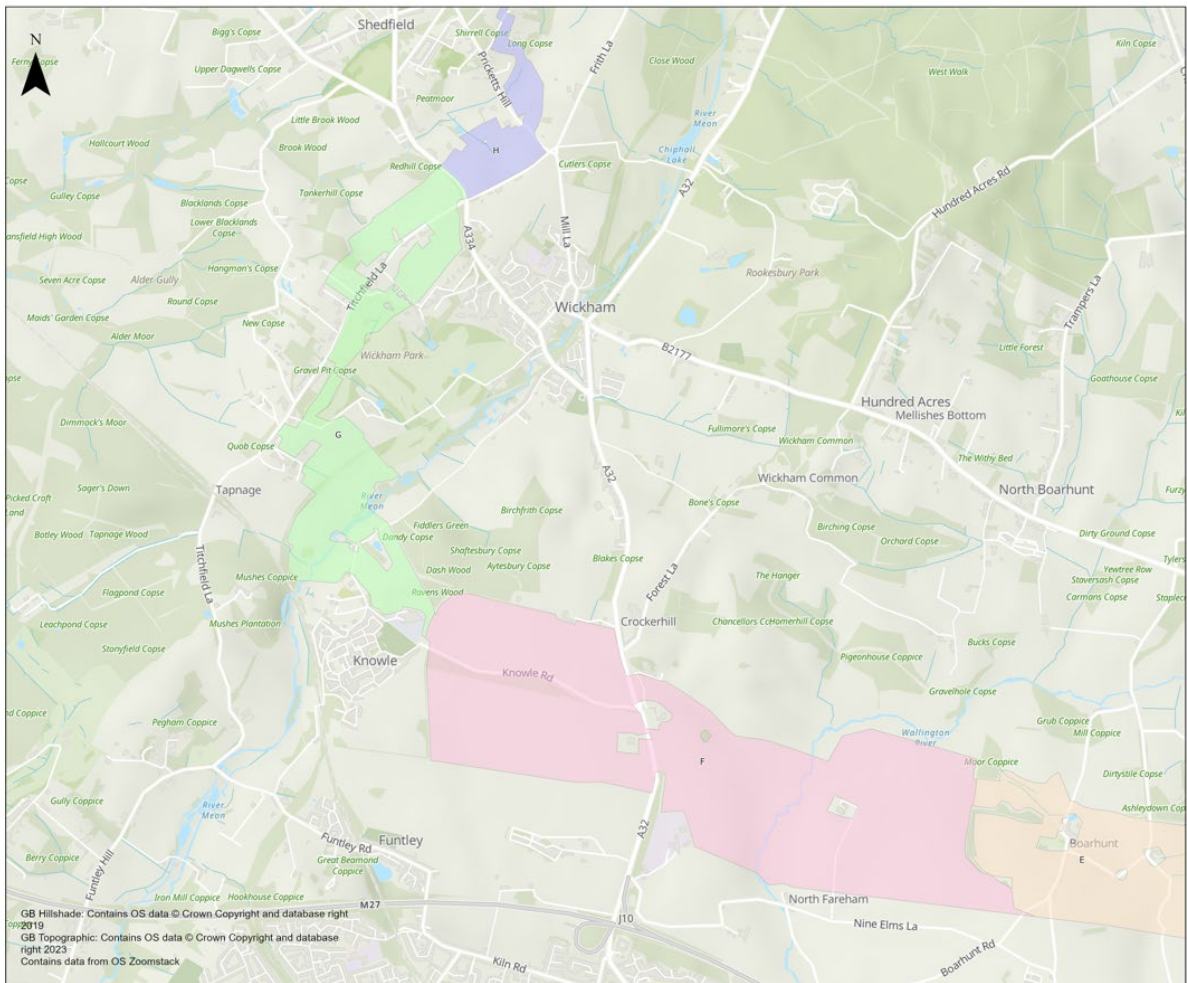


Figure 23 - Section F and G as shown at the Summer 2022 Consultation

3.6.2. Design development following the Summer 2022 Consultation

Interface with Welborne Garden Village

The BESPR within Section F passed through the site of the Welborne Garden Village development, which is a development for 6,000 homes, a district centre, employment and industrial uses and four schools that received outline planning permission in 2021 (P/17/0266/OA) and is currently under construction. The BESPR also intersected the site of a development north of Knowle for 200 homes (18/01612/OUT) and an existing gas main. The interface between these and the BESPR is shown in Figure 24.

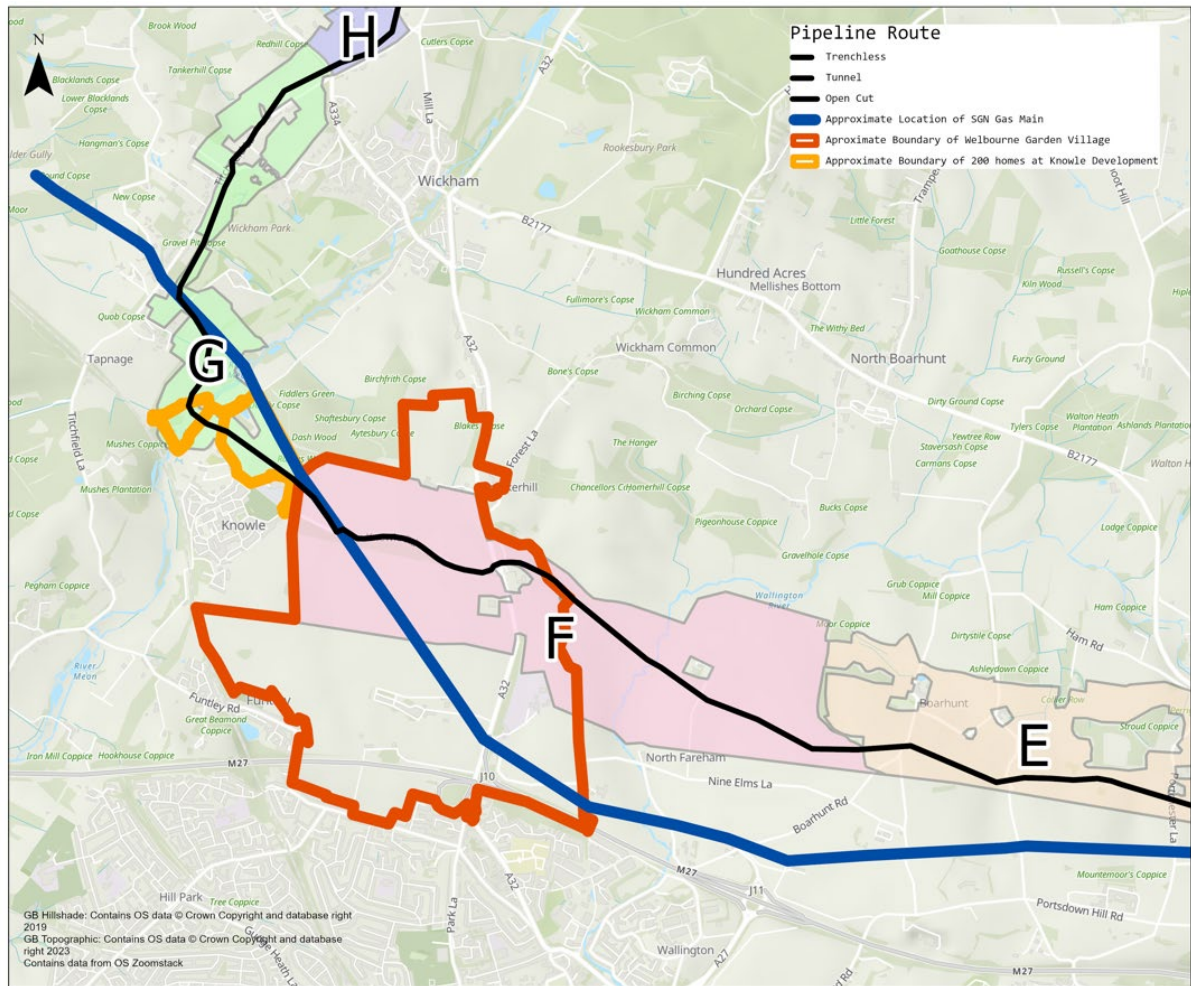


Figure 24 - Section F and G interface with Welborne Garden Village and other development

Engagement with Welborne Garden Village was undertaken prior to the Summer 2022 Consultation to discuss whether the pipeline route could be accommodated within the development, and an initial pipeline route was identified. Following the Summer 2022 Consultation, further engagement has been undertaken with Welborne Garden Village which identified risks in relation to the coinciding construction programmes. This could have resulted in construction of the pipeline route in close proximity to built out and occupied residential properties within Welborne Garden Village. This would conflict with the aim to avoid locating infrastructure in close proximity to residential areas wherever possible. Given the uncertainty of locating the pipeline route within Welborne Garden Village, the likely constrained corridor alongside residential properties that would be available for construction of the pipeline route, and the limited potential for implementing mitigation measures, we sought to identify alternative routes that would avoid intersecting with Welborne Garden Village and impacts on residential properties.

To select an appropriate alternative route, a number of pipeline corridor sections that were not progressed at the Summer 2022 Consultation were initially reconsidered. We also identified further alternatives to ensure that all reasonable options were considered in line with the engineering factors set out in Section 3.1.1.

Evaluations took place in order to select an alternative route that was considered to present the most suitable option against the evaluation criteria.

Figure 25 shows the alternative routes that were selected for further detailed review.

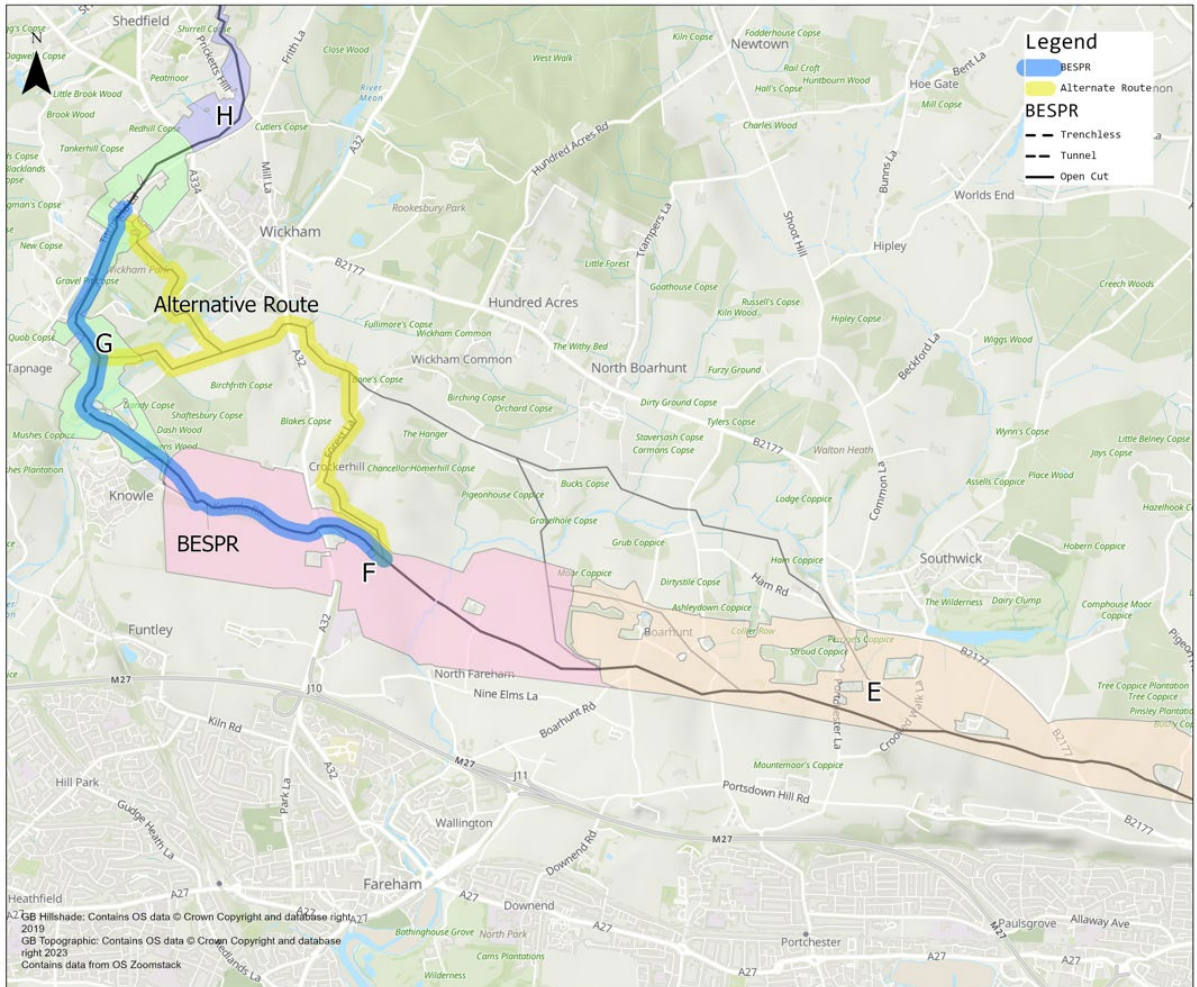


Figure 25 - Section G and F pipeline options at Welborne Garden Village

Table 17 sets out the evaluation outcomes for the BESPR and alternative route.

Table 17 - Section F and G interface with Welborne Garden Village evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Closest residential properties are located 60 m away which may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Closest residential properties are located 25 m-30 m away which may be subject to adverse air quality impacts.
Biodiversity	<ul style="list-style-type: none"> Intersects the River Meon which is upstream of the Solent and Southampton Water SPA and Ramsar and the Solent and Dorset Coast SPA. Intersects three hedgerows with trees. Potential for impact to two areas of ancient woodland (Dash Wood 15 m away), protected species and SINC's nearby. 	<ul style="list-style-type: none"> Intersects the River Meon which is upstream of the Solent and Southampton Water SPA and Ramsar and the Solent and Dorset Coast SPA. Intersects four areas of lowland mixed deciduous woodland priority habitat, wet woodland priority habitat, nine hedgerows and five hedgerows with trees. Many of these are located around the River Meon. Potential for impact to two areas of ancient woodland (Carpenters Copse 30 m away and Dash Wood 50 m away), protected species and SINC's nearby.

Topic	BESPR	Alternative
Carbon	<ul style="list-style-type: none"> For both options, construction and operation of the pipeline would result in the generation of carbon, however these are considered to be equal for both options. 	
Geology & soils	<ul style="list-style-type: none"> There are potential sources of contamination in proximity to the route including farms, backfilled pits and former landfills. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> There are potential sources of contamination in proximity to the route including former saw mills, industrial estates, potentially infilled chalk pits (unknown material) and infilled channels. Construction within this area could expose contaminants and therefore suitable mitigation would be employed.
Historic Environment	<ul style="list-style-type: none"> Approximately 350 m from listed buildings at Webb's Lane Farmhouse and 400 m from a Grade II listed building in Knowle. Within the Wickham Park historic deer park (non-designated asset). Within and adjacent to an area of Palaeolithic potential. Within a historic water meadow with high potential for archaeological remains. 	<ul style="list-style-type: none"> Adjacent to the boundary of Park Place estate which includes the Park Place Grade II* listed building approximately 200 m north. Approximately 25 m east of the Grade II listed House at Saw Mills (Pink and Company Limited) and approximately 130 m south of the Grade II listed Castle Farmhouse. Within the Wickham Park historic deer park (non-designated asset). Within and adjacent to an area of Palaeolithic potential. Within a historic water meadow with high potential for archaeological remains. Various archaeological remains have been identified along the route. This includes cropmarks, several quarry pits in close proximity which are indicative of medieval/post medieval quarry pitting and there is a fishpond complex approximately 150 m north, indicating further potential for archaeological remains.
Interface with other development	<ul style="list-style-type: none"> Intersects with the Welborne Garden Village development, which received outline planning permission in 2021 for up to 6,000 dwellings, a district and village centre, retail and community facilities, over 100,000 square metres of employment space, a secondary school, three primary schools and various other uses. This development is allocated in Part 3 of Fareham Borough Council's local plan (the Welborne Plan). Intersects land that comprises proposed residential properties associated with a development proposed by Homes England for 200 homes north of Knowle that has not yet received planning permission (18/01612/OUT). 	<ul style="list-style-type: none"> Intersects land that comprises green open space associated with a development proposed by Homes England for 200 homes north of Knowle that has not yet received planning permission (18/01612/OUT).
Landscape & Visual	<ul style="list-style-type: none"> Approximately 1.7 km from the South Downs National Park. Partially within the Forest of Bere ASLQ and approximately 60 m from the Portsdown Hill ASLQ. Potential for impacts to the landscape character of the Portsdown Hill Open Downs LCA, Forest of Bere East LCA and Meon Valley LCA. Potential for landscape character impacts to landcover, tranquillity, pattern and scale, and visibility. 	<ul style="list-style-type: none"> Approximately 600 m from the South Downs National Park. Within the Forest of Bere ASLQ and approximately 1.4km from the Portsdown Hill ASLQ. The Meon Valley ASLQ is approximately 2.3km away and the Cams-Porchester ASLQ is 3.7 km away. Potential for impacts to the landscape character of the Meon Valley LCA (within which the pipeline is partly located), Portsdown Hill Open Downs LCA and Forest of Bere East LCA.

Topic	BESPR	Alternative
	<ul style="list-style-type: none"> Potential visual amenity impacts to: <ul style="list-style-type: none"> Residencies approximately 60 m away at Albany Farm. Ravenswood House Hospital approximately 50 m away. Two footpaths (Wickham 5/1 and 501/1) which are intersected. National Cycle Network route 224 is intersected. 	<ul style="list-style-type: none"> Potential for landscape character impacts to landcover, tranquillity, pattern and scale, and visibility. Potential visual amenity impacts to: <ul style="list-style-type: none"> Residencies approximately 30 m away at their closest. Albany Care Home and Albany Business Centre circa 150 m away. Wickham Recreational Ground. Two footpaths (Wickham 5/1 and 501/1) which are intersected. National Cycle Network route 224 is intersected.
Noise & Vibration	<ul style="list-style-type: none"> Approximately 50 m from Ravenswood House Hospital and 60 m from residential properties at Albany Farm which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> Residential receptors are 30 m away at their closest which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> Sections are within a Brick Clay MCA and a Soft Sand MCA. 	
Socio-economics	<ul style="list-style-type: none"> Potential for amenity impacts to Ravenswood House Hospital 50 m away and residential properties 60 m away at Albany Farm. The route passes through Wickham Park Golf Club including the car park and golf course. Crosses two footpaths (Wickham 5/1 and 501/1) and National Cycle Network route 224. 	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties which are approximately 30 m away at their closest. The route passes through Wickham Park Golf Club including the car park and golf course. Crosses two footpaths (Wickham 5/1 and 501/1) and National Cycle Network route 224.
Special category land	<ul style="list-style-type: none"> Located on land owned by Homes England who are a statutory undertaker. 	<ul style="list-style-type: none"> Potential to interface special category land associated with open space being proposed by Homes England who are a statutory undertaker.
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users of Knowle Road, Mayes Lane and the A32 which provides a direct connection to the Strategic Road Network via Junction 10 of the M27. Potential to impact users of two footpaths (Wickham 5/1 and 501/1) and National Cycle Network route 224. 	<ul style="list-style-type: none"> Potential to impact road users of Forest Lane, Mayes Lane and the A32 which provides a direct connection to the Strategic Road Network via Junction 10 of the M27. Potential to impact users of two footpaths (Wickham 5/1 and 501/1) and National Cycle Network route 224.
Water quality, resource & flood risk	<ul style="list-style-type: none"> In proximity to the River Meon and located within flood zones 2 and 3. Potential to increase flood risk during construction and/or that flooding could impact construction. 	

The outcomes are similar for both options. Whilst the alternative route intersects more designated habitats than the BESPR, trenchless construction would be used to cross the River Meon SPA European designated site, and therefore the risks in relation to impact to connected designated sites and habitat loss are not anticipated for either option. As the alternative route is further from ancient woodland, this route carries a slightly lower consenting risk regarding biodiversity and nature conservation.

The BESPR has a greater interface with other development as it intersects both the Welborne Garden Village development, a development for 200 homes north of Knowle and is in close proximity to an existing gas main. There is potential for the BESPR to interface with aspects of these developments,

which may be built out or in-construction when the pipeline would be developed. It should be noted that the Welborne Garden Village development is allocated under Part 3 of Fareham Borough Council's local plan, and the NPSWRI states (Paragraph 4.10.22) "*where the proposed development conflicts with a proposal in a development plan or emerging development plan, the Secretary of State should take account of the stage which the development plan document in England has reached. In deciding what weight to give to the plan for the purposes of determining the planning significance of what would be replaced, prevented or precluded, the closer the development plan document is to being adopted by the local planning authority, the greater weight which can be attached to the impact of the proposal on that development plan*". Therefore, there is potential for further consenting risks with the BESPR as a result of conflict with a proposal in a development plan.

It was identified that the alternative route is also in close proximity to residential properties where there may be adverse air quality, noise, vibration and visual impacts. When comparing the potential for these impacts across the BESPR and alternative route, it was considered that there was a greater potential to mitigate these potential impacts on the alternative route given the reduced density of residential properties encountered. Progressing with the BESPR would have the potential to impact a greater number of residential properties associated with the Welborne Garden Village development and a development for 200 homes north of Knowle. Additionally, there is uncertainty about the proximity that the BESPR would be to residential properties within these developments.

As a result of the increased risks for the BESPR due to conflict with proposed developments, the alternative route was progressed.

Interface with Titchfield Lane

The BESPR shown at the Summer 2022 Consultation routed along Titchfield Lane as it headed north through Section G. Titchfield Lane provides connectivity between Wickham to the north east and Fareham to the South. The pipeline corridor section we presented at the Summer 2022 Consultation was wide enough for pipeline routes to the east and west of Titchfield Lane to be identified following the consultation. We received feedback from the Summer 2022 Consultation which highlighted the potential impacts of constructing the pipeline within Titchfield Lane, and this was reiterated through our engagement with Hampshire County Council and Winchester City Council, and our environmental assessments.

As a result of the potential impacts, we identified a number of alternative routes to the east and west of Titchfield Lane which are shown in Figure 26.

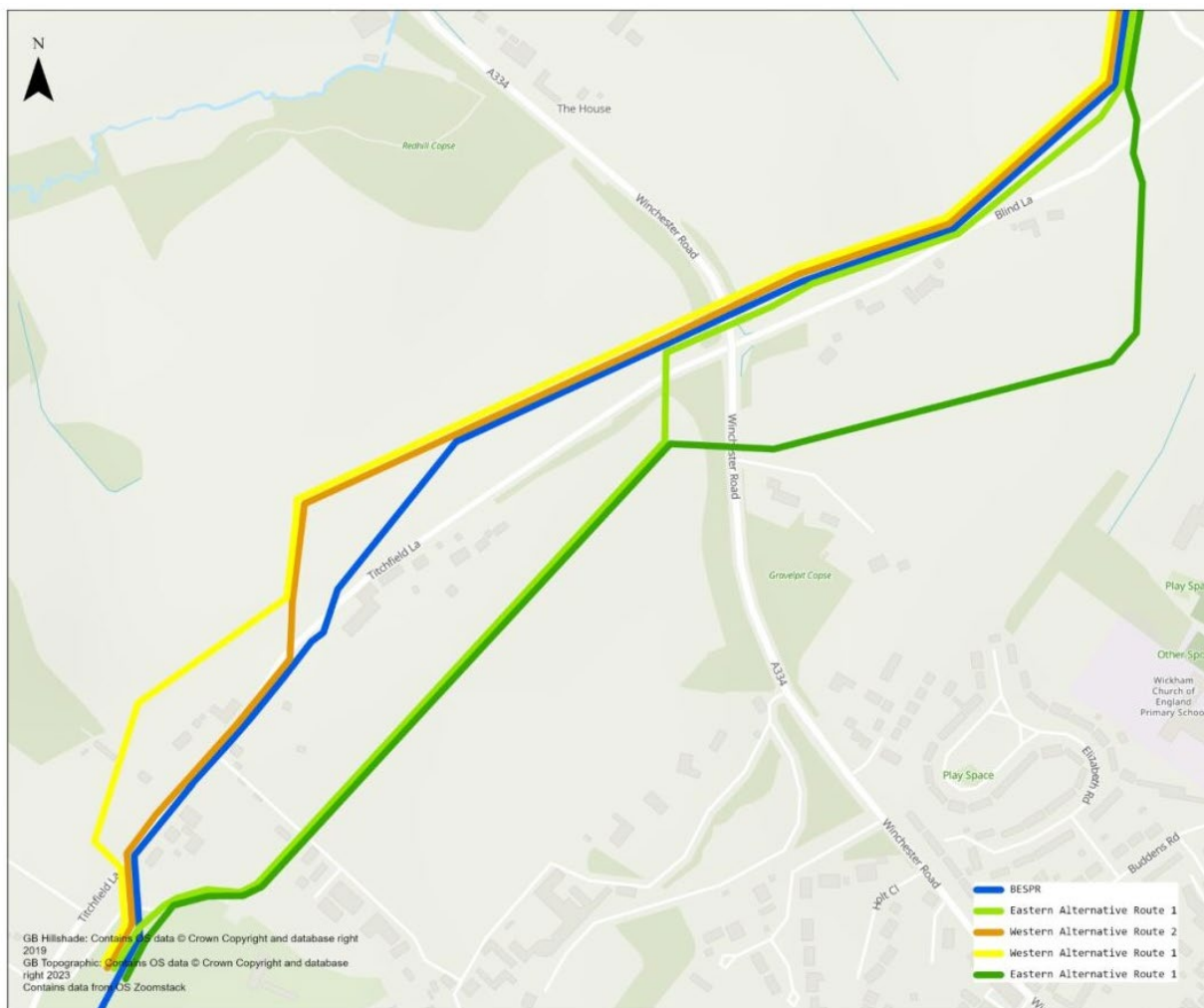


Figure 26 - Section F and G pipeline options at Titchfield Lane

Table 18 sets out the evaluation outcomes for the five route options.

Table 18 - Section F and G interface with Titchfield Lane evaluation outcomes

Topic	BESPR	Eastern Alternative Route 1	Eastern Alternative Route 2	Western Alternative Route 1	Western Alternative Route 2
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 				
Biodiversity	<ul style="list-style-type: none"> Intersects hedgerows, trees and lowland mixed deciduous woodland priority habitats. Intersects three areas of woodland that support Hazel Dormice (protected species). Approximately 20 m from a protected species. 	<ul style="list-style-type: none"> Intersects hedgerows, trees and lowland mixed deciduous woodland priority habitats. Intersects three areas of woodland that support Hazel Dormice (protected species). 	<ul style="list-style-type: none"> Intersects hedgerows, trees and lowland mixed deciduous woodland priority habitats. Intersects three areas of woodland that support Hazel Dormice (protected species). Within 70 m of the Gravelpit Copse SINC. 	<ul style="list-style-type: none"> Intersects hedgerows, trees and lowland mixed deciduous woodland priority habitats. Approximately 25 m from ancient woodland. Intersects three areas of woodland that support Hazel Dormice (protected species). Approximately 20 m from a protected species. Approximately 25 m from Tankerhill Copse SINC. 	<ul style="list-style-type: none"> Intersects hedgerows, trees and lowland mixed deciduous woodland priority habitats. Intersects three areas of woodland that support Hazel Dormice (protected species). Approximately 20 m from a protected species.
Carbon	<ul style="list-style-type: none"> For both options, construction and operation of the pipeline would result in the generation of carbon, however these are considered to be equal for both options. 				
Geology & soils	<ul style="list-style-type: none"> Potential contaminative land uses adjacent to short stretches of the route comprising farms and a plant nursery. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> Potential contaminative land uses adjacent to short stretches of the route comprising farms and a backfilled pond. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> Potential contaminative land uses adjacent to short stretches of the route comprising farms and a plant nursery. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> Potential contaminative land uses adjacent to short stretches of the route comprising farms and a backfilled pond. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> Potential contaminative land uses adjacent to short stretches of the route comprising farms, a plant nursery and a backfilled pond.
Historic Environment	<ul style="list-style-type: none"> Intersects two Roman roads. Potential for features associated with the Roman roads. 	<ul style="list-style-type: none"> Intersects a Roman road. Potential for features associated with the Roman road. 	<ul style="list-style-type: none"> Intersects two Roman roads. Potential for features associated with the Roman roads. 		
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 				
Landscape & Visual	<ul style="list-style-type: none"> Intersects a TPO group along Winchester Road. Within the Forest of Bere LCA area and the Meon Valley LCA area. 	<ul style="list-style-type: none"> Intersects a TPO group along Winchester Road. Within the Forest of Bere LCA area and the Meon Valley LCA area. Potential for impacts to landscape character (landcover and tranquillity). Potential for visual amenity impacts: 	<ul style="list-style-type: none"> Intersects a TPO group along Winchester Road. Within the Forest of Bere LCA area and the Meon Valley LCA area. 		<ul style="list-style-type: none"> Intersects a TPO group along Winchester Road. Within the Forest of Bere LCA area and the Meon Valley LCA area.

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Topic	BESPR	Eastern Alternative Route 1	Eastern Alternative Route 2	Western Alternative Route 1	Western Alternative Route 2
	<ul style="list-style-type: none"> Potential for impacts to landscape character (landcover, tranquillity and pattern and scale). Potential for visual amenity impacts: <ul style="list-style-type: none"> Closest residential receptors are circa 15m away. Intersects footpath 14/2. 	<ul style="list-style-type: none"> Closest residential receptors are circa 20 m away. Intersects footpath 1/1. 		<ul style="list-style-type: none"> Potential for impacts to landscape character (landcover and tranquillity). Potential for visual amenity impacts: <ul style="list-style-type: none"> Closest residential receptors are circa 50 m away. Intersects footpath 14/2. 	<ul style="list-style-type: none"> Potential for impacts to landscape character (landcover and tranquillity). Potential for visual amenity impacts: <ul style="list-style-type: none"> Closest residential receptors are circa 15m away. Intersects footpath 14/2.
Noise & Vibration	<ul style="list-style-type: none"> Closest residential properties are located 15m away which may be subject to adverse noise and vibration impacts. Potential for noise to impact those along haul routes. 	<ul style="list-style-type: none"> Closest residential properties are located 20 m away which may be subject to adverse noise and vibration impacts. Potential for noise to impact those along haul routes. 		<ul style="list-style-type: none"> Closest residential properties are located 50 m away which may be subject to adverse noise and vibration impacts. Potential for noise to impact those along haul routes. 	<ul style="list-style-type: none"> Closest residential properties are located 15m away which may be subject to adverse noise and vibration impacts. Potential for noise to impact those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> Within a MCA for Soft Sand. 	<ul style="list-style-type: none"> Within a MCA for Superficial Sand and Gravel and part of a MCA for Soft Sand. 			
Socio-economics	<ul style="list-style-type: none"> Potential for amenity and disruption impacts to residencies 15m away. Intersects land used by the Paw Paddock business (dog walking field) and a wedding events business. Potential to impact land used for Wickham Festival every August. Intersects footpath 14/2. 	<ul style="list-style-type: none"> Potential for amenity and disruption impacts to residencies 20 m away. Intersects land use by the Paw Paddock business (dog walking field) and a wedding events business. Potential for impacts to Wickham Park Golf Club including parking and land used for Wickham Festival every August. Intersects an access route for the Wickham Montessori School. Intersects footpath 1/1. 	<ul style="list-style-type: none"> Potential for amenity and disruption impacts to residencies 20 m away. Potential for impacts to Wickham Park Golf Club including parking and land used for car parking for Wickham Festival every August. Intersects an access route for the Wickham Montessori School. Intersects footpath 1/1. 	<ul style="list-style-type: none"> Potential for amenity and disruption impacts to residencies 50 m away. Intersects land used by the Paw Paddock business (dog walking field) and a wedding events business. Potential to impact land used for Wickham Festival every August. Intersects footpath 14/2. 	<ul style="list-style-type: none"> Potential for amenity and disruption impacts to residencies 15 m away. Intersects land used by the Paw Paddock business (dog walking field) and a wedding events business. Potential to impact land used for Wickham Festival every August. Intersects footpath 14/2.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 				

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Topic	BESPR	Eastern Alternative Route 1	Eastern Alternative Route 2	Western Alternative Route 1	Western Alternative Route 2
Traffic & Transport	<ul style="list-style-type: none"> Partly routed along Titchfield Lane and intersects Wickham Road. Potential to delay road users, especially the construction works in Titchfield Lane. Intersects footpath 14/2. 	<ul style="list-style-type: none"> Intersects Wickham Road and Titchfield Lane. Potential to delay road users. Intersects footpath 1/1. 	<ul style="list-style-type: none"> Intersects Wickham Road and Blind Lane. Potential to delay road users. Intersects footpath 1/1. 	<ul style="list-style-type: none"> Intersects Wickham Road and Titchfield Lane. Potential to delay road users. Intersects footpath 14/2. 	<ul style="list-style-type: none"> Partly routed along Titchfield Lane and intersects Wickham Road. Potential to delay road users, especially the construction works in Titchfield Lane. Intersects footpath 14/2.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No adverse impacts identified. 				

The BESPR and both western alternative routes are all in close proximity of identified protected species and Western Alternative Route 1 is also within proximity to ancient woodland. The BESPR and both western alternative routes also intersect with two Roman Roads, whereas the eastern alternative routes intersect with one Roman Road and therefore have fewer potential historic environment risks. The BESPR and Western Alternative Route 2 would both require construction within Titchfield Lane where temporary road closures may be required. As a result of these constraints, the BESPR and western alternative routes were not progressed.

The eastern alternative routes have similar constraints that would require suitable mitigation to reduce impacts. The key differentiating factor between the two options is that Eastern Alternative Route 1 intersects with a field that is used by a dog walking business and a wedding events business which would be temporarily disrupted during the construction phase. Eastern Alternative Route 2 avoids intersecting with these existing businesses. Eastern Alternative Route 1 also intersects the full extent of a field that is used for the Wickham Festival whereas Eastern Alternative Route 2 only intersects the corner of this field.

As a result of the reduced environmental impacts and potential disruption on existing businesses compared to the alternative options, Eastern Alternative Route 2 was progressed.

3.6.3. Micrositing

Figure 27 shows the draft Order Limits in Section F and Section G.

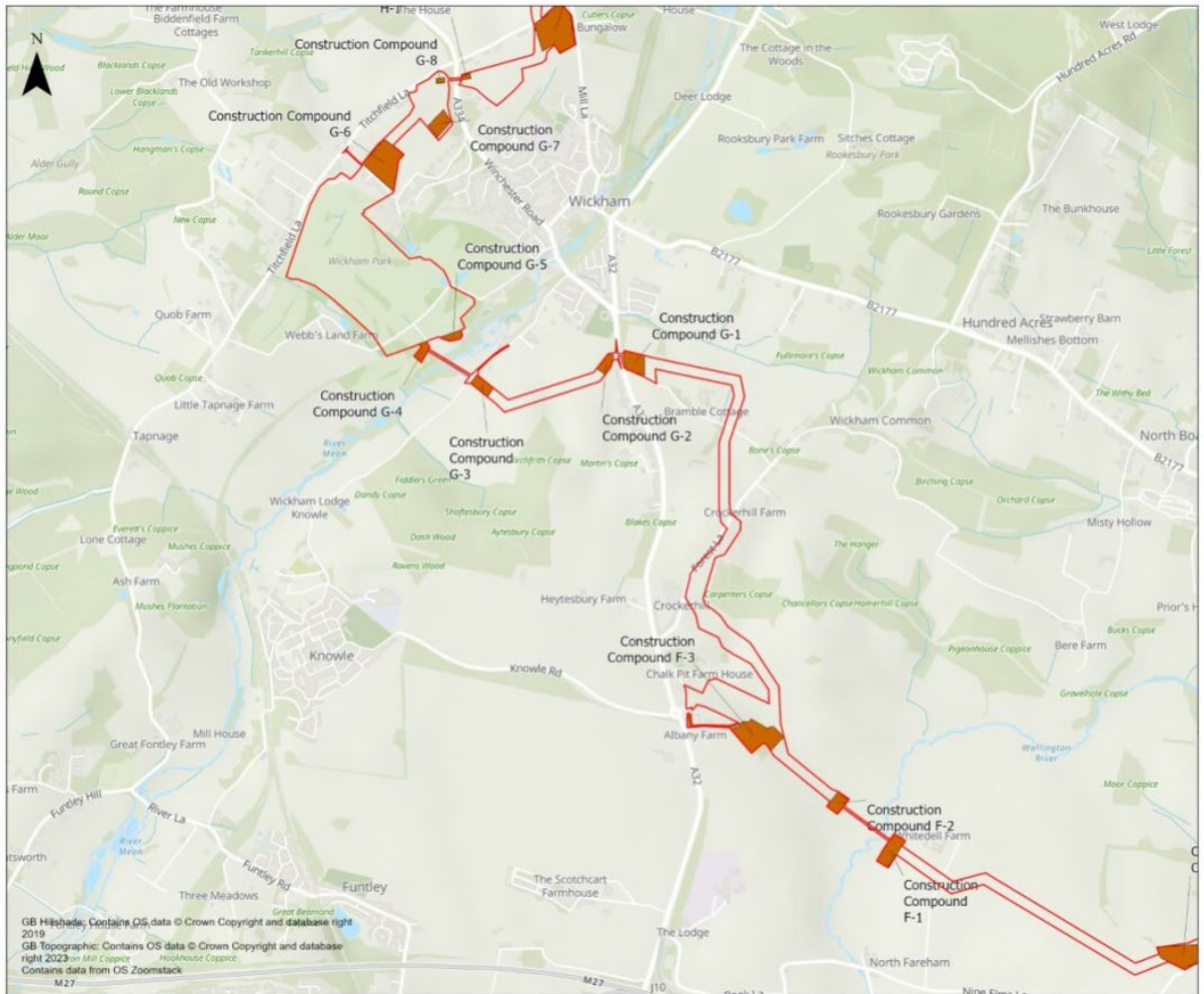


Figure 27 - Section F and G draft Order Limits and construction compounds

Trenchless construction is proposed for the crossing of the River Wallington and the River Meon. The extent of trenchless construction and the locations of the construction compounds have been designed to avoid the river corridor habitat and the associated flood risk zones, so that impacts on biodiversity, water quality and flood risk are reduced. Trenchless construction is also proposed for the crossing of Hoad's Hill (A32) as this is a key highway route between Wickham to the north and the M27 in the south.

The construction of the pipeline could result in temporary disruption to the operations of Wickham Park Golf Club, therefore the draft Order Limits have been kept wide to allow for flexibility for the route so that it can be developed further through engagement. The aim of this further development and engagement is to reduce impacts on the operations of the golf club. Initial engagement with Wickham Park Golf Club on the route of the pipeline has been undertaken, and this will continue following the Summer 2024 Consultation.

The draft Order Limits are also wide east of the roundabout junction between Wickham Road (A32) and Knowle Road. This is to provide flexibility on the alignment of the Project with Welborne Garden Village, specifically the access route and location of Intermediate Pumping Station F which are located in close proximity to the site of Welborne Garden Village. The site selection undertaken for Intermediate Pumping Station F is set out in Section 3.12.

Construction compounds have been proposed in the following locations:

- Construction Compound F-1: Located on the east side of the River Wallington to support trenchless crossing of the watercourse. The construction compound has been located so that it is outside of the flood risk zones and floodplain habitat associated with the River Wallington.
- Construction Compound F-2: Located on the west side of the River Wallington to support trenchless crossing of the watercourse. The construction compound has been located so that it is outside of the flood risk zones and floodplain habitat associated with the River Wallington as far as possible.
- Construction Compound F-3: Located east of the A32 and Albany Farm to support construction of the pipeline within Section F. The construction compound would also facilitate the construction of Intermediate Pumping Station F.
- Construction Compound G-1: Located east of Hoad's Hill (A32) to support trenchless crossing of this road.
- Construction Compound G-2: Located west of Hoad's Hill (A32) to support trenchless crossing of this road.
- Construction Compound G-3: Located south east of Mayles Lane to support trenchless crossing of the River Meon. The construction compound has been located south east of Mayles Lane so the trenchless crossing of the River Meon can also pass under vegetation north west of Mayles Lane, therefore avoiding the loss of these habitats.
- Construction Compound G-4: Located south of Tanfield Road to support trenchless crossing of the River Meon. The construction compound has been located to avoid nearby vegetation associated with the River Meon.
- Construction Compound G-5: Located within Wickham WTW to provide additional support for the construction of the pipeline within Section G.
- Construction Compound G-6: Located south east of Titchfield Lane to support construction of Intermediate Pumping Station G and the pipeline within Section G.
- Construction Compound G-7: Located west of Winchester Road (A334) to support construction of the pipeline within Section G and accommodate a water storage lagoon.
- Construction Compound G-8: Located west of Winchester Road (A334) to support trenchless crossing of this road. The construction compound has been located outside of vegetation on the west side of Winchester Road (A334).

3.7. Section H

3.7.1. Summer 2022 Consultation

Section H continues north from Wickham towards Waltham Chase. The pipeline includes the crossing of Winchester Road (A334) and Winchester Road (B2177).

Figure 28 shows Section H of the Project as presented at the Summer 2022 Consultation.

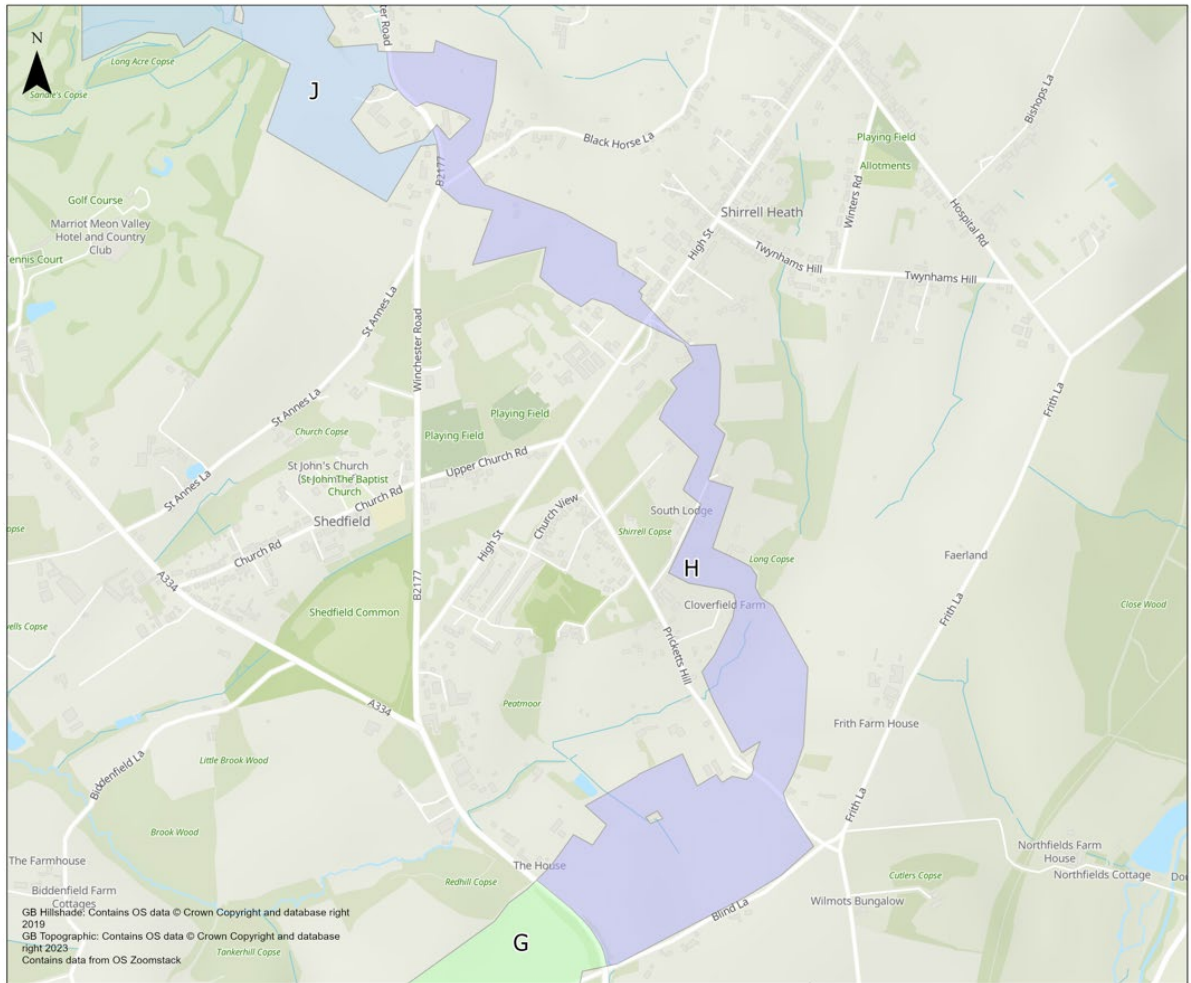


Figure 28 - Section H as shown at the Summer 2022 Consultation

3.7.2. Design development following the Summer 2022 Consultation

Winchester Road (B2177) Crossing

Following the Summer 2022 Consultation, we received feedback that the construction associated with the BESPR where it intersected north of Blackhorse Lane and east of Winchester Road (B2177) could disrupt the operations of an existing business.

As a result, we undertook a review to identify whether there were any potential alternatives in this area. An alternative route was identified which is shown in Figure 29. This alternative route was outside of the preferred pipeline corridor that was presented at the Summer 2022 Consultation.

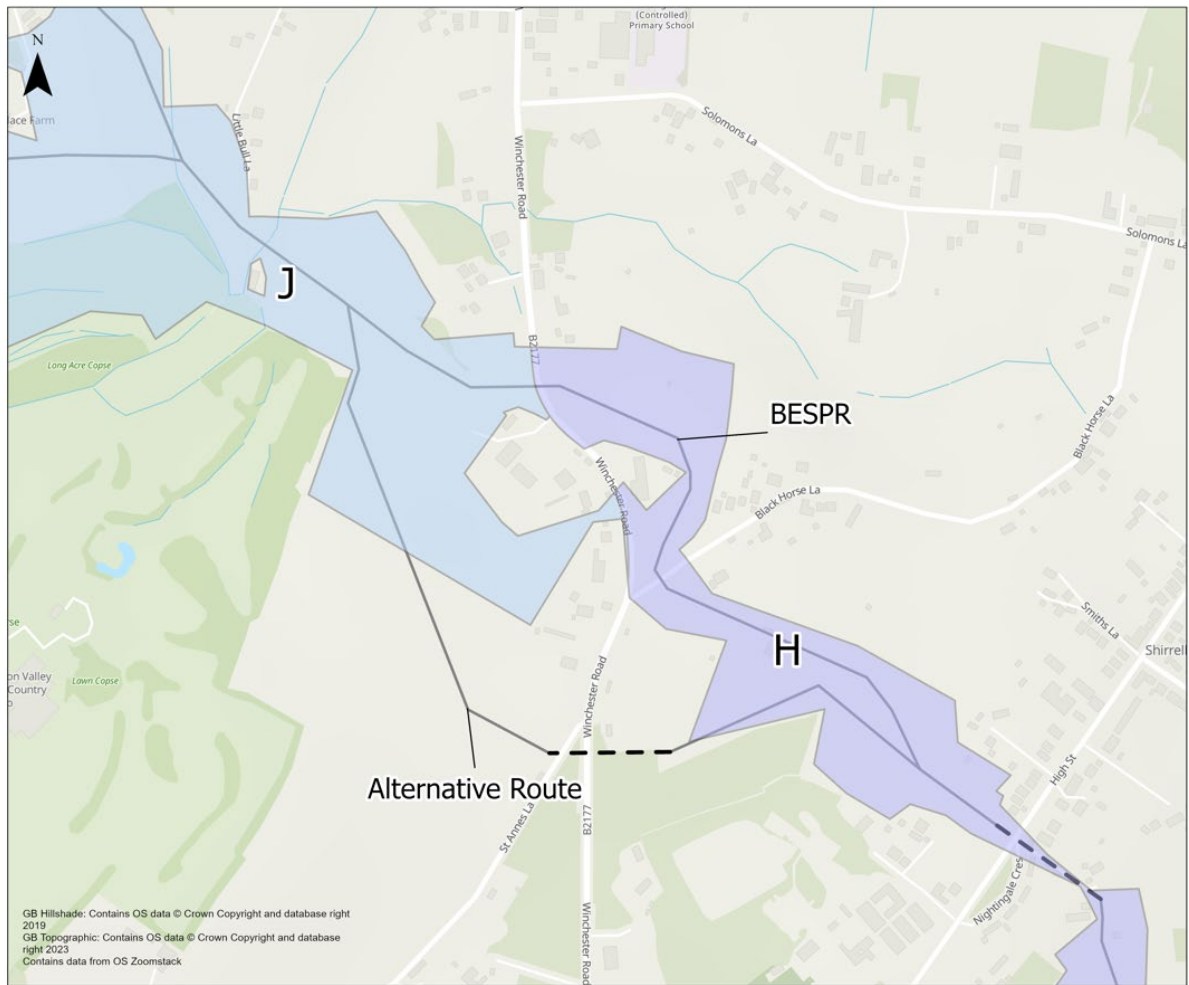


Figure 29 - Section H pipeline options at Winchester Road (B2177)

Table 19 sets out the evaluation outcomes for the BESPR and alternative route.

Table 19 - Section H Winchester Road (B2177) crossing evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 	
Biodiversity	<ul style="list-style-type: none"> Approximately 4 km from Solent and Southampton Water Ramsar and SPA. Approximately 4 km from Solent Maritime SAC. Potential for impacts to priority habitats as it intersects seven hedgerows and a strip of lowland mixed deciduous woodland. Within proximity to a protected species that are approximately 20 m away at their closest. 	<ul style="list-style-type: none"> Approximately 3.8 km from Solent and Southampton Water Ramsar and SPA. Approximately 3.8 km from Solent Maritime SAC. Potential for impacts priority habitats as it intersects three hedgerows and a strip of lowland mixed deciduous woodland. Within proximity to a protected species that are approximately 40 m away at their closest. St Anne's Wood SINC is within 50 m of a trenchless crossing.
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	
Geology & soils	<ul style="list-style-type: none"> Potential contaminant sources including landfilled areas are adjacent to short stretches of the route. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	

Topic	BESPR	Alternative
Historic Environment	<ul style="list-style-type: none"> Approximately 150 m north east of Grade II listed Sandy Hill House. Unknown archaeological remains could be present. 	<ul style="list-style-type: none"> Approximately 100 m south of Grade II listed Sandy Hill House. Approximately 60 m east of Shedfield House park and garden which is locally designated asset. Approximately 350 m north of Shedfield Conservation Area. Unknown archaeological remains could be present.
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 	
Landscape & Visual	<ul style="list-style-type: none"> Potential for impacts to landscape character (landcover, tranquillity and pattern and scale). There are residential properties located approximately 20 m north and 50 m - 100 m west. Intersects footpath 13/1. 	<ul style="list-style-type: none"> Potential for impacts to landscape character (landcover, tranquillity and pattern and scale). There are residential properties located approximately 100 m east. Intersects footpath 13/1 and 3/2 and runs parallel to footpath 3/1 and 4/2.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential property is 20 m away and there are further dwellings within 50 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> The closest residential property is 30 m away and there are further dwellings within 70 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> No adverse impacts identified. 	
Socio-economics	<ul style="list-style-type: none"> Potential for amenity impacts to residencies and businesses near The Forge Pub and Black Horse Lane. Other businesses may be impacted by traffic disruption on the B2177. 	<ul style="list-style-type: none"> Potential for amenity impacts to a property (farm/livery/stables) adjacent to the B2177 and St Anne's Lane Junction.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users of Winchester Road (B2177) and Black Horse Lane. Potential to impact users of footpath 13/1. 	<ul style="list-style-type: none"> Potential to impact users of footpaths 13/1, 3/2, 3/1 and 4/2.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No adverse impacts identified. 	

It was identified that the alternative route would have a reduced potential for interface with identified protected species as it is further away and it is also at a greater distance from the closest residential property. The alternative route would reduce the need to cross Black Horse Lane and would avoid the need for the pipeline to change direction a number of times in this area. Therefore the alternative route was progressed.

3.7.3. Micrositing

Figure 30 shows the draft Order Limits in Section H.



Figure 30 - Section H draft Order Limits and construction compounds

Trenchless construction has been proposed for the crossing of Winchester Road (A334) and Winchester Road (B2177). This is because these are key local highway routes that provide connectivity between Wickham and Waltham Chase and adopting a trenchless construction method would remove the need for road closures/diversions. The trenchless crossing of Winchester Road (A334) would avoid the dense vegetation that borders the road, and the trenchless crossing of Winchester Road (B2177) would also avoid woodland around St Anne’s Lane.

The pipeline route runs along an access road to the south of High Street in Shirrell Heath. Due to the lack of space available to construct the pipeline within this access road, trenchless construction would be used from the east of the access road to the west of High Street.

Construction compounds have been located in the following locations:

- Construction Compound H-1: Located on the north east side of Winchester Road (A334) to support trenchless construction for the crossing of the road.
- Construction Compound H-2: Located south of Blind Lane and west of Mill Lane to support construction of the pipeline within Section H.
- Construction Compound H-3: Located east of High Street in Shirrell Heath to support trenchless construction of the access road east of High Street.

- Construction Compound H-4: Located west of High Street in Shirrell Heath to support trenchless construction of the access road east of High Street and construction of the pipeline within Section H.
- Construction Compound H-5: Located east of Winchester Road (B2177) to support trenchless construction for the crossing of this road.

3.8. Section J

3.8.1. Summer 2022 Consultation

Section J passes west of Waltham Chase from Winchester Road (B2177) to Botley Road (B3035) and the River Hamble. It also crosses Sandy Lane and Curdridge Lane.

Figure 31 shows Section J of the Project as presented at the Summer 2022 Consultation.

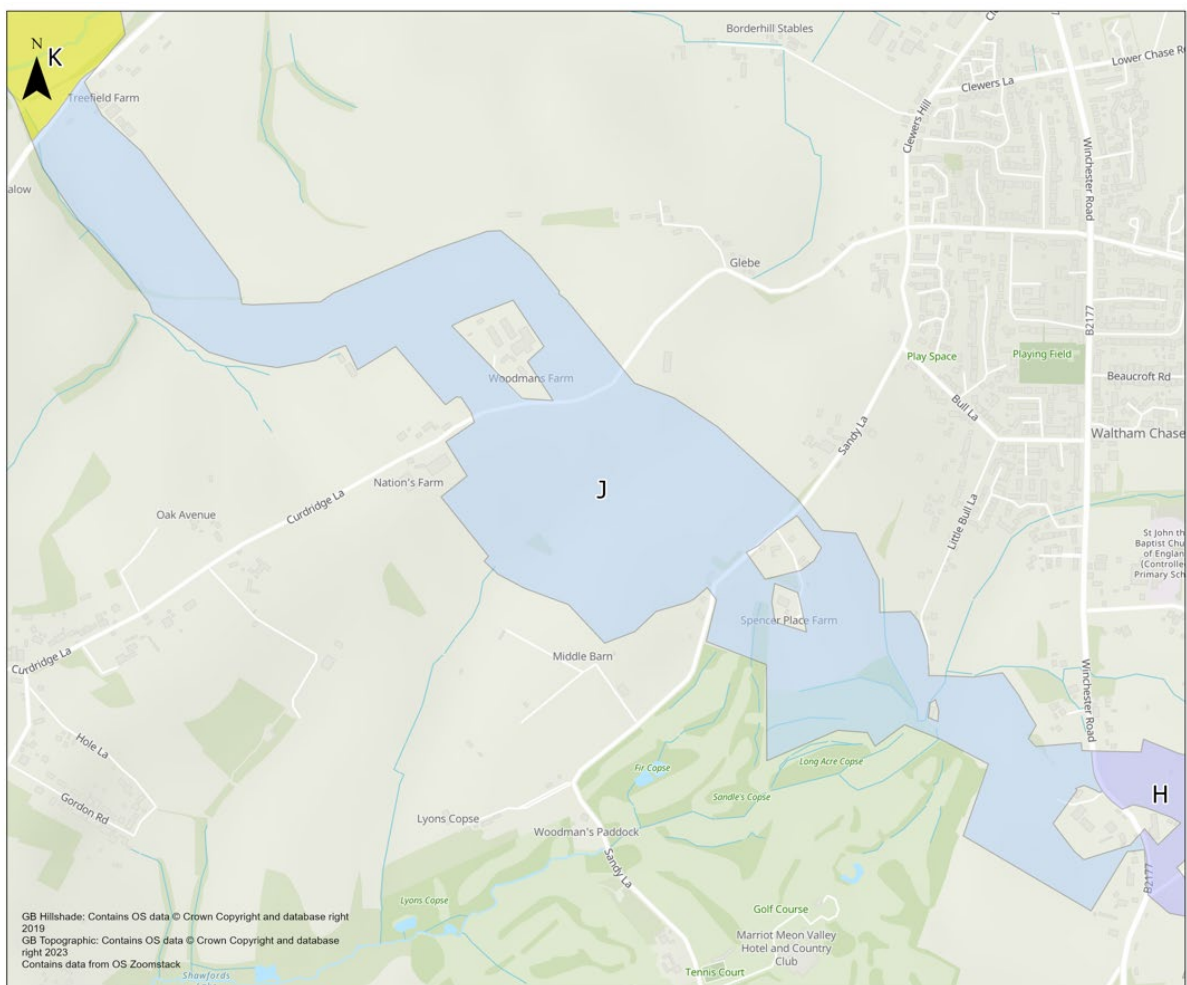


Figure 31 - Section J as shown at the Summer 2022 Consultation

3.8.2. Design development following the Summer 2022 Consultation

Sandy Lane Crossing

The BESPR shown at the Summer 2022 Consultation crossed Sandy Lane within 15 m of a residential property. Construction of the pipeline would have the potential to restrict access to the property and

encroach on land associated with the property. Throughout the site selection of the Project, we have aimed to avoid locating infrastructure near residential properties. As a result of the proximity to the property on Sandy Lane, we identified an alternative pipeline route.

The alternative route is located at the north east of the pipeline section. Consideration was given to the potential for an alternative route in the centre of the pipeline section, however it was considered that this would similarly be in close proximity to existing development and would intersect with more vegetation than the alternative route identified to the north east.

Figure 32 shows the BESPR and alternative route.

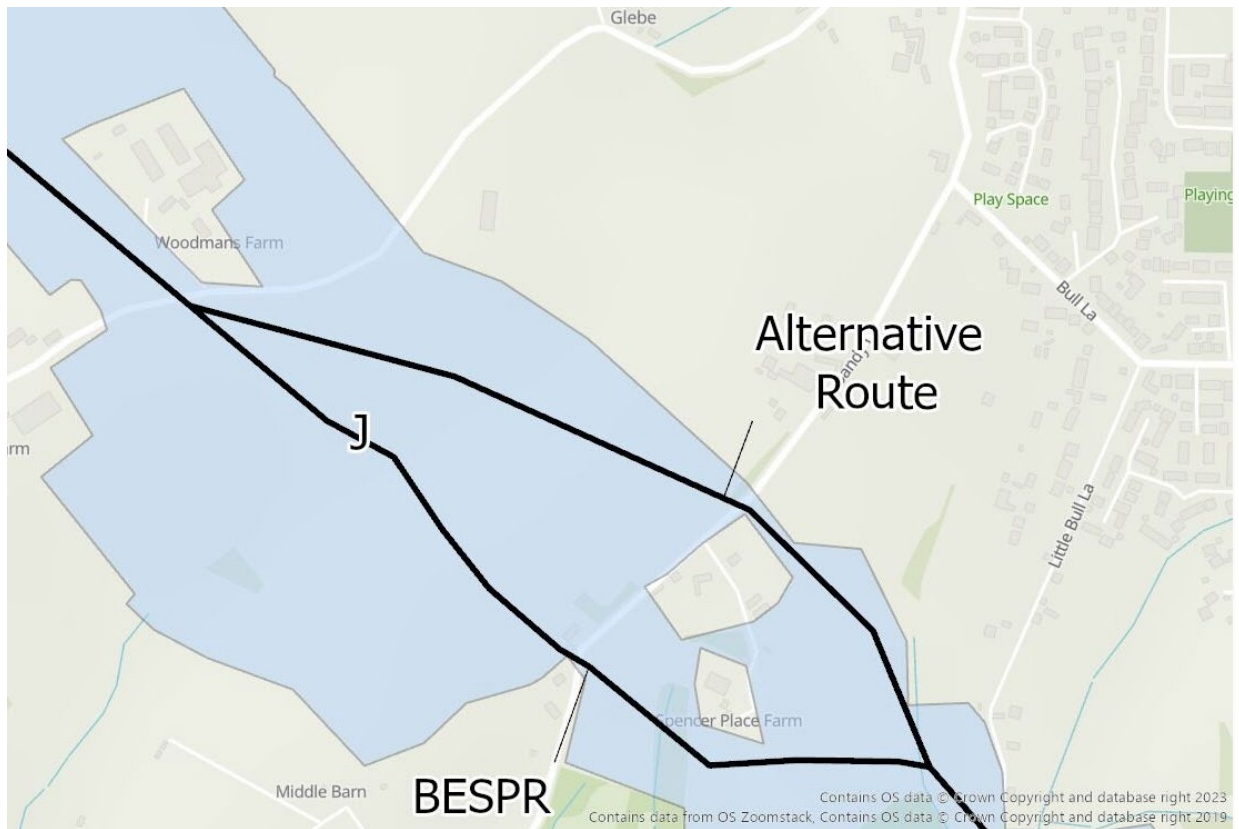


Figure 32 - Section J pipeline options at Sandy Lane

Table 20 sets out the evaluation outcomes for the BESPR and alternative route.

Table 20 - Section J Sandy Lane crossing evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts.
Biodiversity	<ul style="list-style-type: none"> Within 3.8km of the Solent and Southampton Water Ramsar and SPA. Within 3.8km of the Solent Maritime SAC. Intersects deciduous woodland priority habitat. Within 500 m of the Waltham Chase Meadows SSSI. Within 50 m of ancient woodland at Sandals Copse. Approximately 60 m from a protected species. 	<ul style="list-style-type: none"> Within 3.9km of the Solent and Southampton Water Ramsar and SPA. Within 3.9km of the Solent Maritime SAC. Intersects deciduous woodland priority habitat. Within 500 m of the Waltham Chase Meadows SSSI. Approximately 20 m from a protected species.

Topic	BESPR	Alternative
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	
Geology & soils	<ul style="list-style-type: none"> No adverse impacts identified. 	<ul style="list-style-type: none"> Intersects a historic landfill site. Construction within this area could expose contaminants and therefore suitable mitigation would be employed.
Historic Environment	<ul style="list-style-type: none"> Approximately 150 m from Grade II listed Spencer Place. HER data suggests there are visible earthworks of a post-medieval drainage system and medieval or later cropmarks (field boundaries) on the route of the pipeline. 	<ul style="list-style-type: none"> Approximately 90 m from Grade II listed Spencer Place. HER data suggests there is a group of medieval or later cropmarks (field boundaries) on the route of the pipeline.
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 	
Landscape & Visual	<ul style="list-style-type: none"> Adjacent to Meon Valley Hotel, Golf & Country Club which is 80 m away at its closest. Visual disturbance may be caused. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility given the elevation). The route passes through a gap between two buildings on Sandy Lane, including a residential property (2 Mohawk Cottages) 15 m away and an agricultural building 25 m away. A footpath along the western boundary may be impacted during construction. Temporary scarring effects as a result of vegetation loss / replanting. 	<ul style="list-style-type: none"> Adjacent to Meon Valley Hotel, Golf & Country Club which is 100 m away at its closest. Visual disturbance may be caused. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility). The route is 45 m from the closest property on Sandy Lane. There are further residencies along this road within 100 m that may be impacted. A footpath along the western boundary may be impacted during construction. Temporary scarring effects as a result of vegetation loss / replanting.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential property is 15 m away and there are further dwellings within 50 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> The closest residential property is 45 m away and there are further dwellings within 50 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> Waste will be generated during construction. The route is within a Soft Sand MCA. 	
Socio-economics	<ul style="list-style-type: none"> Potential for amenity impacts to scattered residencies. Potential for amenity impacts to users of footpath 6/1 (Shedfield) which is intersected. Potential for impacts to Sandy Acres Guide Campsite. 	<ul style="list-style-type: none"> Potential for amenity impacts to scattered residencies. Potential for impacts to Catnaps Cattery at Spencer Place Farm.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users of Sandy Lane. Potential to impact users of footpath 6/1 (Shedfield). 	<ul style="list-style-type: none"> Potential to impact road users of Sandy Lane.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No adverse impacts identified. 	

A number of potential impacts were identified as a result of the proximity of the BESPR to residential properties. Protected species were identified within 20 m of the alternative route meaning there is less

flexibility than at the BESPR to employ a 30 m avoidance buffer, therefore mitigation would need to be implemented to ensure that any impacts are minimised and reduced during the construction phase.

As the alternative route is in less close proximity to the nearest residential property compared to the BESPR, which is just 15 m away from the nearest residential property, the alternative route was progressed.

Woodmans Farm

The BESPR presented at the Summer 2022 Consultation passed west of Woodmans Farm which is located north of Curdridge Lane. Environmental surveys identified a number of protected species in this area and therefore an alternative route to the east of Woodmans Farm was identified. The BESPR and alternative route are shown in Figure 33.



Figure 33 - Section J pipeline options at Woodmans Farm

Table 21 sets out the evaluation outcomes for the BESPR and alternative route.

Table 21 - Section J Woodmans Farm evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 	
Biodiversity	<ul style="list-style-type: none"> Intersects priority habitats including four hedgerows with trees and two hedgerows. Approximately 1 km from Waltham Chase Meadows SSSI. Within proximity to a protected species which is approximately 10 m away at their closest. There are links to hazel dormouse habitats and the hedgerows with trees have bat roosting potential. 	<ul style="list-style-type: none"> Intersects three priority habitat hedgerows. Approximately 900 m from Waltham Chase Meadows SSSI. There are links to hazel dormouse habitats and trees with bat roosting potential.
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	
Geology & soils	<ul style="list-style-type: none"> Adjacent (off site) to the BESPR there is a sand pit that may contain contamination. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> No adverse impacts identified.
Historic Environment	<ul style="list-style-type: none"> Intersects two parallel cropmarks and a possible route of a Roman road. 	<ul style="list-style-type: none"> Intersects three parallel cropmarks and a possible route of a Roman road. Approximately 45 m from the Bishop's Waltham historic deer park boundary (non-designated heritage asset).
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 	
Landscape & Visual	<ul style="list-style-type: none"> Approximately 1.8 km from the South Downs National Park. Approximately 550 m and 800 m from small blocks of ancient woodland (within Meon Valley Hotel & Golf Course and Oakwood Copse). Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility). There are residential properties at Woodmans Farm circa 60 m away and other scattered residencies approximately 150 m away. Footpaths including Curdridge 4/1 and Shedfield 5/1 may be impacted during construction. Temporary scarring effects as a result of vegetation loss / replanting. 	<ul style="list-style-type: none"> Approximately 1.8 km from the South Downs National Park. Approximately 500 m and 1 km from small blocks of ancient woodland (within Meon Valley Hotel & Golf Course and Oakwood Copse). Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility). There are residential properties at Woodmans Farm circa 120 m away and other scattered residencies approximately 270 m away. Footpaths including Curdridge 4/1 and Shedfield 5/1 may be impacted during construction. Temporary scarring effects as a result of vegetation loss / replanting.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential property is 60 m away and there are commercial units 80 m away which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> The closest residential property is 120 m away and there are commercial units 50 m away which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> Waste will be generated during construction. The route is within a Soft Sand MCA. 	

Topic	BESPR	Alternative
Socio-economics	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties which are 60 m away at their closest. Potential for impacts to businesses at Woodmans Farm (including mechanics, vehicle repairs and others). 	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties which are 120 m away at their closest. Potential for impacts to businesses at Woodmans Farm (including mechanics, vehicle repairs and others).
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users of Curdridge Lane, a minor road providing connectivity between Wickham to the east and Botley to the west. 	
Water quality, resource & flood risk	<ul style="list-style-type: none"> No adverse impacts identified. 	

The BESPR is within approximately 10 m from a protected species which means we would not be able to implement a suitable 30 m buffer zone. No protected species were identified on the alternative route at this stage of the assessment process. For the remaining criteria considered, the review outcomes were similar, although the alternative route was considered to have marginally higher potential historic environment impacts due to its proximity to a historic deer park which is a locally designated historic environment asset. It was considered that the alternative route should be progressed as a result of the reduced potential for direct impacts on protected species..

3.8.3. Micrositing

Figure 34 shows the draft Order Limits in Section J.



Figure 34 - Section J draft Order Limits and construction compounds

The draft Order Limits have been drawn sufficiently wide to allow for future flexibility in multiple locations within Section J:

- West of Winchester Road (B2177) and south of Little Bull Lane. There are a number of dense lines of trees in this location and protected species have also been identified. Further surveys are therefore required to determine the location of the pipeline route.
- Sandy Lane. As explained above, protected species were identified on the route of the preferred pipeline route. Therefore, the draft Order Limits have been widened to allow flexibility in the routing of the pipeline to respond to the location of the protected species at the time of construction.
- West of Sandy Lane, the preferred pipeline route intersects an area where a number of hedgerows and lines of trees converge. Further surveys are therefore required to determine the location of the pipeline route.
- North of Curdridge Lane. The preferred pipeline route intersects with two dense lines of trees. Further surveys are therefore required to determine the location of the pipeline route.

Construction compounds have been located in the following locations:

- Construction Compound J-1: Located west of St Annes Lane to support the trenchless crossing of Winchester Road (B2177) and St Annes Lane as described in Section H.

- Construction Compound J-2: Located south of Curdrige Lane to support construction of the pipeline within Section J.
- Construction Compound J-3: Located south east of Botley Road (B3035) to support construction of the pipeline within Section J and the trenchless crossing of Botley Road (B3035) and the River Hamble. Described in Section K.

3.9. Section K

3.9.1. Summer 2022 Consultation

At the Summer 2022 Consultation, Section K passed west of Bishop's Waltham from Botley Road (B3035) to Mortimers Lane (B3037). Section K also crossed the River Hamble, Winters Hill, Scivier's Lane and Alma Lane. At Winters Hill near Durley Street, two options were shown in Section K. This was to allow further assessments and investigations to be undertaken following the Summer 2022 Consultation as we identified overhead electricity lines and a watercourse on the eastern option, and residential properties close to the western option.

Figure 35 shows Section K of the Project as presented at the Summer 2022 Consultation.

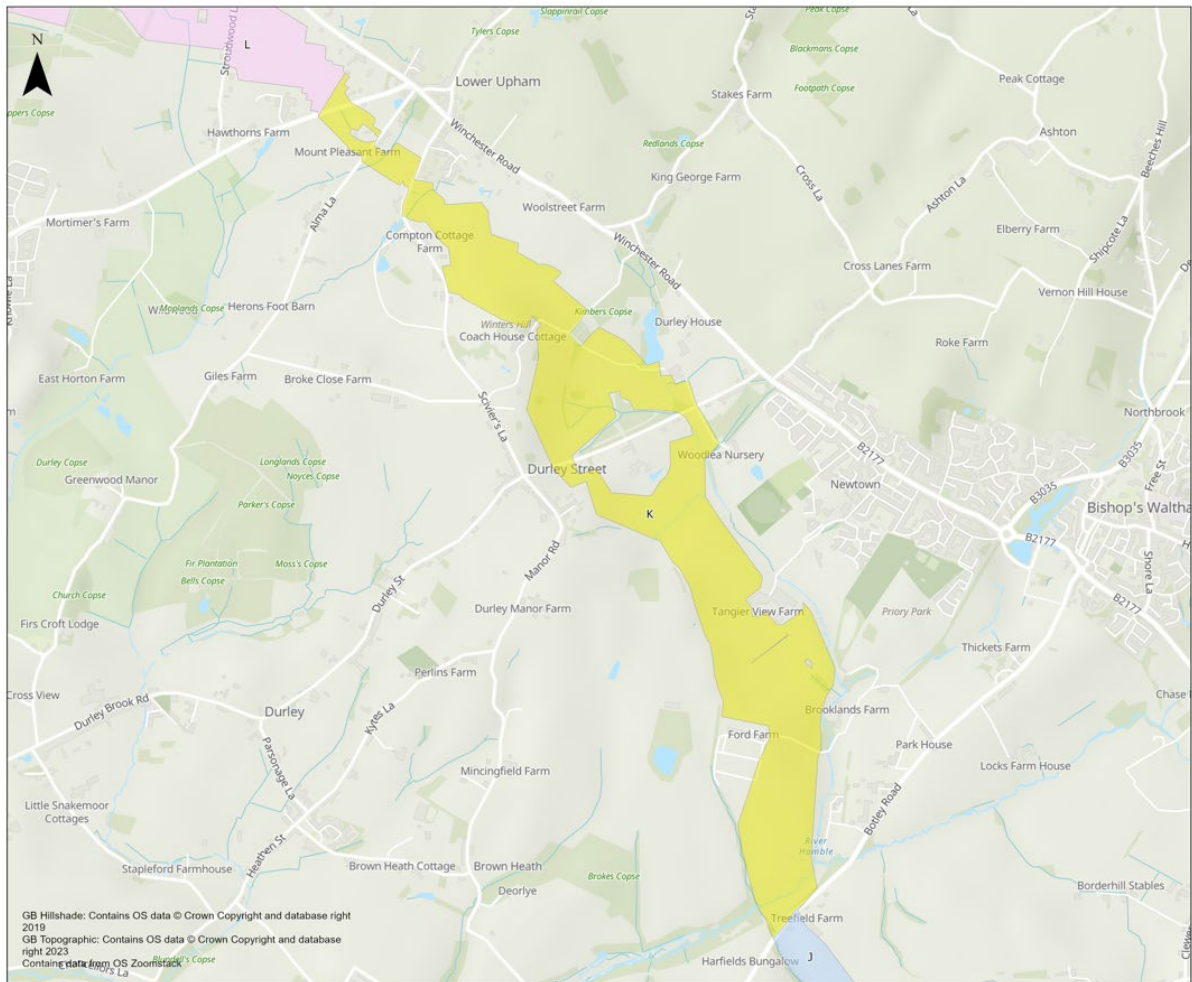


Figure 35 - Section K as shown at the Summer 2022 Consultation

3.9.2. Design development following the Summer 2022 Consultation

Winters Hill Road Crossing

At Winters Hill Road, Section K had two options. The BESPR was located in the eastern option within Section K. Two options were presented at the Summer 2022 Consultation as the BESPR to the east was in close proximity to an overhead electricity line and an upstream tributary of the River Hamble, and the western option was in close proximity to residential properties.

When developing these options, we were aware of an existing Esso pipeline in the area and that Esso's Southampton to London Pipeline Project, (a pipeline that transfers oil from the Fawley Refinery to Heathrow), was to be located alongside the existing Esso pipeline. Therefore, further engineering investigations would be required to determine the most suitable crossing point of this pipeline.

Following the Summer 2022 Consultation, we identified that the BESPR was intersecting the Esso pipelines in a location that was heavily constrained. This is because the BESPR would be crossing Esso's pipelines at Winters Hill road meaning the Esso pipelines would be deeper than would usually be required in order to cross this road. To ensure that sufficient buffers are implemented from the Esso infrastructure in line with relevant guidance, regulations and engagement with Esso, our pipeline would therefore need to be constructed at an even deeper depth. Additionally, there is a watercourse upstream of the River Hamble and a Roman Road in this area that would constrain construction activities. As a result, an alternative route was identified within the western section of Section K. This alternative route intersects the Esso pipelines in open agricultural land and which means there is less potential for construction restrictions as it is in a less constrained area. Figure 36 shows the two pipeline routes.

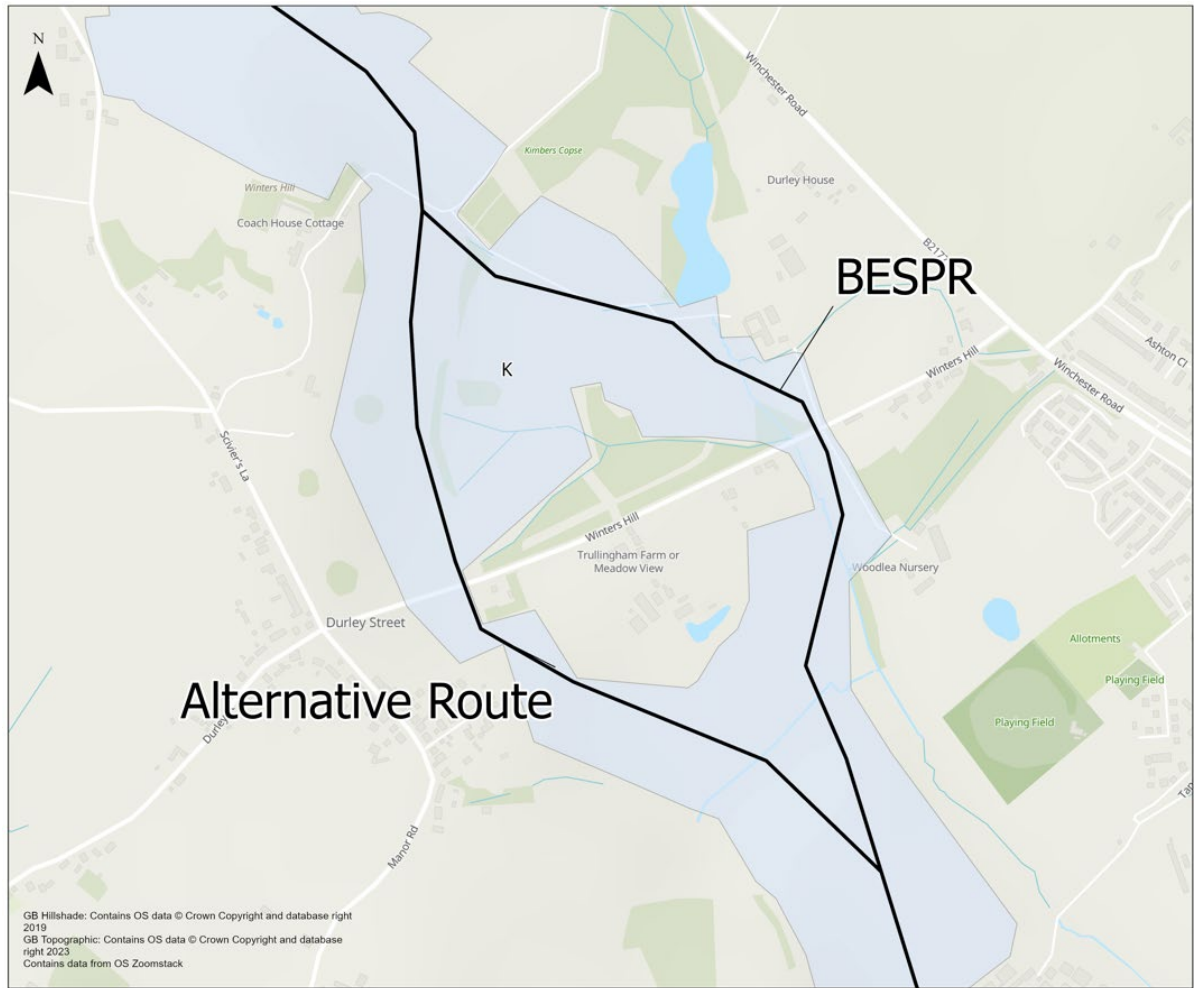


Figure 36 - Section K pipeline options at Winters Hill

Table 22 sets out the evaluation outcomes for the BESPR and alternative route.

Table 22 - Section K Wintershill Road crossing evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 	
Biodiversity	<ul style="list-style-type: none"> Intersects the Upper Hamble River which is hydraulically connected to the Solent and Southampton Water SPA and Ramsar and the Solent Maritime SAC. Intersects priority habitats including deciduous woodland, floodplain grazing marsh and 13 hedgerows. Intersects Kimbers Copse SINC. 	<ul style="list-style-type: none"> Intersects a wet ditch connected to the Upper Hamble River which is hydraulically connected to the Solent and Southampton Water SPA and Ramsar and the Solent Maritime SAC. Intersects four hedgerows, a wet ditch and parkland within Wintershill Park.
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	
Geology & soils	<ul style="list-style-type: none"> No adverse impacts identified. 	
Historic Environment	<ul style="list-style-type: none"> Within the northern extent of Bishop's Waltham historic deer park (non-designated heritage asset) and Wintershill Park (locally designated park and garden). 	<ul style="list-style-type: none"> Within the northern extent of Bishop's Waltham historic deer park (non-designated heritage asset) and Wintershill Park (locally designated park and garden).

Topic	BESPR	Alternative
	<ul style="list-style-type: none"> Interfaces with the alignment of a Roman road where there is potential for archaeological remains. 	<ul style="list-style-type: none"> Interfaces with remnants of a medieval or later field system in the form of cropmarks and earthworks.
Interface with other development	<ul style="list-style-type: none"> The pipeline route intersects with the Esso Southampton to London Pipeline Project. 	
Landscape & Visual	<ul style="list-style-type: none"> A short section is within parkland associated with Wintershill Hall Park (locally designated park and garden). Potential to impact the landscape character of the Durley Claylands LCA area. Potential for impacts to landscape character (landcover, pattern and scale and visibility). Within 70 m of residential properties on Wintershill Road, Manor Road and Scivier's Lane. Potential for impacts to national trails including Pilgrims Trail and Allan King Way. Temporary scarring effects as a result of vegetation loss / replanting. 	<ul style="list-style-type: none"> Within parkland associated with Wintershill Hall Park (locally designated park and garden). Potential to impact the landscape character of the Durley Claylands LCA area. Potential for impacts to landscape character (landcover, pattern and scale and visibility). Within 70 m of residential properties on Wintershill Road, Manor Road and Scivier's Lane. Temporary scarring effects as a result of vegetation loss / replanting.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential properties are 70 m away and they may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	
Resource & Waste	<ul style="list-style-type: none"> Waste will be generated during construction. The route is within a Brick Clay MCA. 	
Socio-economics	<ul style="list-style-type: none"> Potential for impacts to nearby residential and commercial properties due to disruption to Wintershill Road. Potential for amenity impacts to users of the Pilgrims Trail and Allan King Way national trails and two other footpaths. 	<ul style="list-style-type: none"> Potential for impacts to nearby residential and commercial properties due to disruption to Wintershill Road. Potential for amenity impacts to users of three local footpaths which are intersected.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users of Wintershill Road which is intersected. 	
Water quality, resource & flood risk	<ul style="list-style-type: none"> No adverse impacts identified. 	

The alternative route would reduce impact on biodiversity and nature conservation as this route does not directly cross the Upper Hamble River which is functionally linked to an SPA, Ramsar and an SAC, however it does cross a wet ditch which is connected to the Upper Hamble. When considering alternatives in the context of the NPSWRI and the Habitats Regulations, the alternative route is preferred. Additionally, the alternative route does not intersect the Kimbers Copse SINC and crosses fewer priority habitats, however, the weight given to these in the NPSWRI is not as great as considerations for the Upper Hamble and its functional links.

The alternative route intersects the non-designated park and garden at Wintershill Hall to a greater extent than the BESPR and therefore poses a greater impact as construction of the pipeline could adversely affect landscape character, heritage significance and also parkland habitat. There is potential for the alternative route to adversely affect the parkland at Wintershill Hall as a result of the loss or impact to mature trees, however it is anticipated that the pipeline could be routed to avoid loss

of trees and construction within root protection areas which would reduce risks associated with this option.

As a result of the constructability challenges associated with the BESPR's interface with the Esso pipelines and the greater consenting risk in relation to crossing the Upper Hamble River, the alternative route was progressed. This pipeline also meant that the pipeline was a greater distance from the Upper Hamble River and avoids intersecting with a Roman road.

3.9.3. Micrositing

Figure 37 shows the draft Order Limits in Section K.

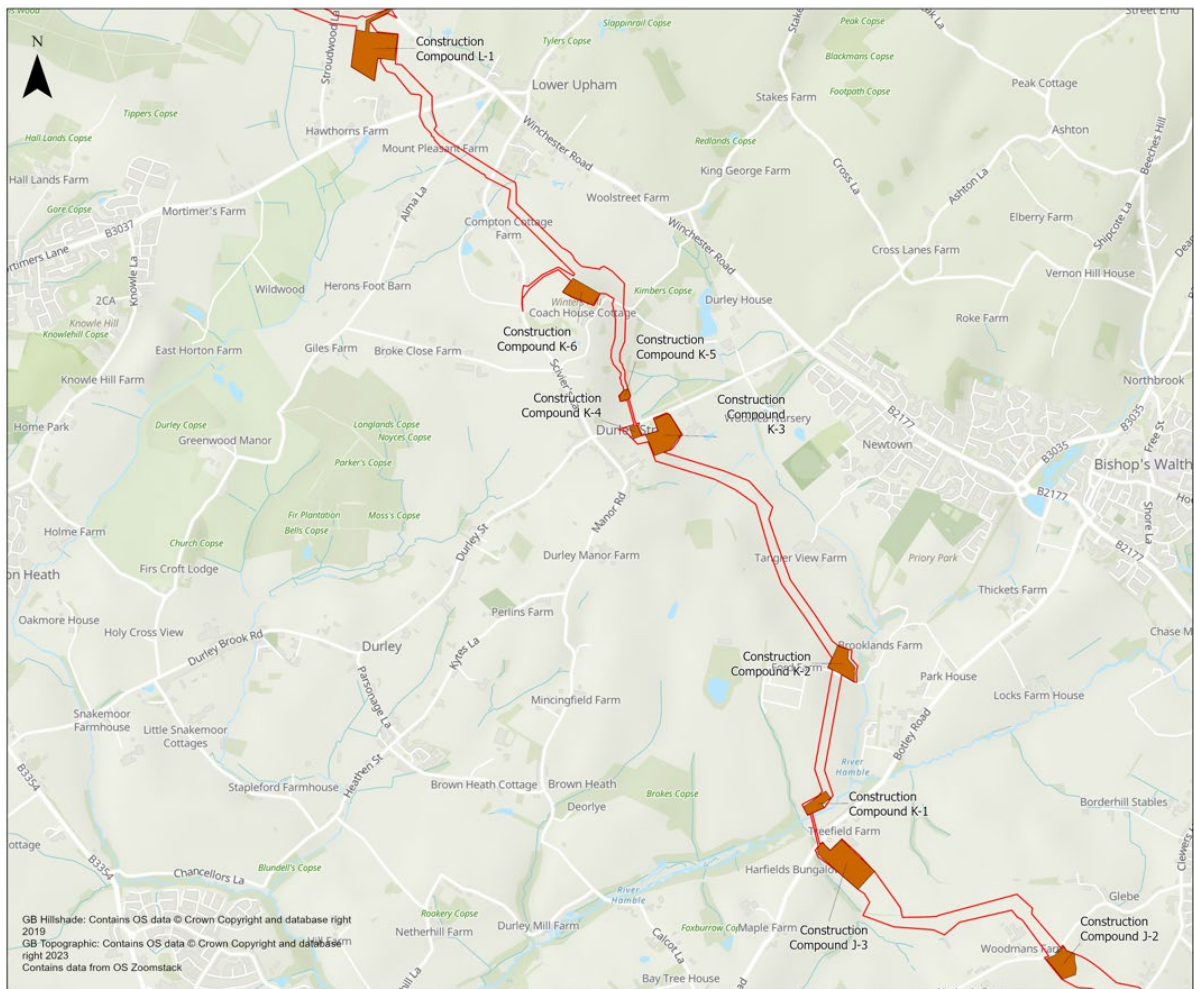


Figure 37 - Section K draft Order Limits and construction compounds

As explained above the preferred pipeline route in Section K passes through an area of parkland north of Winters Hill. Due to the potential for impacts to the landscape character, historic significance and parkland habitat, micrositing has been undertaken to reduce impacts where practicable. The draft Order Limits avoid intersecting with the root protection areas of the trees within the parkland. Trenchless construction would also be used underneath Winters Hill and the line of trees at the southern boundary of the parkland. A reduced construction working width of 20 m would be used to cross the line of trees at the northern boundary of the parkland.

Trenchless construction of Botley Road (B3035) and the River Hamble has been proposed to limit impacts on the road, the watercourse and surrounding vegetation. The trenchless crossing and location of construction compounds have also been designed to avoid flood risk zones and floodplain habitat associated with the River Hamble as far as possible.

Construction compounds have been located in the following locations:

- Construction Compound K-1: Located north of the River Hamble to support the trenchless crossing of the River Hamble and Botley Road (B3035). The construction compound on the southern side of the River Hamble and Botley Road (B3035) is located in Section J.
- Construction Compound K-2: Located east of Brooklands Farm to support construction of the pipeline in Section K.
- Construction Compound K-3: Located south of Winters Hill to support construction of the pipeline in Section K.
- Construction Compound K-4: Located south of Winters Hill to support the trenchless crossing of Winters Hill.
- Construction Compound K-5: Located north of Winters Hill to support the trenchless crossing of Winters Hill.
- Construction Compound K-6: Located east of Scivier's Lane to support the construction of Break Pressure Tank 4 and the pipeline in Section K.

3.10. Section L

3.10.1. Summer 2022 Consultation

Section L continues from Section K and passes north of Fair Oak and Horton Heath, through Fisher's Pond and south of Colden Common. At the Summer 2022 Consultation two options were presented at Fisher's Pond. The northern option routed along Portsmouth Road (B2177) whereas the southern option was located in agricultural land and was in close proximity of the Park Pale at Marwell scheduled monument.

Figure 38 shows Section L of the Project as presented at the Summer 2022 Consultation.

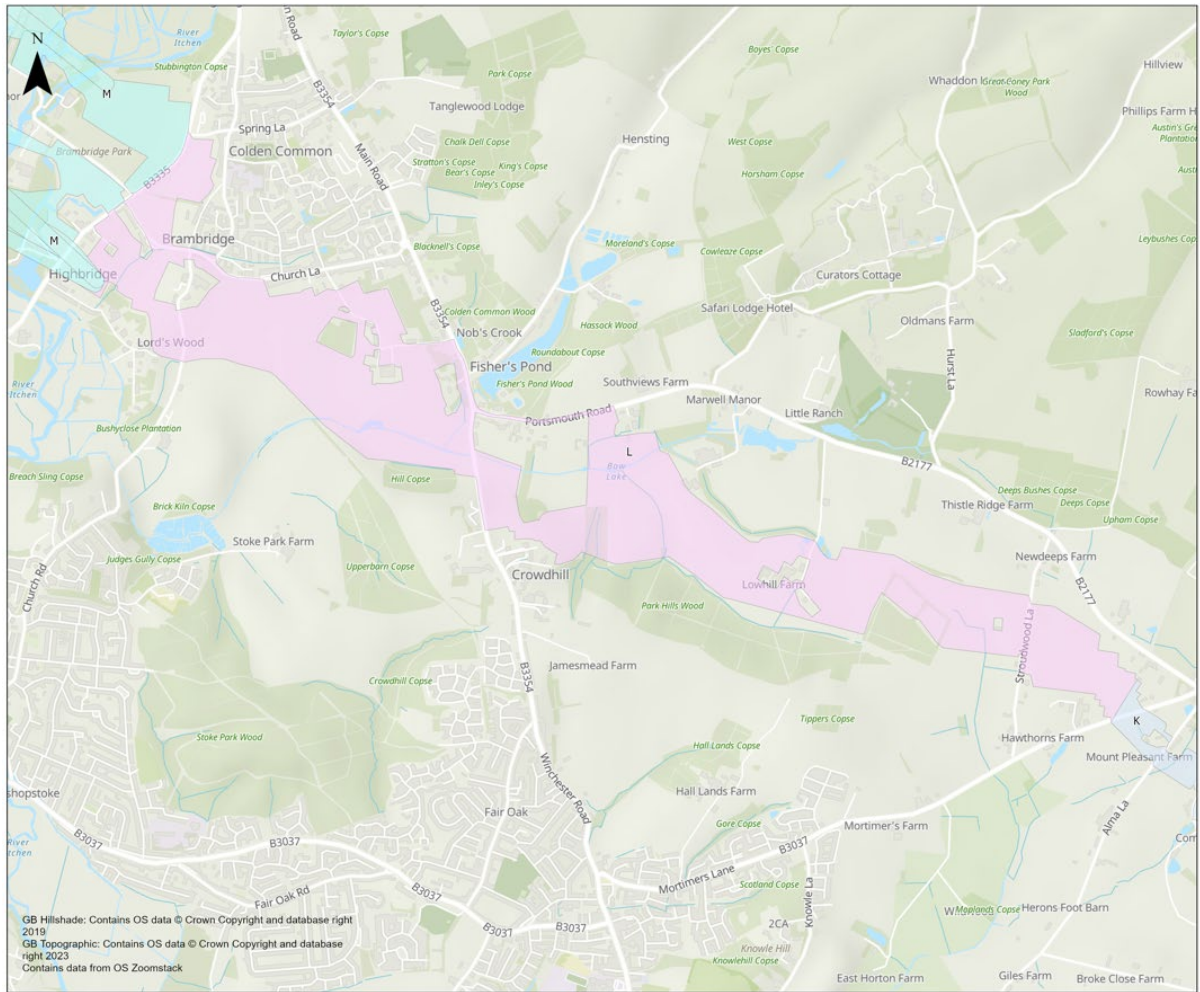


Figure 38 - Section L as shown at the Summer 2022 Consultation

3.10.2. Design development following the Summer 2022 Consultation

Fisher's Pond

At the Summer 2022 Consultation, two options were presented at Fisher's Pond as explained above. Two options were presented so that a route could be selected considering consultation feedback and further surveys and investigations. The two options presented are shown in Figure 39 and comprise the following:

- **Northern Option:** The northern option crosses the Bow Lake watercourse and then routes along Portsmouth Road (B2177) before crossing the junction between Portsmouth Road (B2177) and Winchester Road (B3354).
- **Southern Option:** The southern option routes to the north of Crowdhill and is located west of the Park Pale at Marwell scheduled monument before crossing Winchester Road (B3354). West of Winchester Road (B3354) the option crosses the Bow Lake watercourse.

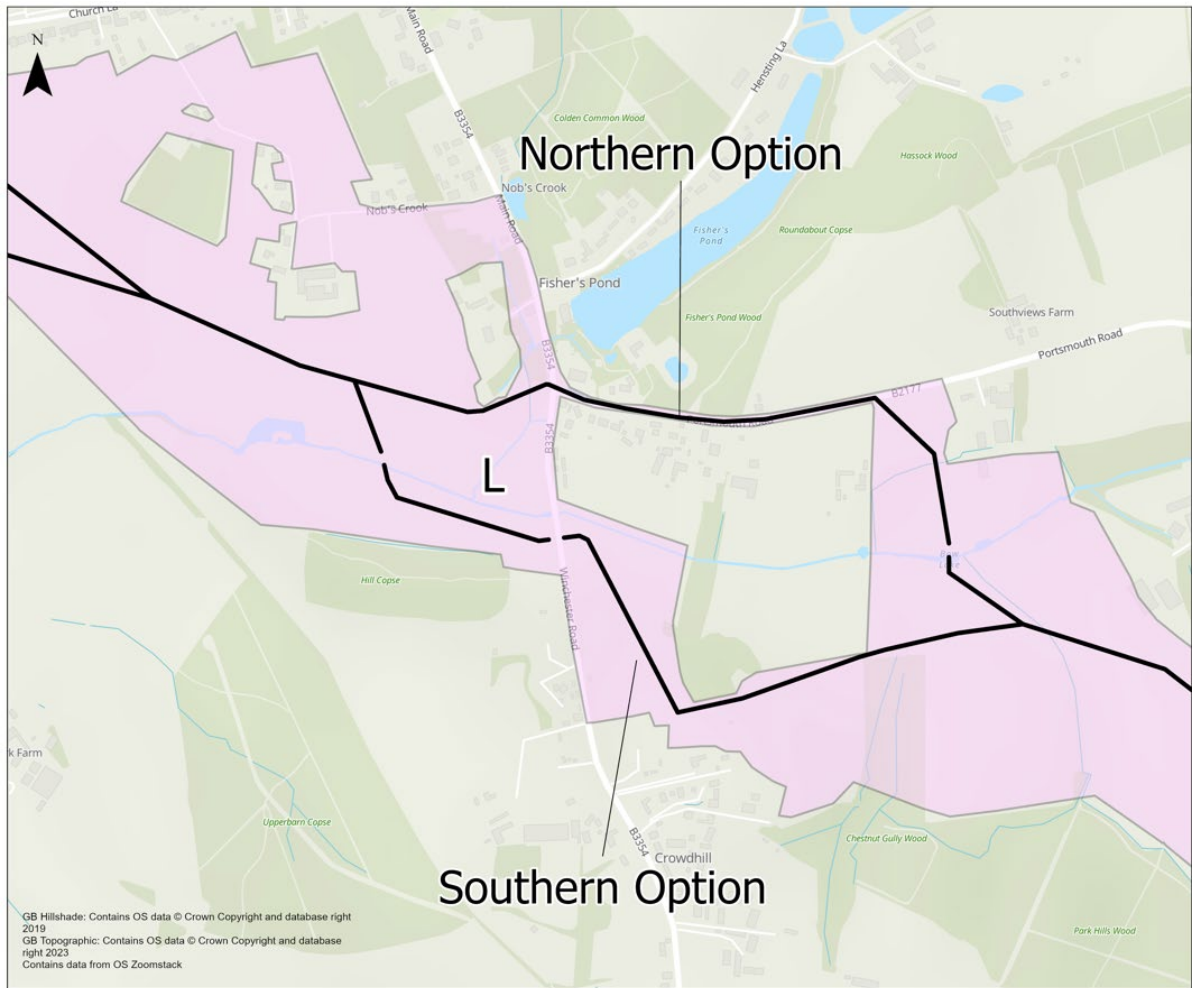


Figure 39 - Section L pipeline options at Fisher's Pond

Table 23 sets out the evaluation outcomes for the northern option and the southern option.

Table 23 - Section L Fisher's Pond evaluation outcomes

Topic	Northern option	Southern option
Air Quality	<ul style="list-style-type: none"> Closest residential properties are located approximately 15 m away along Portsmouth Road which may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Closest residential properties are located approximately 80 m away along Winchester Road which may be subject to adverse air quality impacts.
Biodiversity	<ul style="list-style-type: none"> Intersects Bow Lake which is connected to and upstream of the River Itchen SAC and SSSI. Potential for impacts to habitats of principal importance as the route intersects improved grassland, lowland meadow and hedgerow habitats. Within 10 m of Fisher's Pond Wood (ancient woodland), semi-natural Woodland and a SINC. Potential for impacts to habitats that may support protected species. 	<ul style="list-style-type: none"> Intersects Bow Lake which is connected to and upstream of the River Itchen SAC and SSSI. Potential for impacts to habitats of principal importance as the route intersects improved grassland, lowland meadow and hedgerow habitats. Within 10 m of ancient woodland and semi-natural Woodland. Intersects Fielders Farm Meadows (Eastleigh) SINC and is in close proximity to The Mount, Fair Oak and Horton Heath SINC and Chestnut Gully Wood SINC. Potential for impacts to habitats that may support protected species.
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	

Topic	Northern option	Southern option
Geology & soils	<ul style="list-style-type: none"> There are land uses with potential for contaminants in proximity to the route including a maintenance garage, recycling / scrap yard and a business park. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> There are land uses with potential for contaminants along a stretch of the route associated with a historic landfill and an embankment which the route intersects. Construction within this area could expose contaminants and therefore suitable mitigation would be employed.
Historic Environment	<ul style="list-style-type: none"> Approximately 135 m west of the Park Pale at Marwell, 400 m west of Marwell Manor scheduled monument and 140 m north of the Park Pale at Marwell, south of Fisher's Pond scheduled monument (at its closest point, the pipeline route is approximately 140 m north of this scheduled monument, but visibility of the asset is not available from this location whereas direct visibility is provided from the east). Archival research has identified that the route crosses a medieval fishpond within Marwell Park. As a result of the association with the deer park and nearby scheduled assets, the medieval fishpond could be of national significance. Within Marwell historic deer park, a locally designated asset. Intersects a post-medieval drainage system at Bow Lake which is visible as earthworks. 	<ul style="list-style-type: none"> Approximately 70 m west of the Park Pale at Marwell, south of Fisher's Pond scheduled monument. Stakeholder engagement has identified a medieval fishpond 'Eleven Acre Pond' which is intersected by the route and is associated with the nearby scheduled monument. This fishpond could be of national significance. Intersects Winchester Road which is located on a raised causeway, which is believed to be a dam feature associated with the Eleven Acre pond and may be of national significance. Within Marwell historic deer park, a locally designated asset. Intersects a post-medieval drainage system at Bow Lake (visible as earthworks) and a cropmark of a medieval or later field boundary.
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 	
Landscape & Visual	<ul style="list-style-type: none"> Within 10 m of Fishers Pond Wood ancient woodland. Micro-siting to avoid this is challenged by physical constraints (residential properties and overhead cables). Potential to impact the landscape character of the Fair Oak Wooded Farmland LCA area. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility). The closest residential properties are 15m away. The Fair Oak and Horton Heath 27/1 footpath is crossed via trenchless construction methods (no impacts anticipated). Temporary scarring effects as a result of vegetation loss / replanting. 	<ul style="list-style-type: none"> Within 10 m of ancient woodland / semi-natural woodland and 45m from Hill Copse ancient woodland. Potential to impact the landscape character of the Fair Oak Wooded Farmland LCA area. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility). The closest residential properties are approximately 80 m away on Winchester Road. The Fair Oak and Horton Heath 27/1 footpath is crossed via open cut construction methods (potential for amenity impacts). Temporary scarring effects as a result of vegetation loss / replanting.
Noise & Vibration	<ul style="list-style-type: none"> There are approximately 10 residential properties along Portsmouth Road within 15 m of the route which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> There are residential properties 80 m away on Winchester Road and 120 m away within Hillview Manor Park which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> No adverse impacts identified. 	

Topic	Northern option	Southern option
Socio-economics	<ul style="list-style-type: none"> Construction along Portsmouth Road would restrict access and disrupt a number of residential and commercial properties on Portsmouth Road / village of Fisher's Pond. Commercial properties include a haulage company, equestrian facility, a pub and a fishery. The Fair Oak and Horton Heath 27/1 footpath is crossed via trenchless construction methods (no impacts anticipated). Potential for traffic disruption on the B2177 to affect access to Marwell Zoo and Resort which is considered to be a regional tourist attraction. 	<ul style="list-style-type: none"> Potential for amenity impacts to residential properties 80 m away on Winchester Road and 120 m away within Hillview Manor Park. Potential for amenity impacts to the Fair Oak and Horton Heath 27/1 footpath which is crossed via open cut construction methods.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Impacts to road users of the B2177 and B3354 due to closure/diversion of roads. Potential for delays to pedestrians and cyclists from road and pathway closures. 	<ul style="list-style-type: none"> Impacts to users of footpath Horton Heath 27/1.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No adverse impacts identified. 	

Both options are in proximity to ancient woodland. The northern option is within 10 m of ancient woodland at Fisher's Pond Wood as it runs along Portsmouth Road (B2177). The northern option would be constrained to the highway boundary of Portsmouth Road (B2177), and therefore there is no potential to implement buffers from the ancient woodland so that the pipeline is further away from it. The southern option was also at its closest within 10 m of ancient woodland north of Crowdhill. However, it was considered that at the micrositing stage the southern option could be developed further to ensure a 15 m buffer (in line with Natural England and Forestry Commission guidance) could be implemented when defining the draft Order Limits (which was undertaken as set out in Section 3.10.3). The northern option could not be developed further to ensure a 15 m buffer could be implemented as this route was restricted by the highway boundary. The southern option is also located within the Fielders Farm Meadows SIN, which is a local wildlife site located east of Winchester Road (B3354) where there may be habitat losses.

The northern option has a number of traffic and transport, landscape and visual, noise and vibration and socio-economic constraints due to its location within Portsmouth Road (B2177). Construction of the pipeline within Portsmouth Road (B2177) would require a temporary closure of this road and Winchester Road (B3354), which are key highway links in this area of Hampshire. There are also a number of residential properties located to the south and north of Portsmouth Road (B2177) which would be affected by noise and vibration, disruption of views and potentially temporary disruptions to properties. The southern option avoids these impacts as it is not located in the highway network and is a greater distance from residential properties so any impacts on residential receptors would likely be reduced compared to the northern option.

The evaluation identified the potential presence of a medieval fishpond complex in the area of both the southern and northern options. This medieval fishpond complex is associated with the Marwell Park, the Marwell Manor scheduled monument and the Park Pale at Marwell scheduled monument. It is understood that the fishpond complex would have been fed by the Bow Lake watercourse. Stakeholder engagement has identified this fishpond complex as 'Eleven Acre Pond', which is a non-

designated asset that may potentially be of equivalent significance to a scheduled monument. It is understood that the Park Pale at Marwell scheduled monument and Winchester Road (B3354) are located on the site of the former pond dams. The southern option intersects the Winchester Road (B3354) dam and therefore is considered to have a greater potential for harm without mitigation on the Eleven Acre Pond when compared to the northern option. At this stage it was anticipated that micrositing could be undertaken to ensure the trenchless crossing of Winchester Road (B3354) passed at a suitable depth below the dam feature so that the potential risk for impacts on the asset are reduced. Further assessment of the potential impacts and identification of suitable mitigation is required as part of the ongoing environmental assessments, as well as engagement with the relevant regulator.

The southern option was progressed as it avoids locating the pipeline within Portsmouth Road (B2177) which would be required for the northern option. It is considered that micrositing could be undertaken to minimise potential impacts on the southern option, which included minimising the risk of harm to a historic asset which could be of national significance through the design of a trenchless crossing and ensuring a 15 m buffer from ancient woodland was built into the draft Order Limits.

West of Stroudwood Lane

Feedback received following the Summer 2022 Consultation highlighted that the BESPR passed through land that is used as a garden in an area west of Stroudwood Lane. Throughout the site selection process, we have aimed to avoid locating infrastructure in close proximity to residential properties, wherever practicable. As a result of the potential for impacts to residential land, we considered whether there were alternative routes in this area. Figure 40 shows the BESPR and alternative route that was identified further north in the pipeline section.

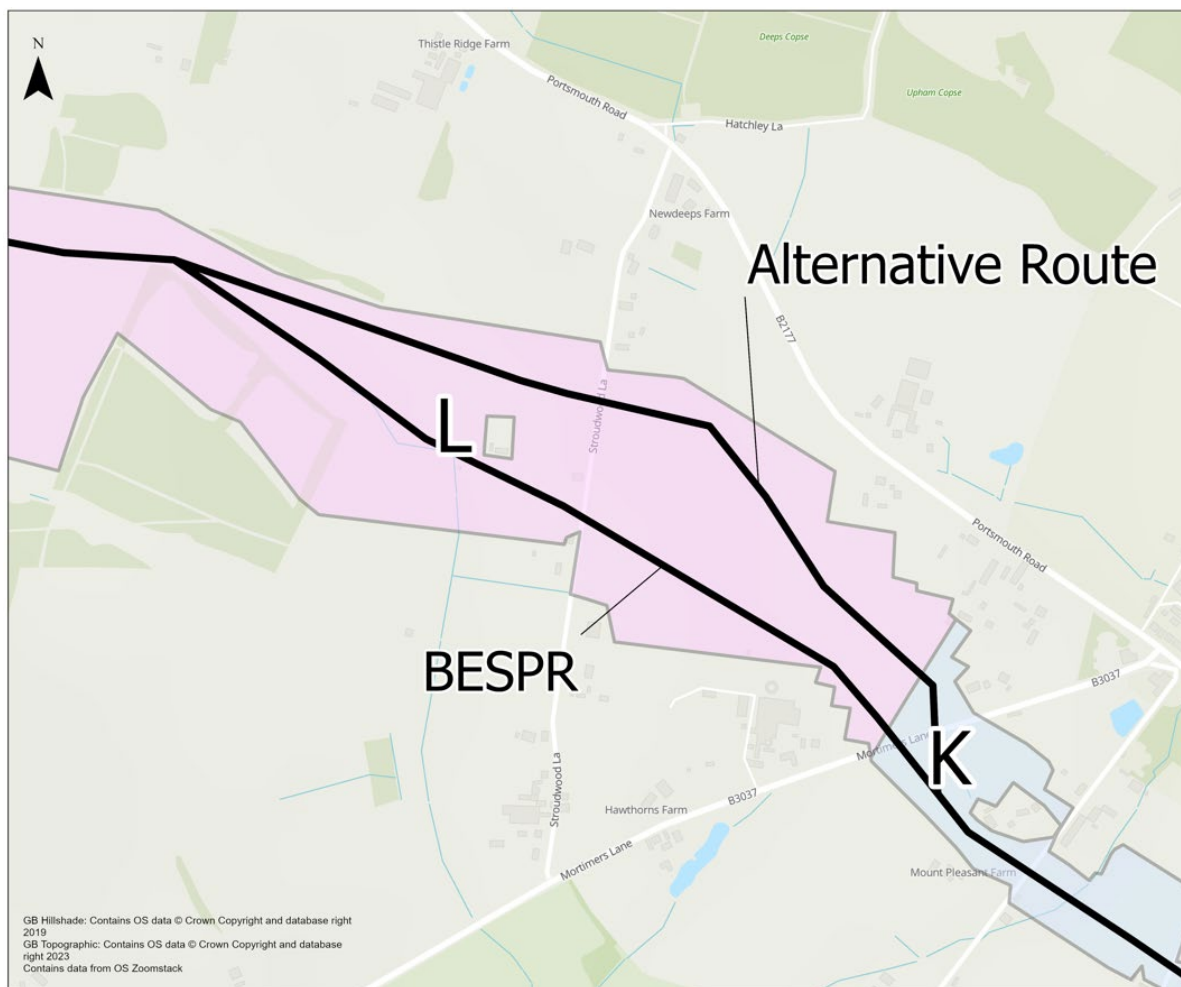


Figure 40 - Section K pipeline options west of Stroudwood Lane

Table 24 sets out the evaluation outcomes for the BESPR and alternative route.

Table 24 - Section L west of Stroudwood Lane evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Human receptors in close proximity to construction work and haul routes may be subject to adverse air quality impacts. 	
Biodiversity	<ul style="list-style-type: none"> Intersects lowland deciduous woodland priority habitat, 11 hedgerows, tree lines and woodland. Within 15m of another lowland deciduous woodland priority habitat. Potential for impacts to habitats that may support protected species including bats, badgers and other nesting birds. 	<ul style="list-style-type: none"> Intersects lowland deciduous woodland priority habitat, nine hedgerows, tree lines and woodland. Potential for impacts to habitats that may support protected species including bats, badgers and other nesting birds.
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	
Geology & soils	<ul style="list-style-type: none"> No adverse impacts identified. 	
Historic Environment	<ul style="list-style-type: none"> No adverse impacts identified. 	
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 	

Topic	BESPR	Alternative
Landscape & Visual	<ul style="list-style-type: none"> Approximately 310 m from the South Downs National Park. Areas of ancient woodland are within 180 m of the route and there are tree corridors connected to the ancient woodland close to construction areas. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility given proximity to a pre-school and presence of open fields). Potential for visual amenity impacts: <ul style="list-style-type: none"> Village Pre-School on Mortimers Lane circa 15 m away. Businesses along Stroudwood Lane (crossing the route). Residencies and businesses which are 30 m away at their closest. Other scattered residencies and businesses. Intersects footpath Fair Oak and Horton Heath 23/1. Temporary scarring effects as a result of vegetation loss / replanting. 	<ul style="list-style-type: none"> Approximately 215 m from the South Downs National Park. Areas of ancient woodland are within 280 m of the route and there are tree corridors connected to the ancient woodland close to construction areas. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility given proximity to a pre-school and presence of open fields). Potential for visual amenity impacts: <ul style="list-style-type: none"> Village Pre-School on Mortimers Lane circa 100 m away. Businesses along Stroudwood Lane (crossing the route). Residencies and businesses which are 50 m away at their closest. Other scattered residencies and businesses. Intersects footpath Fair Oak and Horton Heath 23/1. Temporary scarring effects as a result of vegetation loss / replanting.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential property is 30 m away and there are further dwellings within 50 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> The closest residential properties are 50 m away and there are further dwellings and commercial units within 80 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> Waste will be generated during construction. The route is within a Brick Clay MCA. 	
Socio-economics	<ul style="list-style-type: none"> Potential for impacts to a residential dwelling 30 m from the route on Stroudwood Lane and other residencies around the route. Potential for impacts to local amenities including a local garden centre and Upham Village Hall. Potential for amenity impacts to users of footpath Fair Oak and Horton Heath 23/1. 	<ul style="list-style-type: none"> Potential for impacts to residential dwellings 50 m from the route on Stroudwood Lane and other residencies around the route. Potential for impacts to local amenities including a local garden centre and Upham Village Hall. Potential for amenity impacts to users of footpath Fair Oak and Horton Heath 23/1.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users of Stroudwood Lane and Mortimers Lane. Potential to impact users of footpath Fair Oak and Horton Heath 23/1. 	
Water quality, resource & flood risk	<ul style="list-style-type: none"> Potential for geomorphological impacts to an unnamed watercourse west of Stroudwood Lane resulting from open cut construction. 	<ul style="list-style-type: none"> Potential for geomorphological impacts to an unnamed watercourse west of Stroudwood Lane resulting from open cut construction. Potential for impacts to a Secondary A bedrock aquifer that may be encroached by the route.

Similar constraints were identified for both options. The alternative route is further from the nearest residential properties, existing businesses, and community facilities. Therefore there is less potential for impacts relating to amenity, noise and vibration. The alternative route also intersects less areas of vegetation compared to the BESPR. The alternative route was therefore progressed.

3.10.3. Micrositing

Figure 41 shows the draft Order Limits in Section L.

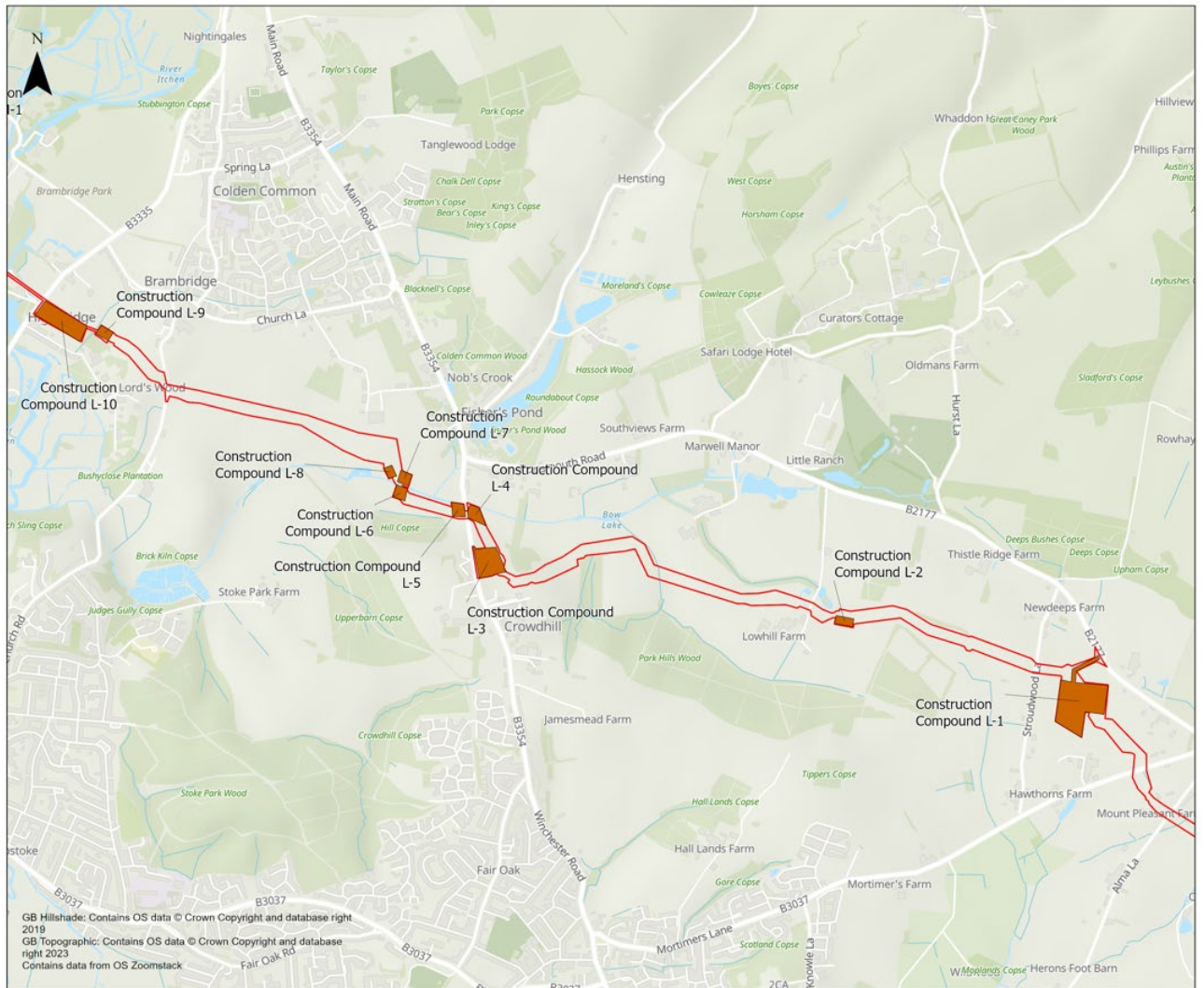


Figure 41 - Section L draft Order Limits and construction compounds

At Fisher's Pond, the draft Order Limits have been defined with a 15 m buffer from ancient woodland located north of Crowdhill. Trenchless construction of Winchester Road (B3354) and the Bow Lake watercourse have also been proposed.

The draft Order Limits pass north of Low Hill Farm. In this area, consideration was given to whether the pipeline could be located further to the north or south. A route to the south of Low Hill Farm was not progressed as this area is constrained by existing farm buildings, overhead power lines and ancient woodland at Park Hills Wood. Additionally, a route to the north of Low Hill Farm was not progressed as this would intersect with dense vegetation and a watercourse upstream of the Bow Lake watercourse. This area is shown in Figure 42.

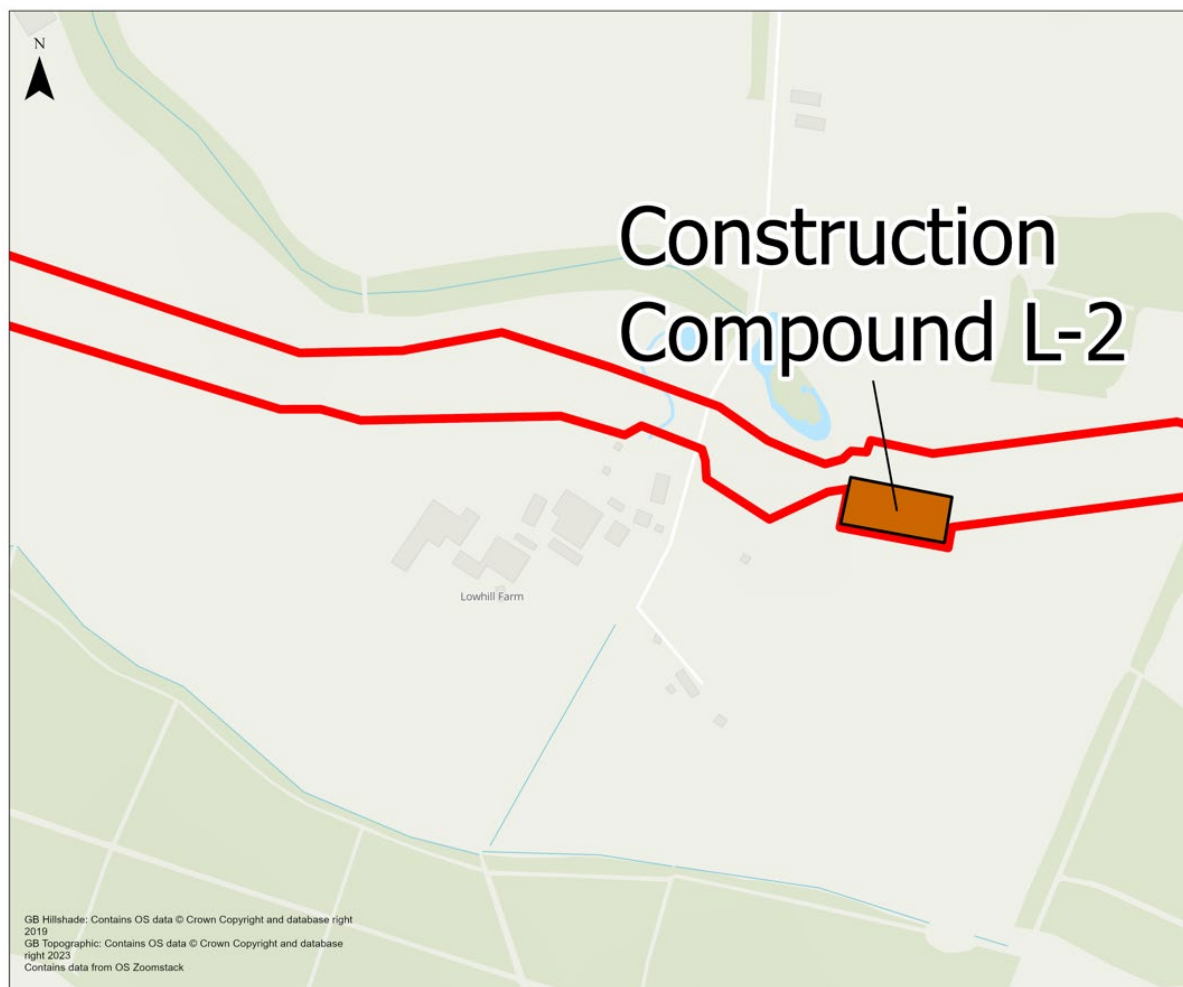


Figure 42 - Section L draft Order Limits and construction compounds at Low Hill Farm

Construction compounds have been located in the following locations:

- Construction Compound L-1: Located south west of Portsmouth Road (B2177) and north of Mortimers Lane (B3007) to support construction of the pipeline within Section L.
- Construction Compound L-2: Located east of Low Hill Farm for a water storage lagoon that will support the commissioning of the pipeline prior to the completion of construction.
- Construction Compound L-3: Located east of Winchester Road (B3354) to support construction of the pipeline within Section L. This construction compound was initially located further north, however it has been moved further south to reduce land taken within the Fielders Farm Meadows SINC and the medieval fishpond complex at Fisher's Pond.
- Construction Compound L-4: Located east of Winchester Road (B3354) to support trenchless crossing of this road.
- Construction Compound L-5: Located west of Winchester Road (B3354) to support trenchless crossing of this road.
- Construction Compound L-6: Located south of the Bow Lake watercourse to support trenchless crossing of the watercourse.
- Construction Compound L-7: Located north of the Bow Lake watercourse to support trenchless construction of the watercourse.
- Construction Compound L-8: Located north of the Bow Lake watercourse for a water storage lagoon that will support the commissioning of the pipeline prior to the completion of construction.

- Construction Compound L-9: Located east of a watercourse upstream of the River Itchen at Brambridge to support trenchless construction of this watercourse.
- Construction Compound L-10: Located east of Highbridge Road (B3335) to support trenchless crossing of a watercourse upstream of the River Itchen at Brambridge and support trenchless construction under the River Itchen. This construction compound was moved to the east of Highbridge Road (B3335) following engagement with Natural England and the Environment Agency as the initial location west of Highbridge Road (B3335) was within a marshy habitat that was considered to have ecological value and be an optimal habitat for reptiles.

3.11. Section M

3.11.1. Summer 2022 Consultation

Section M comprises the final section of the pipeline between Havant Thicket Reservoir and Otterbourne WSW and crosses the River Itchen. Two options for the crossing of the River Itchen were proposed due to the environmental sensitivity of the River Itchen, and the proximity to the South Downs National Park in this location.

Figure 43 shows Section M of the Project as presented at the Summer 2022 Consultation.

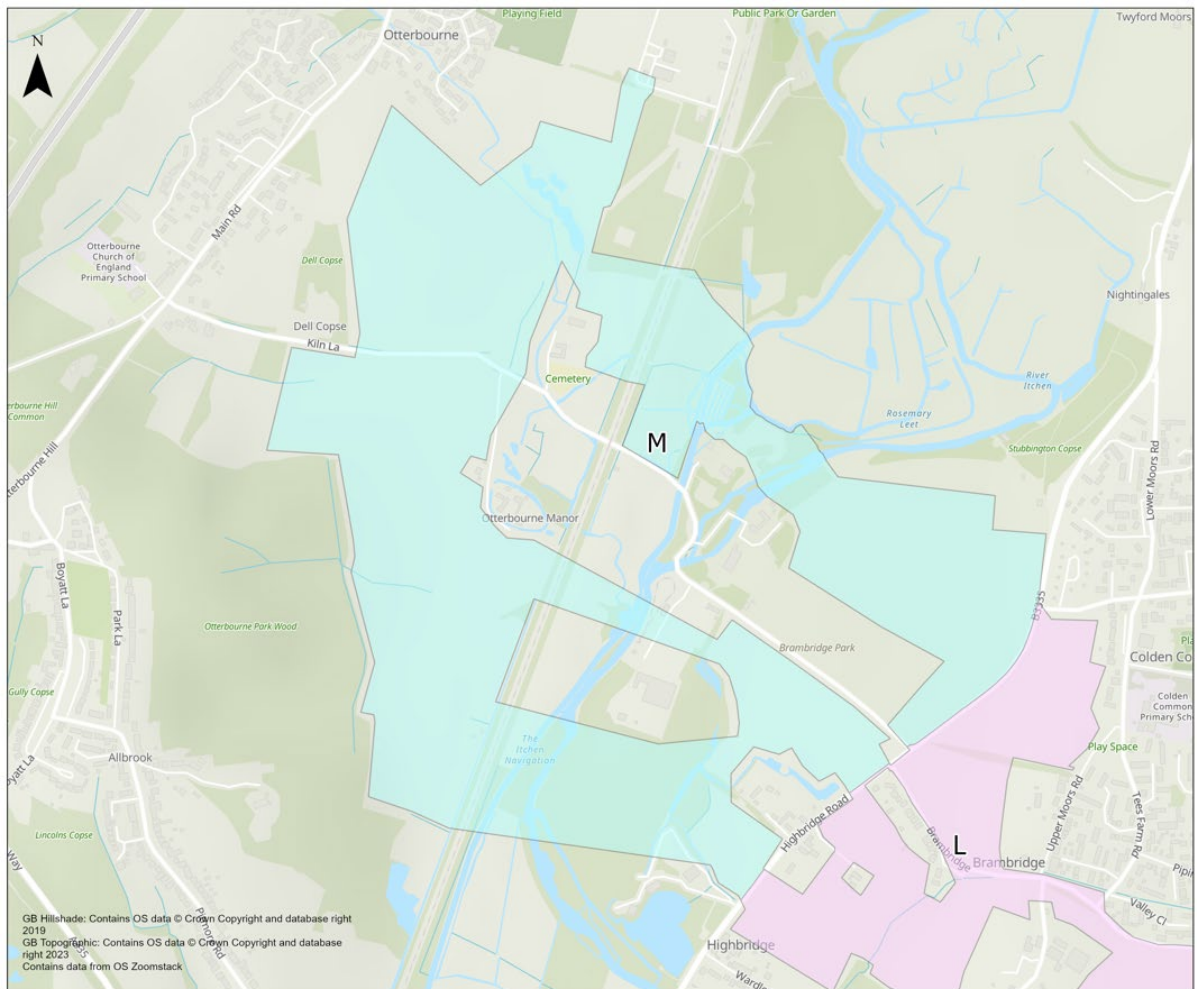


Figure 43 - Section M as shown at the Summer 2022 Consultation

3.11.2. Design development following the Summer 2022 Consultation

River Itchen Crossing

Following the Summer 2022 Consultation, further environmental surveys and engineering investigations were undertaken to support the site selection of an option for crossing the River Itchen. This also considered feedback from the Summer 2022 Consultation, including from the South Downs National Park Authority who expressed preference for the southern route that was shown at the Summer 2022 Consultation. The two options for the River Itchen crossing were:

- **Northern option:** This option routed further north along the western side of Colden Common. The trenchless crossing of the River Itchen would be from Brambridge Park to north of Kiln Lane.
- **Southern option:** This option was located to the south and routed through Brambridge. The trenchless crossing of the River Itchen would be from east of Highbridge Road (B3335) to east of Otterbourne Park Wood. From here the pipeline route would continue north and cross Kiln Lane.

The northern and southern options are shown in Figure 44.

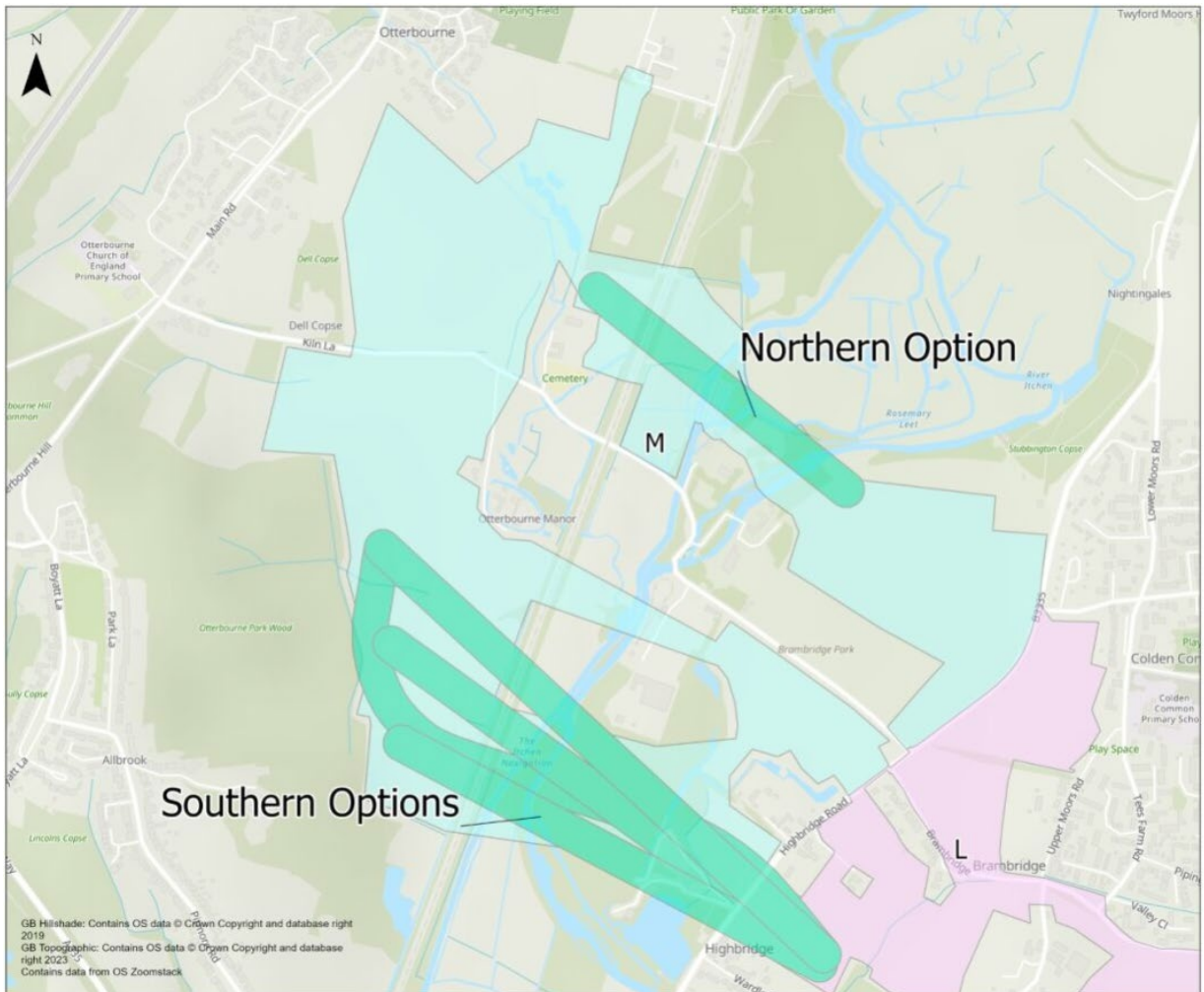


Figure 44 - Section M pipeline options at the River Itchen

Table 25 sets out the evaluation outcomes for the northern and southern tunnel options.

Table 25 - Section M River Itchen crossing evaluation outcomes

Topic	Northern option	Southern option
Air Quality	<ul style="list-style-type: none"> Closest residential properties are located 180 m away which may be subject to adverse air quality impacts. Human receptors along haul routes may be subject to adverse air quality impacts. 	
Biodiversity	<ul style="list-style-type: none"> The option is in proximity to the River Itchen SSSI and SAC with the tunnel route passing beneath it, the eastern shaft being circa 60 m away and the western shaft being circa 300 m away. Potential for impacts to the River Itchen SAC during construction. Potential for impacts to habitats and species (including otters) that are qualifying features of the River Itchen SAC and SSSI. Potential for impacts to groundwater during construction which may impact the River Itchen SSSI which is groundwater dependent. Potential impacts to priority habitats in proximity to the tunnel shafts. 	<ul style="list-style-type: none"> The option is in proximity to the River Itchen SSSI and SAC with the tunnel route passing beneath it, the eastern shaft being circa 190 m away and the western shaft being circa 200 m away. Potential for impacts to the River Itchen SAC during construction. Potential for impacts to habitats and species that are qualifying features of the River Itchen SSSI. Potential for impacts to groundwater during construction that may impact the River Itchen SSSI which is groundwater dependent. Potential impacts to priority habitats in proximity to the tunnel shafts. Potential for the western tunnel shaft to indirectly impact ancient woodland 80 m away at Otterbourne Park Wood.
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	
Geology & soils	<ul style="list-style-type: none"> The tunnel route would cross a railway that could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> The tunnel route would cross a railway, an infilled water channel and a historic landfill that could expose contaminants and therefore suitable mitigation would be employed.
Historic Environment	<ul style="list-style-type: none"> The eastern tunnel shaft is within Brambridge Park (locally designated park and garden) which may contain associated archaeological remains. 	<ul style="list-style-type: none"> The western tunnel shaft is at its closest circa 180 m from the Otterbourne Manor scheduled monument and associated listed buildings. The eastern tunnel shaft is within an area of Palaeolithic potential.
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 	
Landscape & Visual	<ul style="list-style-type: none"> The eastern tunnel shaft is within the South Downs National Park. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility) of the South Downs National Park during construction. Potential for amenity impacts to users of a footpath during construction. 	<ul style="list-style-type: none"> Potential for landcover impacts to the Winchester LCA area. Potential for tranquillity impacts to the Itchen Valley LCA area. Potential for indirect effects to ancient woodland 80 m from the western tunnel shaft. Potential for amenity impacts to users of a footpath during construction.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential properties are 180 m away which may be subject to adverse noise and vibration impacts. Potential for noise impacts to those along haul routes. 	<ul style="list-style-type: none"> The closest residential properties are 180 m away which may be subject to adverse noise impacts. Potential for noise impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> No adverse impacts identified. 	
Socio-economics	<ul style="list-style-type: none"> Potential for impacts to nearby residents and businesses 350 m away on Kiln Lane and 380 m away in Highbridge. 	<ul style="list-style-type: none"> Potential for impacts to residents the closest of which are 180 m away at Otterbourne Manor.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> No adverse impacts identified. 	

Topic	Northern option	Southern option
Water quality, resource & flood risk	<ul style="list-style-type: none"> Located within chalk bedrock which is a Principal Aquifer and a SPZ 1. During construction and operation there is potential for the tunnel and shafts to impact groundwater abstractions and the River Itchen which is groundwater dependent. 	<ul style="list-style-type: none"> No adverse impacts identified – the option is located within London Clay bedrock which has lower permeability.

Two significant constraints were identified for the northern option. First, the northern option is located within chalk geology which is a SPZ 1 and therefore trenchless construction on this route has the potential to disturb groundwater flows and groundwater quality that supports the River Itchen as well as the SAC and SSSI designations. The southern option was not located in chalk geology (or the associated SPZ 1) and therefore the risk to the River Itchen is reduced.

Secondly, the northern option passes through the South Downs National Park which is afforded the highest status of protection in relation to landscape and scenic beauty in the NPSWRI. Construction of the northern option has the potential to adversely impact on the special landscape quality of the national park. The southern option was not located in the South Downs National Park and therefore avoids the risk of direct impacts by developing in it.

As a result of the constraints identified on the northern option, the southern option was progressed. The southern option crosses an upstream tributary of the River Itchen which the northern option does not, and the site selection in relation to this is discussed in the following section.

Crossing of an upstream tributary of the River Itchen

The southern River Itchen crossing option crosses an upstream tributary of the River Itchen, which is considered to be environmentally and hydrologically linked to the River Itchen SAC and SSSI. The BESPR consisted of a trenchless crossing of this watercourse but construction works would still take place within the flood zones and floodplain habitat meaning the potential for impacts could remain. Due to the potential impacts to this watercourse and the designated sites in the River Itchen, an alternative route and trenchless crossing was identified. The alternative route proposed an extended trenchless crossing that spanned the watercourse, the flood zones and the floodplain habitats. The BESPR and the alternative are shown in Figure 45.

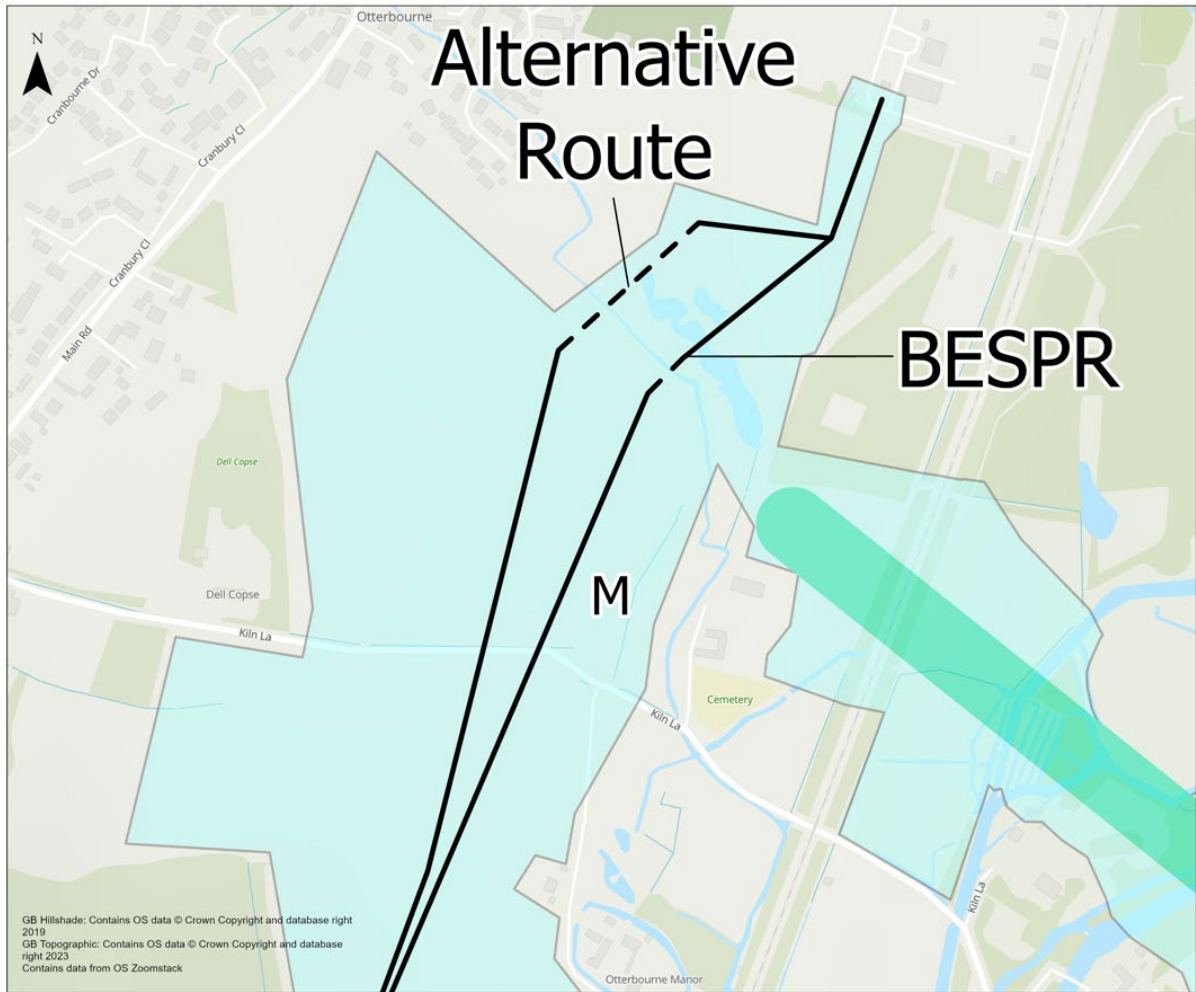


Figure 45 - Section M pipeline options at River Itchen tributary crossing

Table 26 sets out the evaluation outcomes for the BESPR and alternative route.

Table 26 - Section M River Itchen tributary crossing evaluation outcomes

Topic	BESPR	Alternative
Air Quality	<ul style="list-style-type: none"> Closest residential properties are located 80 m away which may be subject to adverse air quality impacts. Human receptors along haul routes may be subject to adverse air quality impacts. 	<ul style="list-style-type: none"> Closest residential properties are located 100 m away which may be subject to adverse air quality impacts. Human receptors along haul routes may be subject to adverse air quality impacts.
Biodiversity	<ul style="list-style-type: none"> The route and works to construct the trenchless crossing of the tributary would be located within floodplain grazing marsh priority habitat which could be functionally linked to the River Itchen SAC. There is potential for impacts during construction. Due to hydrological connectivity, there is potential for construction to indirectly impact sites and habitats which could include the River Itchen SAC / SSSI which is connected to the Solent and Dorset Coast SAC and Solent & Southampton Water SPA / Ramsar. 	<ul style="list-style-type: none"> No adverse impacts identified – the route crosses a tributary of the River Itchen and adjacent floodplain grazing marsh priority habitat via trenchless construction methods.

Topic	BESPR	Alternative
Carbon	<ul style="list-style-type: none"> Temporary contribution to emissions associated with construction activities. 	
Geology & soils	<ul style="list-style-type: none"> No adverse impacts identified. 	
Historic Environment	<ul style="list-style-type: none"> Approximately 150 m from Otterbourne Manor scheduled monument. Within an area with palaeolithic potential which carries risks of known/unknown remains. 	
Interface with other development	<ul style="list-style-type: none"> No adverse impacts identified. 	
Landscape & Visual	<ul style="list-style-type: none"> Approximately 300 m from the South Downs National Park. Potential for construction to impact vegetation corridors connected to ancient woodland blocks within 80 m to the north, west and south. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility). Potential for impacts to a cemetery at Old St Matthew's Church circa 150 m away. Potential for visual amenity impacts: <ul style="list-style-type: none"> Residencies which are 80 m away at their closest at Otterbourne Manor and 235 m away on Greenacres Drive. Footpaths that are intersected including Otterbourne 6/1 and Otterbourne 7/1. Temporary scarring effects as a result of vegetation loss / replanting. 	<ul style="list-style-type: none"> Approximately 400 m from the South Downs National Park. Potential for construction to impact vegetation corridors connected to ancient woodland blocks within 80 m to the north, west and south. Potential for impacts to landscape character (landcover, tranquillity, pattern and scale and visibility). Potential for impacts to a cemetery at Old St Matthew's Church circa 150 m away. Potential for visual amenity impacts: <ul style="list-style-type: none"> Residencies which are 100 m away at their closest at Otterbourne Manor and 160 m away on Greenacres Drive. Footpaths that are intersected including Otterbourne 6/1 and Otterbourne 7/1. Temporary scarring effects as a result of vegetation loss / replanting.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential properties are 80 m away and there are commercial properties within 125 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes. 	<ul style="list-style-type: none"> The closest residential properties are 100 m away and there are commercial properties within 205 m which may be subject to adverse noise and vibration impacts. Potential for impacts to those along haul routes.
Resource & Waste	<ul style="list-style-type: none"> Waste will be generated during construction. The route is within a Brick Clay MCA. 	
Socio-economics	<ul style="list-style-type: none"> Potential for impacts to residential properties 80 m away at Otterbourne Manor and 235 m away at Greenacres Drive. Potential for impacts to local businesses including a solar farm (Southern Water asset adjacent to the route) and Hensting Alpacas due to impacts to Kiln Lane. Potential for amenity impacts to users of footpaths Otterbourne 6/1 and Otterbourne 7/1. 	<ul style="list-style-type: none"> Potential for impacts to residential properties 100 m away at Otterbourne Manor and 160 m away at Greenacres Drive. Potential for impacts to local businesses including a solar farm (Southern Water asset adjacent to the route) and Hensting Alpacas due to impacts to Kiln Lane. Potential for amenity impacts to users of footpaths Otterbourne 6/1 and Otterbourne 7/1.
Special category land	<ul style="list-style-type: none"> No adverse impacts identified. 	
Traffic & Transport	<ul style="list-style-type: none"> Potential to impact road users of Kiln Lane. Potential to impact users of footpaths Otterbourne 6/1 and Otterbourne 7/1. 	
Water quality, resource & flood risk	<ul style="list-style-type: none"> Construction activities may impact the River Itchen through sediment, contaminant, geomorphology and/or hydrology changes. The route is mapped on Secondary Aquifers and is within the Central Hants Lambeth Group WFD Groundwater Body. The route is located within the River Itchen (SSSI and SAC) catchment, a Sensitive Catchment under the Urban Waste Water Treatment Directive (UWWTD). 	

Topic	BESPR	Alternative
		<ul style="list-style-type: none"> Intersects an area with high probability of surface water flooding.

The evaluation identified that the alternative route and the BESPR had similar constraints, however the alternative route was preferred in the biodiversity and nature conservation evaluation as a result of the reduced impact on the upstream tributary of the River Itchen and the River Itchen SSSI and SAC. In addition, the alternative is further from the South Downs National Park and residential properties. As a result the alternative route was progressed.

3.11.3. Micrositing

Figure 46 shows the draft Order Limits in Section L.

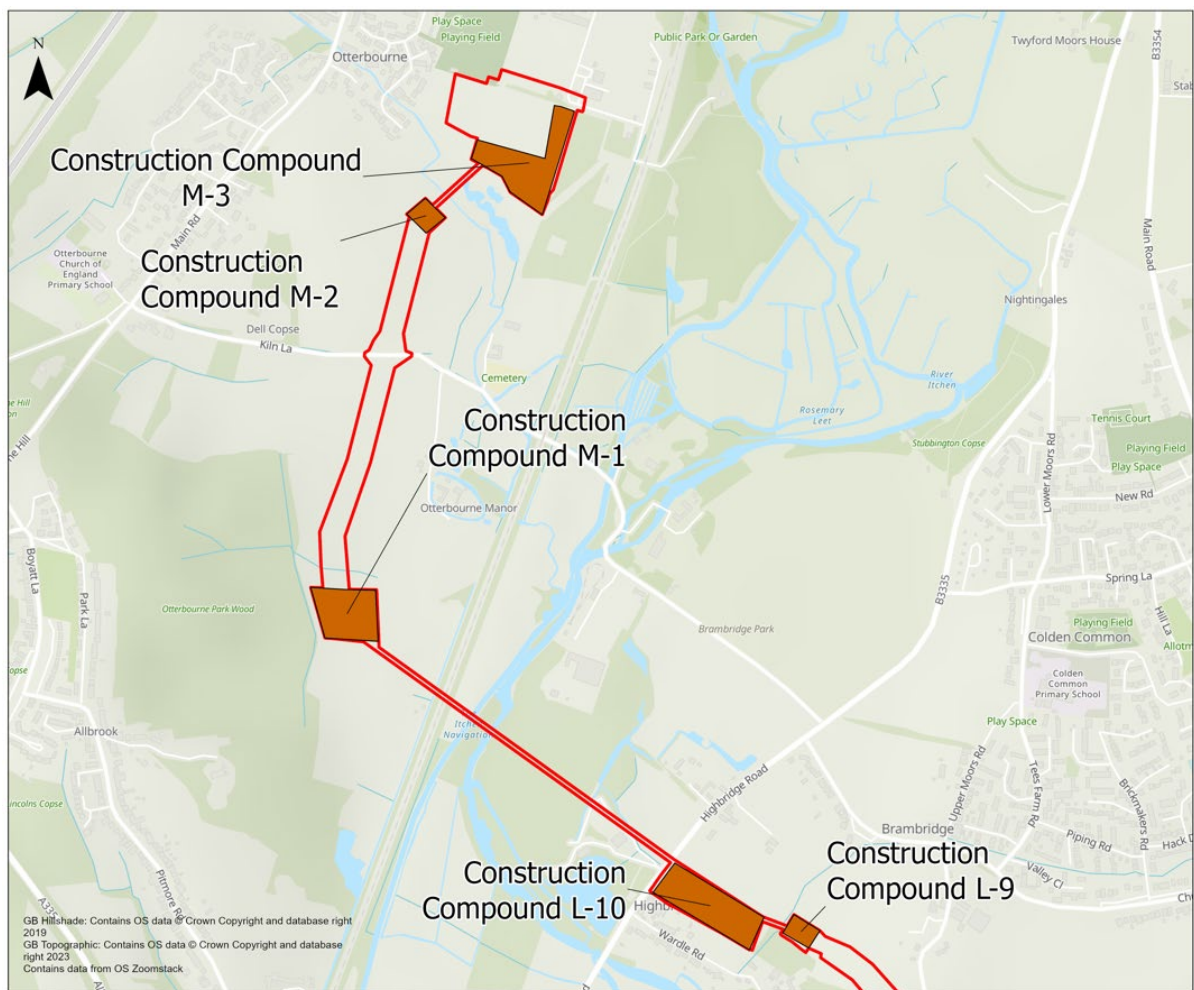


Figure 46 - Section M draft Order Limits and construction compounds

The construction compound on the western side the River Itchen has been located east of Otterbourne Park Wood. A 15 m buffer from the ancient woodland at Otterbourne Park Wood has been implemented in line with Natural England and Forestry Commission Guidance.

At the crossing of Kiln Lane, the draft Order Limits have been widened as this road is flanked by lines of trees, and further surveys will be undertaken prior to construction to determine the most appropriate

crossing point. A reduced working width of 20 m would be used when crossing Kiln Lane and the lines of trees to the north and south of the road.

Construction compounds have been located in the following locations:

- Construction Compound M-1: Located east of Otterbourne Park Wood to support trenchless crossing of the River Itchen.
- Construction Compound M-2: Located north of Kiln Lane and south of an upstream tributary of the River Itchen to support the trenchless crossing of this watercourse.
- Construction Compound M-3: Located south of Otterbourne WSW and north of an upstream tributary of the River Itchen to support the trenchless crossing of this watercourse and the interface of the Project with Otterbourne WSW.

3.12. Above Ground Plant Site Selection

3.12.1. Updates following the Summer 2022 Consultation

As explained in Section 3.1.2, as the development of the pipeline route between Havant Thicket Reservoir and Otterbourne WSW was undertaken, the hydraulic profile was reviewed to identify whether any changes to the configuration of the above ground plant was necessary. This also considered the changes to the diameter, transfer time and transfer volume of the pipeline that occurred following the Summer 2022 Consultation. During a severe drought, 90 million litres per day (ML/d) of water would be transferred from Havant Thicket Reservoir to Otterbourne WSW, however outside of severe drought conditions, a smaller 'sweetening flow' would be required to ensure that the infrastructure remains in working order.

At the Summer 2022 Consultation, it was proposed that the pipeline between Havant Thicket Reservoir and Otterbourne WSW would be 1200 millimetres (mm) (1.2 m) in diameter and transfer a sweetening flow of 7.5 ML/d. However, this relatively low transfer volume within a relatively large diameter pipeline would lead to a transfer time of approximately 6 days. It was confirmed with the Drinking Water Inspectorate that 24 hours was the maximum allowable transfer time to ensure water quality did not deteriorate within the pipeline. As a result, the diameter of the pipeline between Havant Thicket Reservoir and Otterbourne WSW was reduced to a maximum of 800 mm with an increased sweetening flow of 20 ML/d to achieve this requirement.

These changes to the pipeline diameter and transfer volume had an impact on the hydraulic profile of the pipeline, and therefore the number of above ground plant required to support the flow of water within the pipeline. Further hydraulic review was undertaken and further above ground plant were identified in addition to those presented at the Summer 2022 Consultation. Table 27 sets out the above ground plant that were presented at the Summer 2022 Consultation and the additional above ground plant that were identified following the Summer 2022 Consultation.

Table 27 - Above ground plant presented at the Summer 2022 Consultation and additional above ground plant identified following the Summer 2022 Consultation

Above ground plant presented at the Summer 2022 Consultation	Location	Additional above ground plant identified following the Summer 2022 Consultation	Location
Break Pressure Tank 1	North of Portsdown Hill and east of New Down Lane.	Intermediate Pumping Station A	North of Portsdown Hill and east of New Down Lane.
Intermediate Pumping Station 3	North west of Titchfield Lane and south west of Winchester Road (A334).	Intermediate Pumping Station B	East of Wickham Road (A32) and west of the River Wallington.
Intermediate Pumping Station 4	South east of Titchfield Lane and south of Wickham Park Golf Club.		
Break Pressure Tank 4	North of Durley Street and East of Scivier's Lane.		

Following the Summer 2022 Consultation, we identified Intermediate Pumping Station A, which was at the same site as Break Pressure Tank 1, but consisted of a pumping station instead of a break pressure tank as an alternative option dependent on the final hydraulic profile. There was also an option to develop a combined intermediate pumping station and break pressure tank.

Following the Summer 2022 Consultation, we identified Intermediate Pumping Station B in Section F to the west of the River Wallington valley and east of Wickham Road (A32).

3.12.2. Above ground plant being progressed and naming updates

As a result of the pipeline route amendment resulting from the review to consider the interface of the BESPR with Welborne Garden Village as set out in Section 3.6.2, Intermediate Pumping Station 4 is no longer required (as the pipeline route that Intermediate Pumping Station 4 was on is no longer being proposed).

The above ground plant site naming was also updated prior to the Summer 2024 Consultation to align with the pipeline sections they are located in. Table 28 sets out the initial above ground plant naming and the updated naming. These above ground plant are the sites that have been progressed to the Summer 2024 Consultation.

Table 28 - Above ground plant naming updates

Initial Above Ground Plant Site Name	Updated Above Ground Plant Site Name
Break Pressure Tank 1 / Intermediate Pumping Station A	Break Pressure Tank / Intermediate Pumping Station E

Initial Above Ground Plant Site Name	Updated Above Ground Plant Site Name
Intermediate Pumping Station B	Intermediate Pumping Station F
Intermediate Pumping Station 3	Intermediate Pumping Station G
Break Pressure Tank 4	Break Pressure Tank K

The following sections provide an overview of the process undertaken to develop the above ground plant that are being progressed. The approach to the development of above ground plant is set out in Section 3.1.2.

3.12.3. Break Pressure Tank / Intermediate Pumping Station E

Break Pressure Tank / Intermediate Pumping Station E consists of either a break pressure tank or intermediate pumping station, or a combination of both. This is because it is located at one of the highest topographic points between Havant Thicket Reservoir and Otterbourne WSW. The zone for Break Pressure Tank / Intermediate Pumping Station E that was presented at the Summer 2022 Consultation was located north of Portsdown Hill Road (B2177) on land to the west and east of New Down Lane.

The initial site that was identified for Break Pressure Tank / Intermediate Pumping Station E within the wider zone shown at the Summer 2022 Consultation is shown in Figure 47.

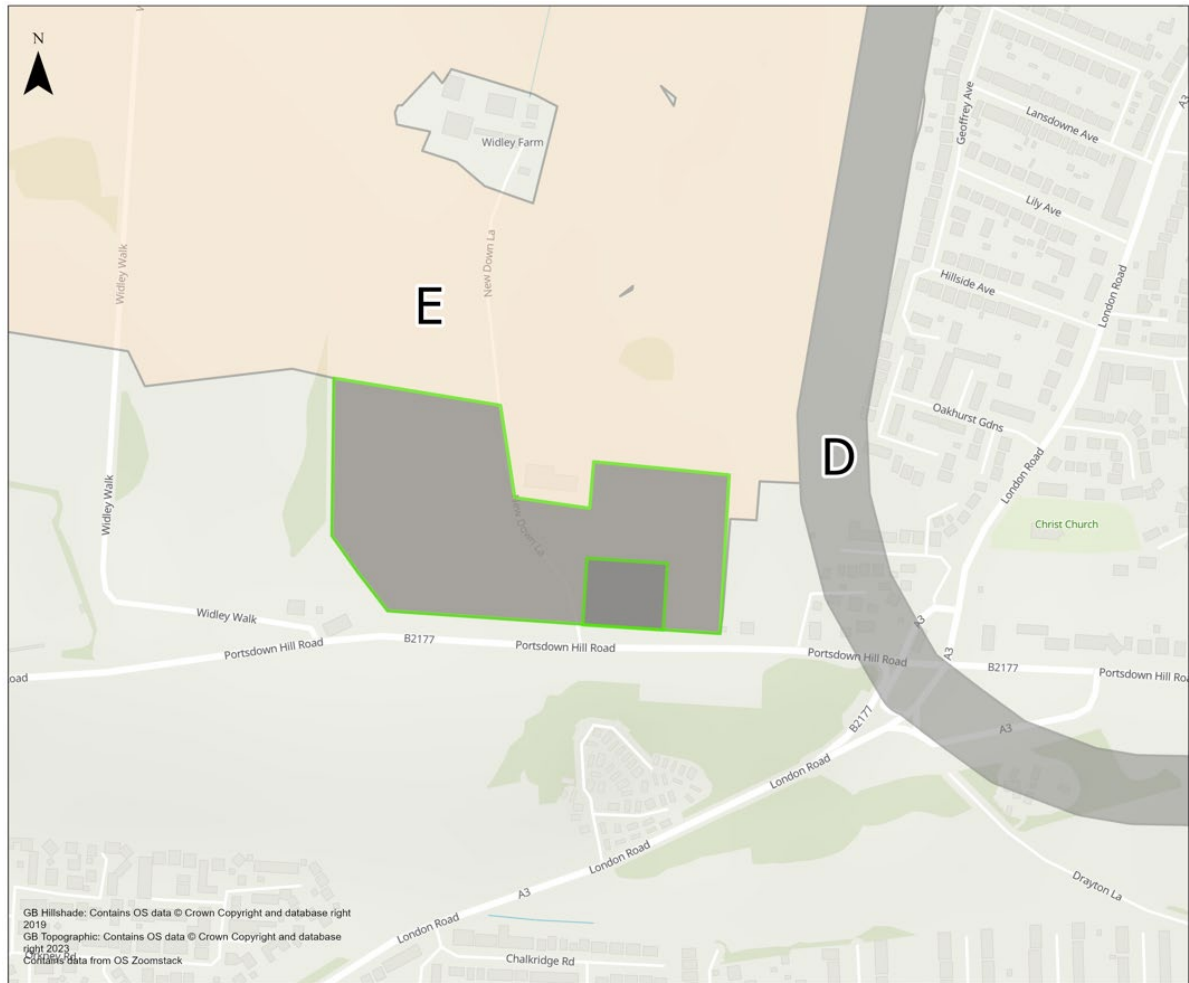


Figure 47 - Break Pressure Tank/Intermediate Pumping Station E initial site

This site was identified because it is at the highest topographic location within the wider zone. It also utilises the dense vegetation located along the northern side of Portsdown Hill Road (B2177) to screen views from the south. The site can also be accessed from New Down Lane located to the west of the site.

It was initially intended for the site to be located adjacent to the existing Portsmouth Water service reservoir site (George Reservoir) located to the east, however a corridor has been retained to allow space for Portsmouth Water’s proposals to construct a pipeline between the Farlington Water Supply Works and the Nelson Reservoir.

The evaluation outcomes for the initial site for Break Pressure Tank / Intermediate Pumping Station E are shown in Table 29.

Table 29 - Break Pressure Tank / Intermediate Pumping Station E evaluation outcomes

Topic	Evaluation Outcomes
Air Quality	<ul style="list-style-type: none"> Potential for dust, plant and vehicle emissions to adversely impact human receptors in close proximity.
Biodiversity	<ul style="list-style-type: none"> The site is located within 2 km of the Solent and Dorset Coast SPA and the Chichester and Langstone Harbours SPA and Ramsar. The site is bounded by hedgerows and trees which could be directly or indirectly affected. The site is 150 m from the Portsdown SSSI. Protected species have been identified off-site to the north east.

Topic	Evaluation Outcomes
Carbon	<ul style="list-style-type: none"> Construction and operation of the site would result in the generation or carbon emissions, however these are considered to be the same irrespective of the chosen site.
Geology & soils	<ul style="list-style-type: none"> No major constraints have been identified.
Historic Environment	<ul style="list-style-type: none"> The site is approximately 240 m east of the Fort Widley scheduled monument and grade II* listed building. There is potential for impacts to the setting of this asset.
Interface with other development	<ul style="list-style-type: none"> Portsmouth Water intend to construct a pipeline between Farlington Water Supply Works and Nelson Reservoir which may be located to the east of the above ground plant.
Landscape & Visual	<ul style="list-style-type: none"> The site is located on a raised topographical location where there is potential for impacts on views and landscape character.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential receptors are located approximately 95 m away who may experience noise and vibration impacts during the construction phase.
Resource & Waste	<ul style="list-style-type: none"> Construction of the site would generate waste materials from excavations at the site however these are considered to be the same irrespective of the site chosen.
Socio-economics	<ul style="list-style-type: none"> There is potential for adverse amenity impacts to nearby residential properties and existing businesses as a result of noise, vibration and air quality impacts.
Special category land	<ul style="list-style-type: none"> No major constraints have been identified.
Traffic & Transport	<ul style="list-style-type: none"> Construction of the site has the potential to increase traffic movements on Portsdown Hill Road and New Down Lane however vehicle movements could be managed through suitable management plans.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No major constraints have been identified.

The largest constraints for Break Pressure Tank / Intermediate Pumping Station E were in relation to biodiversity, historic environment and landscape and visual. Although the site itself did not include protected species, these have been identified to the north east of the site. Therefore the construction compound and draft Order Limits have been developed so that suitable buffers are implemented from these and mitigation measures could be implemented during the construction phase to reduce any indirect impacts. It was not considered that identifying alternative sites was required from a biodiversity perspective.

The historic environment and landscape and visual constraints resulted from the elevated topographic location of the site, and the proximity to Fort Widley. It was considered that the initial location of the site was likely to be most suitable location for Break Pressure Tank / Intermediate Pumping Station E as it was located close to existing built form at the ridge of Portsdown Hill, and could be integrated with vegetation north of Portsdown Hill Road (B2177). Consideration was given to alternatives further north that would be at a lower topographic elevation, however it was considered that these would have greater visual prominence as they could not integrate with existing vegetation and built form which the initial site takes advantage of. It was also considered that the Break Pressure Tank / Intermediate Pumping Station E could be designed so that landscape and visual and historic environment impacts were reduced further. The initial site was progressed as the preferred site for Break Pressure Tank / Intermediate Pumping Station E.

3.12.4. Intermediate Pumping Station F

The need for Intermediate Pumping Station F was identified following the Summer 2022 Consultation, and the process for identifying this site is set out in Section 3.1.2. The zone for Intermediate Pumping Station F was located east of the Wickham Road (A32) and Knowle Road roundabout and bordered the Welborne Garden Village Development.

The initial site for Intermediate Pumping Station F was located at the south east of the zone. This was because it avoided land that Welborne Garden Village had identified for the development of allotments and recreational land at the north of the zone, and avoided most of the existing overhead power line that is located at the centre of the zone. Access to the zone would be via Albany Farm. The zone and initial site for Intermediate Pumping Station F is shown in Figure 48.

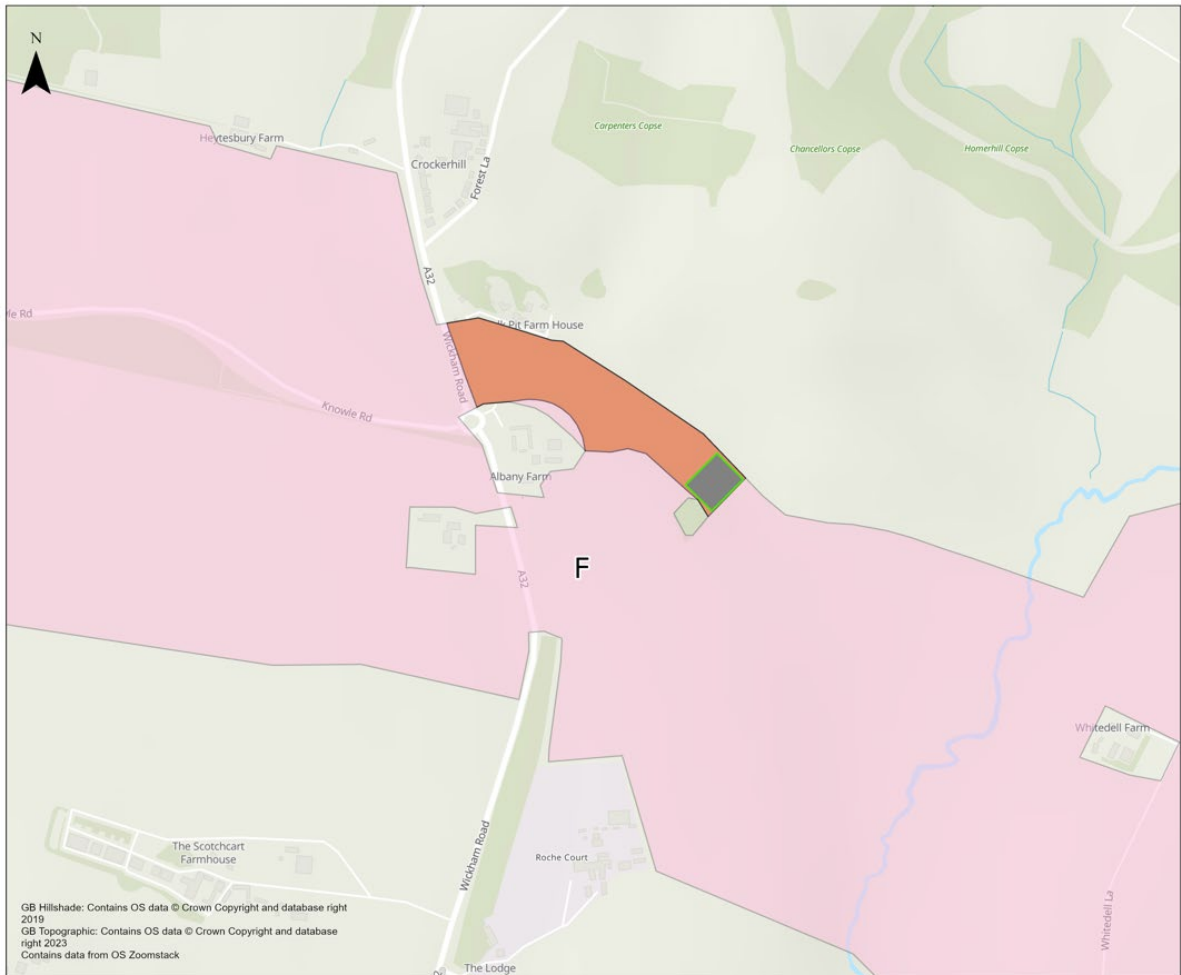


Figure 48 - Intermediate Pumping Station F initial site

The evaluation outcomes for the initial site for Intermediate Pumping Station F are shown in Table 30.

Table 30 - Intermediate Pumping Station F evaluation outcomes

Topic	Evaluation Outcomes
Air Quality	<ul style="list-style-type: none"> Potential for dust, plant and vehicle emissions to adversely impact human receptors in close proximity.
Biodiversity	<ul style="list-style-type: none"> The site is located 2.2 km north of the Solent and Dorset Coast SPA. The site is bounded by hedgerows and trees and may support protected species.
Carbon	<ul style="list-style-type: none"> Construction and operation of the site would result in the generation or carbon emissions, however these are considered to be the same irrespective of the chosen site.
Geology & soils	<ul style="list-style-type: none"> The site is located north of a former chalk pit which may have been infilled and contain contaminated material. Construction within this area could expose contaminants and therefore suitable mitigation would be employed.
Historic Environment	<ul style="list-style-type: none"> The site is located 300 m from the closest listed building which is grade II.

Topic	Evaluation Outcomes
	<ul style="list-style-type: none"> The surrounding area has records of medieval and post-medieval field systems and cropmarks.
Interface with other development	<ul style="list-style-type: none"> No other developments that would conflict with the site have been identified, however further engagement with Welborne Garden Village and HCC would be required to determine the location of the permanent access to the site.
Landscape & Visual	<ul style="list-style-type: none"> The site is located within the Forest of Bere Area of Special Landscape Quality. Construction works and the permanent presence of the intermediate pumping station have the potential to adversely affect the landscape quality and character of this area.
Noise & Vibration	<ul style="list-style-type: none"> Albany Farm care home is within 300 m of the site and 50 m from the potential construction and permanent access. There is potential for construction activity and vehicle movements to result in noise and vibration impacts.
Resource & Waste	<ul style="list-style-type: none"> Construction of the site would generate waste materials from excavations at the site however these are considered to be the same irrespective of the site chosen.
Socio-economics	<ul style="list-style-type: none"> There is potential for amenity impacts and disruption to access of the Albany Farm care home and business park.
Special category land	<ul style="list-style-type: none"> No major constraints have been identified.
Traffic & Transport	<ul style="list-style-type: none"> No major constraints have been identified.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No major constraints have been identified.

The largest constraint identified for the initial Intermediate Pumping Station F site was its location within the Forest of Bere Area of Special Landscape Quality. It was considered that the initial site would have the least potential for impacts on the landscape in this area as it is located adjacent to an existing copse of trees, which Intermediate Pumping Station F could utilise for screening and seek opportunities to extend and enhance. Locating Intermediate Pumping Station F elsewhere may mean that it would be more visually prominent. It was also considered that the design of the intermediate pumping station in this location could reduce landscape and visual impacts.

The initial site was progressed as the preferred site for Intermediate Pumping Station F.

As the Project develops following the Summer 2024 Consultation, further engagement with Welborne Garden Village and HCC is required to confirm the permanent access details for Intermediate Pumping Station F alongside the progression of the Welborne Garden Village development.

3.12.5. Intermediate Pumping Station G

The zone for Intermediate Pumping Station G was identified at the Summer 2022 Consultation and was located north west of Titchfield Lane and south west of Winchester Road (A334). The initial site for Intermediate Pumping Station G was located at the north eastern end of the zone, alongside existing vegetation that could act as screening. The initial site for Intermediate Pumping Station G within the wider zone presented at the Summer 2022 Consultation is shown in Figure 49.

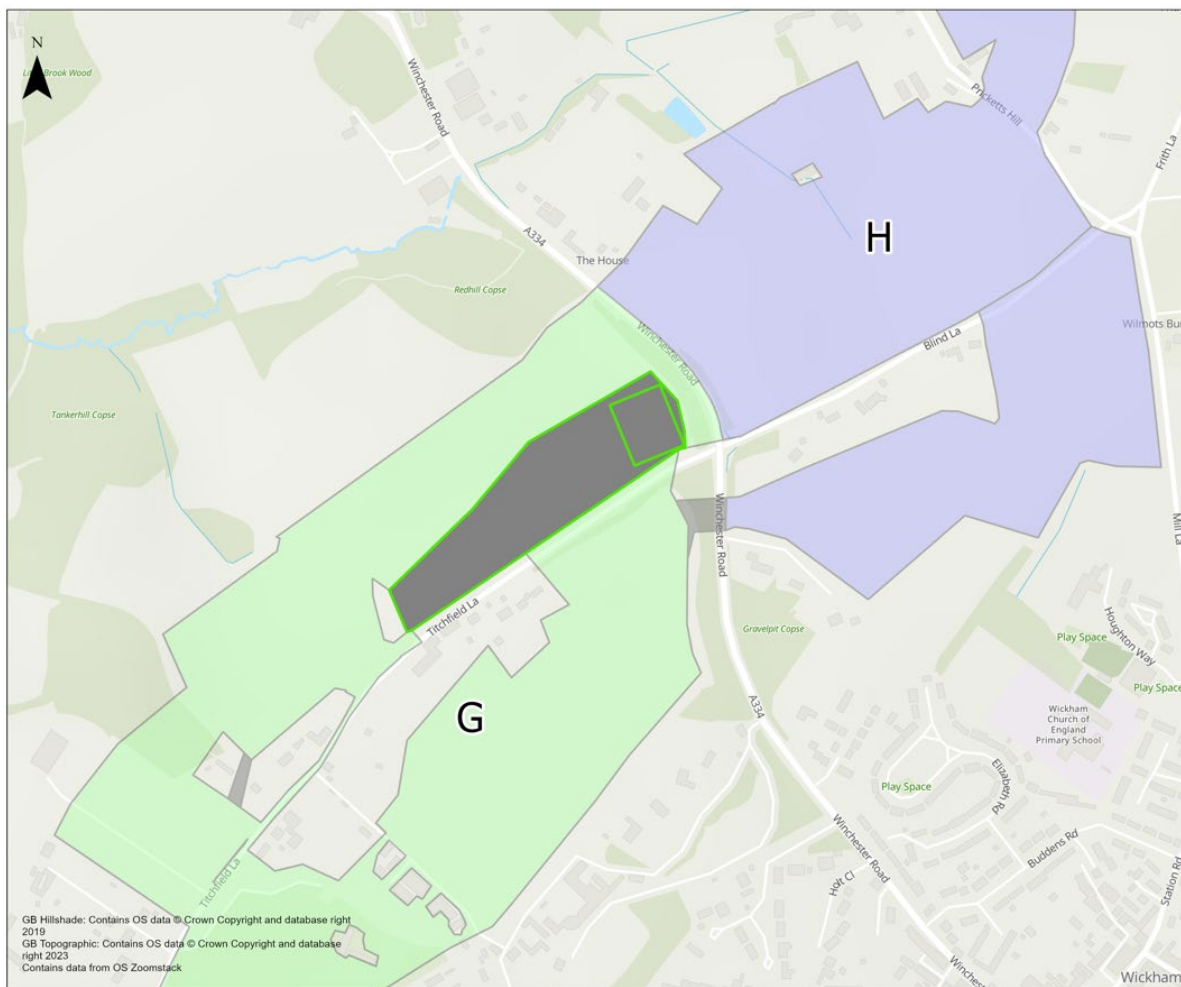


Figure 49 - Intermediate Pumping Station G initial site

The evaluation outcomes for the initial site for Intermediate Pumping Station G are shown in Table 31.

Table 31 - Intermediate Pumping Station G evaluation outcomes

Topic	Evaluation Outcomes
Air Quality	<ul style="list-style-type: none"> Potential for dust, plant and vehicle emissions to adversely impact human receptors in close proximity.
Biodiversity	<ul style="list-style-type: none"> The site is approximately 3 km east of the Solent and Southampton Water SPA and Ramsar and the Solent Maritime SAC. The site is bordered by woodland, and a new access would be gained through this woodland. The site is within 50 m of Redhill Copse which is a SINC and ancient woodland. There is potential for indirect impacts on these sites.
Carbon	<ul style="list-style-type: none"> Construction and operation of the site would result in the generation or carbon emissions, however these are considered to be the same irrespective of the chosen site.
Geology & soils	<ul style="list-style-type: none"> No major constraints have been identified.
Historic Environment	<ul style="list-style-type: none"> There are a number of listed buildings located within 400 m of the site. A roman road passes in close proximity of the site and there are a number of known archaeological assets within the area.
Interface with other development	<ul style="list-style-type: none"> No other developments have been identified that would conflict with this site.
Landscape & Visual	<ul style="list-style-type: none"> The site is approximately 650 m from the South Downs National Park.

Topic	Evaluation Outcomes
	<ul style="list-style-type: none"> The closest residential properties are located approximately 130 m from the site which may experience temporary visual impacts.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential properties are located approximately 130 m from the site which may experience temporary noise and vibration impacts during the construction phase.
Resource & Waste	<ul style="list-style-type: none"> Construction of the site would generate waste materials from excavations at the site however these are considered to be the same irrespective of the site chosen.
Socio-economics	<ul style="list-style-type: none"> The closest residential properties are located approximately 130 m from the site which may experience temporary amenity impacts. The site is located on land used by a wedding business and a dog walking business. These existing businesses could be permanently displaced as a result of construction of the intermediate pumping station at this site.
Special category land	<ul style="list-style-type: none"> No major constraints have been identified.
Traffic & Transport	<ul style="list-style-type: none"> No major constraints have been identified.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No major constraints have been identified.

The largest constraint identified was that the initial site for Intermediate Pumping Station G would result in the potential displacement of two existing businesses. Identifying an alternative site within the wider zone would also not avoid this impact, therefore zones and sites were identified in the wider area. These zones were considered to be hydraulically suitable and were identified in line with the approach set out in Section 4.1.2. The following sites and zones were identified which are shown in Figure 50.

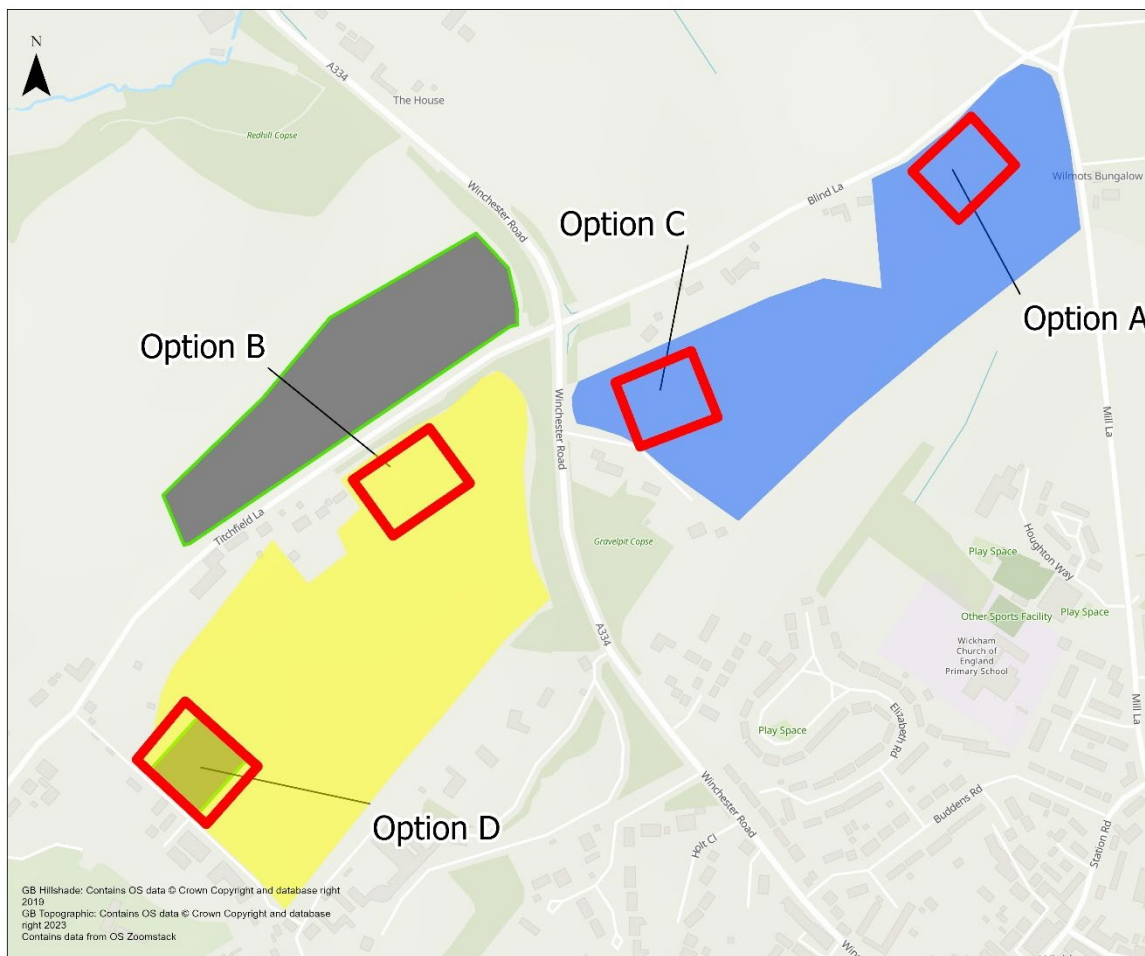


Figure 50 - Intermediate Pumping Station G alternative site options

Table 32 sets out the evaluation outcomes for the four additional sites.

Table 32 – Intermediate Pumping Station G alternative site evaluation outcomes

Topic	Alternative Option A	Alternative Option B	Alternative Option C	Alternative Option D
Air Quality	<ul style="list-style-type: none"> Potential for dust, plant and vehicle emissions to adversely impact human receptors in close proximity. 			
Biodiversity	<ul style="list-style-type: none"> The site is bordered by woodland, and a new access would be gained through this woodland. The site is located approximately 80 m from Cutlers Copse SINC. 	<ul style="list-style-type: none"> The site is bordered by woodland to the north west and a new access would be gained through this woodland. The site is located approximately 50 m north of the Gravelpit Copse SINC. 	<ul style="list-style-type: none"> The site is bordered by woodland to the north and south. The site is located approximately 60 m north of the Gravelpit Copse SINC. 	<ul style="list-style-type: none"> Protected species have been identified in the same field as the site, but not within the site.
Carbon	<ul style="list-style-type: none"> Construction and operation of the site would result in the generation or carbon emissions, however these are considered to be the same irrespective of the chosen site. 			
Geology & soils	<ul style="list-style-type: none"> No major constraints have been identified. 	<ul style="list-style-type: none"> The site is in the proximity of a former gravel pit that has been backfilled with unknown materials which could be contaminated. Construction within this area could expose contaminants and therefore suitable mitigation would be employed. 	<ul style="list-style-type: none"> No major constraints have been identified. 	
Historic Environment	<ul style="list-style-type: none"> A roman road passes in close proximity of the site and there are a number of known archaeological assets within the area. 	<ul style="list-style-type: none"> The site is approximately 35 m from a grade II listed building. The site is within the Wickham Park historic deer park. There is potential for archaeological features associated with the deer park. 	<ul style="list-style-type: none"> The site is within the Wickham Park historic deer park. There is potential for archaeological features associated with the deer park. 	<ul style="list-style-type: none"> A roman road passes in close proximity of the site and there are a number of known archaeological assets within the area.
Interface with other development	<ul style="list-style-type: none"> No other developments have been identified that would conflict with this site. 			
Landscape & Visual	<ul style="list-style-type: none"> The site is approximately 20 m from the South Downs National Park. The closest residential properties are located approximately 50 m from the site which may experience temporary visual impacts. 	<ul style="list-style-type: none"> The site is approximately 650 m from the South Downs National Park. The closest residential properties are located approximately 40 m from the site which may experience temporary visual impacts. 	<ul style="list-style-type: none"> The site is approximately 340 m from the South Downs National Park. The closest residential properties are located approximately 20 m from the site which may experience temporary visual impacts. 	<ul style="list-style-type: none"> The site is approximately 1 km from the South Downs National Park. The closest residential properties are located approximately 20 m from the site which may experience temporary visual impacts.
Noise & Vibration	<ul style="list-style-type: none"> The closest residential properties are located approximately 20 m from the site which may experience temporary noise and vibration impacts during the construction phase. 	<ul style="list-style-type: none"> The closest residential properties are located approximately 40 m from the site which may experience temporary noise and vibration impacts during the construction phase. 	<ul style="list-style-type: none"> The closest residential properties are located approximately 20 m from the site which may experience temporary noise and vibration impacts during the construction phase. 	
Resource & Waste	<ul style="list-style-type: none"> Construction of the site would generate waste materials from excavations at the site however these are considered to be the same irrespective of the site chosen. 			

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Topic	Alternative Option A	Alternative Option B	Alternative Option C	Alternative Option D
Socio-economics	<ul style="list-style-type: none"> The closest residential properties are located approximately 20 m from the site which may experience temporary amenity impacts. The site is located on land that is used for Wickham Festival parking. 	<ul style="list-style-type: none"> There are a number of residential properties and existing businesses within 200 m that may experience temporary amenity impacts. 	<ul style="list-style-type: none"> The closest residential properties are located approximately 20 m from the site which may experience temporary amenity impacts. 	
Special category land	<ul style="list-style-type: none"> No major constraints have been identified. 			
Traffic & Transport	<ul style="list-style-type: none"> No major constraints have been identified. 			
Water quality, resource & flood risk	<ul style="list-style-type: none"> No major constraints have been identified. 			

Alternative option A was not considered to be suitable as it was approximately 20 m from the South Downs National Park and therefore posed an increased potential for impacts that could compromise the purpose of the national park which is afforded a high status of protection in relation to landscape and scenic beauty under the NPSWRI.

Alternative option B and C were both located in close proximity to areas of woodland and trees, and may require the removal of trees to provide a permanent access to the intermediate pumping station. These sites were also in close proximity to residential properties.

Alternative option D could utilise an existing access track to the east of Titchfield Lane, it was also the furthest site from the South Downs National Park, and was also located in close proximity to existing industrial and farm buildings. Locating the intermediate pumping station in this area has a greater potential to integrate with the existing built and natural form compared to the other alternative options because of this. In addition, alternative option D avoids land used for Wickham Festival and has a reduced likelihood of impacting local businesses. As a result of this, alternative option D was selected as the preferred site for Intermediate Pumping Station G.

3.12.6. Break Pressure Tank K

The zone for Break Pressure Tank K was identified at the Summer 2022 Consultation and was located north of Wintershill Hall and east of Scivier's Lane. The initial site for Break Pressure Tank K was located at the centre of the zone so that the break pressure tank could be screened by existing vegetation to the north, east and south. The western and eastern sections of the zone were not selected as the break pressure tank would be more visually prominent within the parkland landscape. The initial site for Break Pressure Tank K within the wider zone presented at the Summer 2022 Consultation is shown in Figure 51.

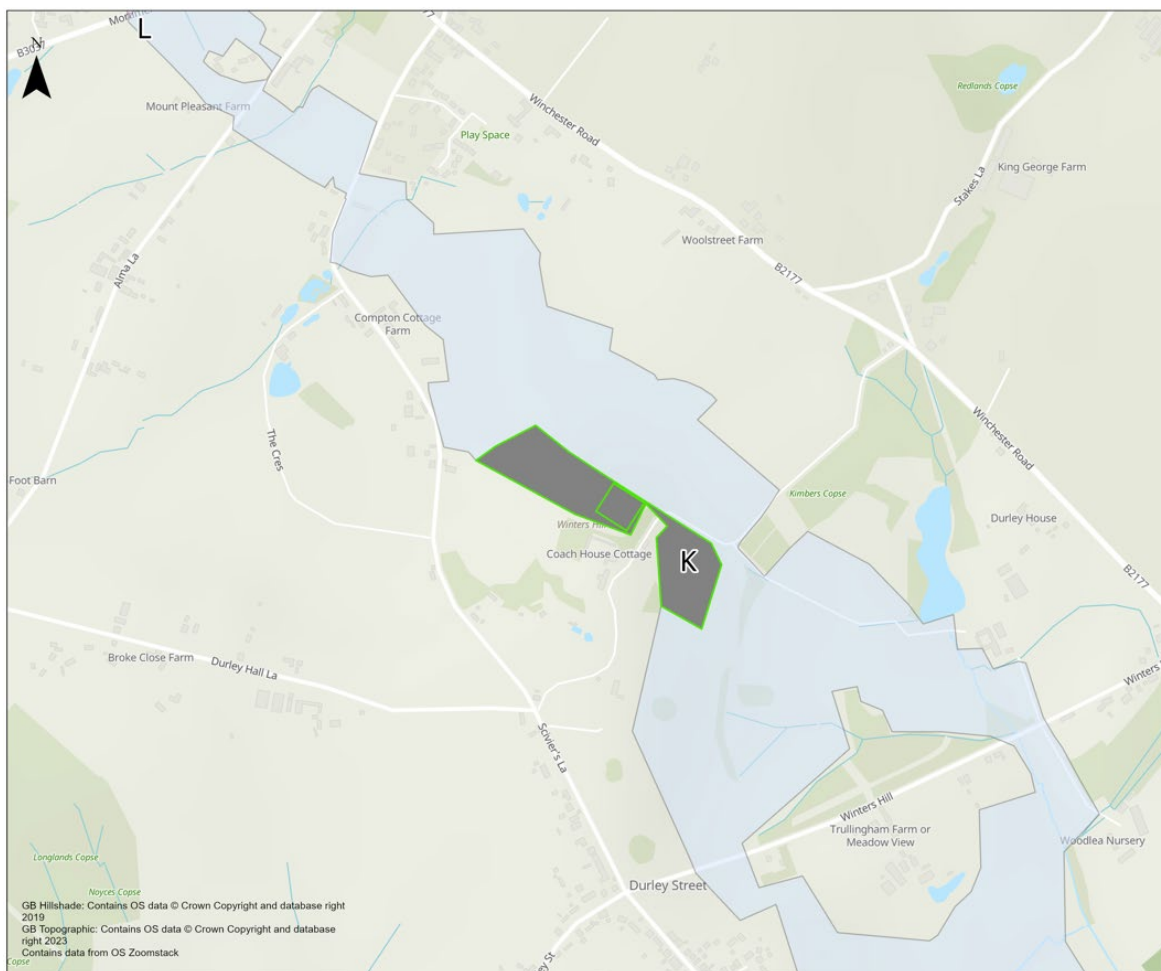


Figure 51 - Break Pressure Tank K initial site

The evaluation outcomes for the initial site for Break Pressure Tank K are shown in Table 33.

Table 33 – Break Pressure Tank K evaluation outcomes

Topic	Evaluation Outcomes
Air Quality	<ul style="list-style-type: none"> Potential for dust, plant and vehicle emissions to adversely impact human receptors in close proximity.
Biodiversity	<ul style="list-style-type: none"> The site is bordered by woodland and trees to the north, south and east. Creating an access to the site from Scivier's Lane may also result in the loss of hedgerow. The site is approximately 50 m from Kimbers Copse which is designated as ancient woodland and a SINC.
Carbon	<ul style="list-style-type: none"> Construction and operation of the site would result in the generation or carbon emissions, however these are considered to be the same irrespective of the chosen site.
Geology & soils	<ul style="list-style-type: none"> No major constraints have been identified.
Historic Environment	<ul style="list-style-type: none"> The site is in close proximity of the historic park and garden at Winters Hill. There is potential for effects to the setting of this area.
Interface with other development	<ul style="list-style-type: none"> No other developments have been identified that would conflict with this site.
Landscape & Visual	<ul style="list-style-type: none"> The South Downs National Park is located approximately 500 m north east. There are residential properties located immediately south at Winters Hill Hall which may experience visual amenity impacts.

Topic	Evaluation Outcomes
Noise & Vibration	<ul style="list-style-type: none"> There are residential properties located immediately south at Winters Hill Hall which may experience temporary noise and vibration impacts temporarily during the construction phase.
Resource & Waste	<ul style="list-style-type: none"> Construction of the site would generate waste materials from excavations at the site however these are considered to be the same irrespective of the site chosen.
Socio-economics	<ul style="list-style-type: none"> There are residential properties located immediately south at Winters Hill Hall which may experience amenity effects.
Special category land	<ul style="list-style-type: none"> No major constraints have been identified.
Traffic & Transport	<ul style="list-style-type: none"> No major constraints have been identified.
Water quality, resource & flood risk	<ul style="list-style-type: none"> No major constraints have been identified.

The evaluation did not identify any major constraints that could be resolved through identifying alternative sites. The design of the break pressure tank will consider ways to limit visual impacts on Winters Hill Hall located to the south of the site however existing vegetation currently provides screening. The initial site was progressed as the preferred site for Break Pressure Tank K.

3.13. Review of Water Recycling Plant Site Selection

3.13.1. Water Recycling Plant Site Selection Background

As the site selection for the water recycling plant initially took place earlier in the project development process, the site size parameters for the water recycling plant have also changed throughout the process as our understanding of what is required has developed. As a result, a review of the site selection was undertaken to review the outcomes of the initial site selection to test that our assumptions remained up to date and consider whether any other sites may be suitable for the water recycling plant.

The site selection for the water recycling plant has consisted of the stages set out in Table 34.

Table 34 – Water recycling plant site selection minimum parcel size criteria overview

Project Stage	Minimum Water Recycling Plant Parcel Size	Overview of the minimum size requirements
Stage 1 (RAPID Gate 1)	3.2 ha	For a 61 MI/d water recycling plant, a minimum of 32,000 m ² (3.2 ha) permanent land take is required for the development of above and below ground assets such as buildings, process units and kiosks. Additional permanent land required for landscaping and mitigation, and additional temporary land for construction have not been included in this minimum parcel size.
Stage 2 (RAPID Gate 2)	4.0 ha	For a 61 MI/d water recycling plant, a minimum of 4.0 ha permanent land take is required. Additional permanent land required for landscaping and mitigation, and additional temporary land for construction have not been included in this minimum parcel size.

Project Stage	Minimum Water Recycling Plant Parcel Size	Overview of the minimum size requirements
Stage 3 (Summer 2022 Consultation)	6.0 ha	For a 15 MI/d water recycling plant with potential to expand to 60 MI/d, a minimum of 6.0 ha permanent land take is required. This includes land required for temporary construction areas, tunnel shafts for connecting pipelines, and the high lift pumping station.

The site selection that was undertaken at Stage 2 and Stage 3 selected a site called WRP_72 which was located on undeveloped land north of Harts Farm Way, south of the A27 and west of the Hermitage Stream. This site was considered to be the preferred site as it is located on undeveloped land and there is an absence of environmental constraints compared to other sites that are adjacent to Langstone Harbour. It was noted that this site has planning permission for an employment development and is located on a former household landfill.

3.13.2. Purpose and Approach

As a result of feedback received at the Summer 2022 Consultation on the selection of WRP_72, we undertook a review of the site selection process with the aim of ensuring that all reasonable alternative sites for the water recycling plant had been considered and reviewed.

The review consisted of three key parts:

- All sites that had been identified through the site selection at Stage 2 and Stage 3 were re-reviewed. Sites that had the potential for significant adverse impacts were not progressed.
- As a result of feedback from stakeholders identifying that there was potential for developed employment sites in the proximity of Budds Farm Wastewater Treatment Works to become available, we considered new sites that hadn't been previously identified. Sites that had the potential for significant adverse impacts were not progressed.
- A land availability and cost review was undertaken on the sites where the risk of significant adverse impacts were not identified in the previous two stages.

Engagement with Havant Borough Council was undertaken throughout this process to seek views on the proposed approach and outcomes.

3.13.3. Review of Identified Sites

The first part consisted of a review of all sites that had been identified in previous stages in the water recycling plant site selection as set out in Table 34. These sites are shown in Figure 52.

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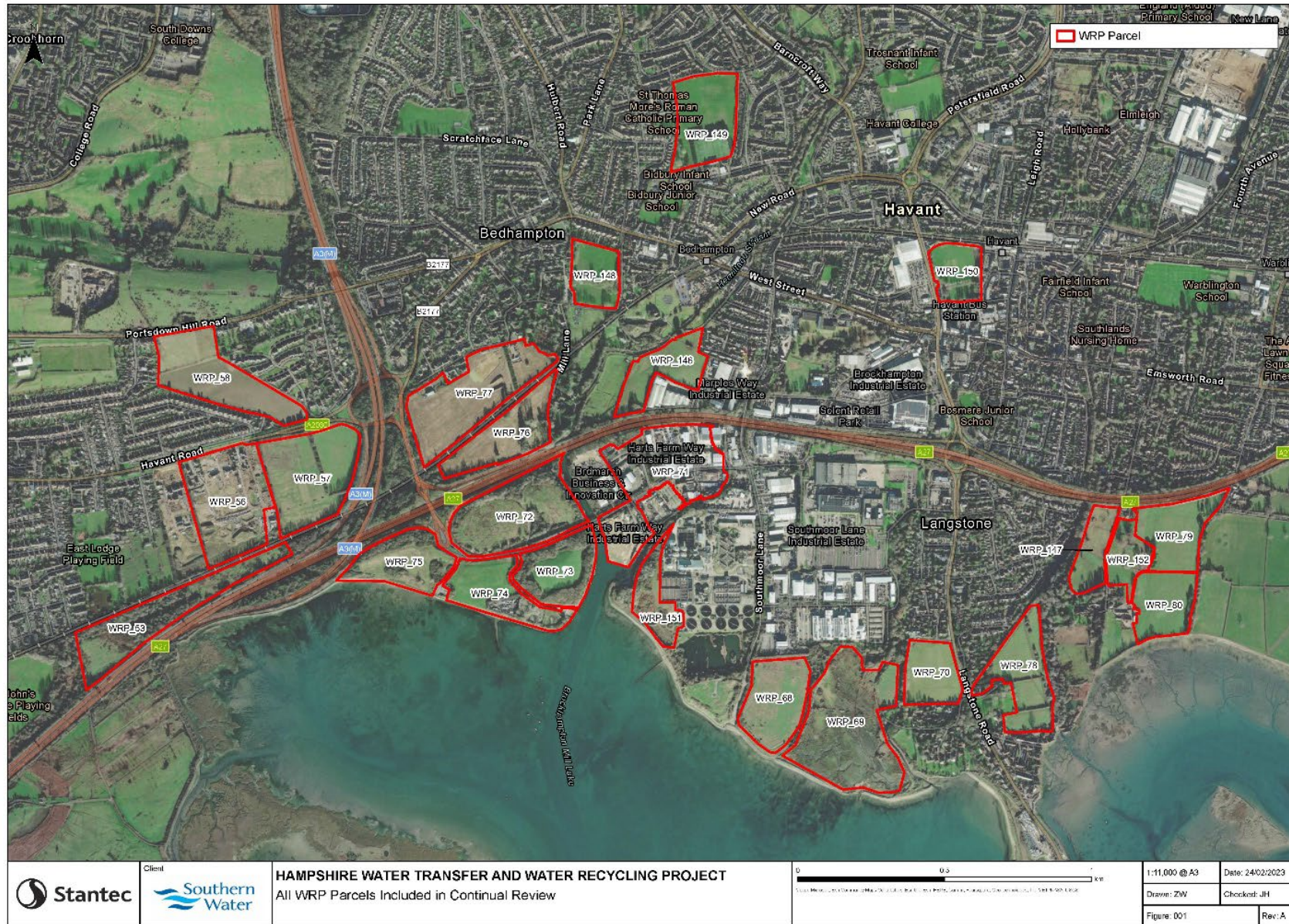


Figure 52 - All sites considered in previous stages of the water recycling plant site selection

The following criteria were then applied to determine the sites that should be subject to further review:

- Sites must be larger than 3.2 ha. This was considered to be the minimum site size to locate the water recycling plant. A site of 3.2 ha would not provide space for construction compounds for construction of the water recycling plant or tunnel shafts for the water transfer pipelines. Sites that were larger than 6 ha would be preferred as these sites would provide the opportunity to locate tunnel shafts and construction compounds alongside the water recycling plant. A minimum parcel size of 3.2 ha was selected to ensure we were considering all practicable options for the water recycling plant.
- Sites should not be located on land being developed for housing. Many areas of land in the Havant area are currently being developed for housing, and therefore these would not be suitable for locating the water recycling plant.
- Sites should not be located on open green space that is allocated in the HBC local plan. Siting the water recycling plant on existing open space would result in the permanent loss of this land that is used for sport or recreation. We only considered open green space to ensure we were considering all practicable options for the water recycling plant. Were sites located on open green space not allocated by HBC, constraints associated with the loss of this open green space was incorporated into the decision making process.
- Sites should not be located within sensitive environmental designations. Sites that have a high degree of protection under environmental and planning legislation and policy, such as the NPSWRI, are not considered suitable for locating the water recycling plant. These designations comprised SACs, SPAs, Ramsar sites, SSSIs, and National Landscapes which were present in the proximity of Budds Farm Wastewater Treatment Works.

Figure 53 shows the outcome of the application of the above criteria. Sites shown in red were not progressed for further review.

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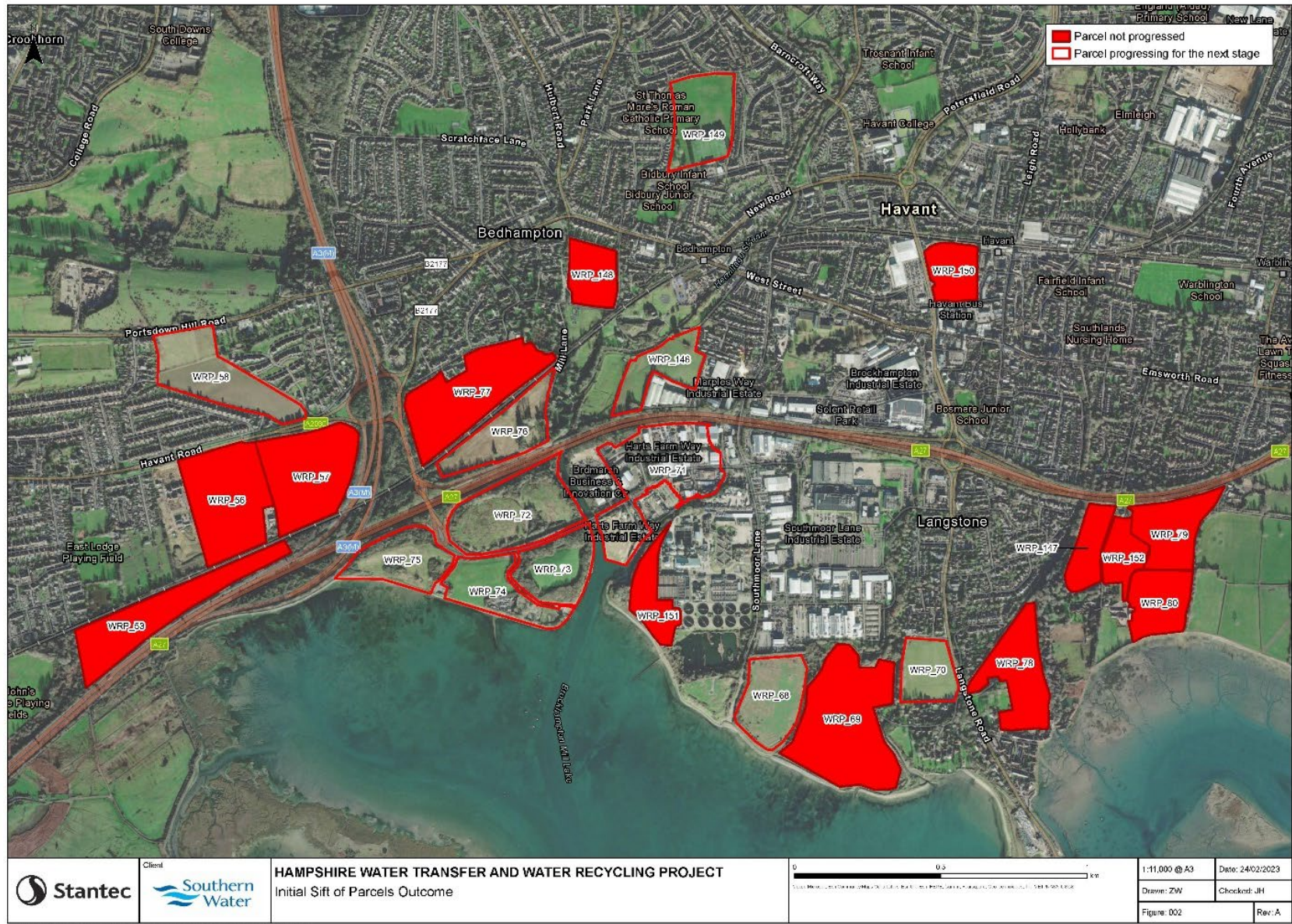


Figure 53 – Water recycling plant sites progressed for detailed review

Table 35 sets out the outcomes of the detailed review which identified risks with the remaining sites from a planning, environmental and engineering perspective.

Table 35 – Water recycling plant site planning, environmental and engineering review outcomes

Site	Review Outcomes
WRP_58	<ul style="list-style-type: none"> ▪ Within the Fields off Havant Road SINC. ▪ Potentially visible from the Chichester Harbour National Landscape (formerly AONB) ▪ In close proximity to residential properties to the east and west where there may be air quality and noise impacts. ▪ Within a candidate site designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ The site has significant elevation changes and therefore level working platforms would need to be formed. ▪ The site is approximately 550 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. ▪ The site is approximately 2.40km from the Chichester Harbour National Landscape.
WRP_68	<ul style="list-style-type: none"> ▪ The site is within 20 m of the Chichester and Langstone Harbours SPA and Ramsar, the Solent Maritime SAC and the Langstone Harbour SSSI. ▪ Within a secondary support area designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ Within the Big Field SINC. ▪ Within flood zone 2 and 3 and is subject to tidal flooding. Engineering works may be required to mitigate flood risks. ▪ The site is within approximately 20 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. ▪ The site is approximately 550 m from the Chichester Harbour National Landscape.
WRP_70	<ul style="list-style-type: none"> ▪ The site is approximately 30 m from the Chichester Harbour National Landscape. ▪ Within a secondary support area designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ In close proximity to residential properties to the north and south where there may be air quality and noise impacts. ▪ Existing utilities have been identified on the site which would need to be diverted. ▪ The site is approximately 90 m from the Langstone Harbour SSSI and approximately 240 m from the Solent Maritime SAC and the Chichester and Langstone Harbours SPA and Ramsar.
WRP_71	<ul style="list-style-type: none"> ▪ The site currently consists of a number of existing warehouses and offices that are in occupation and would need to be removed. ▪ Existing utilities have been identified on the site which would need to be diverted. ▪ The site is approximately 400 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar and the Langstone Harbour SSSI. ▪ The site is approximately 1 km from the Chichester Harbour National Landscape.
WRP_72	<ul style="list-style-type: none"> ▪ The west of the site is within a low use site designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA.

Site	Review Outcomes
	<ul style="list-style-type: none"> ▪ The site has planning permission for employment use. The site is also allocated for employment development in the HBC local plan. ▪ Within a former landfill site. Mitigation measures would need to be implemented during the construction phase. ▪ The site is approximately 170 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar and the Langstone Harbour SSSI. ▪ The site is approximately 1.45 km from the Chichester Harbour National Landscape.
WRP_73	<ul style="list-style-type: none"> ▪ The site is within 20 m of the Chichester and Langstone Harbours SPA and Ramsar, the Solent Maritime SAC and the Langstone Harbour SSSI. ▪ Within a candidate site designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ Within a former landfill site. Mitigation measures would need to be implemented during the construction phase. ▪ Parts of the site are within flood zone 2 and 3. ▪ The site is approximately 1.35 km from the Chichester Harbour National Landscape.
WRP_74	<ul style="list-style-type: none"> ▪ The site is within 20 m of the Chichester and Langstone Harbours SPA and Ramsar, the Solent Maritime SAC and the Langstone Harbour SSSI. ▪ Within a secondary support area designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ Within a former landfill site. Mitigation measures would need to be implemented during the construction phase. ▪ Parts of the site are within flood zone 2 and 3. ▪ The site is approximately 1.35 km from the Chichester Harbour National Landscape.
WRP_75	<ul style="list-style-type: none"> ▪ The site is within 20 m of the Chichester and Langstone Harbours SPA and Ramsar, the Solent Maritime SAC and the Langstone Harbour SSSI. ▪ Within a core area designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ Within a former landfill site. Mitigation measures would need to be implemented during the construction phase. ▪ Parts of the site are within flood zone 2 and 3. ▪ The site is approximately 1.80km from the Chichester Harbour National Landscape.
WRP_76	<ul style="list-style-type: none"> ▪ Access to the site is constrained and construction of a new access could reduce the developable area below 32,000 m² (3.2 ha). 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 to the east where there may be air quality and noise impacts. ▪ The site is approximately 560 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. ▪ The site is approximately 1.60km from the Chichester Harbour National Landscape.

Site	Review Outcomes
WRP_146	<ul style="list-style-type: none"> The northern part of the site is within a source protection zone. Development of the water recycling plant could adversely impact groundwater that is a source for drinking water. Parts of the site are within flood zone 2 and 3. An existing culvert passes under the site which would need to be diverted. Part of the site is allocated for employment development in the HBC local plan. The site is in close proximity to residential properties to the north where there may be air quality and noise impacts. The site is approximately 650 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.35 km from the Chichester Harbour National Landscape.
WRP_149	<ul style="list-style-type: none"> The parcel is located within a heavily populated area and is bordered by residential properties and a school. There is potential for air quality and noise impacts. Development of the site would result in loss of open green space used by Havant Rugby Football Club. The site is within a source protection zone. Development of the water recycling plant could adversely impact groundwater that is a source for drinking water. The site is approximately 1.55 km from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. The site is approximately 1.70 km from the Chichester Harbour National Landscape.

Following the evaluation of the sites set out in Table 35, the following sites were not considered for further review due to the potential for significant adverse impacts that were unlikely to not be capable of being mitigated to an acceptable level:

- WRP_58
- WRP_68
- WRP_70
- WRP_71
- WRP_73
- WRP_74
- WRP_75
- WRP_76
- WRP_146
- WRP_149

It was considered that mitigation measures could be implemented if the water recycling plant was located at WRP_72 to reduce identified impacts to an acceptable level.

3.13.4. Identification of New Sites and Amendment of Sites

As well as undertaking a review of previously identified sites (as set out Section 3.13.3), we also identified new sites and amended some of the existing sites. We identified new sites that were located on existing employment development as a result of engagement feedback that suggested that there may be existing employment development in the Havant area that could becoming available within suitable timescales to warrant consideration. It was considered that these sites could be suitable for the water recycling plant.

We also considered whether sites that were reviewed and not progressed in the previous stage could be amended to improve their suitability in environmental, planning and engineering terms. The following new and amended sites were identified:

- WRP_71 which was not progressed at the previous stage, was amended to align with the boundary of Harts Farm Way to the south and to incorporate additional employment units to the west to form WRP_154.
- WRP_73, WRP_74 and WRP_75 which were not progressed at the previous stage, were merged together to form WRP_155.
- WRP_146 which was not progressed at the previous stage, was expanded to include the adjacent employment units to the south east to form WRP_153.
- WRP_157 was a new site comprising employment units east of Southmoor Lane and north of Penner Road.
- WRP_158 was a new site comprising employment units east of Southmoor Lane and south of Penner Road.
- Budds Farm WTW was also included, to re-confirm whether the water recycling plant could be located within this site.

The new and amended sites that were identified are shown in Figure 54.

The new and amended sites were then reviewed against the same criteria used to review sites in Section 3.13.3. The outcomes are set out in Table 36.

Table 36 – Water recycling plant new sites planning, environmental and engineering review outcomes

Site	Review Outcomes
WRP_153	<ul style="list-style-type: none"> ▪ The northern part of the site is within a source protection zone. Development of the water recycling plant could adversely impact groundwater that is a source for drinking water. ▪ Parts of the site are within flood zone 2 and 3. ▪ An existing culvert passes under the site which would need to be diverted. ▪ Part of the site is allocated for employment development in the HBC local plan. ▪ The site is in close proximity to residential properties to the north where there may be air quality and noise impacts. ▪ The site currently consists of a number of existing warehouses and offices that are in occupation and would need to be removed. ▪ The site is within approximately 650 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. ▪ The site is approximately 1.20km from the Chichester Harbour National Landscape.
WRP_154	<ul style="list-style-type: none"> ▪ The site currently consists of a number of existing warehouses and offices that are in occupation and would need to be removed. ▪ Existing utilities have been identified on the site which would need to be diverted. ▪ The west of the site is a candidate site designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ The site is approximately 400 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. ▪ The site is approximately 1 km from the Chichester Harbour National Landscape.
WRP_155	<ul style="list-style-type: none"> ▪ The site is within 20 m of the Chichester and Langstone Harbours SPA and Ramsar, the Solent Maritime SAC and the Langstone Harbour SSSI. ▪ Within a core area, secondary support area, and low use site designated in the Solent Waders and Brent Goose Strategy. Therefore the site could be functionally linked with the Chichester and Langstone Harbours SPA. ▪ Within a former landfill site. Mitigation measures would need to be implemented during the construction phase. ▪ Parts of the site are within flood zone 2 and 3. ▪ The site is approximately 1.35km from the Chichester Harbour National Landscape.
WRP_157	<ul style="list-style-type: none"> ▪ The site currently consists of a number of existing warehouses and offices that are in occupation and would need to be removed. ▪ Existing utilities have been identified on the site which would need to be diverted. ▪ The site is approximately 200 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI. ▪ The site is approximately 370 m from the Chichester Harbour National Landscape.
WRP_158	<ul style="list-style-type: none"> ▪ The site currently consists of a number of existing warehouses and offices that are in occupation and would need to be removed. ▪ Existing utilities have been identified on the site which would need to be diverted. ▪ The site is approximately 200 m from the Solent Maritime SAC, the Chichester and Langstone Harbours SPA and Ramsar, and the Langstone Harbour SSSI.

Site	Review Outcomes
	<ul style="list-style-type: none"> The site is approximately 370 m from the Chichester Harbour National Landscape.
Budds Farm WTW	<ul style="list-style-type: none"> The site is within 20 m of the Chichester and Langstone Harbours SPA and Ramsar, the Solent Maritime SAC and the Langstone Harbour SSSI. When considering the need for future expansion and development at Budds Farm WTW, there is insufficient space to accommodate the water recycling plant at Budds Farm WTW without significant redevelopment of the WTW. The site is approximately 770 m from the Chichester Harbour National Landscape.

Following the review, the below sites were progressed to the land availability and best value review stage alongside WRP_72, which was progressed in the previous stage, as these sites were considered to perform the best against the criteria:

- WRP_154
- WRP_157
- WRP_158

3.13.5. Land Availability and Best Value Review

A review was undertaken to determine the potential for the remaining water recycling plant sites becoming available and the implications for delivering these sites. This considered the likelihood of a site becoming vacant, as well as the time and cost implications of any enabling works including site clearance and demolition.

This stage also considered best value criteria associated with acquiring and developing these sites for the water recycling plant. The best value review used the management of value study methodology (used extensively across government and public sector projects) and considered sites against the following drivers:

- Constructability and engineering – considering the complexity of the deliverability of the site.
- Carbon emissions – considering embodied carbon, operational carbon and construction carbon.
- Programme (time) – considering time to deliver the water recycling plant in accordance with the requirements for the Project.
- Environment and sustainability – considering the potential to mitigate any potential adverse impacts on the existing environment at the site.
- Asset management – considering the alignment with wider asset management strategies including for Budds Farm WTW.
- Engagement and planning – considering the likelihood of gaining acceptance from stakeholders.

Out of the three remaining sites, WRP_72 was preferred as it was the only remaining undeveloped site and therefore demolition works and loss of existing employment development would not be required prior to development of the water recycling plant.

3.13.6. Outcomes

The water recycling plant review process identified that WRP_72 remained the best performing site for the water recycling plant against the defined criteria set out in the water recycling plant site selection review. This site also was considered to perform the best in the land availability and best value review as the site was undeveloped. This was due to its lower environmental, planning and deliverability risks in comparison to alternative sites, which all had greater environmental constraints, or existing development and therefore greater deliverability implications.

3.14. Next Steps

Feedback from the Summer 2024 Consultation will be used to further develop the Project, supplemented by ongoing design development, engagement with relevant bodies, and outcomes of our ongoing environmental surveys as part of the EIA process. Land and engineering surveys and investigations will also continue to inform the development of the Project.

In having regard to feedback and refining our proposals in readiness for our Development Consent Order application, there may be potential changes to the pipeline routing or micrositing of above ground plant. The EIA process may also identify further locations where there could be potential environmental effects, and these will be reviewed to identify land that may be required for environmental mitigation and enhancements.

As part of the DCO application we will publish a Consultation Report, detailing how we have engaged and consulted on the Project, whilst adhering to legislation and guidance, and reporting on the comments raised in the consultation and our response to them.

We will also publish an updated Scheme Development Report, covering the full design history of Project development up to submission of our Development Consent Order application. This will include Stage 5, as summarised in Section 1.2 of this report, which covers the period from close of our Summer 2024 Consultation to submission of our Development Consent Order application to the Planning Inspectorate, anticipated in 2025.



from
Southern
Water. 

The Southern Water logo graphic consists of three stylized, white, wavy lines that resemble water waves, positioned to the right of the word "Water." in the text above.

F.7 Preliminary Environmental Information Report Non-Technical Summary



Hampshire Water Transfer and Water Recycling Project

Preliminary Environmental Information Report -
Non-Technical Summary
Summer 2024 Consultation



from
**Southern
Water** 

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1. Introduction

1.1 Who is Southern Water?

Southern Water supplies water and wastewater services to more than four million customers in the South East of England. Operations cover Hampshire, the Isle of Wight, Sussex and Kent, including more than 700 miles of coastline, two National Parks and several National Landscapes (formerly called Areas of Outstanding Natural Beauty).

This purified recycled water would be pumped via an underground pipeline to the Havant Thicket Reservoir where it would mix with spring water. Water from the reservoir would then be pumped along another pipeline to our Otterbourne Water Supply Works (WSW) where it would be treated to strict drinking water standards before being sent into supply

1.2 What is the Proposed Development?

The Proposed Development is primarily a drought resilience scheme – it will ensure essential water supplies to Southern Water’s customers can be maintained, especially during times of drought. The Proposed Development would use advanced treatment techniques to turn highly treated wastewater, that is usually pumped far out to sea, into purified recycled water at a new water recycling plant in Havant.

1.3 Where is the Proposed Development located?

The Proposed Development is to be located in the south of Hampshire, to the north of Eastleigh and south of Winchester, and in an area from Havant to Otterbourne, as shown in Graphic 1-1.



Graphic 1-1 Location of Proposed Development

1.4 Why is this Proposed Development needed?

The South East of England is designated by the Environment Agency as an area of serious water stress. This means that demand for water can exceed supply, especially during a drought. In Hampshire in particular, a growing population, changing climate and sensitive environment means there is not enough water for people and nature when the weather is dry. Much of the county's water currently comes from the River Test and River Itchen, both chalk stream rivers that are ecologically important and rare.

Securing new water supplies for Hampshire in the next ten years is one of Southern Water's biggest challenges and priorities. Southern Water produced a Water Resources Management Plan in 2019. This stated Southern Water's commitment to protect the unique chalk stream rivers in Hampshire, the River Test and River Itchen by reducing the amount of water abstracted from them. The 2019 Water Resources Management Plan identified long-term strategic solutions to protect these unique chalk stream rivers and safeguard future drinking water supplies. Following detailed consideration of the different solutions, a water recycling and water transfer option was selected as the preferred option for addressing the water supply challenge in Hampshire. This water recycling and water transfer option became the Proposed Development.

Southern Water is in the process of producing a new Water Resources Management Plan. This builds on the 2019 Water Resources Management Plan and is subject to further consultation prior to approval. The draft Water Resources Management Plan responds to the requirement to plan for supplying and making best use of water generally and during drought. The draft Water Resources Management Plan identifies the Proposed Development as a major part of a package of solutions to meet this requirement.

1.5 Project of national significance

The Proposed Development is considered to be a 'project of national significance' as a result of a Direction given by the Secretary of State under Section 35(1) of the Planning Act 2008. This means that an application will need to be made to the relevant Secretary of State for a Development Consent Order (DCO) which would contain many of the consents and powers that would be needed to build, operate, maintain and decommission the Proposed Development. The DCO application will be accompanied by an Environmental Statement prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment (EIA) Regulations 2017. The Environmental Statement will be one of a number of documents supporting the DCO application.

Once the DCO application is submitted, the Secretary of State will appoint an Examining Authority who will examine the application in public and make a recommendation as to whether the Proposed Development should be granted development consent. It is then for the Secretary of State to make the final decision on whether to grant or refuse the DCO.

1.6 What is the Preliminary Environmental Information Report?

Before an application for a DCO is submitted, members of the public, statutory consultees and other stakeholders must be consulted on the proposals. This is being undertaken through Southern Water's Summer 2024 Consultation. A number of documents have been prepared to share and seek feedback on the current proposals for the Proposed Development. The Preliminary Environmental Information (PEI) Report is one of these documents.

The PEI Report has been prepared in accordance with the Infrastructure Planning (EIA) Regulations 2017. The PEI Report is intended to provide members of the public, statutory consultees and other stakeholders with preliminary information on the Proposed Development's likely significant environmental effects (both positive and negative) to allow them to reach an informed view.

The PEI Report has been prepared at a point in time during the EIA process when the design of the Proposed Development is still being refined. As a result, the likely significant environmental effects are still being assessed and the potential for measures to reduce environmental effects are still being identified and fed back into the design process. The full findings of the EIA process will be reported in an Environmental Statement that will be submitted as part of the DCO application. This will have regard to comments received through the Summer 2024 Consultation.

The PEI Report is made up of three volumes.

- Volume I reports the preliminary environmental assessment:
 - PEI Report Chapters 1 to 5 describe the Proposed Development, the alternatives considered and the approach that has been taken.
 - PEI Report Chapters 6 to 19 present the preliminary assessment of the likely significant effects of the Proposed Development in relation to identified environmental topics.
 - PEI Report Chapter 20 Cumulative and in-combination effects considers the potential relationships between topics considered in PEI Report Chapters 6 to 19, and between the Proposed Development and other known large scale developments in the surrounding area.
- Volume II contains technical appendices which support the preliminary environmental assessment.
- Volume III contains figures that accompany the technical assessments and technical appendices in Volume I and Volume II.

This document forms the Non-Technical Summary of the PEI Report and outlines the preliminary likely significant environmental effects of the Proposed Development.

The PEI Report is available online at www.HampshireWTWRP.co.uk.

1.7 Consultation and engagement

Consultation and engagement has been undertaken and continues with stakeholders, other interested organisations and groups to inform the Proposed Development and EIA process.

Summer 2022 Consultation: This was the first consultation that took place on the Proposed Development from July to August 2022. High-level environmental information was used to consult members of the public, statutory consultees and other stakeholders about the Proposed Development and seek views on the emerging plans for the Proposed Development.

Technical engagement: An ongoing programme of technical engagement is taking place with key stakeholders including the Environment Agency, Natural England, Marine Management Organisation and local planning authorities. These key stakeholders provide technical comments on scope, methods for the EIA, and on design and mitigation, all of which help to inform the design of the Proposed Development.

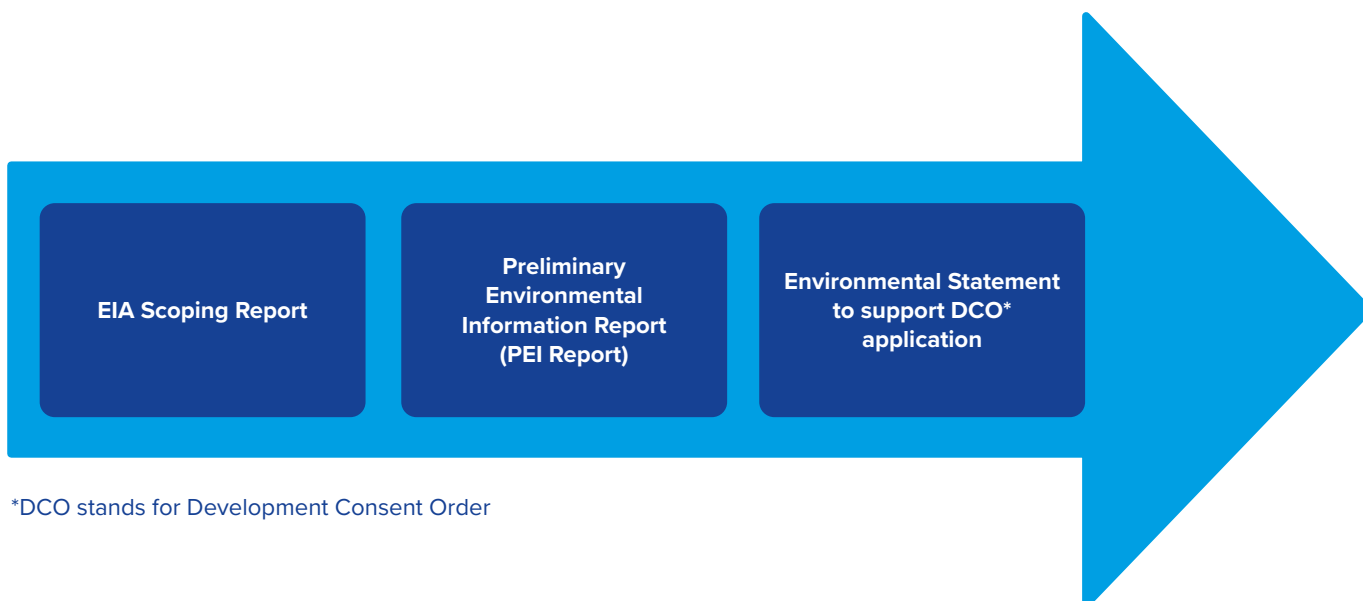
EIA Scoping: An EIA Scoping Report was submitted by Southern Water to the Secretary of State in July 2023 which set out the proposed scope of the EIA for the Proposed Development. The EIA Scoping Report allowed the Secretary of State, Planning Inspectorate and stakeholders consulted to comment on the scope, methodology and approach Southern Water is proposing to assess likely significant effects of the Proposed Development. An EIA Scoping Opinion was issued in August 2023 setting out where there is agreement or disagreement with the proposed scope of the EIA, the PEI Report has regard to this.

Summer 2024 Consultation: This is taking place between 29 May and 23 July and provides the latest information on the Proposed Development, including the PEI Report. Feedback from the consultation will further inform and support the ongoing assessment and design of the Proposed Development to seek to further reduce likely significant effects that have been identified to date.

Environmental Statement and DCO application: The Environmental Statement will report the findings of the EIA undertaken for the Proposed Development and set out the likely significant effects that would result if the Proposed Development was constructed, operated and decommissioned. It will also describe measures included to avoid, reduce and compensate for those likely significant effects. The Environmental Statement will be submitted as part of the DCO application.

1.8 What is the purpose of this document?

This Non-Technical Summary provides an overview of the PEI Report, which sets out the preliminary likely significant effects, included in the Summer 2024 Consultation. It has been prepared to help members of the public, statutory consultees and other stakeholders to develop an informed view of the Proposed Development and understand the likely significant environmental effects of the Proposed Development.



*DCO stands for Development Consent Order

Graphic 1–2 Approach to the Environmental Impact Assessment for the Proposed Development

2. Evolution of the Proposed Development

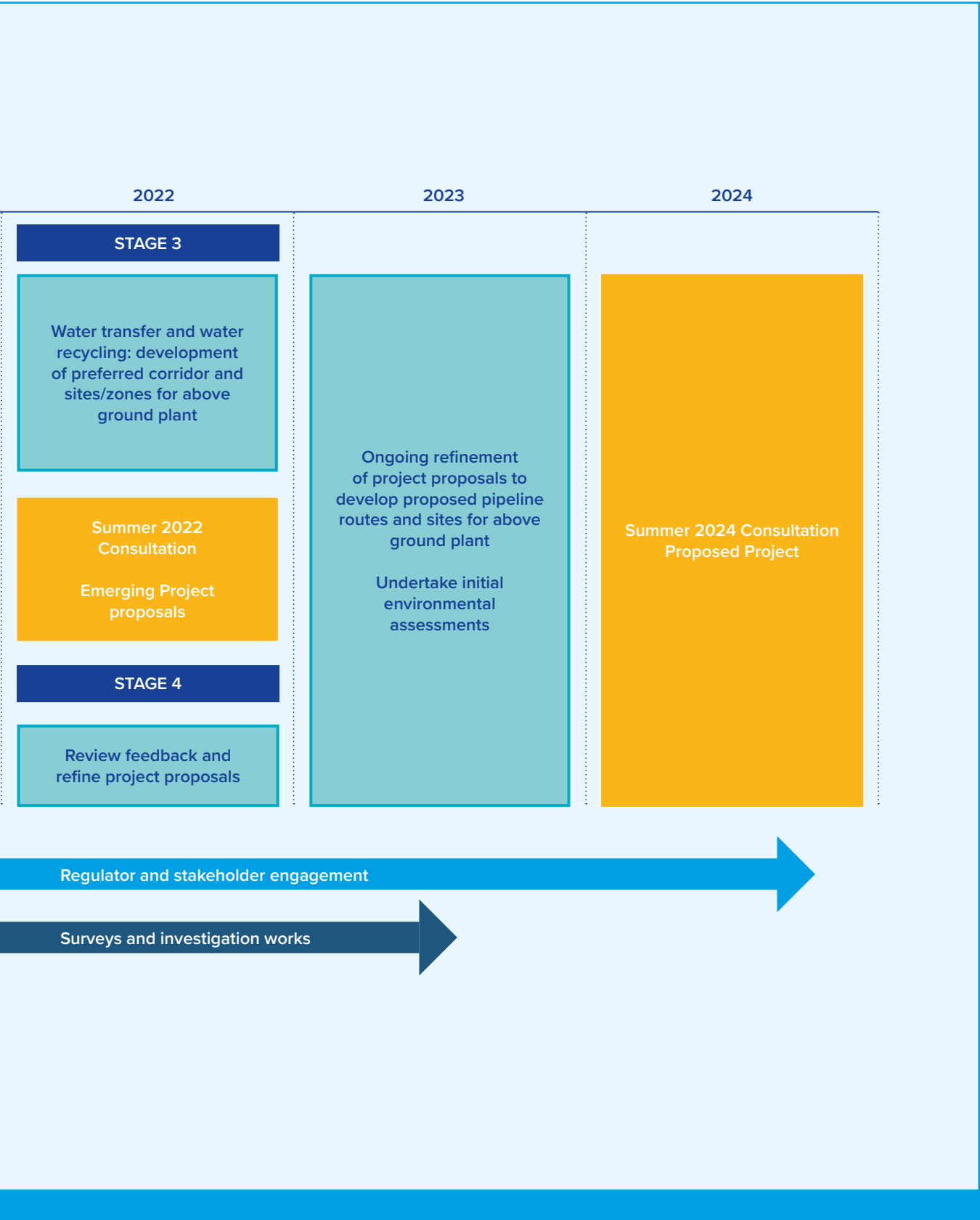
2.1 Overview

The Proposed Development has progressed through an options identification and appraisal process which considered alternative water resources solutions as well as different arrangements of these solutions. The process of option identification and selection leading to the Proposed Development as presented at the Summer 2024 Consultation is summarised in this section and shown in Graphic 2-1. Further details of how the Proposed Development was identified can be found in PEI Report Chapter 4 Consideration of alternatives, Volume I.

The three water regulators, Ofwat, the Environment Agency and the Drinking Water Inspectorate oversee a process that water companies follow to identify and develop water supply solutions. Southern Water considered a range of different options in line with this process.



Graphic 2-1 Process of option identification and selection



2.2 Alternatives considered

Stage 1 – development and assessment of initial options

Southern Water considered a number of strategic water resources infrastructure solution options across three arrangement types, as shown in Graphic 2-2:

- Three desalination options (Options A.1, A.2 and D.1)
- Five water recycling options (Options B.1, B.2, B.3, B.4, B.5)
- One water transfer option (Option D.2)

Each of these options was assessed in terms of feasibility, with three options assessed to be unsuitable by Southern Water, namely Options B.1 (water recycling), D.1 (desalination) and B.3 (water recycling). These options were considered unsuitable due to scale, environmental and technological factors as well as value for money.



Stage 2 – options appraisal process

An options appraisal process was undertaken to evaluate the remaining options against technical, environmental, planning and other criteria. This resulted in the selection of a preferred option – Option B.4 (water recycling) and a back-up option, Option B.5 (water recycling), shown in Graphic 2-3.

Of the options considered, Option B.4 (water recycling) was selected as it is able to meet the future need of planning for a 1-in-500-year drought, and is better value for money compared to Option B.5. Option B.4 (water recycling) therefore became the Proposed Development.

The following subsections provide an overview of the initial site selection process for the proposed Water Recycling Plant (WRP), proposed High Lift Pumping Station (HLPS) and the proposed pipelines corridors for the Proposed Development.

Further details on the purpose and function of these components of the Proposed Development are provided in section 3 of this Non-Technical Summary.

The WRP would consist of a main process building where the water recycling process would be undertaken, along with kiosks (to support control equipment), administrative buildings and parking facilities.

In order to move water along the pipeline, a HLPS is required which would be located at the proposed WRP site. It would provide the water with initial energy to begin the transfer to Otterbourne Water Supply Works (WSW) where it has to flow over a number of high and low topographical points



Graphic 2-3 Stage 2 options

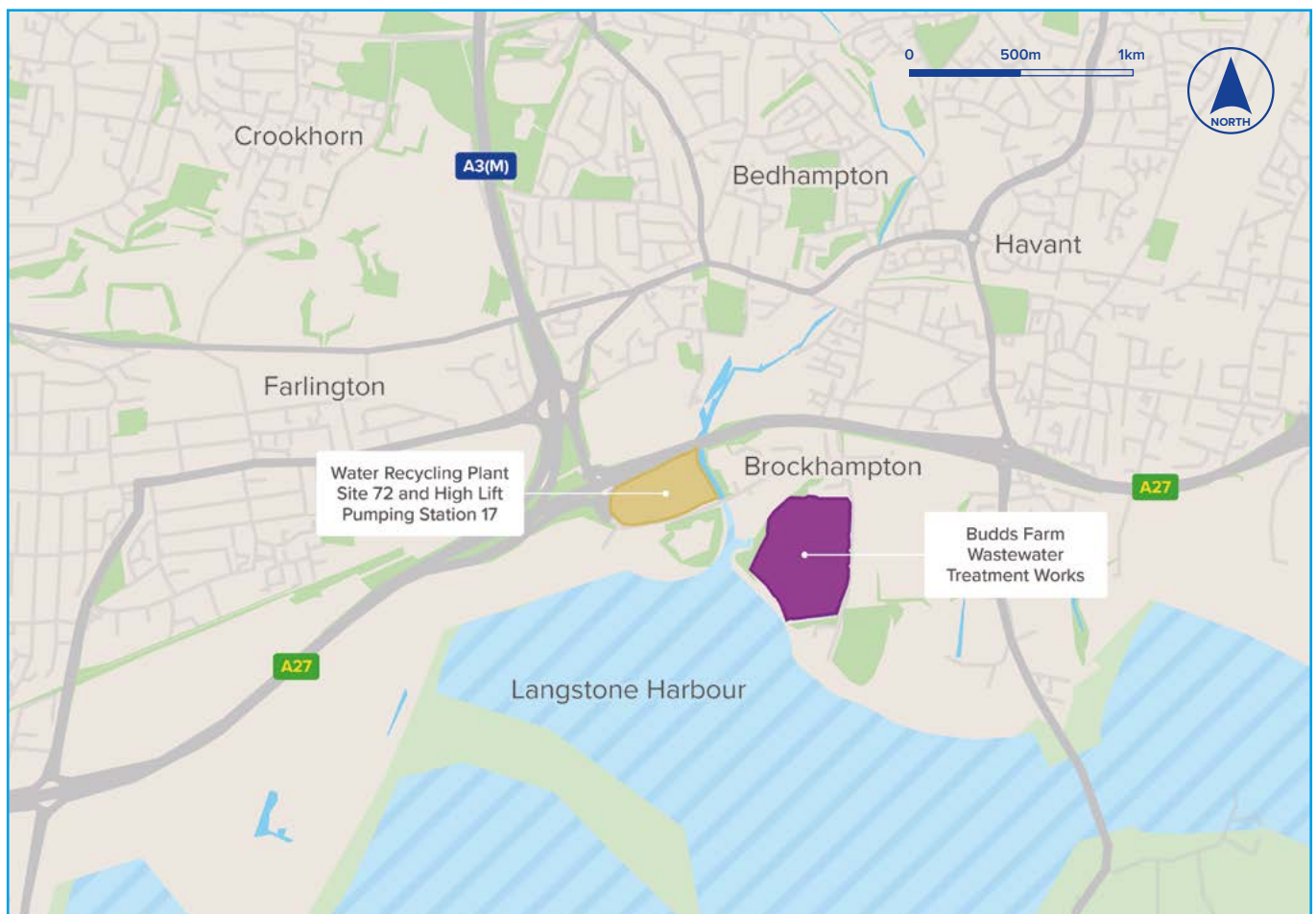
Proposed Water Recycling Plant and proposed High Lift Pumping Station site selection

To select the site for the proposed Water Recycling Plant and proposed High Lift Pumping Station, the following criteria were considered:

- Land use: to avoid densely populated areas and areas of public use including hospitals and schools, key transport infrastructure, and key utilities.
- Land conditions: to avoid areas of marsh, mudflat, cliff face, and open water.
- Site size: the Water Recycling Plant required a minimum of 45,000m² (4.5ha). The High Lift Pumping Station required a minimum of 4,600m² (0.46ha).

Sites meeting the above criteria were firstly assessed against environmental, planning and engineering criteria. Further assessment was then undertaken which reviewed considerations including flood risk, ground conditions and contamination, landscape and visual amenity, historic environment and transport accessibility.

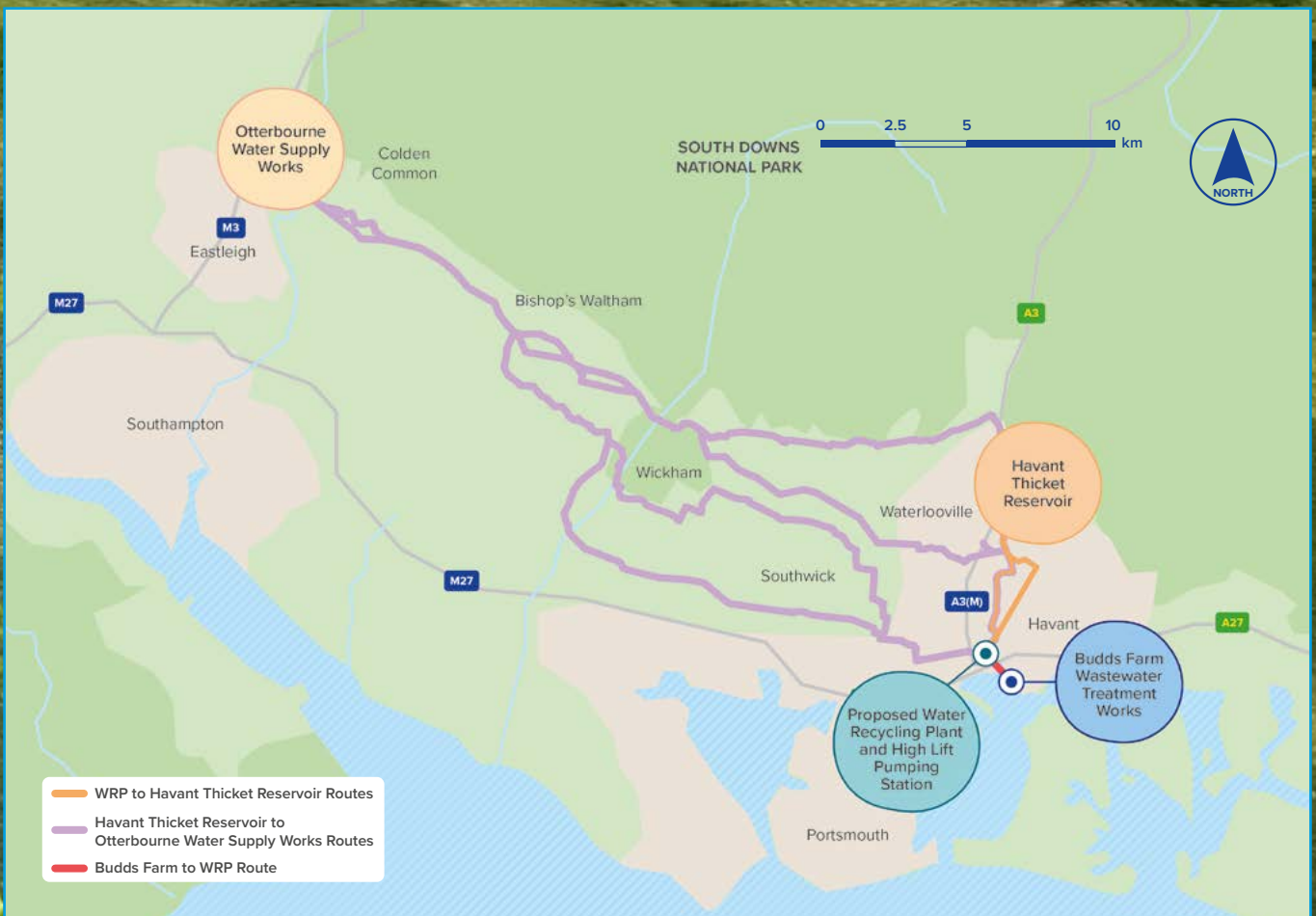
On the basis of the sites assessment, site Water Recycling Plant_72 was chosen as the preferred site for the Water Recycling Plant and site S_High Lift Pumping Station_17 was identified as the preferred site for the proposed High Lift Pumping Station for the Proposed Development. These sites are shown on Graphic 2-4.



Graphic 2-4 Water Recycling Plant and Proposed High Lift Pumping Station site selection

Pipelines site and route selection

Option B.4 (the Proposed Development) was developed into a number of initial pipeline routes, shown in Graphic 2-5. The initial pipeline routes were evaluated and it was recommended that two initial pipeline routes between Havant Thicket Reservoir and Otterbourne Water Supply Works and two initial pipeline routes between the proposed Water Recycling Plant and Havant Thicket Reservoir should be taken forward to give development flexibility.



Graphic 2-5 Stage 2 initial pipeline routes

Stage 3 Summer 2022 Consultation – preferred scheme development

The initial pipeline routes identified at Stage 2, associated with Option B.4, were then expanded into pipeline corridors to allow the pipeline route to take account of local constraints at later stages, as shown in Graphic 2-6.

Each section of the pipeline has an associated colour through this document, and others such as the Hampshire Water Transfer and Water Recycling Project – Summer Consultation 2024 Brochure. These colours are reflected in the key provided.

Proposed pipeline routes

This is a key of the different sections of the pipeline routes.

Sections A-M



A B C D E F G H J K L M



Graphic 2-6 Stage 3 pipeline corridor options

The pipeline corridors were divided into sections so that each section could be evaluated and compared against other pipeline corridor sections.

Zones for Above Ground Plant (AGP) needed for the Proposed Development were also considered at this stage. AGP are Intermediate Pumping Stations and Break Pressure Tanks, which are required along the length of the pipeline route. Intermediate Pumping Stations are needed where pressure has fallen to the point where the pipeline system can no longer move the required flow of water. Break Pressure Tanks reduce the pressure in the pipeline system associated with changes in flow rate as a result of topography.

To select sites for the proposed AGP, zones were identified within the pipeline corridor sections as potential areas where the proposed AGP could feasibly be located from an engineering perspective.

The pipeline corridor sections and AGP zones were evaluated against criteria developed by subject matter experts in consultation with stakeholders. The evaluation assessed the following subjects:

- Constructability
- Biodiversity and nature conservation
- Flood risk
- Geology and soils
- Historic environment
- Hydraulics and engineering
- Landscape and visual amenity
- Socio-economics
- Land
- Water quality and resources

Following the evaluation, the preferred pipeline corridor and AGP zones were identified and then presented at the Summer 2022 Consultation (see Graphic 2-7).



Graphic 2-7 Stage 3 preferred pipeline corridor

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

Following the Summer 2022 Consultation, refinement of the Proposed Development has been undertaken as follows:

- Development of an indicative pipeline route within the preferred pipeline corridor.
- Development of preferred AGP sites.
- Review of the site selection process for the proposed WRP.
- Siting of the indicative pipelines and construction compounds.

It is the refined Proposed Development design that is shared at the Summer 2024 Consultation for comment and feedback.

Development of an indicative pipeline route within the preferred corridor

The preferred pipeline corridor has been refined and developed further having regard to Summer 2022 Consultation feedback, and outcomes of environmental and engineering assessments.

Where options were available in the preferred pipeline corridor as presented at the Summer 2022 Consultation, the options were evaluated against one another to refine optionality. In addition, where constraints were identified on the initial pipeline routes following the Summer 2022 Consultation, alternative pipeline routes were identified and evaluated. The evaluations comprised of assessments undertaken by the following subject matter experts:

- Air quality
- Biodiversity and nature conservation
- Carbon and climate change
- Geology and soils
- Historic environment
- Interface with other developments
- Landscape and visual amenity
- Noise and vibration
- Resource and waste management
- Socio-economics
- Common land, open space or allotments
- Traffic and transport
- Water quality, resources and flood risk

Once the evaluation of options was undertaken within the preferred pipeline corridor an indicative pipeline route was identified (as shown in Graphic 2-8).

Development of preferred Above Ground Plant sites

Following the Summer 2022 Consultation, hydraulic modelling was undertaken to determine whether the refined pipeline route required new or different AGP sites to support the transfer of water. The hydraulic modelling indicated zones along the refined pipeline corridor where the proposed AGP was needed, and suitable sites were identified within the zones. The sites were then evaluated using the same criteria as used for the pipeline route evaluation.

Review of the proposed Water Recycling Plant site selection

The review of the site selection for the proposed WRP was against the same criteria used for the pipeline route evaluation, and it confirmed that WRP_72 remains the preferred site. This is because of the limited environmental and planning constraints, and it does not contain any existing employment uses that would be displaced by the development of the proposed WRP.

Siting of the indicative pipeline route and construction compounds

Further detailed siting of the indicative pipeline route was undertaken to respond to local constraints, this involved a review of the following linear features crossed by the indicative pipeline route:

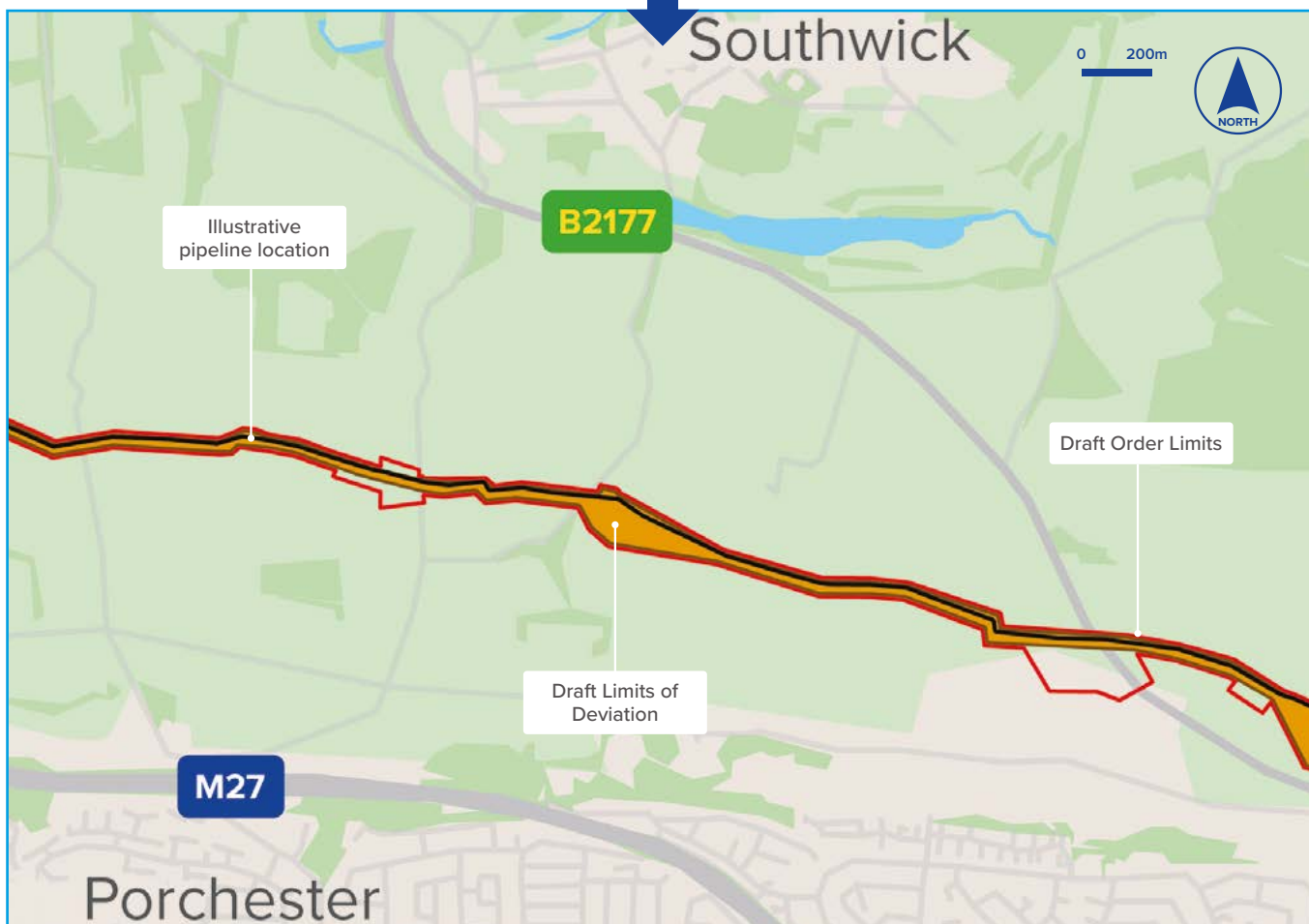
- Vegetation including hedgerows, trees and woodland.
- Watercourses including Main Rivers and watercourses.
- Roads, access roads and public rights of way.

The outcome of the review of linear features was the refinement and identification of a preferred pipeline route. Locations for construction compounds, required to support the construction of the Proposed Development, were also identified at intervals along the preferred pipeline route.

Following this review, an illustrative pipeline location was identified (example shown in Graphic 2-8).

Definition of the Proposed Development area

Land is required to construct, and operate the Proposed Development and to mitigate any environmental effects. The extent of this land is known as the 'draft Order Limits', as demonstrated in Graphic 2-8. Within the draft Order Limits, draft 'Limits of Deviation' are identified which define the extent of the area within which the proposed pipelines and underground pipelines would be located. For the purposes of the PEI Report, the draft Order Limits have been drawn to provide flexibility to allow for further scheme design and development following the Summer 2024 Consultation. The draft Order Limits and the draft Limits of Deviation are shown in the Book of Plans.



Graphic 2-8 Relation between corridor, route and draft Order Limits

3. The Proposed Development

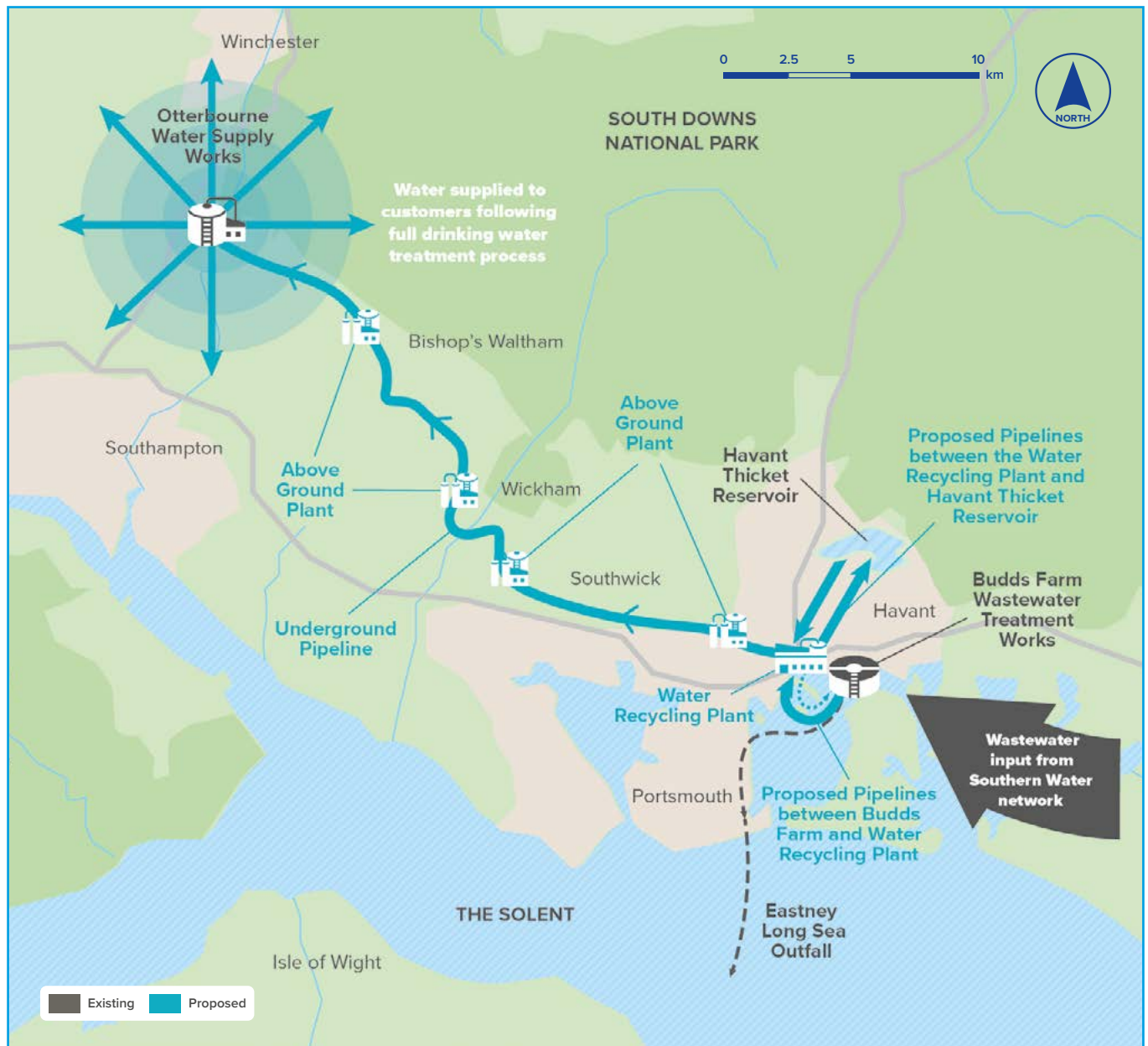
3.1 Key components of the Proposed Development

The key components of the Proposed Development comprise the following and are shown on Graphic 3-1:

- Proposed Water Recycling Plant (WRP) and High Lift Pumping Station (HLPS)
- Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works (WTW) and the proposed WRP
- Proposed Pipelines between the proposed WRP and Havant Thicket Reservoir (which consists of two options, described further below)
- Proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne Water Supply Works (WSW)

- Proposed Above Ground Plant (AGP)
- Use of the Havant Thicket Reservoir for the storage of recycled water
- Use of the existing Eastney Long Sea Outfall (LSO) for the release of reject water from the proposed Water Recycling Plant
- Other Associated Development

The following sections summarise the key parts of the Proposed Development, more detail can be found in PEI Report Chapter 3 Description of the Proposed Development, Volume I.

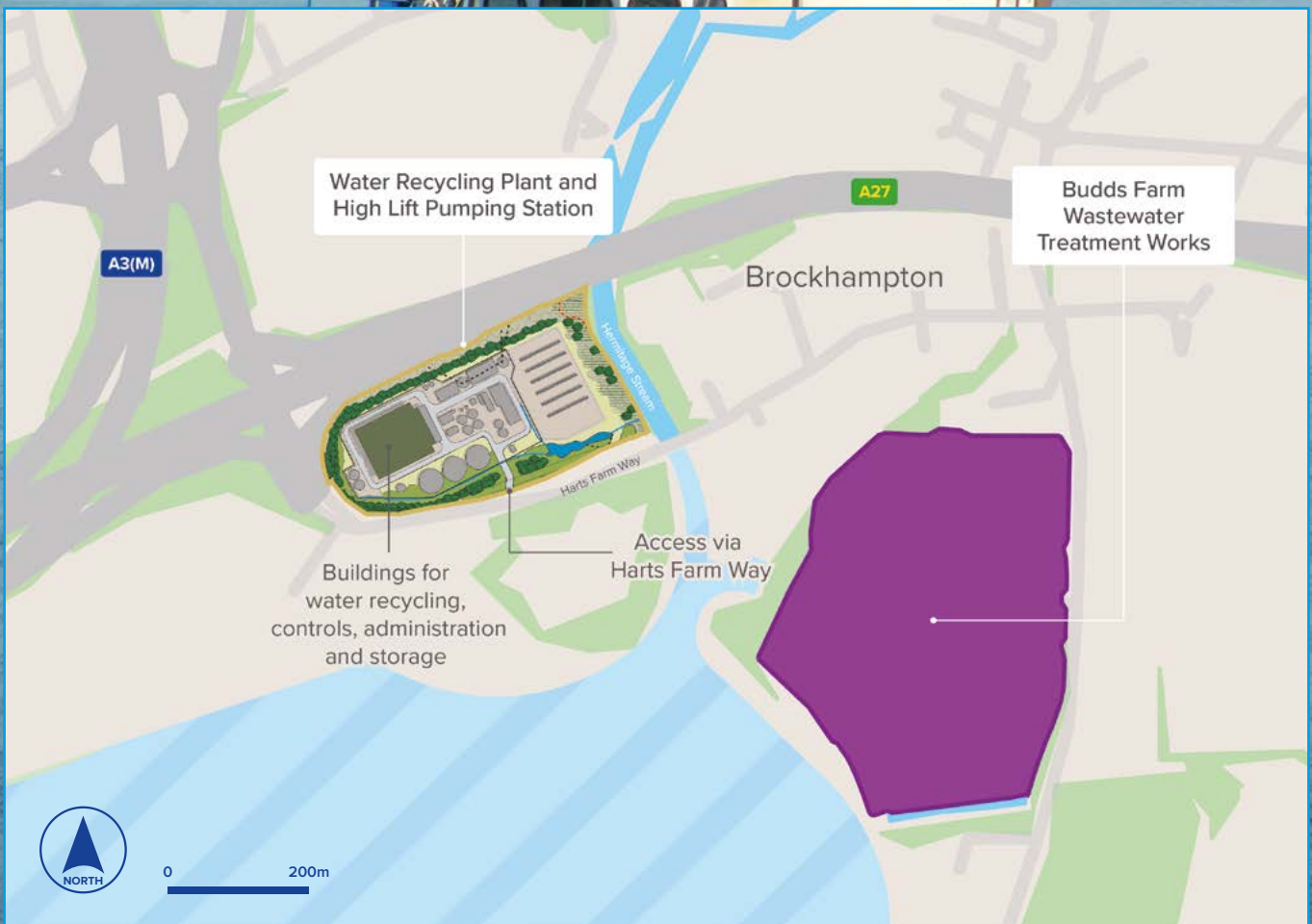


Graphic 3-1 The Proposed Development

Proposed Water Recycling Plant and proposed High Lift Pumping Station

The proposed WRP would be located at a site approximately 300m north-west of Budds Farm WTW, to the north of Harts Farm Way, south of the A27 and west of the Hermitage Stream, as shown in Graphic 3-2. It would consist of a main process building where the water recycling process would be undertaken, along with kiosks (to support control equipment), administrative buildings and parking facilities.

In order to move water along the pipeline a High Lift Pumping Station is required which would be located at the proposed Water Recycling Plant site. It would provide the water with initial energy to begin the transfer to Otterbourne Water Supply Works where it has to flow over a number of high and low topographical points.



Graphic 3-2 Proposed Water Recycling Plant and proposed High Lift Pumping Station (illustrative layout)

Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works and the proposed Water Recycling Plant

Two proposed Underground Pipelines, approximately 500m in length, would be constructed between Budds Farm WTW and the proposed WRP: one to transfer treated wastewater from Budds Farm WTW to the proposed WRP (ready to enter the water recycling process) and the other to transfer reject water from the proposed WRP to Budds Farm WTW. The proposed Underground Pipelines would also connect to existing infrastructure for release of treated wastewater. A pumping station may be needed at Budds Farm WTW to move water to where it needs to be.



Graphic 3-3 Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works and the proposed Water Recycling Plant

Proposed Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

There are two potential options for the proposed Pipelines between the proposed WRP and the Havant Thicket Reservoir:

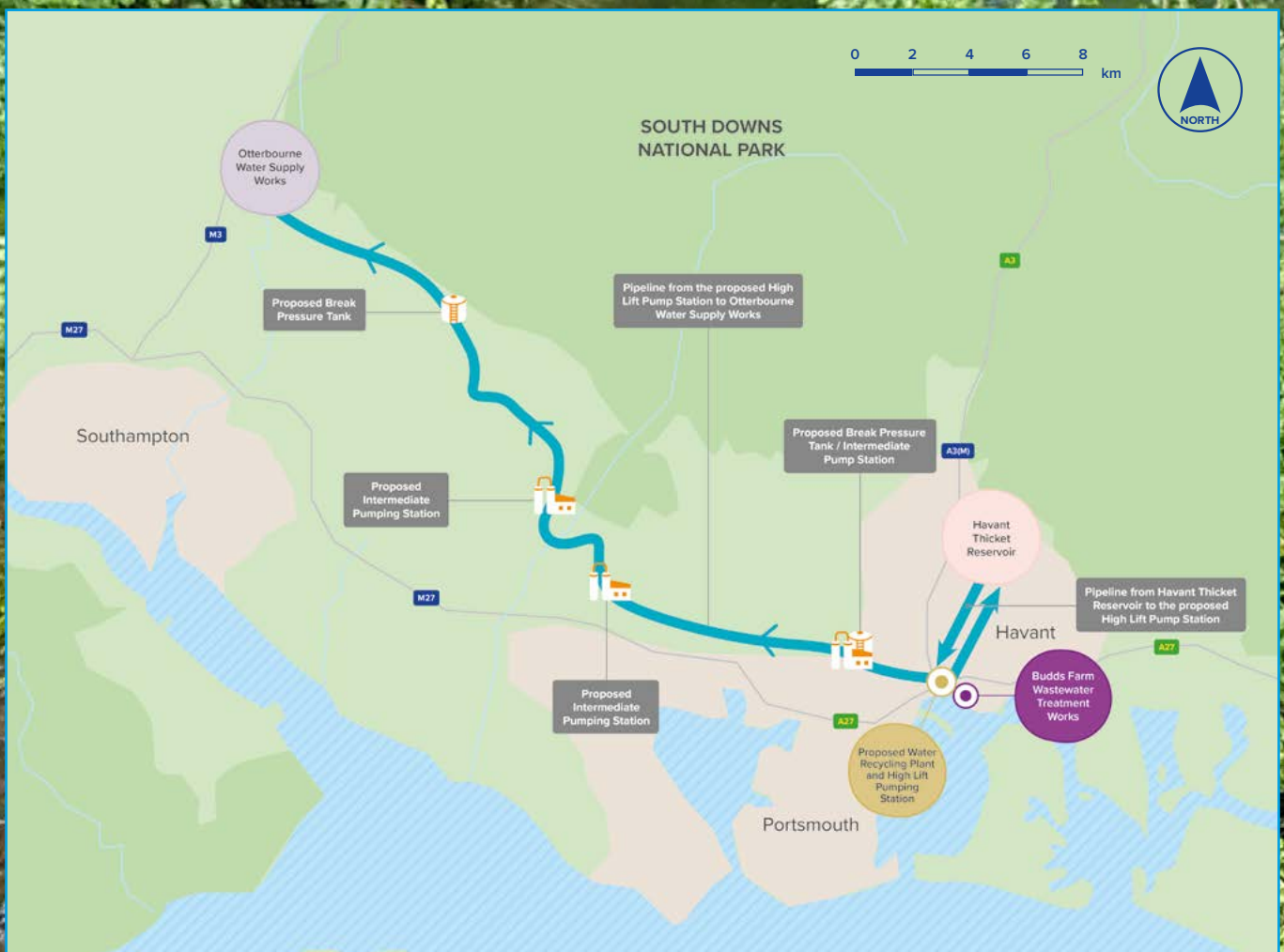
- I. Proposed Pipelines, approximately 650m long, between the proposed WRP and Bedhampton Springs. This option is dependent on Portsmouth Water securing consent and delivering two pipelines to connect their existing Bedhampton Springs site to Havant Thicket Reservoir.
- II. Proposed Underground Pipelines between the proposed WRP and Havant Thicket Reservoir, approximately 3.8km in length.



Graphic 3-4 Proposed Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

Proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne Water Supply Works

A proposed Underground Pipeline would transfer water from the Havant Thicket Reservoir to Otterbourne WSW through the proposed HLPS, located at the site of the proposed WRP. The section of pipeline from Havant Thicket Reservoir to the proposed HLPS includes the same two options as described above, while the section from the proposed HLPS to Otterbourne WSW would be the Underground Pipeline. The proposed Underground Pipeline would be approximately 40km long and transfer 90 Million litres per day (Ml/d) of source water at the peak of a drought, reducing to a minimum of 20Ml/d outside of drought conditions.



Graphic 3–5 Proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne Water Supply Works

Proposed Above Ground Plant

Due to the length of the proposed Underground Pipeline from Havant Thicket Reservoir to Otterbourne WSW, further AGP (in addition to the proposed HLPS which is the first pumping station on the pipeline route) would be required to support the transfer of water to overcome the topography of the route. AGP are anticipated to include proposed Intermediate Pumping Stations and proposed Break Pressure Tanks located along this section of the pipeline, as shown in Graphics 3-2 to 3-5.

Use of Havant Thicket Reservoir for the storage of recycled water

Following transfer from the proposed WRP, the purified recycled water would be combined with water contained within the Havant Thicket Reservoir. The Proposed Development would use the Havant Thicket Reservoir for the storage of purified recycled water before it is transferred to Otterbourne WSW, as shown in Graphic 3-4.

Release from the Eastney Long Sea Outfall

Reject water (that is water containing impurities removed from the treated wastewater) produced by the proposed WRP would be returned to Budds Farm WTW using the proposed Underground Pipelines between the proposed WRP and Budds Farm WTW. The reject water would then be combined with existing treated wastewater flows from the existing Budds Farm WTW before being transferred and released to the Solent. This would use the existing infrastructure operated by Southern Water, consisting of Eastney Transfer Tunnel, Eastney Pumping Station and Eastney LSO, as shown in Graphic 3-3.

In the event of an emergency shut down of the proposed WRP, water within the WRP would be returned to Budds Farm WTW by opening the run to waste valve. This water would then be released using the existing Eastney Transfer Tunnel, Eastney Pumping Station and Eastney LSO.

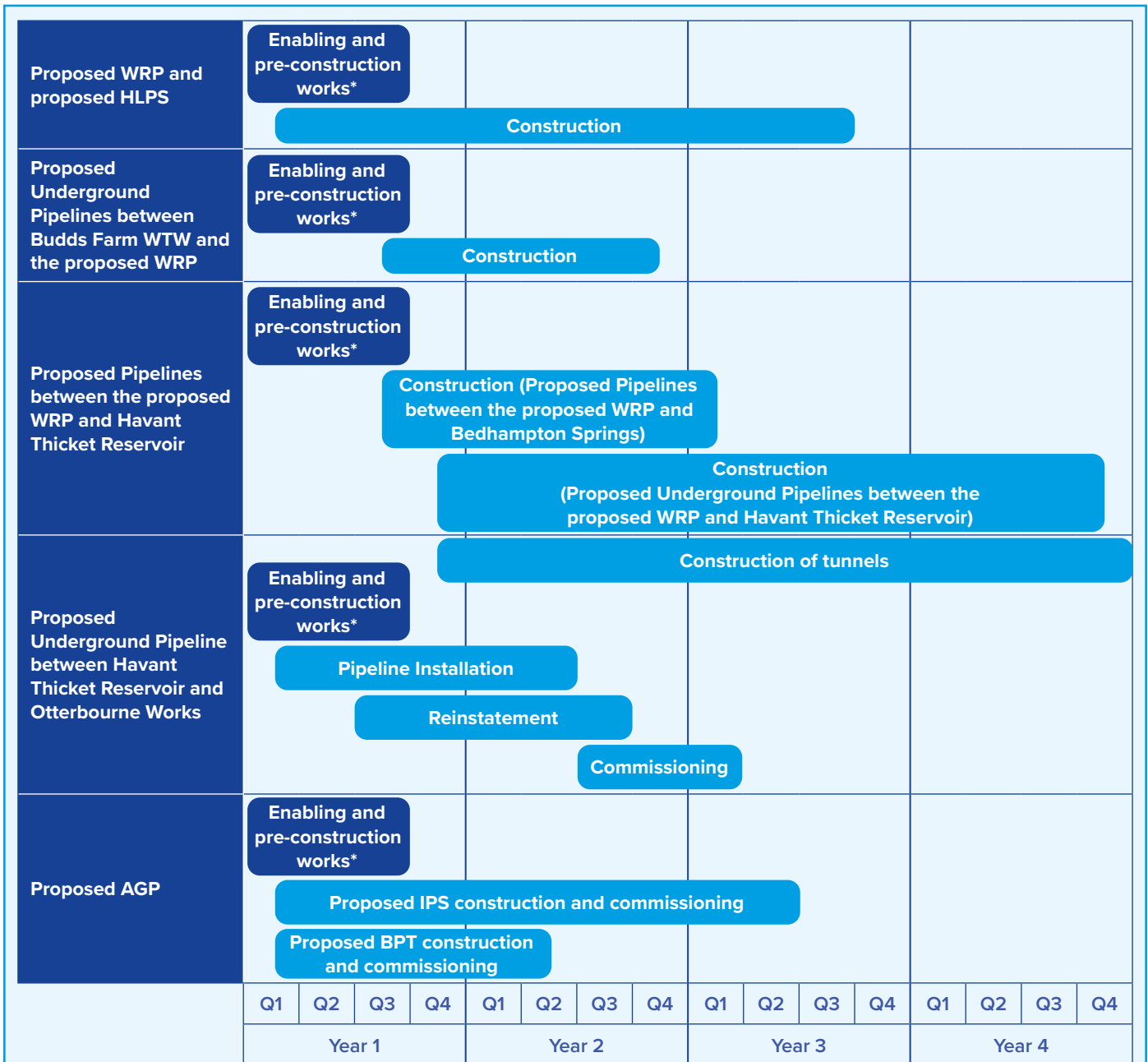
Associated Development

The construction and operation of the key components of the Proposed Development would be supported by Associated Development, which would include:

- Temporary works to support construction, such as construction compounds and water storage lagoons.
- Permanent works to support operation and maintenance, including access to the proposed AGP's.
- Sites accesses and potential utility connections for the Proposed Development.
- Utility diversions as required.
- Highway and public rights of way diversions where required.
- Landscaping, environmental mitigation, enhancement, and compensation measures.

3.2 Approach to construction

The Proposed Development is expected to take four years to construct. Graphic 3-6 shows the indicative timing for construction of each of the key components of the Proposed Development.



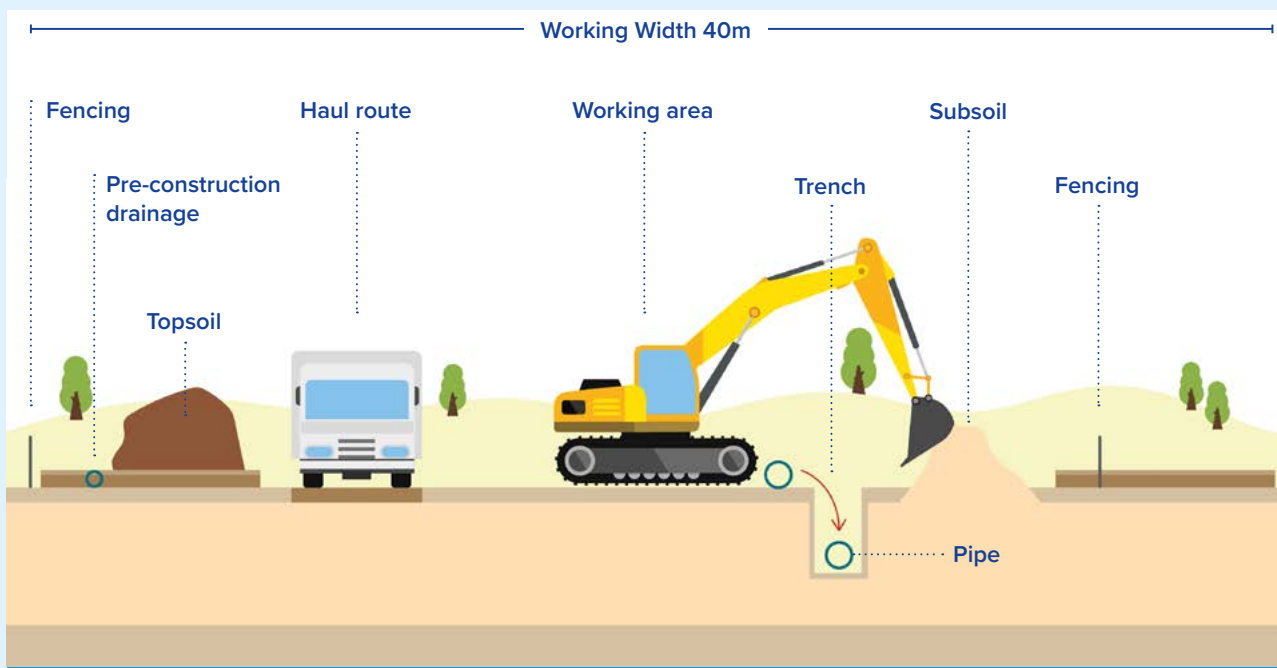
* Enabling and pre-construction works including: site clearance and preparation, crossings of major utilities, construction compounds and trenchless compounds.

Graphic 3–6 Indicative construction programme

Several techniques are expected to be used to construct the key parts of the Proposed Development. Generally, an open-cut trench construction method would be used to install the underground sections of the pipelines. Other techniques including tunnelling would also be used where appropriate, for example, in environmentally sensitive areas. The main methods of pipeline construction are described below.

Trenched open-cut method

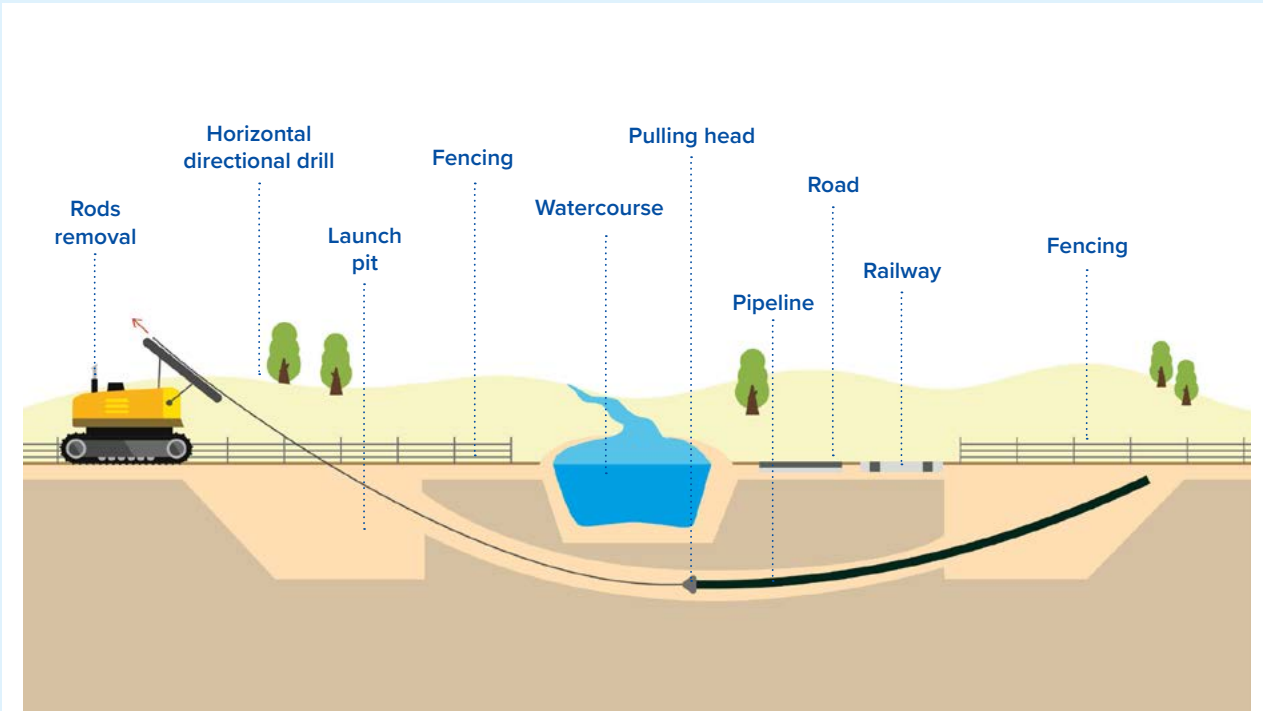
It is anticipated that most of the underground pipeline associated with the Proposed Development would be constructed using trenched open-cut excavation in open and unconstrained areas such as fields. The typical working width would be 40m as shown in Graphic 3-7. This provides space for construction vehicle movement along haul roads, construction working areas, pipe storage areas, pipeline trench and soil storage areas.



Graphic 3-7 Indicative typical working width for trenched open-cut construction

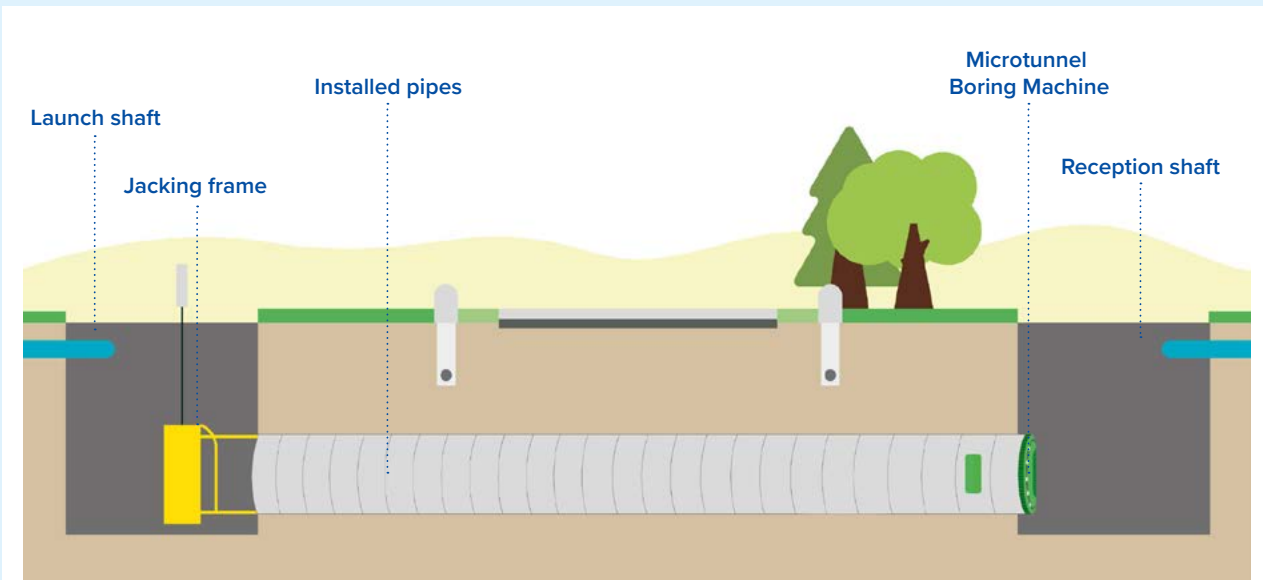
Trenchless method

For some sections of the pipeline (both above-ground sections and underground sections) there would be crossings that may not be suited to trenched open-cut excavation. Examples of these are roads, railways, waterways, sensitive environmental areas, and other areas where construction could be restricted.



Graphic 3-8 Indicative cross-section of horizontal directional drilling

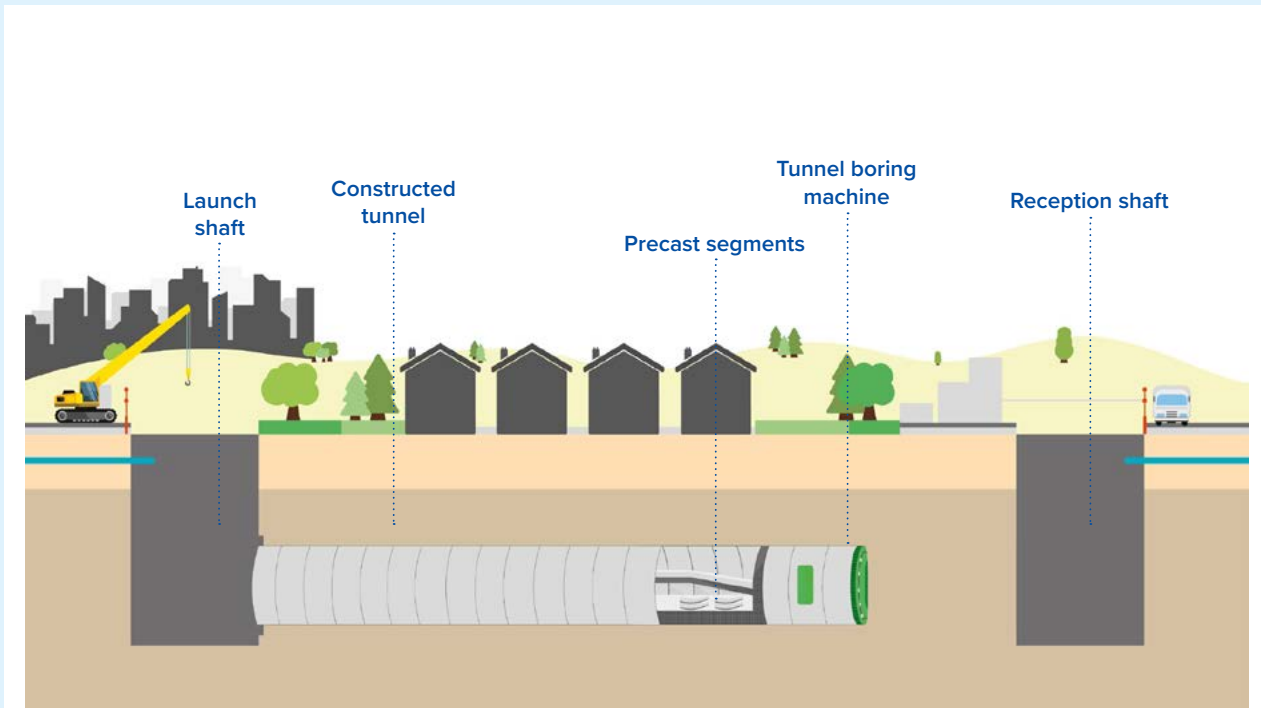
Trenchless construction methods that could be used include horizontal directional drilling and microtunnelling, as shown in Graphic 3-8 and Graphic 3-9.



Graphic 3-9 Indicative cross-section of microtunnelling

Tunnelling method

Tunnelling is to be used in areas where the underground pipeline needs to pass through residential areas and cross sensitive environmental features, where the length is too long for trenchless construction. Graphic 3-10 shows a cross section of a typical tunnel construction.



Graphic 3–10 Indicative cross section of tunnel construction

Tunnel shafts would be sunk at each end of the tunnel section from where a Tunnel Boring Machine would start and would then emerge and finish. Graphic 3-11 shows an example of tunnel shaft construction.



Graphic 3–11 Example of tunnel shaft construction

Construction compounds

Construction compounds are anticipated to be temporarily required to support construction of the key components of the Proposed Development, located at intervals along the pipeline.

Different types of construction compounds would be used depending on construction methodologies being used, and for uses such as office buildings, welfare facilities and parking.

Construction would also be supported by the use of water storage lagoons. These are required to test the proposed Underground Pipelines to check for leaks and other operational issues prior to commissioning of the pipeline.

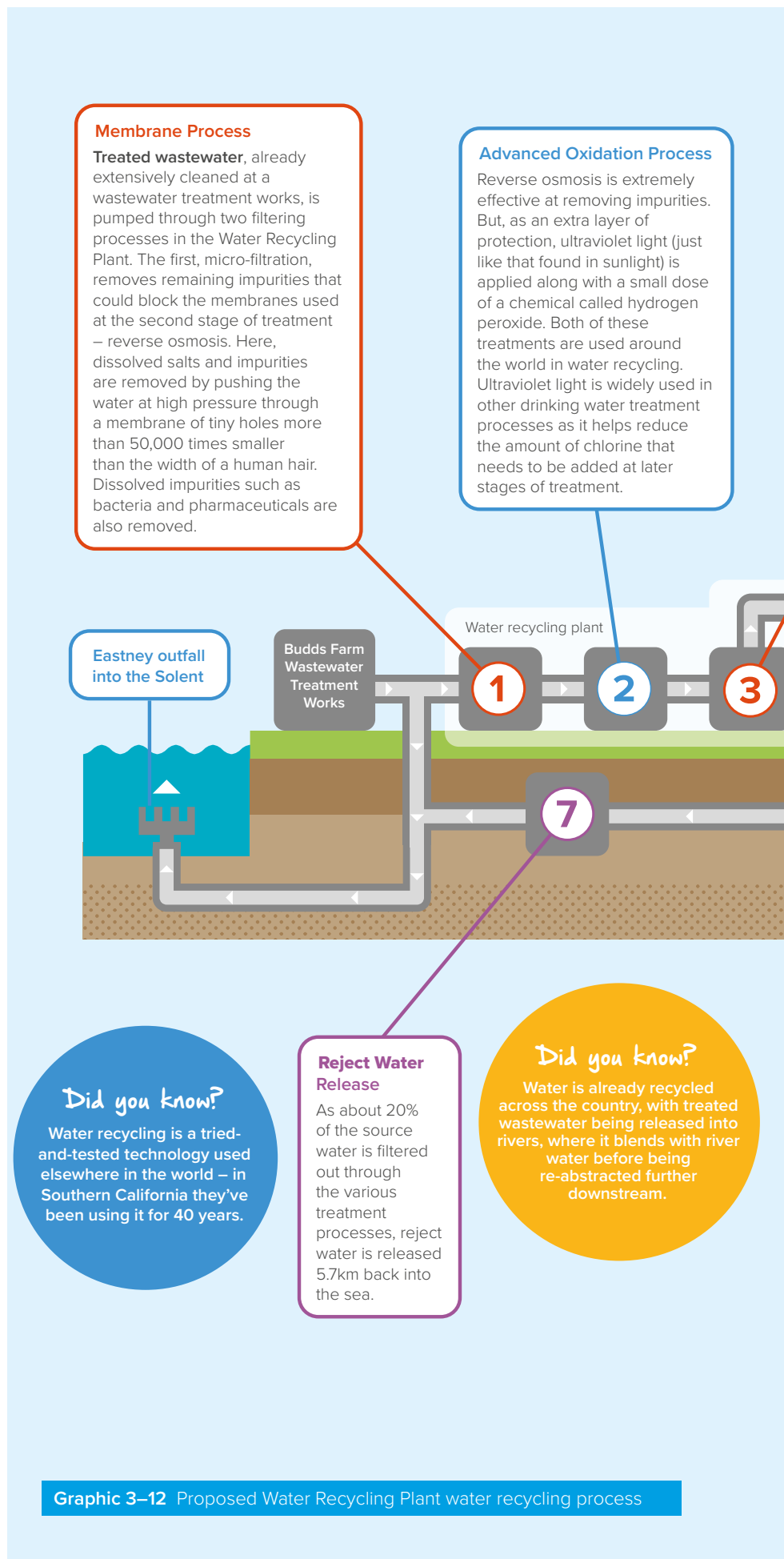
Construction environmental management

Construction impacts on the environment and local communities would be managed, as far reasonably practicable, through the implementation of a Construction Environmental Management Plan (CEMP). The CEMP will set out best practice construction management techniques and measures to avoid or reduce environmental effects. A preliminary Outline CEMP is provided with the Summer 2024 Consultation documentation.

Public rights of way may be temporarily closed or diverted to facilitate the construction of the Proposed Development. This would be done in accordance with a Rights of Way Management Plan which will be submitted with the Development Consent Order (DCO) application.

Various construction traffic management plans would also be implemented to manage impacts during construction which will also be submitted with the DCO application.

Vegetation that is removed to facilitate construction would be reinstated as close to the location, type and character of the existing vegetation as practicable. The Reinstatement Strategy will form part of the Outline Landscape and Ecological Management Plan that will be submitted with the DCO application.



Membrane Process

Treated wastewater, already extensively cleaned at a wastewater treatment works, is pumped through two filtering processes in the Water Recycling Plant. The first, micro-filtration, removes remaining impurities that could block the membranes used at the second stage of treatment – reverse osmosis. Here, dissolved salts and impurities are removed by pushing the water at high pressure through a membrane of tiny holes more than 50,000 times smaller than the width of a human hair. Dissolved impurities such as bacteria and pharmaceuticals are also removed.

Advanced Oxidation Process

Reverse osmosis is extremely effective at removing impurities. But, as an extra layer of protection, ultraviolet light (just like that found in sunlight) is applied along with a small dose of a chemical called hydrogen peroxide. Both of these treatments are used around the world in water recycling. Ultraviolet light is widely used in other drinking water treatment processes as it helps reduce the amount of chlorine that needs to be added at later stages of treatment.

Eastney outfall into the Solent

Budds Farm Wastewater Treatment Works

Water recycling plant

Did you know?

Water recycling is a tried-and-tested technology used elsewhere in the world – in Southern California they've been using it for 40 years.

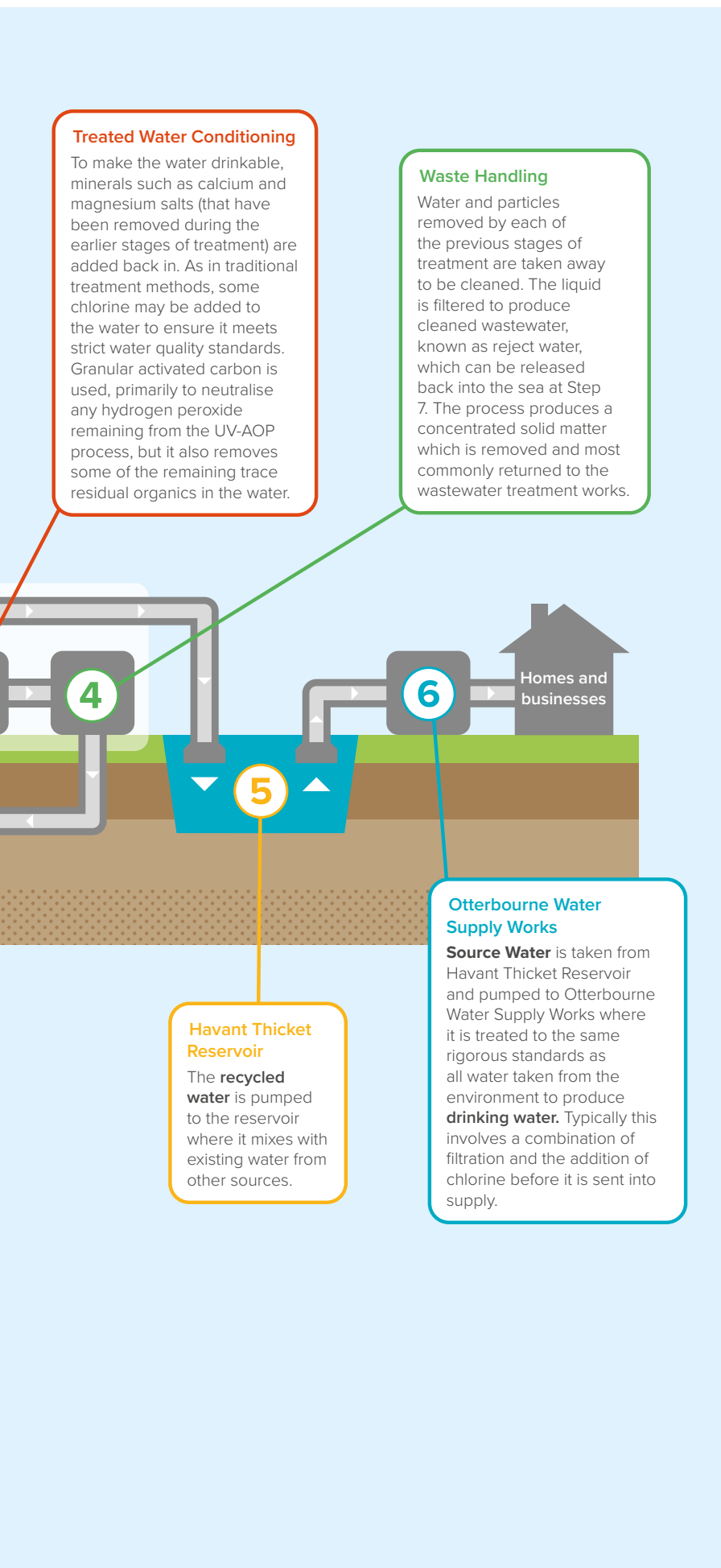
Reject Water Release

As about 20% of the source water is filtered out through the various treatment processes, reject water is released 5.7km back into the sea.

Did you know?

Water is already recycled across the country, with treated wastewater being released into rivers, where it blends with river water before being re-abstracted further downstream.

Graphic 3–12 Proposed Water Recycling Plant water recycling process



3.4 Operation and maintenance

The Proposed Development would operate at its full capacity during drought conditions.

Outside of drought conditions, the Proposed Development would continue operating a minimum flow to make sure infrastructure is in regular working use.

Proposed Water Recycling Plant and proposed High Lift Pumping Station

The proposed WRP would receive treated wastewater from Budds Farm WTW, and the treated wastewater would be pumped through two filtering processes. The water recycling process proposed to be used by the proposed WRP is shown in Graphic 3-12.

During peak operation, the proposed WRP would treat approximately 80MI/d of treated wastewater, resulting in approximately 60MI/d of recycled water for transfer to Havant Thicket Reservoir.

The proposed WRP would undergo regular routine monitoring and maintenance including recording information, testing and replacement of equipment.

Proposed Pipeline

It is anticipated that some land along the pipeline (both above-ground and underground sections) would be required to allow access for maintenance. The specific maintenance activities that would be allowed within this land would be discussed with individual landowners.

Proposed Above Ground Plant

During operation, the proposed AGP would undergo regular routine monitoring and maintenance including recording information, testing and replacement of equipment. These activities would require an operative to attend each Intermediate Pumping Station site and Break Pressure Tank site approximately five times a month.

Release from the Eastney Long Sea Outfall

The Proposed Development would use the existing Eastney LSO for the release of reject water (through Budds Farm WTW as part of normal operating procedure) produced by the proposed WRP.



3.5 Decommissioning

The Proposed Development is assumed to have a life cycle of a minimum of 100 years, however, the operational life could be longer than this. The condition of the components of the Proposed Development would be reviewed at the end of their design life to determine if they could continue to operate after this time, or whether further maintenance would be required.

It is anticipated that the programme for decommissioning the components of the Proposed Development would be similar to the construction programme for assessment purposes.

During the decommissioning phase, it is assumed that above-ground assets would be removed, including process, mechanical and electrical equipment, buildings, and associated below-ground structures. It is assumed that buried pipeline infrastructure would be left in place and once drained would be capped, depending on industry best practice at the time.

An Outline Decommissioning Environmental Management Plan will be submitted as part of the DCO application, and will set out the general principles to be followed in the decommissioning of the Proposed Development.

4. What are the environmental effects and mitigation?

A Preliminary Environmental Information (PEI) Report has been prepared to meet the requirements of the relevant planning policy and legislation, to assess the preliminary effects of the Proposed Development, as presented in the Summer 2024 Consultation, on the environment, and to allow for engagement to feed into and refine the design.

The EIA considers the likely significant effects during the construction, operation, maintenance and decommissioning of the Proposed Development.

- **Construction:** The construction phase assessment addresses the temporary activities involved in building the Proposed Development, the permanent presence of the Proposed Development once constructed, and any construction effects that would last permanently.
- **Operation and maintenance:** The operational and maintenance assessment considers the situation when the Proposed Development is in use.
- **Decommissioning:** This phase is at the end of the Proposed Development's useful life when it ceases to be operational.

Environmental topic assessments are undertaken on the basis of maximum parameters to allow for the design to be refined and where there may be areas of uncertainty. This ensures the assessment is based on a likely worst case scenario.

The Environmental Impact Assessment (EIA) also considers combined likely significant effects from the Proposed Development on a single receptor (for example, a school) from a number of individual environmental impacts, for example noise, air quality, traffic and visual. In addition, the EIA assesses the cumulative likely significant effects associated with other developments that would be constructed at the same time as the Proposed Development.

The preliminary EIA and design process have been undertaken to assess, avoid and/or reduce negative environmental effects and promote positive effects as a result of the Proposed Development. The preliminary assessment within Volume I of the PEI Report has considered the following aspects of the environment:

- PEI Report Chapter 6 Air quality and odour
- PEI Report Chapter 7 Archaeology and cultural heritage
- PEI Report Chapter 8 Terrestrial and freshwater biodiversity
- PEI Report Chapter 9 Marine biodiversity

- PEI Report Chapter 10 Carbon and climate change
- PEI Report Chapter 11 Land quality and ground conditions
- PEI Report Chapter 12 Land use and agriculture
- PEI Report Chapter 13 Landscape and visual
- PEI Report Chapter 14 Major accidents and disasters
- PEI Report Chapter 15 Noise and vibration
- PEI Report Chapter 16 Resources and waste management
- PEI Report Chapter 17 Socio-economics, tourism and health
- PEI Report Chapter 18 Traffic and transport
- PEI Report Chapter 19 Water environment (including flood risk)
- PEI Report Chapter 20 Cumulative and in-combination effects

In reaching the preliminary findings of the assessment of likely significant effects, the effects have been assessed against the current environmental baseline (i.e. the current conditions and features of the site and surrounding area) and the future baseline of the site. The future baseline is defined by considering changes to the current environmental baseline that may result from factors such as other developments that may occur over time in the absence of the Proposed Development.

4.1 Mitigation

Measures to avoid, prevent or reduce adverse (negative) environmental impacts are known as mitigation. These have been identified for each environmental topic and are categorised as follows:

- **Primary mitigation**, which are measures embedded into the Proposed Development and inherent to the design (for example, measures to minimise vegetation loss).
- **Secondary mitigation**, which are additional measures to reduce likely significant adverse (negative) environmental effects (for example, planting trees to screen views where a development is visually intrusive).
- **Tertiary mitigation**, which are measures embedded in the Proposed Development that meet legislative requirements or standard best practices (for example, measures to control construction dust).



4.2 Air quality and odour

Approach to the assessment

The assessment of air quality and odour considers that likely significant effects can potentially arise from emissions such as dust and odours, as well as the potential health risks associated with increased air pollutants. In the UK, the primary concerns regarding health effects revolve around nitrogen dioxide and particulate matter, specifically PM10 and PM2.5.

The assessment has investigated the potential impacts of construction-related dust and fine particulate matter, as well as emissions from Non-Road Mobile Machinery such as construction machinery, and road traffic, on both human and ecological receptors. Additionally, it takes into account the impacts of odour emissions during the excavation of the landfill site at the proposed Water Recycling Plant (WRP).

The assessment considers a study area of up to 250m from the draft Order Limits.

Baseline

Within the study area the air quality is generally good, with road vehicle emissions being the primary influence. There is one designated Air Quality Management Area within the study area, known as Eastleigh No.2 Air Quality Management Area, identified by local planning authorities for special management to meet air quality objectives and safeguard health. The Air Quality Management Area has not experienced any recent exceedances in measured pollutants. Future improvements in air quality are anticipated due to factors such as the adoption of newer road vehicles meeting stricter emission standards and the increasing use of electric vehicles.

Monitoring conducted by local planning authorities in the study area indicates no exceedances of the annual average nitrogen dioxide objective between 2016 and 2022. Estimates for current and future pollutant concentrations, including nitrogen dioxide and particulate matter (PM10 and PM2.5), suggest compliance with relevant standards. Furthermore, air quality monitoring data shows no exceedances of the annual mean nitrogen dioxide objective during the same period.

Budds Farm Wastewater Treatment Works (WTW) is a potential source of odour in the study area. However, Budds Farm WTW incorporates odour management systems to ensure any odour from WTW has no detrimental impact on the quality of the local environment. This is supported by confirmation from the local planning authority of no recent odour-related complaints, coupled with the operator's confirmation of very few complaints in 2022-2023, which underscores the infrequency of odour issues.

Mitigation

Primary mitigation

Primary mitigation measures to reduce likely significant effects on air quality within the design include selecting the shortest pipeline routes, avoiding populated areas and designated nature conservation sites whenever feasible, and using trenchless installation methods when crossing sensitive ecological areas to avoid direct disturbance to habitats and features within these sites.

Secondary mitigation

The preliminary assessment results suggest that no likely significant effects are anticipated, and therefore further additional secondary mitigation measures are unnecessary.

Tertiary mitigation

Tertiary mitigation measures that have been included as part of the assessment for air quality and odour (contained in the preliminary Outline Construction Environmental Management Plan (CEMP)) include best practice measures to minimise construction dust effects, such as the use of a Dust Management Plan, conducting regular site inspections, and employing dust suppression techniques. Strategies such as proper waste management would be used to reduce dust and dirt from the construction sites being carried onto the public road network.

Specific mitigation measures for Non-Road Mobile Machinery in the preliminary Outline CEMP focus on emissions control through maintenance and the use of ultralow sulphur diesel fuel where practicable. Diesel Particulate Filters would be fitted to all Non-Road Mobile Machinery, with ongoing checks for compliance. Fuel conservation measures and careful siting within working areas would help manage the effects on air quality.

Odour control measures will be crucial during the excavation of contaminated materials at the proposed WRP, with techniques like damping down and misting to be employed as needed.

Monitoring

Throughout the construction and operational phases no likely significant effects requiring ongoing monitoring have been identified.

Likely significant effects

Construction

During construction, activities such as earthworks and vehicle movements can result in emissions of construction dust, which may affect air quality. Potential impacts, including nuisance and dust soiling of receptors from emissions, as well as emissions of nitrogen oxides and particulate matter from construction traffic and on-site plant, are identified. With the primary and tertiary mitigation measures included no likely significant effects are concluded.

The impact of Non-Road Mobile Machinery emissions from construction activities at the Proposed Development are assessed. Factors like machinery types, working hours, and existing air quality conditions are considered. With tertiary mitigation measures in place, including siting machinery away from sensitive areas, effects are deemed not significant.

Assessment of construction road vehicle exhaust emissions on both human and ecological receptors indicated negligible effects on human receptors. Similarly, air quality effects on ecological receptors are deemed insignificant.

Significant adverse effects on existing receptors are assessed as unlikely due to odour emissions from the construction activities at the proposed WRP, as a result of the risk of odour exposure being considered low.

Operation and maintenance

Operational and maintenance impacts of the Proposed Development were determined to be insignificant during the EIA scoping assessment. This was agreed to be scoped out of the assessment as outlined in the EIA Scoping Opinion. Therefore, these impacts are not considered in this assessment.

Decommissioning

Effects from decommissioning of the Proposed Development are expected to be no greater than those identified during the construction phase. The assessment of significance of decommissioning effects is therefore reported as not significant for all receptors.

4.3 Archaeology and cultural heritage

Approach to the assessment

The assessment of archaeology and cultural heritage considers the potential for likely significant effects on designated assets, such as listed buildings, scheduled monuments, Registered Parks and Gardens and Conservation Areas, and 'non-designated heritage assets' such as historic buildings, archaeological remains, gardens and landscapes.

Two study areas have been defined for this assessment. The first is a 500m buffer from the draft Order Limits, which sets a search area for non-designated heritage assets. These are features which are not recognised by any formal designation, but which hold significance for archaeological, historic or architectural interest. These features were identified by searches of the Hampshire, Winchester and Portsmouth Historic Environment Records, through desk-based research and walkover surveys.

An extended study area of 1km from the draft Order Limits and 3km from proposed AGP was defined to search for designated heritage assets. These are historic features which have sufficient significance to be designated on a local or national basis. These were identified by searches of the National Heritage List for England and the relevant local plans. Other categories of designated heritage assets, such as Registered Battlefields are not present within the extended study area.

Further studies have been undertaken to provide a more detailed understanding of the archaeological and cultural heritage baseline. These comprise:

- Geoarchaeological Desk-Based Assessment
- Geoarchaeological and Archaeological Monitoring of Ground Investigation works
- Priority Geophysical Survey
- Heritage asset settings scoping appraisal
- Heritage asset settings assessment

Baseline

Designated and non-designated heritage assets dating from the Prehistoric to Modern have been identified within the study areas:

- 2,528 Historic Environment Records within the study area.
- 45 scheduled monuments within the extended study area.
- 288 listed buildings within the extended study area.
- 20 conservation areas within the extended study area.
- One Registered Park and Garden within the extended study area.

As the Historic Environment Records are a record of past observations, further surveys have been undertaken to allow the potential for further archaeological heritage assets to be present and to establish the location, nature and value of those assets to be better understood. Initial fieldwork aimed to investigate key points along the route of the Proposed Development allows more informed decision making in scheme development. Further surveys will be undertaken to investigate the remainder of the draft Order Limits.

Mitigation

Primary mitigation

Primary mitigation measures have been embedded into the Proposed Development design to avoid or minimise damage or disturbance to archaeology and cultural heritage. This has principally been undertaken by:

- Avoiding all designated heritage assets where practicable.
- Avoiding non-designated heritage assets and areas of higher archaeological potential where practicable.
- Minimising disturbance of earthwork remains.
- Using existing landform and planting to provide screening.
- Restoring land and planting disturbed during pipeline construction or temporary works to pre-existing condition where practicable.
- Using screening bunding, planting and other landscape treatments to proposed Above Ground Plant (AGP).
- Using appropriate surface treatments and finishes on proposed AGP where appropriate.

Secondary mitigation

Secondary mitigation would comprise the application of an agreed scheme of archaeological investigation aimed at providing mitigation of the loss of archaeological information. This would principally be outlined as part of a project-specific Outline Written Scheme of Investigation submitted as part of the Development Consent Order (DCO) application, followed by site specific measures to be determined post-consent.

Tertiary mitigation

Tertiary measures relevant to archaeology and cultural heritage are set out in the preliminary Outline CEMP. These comprise best-practice construction methodologies including measures to limit construction noise and emissions, which would be used to reduce perceptibility of the Proposed Development during construction.

Monitoring

Monitoring requirements for mitigation of likely significant effects on archaeology and built heritage would be described in the Outline Written Scheme of Investigation submitted as part of the DCO application. Any landscape restoration and screening would require monitoring during the aftercare period to ensure that this planting is successfully established. Proposals for this monitoring will be set out in the relevant sections of the Outline Landscape and Ecology Management Plan which will be prepared as part of the DCO application.

Likely significant effects

Construction

Non-designated archaeological remains and deposits of potential geoarchaeological interest have the potential to be permanently adversely affected by the Proposed Development through complete or partial removal during construction. With the application of an agreed scheme of archaeological work these remains would be appropriately investigated and their archaeological value to be largely retained and so significant adverse effects are not anticipated. There is, however, a potential for a significant adverse effect to arise on remaining wreckage of a Hawker Hurricane which crashed at Frith Farm, although it is anticipated that further scheme design iterations would allow this effect to be reduced.

Change to the character of valued historic landscape elements is expected to be mainly temporary and short-term, ceasing either on completion of construction or shortly afterwards, and while effects may be significant and adverse during construction, no likely significant adverse effects are anticipated. These effects comprise:

- Sir George Staunton Conservation Area would be subject to a temporary likely significant effect during construction, although this would reduce on completion of construction and be reversed as restoration matures.
- Leigh Park (National Heritage List for England 1000112) would be subject to a temporary likely significant effect during construction, although this would reduce on completion of construction and be reversed as restoration matures.

Changes to settings of designated and non-designated heritage assets have the potential to give rise to likely significant adverse effects during the construction of the Proposed Development. Some of these effects would be significant and adverse during construction, but all would be temporary and either reduce to non-significant or to no effect following completion of construction and shortly afterwards. These comprise:

- Staunton Memorial (National Heritage List for England 1303476) would be subject to a temporary likely significant effect.
- Fort Purbrook (National Heritage List for England 1001842) would be subject to a temporary likely significant effect.
- Fort Nelson (National Heritage List for England 1001860) would be subject to a temporary likely significant effect.
- Fort Southwick (National Heritage List for England 1001808) would be subject to a temporary likely significant effect.
- Fort Widley (National Heritage List for England 1001862) would be subject to a temporary likely significant effect.
- Church of St Nicholas, Boarhunt (National Heritage List for England 1350613) would be subject to a temporary likely significant effect.
- Park Pale at Marwell Park (National Heritage List for England 1012308) would be subject to a temporary likely significant effect.
- Otterbourne Manor (National Heritage List for England 1013055) would be subject to a temporary likely significant effect.

Operation and maintenance

There are no likely significant effects identified during operation and maintenance of the Proposed Development.

Decommissioning

Effects from decommissioning of the Proposed Development are considered unlikely to arise. Works would take place in areas where archaeological and geoarchaeological remains have already been disturbed. There may be a very short-lived increase in construction activity during decommissioning, but this would be seen in the context of a long-established operational plant and as part of a clear trajectory towards removal of the Proposed Development. The assessment of significance of decommissioning effects is therefore reported as not significant.



4.4 Terrestrial and freshwater biodiversity

Approach to the assessment

The assessment of terrestrial and freshwater biodiversity considers all ecological features within the Zone of Influence which is the area over which ecological features may receive impacts from a development.

Different desk study and field study areas, based on best practice have been applied for each ecological receptor to enable robust assessment of likely significant effects.

A number of surveys have been undertaken so far and are continuing to take place to inform the terrestrial and freshwater biodiversity. These include surveys for habitats, bats, badger, fish and many more which will continue during 2024.

Baseline

A range of National Site Networks and statutory designated sites are located within the draft Order Limits or hydrologically connected to it. These sites are designated for protection due to the presence of habitats or species that are of importance either internationally or nationally.

There are 39 non-statutory designated sites located within or adjacent to the draft Order Limits. These sites are designated for protection due to the presence of habitats or species that are of local importance.

These sites may be subject to effects during the construction, operation, and decommissioning stages of the Proposed Development.

The draft Order Limits encompass a wide range of habitats from cropland, modified grassland and woodland to areas of rare habitats. Notable plant species have been recorded within the draft Order Limits. Protected species within the study area include badger, bats, hazel dormouse, birds, water vole, otter and reptiles.

Mitigation

Primary mitigation

Primary mitigation measures have been embedded into the Proposed Development design to avoid or reduce likely significant environmental effects. This includes avoiding all statutory designated sites, ancient woodland and flood zones. Where practicable, the Proposed Development has avoided non-statutory designated sites, priority habitats and known ecological receptors, for instance main badger setts, otter holts and confirmed bat roosts. The Proposed Development would implement a reduced working width at sensitive crossing points and would utilise existing gaps in vegetation where practicable.

The Proposed Development will be designed to avoid lighting up hedgerows and ecologically sensitive habitats. The pipeline infrastructure would be buried sufficiently deep to avoid watercourse sediments. This would minimise the chances of exposure and interference with the natural form of watercourses.

Secondary mitigation

Secondary mitigation is required to reduce potential likely significant effects of the Proposed Development. Mitigation would include protected species licences which would detail mitigation requirements.

Mitigation for all ecological features under the protected species licences would include:

- Timing works to avoid key hibernation, nesting or breeding seasons.
- Sensitive working methodologies such as hand searching vegetation prior to clearance.
- Pre-construction surveys such as checks of potential features for roosting bats.

Secondary mitigation, not included under a protected species licence, will include sensitive working methodologies, timing of works, habitat manipulation, ecological clerk of works, exclusion zones, translocations and pre-work surveys.

Environmental enhancements will be incorporated into the design of the Proposed Development where practicable. This will include habitat creation, enhancement and management.

Tertiary mitigation

Tertiary mitigation measures relevant to terrestrial and freshwater biodiversity are set out within the preliminary Outline CEMP. The preliminary Outline CEMP includes good construction practices to manage the effects of construction on terrestrial and freshwater biodiversity. These measures include, but are not limited to, mitigating construction-related effects on protected and notable habitat and species by following best practice measures, the use of Ecological Clerks of Works to supervise site activities and following an Outline Invasive Non-Native Species Management Plan.

An Outline Landscape and Ecology Management Plan will also be provided with the DCO application. This will include a Reinstatement Plan that will provide information on seeding and planting specifications, including plant mixes. Although tertiary mitigation, the Landscape and Ecology Management Plan will also detail bespoke location specific secondary mitigation.

Tertiary mitigation measures will also be included within an Outline Washout Management Plan, where the means of release from washout valves undertaken at a controlled rate will be detailed.

Likely significant effects

The Proposed Development is predicted to have a number of likely significant effects on designated sites, habitats and species. These are preliminary conclusions at this stage, taking into account all currently proposed mitigation measures. Additional work will be undertaken, to further minimise effects wherever practicable, as the Proposed Development design and environmental assessment processes take place.

Construction

With application of the mitigation, there are no likely significant residual effects on terrestrial and freshwater biodiversity during construction.

Operation and maintenance

Understanding of the potential effects of changes in discharge contents and dispersion at the Eastney Long Sea Outfall (LSO) are still limited for this preliminary assessment and any mitigation required is yet to be fully considered. Whilst initial modelling, as detailed in Chapter 19 Water environment, has only indicated very small changes in water quality at the Eastney LSO, further surveys of certain marine habitats and assessments of discharge concentrations on those habitats are required.

Changes to the discharge composition from Eastney LSO could have the potential to significantly affect statutory designated sites with marine components within the Solent. Based on the precautionary approach, and in the absence of detailed water quality data for Eastney LSO (which will be included in the Environmental Statement), potential likely significant effects cannot be ruled out at this stage. This relates to the below internationally designated sites:

- Solent Maritime Special Area of Conservation
- Chichester and Langstone Harbour Special Protection Area, Ramsar
- Portsmouth Harbour Special Protection Area, Ramsar, Site of Special Scientific Interest
- Southampton and Dorset Coast Special Protection Area
- Solent and Isle of Wight Lagoons Special Area of Conservation

Therefore, bird assemblages for which the above Special Areas of Conservation and Ramsar sites are designated, notably those associated with sand dune and saltmarsh which forage within the Solent, in the vicinity of the Eastney LSO, have the potential to be subject to changes as a result of the change to release composition. Again, based on a precautionary approach, there is the potential for likely significant effects if unmitigated.

Once there is more information from surveys and modelling around the Eastney LSO, the assessment will be reported within the Environmental Statement for any likely significant effects on biodiversity and mitigation for any likely significant effects can then be explored.

The operation of the Proposed Development would result in a reduction in the volume of water abstracted from the River Itchen Special Area of Conservation and Site of Special Scientific Interest during drought conditions. This would have a positive effect on aquatic habitats and the species these watercourses support as well as a positive effect on the qualifying features of the designated site, which is likely significant.

Decommissioning

Effects from decommissioning of the Proposed Development are expected to be no greater than those identified during the construction phase. The assessment of significance of decommissioning effects is therefore reported as not significant for all receptors.



4.5 Marine biodiversity

Approach to the assessment

The assessment of marine biodiversity considers marine ecology (habitats and species) and also commercial fisheries.

The study area has been determined by considering the likely significant effects on marine biodiversity features that occur within the Zone of Influence for the Proposed Development (the area over which marine biodiversity features may receive impacts from a development).

The overall study area for the purposes of this assessment comprises all of Langstone Harbour including the tidal extent of Hermitage Stream. In addition, the study area includes 10km around the Eastney LSO. A marine biodiversity and commercial fisheries desk study was carried out and surveys to inform the assessment for the Proposed Development commenced in 2022 and are continuing into 2024.

Surveys undertaken across the study areas are:

- Habitat walkover survey at Hermitage Stream
- Marine migratory fish survey
- Intertidal seagrass survey
- Intertidal Phase I and Phase II surveys (including habitat distribution, biotope classification and particle size analysis)
- Subtidal geophysical and grab surveys (including habitat classification and particle size analysis) around Langstone Harbour
- Benthic surveys around the Eastney LSO

Baseline

There are 23 statutory designated nature conservation sites within the study area. These sites are important for saltmarsh, coastal lagoons, seahorse, jellyfish, intertidal mudflats, seagrass beds, sandflats/sandbanks, breeding birds, passage and overwintering birds.

Surveys of Langstone Harbour have been undertaken which have shown there is a wide range of habitats including intertidal mudflats, mixed substrata (boulders, cobbles, gravel and mud), seagrass beds, coastal saltmarshes and saline reedbeds, supporting a diverse variety of species.

European eel and European smelt were the only migratory fish species identified in Langstone Harbour and Hermitage Stream during the migratory fish survey, with the European smelt only present in Langstone Harbour. There are barriers to migration in Hermitage Stream which are considered as passable by European eel, although not the European smelt, and the survey determined that the stream overall presented little suitable habitat for migration and spawning of these species.

Other fish species present in Langstone Harbour which were identified in the fish surveys include flounder, Dover sole, sea bass, and herring. The wider study area around the Eastney LSO falls within the Solent, and a wide variety of fish species have been recorded here including mackerel, sea bream, species of ray, and whiting.

Both harbour porpoise and bottlenose dolphin are common around the study area, particularly within the Solent, and there are known harbour seal and grey seal haul-outs in Chichester and Langstone Harbours.

Langstone Harbour also supports commercial fisheries activities.

Mitigation

Primary mitigation

Mitigation measures relevant for marine biodiversity that have been implemented through design development include avoiding Priority Habitats (sites important for conserving biodiversity) and sites supporting protected species. Trenchless construction methods would also be used for main river crossings to minimise negative effects to Main Rivers which are hydrologically connected to the marine environment.

Secondary mitigation

Only a few components of the Proposed Development interact with the marine environment, with changes in the water content discharged at the existing Eastney LSO anticipated. Currently, the existing Eastney LSO discharges treated wastewater from Budds Farm WTW. During operation of the proposed WRP, treated wastewater from Budds Farm WTW would be diverted to the proposed WRP. The discharged water through the Eastney LSO would comprise the discharge of some treated wastewater from Budds Farm WTW and the reject water (that is water containing impurities removed from the treated wastewater) from the operation of proposed WRP. This will likely have a decreased volume and be slightly more saline than the existing discharge through the Eastney LSO with potential implications for water quality parameters in the surrounding marine environment.

When more baseline data around the Eastney LSO is gathered through the benthic surveys, a greater understanding of potential effects will be assessed to identify any requirement for secondary mitigation which will be reported within the Environmental Statement.

Tertiary mitigation

Tertiary mitigation measures relevant for marine biodiversity include good construction practices that are set out in the preliminary Outline CEMP to manage the effects of construction on marine biodiversity. These typically comprise of pollution control measures, noise dampening technology and other measures for construction site management best practices for minimising construction effects.

Monitoring

The requirement for monitoring of the marine environment will be confirmed within the Environmental Statement. The need for this monitoring will depend on the results of ongoing marine surveys and updated modelling for the latest operation scenarios for the Proposed Development to review the significance of effects.

Likely significant effects

Construction

With application of construction best practices set out within the preliminary Outline CEMP of the Proposed Development, likely significant effects on marine biodiversity are not anticipated.

Operation and maintenance

There are no likely significant effects anticipated for operation of the proposed WRP, proposed High Lift Pumping Station (HLPS), the proposed Underground Pipelines and proposed AGP themselves on marine biodiversity. For the proposed Underground Pipelines and AGP where washout and air valves would be required, the washout chambers would release source water during the yearly maintenance cycle. It is unknown whether this would be released into the local watercourse or into an existing storm water manhole or a tank. Effects of washouts maintenance will be assessed for the impact on the marine biodiversity receptors in the Environmental Statement.

Understanding of the potential effects of changes in discharge contents and dispersion at the Eastney LSO are still limited for this preliminary assessment and any mitigation required is yet to be considered. Likely significant effects may occur at the Eastney LSO due to a potential decrease in water quality that may affect marine biodiversity receptors.

Once there is more information from surveys and modelling around the Eastney LSO, the assessment will be reported within the Environmental Statement for any likely significant effects on marine biodiversity and opportunities to mitigate any likely significant effects can then be explored.

Decommissioning

During decommissioning, with implementation of pollution control measures and good construction site management as standard practices, it is not considered there would be any likely significant effects.





4.6 Carbon and climate change

Approach to the assessment

The carbon and climate change assessment covers three elements:

- A carbon assessment, which calculates emissions from activities during construction and operation of the Proposed Development.
- A climate change resilience assessment, which considers how climate change in the future may affect the Proposed Development.
- An In-combination Climate Change Impact assessment, which considers the potential effects of climate change to likely significant effects predicted in other PEI Report topic assessments.

The study area for the carbon assessment is not defined by a distinct area but includes activities that occur as a result of the Proposed Development. The study area therefore includes the Proposed Development, as well as off-site activities such as the movement of vehicles.

The study area for the climate change resilience assessment is defined by the draft Order Limits for the Proposed Development.

The assessments have been informed by desktop studies, including carbon modelling and climate change projection data from the UK Climate Projection database.

Baseline

The baseline for the carbon assessment considers UK Carbon Budgets and is informed by existing emissions generated by Southern Water, the water sector and the UK as a whole. As the Proposed Development is not replacing infrastructure, it is not feasible to undertake a detailed assessment of emission totals for the likely future emissions associated with Southern Water's activities or within the draft Order Limits if no development was brought forward.

The baseline for the climate change resilience assessment considers existing climate data from meteorological stations near to the site. The future baseline was informed by the UK Climate Projection database, with climate projection data obtained up to 2100.

Mitigation

Primary mitigation

The modelling which informed the carbon assessment contains a number of assumptions and is representative of the current design of the Proposed Development.

Mitigation measures relevant for carbon and climate change conditions include minimising emissions throughout the lifecycle of the Proposed Development and incorporating energy efficient and low carbon design where feasible.

The design of the Proposed Development will be developed further, and any further primary mitigation identified which will result in a reduction of emissions will be incorporated into the final design presented within the DCO application and reflected in future carbon modelling.

Resilience to future climate change has been inherently considered in the Proposed Development. Measures include flood resilience measures and adopting design standards to prevent damage from heat and high winds.

Secondary mitigation

The design of the Proposed Development is being developed, and any identified secondary mitigation in relation to carbon emissions will be identified as necessary.

No additional secondary mitigation has currently been recommended as a result of the climate change resilience assessment as no likely significant effects are anticipated.

Tertiary mitigation

Tertiary mitigation measures relevant for carbon emissions and climate change resilience include good construction practices that are set out in the preliminary Outline CEMP, Preliminary Flood Risk Assessment, and Draft Framework Construction Traffic Management Plan. These documents will be updated and submitted as part of the DCO application.

Monitoring

Monitoring measures are being considered such as having a carbon model which is maintained and updated with actual emissions information during construction of the Proposed Development and during operation.

There are no proposed monitoring requirements with respect to climate change resilience.

Likely significant effects

Construction

Carbon emissions as a result of construction of the Proposed Development are considered to be not significant, as they form a relatively small component of the UK Carbon Budgets and would be a one-off emission source over a short period of time.

The Proposed Development has been designed to include flood resilient measures and measures to prevent damage from heat and high winds and therefore climate change resilience effects are not significant.

The In-combination Climate Change Impact assessment identified no likely significant effects during the construction phase.

Operation and maintenance

An optioneering process has been undertaken by Southern Water to select the required drought resilience scheme to meet future water demands in the region, of which carbon emissions were one of the factors considered. The current design of the Proposed Development therefore represents lower carbon emissions than the alternatives that were considered, including desalination options. Based on the current design, the Proposed Development is not considered to affect the UK's ability to meet its future emission reduction and Net Zero targets. No likely significant effects are identified. Additional levels of mitigation will be incorporated to future revisions of the design, which will result in a reduction of carbon emissions.

The In-combination Climate Change Impact assessment identified no likely significant effects during the operation phase.

Decommissioning

Decommissioning effects for the carbon assessment are scoped out as agreed in the EIA Scoping Opinion.

On the basis the Proposed Development is considered to have a high resilience to the projected effects of climate change during decommissioning, the effects of climate change to the Proposed Development are considered as not significant.

The In-combination Climate Change Impact assessment identified no likely significant effects during the decommissioning phase.

4.7 Land quality and ground conditions

Approach to the assessment

The assessment of land quality and ground conditions considers potential sources of contamination and how designated environmental sites, underlying geology and hydrogeology may interact or be impacted by potential sources of ground contamination.

The land quality and ground conditions study area includes both the land within the draft Order Limits plus three separate buffer zones at 50m, 250m and 500m. These buffer zones have been applied based on the potential risks that, for example, landfills may pose and the sensitivity of receptors that may be affected.

In order to establish the baseline environment for the land quality and ground conditions assessment, a range of publicly available data and information gathered through historical and ongoing ground investigations have been reviewed.

Baseline

Geology

Located within the draft Order Limits are areas of Made Ground (land that is either artificial or disturbed natural materials). Made Ground has either been proven to be present through ground investigations or is anticipated to be present due to historical activities.

Superficial deposits, for example Alluvium (clay, silt, sand and gravel), have also been identified as being present within the draft Order Limits. The superficial deposits are present in isolated pockets and are not continuous across the whole draft Order Limits footprint.

Bedrock is variable across the footprint of the draft Order Limits.

Hydrogeology

The superficial deposits present within the draft Order Limits are classified as either Secondary A Aquifers (capable of supporting water supplies at a local scale and potentially forming an important base flow to rivers) or Secondary Undifferentiated Aquifers (aquifers that have variable characteristics which cannot be classified as either a Secondary A or B Aquifer). Private drinking water supplies have been recorded as abstracting from the Secondary Aquifers.

The vast majority of the bedrock types present within the draft Order Limits are classified as Principal Aquifers. This type of aquifer may support water supplies and or river baseflow on a strategic scale. It is from the Principal Aquifers that public drinking water is abstracted (in the areas surrounding Bedhampton Springs for example).

Some bedrock types have been recorded as being unproductive strata that have negligible significance for water supplies or river base flow.

Source Protection Zones are present within the footprint of the draft Order Limits. These zones are protective of groundwater abstractions and illustrate the sensitivity of groundwater resources and level of risk from contamination.

Hydrology and environmentally sensitive areas

There are a number of rivers (e.g. the River Itchen and Hermitage Stream) and other surface water features (e.g. drainage ditches) present throughout the land quality and ground conditions study area.

Environmentally sensitive areas, such as the River Itchen Site of Special Scientific Interest and Special Area of Conservation, have also been identified as being present within the land quality and ground conditions study area.

Built environment

Features that form part of the built environment, such as, transport infrastructure, commercial and residential buildings have been identified as being present within the land quality and ground conditions study area. These features are not present throughout the whole land quality and ground conditions study area and are often separated by areas of public open space or agricultural land.

Potentially contaminative land uses

Historical and current land uses within the land quality and ground conditions study area have been identified as potential sources of contamination. Examples of potentially contaminative historical and current land uses include, landfills, sewage works, infilled land and railway land.

Mitigation

Primary mitigation

Primary mitigation measures relevant to land quality and ground conditions, aim to reduce the potential impacts associated with contamination on human health, groundwater, surface water, environmentally sensitive areas and the built environment. Primary mitigation for land quality and ground conditions includes the use of trenchless crossings across rivers to reduce the potential for contaminated material to enter rivers through surface run off, avoiding landfills where practicable and incorporating ground gas protection measures.

Secondary mitigation

The preliminary assessment has not identified any likely significant effects, therefore, currently there are no secondary mitigation measures identified for land quality and ground conditions.

Tertiary mitigation

Tertiary mitigation measures relevant for land quality and ground conditions include good construction practices that are set out in the preliminary Outline CEMP. These include, ensuring the appropriate ground investigations are undertaken, and that management plans and remediation strategies are put in place to deal with contamination. Task specific risk assessment and method statements will also be developed, along with an Emergency Response Plan (or similar).

Monitoring

Groundwater and ground gas monitoring form part of the ongoing ground investigations within the footprint of the Proposed Development. Following completion of the ground investigations, and the interpretation of the results, additional monitoring may be required in areas identified as posing a potentially unacceptable risk to land quality and ground conditions receptors. This would form part of any remediation and validation work where required.

The requirement for groundwater monitoring during construction is detailed within the preliminary Outline CEMP. There may also be the requirement for ground gas monitoring to continue during the construction phase at required locations.

Likely significant effects

Construction

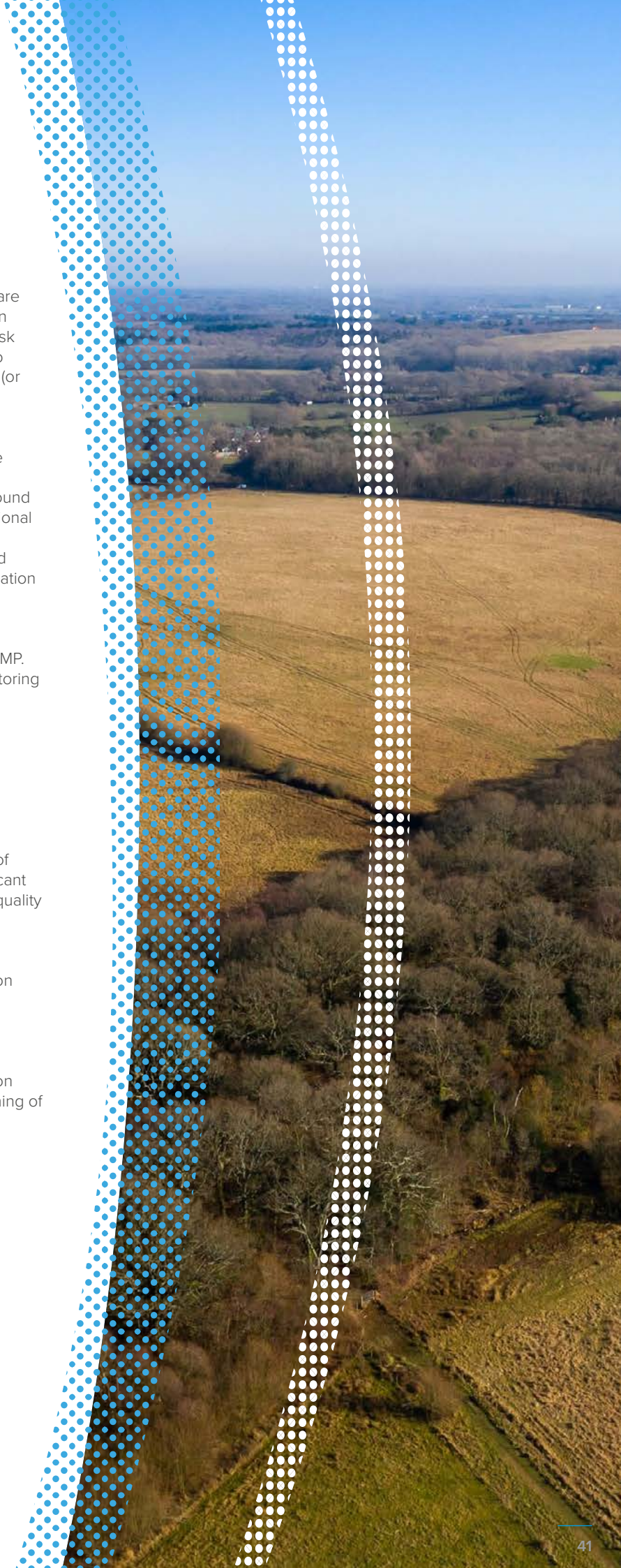
The assessment identified that with the implementation of primary and tertiary mitigation measures, no likely significant effects are anticipated for any receptors within the land quality and ground conditions study area.

Operation and maintenance

No likely significant effects have been identified in relation land quality and ground conditions during operation and maintenance of the Proposed Development.

Decommissioning

No likely significant effects have been identified in relation land quality and ground conditions during decommissioning of the Proposed Development.





4.8 Land use and agriculture

Approach to the assessment

The land use and agriculture assessment considers the likely significant effects on residential property, community facilities and land, commercial property and land, development land, agricultural land including best and most versatile land, and soil resources.

For direct impacts the study area for the assessment is the draft Order Limits. For indirect impacts on residential property, community facilities and land, commercial property land and agricultural land, the assessment considers a study area of 500m from the draft Order Limits.

Detailed soil and agricultural land classification surveys of the proposed AGP and surveys of soils and agricultural land classification along the pipeline route are being undertaken in 2024.

Baseline

The land use and agriculture baseline utilises Ordnance Survey data to identify key settlements, community facilities and land, commercial property and land, and land allocated for development in local planning authority Local Plans within the study area. Community facilities and land include schools and education facilities, healthcare facilities, religious buildings and grounds, open space and recreation, community centres, libraries and family service centres.

The baseline for agriculture and soils identifies the provisional agricultural land classification for agricultural land within the study area, using desktop data published by Defra, key agricultural land uses, and soil associations using data available from the National Soil Map. A more detailed agricultural land classification and soils baseline will be provided in the Environmental Statement, using information gathered once the agricultural land classification surveys have been completed.

Mitigation

Primary mitigation

Primary mitigation measures to reduce likely significant effects on land use and agriculture include:

- Avoiding settlements, commercial land and property, major housing allocations and best and most versatile agricultural land where reasonably practicable, to reduce the risk of disruption to property and land.
- A reduction in standard working width to 20m when intersecting sensitive constraints.
- Avoiding temporary road closures on roads used for journeys at a regional or national level.
- The Proposed Development would not require the demolition of any houses.

Secondary mitigation

Engagement with representatives of affected businesses and community facilities will continue, to understand the impacts of the construction of the Proposed Development and to develop appropriate mitigation measures to reduce likely significant effects where reasonably practicable, taking into account factors such as seasonality and the phasing of construction activity.

In relation to in-combination effects on amenity, the land use and agriculture assessment in the Environmental Statement will reflect secondary mitigation measures identified by other relevant topics, notably noise and vibration and landscape and visual. These could include, for example, visual screening or noise barriers to reduce likely significant effects.

Tertiary mitigation

Good construction practices are set out in the preliminary Outline CEMP and Draft Framework Construction Traffic Management Plan, which are provided as part of the Summer 2024 Consultation, to manage the effects of construction on land use and agriculture. These comprise measures to reduce construction traffic impacts, reducing the potential for disruption to access and in-combination effects on amenity.

An Outline Soils Resource Management Plan, Reinstatement Plan and Outline Site Waste Management Plan will also be prepared and implemented which, taken together, will reduce the likelihood of significant effects on soil during construction. These will be submitted with the DCO application and implemented during construction.

Monitoring

There are no likely significant adverse effects related to this assessment identified either during construction or operational stages of the Proposed Development that would require monitoring, beyond those measures that will be set out in the Management Plans.

Likely significant effects

Construction

The following effects have been identified that are considered likely to be significant:

- Temporary loss of agricultural land during construction.
- Temporary loss of community land due to proposed location of a tunnel shaft and construction compound at Hooks Lane Recreation Ground.
- Temporary loss of commercial land due to open-cut construction at Wickham Park, the site of Wickham Festival, Wickham Park Golf Club, and Winters Hill Hall.
- Permanent loss of commercial land due to proposed location of the break pressure tank at Winters Hill Hall.
- Temporary impacts on access to Albany Farm Care Home due to temporary closure of Chalk Lane and proposed use of access road by construction traffic.

Additional information on the likely significant effects on agricultural land and soils, when further surveys are carried out, and additional information for likely significant effects to arise from construction traffic, will be provided in the Environmental Statement.

Operation and maintenance

There are no likely significant effects identified during operation and maintenance. Direct impacts on residential property, community land and facilities, commercial property and land, development land, and agricultural land arising from the operation of the Proposed Development were scoped out from further assessment in the EIA Scoping Opinion. It is considered that any impacts arising from maintenance activity would be short-term and temporary, and would therefore be unlikely to result in likely significant effects.

Should maintenance or repair works be required which would result in disturbance or other impacts to soils, soils good practice could be incorporated into the Outline Soils Resource Management Plan. This could include measures such as avoiding routine access at times of year when soils are susceptible to damage, and measures to reinstate soils should access be required for emergency repairs, for example. Additional information will be provided in the Environmental Statement.

Decommissioning

Effects from decommissioning of the Proposed Development are expected to be no greater than those identified during the construction phase. The assessment of significance of decommissioning effects is therefore reported as not significant for all receptors.

4.9 Landscape and visual

Approach to the assessment

The landscape and visual impact assessment considers the likely significant effects of the Proposed Development on the landscape as a resource in its own right, and on people's views of the landscape.

The study area for the landscape and visual assessment includes all land within the draft Order Limits and the area over which construction, operation and decommissioning of the Proposed Development may give rise to likely significant landscape and visual effects. The study area has been defined through analysis of Zones of Theoretical Visibility, which are computer generated maps which show where the Proposed Development might be visible from. The study area was then refined following initial winter fieldwork carried out in early 2023. Further winter and summer fieldwork will be undertaken through 2024 and this may lead to further refinements of the study area presented in the Environmental Statement. The assessment of operational effects considers two situations: year 1 when planting is new and year 15 when planting has matured.

Baseline

The landscape within the southern part of the study area comprises the coastal plain which extends along the coastline between Chichester Harbour in the east, Portsmouth at the centre and Fareham in the west. This area is dominated by settlement and industry, but also includes areas of open water and habitat that are rich in wildlife and important for tourism and recreation. There are open views across the harbours from the shoreline but views tend to be limited by buildings within the areas of dense settlement.

North of Portsmouth the land rises steeply to form Portsdown Hill, which is a narrow ridge with panoramic views to the south across the coast and north across the Forest of Bere to the distant hills of the South Downs.

The Forest of Bere is lower lying and includes extensive areas of woodland. Views within this part of the study area therefore tend to be shorter. This area is crossed by several important chalk rivers the flow south from the South Downs National Park, which is close to the draft Order Limits around Wickham and Lower Upham.

The western end of the study area covers the broad floodplain of the River Itchen and higher ground where the settlement of Otterbourne is located. The dense vegetation along the river and the steep hills either side limit longer views.

The landscape character of the study area has been reviewed and assessed at three levels. These receptors comprise National Character Areas defined by Natural England, Landscape Character Areas defined by Hampshire County Council and Local Landscape Character Areas defined by Southern Water as part of the EIA process. This helps to draw distinctions between the different scales of impact and effect.

Mitigation

Primary mitigation

The landscape and visual assessment has informed the design of the Proposed Development from the outset. Primary mitigation includes carefully siting the Proposed Development in the landscape to avoid or reduce the loss of existing vegetation and siting permanent proposed structures to relate to existing landform and vegetation patterns to maximise landscape integration. The mitigation will conserve and respond positively to landscape, ecology and historic features of value and will contribute new green infrastructure that links with and enhances the wider landscape.

Secondary mitigation

For landscape and visual matters, all mitigation is considered to be primary (embedded) mitigation and so no secondary measures are currently proposed.

Tertiary mitigation

Good construction practices are set out in the preliminary Outline CEMP to manage the effects of construction on landscape and visual receptors. These include, for example, maintaining well-managed and tidy construction working areas and site compounds, storing topsoil no higher than 2m high and keeping construction lighting to a minimum.

An illustrative Outline Environmental Masterplan has been provided with the Summer 2024 Consultation documentation, which places the multi-functional environmental mitigation and enhancement measures within the framework of the landscape design. The Environmental Masterplan will continue to be developed in preparation of the DCO application through inter-disciplinary and stakeholder engagement workshops, supported by the results of the Summer 2024 Consultation.

An Outline Landscape and Ecology Management Plan will also be submitted with the DCO application and will describe how the green infrastructure strategy will help deliver the design principles.

Monitoring

Monitoring during the construction of the Proposed Development would be undertaken in accordance with the measures set out within the Outline Landscape and Ecology Management Plan, which will be submitted with the DCO application and developed further post-consent.

Monitoring of the growth and maintenance of planting would be undertaken by Southern Water during the first five years following planting to ensure its successful establishment.

Likely significant effects

Construction

Construction activity would extend across the rural landscape through the centre of the south Hampshire lowlands, from the western edge of the settlement of Widley in the east to Otterbourne in the west. This would include construction of the proposed Underground Pipeline across the north facing slope of Portsdown Hill, with impacts on tranquillity and scenic quality extending into the lower lying Forest of Bere. Across the majority of the rest of the area impacts would be more localised where it would cross lower lying areas with a greater extent of existing mature vegetation and settlement. For particularly sensitive locations, such as the crossings of chalk rivers, trenchless construction techniques would be used. There would be likely significant effects across five of the Landscape Character Areas defined at the county level, including likely significant effects within the Portsdown Hill open downs area. At the local level, 14 of the Local Landscape Character Areas identified would experience likely significant adverse effects. Adverse effects have also been identified with respect to the South Downs National Park designation and its setting during construction. The extent of these effects would be limited by intervening vegetation and landform, but would temporarily compromise the purposes of the National Park.

There would be extensive views of construction activity from the higher ground of Portsdown Hill, particularly to the north where construction compounds, vehicles and people moving across the landscape would be visible in the rural landscape. Where there is more vegetation and the landscape is lower-lying, for example to the west of Wickham, views would be shorter and largely screened by existing vegetation. Significant visual effects have been identified across the study area, mostly relating to residents living in close proximity to the draft Order Limits or people on public rights of way. These impacts would be temporary and would cease on completion of construction.

Operation and maintenance

Following construction of the proposed Underground Pipeline, the ground above and within working areas such as construction compounds would be restored to its previous condition. Whilst proposed planting establishes in the early years of operation, gaps in existing vegetation removed to facilitate construction would remain and there would be a visible scar across the landscape. This would mostly be evident across Portsdown Hill and to the north with the southern part of the Forest of Bere East. However, across the majority of the area it would result in localised impacts and the character of the area would not be affected.

The permanent above-ground structures of the Proposed Development would be located within National Character Area 128: South Hampshire Lowlands. This plant would be similar in scale to existing agricultural buildings in the area and have been positioned to take advantage of existing vegetation or to associate them with existing development.

There would be likely significant effects at the county scale relating to Portsdown Hill and at the local scale within Staunton Country Park, the Meon Valley, Shedfield Heathlands and the settled upper Itchen valley during year 1 of operation. By year 15 of operation, the proposed planting would have established and these effects would have reduced such that they would not be significant.

The visual effects of year one of operation would reduce substantially compared to the construction phase as the majority of the Proposed Development would be below-ground. A noticeable deterioration in views would still be apparent from some residential areas and public rights of way, including short sections of routes, which are named on Ordnance Survey maps. By year 15 of operation, proposed planting would have established such that the only remaining significant visual effects would relate to people travelling on a footpath south of Portsdown Hill, which is in proximity to the proposed AGP. Additional mitigation, which may include changes to the layout of the proposed AGP, earthworks and planting is being considered which may further reduce these impacts and the significance of effects. This will be reported in the Environmental Statement.

Decommissioning

Visual effects relating to the decommissioning of the Proposed Development are considered to be no greater than those identified during the construction phase. The significance of effects resulting from decommissioning is therefore the same as reported for the construction effects.

4.10 Major accidents and disasters

Approach to the assessment

The major accidents and disasters assessment examines whether the risks of specific major accidents and disasters arising from the construction, operation and decommissioning of the Proposed Development are likely to result in likely significant effects.

The study area has been determined by the likely worst case impact area, in the event of a major accident or disaster, informed by the maximum realistic extent of other topic assessment study areas, and includes the extent of the draft Order Limits. External sources of risk (including fire, weather events and so on) which could cause a major accident or disaster to the Proposed Development are also identified and included.

A desk study was undertaken to obtain information from external data sources and baseline data presented within other topic chapters with respect to major accidents and disasters. This included a review of a detailed unexploded ordnance survey that was undertaken to examine the risk of any unexploded ordnance being encountered during construction of the Proposed Development.

Baseline

National and Community risk registers (registers outlining serious risks that could result in an emergency) have been used to identify most of the potential risks for the Proposed Development which form the baseline for this assessment. Further risks have been identified based on the specific potential risks to and resulting from the Proposed Development. The baseline information, including relevant receptors and risks to the Proposed Development, is therefore as follows:

- The Proposed Development runs through Flood Zones 1, 2 and 3 (low to high risk of surface water flooding). Some areas are also at risk of failure flooding by a dam or reservoir.
- There is a low to medium risk of unexploded ordnance across the draft Order Limits for different areas of the Proposed Development.
- There are multiple sources of potential contamination across the Proposed Development, including from historic and modern landfills, historic sewage works, contamination associated with the railway and a corn mill, an infilled pond and watercourse, a garage/depot/warehouse, old chalk pits, disused sand pits, water treatment works, an old quarry, a colliers pit, reservoirs, farms, a hospital, an oil fuel reservoir and a former brick works.

- In 2021, there were 147,295 fires attended by the Fire and Rescue Service in England. Of these, 5453 were classed as 'other outdoors' primary fires involving people or properties and 86,082 were secondary fires not involving people or properties fires.
- In terms of receptors, there are 21 national statutory designated sites within 2km of the draft Order Limits, including Special Protection Areas, Special Areas of Conservation, Ramsar sites, Sites of Special Scientific Interest and Local Nature Reserves.

Mitigation

Primary mitigation

The primary mitigation measures relevant for major accidents and disasters that have been implemented through design development include:

- Utility searches undertaken to understand where utilities are located within the draft Order Limits to ensure they are avoided.
- Construction compounds have been sited to avoid identified flood risk zones.
- It is anticipated that some land along the pipeline (both above-ground and underground sections) would be required by Southern Water to allow access for maintenance and to restrict certain activities that could adversely affect the infrastructure.
- Isolation valves would be installed on the pipeline to prevent flooding.

Secondary mitigation

Following the implementation of primary and tertiary mitigation measures, no likely significant effects were identified, therefore no secondary mitigation is required.

Tertiary mitigation

Where the construction works occur within a flood risk zone, the contractor (once appointed) would be obliged to carry out a risk assessment and install necessary control measures to mitigate the risk of flooding as set out in the preliminary Outline CEMP.

The risk of damage to utilities would be managed through the contractor's Permit to Dig which will include details for an emergency response which would be employed should a utility be damaged. Additional information on this will be included in the Environmental Statement and the Permit to Dig and contents will be committed to in the updated Outline CEMP submitted with the DCO application.

The preliminary Outline CEMP details best practice measures with regards to the storage of fuel and plant to reduce the risk of fire, as far as practicable, from these sources. The contractor, once appointed, will be required to consider the risk of fire and the way in which they will respond to an incident in an Emergency Management Plan. This would be agreed with local planning authorities, utilities and blue light authorities.

To mitigate for risk of unexploded ordnance contamination an unexploded ordnance Safety and Awareness Briefing, Site Specific Safety Instructions, Explosive Ordnance Disposal Engineer Watching Brief and magnetometer surveys will be detailed within the Outline CEMP.

Risk of bird strikes due to the presence of water storage lagoons is currently being determined through engagement with Southampton Airport. If mitigation is required, this will be detailed in the Environmental Statement.

The preliminary Outline CEMP includes the requirement for a construction phase plan and environmental management plan to be produced by the contractor, once appointed, for pollution events, which will provide detail on how to handle and report environmental incidents, including measures to manage spills (e.g. through the use of a spill kit), and to clean up following an incident. In addition, the contractor, once appointed, would adhere to the standards set out in the Guidance for Safe Intrusive Activities on Contaminated or Potentially Contaminated Land.

Water quality modelling is currently being undertaken in collaboration with Portsmouth Water, the results of which will be used to inform the assessment of the potential for impacts of operational discharges from the proposed WRP into Havant Thicket Reservoir. Any required mitigation will be detailed in the Water environment chapter in the Environmental Statement.

Gas protection measures would be implemented in accordance with best practice and the Landfill Gas Risk Assessment from the Geoenvironmental Interpretative Report (this is provided within PEI Report Appendix 11.2 Geoenvironmental Interpretative Report, Volume II).

An Emergency Response Plan will be provided for the operational stage of the Proposed Development; further detail will be provided in the Environmental Statement.

Chemical management during the operational stage of the Proposed Development would be undertaken in accordance with Southern Water's Wholesale Water Services Manual 203.10 and Safety Instructions Book 053.

The storage of chemicals during the operational stage of the Proposed Development will be in accordance with the standards set out in Southern Water's Wholesale Water Services Manual 203.10, Mechanical and Electrical Specifications 4008, Safety Instructions Book 052 and Environmental Management System Manual 234.

The Southern Water incident emergency response plan for responding to a pipe rupture would be in place for the operation of the Proposed Development.

Hazardous Substances Consent will be applied for the construction and operation of the Proposed Development to ensure appropriate storage measures are followed for qualifying hazardous substances.

Monitoring

There are no likely significant adverse effects related to this assessment identified either during construction or operational stages of the Proposed Development that would require monitoring, beyond those measures that will be set out in the Management Plans.

Likely significant effects

The assessment looks at both effects that could occur to receptors and risks to the Proposed Development detailed in the baseline section.

Construction

No likely significant effects have been identified following the implementation of mitigation in relation to major accidents and disasters.

Operation and maintenance

No likely significant effects have been identified following the implementation of mitigation in relation to major accidents and disasters.

Decommissioning

No likely significant effects have been identified following the implementation of mitigation in relation to major accidents and disasters.

4.11 Noise and vibration

Approach to the assessment

The assessment identifies noise and vibration that could be generated by the Proposed Development and the potential of this to effect noise and vibration sensitive receptors in the locality. Receptor types are broadly classified as either residential dwellings or non-residential noise and vibration sensitive receptors, such as schools, hospitals or outdoor amenity areas. Sensitive receptors have been identified within a 300m buffer of the draft Order Limits using Ordnance Survey data.

Baseline

Publicly available noise mapping information for major roads and railways has been used to identify likely baseline noise levels at the identified receptors. Where strategic mapping data are not available, this has been assumed to be an indication that baseline noise levels are likely to be low. Baseline vibration levels were not required for the assessment.

A baseline noise survey has not yet been undertaken; this will be done to inform the Environmental Statement. The survey methodology will be agreed with relevant stakeholders before the surveys are undertaken.

Mitigation

Primary mitigation

Mitigation measures relevant for noise and vibration that have been implemented through design development include siting permanent noise/vibration emitting sources away from sensitive receptors and introducing screening or containment measures where necessary.

Secondary mitigation

Secondary mitigation is required to reduce potential likely significant effects of the Proposed Development construction. Additional measures are likely to include measures such as:

- Avoiding noisy working on Saturday afternoons near to sensitive receptors
- Temporary screening
- Using quieter plant and working technologies, where feasible

Further identified control measures will be included in the Outline CEMP submitted with the DCO application. Work remains ongoing to seek to further mitigate likely construction noise levels which remain significant.

No secondary mitigation is currently required for operational noise. This will be reviewed in the Environmental Statement following update of the operational noise assessment once baseline sound level surveys have been completed.



Tertiary measures

Tertiary mitigation relevant to construction noise and vibration are set out in the preliminary Outline CEMP. These include the selection of quiet and low vibration equipment, optimal location of equipment on-site to minimise noise disturbance, scheduling works to minimise effects, provision of acoustic screening and enclosures for stationary equipment and provision of plant movement alarms that vary the loudness level according to ambient noise levels.

Tertiary measures to control operational noise and vibration impacts include design, operation and maintenance of the Proposed Development in accordance with industry good practice. This would avoid the potential for operational noise from the proposed Pipeline, and operational vibration from any aspects of the Proposed Development, to disturb occupants of nearby properties.

Monitoring

The contractor, once appointed, would undertake and assess a scheme of noise and vibration monitoring periodically during construction. Monitoring would aim to demonstrate that noise levels are being sufficiently controlled to protect residents from significant adverse construction noise and vibration effects.

Details of the monitoring will be defined in the Outline CEMP submitted with the DCO application, which will be agreed with the local planning authorities prior to commencement. The Outline CEMP submitted with the DCO application will also identify mitigation measures to be implemented in the event that exceedances of the criteria are observed in the monitoring data.

It is recommended that the draft DCO requires a noise complaints protocol to be prepared and implemented. This would require a scheme for monitoring noise levels and assessment to be set out in the event of a complaint about operational noise from the Proposed Development.

Likely significant effects

Construction

During construction, the Proposed Development has the potential to cause likely significant temporary noise and vibration impacts on the closest receptors to the Proposed Development. The potential for temporary construction noise and vibration impacts is dependent on the construction activities being undertaken. Construction noise and vibration impacts have been assessed as likely significant effects when construction is at its busiest and closest to receptors.

The potential for temporary construction traffic impacts on sensitive receptors along existing roads used by construction vehicles is dependent on the volume and route of construction traffic and the amount of other traffic using the route. It is currently anticipated that the construction traffic noise effects would not be significant.

Operation and maintenance

Once operational the proposed WRP, HLPS and intermediate pumping stations would emit noise with the potential to disturb nearby receptors. However, preliminary assessments of operational noise indicate that residual effects would not be significant.

Decommissioning

As buried pipeline infrastructure would be left in-situ, the construction impacts associated with tunnelling, trenchless crossings and open-cut trenching would not occur during the decommissioning phase. Potential impacts of decommissioning would therefore be limited to works to remove above-ground assets. Such works are not anticipated to result in high noise emissions and taking account of good practice industry measures that would be adopted, it is considered that effects would not be significant.

4.12 Resources and waste management

Approach to the assessment

Mineral safeguarding

The assessment evaluates the potential risk of sterilisation of mineral receptors, making them inaccessible for potential extraction, due to the construction of the Proposed Development. The risks to mineral resources are based on the presence of known viable resources (Mineral Safeguarded Areas) and potential resources (Mineral Consultation Areas) within the area of the draft Order Limits.

The study area is 400m on either side of the draft Order Limits. The assessment considers any other existing potential constraint to mineral exploration, for example the presence of residential properties and designated environmentally sensitive sites, roads, and railways.

Waste

The resources and waste management assessment considers the likely impacts of the Proposed Development on the available capacity of waste management infrastructure.

Two study areas are used for waste:

- Development study area
- Expansive study area

The development study area corresponds to the draft Order Limits. The expansive study area extends to the regions in which waste generated by the Proposed Development is predominantly managed in.

The expansive study area has been defined individually for inert (waste which will not undergo any significant physical, chemical or biological transformations), non-hazardous (waste not defined as hazardous) and hazardous (waste which may pose a threat to public health or the environment) landfill using available data published by the Environment Agency:

- Inert: South East and South West of England
- Non-hazardous: South East and London
- Hazardous: South East and South West of England

Baseline

Mineral safeguarding

The Proposed Development does not pass through any areas of known resource (Mineral Safeguarded Areas) however the Proposed Development does pass through areas of potential resource (Mineral Consultation Areas) for Brick Clay, Superficial Sand and Gravel, and Soft Sand.

There are a large number of existing features which are considered to be constraints to mineral extraction. In areas where these constraints are present the Proposed Development would not be the reason for sterilisation of any underlying mineral resources.

Waste

The current landfill capacity for the baseline areas are as follows:

- Inert waste (South East and South West) – 45,940,523 tonnes
- Non-hazardous waste (South East and London) – 27,810,004 tonnes
- Hazardous waste (South East and South West) – 1,444,695 tonnes
- Hazardous waste (England) - 8,630,000 tonnes

Primary mitigation

Through an extensive site selection process, the Proposed Development has given preference for the shortest pipeline route to minimise the overall quantity of waste generation. In addition, known risk areas in relation to ground contamination are avoided (as far as practicable).

Secondary mitigation

There are no further secondary mitigation measures required for inert and non-hazardous waste. The secondary mitigation measures for hazardous waste are currently being developed and will be included within the Environmental Statement.

Tertiary mitigation

Good construction practices are set out in the preliminary Outline CEMP to manage the effects of construction on waste, including the development of an Outline Site Waste Management Plan which would ensure that waste is managed in line with best practice and the waste hierarchy. This would reduce the amount of waste sent to landfill.

An Outline Materials Management Plan will form part of the Outline CEMP submitted with the DCO application. The Outline Materials Management Plan will set out how the excavated materials generated through the construction activities would be managed. This will include an incidental extraction approach, which involves utilising the proposed groundworks and tunnelling activities to extract suitable materials encountered during the excavation of the Proposed Development and incorporating them into the construction process.

Monitoring

Further details on how waste would be monitored will be set out in the Outline Site Waste Management Plan and Outline Materials Management Plan, which will be submitted with the DCO application.

Likely significant effects

Construction

Mineral safeguarding - Some parts of the Proposed Development were found to pass through areas of potential resources, which if confirmed to be present, would currently be available for exploitation. Therefore, the construction of the Proposed Development would limit or eliminate access to these mineral resources. Information is currently being gathered through intrusive ground investigations such as boreholes and trial holes on the type and nature of ground beneath Proposed Development to confirm if the mineral resource is present. Once this information is available it will be used to update the assessment within the Environmental Statement.

Though impacts on mineral receptors were identified, tertiary mitigation through reuse would reduce the impacts on the mineral receptors. Due to the engineering properties of Brick Clay, reuse may be limited compared to other mineral resources. As such the magnitude of the impact is greater on the Brick Clay Mineral Consultation Areas receptor compared with the other Mineral Consultation Areas receptors.

Based on the extent of the areas of potential resource and relative area of the Proposed Development, and low receptor sensitivity, the effects of the Proposed Development during construction are not considered to be significant.

Waste - No likely significant effects have been identified in relation to inert waste and non-hazardous waste. The effect on hazardous landfill is however considered to be significant due to the quantity of hazardous waste requiring off-site disposal compared to the available hazardous landfill capacity.

Operation and maintenance

Mineral safeguarding - The impacts from the operation and maintenance on mineral receptors has been scoped out.

Waste - The impacts from waste generated during operation have been scoped out.

Decommissioning

Mineral safeguarding - The effects from decommissioning of the Proposed Development are considered to be not significant.

Waste - Based on the requirements for local planning authorities to provide sufficient waste management capacity and improved waste management practices, it is estimated (for inert, non-hazardous and hazardous waste) that the Proposed Development would not result in a likely significant effect on landfill capacity during decommissioning.



4.13 Socio-economics, tourism and health

Approach to the assessment

The socio-economics, tourism and health assessment considers the likely significant effects on socio-economics, tourism and health from the construction, operation and decommissioning of the Proposed Development.

For socio-economics, the study area for the assessment of employment, skills and supply chain effects considers Hampshire and the South East of England. For tourism, the study area for the assessment of impacts on strategic tourism receptors is the draft Order Limits plus a 500m buffer, however the assessment also considers the potential for impacts on access and amenity over a wider area where appropriate.

Consideration of health effects is made at population level and the most appropriate population and health data is generally available at ward level (wards usually have about 5,500 people living within their boundaries). There are no wards entirely within the draft Order Limits, but those which intersect with it therefore form the study area for the health assessment. Consideration is given to vulnerable groups within populations who may be more vulnerable to health impacts including children, older people and people with particular health conditions. Impacts on health are considered in terms of how the Proposed Development may cause changes to health determinants; these are factors which influence health such as access to social services, access to work and training, neighbourhood amenity (air quality, noise, landscape quality), access to green space and recreation, community safety (e.g. traffic levels) and the level of social connectedness within communities.

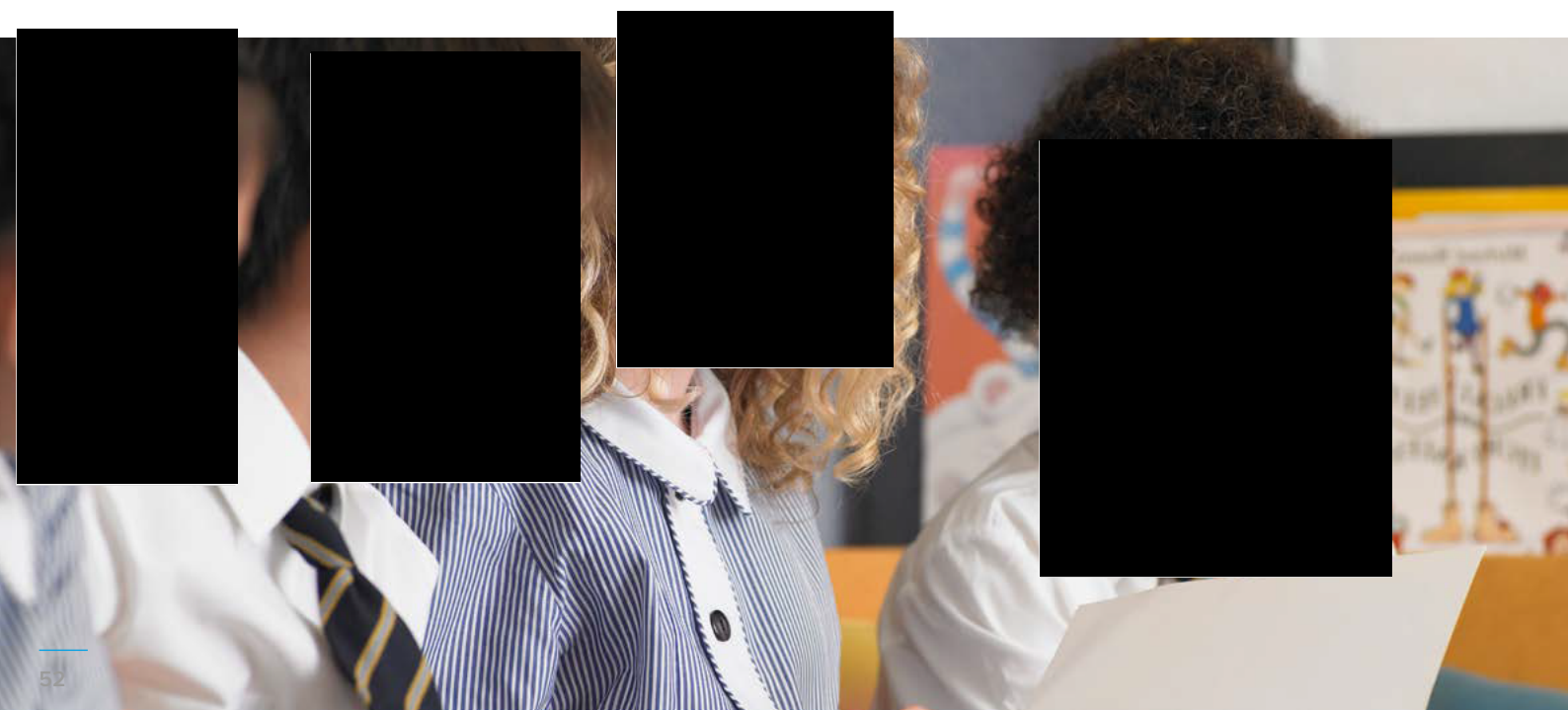
Baseline

Baseline data has been collected at ward and local authority level for the wards and local planning authorities within the study area boundaries.

The socio-economic baseline shows that much of the study area is in areas of relatively low deprivation, with generally high rates of employment, although there is considerable variation at ward and local authority levels. Hampshire has a relatively large construction sector, which accounts for a higher than average proportion of employment in the area. Workforce skills are in line with the national average, and research by the Solent Local Enterprise Partnership has identified skills shortages in sectors including construction.

Tourism is worth over £3bn to the economy in Hampshire, and accounts for close to 90,000 jobs. The county has approximately 1,900 bedspaces available for tourist accommodation. Strategic tourism receptors identified in the baseline are Marwell Zoo and the Royal Armouries at Fort Nelson. These receptors are outside the 500m study area but have been included in the assessment due to the potential for impacts on access and amenity.

The health profile of the study area is generally similar to the national health averages. There are a few notable exceptions including a lower life expectancy than the national average in the wards of Barncroft, Warren Park, Battins, (within Havant) and Cosham and Paulsgrove (within Portsmouth). The proportion of the population in Havant and Portsmouth experiencing chronic obstructive pulmonary disorder and common mental health disorders is also higher than the national average. People experiencing a limiting long-term illness or disability is higher than average in Havant, with all other areas being below the national average. The proportion of the population exposed to high nitrogen dioxide concentrations is highest in Havant (7%) and Fareham (13%) whilst the proportion of the population exposed to high particulate matter in the air (PM2.5) is in Winchester (27%) and Eastleigh (28%).



Mitigation

Primary mitigation

The primary mitigation measures relevant that have been implemented through design development include:

- Avoiding settlements, commercial land and property and major housing allocations where reasonably practicable, to reduce the risk of disruption to property, land and access.
- Reducing open trench construction to 20m when intersecting sensitive constraints.
- Avoiding temporary road closures on roads used for journeys at a regional or national level.
- Avoiding the demolition of any houses.

Secondary mitigation

Engagement with representatives of affected businesses and community facilities will continue, to understand the impacts of the construction of the Proposed Development and to develop appropriate mitigation measures to reduce likely significant effects where reasonably practicable, taking into account factors such as seasonality and the phasing of construction activity.

In relation to in-combination effects on amenity, the socio-economics, tourism and health assessment in the Environmental Statement will reflect secondary mitigation measures identified by other relevant topics, notably noise and vibration and landscape and visual.

Community engagement will continue to explain how the proposed water treatment works and its effectiveness in terms of removing health risks. This will be important for acceptance within the local communities and to build trust between the communities and Southern Water.

Tertiary mitigation

Tertiary (good practice) construction measures are set out in the preliminary Outline CEMP and in a Draft Framework Construction Traffic Management Plan, which are provided as part of the Summer 2024 Consultation, to manage the effects of construction on socio-economics, tourism and health. These comprise measures to reduce the duration and area of construction activity, measures to reduce construction traffic impacts, measures to control construction noise and vibration. These will reduce temporary land take and the potential for disruption to access and in-combination effects on amenity.

An Outline Skills and Employment Plan will be produced which would support the delivery of some of the economic and social benefits of the Proposed Development, including new jobs and training opportunities. This plan will be submitted with the DCO application.

Likely significant effects

Construction

The following effects have been identified that are considered likely to be significant:

- The construction of the Proposed Development (with the option of the proposed Underground Pipelines between the proposed WRP and Havant Thicket Reservoir) could beneficially support up to 900 jobs in the South East of England at the peak of construction, of which up to 350 could be in Hampshire.
- Access to social infrastructure would not be prevented during construction although there are some instances where access may be interrupted, either through shared access points or as a result of construction traffic increasing on access routes to the facilities. This may lead to stress and anxiety for users of these facilities.
- Access to a large proportion of Hooks Lane Recreation Ground may be temporarily affected which may lead to likely significant health effects for the local community due to reduced opportunities for physical activity. The playground adjacent to St Thomas More's Catholic Primary School on Hooks Lane would not be directly affected by construction, but due to its proximity to construction works, parents and carers may become reluctant to take children to the play facility, therefore reducing levels of physical activity for these children if alternative play areas are not utilised instead. The community close to the south of Staunton Country Park may experience significant adverse health effects as a result of reduced opportunities for recreation and physical activity if alternatives to the park are not found. However, this would only be for a short duration whilst this section of the pipeline was installed.
- Neighbourhood amenity health effects were found to be likely significant in relation to noise and visual amenity and for the following wards:
 - Bedhampton ward
 - Purbrook ward
 - Paulsgrove ward
 - Battins ward
 - Warren Park ward
- Social cohesion effects during construction are only significant in relation to the impacts on Hooks Lane Recreation Ground which may temporarily reduce the opportunities for the local community to connect in a sport and recreational setting.

Operation and maintenance

There are no likely significant effects within the operation and maintenance phase.

Decommissioning

Effects from decommissioning of the Proposed Development are expected to be no greater than those identified during the construction phase. The assessment of significance of decommissioning effects is therefore reported to be the same as construction effects for all receptors.

4.14 Traffic and transport

Approach to the assessment

The traffic and transport assessment considers the likely significant effects of the construction, operation and decommissioning of the Proposed Development on the transport network. The traffic and transport topics considered include delay, severance (the perceived ability (or inability) of members of communities to move around their community and access services/facilities), amenity, fear and intimidation, accidents and safety and hazardous loads.

The study area broadly comprises the draft Order Limits for the Proposed Development and the wider transport network, bound by Winchester and Petersfield in the north, B2149 and Havant in the east, M27 and Langstone in the south and the M3 in the west.

Traffic count surveys were undertaken during June/July 2023. The survey findings include traffic counts and recorded road speeds for a seven day period.

Baseline

The local road network includes a mix of rural lanes and streets used by receptors travelling on journeys important at a local level, as well as roads that are used for journeys important at a district level. The strategic road network located near the draft Order Limits includes the A3, A27, M27 and M3.

Many of the streets and roads in the urban areas have footways either on one-side or both sides of the road. There is also a network of public rights of way that intersect the draft Order Limits.

There are also numerous bus services that travel on roads within the study area. Mostly operating at a 30-minute or hourly frequency, they are important for journeys at a local or district level. Provision at bus stops varies from no waiting facilities to shelters with a raised kerb and timetable information.

Mitigation

Primary mitigation

The primary mitigation measures relevant for traffic and transport include:

- Avoiding temporary road closures on roads used for journeys at a regional or national level.
- Avoiding temporary closures on national trails, the National Cycle Network or other Rights of Way where there are not deemed to be suitable alternatives.
- Temporary and permanent transport infrastructure, such as new accesses, would be designed in accordance with the relevant standards.
- Transport infrastructure impacted by the Proposed Development would be reinstated to its previous condition after the works are completed.

Secondary mitigation

No secondary mitigation measures are currently proposed. In the Environmental Statement following further development of the design and assessment data, an updated assessment of receptors will be undertaken and the need for secondary mitigation measures determined.

Tertiary mitigation

Tertiary (good practice) measures relevant to traffic and transport are set out within the preliminary Outline CEMP. This includes measures relating to the preparation of the following management plans:

- Framework Construction Traffic Management Plan
- Framework Construction Worker Travel Plan
- Framework Traffic Management Strategy
- Rights of Way Management Plan

A Draft Framework Construction Traffic Management Plan is shared as part of the Summer 2024 Consultation documents. The other management plans will be submitted with the DCO application.

Likely significant effects

Construction

During construction, short-term, temporary, likely significant environmental effects are anticipated with regards to driver and bus passenger delay as a result of lane and road closures associated with the construction of the Proposed Development and the construction of temporary and permanent accesses onto the public highway. It is likely that all lane and road closures would only be required for up to 14 days (although for the purposes of the PEI assessment and to ensure a likely worst case has been assessed, a period of up to 28 days has been assumed) and therefore any likely significant effects would only be realised for a very short period of time.

Likely significant environmental effects are also predicted with regards to pedestrian, cycle and horse-rider delay. These temporary, short-term environmental effects are associated with footpath, footway, cycleway, bridleways and road closures. Temporary closures to affected footpaths would be for up to three months whilst other closures would be much shorter.

Effects relating to severance, amenity, fear and intimidation, accidents and safety and hazardous loads are not assessed as significant.

Operation and maintenance

No likely significant environmental effects are expected during operation and maintenance.

Decommissioning

Effects from decommissioning of the Proposed Development are considered to be no greater than those identified during the construction phase. The assessment of significance of decommissioning effects is therefore reported to be the same as construction effects for all receptors.

4.15 Water environment and flood risk

Approach to the assessment

The assessment looks at all aspects of the water environment, fresh and marine surface water and groundwater, focussing on:

- The hydrology, geomorphology and quality of surface waters (including freshwater, coastal and transitional waters)
- The quantity and quality of groundwater
- Surface and groundwater resources
- Surface and groundwater-dependent designated sites
- Flood risk to and from the Proposed Development

The study area for water environment and flood risk includes the land within the draft Order Limits and the river catchments, coastal waters and groundwater bodies that intersect or are located within 1km of these draft Order Limits.

Information on current conditions of the water environment has been gathered through research of publicly available information and the following surveys:

- A geomorphological walkover survey to characterise the Main Rivers that intersect the Proposed Development.
- Site walkover to obtain information on key groundwater receptors like abstraction points or springs.
- Ground investigations comprising drilling of boreholes and installing groundwater monitoring wells to obtain readings of groundwater levels and samples for laboratory testing. The investigations also included geophysical surveys of areas where there is a potential for karst features within the chalk bedrock underlying the Proposed Development.

Baseline

Surface water

The Proposed Development crosses a variety of river catchments, including lowland, low gradient systems such as the Hermitage Stream, River Wallington and River Hamble, which drain into Langstone Harbour, Portsmouth Harbour and Southampton Water, respectively. The Proposed Development also crosses the catchments of the River Itchen and the River Meon, both of which are highly sensitive chalk river systems which drain into Southampton Water.

The Proposed Development includes the storage of recycled water in Havant Thicket Reservoir. Prior to the implementation of the Proposed Development the reservoir will be filled with water from Bedhampton Springs. .

Water quality modelling presented by Portsmouth Water in support of the planning application for Havant Thicket Reservoir demonstrates that discharges from the reservoir prior to the addition of recycled water from the Proposed Development could result in small improvements in water quality in downstream watercourses (i.e. Riders Lane Stream and Hermitage Stream).



Groundwater

The Proposed Development is underlain by sensitive groundwater resources that provide water to private and public water supplies including the regionally important Bedhampton and Havant Springs Public Water Supply or Otterbourne Public Water Supply. Groundwater beneath the Proposed Development also connects with other sensitive receptors, which rely on it such as springs, terrestrial ecosystems or above-mentioned chalk river systems.

Flood risk

The pipeline infrastructure and proposed AGP would predominantly be at low probability of flooding from surface waters, rivers, the sea or groundwater. However, the pipeline would need to interact with limited areas of medium and high probability of flooding from surface water and rivers, mostly where it needs to cross watercourses. The pipeline would be considered 'Water Compatible' land use under the Planning Practice Guidance and, as such, is suitable for locating within these areas of increased probability of flooding. Future climate change projections indicate that the probability of flooding would not increase significantly during the lifetime of the Proposed Development, although the edge of the proposed WRP and the existing Budds Farm WTW are likely to have an increased risk of tidal flooding due to the impact of climate change on extreme sea levels. Any new infrastructure developed in these areas would need to be designed to be resilient to this future tidal flood risk.

Mitigation

Primary mitigation

A range of primary mitigation measures have been identified for the water environment. These include:

- Selecting the location of AGP and the route of pipelines and tunnels to avoid or reduce impacts to high value surface and groundwater receptors.
- Crossing all Main Rivers using trenchless crossing techniques.
- Installing the pipeline at least 2.5m below the bed of the Main Rivers and at least 1.2m below the bed of Ordinary Watercourses (dependent on local geology and geomorphological risks).
- Using methodologies for all tunnels and trenchless crossings of watercourses and other barriers that excludes groundwater.
- Avoiding siting shafts associated with the proposed Underground Pipeline within the chalk aquifer where practicable.

Secondary mitigation

The assessment identified a potential likely significant effect on Bedhampton and Havant Springs Public Water Supply and Otterbourne Public Water Supply from proposed tunnelling works. The secondary mitigation will need to be defined and agreed with the water companies responsible for these supplies. The risk of the tunnel near Bedhampton and Havant Springs Public Water Supply impacting groundwater flows will be reviewed in more detail at the Environmental Statement stage when more information is available.

No requirements for secondary mitigation have been identified for the remainder of impacts and receptors considered, on the basis that the primary and tertiary mitigation measures summarised in this section are implemented.

Tertiary mitigation

Good construction practices are set out in the preliminary Outline CEMP to manage the effects of construction on surface and groundwater receptors. These include measures to manage site drainage and runoff, manage the risk of sediment erosion and prevent the supply of contaminants into water receptors.

In addition, a range of management plans and strategies will be developed to manage potential impacts that could occur during the operation of the Proposed Development. These will include operational drainage strategies to control runoff, off-site flood risk and the supply of contaminants from permanent above-ground infrastructure and measures to control discharges from washout valves. These outline management plans will accompany the DCO application.

Likely significant effects

Construction

The release of sediment and contaminants to surface and groundwaters during construction (e.g. as a result of ground disturbance and the use of construction materials and equipment) would result in minor effects on the majority of water receptors and is not therefore considered to be significant. However, likely significant adverse effects may occur as a result of construction of the proposed Underground Pipelines between the proposed WRP and Havant Thicket Reservoir (one of the two potential options for the pipeline section between the proposed WRP and the Havant Thicket Reservoir) due to potential impact on groundwater quality as a result of tunnelling works within the chalk aquifer in the area of the Bedhampton and Havant Springs Public Water Supply and Otterbourne Public Water Supply. Additional mitigation measures will be required to avoid a likely significant adverse effect and will be considered as part of the Environmental Statement.

Changes to surface water and groundwater flows and flood risk during construction (e.g. as a result of changes to flow paths and infiltration rates) would result in minor effects on the majority of water receptors and is not therefore considered to be significant. However, significant adverse effects may occur as a result of construction of the proposed Underground Pipelines between the proposed WRP and Havant Thicket Reservoir due to potential impact on groundwater flow paths within the chalk aquifer in the area of the Bedhampton and Havant Springs Public Water Supply. Additional mitigation measures will be required to avoid a significant adverse effect and will be considered as part of the Environmental Statement.

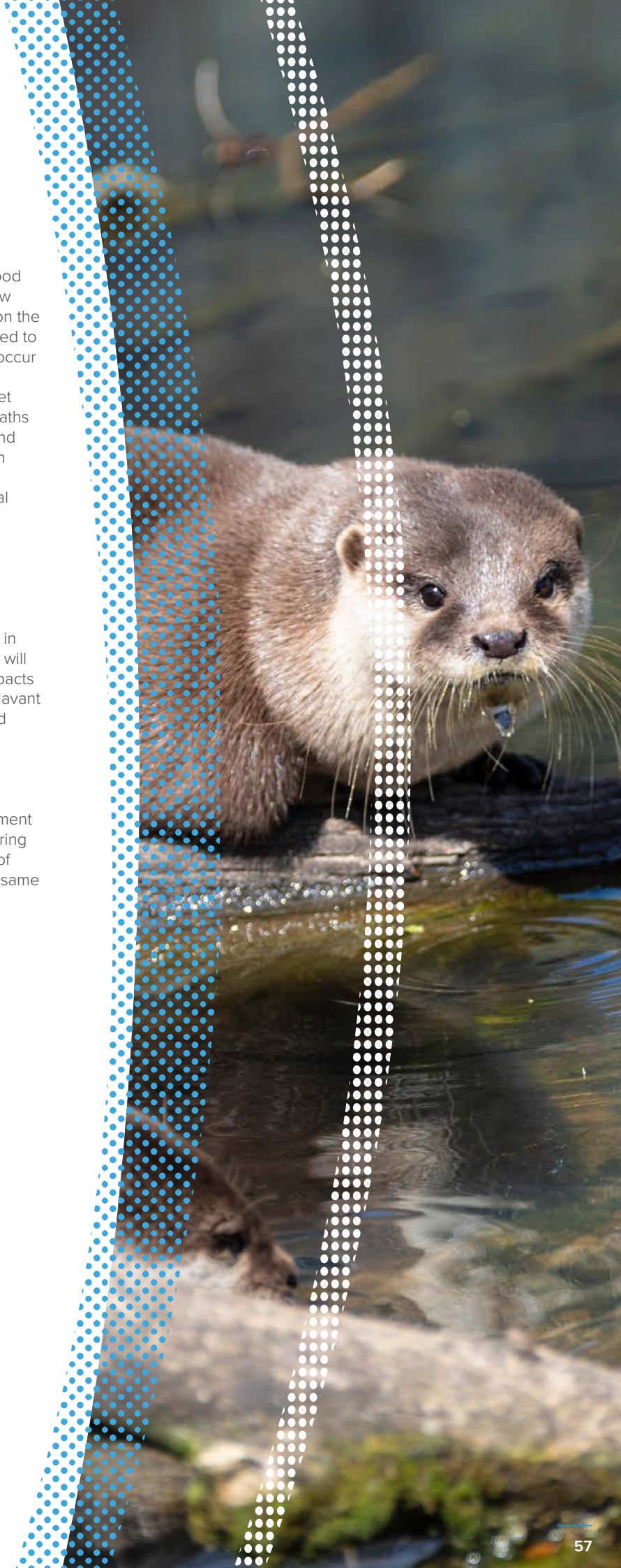
Operation and maintenance

No likely significant environmental effects are expected during operation and maintenance.

Water quality modelling is currently being undertaken by in collaboration with Portsmouth Water, the results of which will be used to inform the assessment of the potential for impacts of operational discharges from the proposed WRP into Havant Thicket Reservoir. Any required mitigation will be detailed in the Water environment chapter in the Environmental Statement.

Decommissioning

Effects from decommissioning of the Proposed Development are considered to be no greater than those identified during the construction phase. The assessment of significance of decommissioning effects is therefore reported to be the same as construction effects for all receptors.



4.16 Cumulative and in-combination effects

Approach to the assessment

This assessment considers the cumulative effects of the Proposed Development with other developments, plans and projects. It also sets out the effects that may be experienced by common receptors that may potentially result in in-combination effects.

- **Cumulative effects** from the interrelationship between the Proposed Development with other developments ('inter-project').
- **In-combination effects** from the interaction between individual effects of the Proposed Development, i.e. the interrelationship between different environmental topics ('intra-project').

Likely significant effects

Cumulative effects

The cumulative effects assessment considers the combined effects of the Proposed Development with other developments within defined 'zones of influence' on a range of receptors. A list of other developments within these zones of influence was collated from a review of planning applications, local planning authority development plans and other available and relevant sources. The initial list was then refined to produce a shortlist of other developments for which information was collected to enable an assessment of cumulative effects.

The preliminary assessment concluded that there is limited potential for cumulative effects with other developments, due to the distance between other developments and the relatively localised zone of influence of the impacts from the Proposed Development. The following potential likely significant effects could arise:

- Temporary loss of parkland character during construction associated with pipeline element of the Havant Thicket Reservoir Project.
- Adverse effects on landscape character areas and views associated with the Welbourne Local Plan area, Portsmouth Water Pipeline Project and AQUIND Project.
- Potential increase in demand for hazardous landfill capacity during construction.

Additional mitigation measures to reduce the significance of effects on receptors will be considered further in the Environmental Statement.

In-combination effects

There are multiple likely significant in-combination effects reported for users of the road networks, specifically the A32, B2177, B3035 and B3354. Road users could face journey delays and adverse visual impacts throughout the construction period. However these impacts would be temporary and short-term in nature.

There are no further likely significant in-combination effects identified as a result of the Proposed Development.



5. What happens next?

Southern Water are asking for views on the Proposed Development during the eight week consultation that will start on the 29 May and end on the 23 July 2024. Details of how the public can comment in response to the consultation are set out in the Summer 2024 Consultation brochure.

The feedback from the consultation will be collated and taken into consideration with regards to further assessment and design work undertaken in relation to the Proposed Development.

After the Summer 2024 Consultation, an Environmental Statement will be prepared to accompany the Development Consent Order (DCO) application. This will build on the Preliminary Environmental Information (PEI) Report and will include further assessment and report the likely significant effects of the Proposed Development design submitted with the DCO application.

We welcome your feedback in the following ways:



Online feedback form

Fill in and submit the online questionnaire, accessed via the Project website: www.HampshireWTWRP.co.uk



Email comments to

FeedbackHWTWRP@southernwater.co.uk



Letters or hard copy of the feedback form

FREEPOST HAMPSHIRE WTWRP CONSULTATION

For an accessible version of this publication please contact:



Email

HampshireWTWRP@southernwater.co.uk



Post

FREEPOST HAMPSHIRE WTWRP CONSULTATION



Phone

0800 254 5138

Consultation materials are available through the website www.HampshireWTWRP.co.uk. Consultation materials are also available as paper copies in the following locations:

Table 5-1 Paper copy locations

Deposit location	Address
Bishop's Waltham Library	Free Street, Bishop's Waltham, Southampton, SO32 1EE
Cosham Library	Spur Road, Cosham, Portsmouth, PO6 3EB
Eastleigh Library	1 Floor, Swan Centre, Eastleigh, SO50 5SF
Fareham Library	Osborn Road, Fareham, PO16 7EN
Fair Oak Community Library	Campbell Way, Fair Oak, Eastleigh, SO50 7AX
Paulsgrove Library	Paulsgrove Youth Community Centre, Marsden Road, Portsmouth, PO6 4JB
Havant Library	Havant Meridian Centre, Havant, PO9 1UN
Leigh Park Library	50 Park Parade, Leigh Park, Havant, PO9 5AB
Waterlooville Library	The Precinct, Waterlooville, PO7 7DT



from
Southern
Water. 

The logo graphic for Southern Water, featuring three stylized, white, wavy lines that resemble water waves.

F.8 Draft Illustrative Outline Environmental Masterplan

Water for Life

Hampshire Water Transfer and Water Recycling Project

Draft illustrative Outline Environmental Masterplan
Revision 1

May 2024



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Introduction

This draft illustrative Outline Environmental Masterplan has been produced to support the Hampshire Water Transfer and Water Recycling Project (HWTWRP) to coordinate and integrate Environmental Net Gain (ENG) and Biodiversity Net Gain (BNG) opportunities across the HWTWRP. It is underpinned by the Project Vision.

Project Vision

“We’re transforming the way we source, treat and supply water across Hampshire. Creating a new, resilient and sustainable water supply will protect and enhance the county’s rare and sensitive chalk streams, while maintaining supplies for our communities and the local economy.”

The draft illustrative Outline Environmental Masterplan has also been influenced by a series of preliminary design principles which have been developed to embed good design at an early stage. These have informed the initial environmental assessments in the Preliminary Environmental Information Report. The preliminary design principles will evolve into general (HWTWRP wide) and site specific design principles which will ultimately control the detailed design of the HWTWRP.

Preliminary Design Principles

Examples of the preliminary principles that directly relate to the draft illustrative Outline Environmental Masterplan include:

Respecting local distinctiveness:

Recognise and respect local landscape, heritage and recreational character and values and adopt a landscape-scale approach to design to maximise integration and wider environmental and social benefits beyond the HWTWRP site.

Environmental protection:

Minimise impact on landscape, ecology, heritage and water environment (including groundwater and surface water) and seek to integrate permanent buildings into their landscape setting, with high quality design (and/or screening such as by natural features), materials and colour palette appropriate to context.

Retention of existing features:

Existing landscape features within site boundaries would be retained where possible and beneficial and buffer zones may be provided. Existing vegetation should be retained and protected where reasonably practicable to retain visual continuity and ecological connectivity.

Appropriate planting:

New tree and shrub planting would use appropriate species in keeping with the landscape whilst sourcing responsibly and considering the impacts of climate change in determining the species.

Green infrastructure enhancement:

Seek to enhance green infrastructure and nature networks, with landscape planting as shown on the environment/landscape masterplans and in accordance with a reinstatement strategy.

Enhance biodiversity:

Contribute to and enhance the natural environment by providing net gains for biodiversity. Landscape design will be compliant with the BNG strategy and seek to deliver the best outcomes for biodiversity.

Construction methods:

Utilisation of trenchless construction methods to avoid direct impacts on main rivers (and locating compounds outside flood zones where possible).

Environmental enhancement:

Positively promote opportunities for HWTWRP-wide environmental enhancement and maximise multifunctionality to deliver ENG.

Climate resilience:

Design for resilience to future climate change - allowing for future adaptation through the full life of HWTWRP.

Sustainable drainage:

Use of sustainable drainage strategies to ensure that post-development surface water run-off rates do not exceed existing rates. A hierarchical approach to drainage design will be implemented.

This draft illustrative Outline Environmental Masterplan will be developed to

support the Development Consent Order application. It will be an illustrative document providing an indication of how the components of the HWTWRP could be delivered in accordance with the approved plans, parameters and design principles. It will ensure the HWTWRP is underpinned by good design and can deliver environmental and biodiversity net gain.

Structure of the draft illustrative Outline Environmental Masterplan

The draft illustrative Outline Environmental Masterplan is presented in two parts:

1. Green Infrastructure Masterplan identifying Focus Areas within which opportunities could be explored across the locality of the HWTWRP. This section is at a relatively early stage and further detail will be developed beyond consultation up to DCO submission.
2. Site Masterplans for the water recycling plant site and four proposed Above Ground Plant (AGP) sites which show specific opportunities in these locations. We are seeking views on these opportunities as part of the Summer 2024 Consultation and we will use feedback, alongside further scheme development, to develop the Site Specific Design Principles that the future detailed design will need to comply with.

The AGP sites consist of:

- Break Pressure Tank K
- Intermediate Pumping Station G
- Intermediate Pumping Station F
- Break Pressure Tank / Intermediate Pumping Station E

Green Infrastructure Focus Areas

Following a detailed review of local policies and strategies from the host authorities and the South Downs National Park Authority (Appendix A), and taking into account the spatial extent of our proposals, we have identified a number of locations for potential enhancement measures that could deliver the greatest positive impacts for the environment, stakeholders and communities.

At this stage we are seeking views and suggestions for additional opportunities for local environmental enhancements within the vicinity of the HWTWRP for our emerging strategies for environmental and biodiversity net gain.

The identified Focus Areas are mostly around the Above Ground Plant sites for the Project, except for in one area where we have identified a Focus Area that looks to explore opportunities around the River Itchen. In developing these Green Infrastructure Focus Areas at these locations, we are looking at local opportunities for delivering environmental enhancement and mitigation in these areas.

Not all of the potential benefits and enhancements will be included in our DCO application and so would need to be brought forward separately (potentially by third parties), depending on the nature and location of the measures.



Green Infrastructure Focus Areas

Five Green Infrastructure Focus Areas have been identified where we would explore opportunities in the wider landscape around the proposed Underground Pipeline and Above Ground Plant locations, to focus measures to deliver a lasting positive impact for the environment, stakeholders and communities. Potential opportunities and enhancements are outlined below.

Focus Area 1: River Itchen

Protect and enhance riverside habitats whilst improving connectivity to nearby walking and cycling routes.

Focus Area 2: River Hamble

Connect recreational routes along the river and improve woodland and grassland habitats in the floodplain.

Focus Area 3: River Meon and Forest of Bere

Maintain and increase woodland and grassland habitats and explore new connections to the Meon Valley Trail.

Focus Area 4: Portsdown Hill

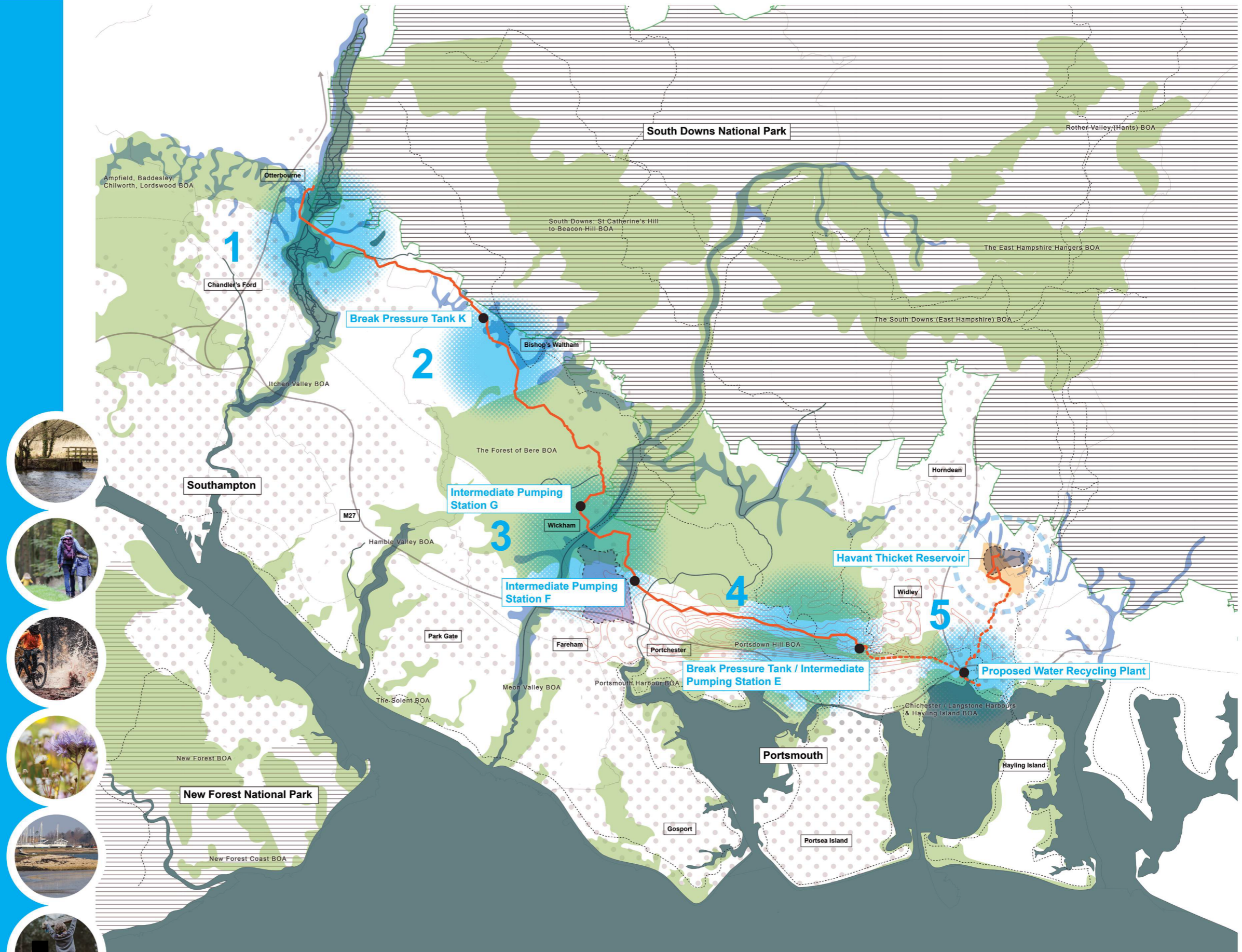
Protect and enhance the chalk grasslands and Brent Goose habitats and improve pedestrian access to the Palmerston forts and panoramic viewing points.

Focus Area 5: Broadmarsh Coastal Park

Improve community access to the Coastal Path with the creation of new green corridors and community facilities within the park working with Havant Borough Council.

Havant Thicket Reservoir

This area has been identified in recognition of the Havant Thicket Reservoir scheme, which forms a key part of this Project, and the comprehensive package of commitments already made by Portsmouth Water to deliver a range of environmental and biodiversity net gain measures including new wetlands, woodlands, community and leisure facilities. No further opportunities or enhancements are therefore included as part of this draft Environment Plan.



- Proposed Underground Pipeline Location
- Key recreational trails
- Urban areas
- Portsdown Hill terrain contours
- Welborne Garden Village development
- Havant Thicket Reservoir
- Staunton Country Park
- Proposed Above Ground Plant locations
- Chalk river priority habitat (Natural England)
- National Parks
- Rail line
- Major road
- Green Infrastructure Focus Area
- Biodiversity Opportunity Areas (BOA) (South Hampshire Green Infrastructure Strategy 2017-2034)
- Administrative boundary

Proposed Above Ground Plant Sites

The opportunities presented at each of the proposed AGP sites were identified following a further multi-disciplinary design workshop and built on the generic technical layouts provided by the design team.

Each proposed AGP site includes a sketch plan and section of the proposed opportunities, and an axonometric drawing which shows the site's setting within the wider landscape.

These sketches are intended to help stakeholders understand how the HWTWRP would be integrated into the landscape and contribute to and enhance the natural environment.



Proposed Water Recycling Plant

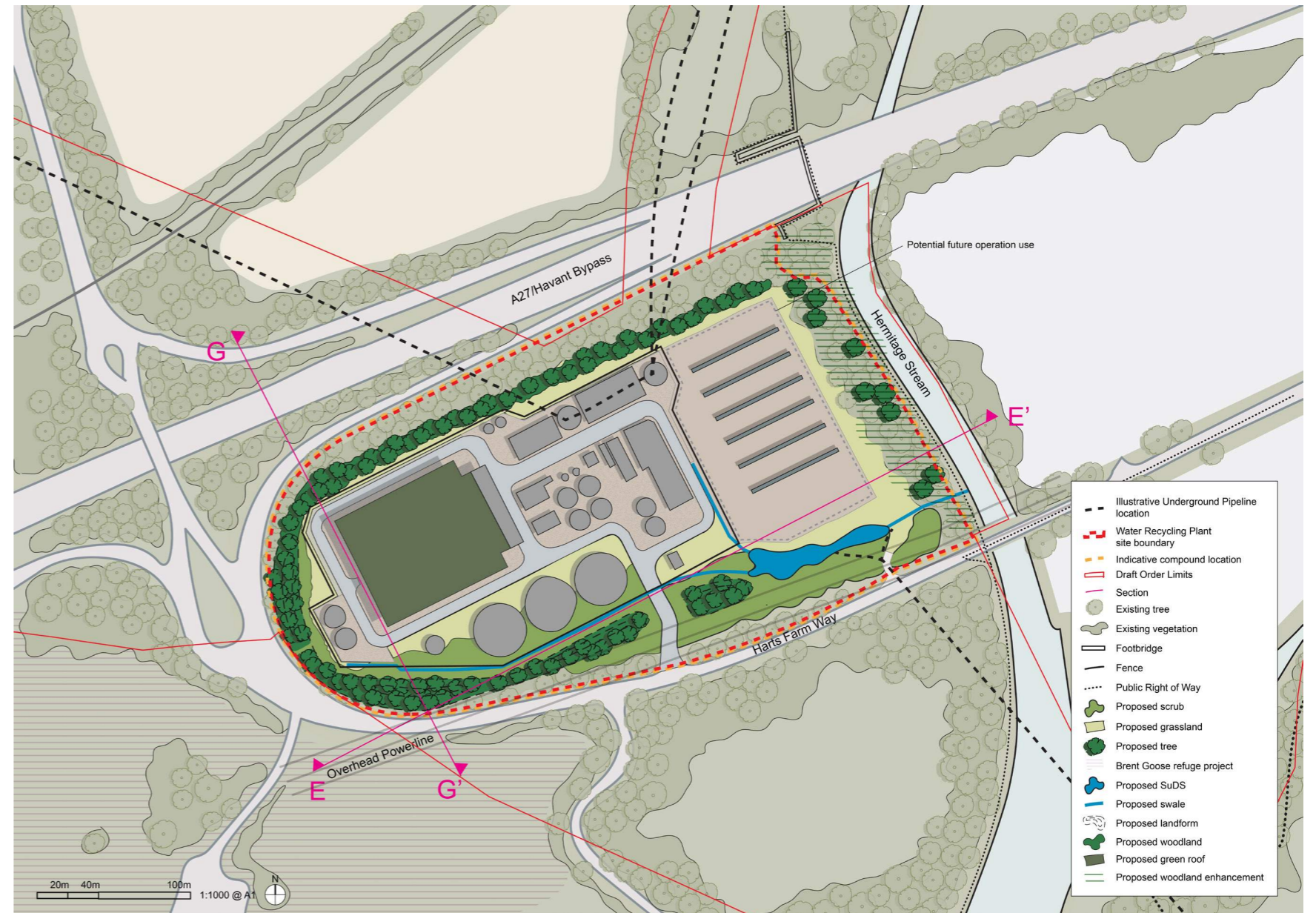
Introduction

The site is located within Havant and within a semi-natural landscape adjacent to the nearby Langstone Harbour and Broadmarsh Coastal Park. Brockhampton Industrial Estate lies to the east just beyond the Hermitage Stream. The town of Havant extends to the north and Farlington Marshes to the west.

The site would potentially be visible in views from the Broadmarsh Coastal Park and King Charles III National Trail to the south.

Potential Opportunities

- Designing a built form which draws from the local context and is sympathetic to Broadmarsh Coastal Park and views from Langstone Harbour without compromising functional or safety requirements.
- Providing landscaping around the facility that provides benefits for ecology, staff, and visitors while remaining flexible and adaptable to respond to future needs.
- Reinforcing existing site boundaries to the west and south through tree and shrub planting to provide further screening.
- Retaining and enhancing a landscape buffer to the Hermitage Stream corridor and exploring opportunities for footpath, habitat and resilience improvements.
- Providing sensitive lighting which meets operational requirements whilst avoiding uplighting and illuminating hedgerows and habitats where possible.
- Considering potential for on-site habitat enhancement through building design (e.g. green roof) and sustainable drainage.
- Considering potential for wider enhancements within the Broadmarsh Coastal Park in partnership with Havant Borough Council and other third parties.

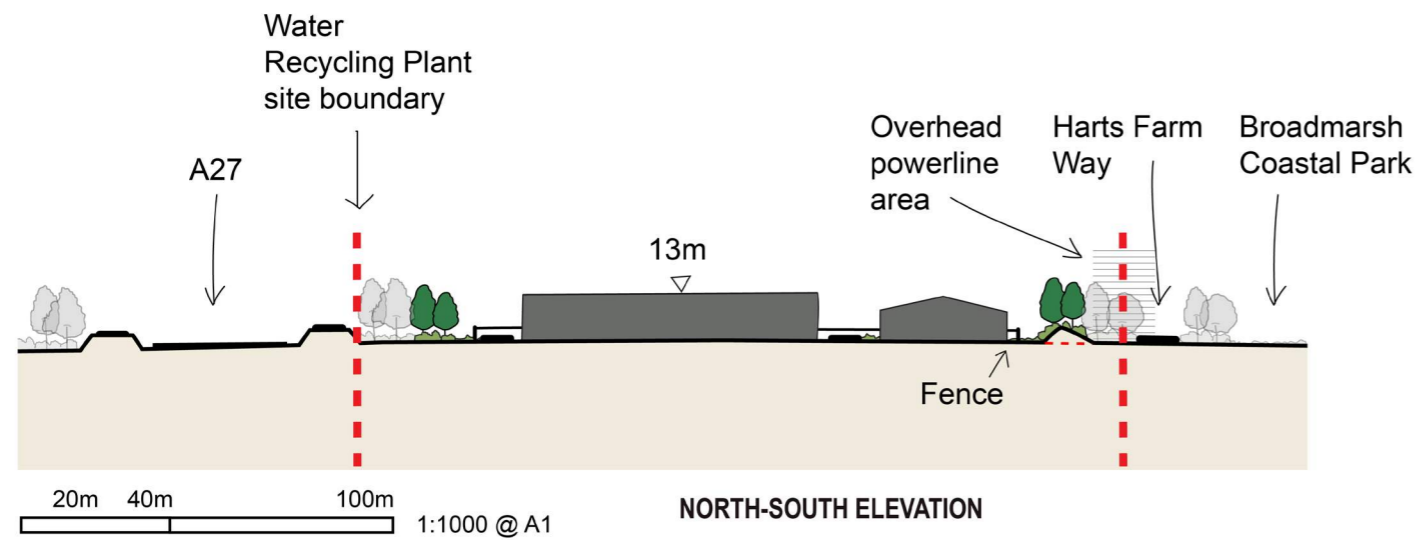


Proposed Water Recycling Plant Elevation



E

E'



G

G'

Proposed Water Recycling Plant Visualisation



Break Pressure Tank K

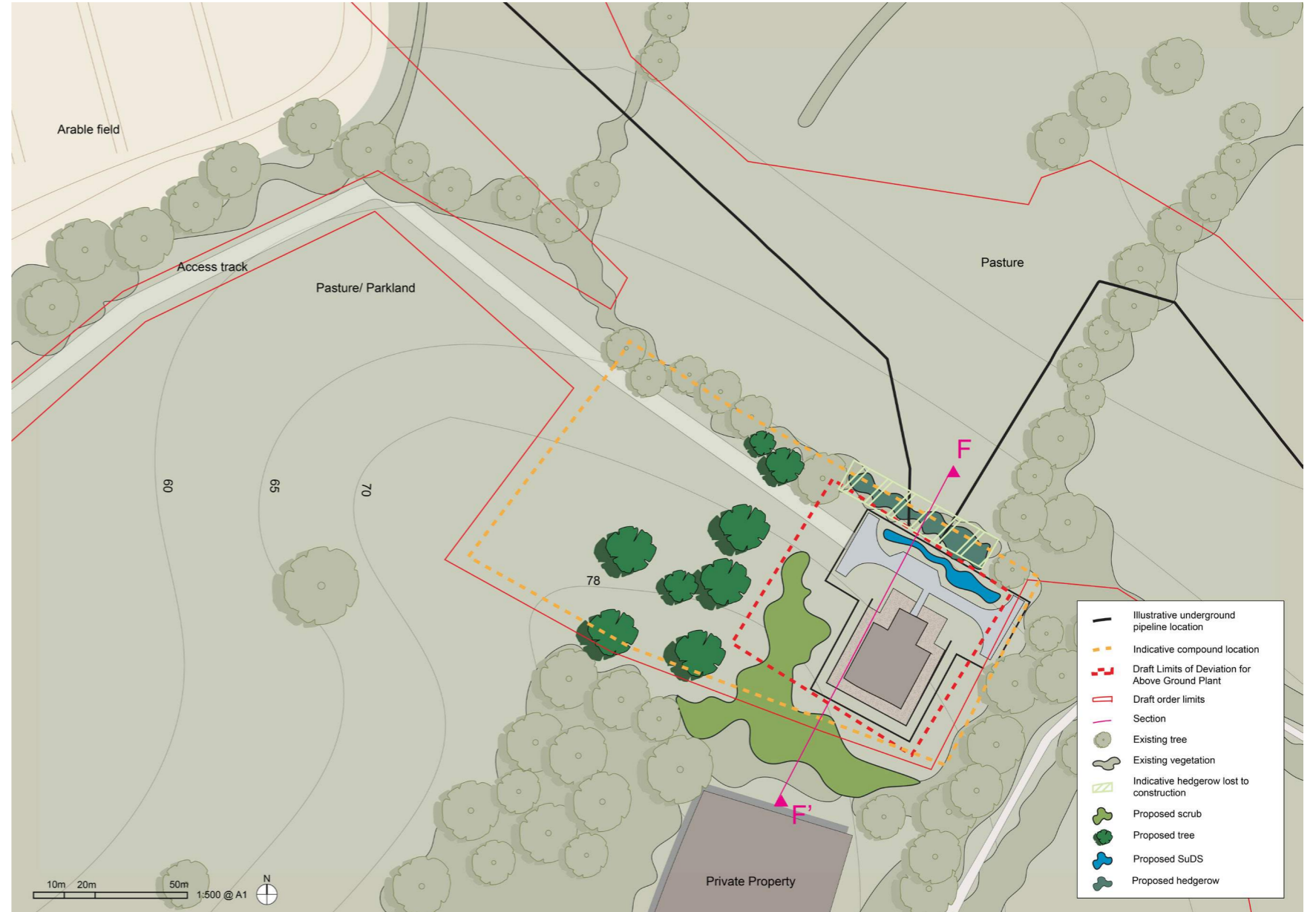
Introduction

The site is located at Wintershill. The character of the landscape immediately surrounding the site consists of steeply sloped parkland and mixed farmland with dense, mature vegetation on field boundaries. It is a rural and tranquil landscape with some scattered settlements. The Pilgrim's Trail, South Downs National Park and River Hamble form part of the wider setting.

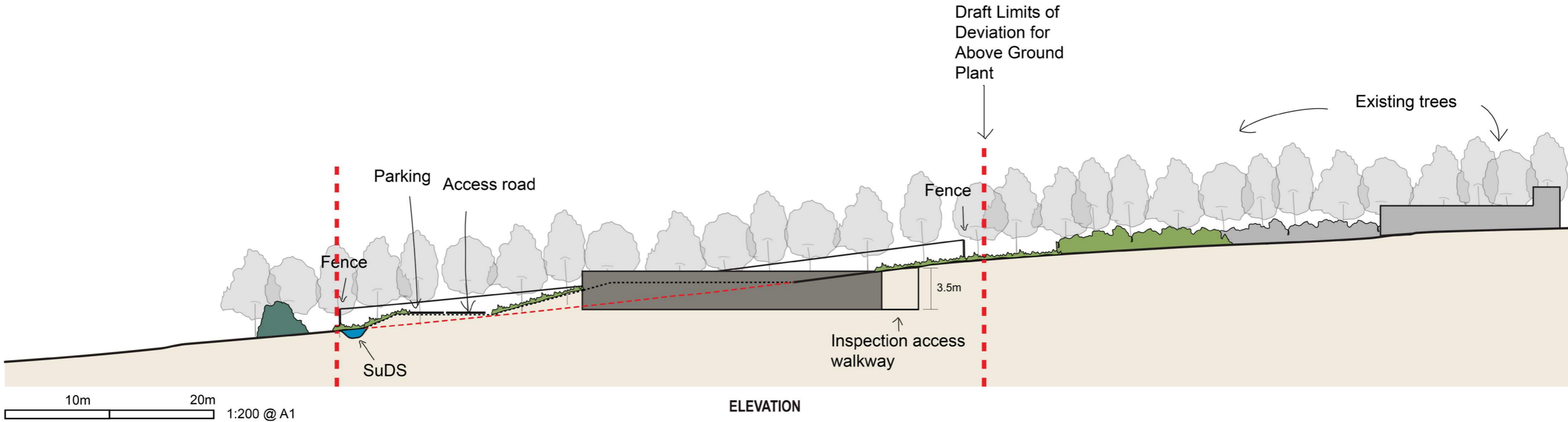
The site would potentially be visible in views from Winchester Road to the north and Sciviers Lane to the south.

Potential Opportunities

- Building embedded into the hillside to create a continuous surface integrating the tank into the landscape without compromising operational requirements.
- Replace and extend hedgerow loss to strengthen green infrastructure connectivity.
- Use of cladding and fencing material similar to those in local area and based on local colour assessment opportunities.
- Explore opportunities for on site habitat enhancement (for example through drainage design) and extending existing parkland and scrub habitat to reinforce landscape character and enhance biodiversity.



Break Pressure Tank K Elevation



F

F'

Break Pressure Tank K Visualisation



Intermediate Pumping Station G

Introduction

The site is within the Meon Valley and the surrounding landscape is defined by small to medium sized, flat, irregular shaped fields of grazing pasture and improved grassland. In the immediate vicinity there are mixed plant nursery and commercial buildings, Wickham Park Golf Course and Park Place Centre of Worship. The Meon Valley Trail and River Meon, which provide important habitats and strong links through the area, are nearby. The South Downs National Park lies to the north beyond thick wooded roadside vegetation along Winchester Road (A334).

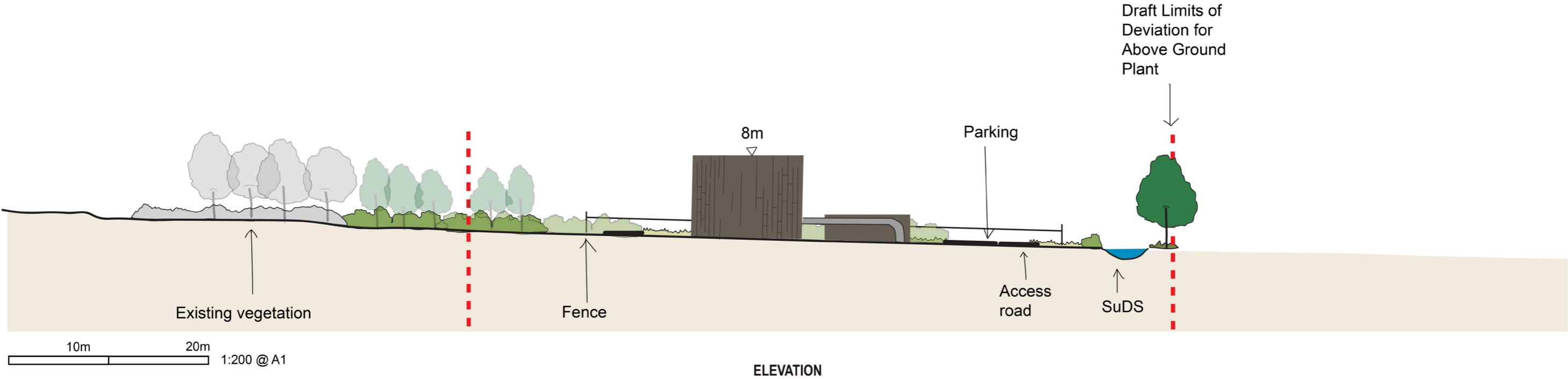
The site would potentially be visible in views from PRoW Wickham 1 east of the site.

Potential Opportunities

- Delivering operational requirements at a scale, density, layout and appearance that is sensitive to the local landscape context.
- Using cladding and materials on prominent facades similar to those found in the area (for example farm buildings) and reflecting local colour palette.
- Introducing screen planting to minimise impact on nearby properties and heritage assets whilst strengthening habitat connectivity.
- Cladding or fencing smaller structures to create a unified appearance.
- Considering potential for on-site habitat enhancement (for example through drainage design) and extending woodland and scrub habitats and planting to reinforce green infrastructure network.



Intermediate Pumping Station G Elevation



C

C

Intermediate Pumping Station G Visualisation



Intermediate Pumping Station F

Introduction

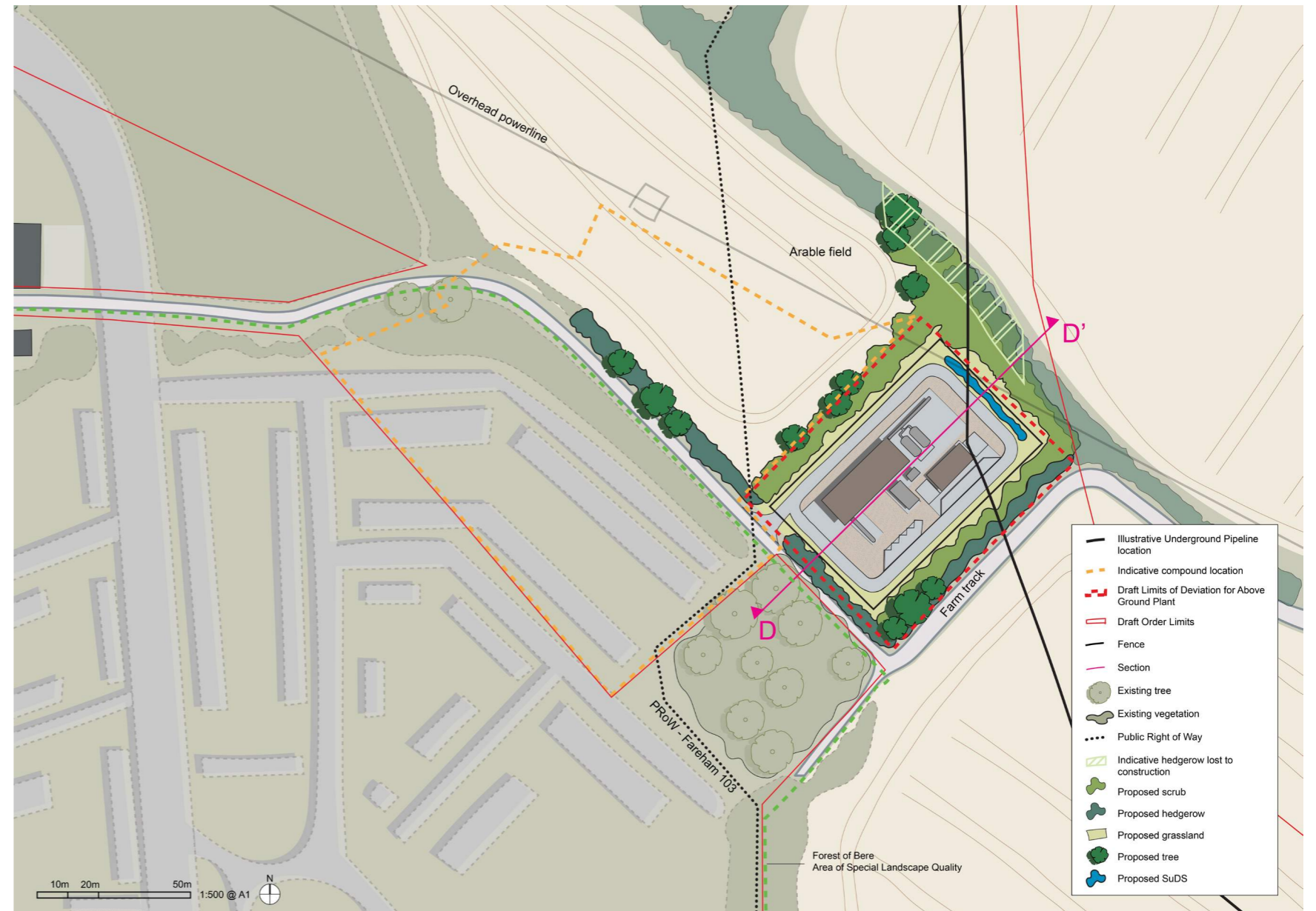
The site is located south of Crockerhill. The character of the landscape immediately surrounding this site is rural with large arable fields and scattered linear blocks of woodland along Wickham Road and Knowle Road. The land gradually rises to the north, and the River Wallington flows along to the east. Numerous Public Rights of Way (PRoW) traverse the area, offering access to the countryside from nearby urban areas.

The adjacent proposed Welborne Garden Village mixed use development, an extension to Fareham to the south, has planning consent and is currently being constructed. The layout of Welborne Garden Village in the sketch is indicative only and the details would be determined through Reserved Matters applications pursuant to the Welborne Garden Village outline application (fareham.gov.uk).

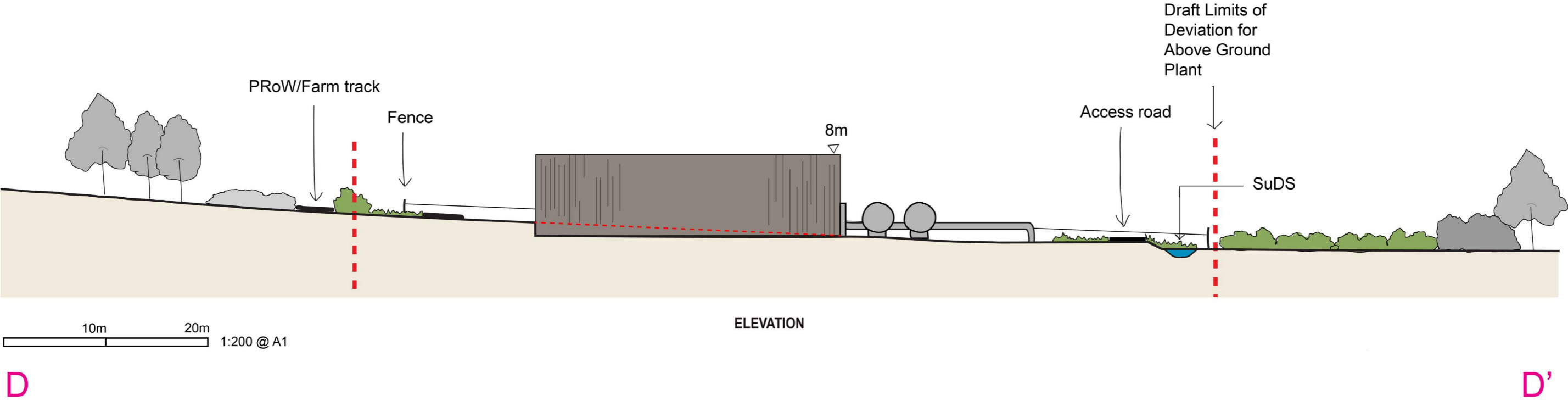
The site would potentially be visible in views from PRoW 124 to the north of the site and from PRoW 45 in the south.

Potential Opportunities

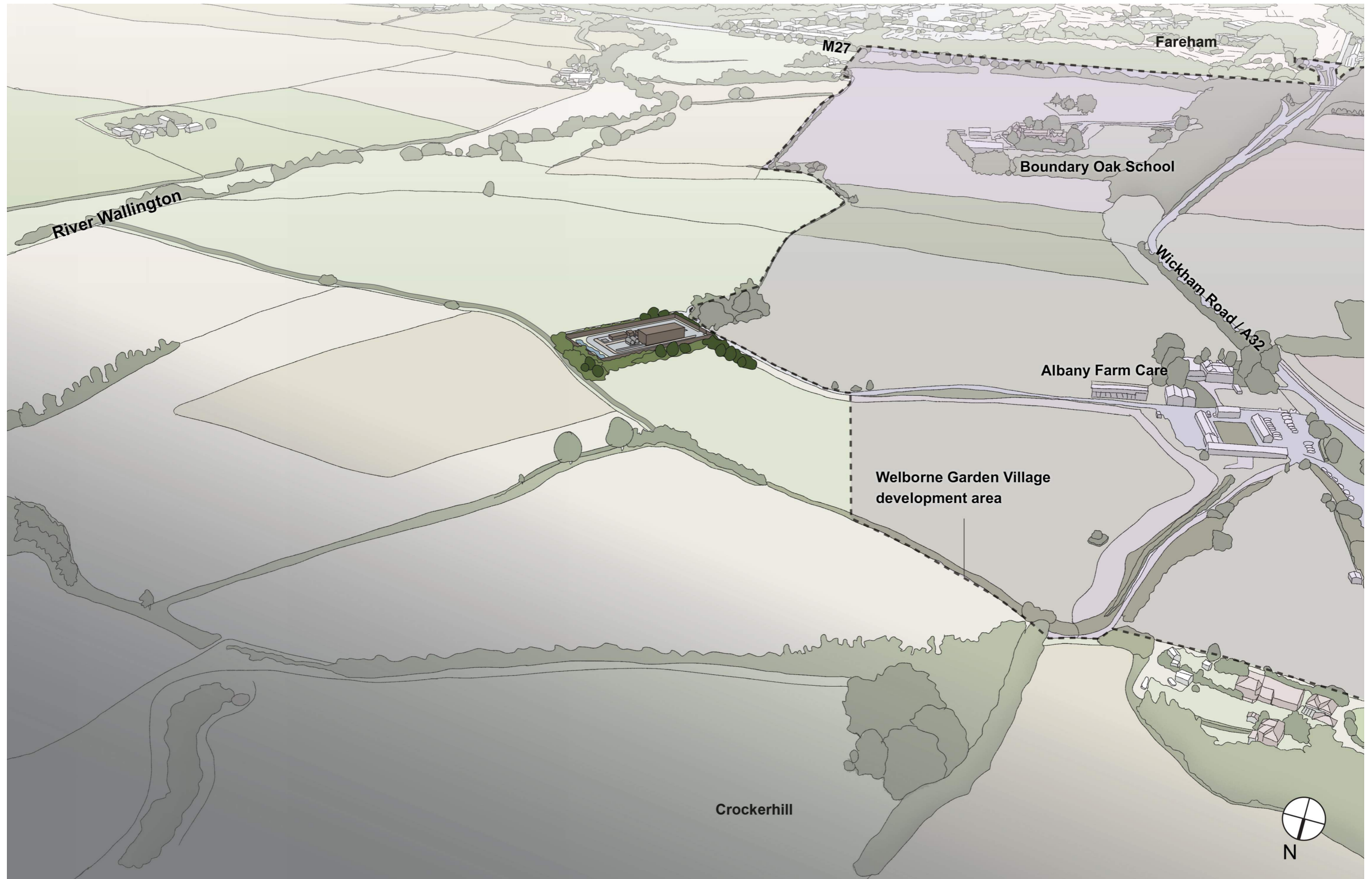
- Utilising the site's topography and embedding the building into the ground to reduce height and visibility without compromising operational requirements.
- Drawing inspiration for materials and colour palette from those found in the local area (for example farm buildings).
- Working with Welborne Garden Village to explore opportunities for joined approach on environmental enhancement and connectivity.
- Replacing and enhancing hedgerows where lost and potentially connecting existing woodland with hedgerows to strengthen habitat connectivity.
- Considering potential for on-site habitat enhancement (for example, through drainage design) and potential to extend existing woodland.



Intermediate Pumping Station F Elevation



Intermediate Pumping Station F Visualisation



Break Pressure Tank / Intermediate Pumping Station E

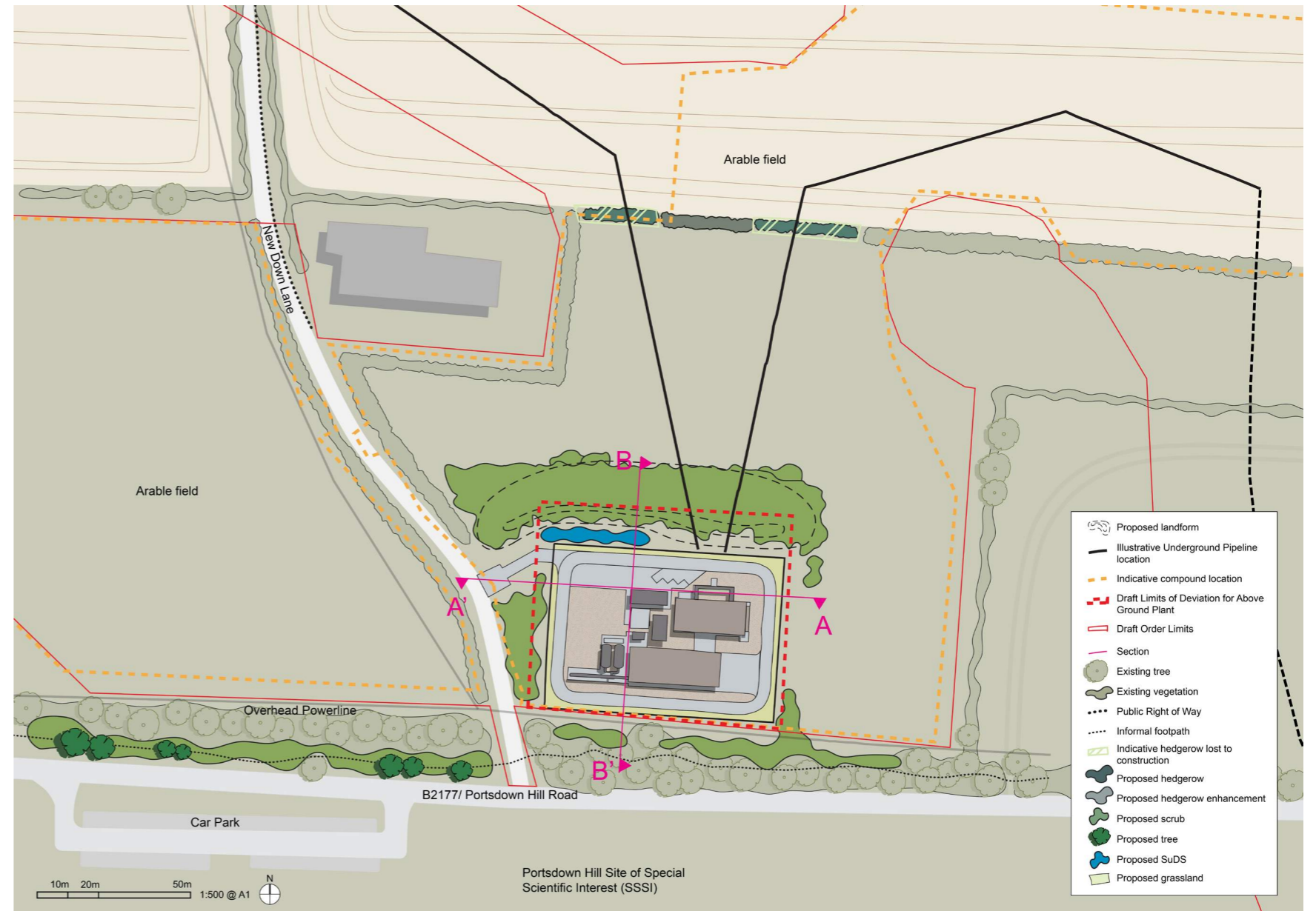
Introduction

The site is located on the north facing scarp slopes of Portsdown Hill and next to the historic Victorian Palmerston forts, which stand as landmarks at intervals on the ridgeline. Nearby open spaces are popular public vantage points with panoramic views across Portsmouth and the Solent. There are also several car parks located along the ridge. Adjacent and distinctive semi natural chalk grasslands support biodiversity.

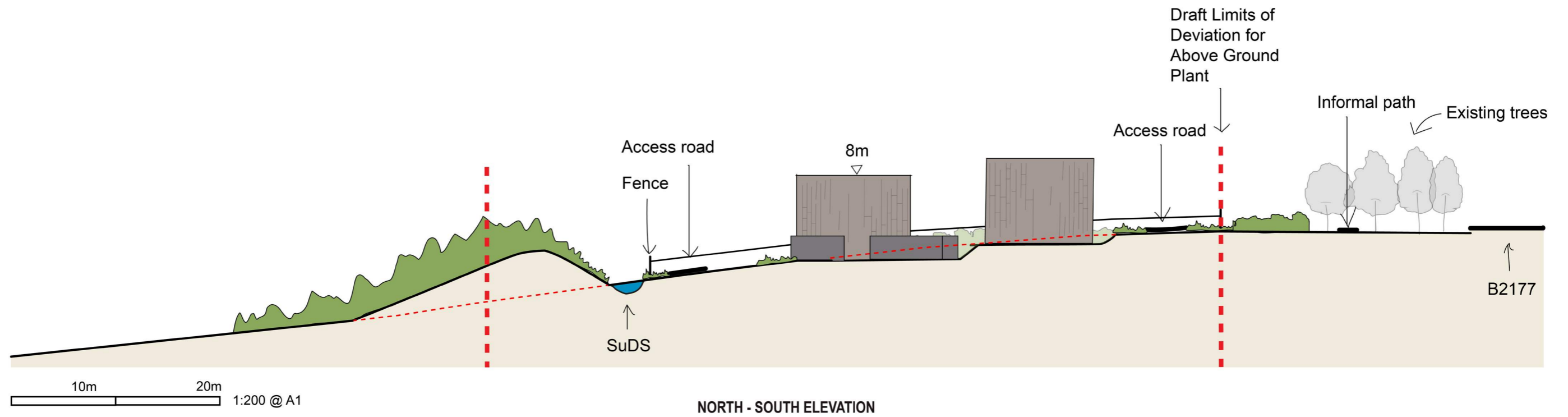
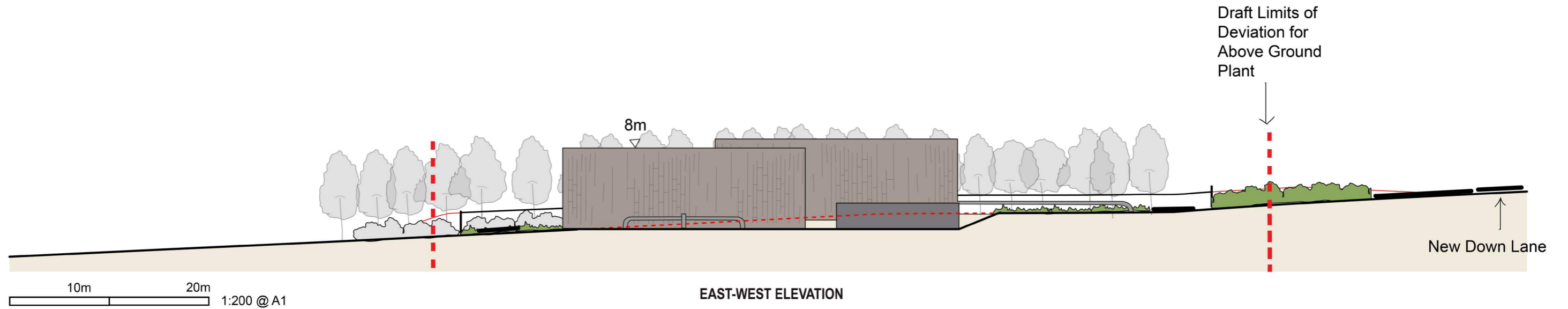
The site would potentially be visible in views from houses on New Down Lane, in Widley in the Northeast and from the Wayfarers Walk Long Distance Trail.

Potential Opportunities

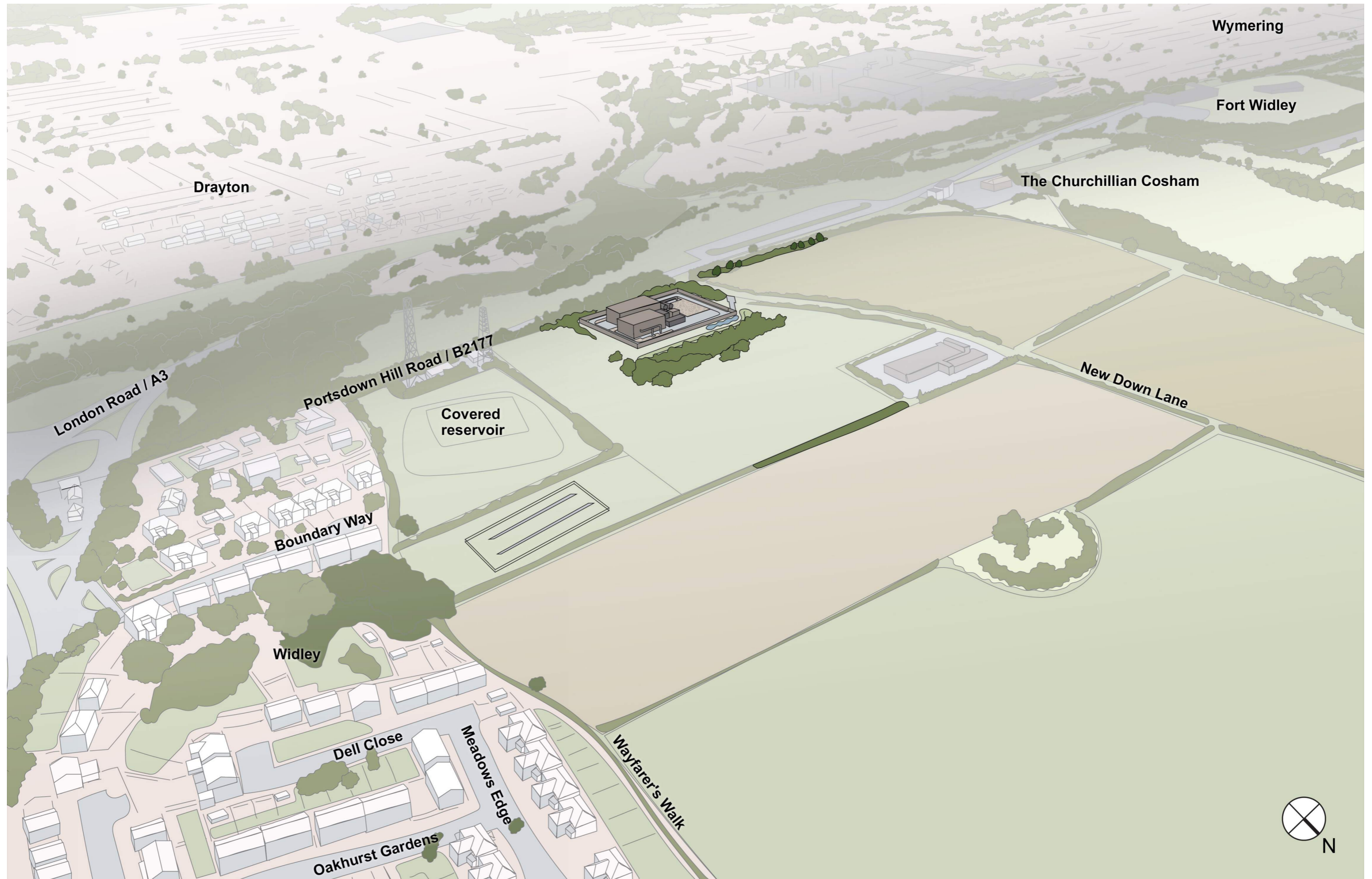
- Delivering operational requirements at a scale, density, layout and appearance that is sensitive to the historical and landscape context.
- Embedding buildings into the hillside with natural screening, including new landform, to integrate into the landscape.
- Cladding prominent facades with natural materials and, according to local colour assessment to blend into treeline.
- Avoiding building heights exceeding treeline to reduce impact on views from the south.
- Providing new and enhanced planting (including replacement of any hedgerow loss) to reinforce existing boundaries, where practicable.
- Considering potential for footpath and crossing enhancements, including along Portsdown Hill Road.
- Considering potential for on-site habitat enhancement (for example, through drainage design) and potential to extend chalk grassland habitat to reinforce landscape character and enhance biodiversity.



Break Pressure Tank / Intermediate Pumping Station E Elevation



Break Pressure Tank / Intermediate Pumping Station E



F.9 Draft Framework Construction Traffic Management Plan

Hampshire Water Transfer & Water Recycling Project Draft Framework Construction Traffic Management Plan

VOLUME NUMBER: I

PLANNING INSPECTORATE NUMBER: WA010002

DOCUMENT REFERENCE: 710166-ARU-EGN-XX-RP-L-00039

May 2024 | Version C01



from
**Southern
Water** 

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1 Introduction

1.1 Background

- 1.1.1 This Draft Framework Construction Traffic Management Plan (CTMP) has been prepared in support of the proposed Hampshire Water Transfer and Water Recycling Project (the 'Proposed Development').
- 1.1.2 The Proposed Development is being progressed by Southern Water Services Limited (the Applicant). The Applicant is responsible for supplying water and providing wastewater¹ services to over four million customers in the South East of England, operating across Hampshire, Kent, the Isle of Wight and East and West Sussex.
- 1.1.3 The Applicant is governed under the Water Industry Act 1991 [1] In accordance with section 37A of the Water Industry Act 1991, the Applicant is required to meet statutory duties as a water undertaker to prepare and maintain a Water Resources Management Plan (WRMP).
- 1.1.4 A WRMP sets out how each water undertaker will manage and develop water resources to meet their supply obligation for at least the next 25 years. The Applicant produced a WRMP (2020 – 2070) in 2019 (WRMP19) [2], which outlined proposed long-term solutions to protect the unique chalk rivers in Hampshire, the River Test and River Itchen, and make up future water shortfalls. This included a long-term and large-scale water resource solution, or Strategic Resource Option (SRO).
- 1.1.5 The Applicant published its draft WRMP24 on 14 November 2022 for consultation [2]. Consultation on this draft was undertaken between 14 November 2022 and 20 February 2023 and the Applicant has developed a Statement of Response which addresses the issues raised in the consultation [3]. The draft WRMP24 reaffirms the need for an SRO to meet the WRMP19 and continuing water resource deficit. The preferred SRO is identified as the Proposed Development, for the purposes of the DCO application, which would play a major role in making up any shortfall in water supply across the Hampshire supply area.

1.2 Definitions

- 1.2.1 Table 1-1 provides definitions of the technical terms and abbreviations used in this Draft Framework CTMP.

Table 1-1 Glossary and abbreviations

Glossary term	Description
Abnormal Indivisible Load (AIL)	An AIL is any load that cannot be broken down into smaller loads for transport without undue expense or risk of damage.
Average Annual Daily Traffic (AADT)	Average daily traffic (24 hours) for all days of the week during a period of one year.

¹ A combination of water from kitchens, bathrooms, sinks and taps (in domestic and non-domestic properties) and rainwater from roads and roofs, that is transported to, and cleaned at, a wastewater treatment works.

Glossary term	Description
Draft Order Limits	The extent of land that the Proposed Development would be delivered within as set out in Preliminary Environmental Information (PEI) Report Chapter 3 Description of the Proposed Development, Volume I. The draft Order Limits include temporary working areas required to implement the Proposed Development.
Construction Environmental Management Plan (CEMP)	A CEMP helps to ensure that construction work considers aspects of environmental protection within the context of compliance with local legislation and minimisation of the impacts on humans and the environment.
Development Consent Order (DCO)	Under the Planning Act 2008 (as amended), a Development Consent Order (DCO) is the means of obtaining permission to construct, operate and maintain developments categorised as nationally significant infrastructure projects or projects of national significance under a s.35 direction
Haul road	Temporary access route within the draft Order Limits that would be constructed along the route of the Proposed Development.
Horizontal Directional Drilling (HDD)	HDD is a multi-phase operation which uses a special design drilling rig which initially bores a pilot hole through the ground along a pre-determined route. This pilot bore is then expanded as necessary using various sizes and types of back-reamers to enlarge the pilot bore to the final diameter into which the pipe is installed.
Heavy Goods Vehicle (HGV)	Vehicles that weigh more than 7.5 tonnes that are typically used to transport goods and materials.
Micro-Tunnelling	A trenchless construction method used to install pipelines between two shafts.
Proposed Development	This refers to the proposed Hampshire Water Transfer and Water Recycling Project, as described in PEI Report Chapter 3 Description of the Proposed Development, Volume I.
Trenchless	A type of pipeline crossing that involves either HDD or micro-tunnelling, avoiding the need for open-cut excavation.

1.3 Scope of the Draft Framework Construction Travel Management Plan

- 1.3.1 This Draft Framework CTMP outlines the overarching scope of the Framework CTMP and details some key proposals regarding potential construction compound locations, temporary accesses and HGV routing.
- 1.3.2 The Framework CTMP will provide an overarching plan as to how the construction traffic will be managed. It will set out the framework for the detailed CTMP's to be approved, including hours of traffic movements, traffic routing, safe vehicular access and manoeuvring and minimising traffic impacts. The Framework CTMP will be prepared and submitted as part of the DCO application documents.

- 1.3.3 Individual CTMP documents will be subsequently developed in greater detail (post the grant of the DCO) for traffic in relation to relevant construction activities. The method for securing and agreeing the full CTMPs is to be agreed. They will be brought forward in accordance with the Framework CTMP.
- 1.3.4 In addition to the Framework CTMP, the following management plans are proposed to be submitted as part of the DCO application documents:
- Framework Traffic Management Strategy (TMS), detailing potential road closures and associated traffic management that may be required during the construction phase of the Proposed Development.
 - Rights of Way Management Plan (RoWMP), summarising potential Public Rights of Way (PRoW) mitigation measures, such as temporary closures and diversions, that are required during the construction phase of the Proposed Development.
 - Framework Construction Worker Travel Plan, which will include a package of potential measures that aim to encourage more sustainable travel behaviours among construction workers.

1.4 Health and safety principles

- 1.4.1 All traffic management and junction works are considered potentially dangerous activities. It is therefore important that diligent health and safety processes are implemented at all times.
- 1.4.2 Specific risk assessments and supplementary methods statements may need to be prepared by the contractor, as appropriate, prior to the start of particular works. Occupational health and safety will be managed to enable safe construction methodologies and manage those risks associated with the construction works and the transporting of construction materials to and from the Proposed Development, and to ensure safe systems of work are adopted for all operations.
- 1.4.3 The workforce will be consulted with regards to health and safety matters associated with the construction works and the safe delivery of construction materials to and from the Proposed Development. This may result in suitable changes to working practices as agreed with the Client, contractor and design team upon completion of risk assessments and agreed method statements.

1.5 Construction Travel Management Plan objectives

- 1.5.1 The Framework CTMP and detailed CTMPs will have the primary objective of minimising impact and disruption to existing users of the public highway network, and to the surrounding community during construction.
- 1.5.2 It is proposed for this overarching objective to be achieved by the following:
- As far as reasonably practical, limit the number of vehicle movements associated with the movement of material and people.
 - Minimise the impacts of construction traffic on local communities and identified sensitive receptors.
 - Identify safe and appropriate construction traffic access routes.

- Monitor the individual CTMPs as necessary throughout the duration of the works.

1.6 Engagement

- 1.6.1 Regular engagement has been undertaken with the relevant local and strategic highway authorities, Hampshire County Council (HCC), Portsmouth City Council (PCC) and National Highways (NH) in relation to the Proposed Development. Further engagement with regards to traffic and transport is detailed within PEI Report Chapter 18 Traffic and transport, Volume I.
- 1.6.2 Discussions to date have considered this Draft Framework CTMP, with HCC having provided comments relating to what they would like this document to include. These are summarised at Table 1-2.

Table 1-2 Engagement with Hampshire County Council

HCC request:	Our response:
Framework CTMP will provide details regarding the construction traffic routes and number of movements, along with how the impact of each section of the Proposed Development will be mitigated.	<p>Details of the indicative construction routes are provided at section 5.4.</p> <p>Details of the potential construction traffic volumes are provided at section 5.3.</p> <p>Details of the potential traffic management measures and procedures to mitigate the likely impacts are provided at section 7.</p>
Details will be provided around the access into each compound, including the specific construction traffic management measures and road safety.	<p>Details regarding the likely accesses into each construction compound are provided at section 3.4.</p> <p>Details of potential traffic management measures and procedures to mitigate the likely impacts are provided at section 7.</p> <p>Road safety and associated management measures are explored at section 6.</p>
Framework CTMP will need to specifically consider how access will be achieved in areas that are unsuitable for HGV movements, and what management measures will be put in place to prevent conflict with oncoming vehicles. A bespoke signage strategy should be adopted.	<p>Details regarding the likely access into each construction compound are provided at section 3.4.</p> <p>Preliminary traffic management measures are set out at section 7, with detailed measures (such as a signage strategy and measures to prevent conflict with oncoming vehicles) to be provided as part of the individual CTMPs.</p>
The Framework CTMP should set the hours under which construction traffic routing will be restricted to.	The typical construction hours are set out in PEI Report Chapter 3 Description of the Proposed Development, Volume I, and potential restrictions are outlined in section 3.6 of this document.

HCC request:	Our response:
<p>Measures should also be considered to reduce unnecessary HGV movements which could otherwise be coordinated and consolidated with other deliveries.</p>	<p>Details of the likely construction traffic volumes are provided at section 5.3. All movements listed within this section are considered necessary to facilitate construction of the Proposed Development. Measures to minimise loads will be detailed within the individual CTMPs.</p>
<p>Public Right of Way (PRoW) safety should be added to the scope of the Framework CTMP.</p>	<p>Measures setting out how likely construction impacts on the PRoW network will be mitigated are provided at section 7.3. This will be detailed in the RoWMP which will be a separate management plan, issued as part of the DCO application.</p>

1.6.3 Details on constraints and matters identified during engagement with HCC is provided at section 5.5.

1.7 Structure of the Plan

1.7.1 The remainder of the Plan is structured as follows:

- Section 2 sets out the Proposed Development proposals.
- Section 3 presents a description of the works, detailed how the Proposed Development would be constructed and where construction compounds are proposed.
- Section 4 provides an overview of the construction workforce for each phase.
- Section 5 details the volume of construction traffic forecast and the proposed routing for HGVs between the Strategic Road Network (SRN) and the proposed construction compounds.
- Section 6 provides an overview of the existing road safety issues on the network and the proposed management and engagement procedures.
- Section 7 summarises the traffic management procedures that would be set out in the Framework TMS and RoWMP.

2 The Proposed Development

2.1 Introduction

2.1.1 The key components of the Proposed Development comprise the following:

- Proposed Water Recycling Plant (WRP) and proposed High Lift Pumping Station (HLPS)
- Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works (WTW) and the proposed WRP
- Proposed Pipelines between the proposed WRP and Havant Thicket Reservoir (which consists of two options, described further below)
- Proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne Water Supply Works (WSW)
- Proposed Above Ground Plant (AGP)
- Use of the Havant Thicket Reservoir for the storage of recycled water
- Use of the existing Eastney Long Sea Outfall for the release of reject water from the proposed WRP
- Other Associated Development

2.1.2 Further details on the Proposed Development can be found in PEI Report Chapter 3 Description of the Proposed Development, Volume I.

2.2 Proposed Water Recycling Plant and proposed High Lift Pumping Station

2.2.1 The proposed WRP would be located at a site approximately 300m north-west of Budds Farm WTW, to the north of Harts Farm Way. It would consist of a main process building where the water recycling process would be undertaken, along with kiosks (to support control equipment), administrative buildings and parking facilities. In order to move water along the pipeline a HLPS is required which would be located at the proposed WRP site.

2.3 Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works and the proposed Water Recycling Plant

2.3.1 Two proposed Underground Pipelines, approximately 500m in length, would be constructed between Budds Farm WTW and the proposed WRP: one to transfer treated wastewater from Budds Farm WTW to the proposed WRP (ready to enter the water recycling process) and the other to transfer reject water from the proposed WRP to Budds Farm WTW. The proposed Underground Pipelines would also connect to existing infrastructure for release of treated wastewater. A pumping station may be needed at Budds Farm WTW to move water to where it needs to be.

2.4 Proposed Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

- 2.4.1 There are two potential options for the proposed Pipelines between the proposed WRP and the Havant Thicket Reservoir:
- i. Proposed Pipelines, approximately 650m long, between the proposed WRP and Bedhampton Springs. This option is dependent on Portsmouth Water securing consent for their pipelines to connect their existing Bedhampton Springs site to Havant Thicket Reservoir.
 - ii. Proposed Underground Pipelines between the proposed WRP and Havant Thicket Reservoir, approximately 3.8km in length.

2.5 Proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne Water Supply Works

- 2.5.1 A proposed Underground Pipeline would transfer water from the Havant Thicket Reservoir to Otterbourne WSW through the proposed HLPS, located at the site of the proposed WRP. The section of pipeline from Havant Thicket Reservoir to the proposed HLPS includes the same two options as described above, while the section from the proposed HLPS to Otterbourne WSW would be the Underground Pipeline. The proposed Underground Pipeline would be approximately 40km long and transfer 90 million litres per day of source water at the peak of a drought, reducing to a minimum of 20 million litres per day outside of drought conditions.

2.6 Proposed Above Ground Plant

- 2.6.1 Due to the length of the proposed Underground Pipeline from Havant Thicket Reservoir to Otterbourne WSW, further proposed AGP (in addition to the proposed HLPS which is the first pumping station on the pipeline route) would be required to support the transfer of water to overcome the topography of the route. Proposed AGP are anticipated to include proposed Intermediate Pumping Stations (IPS) and proposed Break Pressure Tanks (BPT) located along this section of the pipeline.

2.7 Use of Havant Thicket Reservoir for the storage of recycled water

- 2.7.1 Following transfer from the proposed WRP, the recycled water would be combined with water contained within the Havant Thicket Reservoir. The Proposed Development would use the Havant Thicket Reservoir for the storage of recycled water before it is transferred to Otterbourne WSW, as shown in Graphic 3-4.

2.8 Release from the Eastney Long Sea Outfall

- 2.8.1 Reject water (that is water containing impurities removed from the treated wastewater) produced by the proposed WRP would be returned to Budds Farm WTW using the proposed Underground Pipelines between the proposed WRP and Budds Farm WTW. The reject water would then be combined with existing treated

wastewater flows from the existing Budds Farm WTW before being transferred and released to the Solent. This would use the existing infrastructure operated by Southern Water, consisting of Eastney Transfer Tunnel, Eastney Pumping Station and Eastney Long Sea Outfall (LSO), as shown in Graphic 3-3.

- 2.8.2 In the event of an emergency shut down of the proposed WRP, water within the WRP would be returned to Budds Farm WTW by opening the run to waste valve. This water would then be released using the existing Eastney Transfer Tunnel, Eastney Pumping Station and Eastney LSO.

2.9 Associated Development

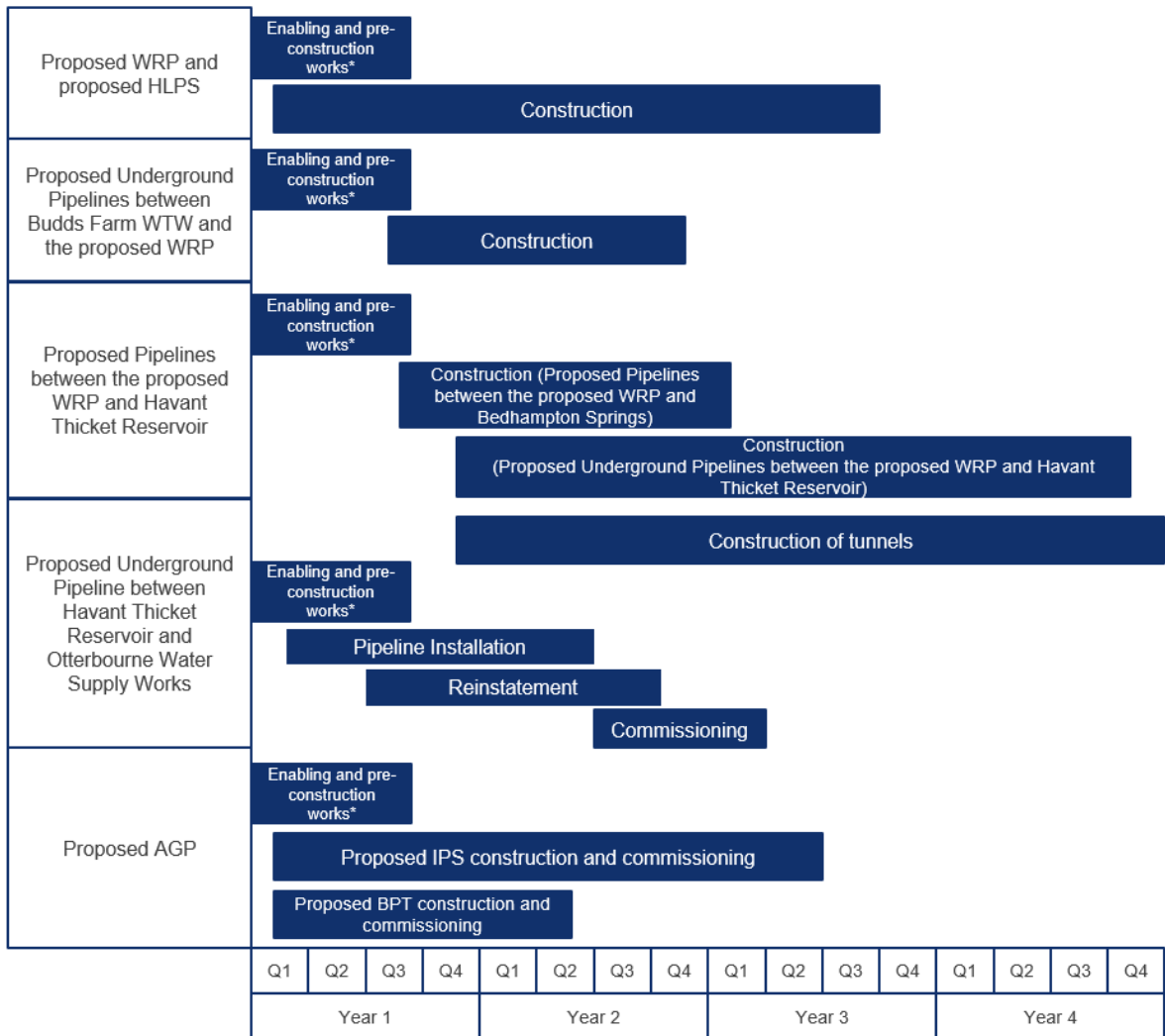
- 2.9.1 The construction and operation of the key components of the Proposed Development would be supported by Associated Development, which would include:

- Temporary works to support construction, such as construction compounds and water storage lagoons.
- Permanent works to support operation and maintenance, including access to the proposed AGP.
- Sites accesses and potential utility connections for the Proposed Development.
- Utility diversions as required.
- Highway and public rights of way diversions where required.
- Landscaping, environmental mitigation, enhancement, and compensation measures.

3 Description of works

3.1 Indicative construction programme

3.1.1 The anticipated construction programme for the Proposed Development is set out in Figure 3-1 below.



* Enabling and pre-construction works including: site clearance and preparation, crossings of major utilities, construction compounds and trenchless compounds.

Figure 3-1 Indicative construction programme

3.1.2 Figure 3-1 sets out that the Proposed Development is anticipated to be constructed over a four-year period. It is currently expected that construction would commence in 2028 however this would be dependent on various elements including the DCO programme and detailed design.

3.2 Construction methodology

3.2.1 Several techniques are expected to be used to construct the key parts of the Proposed Development. Generally, an open-cut trench construction method would

be used to install the underground sections of the pipelines. Other techniques including tunnelling would also be used where appropriate, for example, in environmentally sensitive areas. The main methods of pipeline construction are described below.

Trenched open-cut method

- 3.2.2 It is anticipated that most of the underground pipeline associated with the Proposed Development would be constructed using trenched open-cut excavation in open and unconstrained areas such as fields. The typical working width would be 40m and this provides space for construction vehicle movement along haul roads, construction working areas, pipe storage areas, pipeline trench and soil storage areas.

Trenchless method

- 3.2.3 For some sections of the pipeline (both above-ground sections and underground sections) there would be crossings that may not be suited to trenched open-cut excavation. Examples of these are roads, railways, waterways, sensitive environmental areas, and other areas where construction could be restricted.
- 3.2.4 Trenchless construction methods that could be used include horizontal directional drilling and microtunnelling.

Tunnelling

- 3.2.5 Tunnelling is to be used in areas where the underground pipeline needs to pass through residential areas and cross sensitive environmental features, where the length is too long for trenchless construction.
- 3.2.6 Tunnel shafts would be sunk at each end of the tunnel section from where a Tunnel Boring Machine would start and would then emerge and finish.

3.3 Construction compounds

- 3.3.1 This section details the types of construction compounds anticipated to be temporarily required to support construction.
- 3.3.2 The types of construction compounds required to construct the Proposed Development are as follows:
- Sectional site construction compounds: Located at intervals along the proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne WSW.
 - Trenchless construction compounds: Required where trenchless construction is proposed.
 - Tunnelling construction compounds: Required to accommodate tunnel launch, intermediate or reception shafts.
 - Proposed AGP construction compounds: Land required to facilitate construction of the proposed AGP.
 - Water storage lagoon construction compounds: To facilitate commissioning of the water transfer pipelines.

- 3.3.3 The contractor(s) appointed would be responsible for setting up construction compounds and maintaining these in a safe, clean and tidy condition. Welfare facilities including toilets, kitchen and dining facilities and drying rooms, as well as office space for site staff to work from and vehicle parking would be provided within the construction compounds as required by the Construction (Design and Management) Regulations 2015.
- 3.3.4 Safe pedestrian walkways would be provided around construction compounds to segregate workers from plant/vehicles. Turning space would be made available for HGVs/deliveries. Reversing onto the highways shall therefore be avoided.

3.4 Construction compound locations

- 3.4.1 Construction compounds would be located at intervals along the Proposed Development, where trenchless or tunnelling construction methods are proposed and for construction of the proposed AGP. In some locations, more construction compounds have been added to either provide flexibility for the contractor, once appointed, to construct the Proposed Development, or to allow further refinement following the Summer 2024 Consultation and prior to the DCO submission.
- 3.4.2 Opportunities to co-locate different types of construction compounds have been sought in identifying the locations of construction compounds. This reduces the land take required for construction compounds.

Proposed Water Recycling Plant and proposed High Lift Pumping Station

- 3.4.3 A construction compound would be located at the site of the proposed WRP. This would enable the construction of the proposed WRP, proposed HLPS and tunnel shafts associated with the various proposed Underground Pipelines and proposed Pipelines.
- 3.4.4 Access to the construction compound would be taken from Harts Farm Way via a priority controlled major/minor junction. It is anticipated that the proposed permanent access for the proposed WRP would also be used for construction access.

Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works and the proposed Water Recycling Plant

- 3.4.5 There would be no construction compounds aside from the proposed WRP construction compound (detailed at paragraph 3.4.3) to facilitate the construction of the proposed Underground Pipelines between Budds Farm WTW and the proposed WRP.

Proposed Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

- 3.4.6 Section A (Havant Thicket Reservoir to Staunton Country Park) and Section B (Staunton Country Park to the proposed Water Recycling Plant) of the proposed Underground Pipelines comprise the sections between Havant Thicket Reservoir and the proposed HLPS. As previously noted, there are two potential options for this section of the Proposed Development.

Proposed Pipelines between the proposed Water Recycling Plant and Bedhampton Springs

3.4.7 This option involves the connection of the proposed WRP to Bedhampton Springs. This section would feature two sections of trenchless construction to account for the change in direction of the proposed Pipelines route, as shown in Figure 3-2.

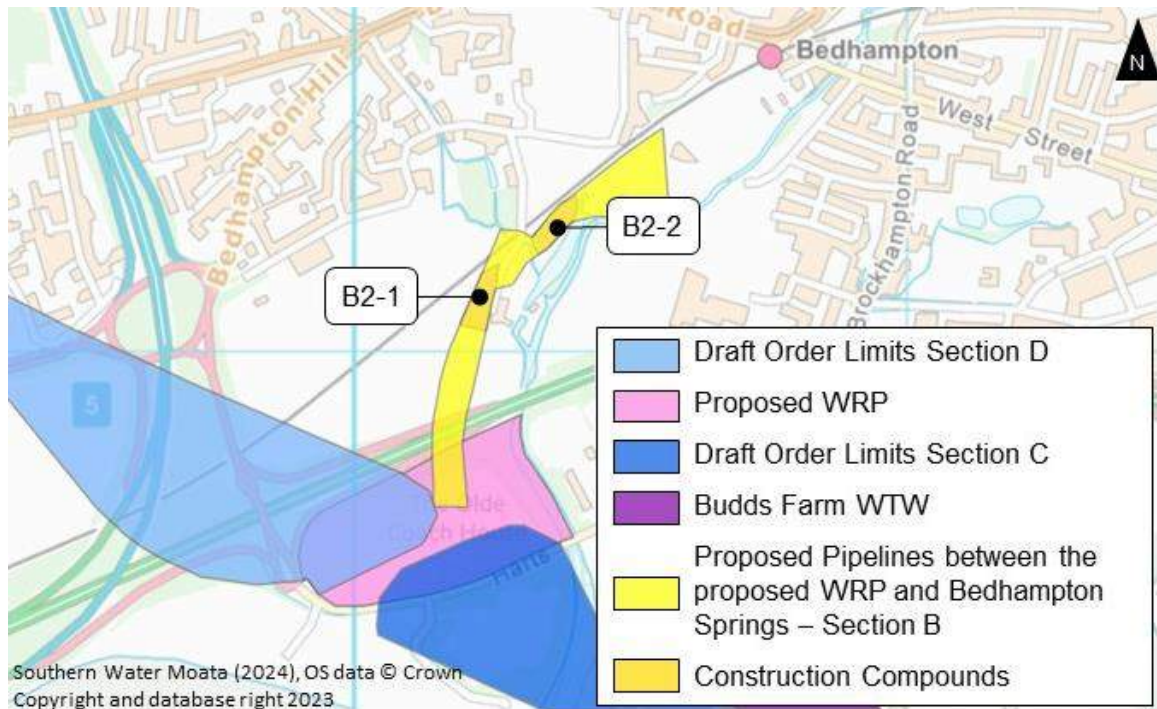


Figure 3-2 Proposed Pipelines between the proposed Water Recycling Plant and Bedhampton Springs construction compound locations

3.4.8 Construction Compounds B2-1 and B2-2 could be accessed from Mill Lane and Meyrick Road respectively.

Proposed Underground Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

3.4.9 This option would comprise of a single tunnel between the proposed WRP and Havant Thicket Reservoir. Tunnelling construction would take place between the construction compound at the proposed WRP and Construction Compound B1-1, located south of Havant Thicket Reservoir within Staunton Country Park. The tunnel reception shaft would be located within Construction Compound B1-1 and be made accessible from Middle Park Way, as shown in Figure 3-3 below.

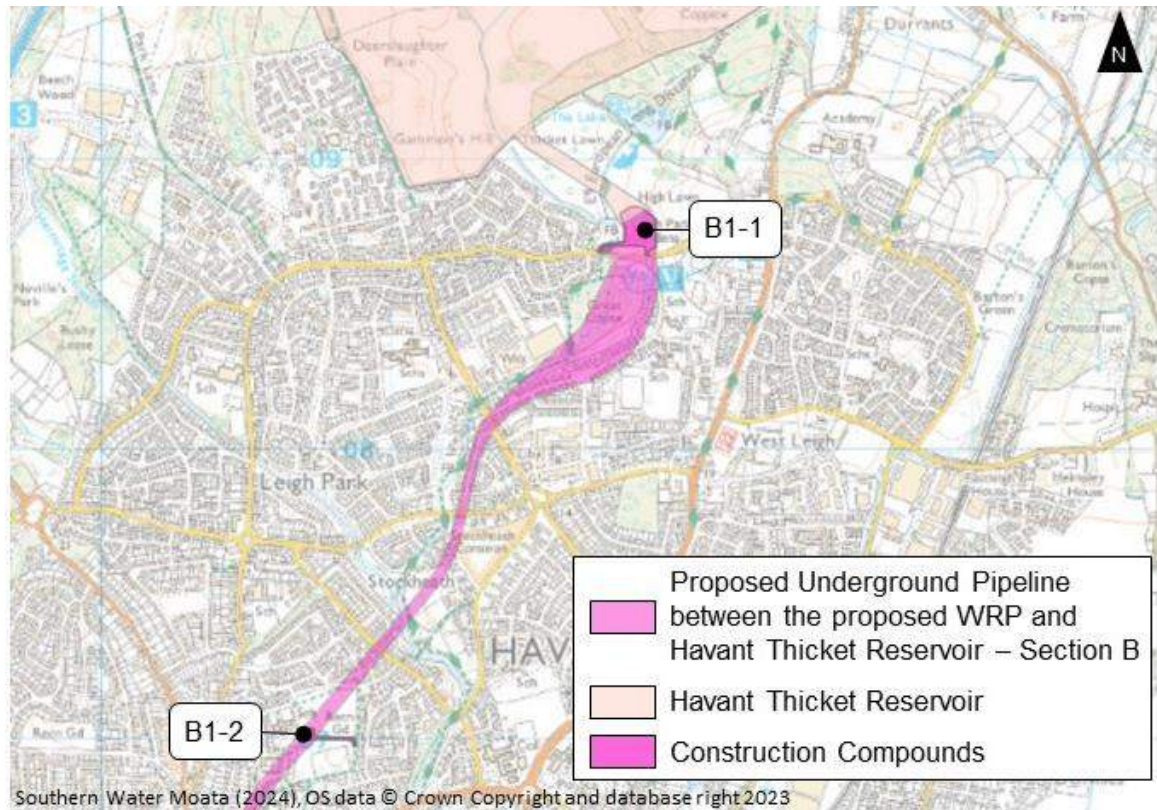


Figure 3-3 Proposed Underground Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir construction compound locations

- 3.4.10 An intermediate tunnel shaft would be located within Construction Compound B1-2 which is located east of Hooks Lane.

Proposed Underground Pipeline between the proposed Water Recycling Plant and Otterbourne Water Supply Works

Section D: The proposed Water Recycling Plant to Portsdown Hill

- 3.4.11 Section D would only include one construction compound that would aid the tunnelling construction. This construction compound is shown spatially in Figure 3-4.

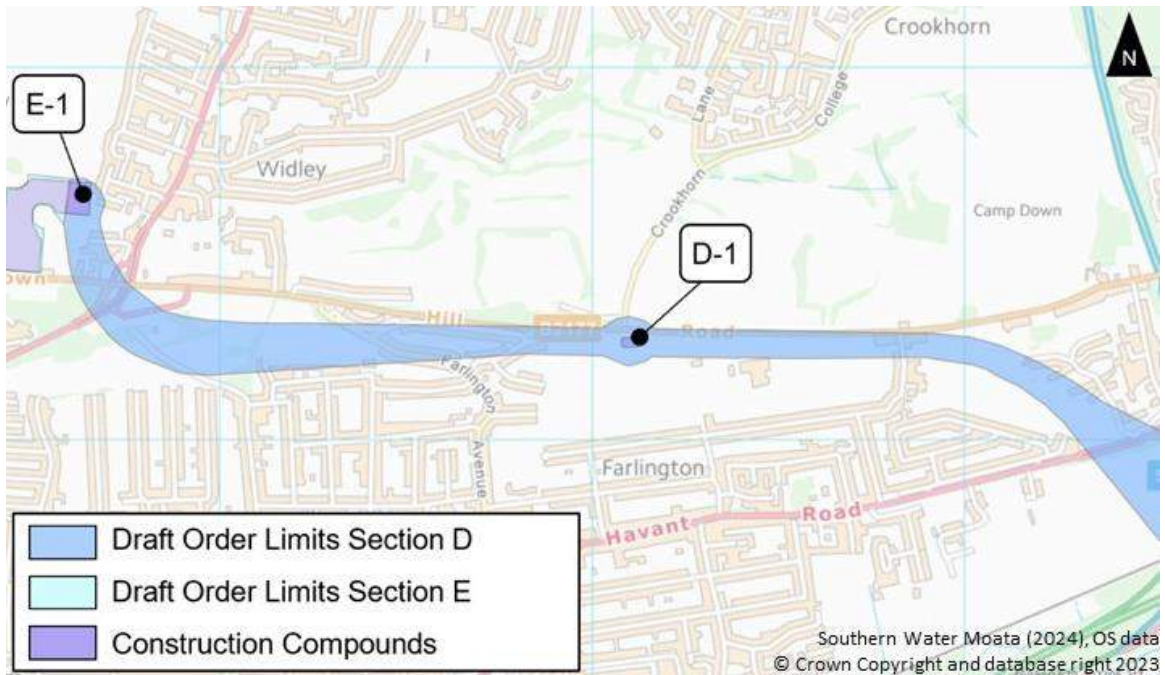


Figure 3-4 Section D construction compound location

3.4.12 An intermediate tunnel shaft would be located at Construction Compound D-1, located south of Portsdown Hill Road (B2177) and west of Gillman Road. The construction compound would be accessed from Gillman Road. Whilst motor vehicles are prohibited on the northern section of Gillman Road, using the Gillman Road/Portsdown Hill Road junction for access is considered more practical than creating a temporary access directly onto Portsdown Hill Road.

Section E: Portsdown Hill to Boarhunt

3.4.13 Section E includes up to eight potential construction compounds, including one construction compound for the reception shaft of the tunnelled section described in Section D. These construction compounds are shown spatially in Figure 3-5 and described in Table 3-1.

Table 3-1 Section E Construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound E-1	North of Portsdown Hill Road (B2177) and east of New Down Lane	Tunnelling construction compound for tunnel reception shaft	New Down Lane
		Proposed BPT-IPS-E construction compound	
Construction Compound E-2	North of Portsdown Hill (B2177) and west of New Down Lane	Sectional site compound	New Down Lane

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound E-3	West of Pigeon House Farm	Water storage lagoon	Haul road via Southwick Road (B2177)
Construction Compound E-4a	East of Southwick Road (B2177)	Sectional site compound	Southwick Road (B2177)
Construction Compound E-4b	West of Southwick Road (B2177)	Sectional site compound	Southwick Road (B2177)
Construction Compound E-5	West of Portchester Lane	Sectional site compound	Portchester Lane
		Water storage lagoon	
Construction Compound E-6a	East of Boarhunt Road	Sectional site compound	Boarhunt Road
Construction Compound E-6b	West of Boarhunt Road	Sectional site compound	Boarhunt Road

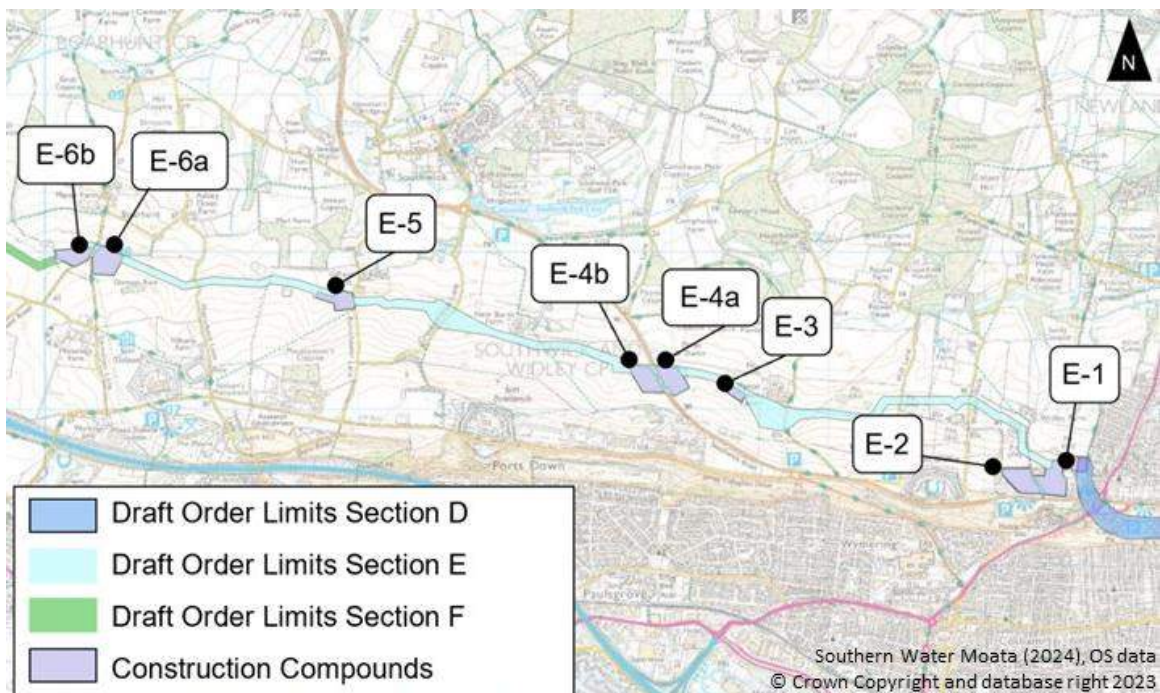


Figure 3-5 Section E construction compound locations

3.4.14 Construction Compounds E-1 and E-2 would be located to the north of Portsdown Hill Road and west and east of New Down Lane respectively. Both construction compounds could be accessed from New Down Lane. Given the constrained nature on New Down Lane, management measures would be required to control

inbound and outbound movements. Alternatively, physical works to New Down Lane would need to be considered between Portsdown Hill Road and the temporary compound access.

- 3.4.15 Construction Compound E-3 would be located west of Pigeon House Farm, with its purpose being a water storage lagoon. This construction compound would be accessible from Southwick Road (B2177) via a haul road.
- 3.4.16 Construction Compounds E-4a and E-4b would be located west and east of Southwick Road (B2177) respectively, and both be accessed from the same road. It is likely that only one of these construction compounds would be required.
- 3.4.17 Construction Compound E-5 would be located west of Portchester Lane and opposite Offwell Farm. This construction compound, serving the dual purpose of a sectional site compound and water storage lagoon, would be accessed from Portchester Lane. Due to the constrained nature of this route, an alternative access via the haul road and Boarhunt Road may need to be explored in the next stage.
- 3.4.18 Construction Compounds E-6a and E-6b would be located east and west of Boarhunt Road respectively and would be accessed from Boarhunt Road. It is likely that only one of these construction compounds would be required.

Section F: Boarhunt to Crockerhill

- 3.4.19 There would be one sectional site compound in Section F and two trenchless crossing compounds for the crossing of the River Wallington. These construction compounds are shown spatially in Figure 3-6 and described in Table 3-2.

Table 3-2 Section F construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound F-1	East of the River Wallington and west of White Dell Lane	Trenchless construction compound	Haul road via White Dell Lane
		Water storage lagoon	
Construction Compound F-2	West of the River Wallington	Trenchless construction compound	Haul road via Chalk Lane
Construction Compound F-3	East of Albany Farm	Sectional site compound	Chalk Lane
		Proposed IPS-F construction compound	

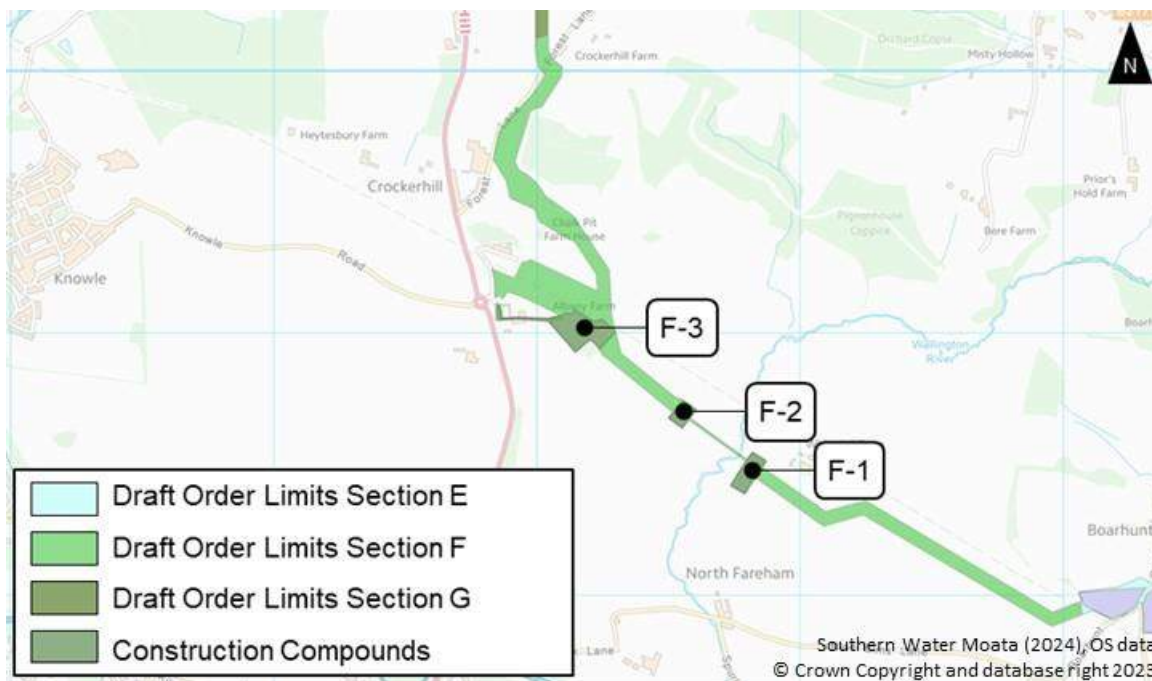


Figure 3-6 Section F construction compound locations

- 3.4.20 Construction Compounds F-1 and F-2 would be located to the east and west of River Wallington respectively. Construction Compound F-1 could be accessed via White Dell Lane and the haul road, however given the constrained nature of White Dell Lane, access may instead be taken from the Boarhunt Road via the haul road.
- 3.4.21 Construction Compound F-3 is proposed to the east of the A32 and is proposed to be accessed via Chalk Lane and the A32 beyond. It is also proposed for Construction Compound F-2 to take access from Chalk Lane via the haul road.

Section G: Crockerhill to Wickham

- 3.4.22 The construction compounds that would be located along Section G are shown spatially in Figure 3-7 and described in Table 3-3.

Table 3-3 Section G construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound G-1	East of Hoad's Hill (A32)	Trenchless construction compound	Hoad's Hill (A32)
Construction Compound G-2	West of Hoad's Hill (A32)	Trenchless construction compound	Hoad's Hill (A32)
Construction Compound G-3	East of Mayles Lane	Trenchless construction compound	Mayles Lane

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound G-4	West of Wickham WTW	Trenchless construction compound	Tanfield Lane
Construction Compound G-5	Wickham WTW	Sectional site compound	Tanfield Lane
Construction Compound G-6	East of Titchfield Lane	Sectional site compound	Titchfield Lane
		Proposed IPS-G construction compound	
Construction Compound G-7	West of Winchester Road (A334) and south of Titchfield Lane	Sectional site compound	Titchfield Lane
		Water storage lagoon	
Construction Compound G-8	West of Winchester Road (A334) and south of Titchfield Lane	Trenchless construction compound	Titchfield Lane

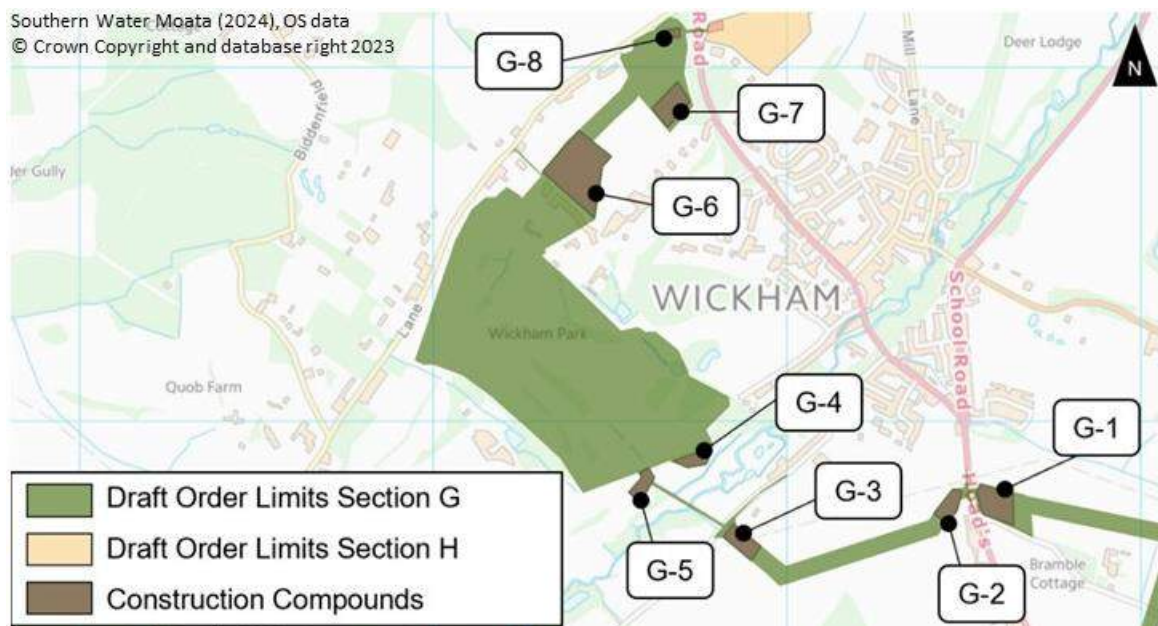


Figure 3-7 Section G construction compound locations

- 3.4.23 Construction Compounds G-1 and G-2 would be located east and west of the A32 Hoad's Hill respectively. Both are proposed to be trenchless construction compounds with access off directly off the A32. Castle Farm Lane also provides an alternative access option to Construction Compound G-1 from the south.
- 3.4.24 Construction Compound G-3 would be located east of Mayles Lane. This construction compound would be accessed off Mayles Lane. Subject to constraints

on Myles Lane, this construction compound may alternatively need to be accessed via the haul road and the A32.

- 3.4.25 Construction Compounds G-4 and G-5 would be located west of Wickham WTW and at Wickham WTW respectively. Both construction compounds are proposed to have access from Tanfield Lane. Given the constrained nature of Tanfield Lane, access may instead need to be taken from the haul road and Titchfield Lane.
- 3.4.26 Construction Compounds G-6 comprises a sectional site compound and proposed IPS-G construction compound and would be located east of Titchfield Lane. Access to this construction compound would be taken from Titchfield Lane. Alternatively, given the presence of dense foliage to the south of Titchfield Lane, it may be more appropriate to take access to this construction compound via the private lane to the east of Wickham Golf Club (and west of Construction Compound G-6).
- 3.4.27 Construction Compounds G-7 and G-8 are set to be located west of Winchester Road (A334) and south of Titchfield Lane. Both construction compounds would be accessed from Titchfield Lane. However, as above, given the presence of dense foliage to the south of Titchfield Lane, alternative access may be taken from the private lane to the east of Wickham Golf Club (and west of Construction Compound G-6).

Section H: Wickham to Shedfield

- 3.4.28 There are five construction compounds across Section H, shown spatially in Figure 3-8 and described in Table 3-4.

Table 3-4 Section H construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound H-1	East of Winchester Road (A334) and south of Blind Lane	Trenchless construction compound	Haul road via Blind Lane
Construction Compound H-2	South of Blind Lane and east of Mill Lane	Sectional site compound	Blind Lane
Construction Compound H-3	East of High Street Shirrell Heath	Trenchless construction compound	High Street
Construction Compound H-4	West of High Street Shirrell Heath	Trenchless construction compound	High Street
		Sectional site compound	
Construction Compound H-5	East of Winchester Road (B2177)	Trenchless construction compound	Haul road via Shirrell Heath High Street

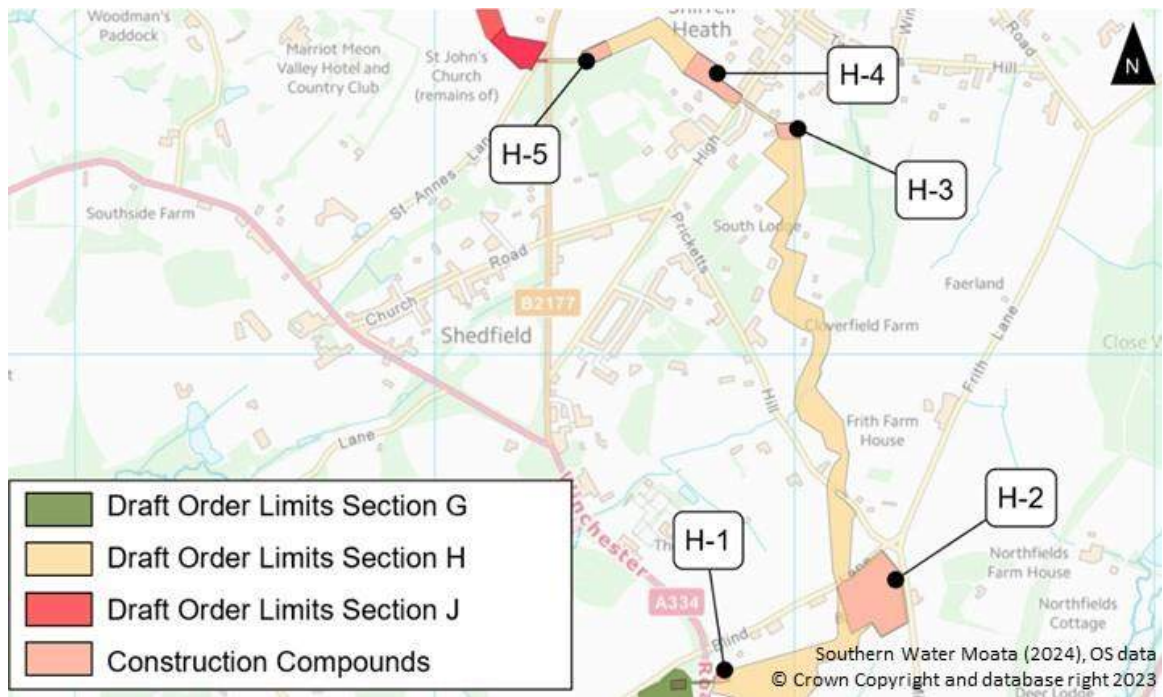


Figure 3-8 Section F construction compound locations

- 3.4.29 Construction Compound H-1 would be located east of Winchester Road (A334) and south of Blind Lane. This construction compound would be accessed off a haul road along Blind Lane. Alternatively, given comments provided by HCC regarding the use of Blind Lane for construction traffic, construction vehicles may need to access H-1 via an unnamed lane to the east of the A334 Winchester Road (immediately south Construction Compound H-1).
- 3.4.30 Construction Compound H-2 would be located south of Blind Lane and east of Mill Lane. It is proposed that the construction compound would be accessed from Blind Lane. Due to the constrained nature of this route, access could also be provided off Mill Lane or via haul road from Construction Compound H-1.
- 3.4.31 Construction Compounds H-3 and H-4 would be located east and west of High Street Shirrell Heath respectively and could both be accessed from High Street. The access route to Construction Compound H3 from High Street is via a private lane. If this route is not available, access would need to be taken from the haul road instead.
- 3.4.32 Construction Compound H-5 would be located east of Winchester Road (B2177), with access to this construction compound proposed to be off a haul road via Shirrell Heath High Street.

Section J: Shedfield to the River Hamble

- 3.4.33 There are three proposed construction compounds to be located within Section J, as shown spatially in Figure 3-9 and described in Table 3-5.

Table 3-5 Section J construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound J-1	West of St Anne's Lane	Trenchless construction compound	St Anne's Lane
		Sectional site compound	
Construction Compound J-2	South of Curdridge Lane	Sectional site compound	Curdridge Lane
Construction Compound J-3	South of Botley Road (B3035)	Trenchless construction compound	Botley Road
		Sectional site compound	



Figure 3-9 Section J construction compound locations

- 3.4.34 Construction Compound J-1 is proposed to be located west of Winchester Road (A334) and would be located opposite Construction Compound H-5. This construction compound would be accessed from St Anne's Lane.
- 3.4.35 Construction Compound J-2 is proposed to be located south of Curdridge Lane and would be accessible from the same route.
- 3.4.36 Construction Compound J-3 would be located south of Botley Road (B3035) and could be accessed from the same route.

Section K: The River Hamble to Lower Upham

3.4.37 There are six construction compounds proposed for Section K, as shown spatially in Figure 3-10 and described in Table 3-6.

Table 3-6 Section K construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound K-1	North of the River Hamble	Trenchless construction compound	Haul road via Winters Hill
		Water storage lagoon	
Construction Compound K-2	West of Brooklands Farm	Sectional site compound	Haul road via Winters Hill
Construction Compound K-3	South of Winters Hill	Sectional site compound	Winters Hill
Construction Compound K-4	South of Winters Hill	Trenchless construction compound	Winters Hill
Construction Compound K-5	North of Winters Hill	Trenchless construction compound	Haul road via Sciviers Lane
Construction Compound K-6	North of Winters Hill	Proposed BPT-K compound	Sciviers Lane

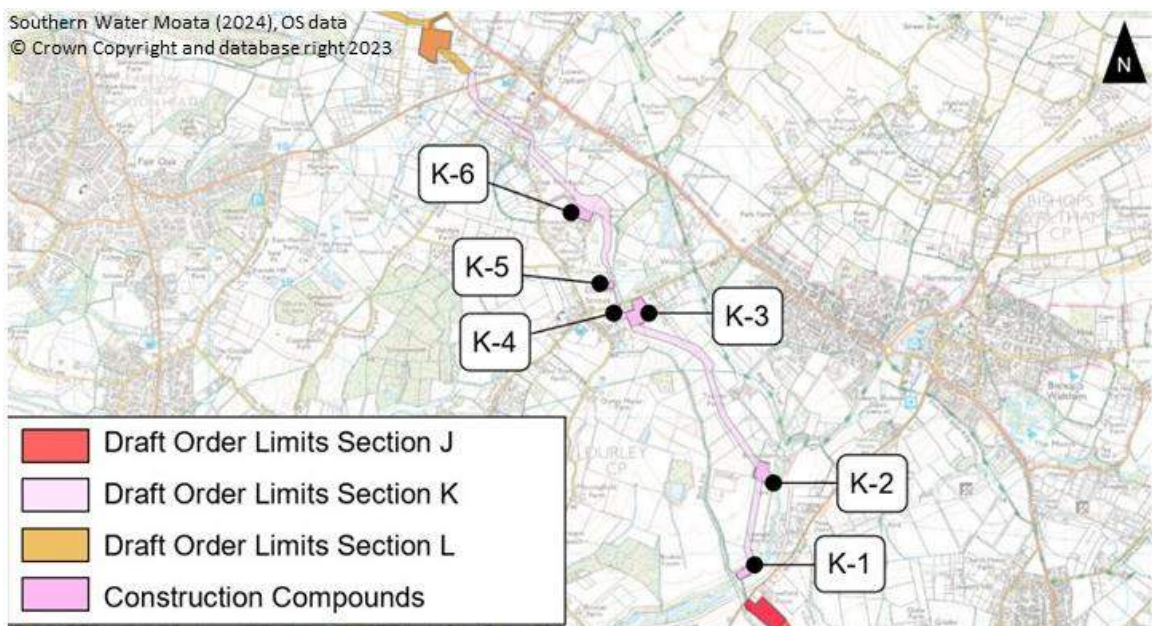


Figure 3-10 Section K construction compound locations

- 3.4.38 Construction Compound K-1 is proposed to be located north of the river Hamble and could be accessed from a haul road via Winters Hill.
- 3.4.39 Construction Compound K-2 would be located west of Brooklands Farm and could also be accessed from a haul road via Winters Hill.
- 3.4.40 Construction Compounds K-3 and K-4 are both proposed to be located south of Winters Hill, and could both be accessed from the Winters Hill.
- 3.4.41 Construction Compounds K-5 and K-6 would both be located north of Winters Hill, with access to these construction compounds proposed to be along a haul road via Sciviers Lane and off Sciviers Lane itself respectively. If Sciviers Lane is deemed not suitable for HGVs, these construction compounds could be accessed via the haul road and B3037 Mortimers Lane.

Section L: Lower Upham to Brambridge

- 3.4.42 There are ten construction compounds proposed within Section L, as shown spatially in Figure 3-11 and described in Table 3-7.

Table 3-7 Section L construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound L-1	South-west of Portsmouth Road (B2177)	Sectional site compound	Portsmouth Road (B2177)
Construction Compound L-2	East of Lowhill Farm	Water storage lagoon	Haul road via Stroudwood Lane
Construction Compound L-3	East of Winchester Road (B3354)	Sectional site compound	Winchester Road (B3354)
Construction Compound L-4	East of Winchester Road (B3354)	Sectional site compound	Winchester Road (B3354)
		Trenchless construction compound	
Construction Compound L-5	West of Winchester Road (B3354)	Trenchless construction compound	Winchester Road (B3354)
Construction Compound L-6	South of Bow Lake	Trenchless construction compound	Haul road via Winchester Road (B3354)
Construction Compound L-7	North of Bow Lake	Trenchless construction compound	Haul road via Bishopstoke Lane

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound L-8	North of Bow Lake	Water storage lagoon	Haul road via Bishopstoke Lane
Construction Compound L-9	East of upstream tributary of the river Itchen	Trenchless construction compound	Haul road via Bishopstoke Lane
Construction Compound L-10	East of Highbridge Road (B3335)	Trenchless construction compound	Highbridge Road (B3335)
		Sectional site compound	

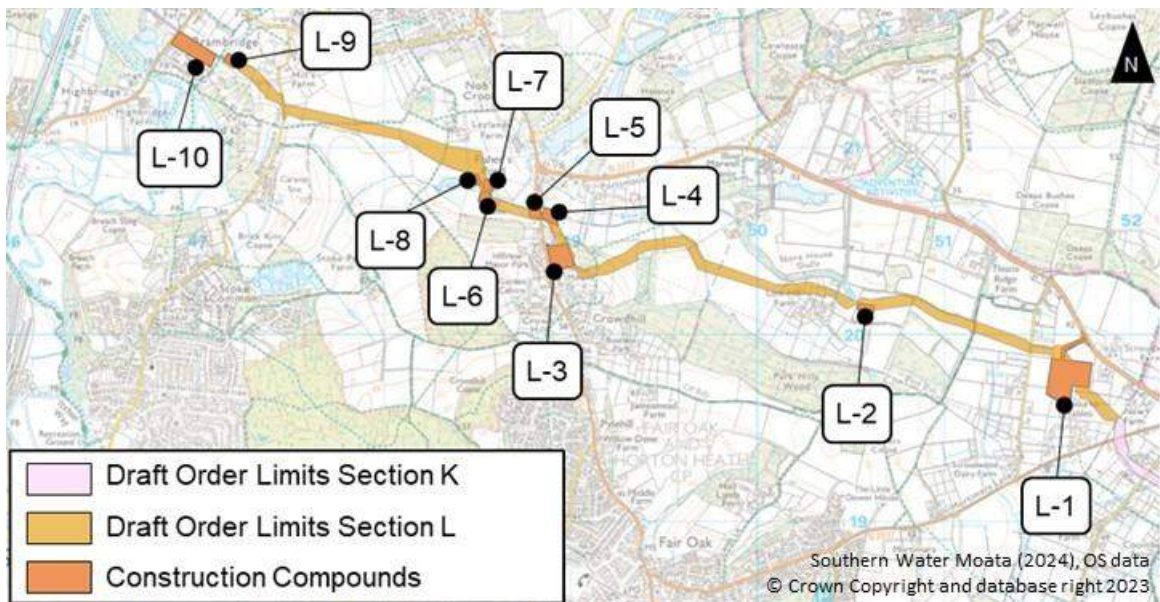


Figure 3-11 Section L construction compound locations

- 3.4.43 Construction Compound L-1 would be located south-west of Portsmouth Road (B2177) and would also be accessed from this route.
- 3.4.44 Construction Compound L-2 would be located east of Lowhill Farm, and could be accessed from a haul road via Stroudwood Lane. However, given the constrained nature of Stroudwood Lane, additional access could be provided via a haul road via Portsmouth Road (B2177) north of the construction compound.
- 3.4.45 Construction Compounds L-3, L-4 would be located east of Winchester Road (B3354) – additionally, Construction Compound L-5 would be located to the west of Winchester Road (B3354) opposite construction compound L-4. All three construction compounds could be accessed via Winchester Road (B3354).
- 3.4.46 Construction Compound L-6 would be located south of Bow Lake and accessed from a haul road via Winchester Road (B3354).

- 3.4.47 Construction Compounds L-7 and L-8 are both proposed to be located north of Bow Lake and would be accessed from a haul road via Bishopstoke Lane. Given how far Bishopstoke Lane is from the proposed construction compound locations.
- 3.4.48 Construction Compound L-9 would be located east of the upstream tributary of the river Itchen – this construction compound could be accessed from a haul road via Bishopstoke Lane.
- 3.4.49 Construction Compound L-10 is proposed to be located east of Highbridge Road (B3335) and could also be accessed from this route.

Section M: Brambridge to Otterbourne Water Supply Works

- 3.4.50 Section M of the proposed Underground Pipeline comprises the section from Highbridge Road (B3335) to Otterbourne WSW. There are three proposed construction compounds, as shown spatially in Figure 3-12 and described in Table 3-8.

Table 3-8 Section M construction compound information

Construction compound reference	Location	Construction compound purpose	Indicative temporary access point
Construction Compound M-1	East of Otterbourne Park Wood	Trenchless construction compound for trenchless reception shaft	Haul road via Kiln Lane
Construction Compound M-2	South of upstream tributary of the River Itchen	Trenchless construction compound	Haul road via Kiln Lane
Construction Compound M-3	South of Otterbourne WSW	Sectional site compound	Otterbourne WSW
		Trenchless construction compound	

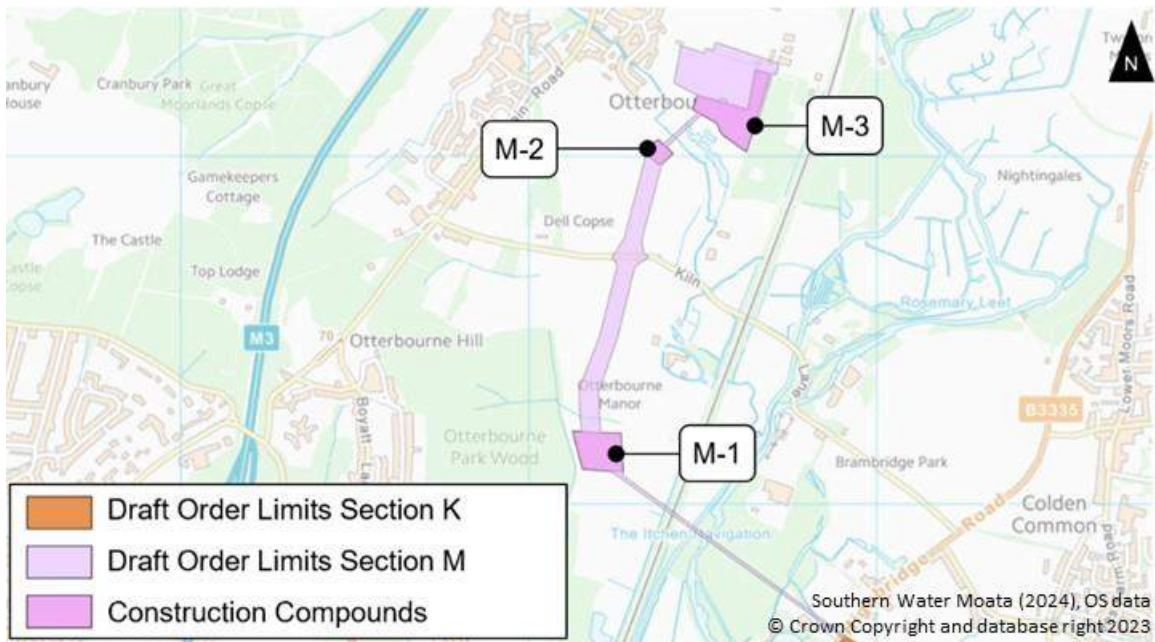


Figure 3-12 Section M construction compound locations

3.4.51 Construction Compounds M-1 and M-2 are trenchless compounds that would both be accessed via the haul road and Kiln Lane. Construction Compound M-3 would be both a trenchless and site sectional compound and would be accessed via the Otterbourne WSW.

3.5 Construction hub

3.5.1 A construction hub may be temporarily required during the construction phase to act as a main project hub. It would provide an office building accommodating approximately 60 employees during construction working hours (as set out in paragraph 3.6.1), with welfare, parking and security facilities. The purpose of the construction hub would be a central point for construction workers to assemble prior to transportation to the construction compounds. The construction hub would not be used to store materials, plant or other equipment.

3.5.2 The area required for the construction hub is anticipated to be up to 15,000m² and it is anticipated to be located within 10km of the proposed Underground Pipeline route. It is anticipated to be located adjacent to the strategic road network to ensure adequate access. The construction hub would also require connection to utilities including power, water and sewerage. Due to uncertainty over timing and availability of potential temporary construction hub sites, it is envisaged that the temporary construction hub would be identified by the contractor, once appointed, during the construction phase, and would be an existing suitably consented site for the activities to be undertaken there.

3.6 Construction working hours

3.6.1 The typical working hours for construction of the Proposed Development are set out in PEI Report Chapter 3 Description of the Proposed Development, Volume I, and summarised below:

- **Monday to Friday:** 07:00 to 19:00 in summer and 07:00 to 17:30 in winter.

■ **Saturday:** 07:00 to 17:00

- 3.6.2 Works outside these typical working hours or overnight (including Sundays and bank holidays) may be required for construction of some aspects of the Proposed Development including, but not restricted to, trenchless crossings and tunnelling, construction works within or near highways and railways, and abnormal load deliveries. This may be as a result of ground conditions that require continuous working or for works within highways to minimise traffic disruption.

Timing of HGV movements

- 3.6.3 HGV movements to and from the construction compounds will be restricted, where appropriate, to reduce impacts on the local and strategic highway network. This includes minimising the impacts in the network peak hours.
- 3.6.4 At all locations, general HGV movements will take place between 07:00-08:00, 09:00-17:00 and 18:00-19:00, therefore avoiding the AM and PM network peak periods of 08:00-09:00 and 17:00-18:00.
- 3.6.5 Additional restrictions on HGV movements may be included to mitigate potential impacts on sensitive receptors and these will be further detailed in the CTMP to be prepared by the contractor, once appointed.
- 3.6.6 Where 24-hour working is required, endeavours will be made to avoid HGV movements between the hours of 19:00-07:00 to avoid disturbance to nearby residential properties. However, in areas that are not in close proximity to residential properties, some HGV movements may occur within this timeframe.
- 3.6.7 Vehicle marshals will be considered at each temporary access, and confirmed in the CTMP to be prepared by the contractor, once appointed. The vehicle marshals would direct construction traffic/HGV movements at the temporary construction compound access points. Vehicles associated with the Proposed Development could also be provided with stickers demarking their involvement. Where required, vehicles/deliveries would be provided with escorts.

4 Construction workforce

4.1 Background

- 4.1.1 This section outlines the peak number of construction workers anticipated to be required for the construction period. It should be noted that given the linear nature of the Proposed Development, many of the associated journeys on the transport network will not necessarily overlap.
- 4.1.2 This section also outlines the scope of the proposed Framework Construction Worker Travel Plan that will be submitted as part of the DCO application documents.

4.2 Proposed Water Recycling Plant construction workers

- 4.2.1 It is proposed that a site office hub would be required for the proposed WRP in the vicinity of the new plant. A typical Principal Contractor project team for the delivery of the proposed WRP would consist of resources as identified below. Contractor numbers would change as the Proposed Development advances from Early Works through to Main Works and Commissioning.
- 4.2.2 Personnel levels for the proposed WRP is likely to peak at circa 100 operatives with substantial works required to be progressed to meet overall programme constraints.

4.3 Tunnel and shaft construction workers

- 4.3.1 Dedicated offices would be required at each launch and reception shaft sites. The drive site teams will typically consist of circa 20 operatives. Tunnel construction resources will typically consist of circa 15 operatives. In addition to this, separate supply chain piling resource, formwork, steelfixing and concreting resource, specialist testing resources, scaffolding and access requirements, and security could typically increase personnel numbers at any time up by a further 25 operatives.
- 4.3.2 The programme constraints based on current knowledge indicate that shafts and tunnels would need to progress simultaneously. Separate resource teams would be needed at the three tunnel launch sites and the three reception shafts. As a result numbers across all the sites are likely to reach a peak of circa 225 operatives at any one time per shift. These tunnelling/shaft activities will be required to continue 24 hours/day to meet current the current programme completion date so based on a 12 hour shift working pattern this would increase resource requirement to circa 450, not including specialist suppliers.

4.4 Pipeline construction workers

- 4.4.1 Local compound offices would be required at all sectional site compound locations identified along the pipeline route. It is envisaged that three typical principal contractor supervisory teams for the simultaneous delivery of 10km sections of pipeline would be required, together with a further team to oversee the micro-tunnelling works.

4.4.2 At each of the sections, the number of operatives is anticipated to reach circa. 45 personnel for the activities associated with the pipeline installation. The specialist environmental and fencing activities will require further resource which could be constrained by seasonal requirements such that works would occur intermittently, numbers would certainly expect to increase by up to a further 20 additional personnel during the year. With works programmed to occur on three separate sections of the pipeline operational personnel numbers will be between 150 – 200 along the route.

4.4.3 Further operational teams would also be required, as follows:

- A team of circa. six personnel to undertake the sleeved road crossings ahead of and simultaneously with the pipeline installation works.
- A team of circa. six personnel to undertake the construction of commissioning valves and commissioning pipeline works simultaneously as the pipeline installation works continue.
- Two teams of circa. 25 personnel to undertake the construction of micro-tunnelling shafts and reinstatement and pipeline installation in these areas.
- A team of circa. six personnel will be required for construction compound set ups ahead of and simultaneously as pipeline works progress.

4.5 Break Pressure Tank and Intermediate Pumping Station construction workers

4.5.1 Local site offices will be required at each of the BPT and IPS sites during construction and commissioning.

4.5.2 Personnel levels for these sites is likely to peak at circa. 50 operatives/site. With substantial works being progressed on four sites simultaneously to meet overall programme constraints, total resource levels would reach circa. 200 operatives for this section of the programme.

4.6 Framework Construction Worker Travel Plan

4.6.1 A Framework Construction Worker Travel Plan will be prepared and issued as part of the DCO application documents. The Framework Construction Travel Plan will detail the tasks involved in developing initiatives, including management and co-ordination, which are set in the context of clear objectives to increase use of sustainable travel options and reduce single occupancy car trips to and from the Proposed Development.

4.6.2 The key objectives for the Framework Construction Travel Plan will be as follows:

- To manage the volume of single-occupancy car travel and the impact on local roads and communities.
- To ensure the site is accessible by sustainable transport options, where practicable.
- To facilitate informed travel choices, by ensuring both employees and visitors have access to real-time on demands travel information.

4.6.3 Consideration will be given to the viability of a shuttle bus for workers, enabling them to travel to and from construction compounds in a sustainable way. Details

of any prospective shuttle bus service will be provided within the Framework Construction Worker Travel Plan.

- 4.6.4 The Framework Construction Worker Travel Plan will also set out how car and cycle parking will be controlled and managed at the construction hub and construction compounds.
- 4.6.5 The Framework Construction Worker Travel Plan will represent an overarching plan which will be developed further into individual Construction Worker Travel Plan(s) by the appointed contractors.

5 Construction logistics

5.1 Introduction

- 5.1.1 This section of the Draft Framework CTMP sets out the anticipated vehicle types that will be required for the construction of the Proposed Development, including any potential abnormal indivisible loads (AILs).
- 5.1.2 This section also details the anticipated construction traffic volumes and proposed routing strategy.

5.2 Abnormal indivisible loads

- 5.2.1 It is anticipated that some AILs would be required, principally to support the tunnelling operations. As such, these would be predominately directed to/from the proposed WRP site. These will be detailed and assessed in Framework CTMP.

5.3 Construction traffic volumes

- 5.3.1 This section provides high-level information in relation to the likely construction traffic volumes associated with the Proposed Development, as detailed further in PEI Report Appendix 18.1 Baseline Transport Assessment and construction traffic report, Volume II. These figures are approximate and will be refined following ongoing scheme development and assessment for publication within the Framework CTMP.

Proposed Water Recycling Plant and proposed High Lift Pumping Station

- 5.3.2 It is anticipated that the proposed WRP and HLPS would generate approximately 40 one-way daily HGV deliveries during the piling/foundation construction period, which represents the peak trip generation period.
- 5.3.3 For the tunnelling works at the proposed WRP and HLPS, it is anticipated that there would be up to approximately 40 one-way HGV trips a day, with an average of approximately 25 one-way HGV trips per day as these construction works are carried out.
- 5.3.4 There would also be a significant number of trips associated with construction workers travelling to and from the proposed WRP and HLPS, as detailed in section 4.2. It is assumed that approximately 70% of construction workers would drive to and from work, with these trips expected to be undertaken in LGVs.
- 5.3.5 Based on this, it is forecast that there will be a worst-case trip generation of approximately 313 one-way (626 two-way) LGV weekday trips. These journeys are expected to arrive and depart outside of the typical network peak hours 08:00-09:00 and 17:00-18:00.

Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works and the Proposed Water Recycling Plant

5.3.6 The anticipated construction traffic volumes associated with the proposed Underground Pipelines between Budds Farm WTW and the proposed WRP are as set out at paragraph 5.3.2.

5.3.7 Proposed Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

5.3.8 As set out previously, there are two potential options for proposed Pipelines between the proposed WRP and Havant Thicket Reservoir. They would either consist of two separate sections, one from the proposed WRP to Bedhampton Springs, and from Bedhampton Springs to Havant Thicket Reservoir (utilising Portsmouth Water's pipelines which are subject to a separate planning consent), or a single continuous section between the proposed WRP and Havant Thicket Reservoir.

5.3.9 Both options are not expected to generate a significant volume of construction traffic in addition to those trips associated with the proposed WRP, previously set out at paragraph 5.3.2.

Proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne Water Supply Works

5.3.10 It is anticipated that for every 3km of the proposed Underground Pipeline, there will be the following associated construction movements:

- Steel Pipe – approximately 72 HGV one-way trips (144 two-way)
- Materials to accommodate bends and tees in route – 18 HGV one-way trips (36 two-way)
- Pipe to accommodate fixed points – approximately 10 HGV one-way trips (20 two-way)
- Haul road stone – approximately 270 HGV one-way trips (540 two-way)
- Imported bed and surrounding materials – approximately 600 HGV one-way trips (1,200 two-way)
- Miscellaneous (Plant, welfare facilities, ditch crossings etc.) – approximately 100 HGV one-way trips (200 two-way)
- Materials to accommodate trenchless crossings – approximately 10 HGV one-way trips (20 two-way trips)

5.3.11 This results in a total of approximately 1,080 one-way HGV trips (2,160 two-way HGV trips) for each 3km section of the proposed Underground Pipeline. These trips would take place at varying intensities over the course of 50 weeks, with trips varying from approximately 10 to 22 one-way HGV trips per day (20 to 44 two-way HGV trips) for each 3km section.

5.3.12 Construction of each section of the proposed Underground Pipeline would be staggered. It is likely that construction of up to three sections would take place at any one time.

5.3.13 Therefore, there are likely to be between approximately 30 and 66 one-way (60 and 132 two-way) HGV trips per day associated with the construction of the

proposed Underground Pipeline between Havant Thicket Reservoir and Otterbourne Water Supply Works. These HGV trips will be spread over three sections of the proposed Underground Pipeline at any given time.

- 5.3.14 In addition to HGV trips, it is expected that there will be a number of LGV trips associated with construction workers travelling to and from the construction compounds. Based on 70% of these workers driving to/from work in an LGV, it is forecast that there will be between approximately 23 and 43 one-way (58 and 86 two-way) LGV weekday trips associated with each section of the proposed Underground Pipeline. These LGV trips will be spread over three sections of the proposed Underground Pipeline at any one time. These journeys are also expected to arrive and depart outside of the typical network peak hours 08:00-09:00 and 17:00-18:00.

5.4 Construction traffic routes

Introduction

- 5.4.1 The proposed construction traffic routes associated with the Proposed Development are based on the construction compound locations and temporary access locations set out at section 3.4.
- 5.4.2 It should be noted that these construction traffic routes do not reflect those indicative routes previously set out within the Transport Assessment Scoping Report. Those routes were developed in August 2023 and have been refined following consultation responses from HCC and by removing much of the optionality regarding construction compound locations.
- 5.4.3 This section contains details of construction traffic routes between the various construction compounds and the SRN. It is expected that construction vehicles routing from the SRN would use the following SRN junctions to access the local highway network:
- M3 Junction 11 Hockley Cross
 - M3 Junction 12 Allbrook
 - M27 Junction 7 Hedge End
 - M27 Junction 10 North Hill
 - M27 Junction 11 Wallington
 - M27 Junction 12 Hilsea/Paulsgrove
 - A3(M) Junction 2 Dell Piece
 - A3(M)/A27/A2030 Junction 5 Broadmarsh.
- 5.4.4 These junctions are illustrated in the context of the Proposed Development in Figure 5-1.

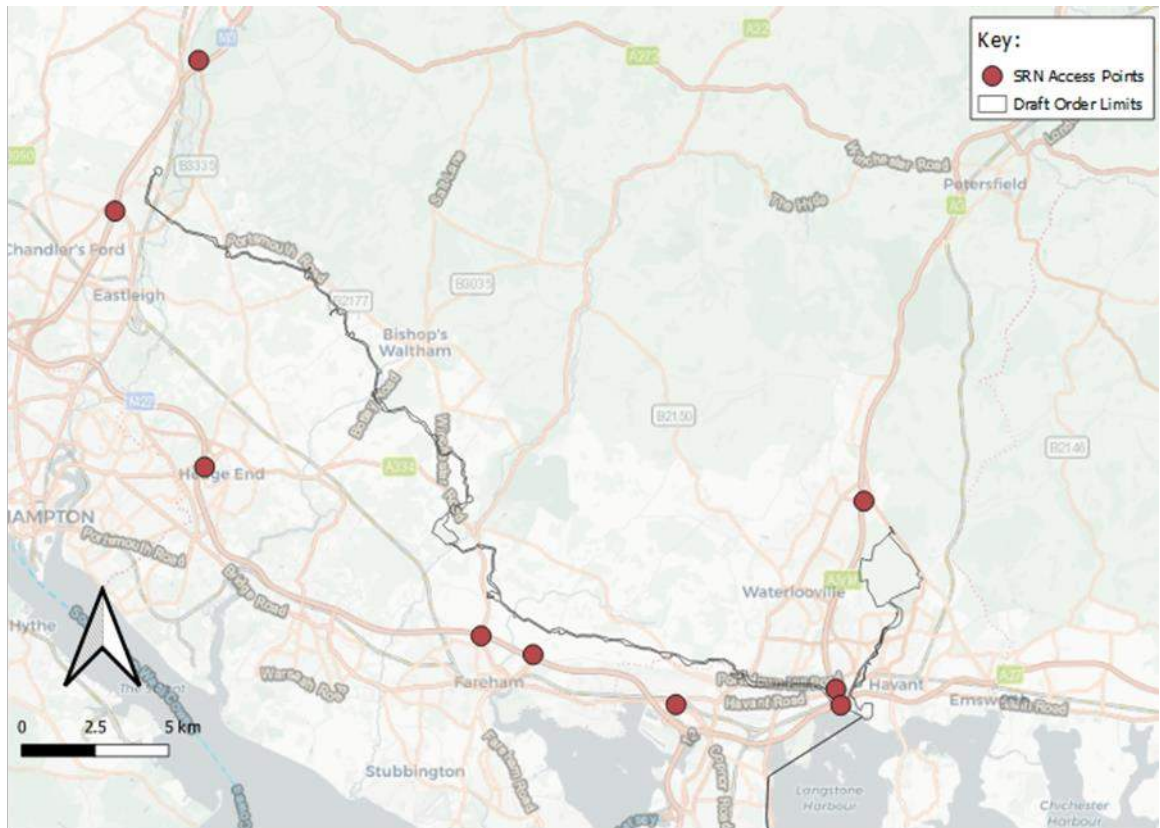


Figure 5-1 Construction vehicle Strategic Road Network access locations

Proposed Water Recycling Plant and proposed High Lift Pumping Station

5.4.5 The proposed WRP is located immediately south-east of the A3(M)/A27/A2030 Broadmarsh junction (Junction 5). As such, vehicles would route from this junction to the proposed WRP and HLPS via Harts Farm Way. This route is illustrated at Figure 5-2.

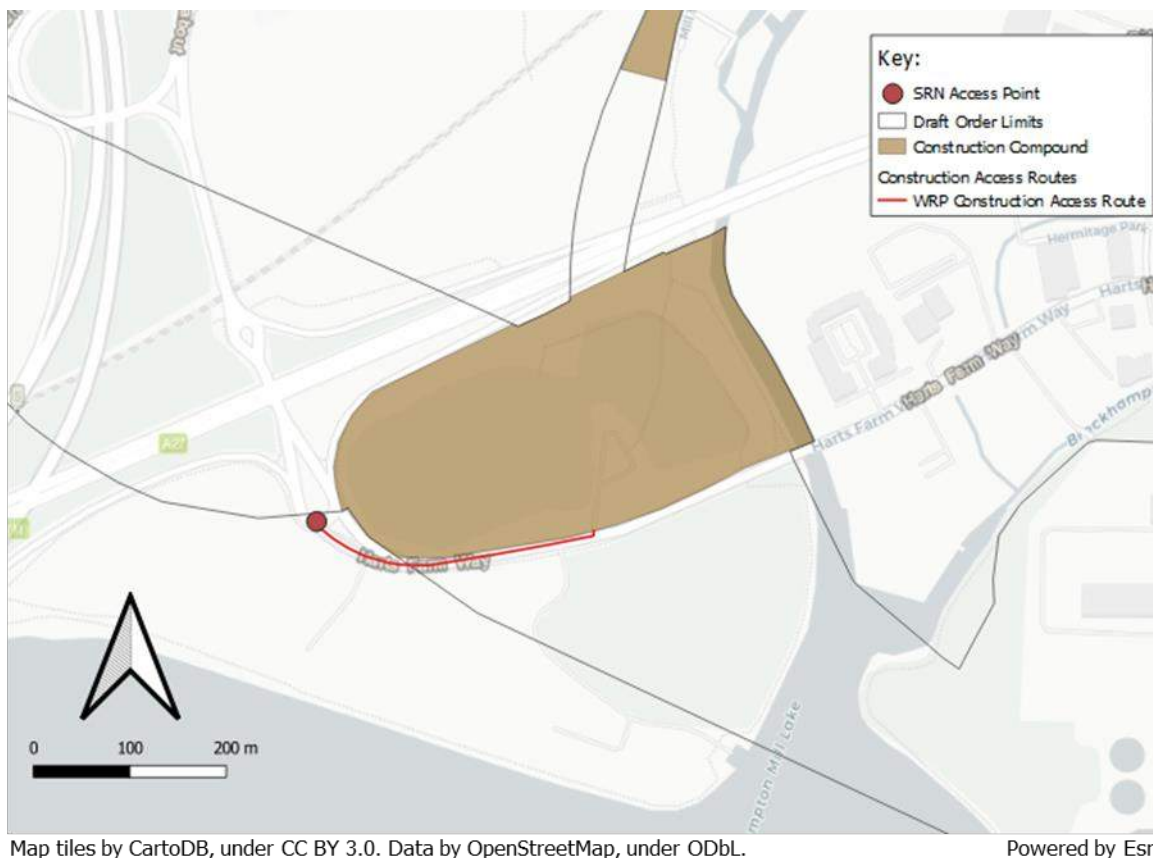


Figure 5-2 Proposed Water Recycling Plant and proposed High Lift Pumping Stations construction route

Proposed Underground Pipelines between Budds Farm Wastewater Treatment Works and the proposed Water Recycling Plant

5.4.6 The route for construction traffic associated with the Proposed Underground Pipelines between Budds Farm WTW and the proposed WRP is as set out in paragraph 5.4.5.

Proposed Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

Proposed Pipelines between the proposed Water Recycling Plant and Bedhampton Springs

5.4.7 The proposed Pipelines between the proposed WRP and Bedhampton Springs option would involve construction movements associated with Construction Compounds B2-1 and B2-2.

5.4.8 Both construction compounds would be accessed by construction vehicles routing from Junction 5 of the A3(M). From the SRN, construction vehicles would route along the B2177 Bedhampton Hill Road to the north-east.

5.4.9 At the junction of the B2177 Bedhampton Hill Road and Brookside Road, construction traffic associated with Construction Compound B2-1 would route south along Brookside Road, Bidbury Lane and Mill Lane to access the construction compound.

- 5.4.10 Construction traffic associated with B2-2 would continue onwards along the B2177 Bedhampton Road at this junction. It would then route onto West Street before heading south on Meyrick Road which provides access to Bedhampton Springs and Construction Compound B2-1.
- 5.4.11 The routes associated with Construction Compounds B2-1 and B2-2 are illustrated at Figure 5-3.

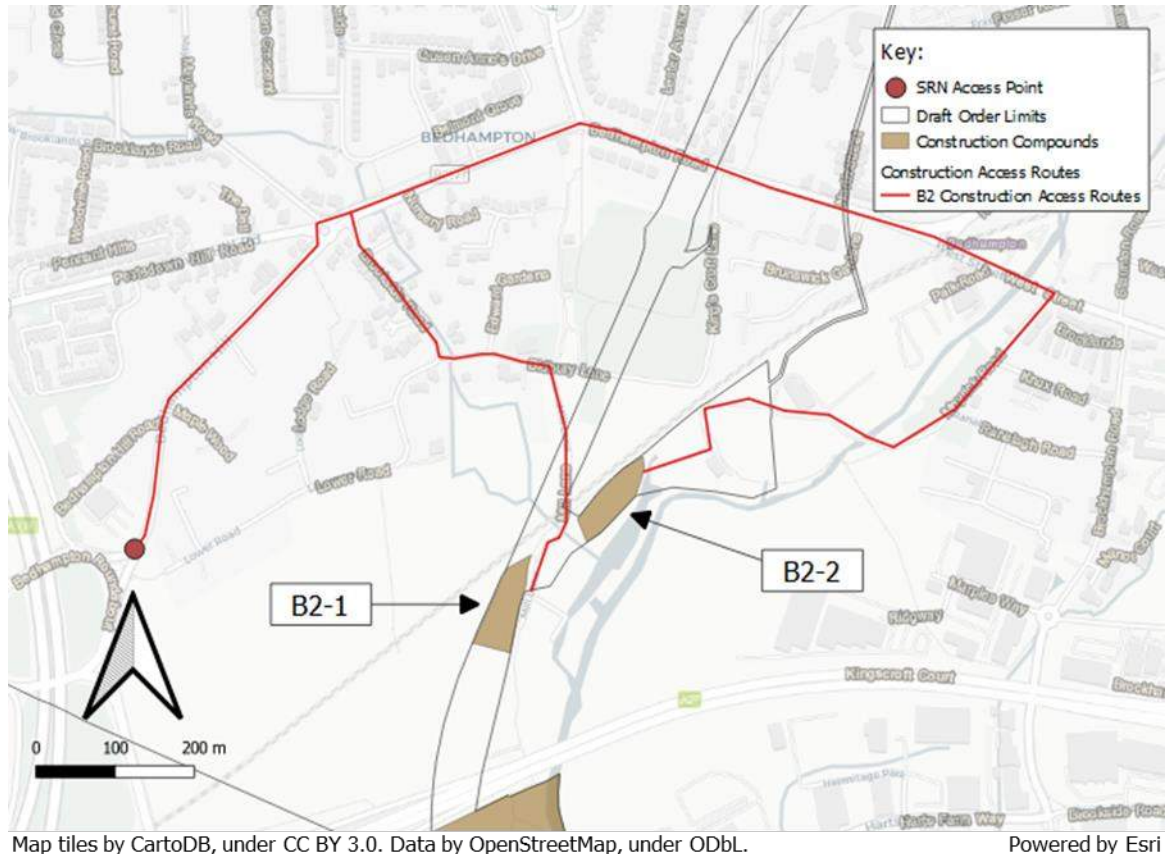
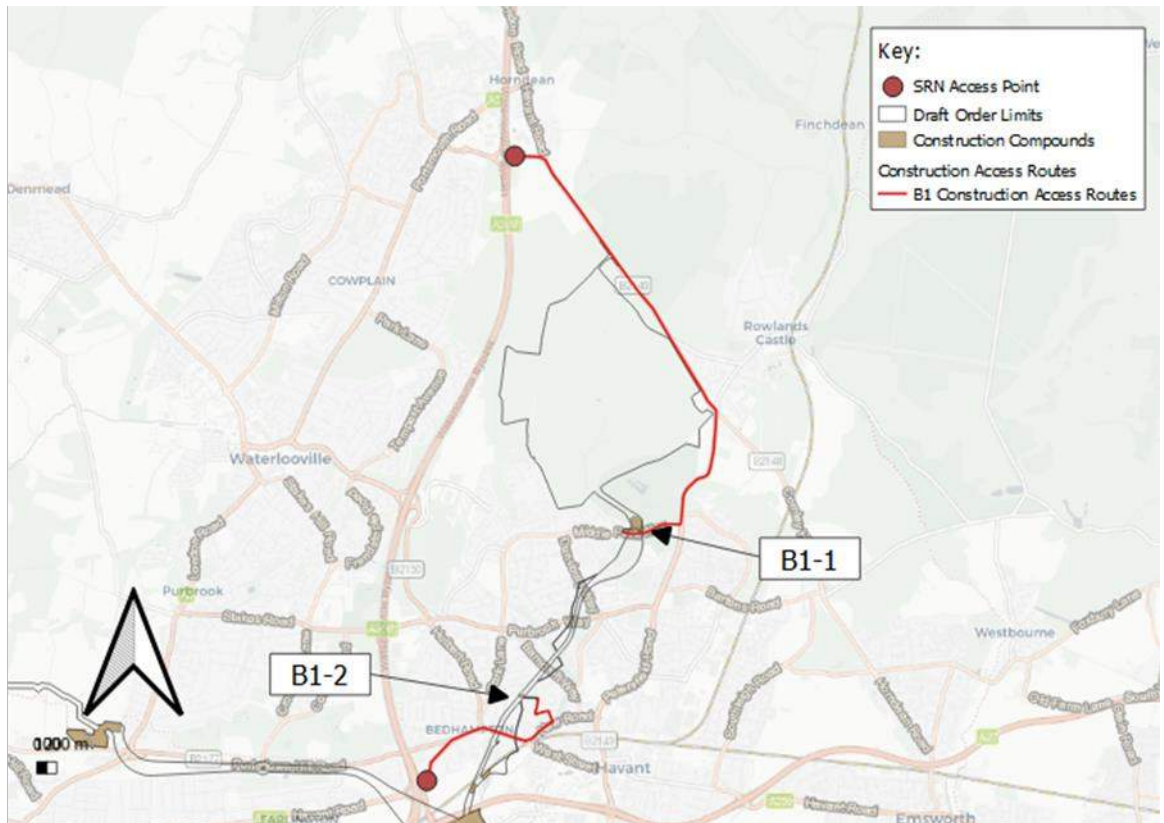


Figure 5-3 Proposed B2 Construction Compound access routes

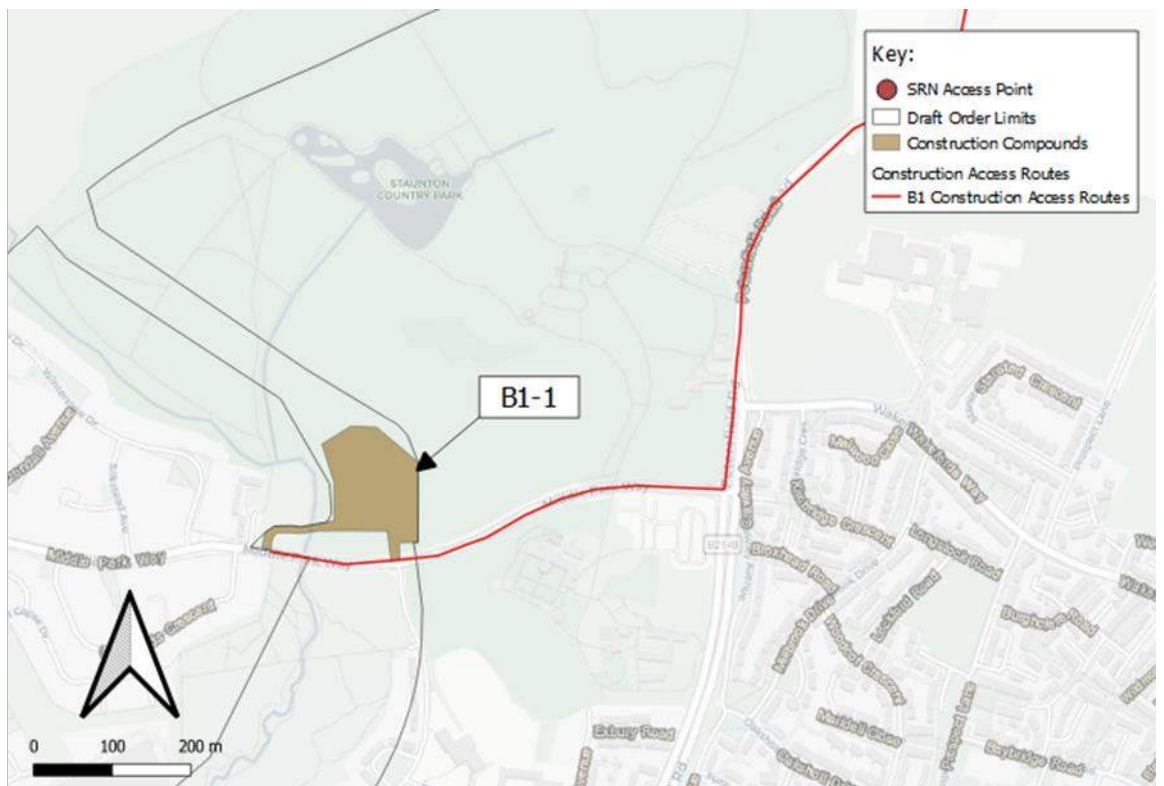
Proposed Underground Pipelines between the proposed Water Recycling Plant and Havant Thicket Reservoir

- 5.4.12 The proposed Underground Pipelines between the proposed WRP and Havant Thicket Reservoir would involve construction traffic movements associated with Construction Compounds B1-1 and B1-2.
- 5.4.13 Construction Compound B1-1 would be accessed by vehicles routing from Junction 2 of the A3(M). Construction vehicles would route south-east from here along the B2149 for approximately 4.3km prior to heading west on Middle Park Way, where temporary access to the construction compound would be served.
- 5.4.14 To access Construction Compound B1-2, construction vehicles would utilise Junction 5 of the A3(M), following the same route as Construction Compound B2-2 to the junction of Bedhampton Road, New Road and West Street. At this junction, construction vehicles would head north on New Road before routing along James Road, Fraser Road and Hooks Lane to access the construction compound.
- 5.4.15 An illustration of these routes is provided at Figure 5-4, Figure 5-5 and Figure 5-6.



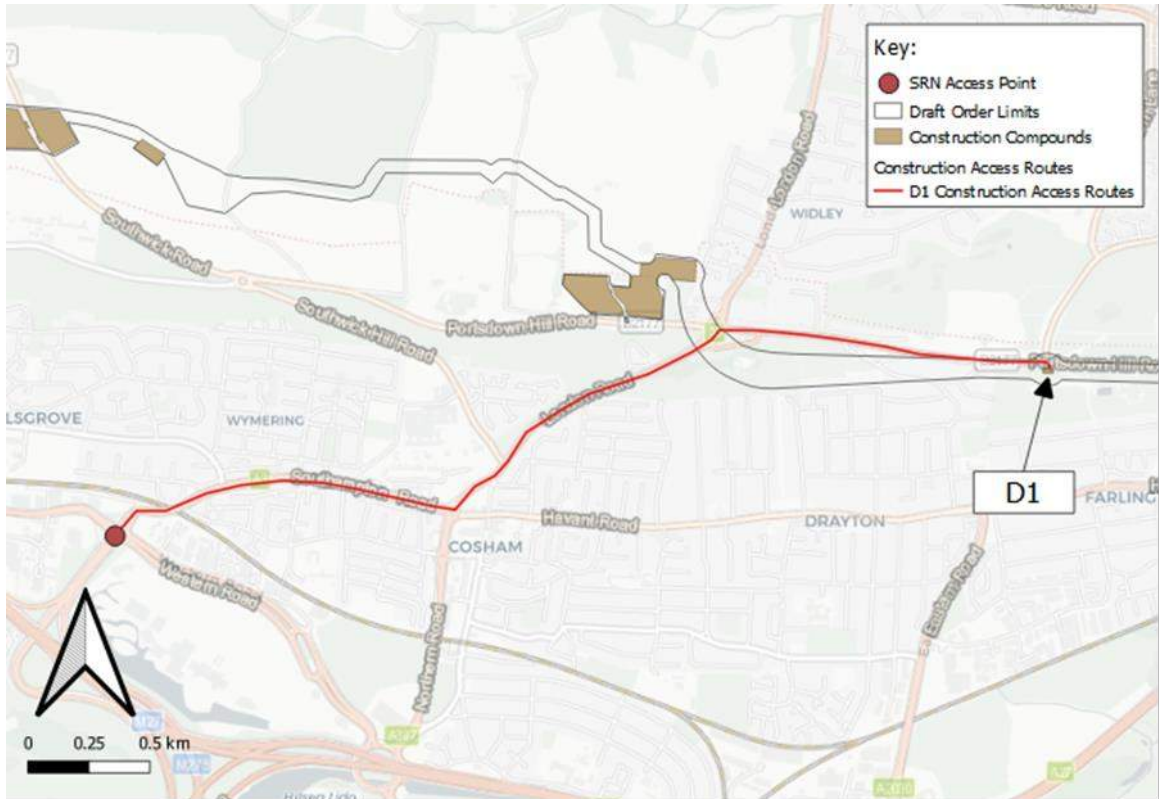
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Figure 5-4 Proposed B1 Construction Compound access routes



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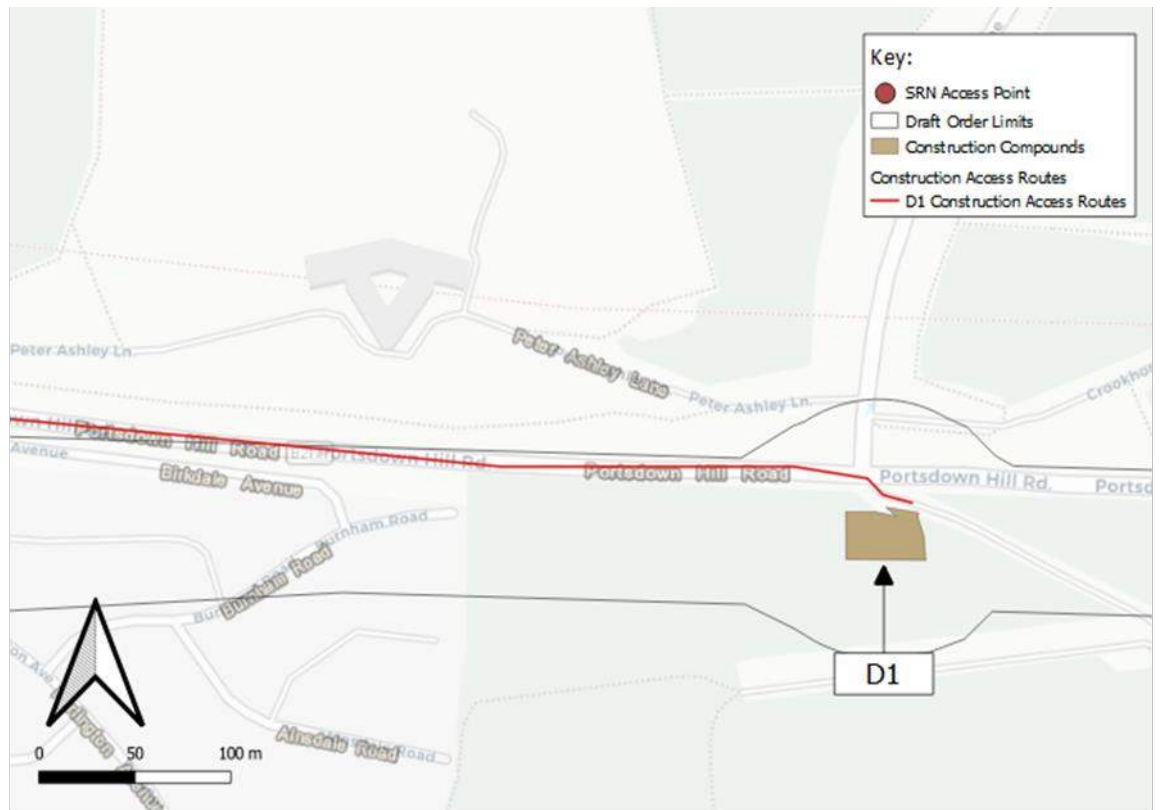
Figure 5-5 Proposed B1-1 Construction Compound access route (detailed view)



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Figure 5-7 Proposed D1 Construction Compound access route



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Figure 5-8 Proposed D1 Construction Compound access route (detailed view)

Section E: Portsdown Hill to Boarhunt

- 5.4.18 Access to eight construction compounds would be required to facilitate the construction of Section E of the Proposed Development. For Construction Compounds E1 to E4-b, access would be taken from Junction 12 of the M27, with construction vehicles routing north from here via the A3.
- 5.4.19 For Construction Compounds E1 and E2, construction vehicles would route along the A3 to the junction with the B2177 Portsdown Hill Road where they would head west on the B2177. At the B2177 Portsdown Hill Road junction with New Down Lane, construction vehicles would route north on New Down Lane to access both construction compounds.
- 5.4.20 For Construction Compounds E3, E4a and E4b, vehicles would turn off the A3 prior to the Portsdown Hill Road junction, instead using Southwick Hill Road to access the B2177 Southwick Road to the north-west. They would access Construction Compounds E4a and E4b via this route, with E3 accessed via the haul road from E4a.
- 5.4.21 Optionality exists with regards to the access of Construction Compound E5, which may be accessed using Portchester Lane (via Portsdown Hill Road to the west). Alternatively, it could be accessed via the haul road from Construction Compound E4-b to the east, or the haul road connecting from Construction Compound E6-a to the west.
- 5.4.22 Construction Compounds E6-a and E6-b would be accessed via Junction 11 of the M27. From here, construction vehicles would route north on Boarhunt Road, which provides direct access to the construction compounds.
- 5.4.23 An illustration of the construction routes to Construction Compounds E1 to E6-b is provided at Figure 5-9, Figure 5-10 and Figure 5-11.

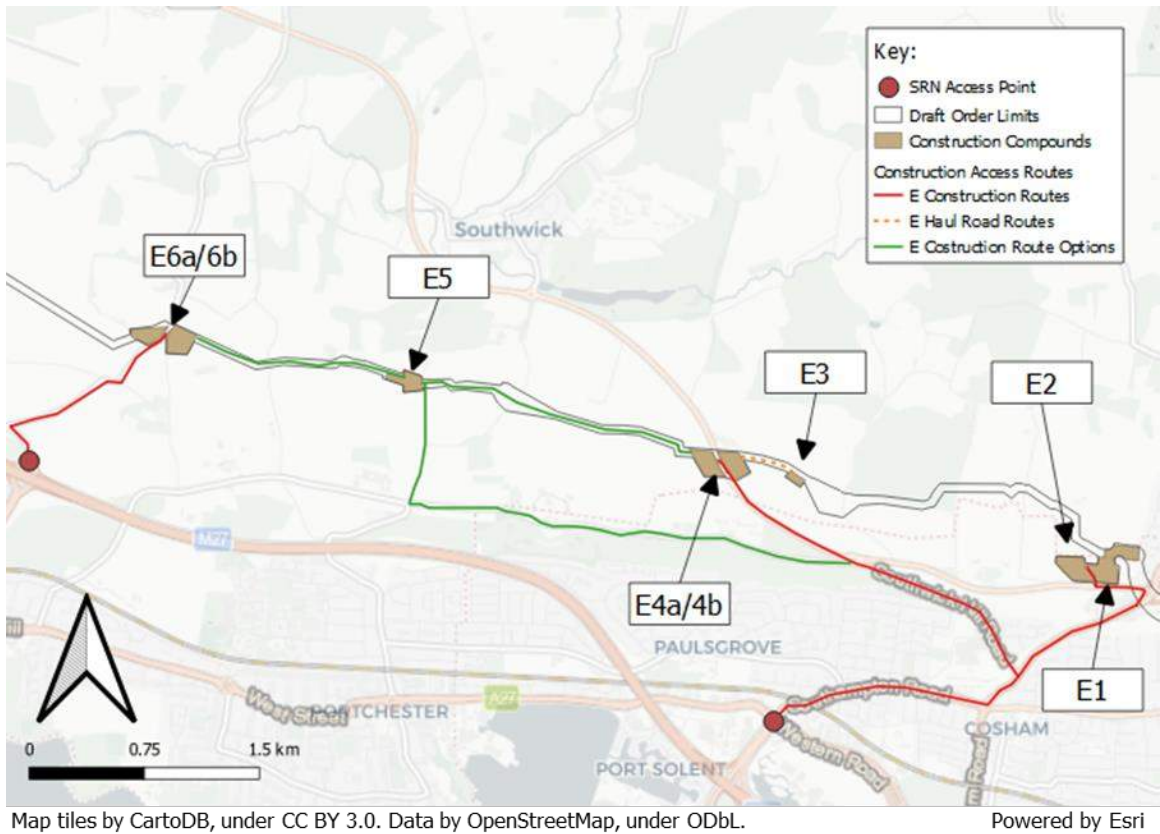


Figure 5-9 Proposed Section E construction compounds access routes

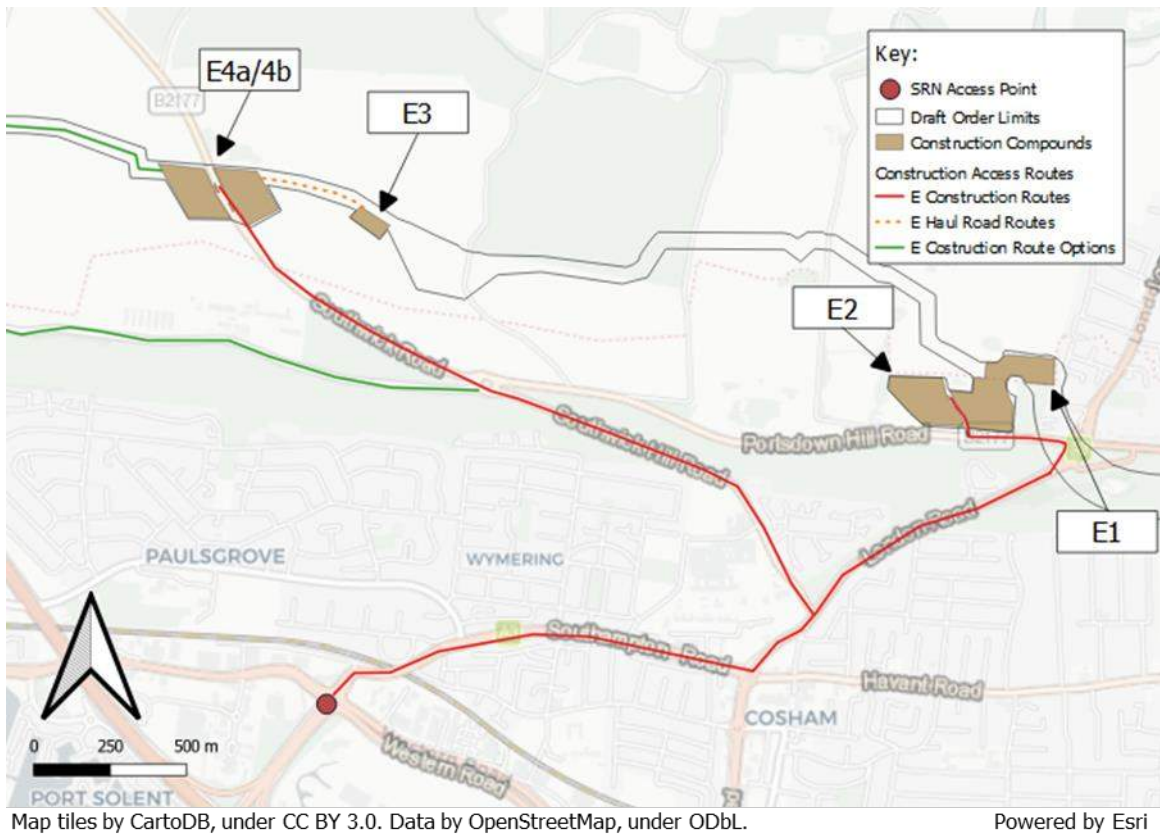


Figure 5-10 Proposed Section E construction compounds access routes (detailed view)



Figure 5-11 Proposed Section E construction compounds access routes (detailed view)

Section F: Boarhunt to Crockerhill

- 5.4.24 Section F would require three construction compounds to facilitate construction along this stretch of the Proposed Development.
- 5.4.25 To access Construction Compound F-1, construction vehicles would also use Junction 11 of the M27. Construction vehicles would access the construction compound using the Proposed Development haul road, which could either be accessed via construction compound E-6b, or by heading west from Boarhunt Lane along Nine Elms Lane and then north along Whitedell Lane (which intersects the haul road). Both route options would then link to the haul road which routes in a north-west alignment to connect to Construction Compound F-1.
- 5.4.26 To access Construction Compounds F-2 and F-3, construction vehicles would use Junction 10 of the M27, heading north from here along the A32 Wickham Road. This route would provide vehicles with direct access to Construction Compound F-3, with a haul road from here connecting vehicles to Construction Compound F-2.
- 5.4.27 The construction routes used to access the Section F construction compounds are displayed at Figure 5-12.

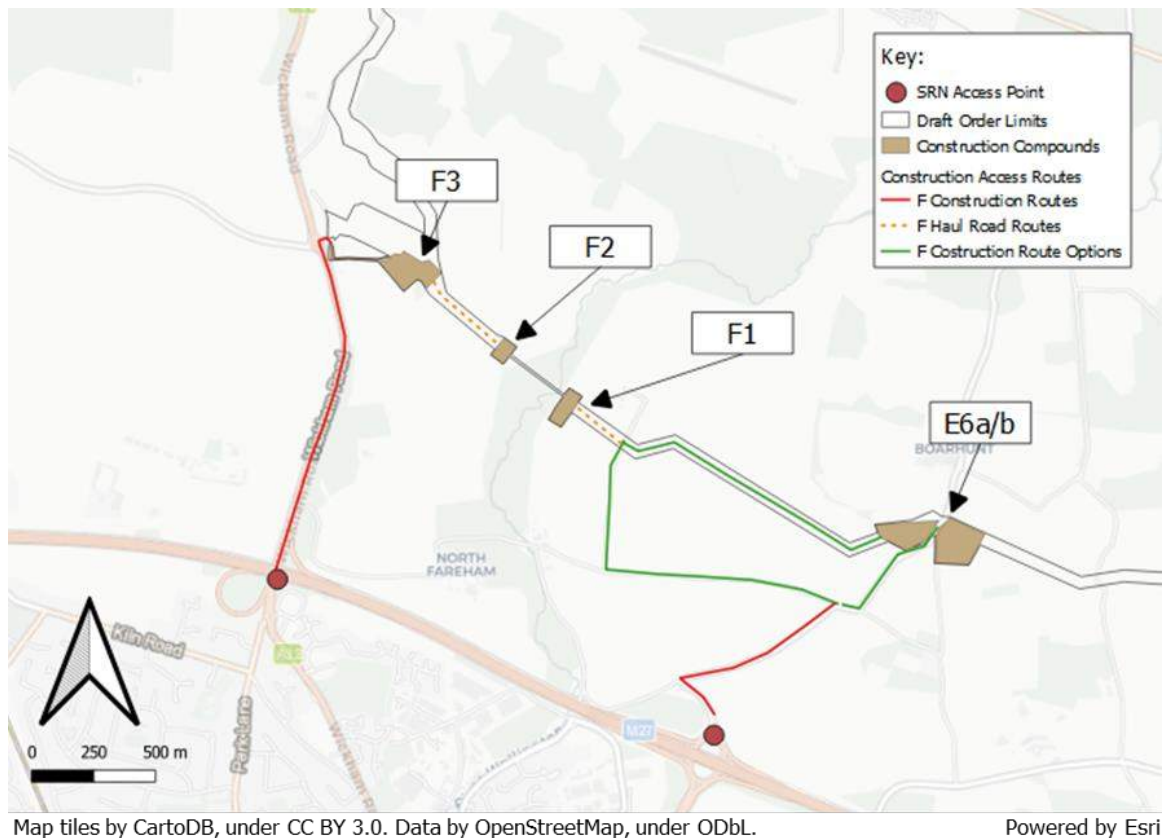


Figure 5-12 Proposed Section F construction compounds access routes

Section G: Crockerhill to Wickham

- 5.4.28 A total of eight construction compounds have been proposed to facilitate construction across Section G. Construction vehicles seeking to access the construction compounds across the section can use Junction 10 of the M27. From here, vehicles head north along the A32 Wickham Road, with construction compounds accessed at various points to the north.
- 5.4.29 Construction Compound G-1 may be accessed either directly from the A32 Hoads Hill (to the east of the road) or via a turning onto Castle Farm Lane to the east of the A32.
- 5.4.30 Construction vehicles would also access Construction Compound G-2 via the A32 Hoads Hill (to the west of the road). From here, construction vehicles may also access Construction Compound G-3 using the Proposed Development haul road. Alternatively, vehicles could access Construction Compound G-3 via Mayles Lane, which would involve routing north on the A32 and north-west on the A334 prior to turning onto Mayles Lane.
- 5.4.31 Various options exist for construction vehicles looking to access Construction Compounds G-4, G-5, G-6, G-7 and G-8. Construction Compounds G-4 and G-5 may be accessed via Tanfield Lane, which is the next left-turn along the A334 from Mayles Lane. From here, a direct connection to Construction Compounds G-4 and G-5 would be provided. Alternatively, construction vehicles could access Construction Compounds G-4 and G-5 via the proposed temporary haul road, connecting from Construction Compound G-6 to the north.

5.4.32 To access Construction Compounds G-6, G-7 and G-8, construction vehicles would continue north-west along the A334 Winchester Road to the junction with Titchfield Lane and Blind Lane. From here, vehicles would route west along Titchfield Lane under both route options. If access to Construction Compound G-8 is provided on Titchfield Lane, vehicles would access G-8 at this location, with a haul road connecting onwards to Construction Compound G-7 and G-8, as well as potentially onwards to Construction Compound G4 and G-5 as explained at 5.4.31. If access is not provided at this location and is instead taken from the unnamed lane immediately west of Construction Compound G-6, then vehicles would continue west on Titchfield Lane before turning south on to the unnamed lane to access G-6. Haul road would then connect to the other local construction compounds.

5.4.33 An overview of the construction access routes used to access construction compounds within Section G of the Proposed Development are shown at Figure 5-13, with a detailed illustration provided at Figure 5-14.

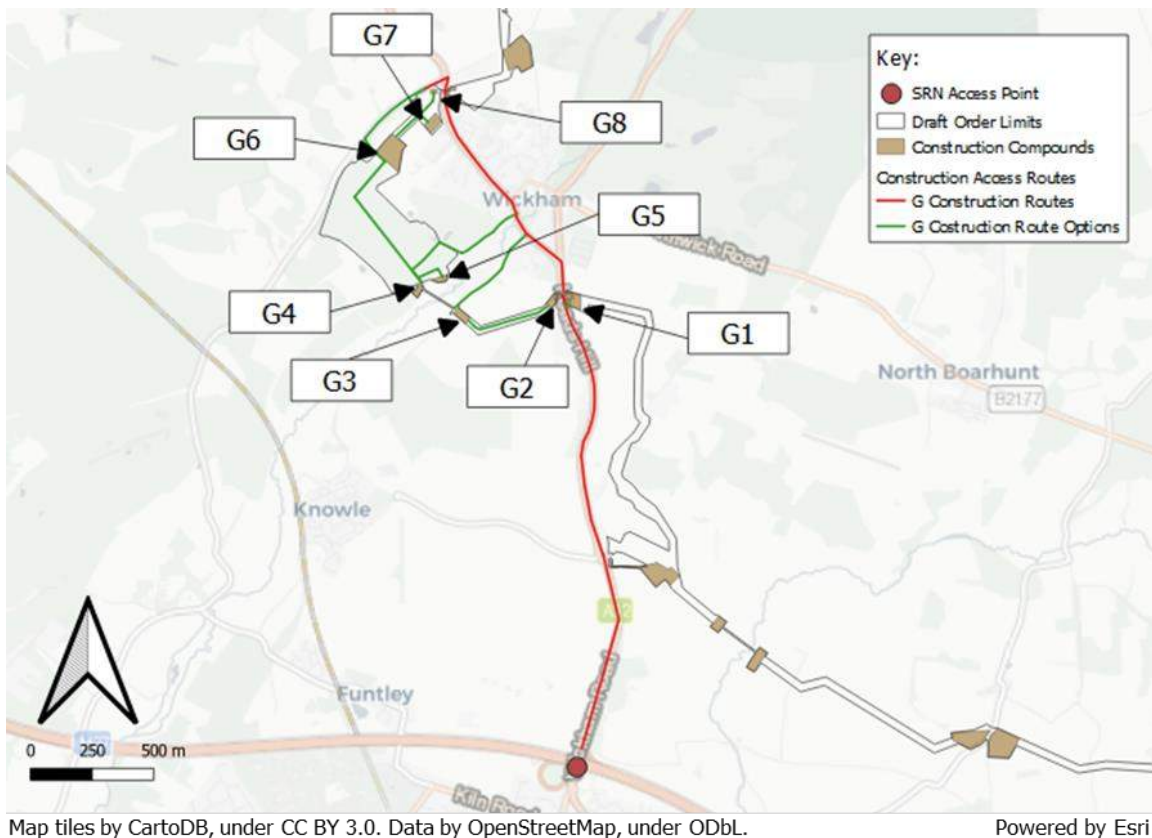


Figure 5-13 Proposed Section G construction compounds access routes

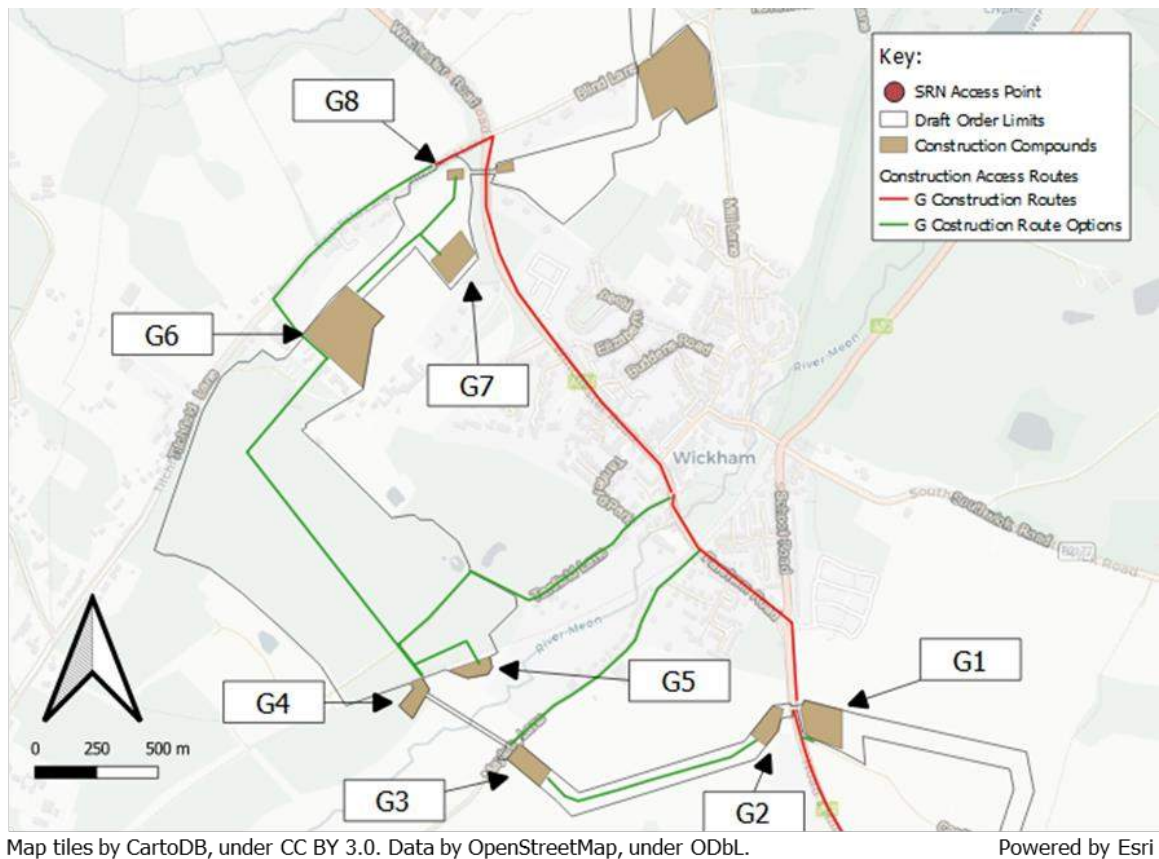


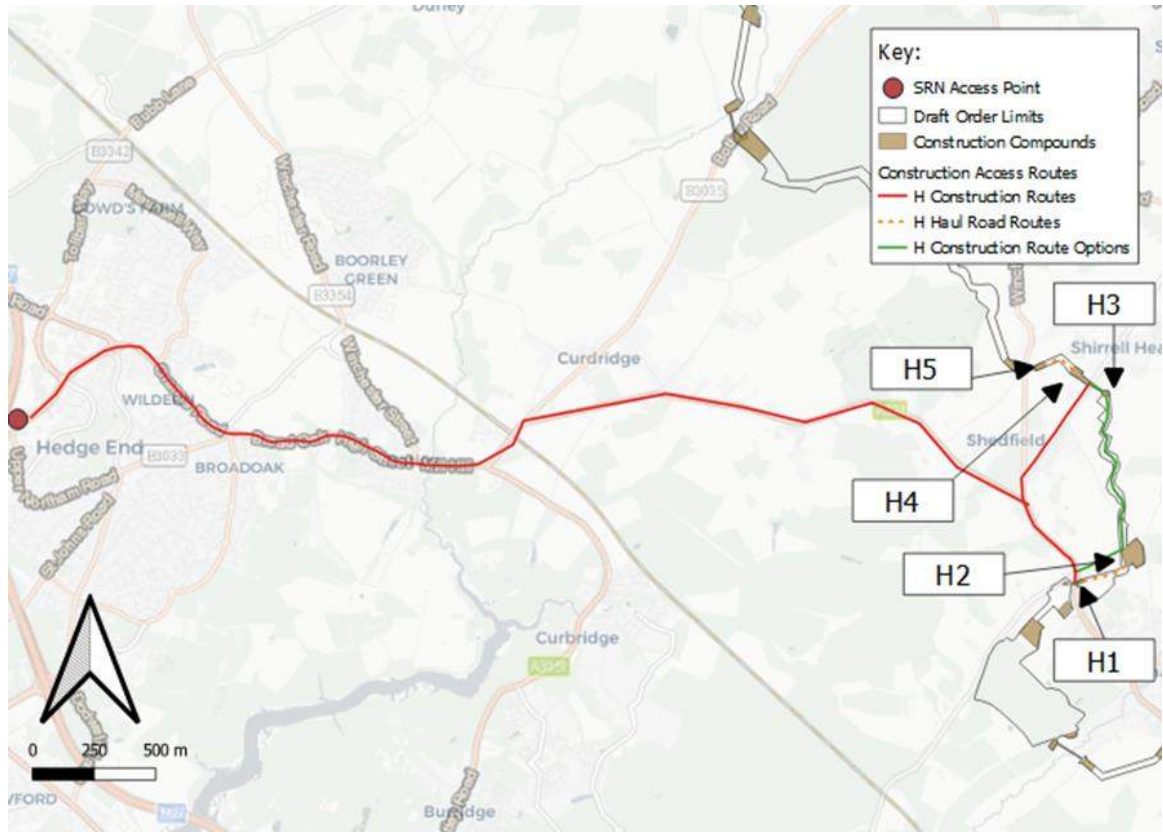
Figure 5-14 Proposed Section G construction compounds access routes (detailed view)

Section H: Wickham to Shedfield

- 5.4.34 There would be five construction compounds needed to complete construction works along Section H of the Proposed Development. Construction vehicles would access the construction compounds across this section from Junction 7 of the M27 and would be required to travel east along the A334 to the A334 Winchester Road.
- 5.4.35 From here, construction vehicles may route south on the A334 Winchester Road to access Construction Compound H-1 via a temporary access to the east of the A334 Winchester Road. Alternatively, this construction compound may be accessed via haul road from Construction Compound H-2.
- 5.4.36 H-2 may be accessed via haul road from H-1 should a temporary access come forward on the A334 Winchester Road. Alternatively, Construction Compound H-2 may be accessed by vehicles routing east from the A334 Winchester Road on to Blind Lane, with access taken from this location instead.
- 5.4.37 To access Construction Compound H-3, vehicles may route north on the B2177 Winchester Road before heading north-east on Shirrell Heath High Street to the potential temporary access to Construction Compound H-3 at this location. Alternatively, if temporary access does not come forward at this location, construction vehicles may access Construction Compound H-3 via haul road connecting from Construction Compound H-2.
- 5.4.38 To access Construction Compounds H-4 and H-5, construction vehicles would follow the above route to Shirrell Heath High Street to the temporary access to

Construction Compound H-4 provided directly opposite Nightingale Crescent. Access would then be provided to Construction Compound H-5 via the temporary haul road and Construction Compound H-4.

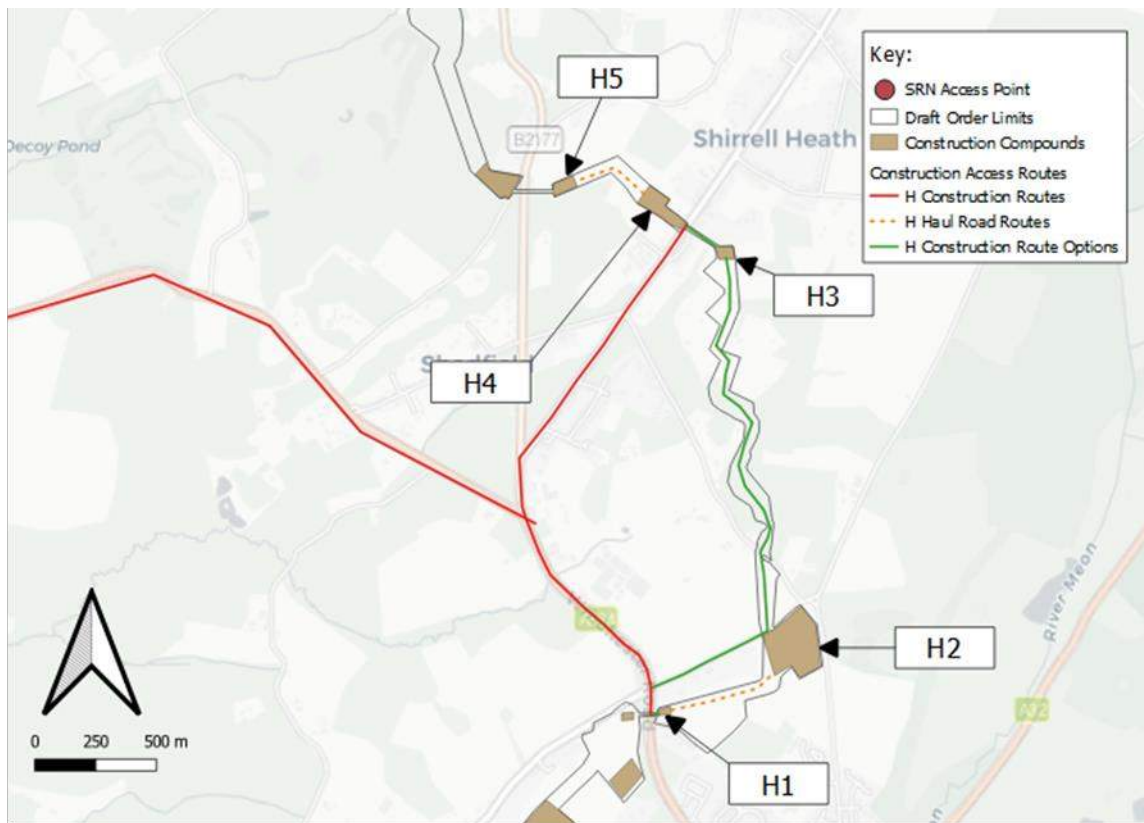
5.4.39 An overview of the connection from the SRN to the Section H construction compounds is shown at Figure 5-15, with a detailed illustration of routes in the immediate vicinity of the Section H construction compounds shown at Figure 5-16.



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Figure 5-15 Proposed Section H construction compounds access routes



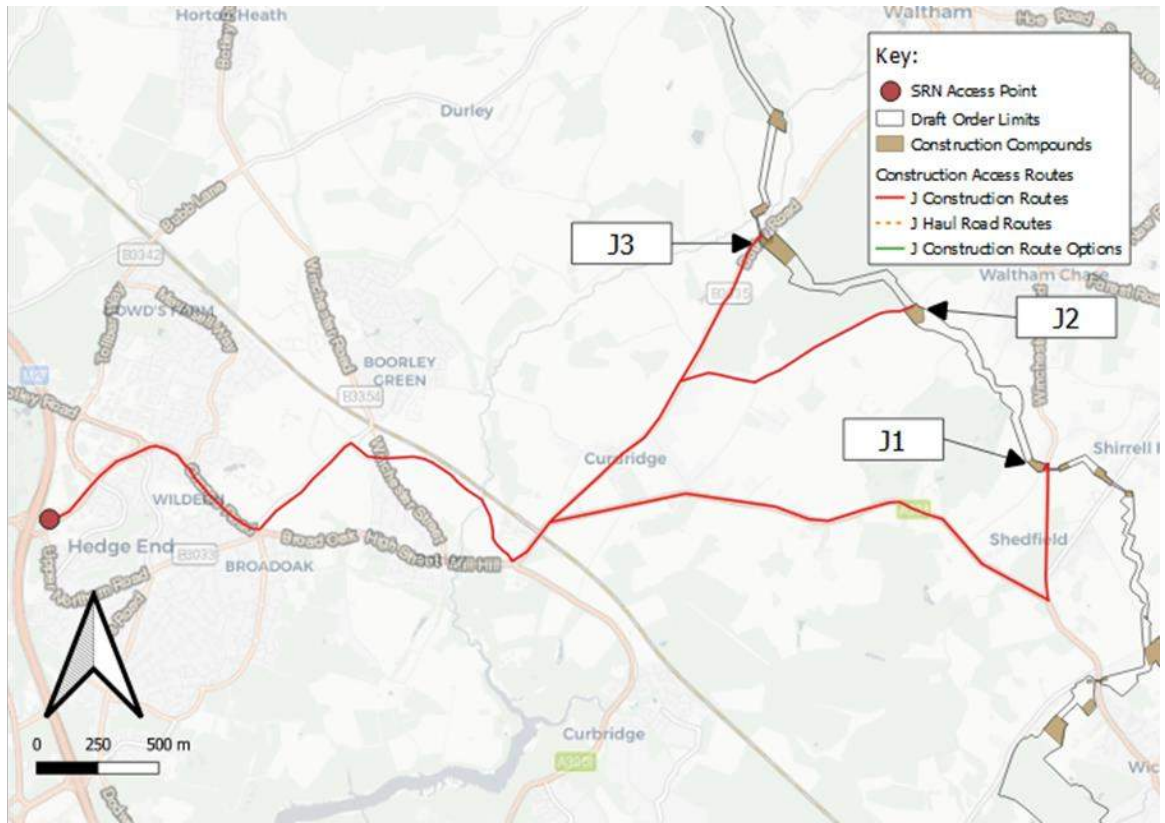
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Figure 5-16 Proposed Section H construction compounds access routes (detailed view)

Section J: Shedfield to the River Hamble

- 5.4.40 Three construction compounds have been planned to complete construction work along Section J. Construction vehicles looking to access the three construction compounds across this section would use Junction 7 of the M27 and travel east along the A334.
- 5.4.41 For vehicles looking to use Construction Compound J-1, vehicles would be required to continue east along the A334, and head north along Winchester Road (B2177). Access to the construction compound would be provided directly off a sharp turning south-west onto Saint Anne's Lane.
- 5.4.42 To access Construction Compounds J-2 and J-3, vehicles would use the B3035 Botley Road, linking from the A334. Access to Construction Compound J-3 would be provided directly off Botley Road (B3035), while vehicles accessing Construction Compound J-2 would travel north-east from the B3035 Botley Road along Curdrige Lane.
- 5.4.43 Figure 5-17 provides an illustration of the proposed construction traffic routes associated with the Section J construction compounds.



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Figure 5-17 Proposed Section J construction compounds access routes

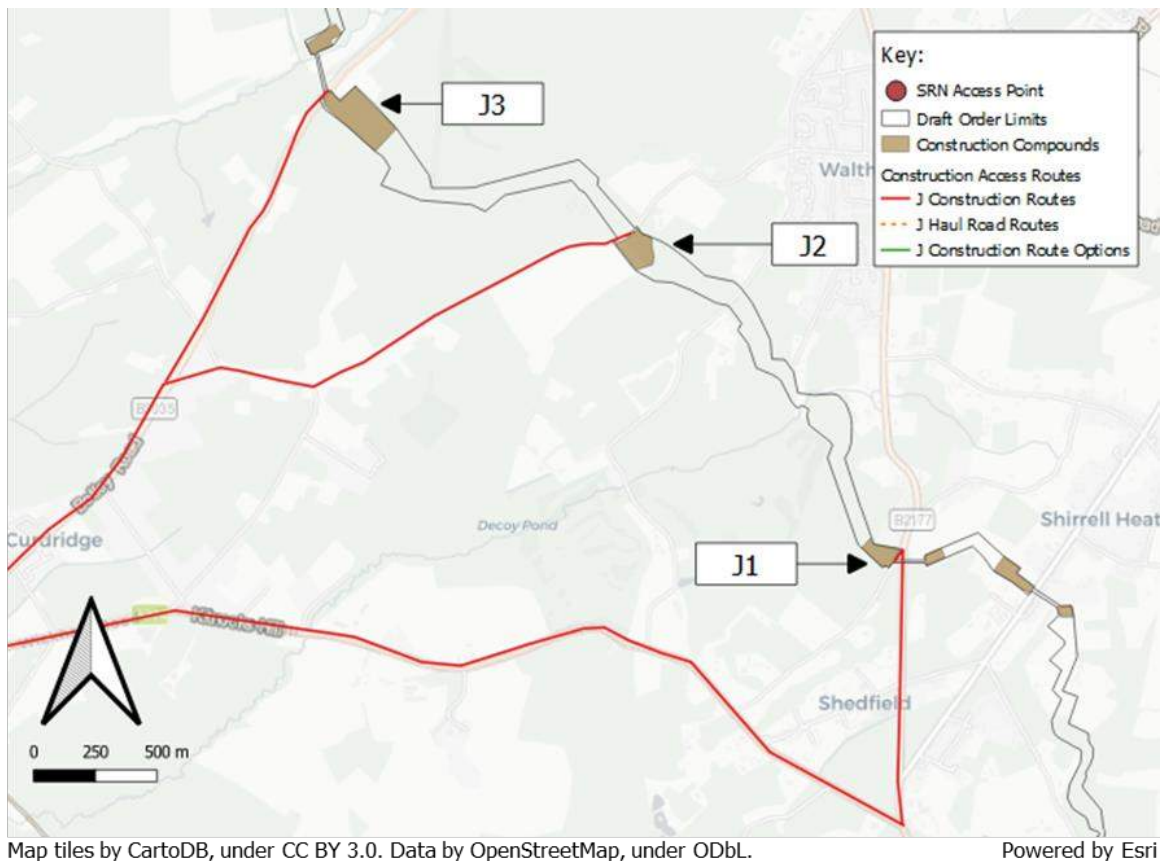
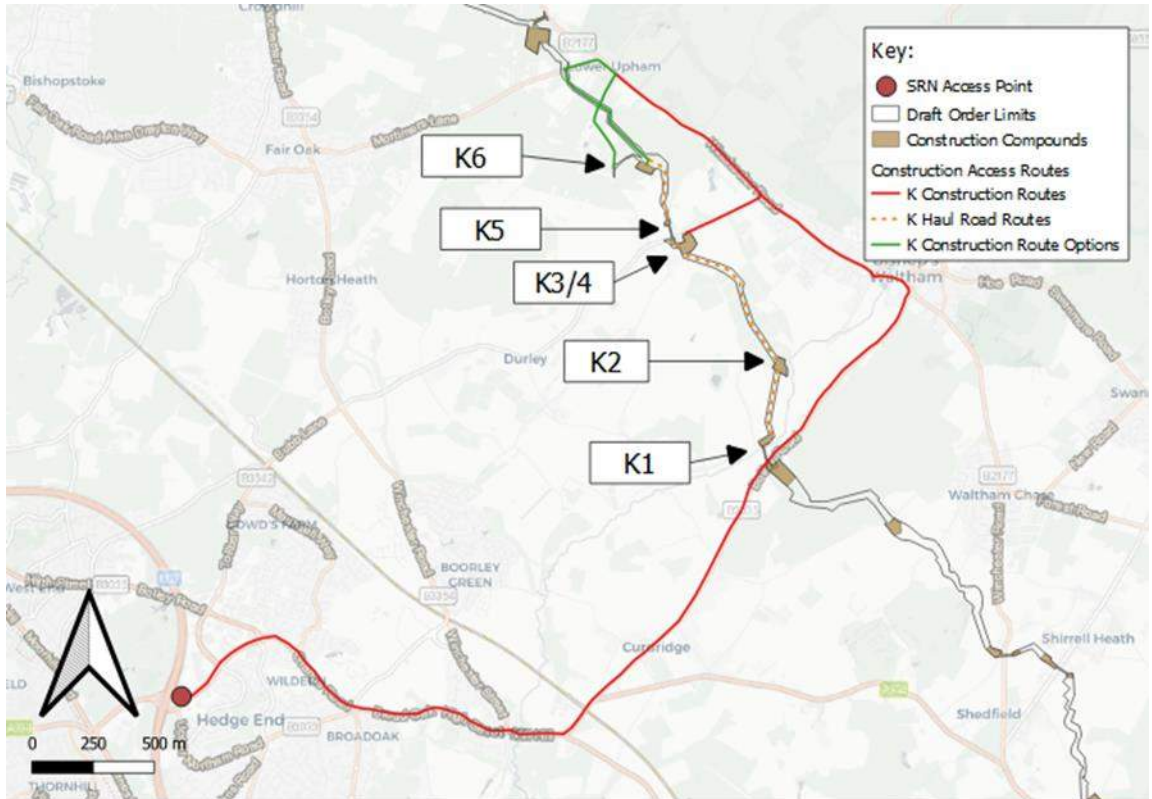


Figure 5-18 Proposed Section J construction compounds access routes (detailed view)

Section K: The River Hamble to Lower Upham

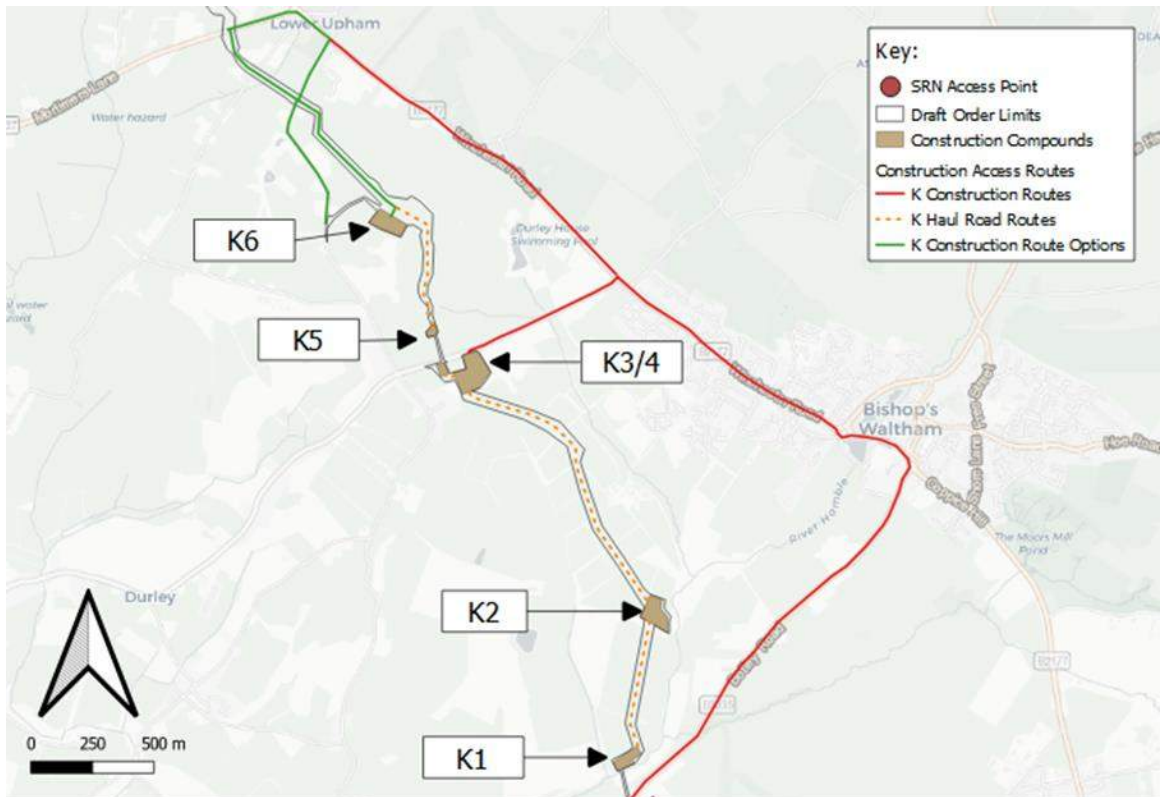
- 5.4.44 A total of six construction compounds would be required to facilitate construction across Section K. To access these construction compounds, construction vehicles would use Junction 7 of the M27 and travel east along the A334 before heading north via the B3035 Botley Road and the B2177 Winchester Road.
- 5.4.45 For construction vehicles seeking to access Construction Compounds K-1, K-2, K-3 and K-4, vehicles would route south-west from the B2177 Winchester Road onto Winters Hill where temporary access would be provided to Construction Compound K-3. From here, access to Construction Compounds K-1, K-2 and K-4 would be provided through haul road connections.
- 5.4.46 Access to Construction Compounds K-5 and K-6 would involve vehicles continuing to route north-west along the A334 Winchester Road. From here, vehicles could either head south of Sciviers Lane, accessing K-6 either via the haul road or by a temporary access point to on Sciviers Lane to the south. Alternatively, vehicles could access the haul road via the B3037 Mortimers Lane. From either of these access points, vehicles would access Construction Compound K-5 via the temporary haul road.
- 5.4.47 An overview of the construction traffic routes associated with Section K of the Proposed Development is provided at Figure 5-19, with a detailed view of the routes in the immediate vicinity of the construction compounds provided at Figure 5-20.



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Figure 5-19 Proposed Section K construction compounds access routes



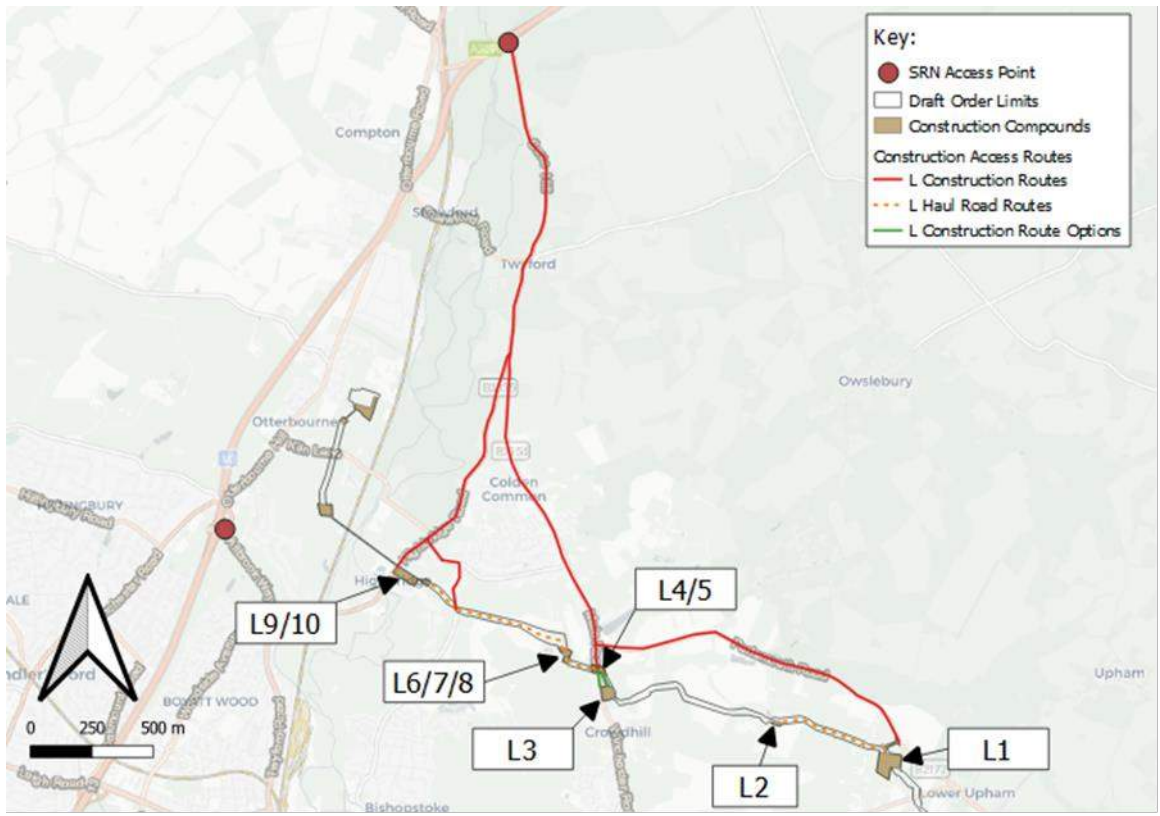
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Figure 5-20 Proposed Section K construction compounds access routes (detailed view)

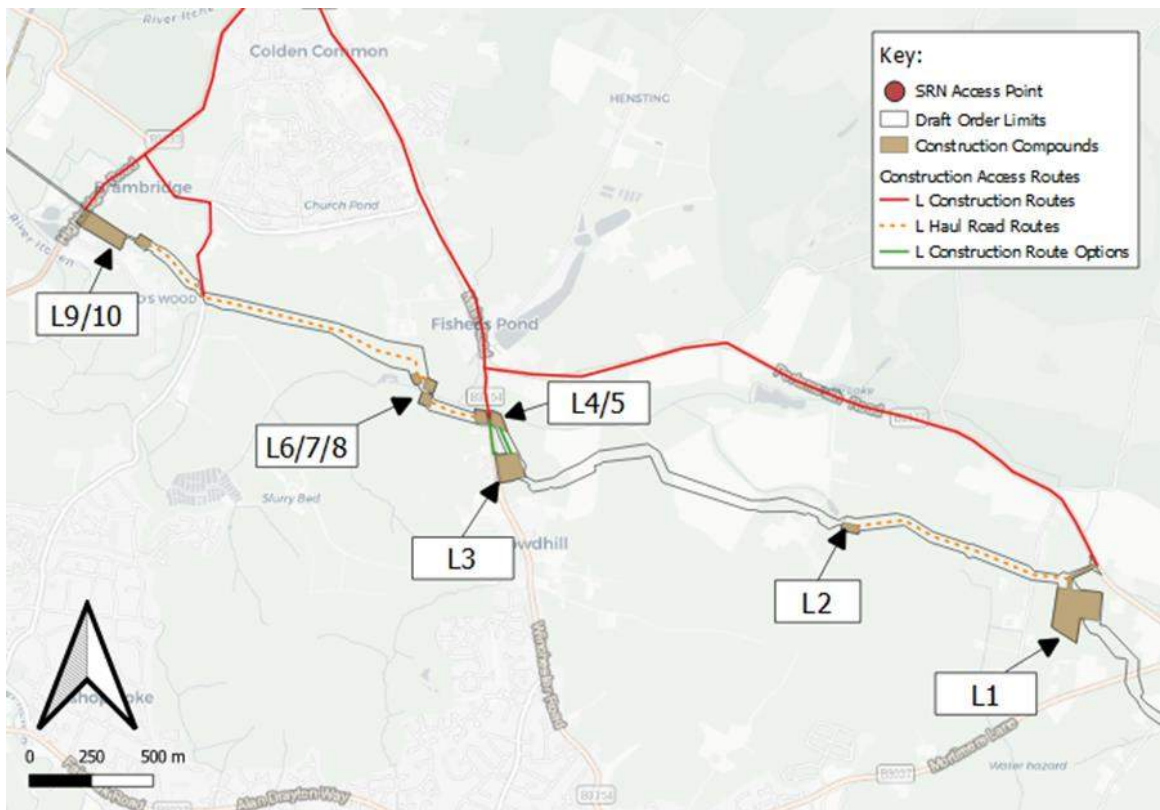
Section L: Lower Upham to Brambridge

- 5.4.48 There would be a total of ten construction compounds across Section L of the Proposed Development to facilitate construction work. To access the construction compounds across this section of the Proposed Development, construction vehicles would use Junction 11 of the M3 before travelling southbound along the B3335.
- 5.4.49 To access Construction Compounds L-1 and L-2, construction vehicles would turn off the B3335 and head south along the B3354 before turning onto the B2177 Portsmouth Road eastbound where Construction Compound L-1 can be accessed directly. From here, Construction Compound L-2 would also be accessed via the temporary haul road heading north-west from Construction Compound L-1.
- 5.4.50 Construction Compounds L-3 and L-4 would be accessed directly from the B3354 south of the junction with B2177 Portsmouth Road. Access to these construction compounds may involve one consolidated access from the B3354, with haul road linking the two construction compounds, or two separate accesses from the B3354.
- 5.4.51 Construction Compound L-5 would also be accessed via this same route, with access to be provided to the west of the B3354. Haul road would then provide a link to the west to Construction Compound L-6.
- 5.4.52 To access Construction Compounds L-7, L-8 and L-9, construction vehicles would continue south along the B3335 Highbridge Road rather than turning off onto the B3354. Vehicles would then turn off the B3335 onto Church Lane, heading eastbound to the junction with Bishopstoke Lane. Vehicles would then head south on Bishopstoke Lane to access the Proposed Development haul road, which would connect onwards to Construction Compounds L-7 and L-8 to the east, and L-9 to the west.
- 5.4.53 To access Construction Compound L-10, construction vehicles would continue along the B3335 Highbridge Road directly to Construction Compound L-10's temporary access to the east of the road.
- 5.4.54 The construction traffic routes in the vicinity of Section L of the Proposed Development are displayed at Figure 5-21, with a detailed view of routes provided at Figure 5-22.



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Figure 5-21 Proposed Section L construction compounds access routes



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Figure 5-22 Proposed Section L construction compounds access routes (detailed view)

Section M: Brambridge to Otterbourne Water Supply Works

- 5.4.55 Three construction compounds would be required to facilitate construction work on Section M. These three construction compounds can be accessed by construction vehicles using Junction 12 of the M3 and heading north-east along Otterbourne Hill.
- 5.4.56 Construction Compounds M1 and M2 would be accessed by turning off Otterbourne Hill onto Kiln Lane. To the east of this junction, Construction Compounds M-1 and M-2 can be accessed where the Proposed Development haul road intersects Kiln Lane. It should be noted that access to these construction compounds from Kiln Lane would be provided to the west of height and weight restrictions on Kiln Lane. Vehicles should turn within the construction compounds/haul road area prior to egressing to the west to avoid the restricted area.
- 5.4.57 Construction Compound M-3 would be accessed by construction vehicles that continue north-east along Otterbourne Hill before turning off to the east along Sparrowgrove. Vehicles would subsequently head south through Otterbourne WSW to access M-3.
- 5.4.58 The construction traffic routes in the vicinity of Section M are shown at Figure 5-23.

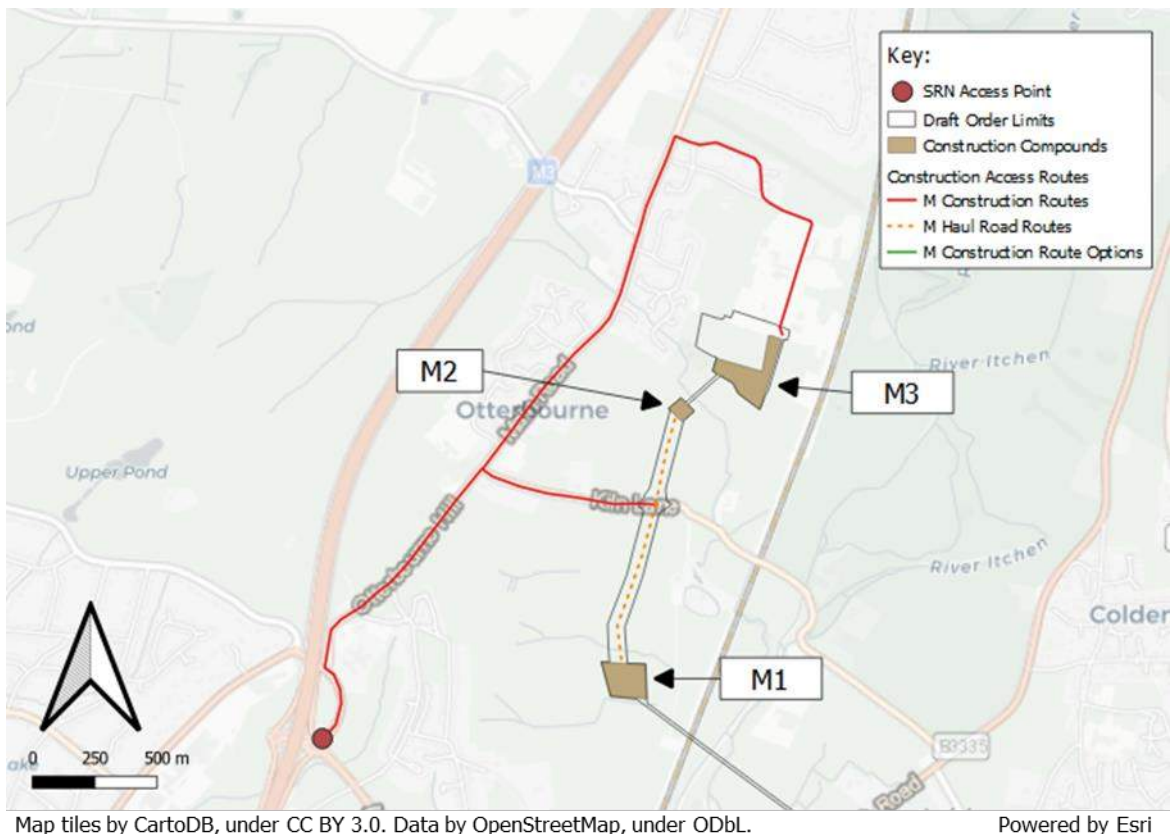


Figure 5-23 Proposed Section M construction compounds access routes

5.5 Section specific constraints and issues

- 5.5.1 The Framework CTMP will include an assessment of the section specific constraints along the construction access routes. This assessment will be informed

by Swept Path Analysis (SPA) using the largest construction vehicles anticipated to be using that route.

5.5.2 HCC have provided the following initial comments which have been considered in this Draft Framework CTMP.

Table 5-1 Advice from HCC with regards to construction access

Location	Comment	Response
Proposed Development (as a whole)	Proposed Development should endeavour to utilise Junctions 7, 8 and 10 of the M27.	Junctions 7 and 10 of the M27 would be used by construction vehicles, as shown at Figure 5-1. Junction 8 provides a less direct route to the construction compounds than Junction 7 and has therefore been omitted from the construction vehicle routes.
Sections A, B and C	Given the location of the proposed compound access to Middle Park Way from Petersfield Road, construction traffic should access this site to/from the north via the A3(M) at Junction 2. Park Road North and South and the Langstone Roundabout and the A27 are deemed to be unsuitable for intensive construction traffic use. Consideration should be given to locations of schools and other key infrastructure which attracts heavy demand, which construction traffic may conflict with.	Construction traffic travelling to Construction Compound B1-1 would route via B2149 Petersfield Road (section 5.4). Construction traffic associated with the construction compounds within Havant would not route via the Langstone Roundabout or Park Road (section 5.4). Construction vehicle movements would not take place during school pick-up/drop-off times as set out at section 3.6.
Section D	Widley Walk and Crookhorn Lane would not be appropriate for construction traffic.	Widley Walk and Crookhorn Lane would not be used by construction vehicles.
Section E	Monument Lane is inappropriate for use by construction vehicles. There is a prohibition of driving except for access on Portchester Lane beyond its junction with Crooked Walk Lane.	Monument Lane will not be used by construction vehicles. Whilst the option of construction vehicles routing along Portchester Lane has been retained given that construction vehicle use would be for access purposes, an alternative haul road access route option has been developed (section 5.4).
Section F	Compound facilities north of Knowle Road will not be acceptable in highway terms and because the development	No construction compounds will be located within the immediate vicinity of Knowle Road.

Location	Comment	Response
	from Welbourne within this area is currently under construction.	
Section H	HCC have concerns regarding the use of Pricketts Hill, Blind Lane, Mill Lane and Black Horse Lane for construction vehicles. Access into Blind Lane from the A334 is constrained and the width of the road is generally unsuitable for accommodating construction movements.	An alternative option whereby access is taken from the A334 Winchester Road has been developed to avoid the need for construction vehicles to route along Blind Lane, Pricketts Hill or Mill Lane. However, access directly from the A334 Winchester Road may not be optimal given the large volumes of vehicle traffic that use this route and therefore options that utilise Blind Lane and Pricketts Hill have been retained.
Section J	Sandy Lane is unsuitable for construction traffic. St Annes Lane is a narrow road incapable of accommodating two-way vehicle flow. The use of this route by construction traffic will need to be carefully managed and alternative options may need to be sought if suitable mitigation cannot be put in place. It should be clarified which direction construction traffic is to be sent along Curdrigde Lane.	Construction traffic would not route along Sandy Lane. Construction traffic would only utilise St Annes Lane for a very short section (circa 60m), minimising potential disruption. Construction traffic will be managed on this link in any case. Clarification regarding the direction of construction vehicle movements on Curdridge Lane is provided at section 5.4.
Section K	Sciviers Lane and Durley Street are not considered appropriate to accommodate construction traffic. Should the applicant wish to use Sciviers Lane, mitigation measures will be required within the Framework CTMP and Framework TMS. Consideration to access this area generally should be given to utilising junction 10 and the A334/B3035 to avoid construction traffic routing via Botley or Bishops Waltham.	Durley Street would not be used by construction traffic, with Winters Hill to the east used instead. Optionality exists with regard to the use of Sciviers Lane, with an additional option to access construction compounds via the B3037 Mortimers Lane added. Should construction traffic use Sciviers Lane, mitigation measures will be put in place. It is proposed that this section of the route is accessed using Junction 7 of the M27, the A334 and the B3035 Botley Road. This course does route through Bishop's Waltham given a lack of alternative routes.

Location	Comment	Response
Section L	Stroudwood Lane and Bishopstoke Lane are considered unsuitable for construction traffic use.	Stroudwood Lane would not be used by construction vehicles. Whilst it is acknowledged that use of Bishopstoke Lane is not ideal, it is the only realistic option for construction vehicles to access Construction Compounds L-5 to L-9.
Section M	<p>The B3335 south of the junction with Kiln Lane is not considered to be suitable for construction traffic given the restrictions of the railway bridge and the nature of the road at Allbrook Hill.</p> <p>This link to the SRN at M3 is unlikely to be supported for intensification of construction vehicle use.</p> <p>Kiln Lane itself is also considered to be unsuitable for construction vehicle use, based on its width, forward visibility, height and weight restrictions.</p>	<p>The B3335 is only utilised for approximately 600m south of the junction with Kiln Lane. This section of the B3335 does not have any vehicle restrictions and is considered suitable for construction vehicles.</p> <p>Construction vehicle movements associated with this portion of the proposed Underground Pipeline would be split between Junction 11 and Junction 12 of the M3 to reduce any potential impact. These links are also considered to be direct and reduce the need for HGVs to travel on the local highway network.</p> <p>Comments regarding Kiln Lane are acknowledged, however there are no alternatives to access Construction Compounds M-1 and M-2 and as such use of Kiln Lane is necessary. Construction vehicles have been routed along Kiln Lane's western extent only, to ensure that they are not met with weight and height restrictions.</p>

5.6 Parking and layover

- 5.6.1 Suitable areas will be provided for vehicles to collect waste materials, turn around and leave the site in a forward gear. Where practicable, HGVs will not need to reverse on site which minimises the risk to site staff. Swept path analysis of the site will be used to determine the space requirements for HGVs to turn around. Where not practicable and reverse manoeuvres are required, these would be controlled by a traffic marshal.
- 5.6.2 It is likely that a traffic marshal could be utilised to aid plant movement, however other techniques could be explored. This will be confirmed in the detailed CTMPs following the appointment of the contractor. Generally, vehicles will not be allowed to load, unload or wait on any of the roads outside of the site area. Control of visitors and personnel parking will be similarly maintained. The Principal Contractor will be responsible for informing construction workers of the above.

5.6.3 It is expected that the exclusion of unauthorised personnel from the site will be achieved with the construction of suitable fencing around the perimeter of the site. The precise method of excluding access for unauthorised personnel will be confirmed by the relevant contractors in the detailed CTMPs.

5.7 Enforcement of the routing strategy

5.7.1 The detailed CTMPs, to be prepared by the contractors following the granting of the DCO, will specify how the routing strategy for HGVs will be enforced. Potential examples of methods to enforce HGV routes include the following:

- Induction procedures for construction staff and visitors
- Temporary signage along HGV routes and issuing routes to suppliers as part of the procurement process
- Vehicle identification measures
- Enforcement and correctional measures for non-compliance incidences.

6 Road safety

6.1 Background

- 6.1.1 This section provides an overview of the recorded road traffic collisions along the construction traffic access routes between the construction compounds and the SRN. It also outlines the proposed management and engagement procedures to monitor and respond to any road safety concerns throughout the construction process.
- 6.1.2 Given the condition of the highway is linked to road safety, condition surveys are also outlined in this section.

6.2 Road traffic collisions

- 6.2.1 A detailed analysis of existing road traffic collisions will be undertaken and presented in the Transport Assessment. This will identify any potential existing issues with the public highway network, such as the layout or geometries.
- 6.2.2 The scope of this analysis is being discussed with the local and strategic highway authorities as part of the ongoing engagement associated with the Transport Assessment Scoping Report. It is however expected that the scope would include all roads that form part of the local highway network and are proposed to be used by construction vehicles.

6.3 Engagement and management

- 6.3.1 The Framework CTMP will set out how near misses or collisions resulting in personal injury from construction traffic associated with the Proposed Development will be monitored throughout the construction period.
- 6.3.2 Whilst the precise approach would need to be confirmed with the Principal Contractor following the granting of the DCO, the following principles are examples that could be adopted, where practicable:
- Appointment of a road safety and liaison officer that would be responsible for continuous monitoring of traffic management and signage.
 - In consultation with the relevant highway authorities (HCC, PCC and NH), make improvements where necessary within the confines of Temporary Traffic Regulation Orders (TTROs) and other general construction traffic / directional signage.
 - Engage with the public regarding potential concerns, with the contact details of the road safety and liaison officer made available.

6.4 Highway condition surveys

- 6.4.1 Construction traffic, particularly HGVs, can have a negative impact on the condition of the highway. It is therefore proposed for highway condition surveys to be undertaken before and after the construction period to identify whether

construction activities have negatively impact highway conditions to identify any potential damages that could have been caused by the construction activities.

- 6.4.2 The scope of these surveys will be discussed and agreed with the relevant highway authorities (HCC, PCC and NH) and detailed in the Framework CTMP.

7 Traffic management and procedures

7.1 Traffic management

- 7.1.1 Deliveries would be scheduled in consultation with the appropriate authorities to minimise disruption as far as reasonably practicable. Where appropriate, this will include the avoidance of network peak hours and school drop-off and collection periods as specified in further detail at section 3.6.
- 7.1.2 A Framework TMS is proposed to be prepared and issued as part of the DCO application documents. It will set out the overarching principles and methodology that would be used during the construction of the Proposed Development. The strategy will be developed in further detail by the appointed contractors prior to the commencement of the works (or phase of works).
- 7.1.3 The scope will include the following:
- Traffic Management Principles, including construction methodology, traffic management methodology, construction programme, communication strategy and framework signage strategy.
 - For all works in the public highway, describe the works and associated traffic management, relevant existing conditions (e.g. road speeds) and programme restrictions.
 - Detail how impacts on pedestrian, cycles and public transport routes would be impacted and mitigated.
 - For each user group (pedestrian/cyclists/bus users), provide a set of principles which will be adhered to in order to minimise disruption where possible.
- 7.1.4 This section provides a high-level overview of how user groups will be managed with the detail to follow in the Framework TMS.
- 7.1.5 It is anticipated that the following roads would be subject to temporary traffic management measures. It is likely that any road and/or lane closure would be required for up to 14 days, and would be limited to up to 28 days:

Table 7-1 Traffic management measures

Location	Affected road name	Potential traffic management method
Sections A and B	None (tunnelled section)	None (tunnelled section)
Sections C and D	None (tunnelled section)	None (tunnelled section)
Section E	New Down Lane	Road closure
	Widley Walk	
	Mill Lane	
	Pigeon House Lane	
	Crooked Walk Lane	
	Portchester Lane	
	Monument Lane	

Location	Affected road name	Potential traffic management method
	Borehunt Road	
	B2177 Southwick Road	Lane closure
Section F	Whitedell Lane	Road closure
	Forest Lane	
Section G	A32 Hoads Hill	Trenchless crossing
	Mayles Lane	
	A334 Winchester Road	
Section H	Blind Lane	Road closure
	Pricketts Hill	
	Shirrell Heath High Street	Trenchless crossing
	A334 Winchester Road	
Section J	St Annes Lane	Trenchless crossing
	B3035 Botley Road	
	Sandy Lane	Road closure
	Curdrige Lane	
Section K	Winters Hill	Trenchless crossing
	Sciviers Lane	Road closure
	Alma Lane	
	B3037 Mortimers Lane	Lane closure
Section L	Stroudwood Lane	Road closure
	Bishopstoke Road	
	B3354 Winchester Road	Trenchless crossing
Section M	B3335 Highbridge Road	Trenchless crossing
	Kiln Lane	Road closure

7.1.6 An illustration of the locations of traffic management measures within the context of the Proposed Development is provided in Appendix A.

7.2 Pedestrian and cyclists management

7.2.1 The contractor, once appointed, will be cognisant of any pedestrians and cyclists whilst undertaking work adjacent to the public highway. This includes the construction of temporary and permanent accesses for the construction compounds, temporary haul road and proposed AGP sites. Construction works will ensure that pedestrians and cyclists can travel past the works in a safe manner with suitable barriers provided to isolate the construction works. Particular attention will also be paid to the needs of people with mobility and visual impairments to ensure that their safety and free movement is retained.

7.2.2 Pedestrian and cycle routes adjacent to the public highway will be kept open wherever possible, with temporary diversions otherwise identified. Full closures would only be considered as a last resort and the contractor, once appointed, would be responsible for identifying an alternative safe route during these closures.

7.2.3 Further details will be provided in the Framework TMS.

7.3 Management of Public Rights of Way

7.3.1 In addition to the footways and cycleways adjacent to the public highway, the Proposed Development would also impact Public Rights of Way (PRoW), including footpaths and bridleways.

7.3.2 Given the linear nature of the Proposed Development, impacts on the PRoW network are unavoidable. Long-term disruption would not occur as PRoWs will be restored to baseline conditions after construction. However, there is potential for short-term disruption which will need to be managed.

7.3.3 Potential mitigation strategies may include the following (from least to most impactful):

- Provision of signage and information to allow construction personnel, construction vehicles and members of the public to use and cross access routes.
- Using construction personnel to hold/escort PRoW users to allow vehicles to pass or allow construction activities.
- Using short diversions around a work site.
- Temporary closure of a PRoW.

7.3.4 Specific strategies will be discussed on a case-by-case basis with the relevant local authority and detailed in the RoWMP.

7.3.5 A table with supporting figures outlining the proposed management of the PRoWs during the construction period is set out in Appendix B. These represent initial thinking and are subject to change following the Summer 2024 Consultation and ongoing engagement with Hampshire Countryside Services and any other key stakeholders.

7.4 Bus routes

7.4.1 The contractor, once appointed, will consult with the bus operators regarding any traffic management that may impact or disrupt local bus services. This will be detailed further in the Framework TMS.

7.4.2 The following existing bus services have been identified that operate near the draft Order Limits and could therefore be impacted by construction traffic activities:

Table 7-2 Local bus services

Service	Operator	Route	Weekday frequency	Weekday evening frequency	Sunday frequency
1	Bluestar	Southampton – Chandlers Ford – Otterbourne – Compton – Winchester	20 mins	Hourly	30 mins

Service	Operator	Route	Weekday frequency	Weekday evening frequency	Sunday frequency
61	Stagecoach in Hampshire	Eastleigh – Twyford and Colden Common	Hourly	-	-
69	Stagecoach in Hampshire	Winchester – Colden Common – Fair Oak – Bishops Waltham – Swanmore – Wickham – Fareham	Hourly	Fri/Sat – two journeys	Irregular
ZOO	Bluestar	Eastleigh – Fair Oak – Marwell Zoo (operates April to September only)	Hourly	-	Hourly
49	Stagecoach in Hampshire	Bishops Waltham – Swanmore – Botley – Hedge End	Irregular	-	-
96	HCC	Swanmore, Shirrell Heath, Shedfield and Wickham to Broadcut and Fareham	Monday – Friday, 1-2 return journeys	-	-
20	Stagecoach in Portsmouth	Havant – Leigh Park – Crookhorn – QA Hospital – Portsmouth City Centre – Gunwharf	30 mins	-	-
MV1	Meon Valley Community Bus	West Meon – Soberton – Fareham	Mondays and 2 nd and 5 th Friday of the month	-	-
700	Stagecoach in Portsmouth	The Hard – Commercial Road – North End – Hillsea – A27 – Havant – Emsworth – Southbourne – Chichester	30 mins	Hourly	30 mins
23	Stagecoach in Portsmouth	Leigh Park – Havant – Cosham – North End – Commercial Road – Gunwharf – Southsea	10 mins	30 mins	15 mins

Service	Operator	Route	Weekday frequency	Weekday evening frequency	Sunday frequency
27	First Solent	Rowlands Castle – Leigh Park – Havant – Emsworth	Irregular	-	-
37/37X	Stagecoach in Portsmouth	Havant – Leigh Park – Crookhorn – Stakes Hill – Waterlooville – Cowplain – Horndean – Petersfield	Hourly	-	-
39	Stagecoach in Portsmouth	Wecock Farm – Waterlooville – Crookhorn – Leigh Park – Havant	Hourly	-	-
20	First Solent	Fareham – Funtley – Knowle – Wickham	Irregular	-	-

7.4.3 The interaction between the Proposed Development and local bus services, including locations in which the proposed Underground Pipeline crosses the route of an existing bus service, is shown in Appendix C.

7.5 Communication strategy

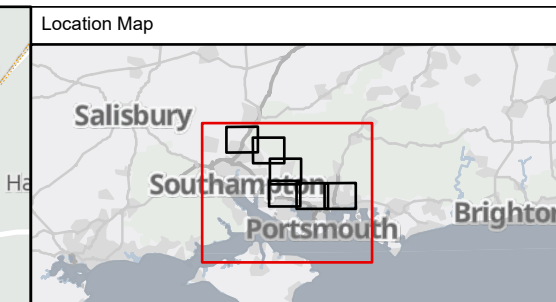
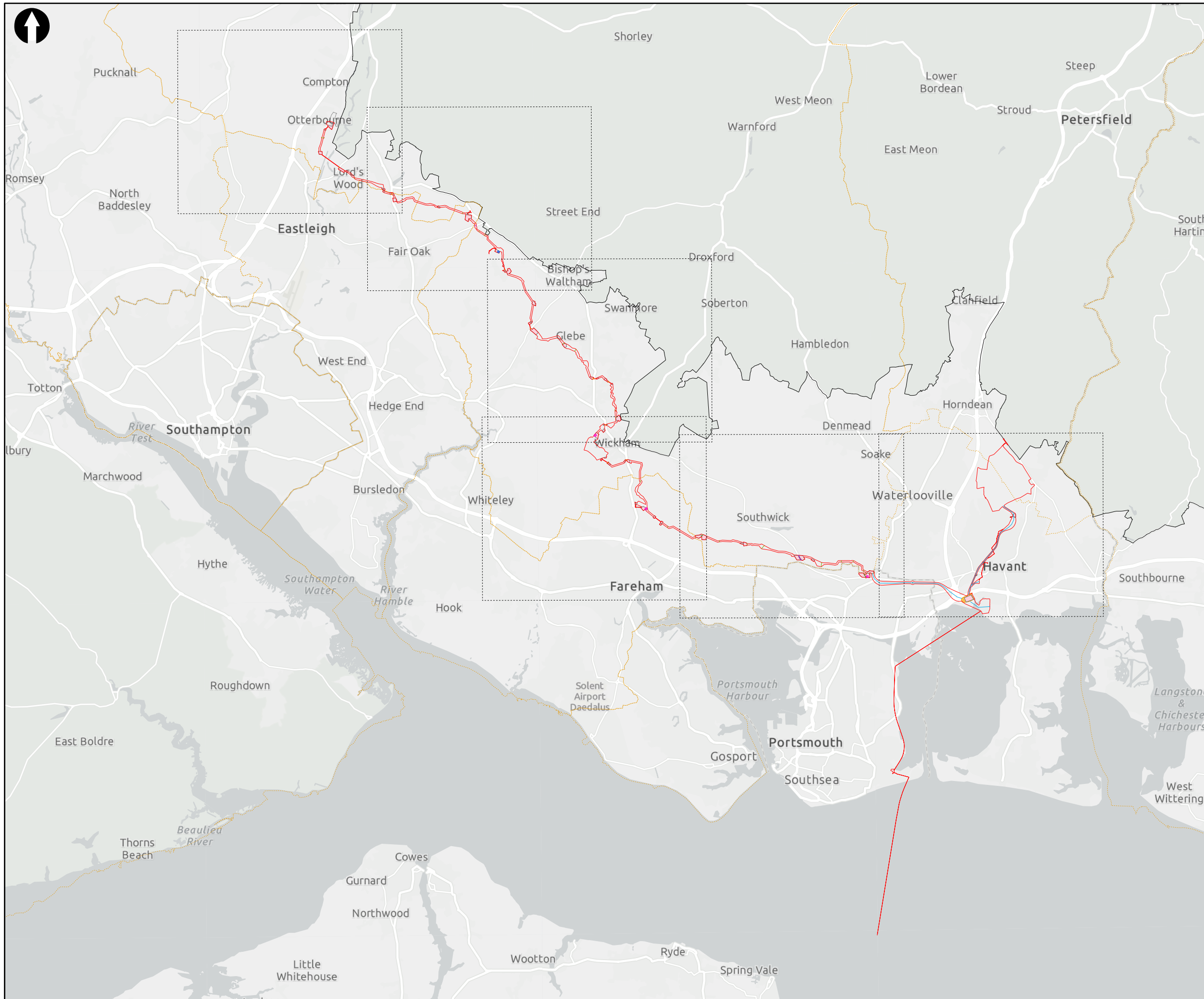
7.5.1 Given the Proposed Development spans a large area, impacting numerous highways and ProW, a robust communication strategy will be required. This strategy will be outlined within the Framework TMS and the RoWMP, both to be submitted with the DCO application. This strategy will be confirmed by the contractor, once appointed, in the detailed TMS and RoWMP.

7.5.2 The communication strategy will need to provide a means for affected residents to liaise with the identified contractor to address any issues which arise during the construction of each section.

References

- [1] UK Parliament, "Water Industry Act 1991," 2020. [Online]. Available: <https://www.legislation.gov.uk/ukpga/1991/56/contents>. [Accessed 18 December 2023].
- [2] Southern Water, "Water for Life: Securing a resilient future for water in the South East, Our Water Resources Management Plan for 2020-70," December 2019. [Online]. Available: https://landsearch.southernwater.co.uk/media/3656/5025_wrmp_-v11.pdf. [Accessed 26 March 2024].
- [3] Southern Water, "Water for Life: Draft Water Resources Management Plan 2024 - Statement of Response," August 2023. [Online]. Available: https://assetmanager.southernwater.co.uk/media/8947/statement-of-response_water-resources-management-plan-2024.pdf. [Accessed March 2023].

Appendix A Potential traffic management



Key to Symbols

- Draft Order Limits
- Potential Compound Locations
- Water Recycling Plant and High Lift Pumping Station
- Otterbourne Water Supply Works
- Local planning authorities
- South Downs National Park
- Above Ground Plant (AGP)**
- Break Pressure Tank
- Intermediate Pumping Station
- Road Traffic Management Type**
- Temporary Lane Closure
- Temporary Road Closure
- Trenchless Crossing
- Tunnelled Section
- Sheet Extent Boxes 1:25K

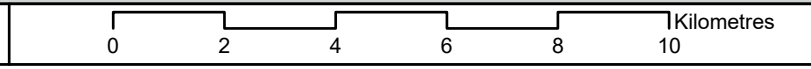
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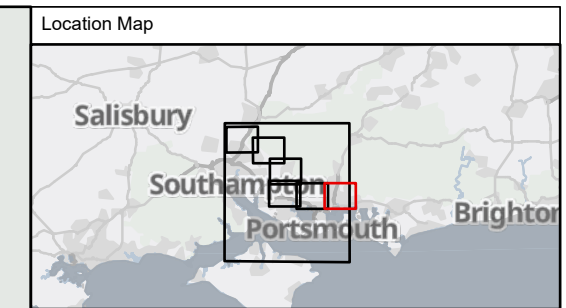
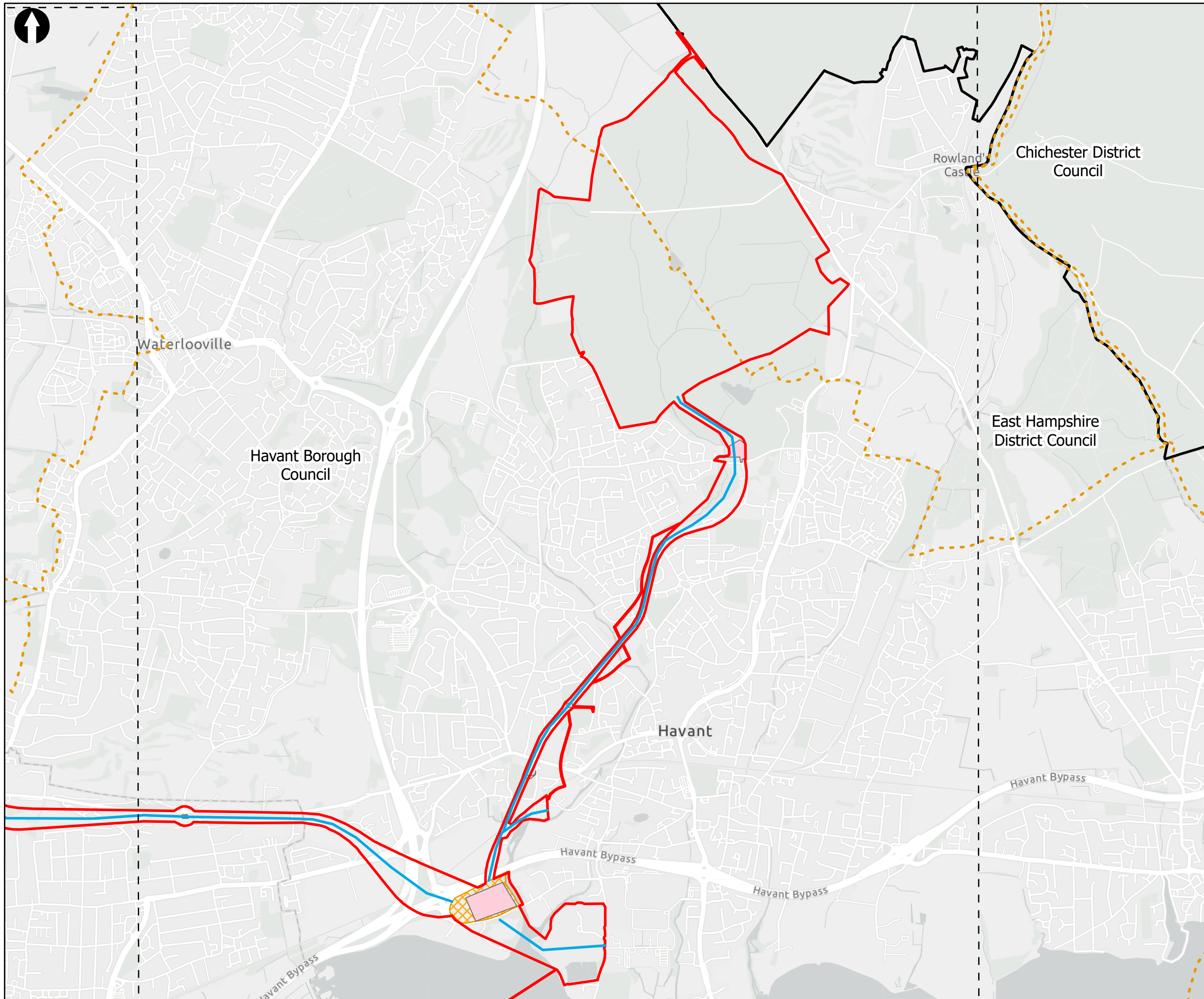
Title
 Figure Appendix A.1
 Road traffic management during construction
 Sheet 1 of 7

Drawn MCP	GIS Checked GC	Checked JR	Approved MP
Scale at A3 1:136,000	Status INF	Revision 01	Security STD

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Key to Symbols

- Draft Order Limits
- Potential Compound Locations
- Water Recycling Plant and High Lift Pumping Station
- Local planning authorities
- South Downs National Park

Road Traffic Management Type

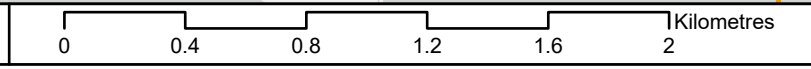
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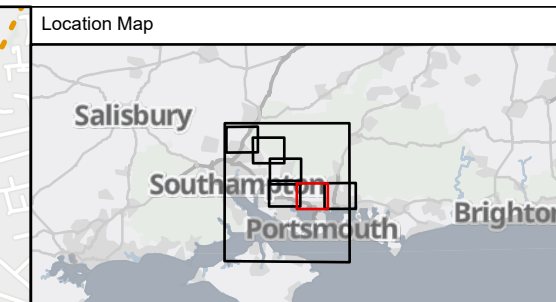
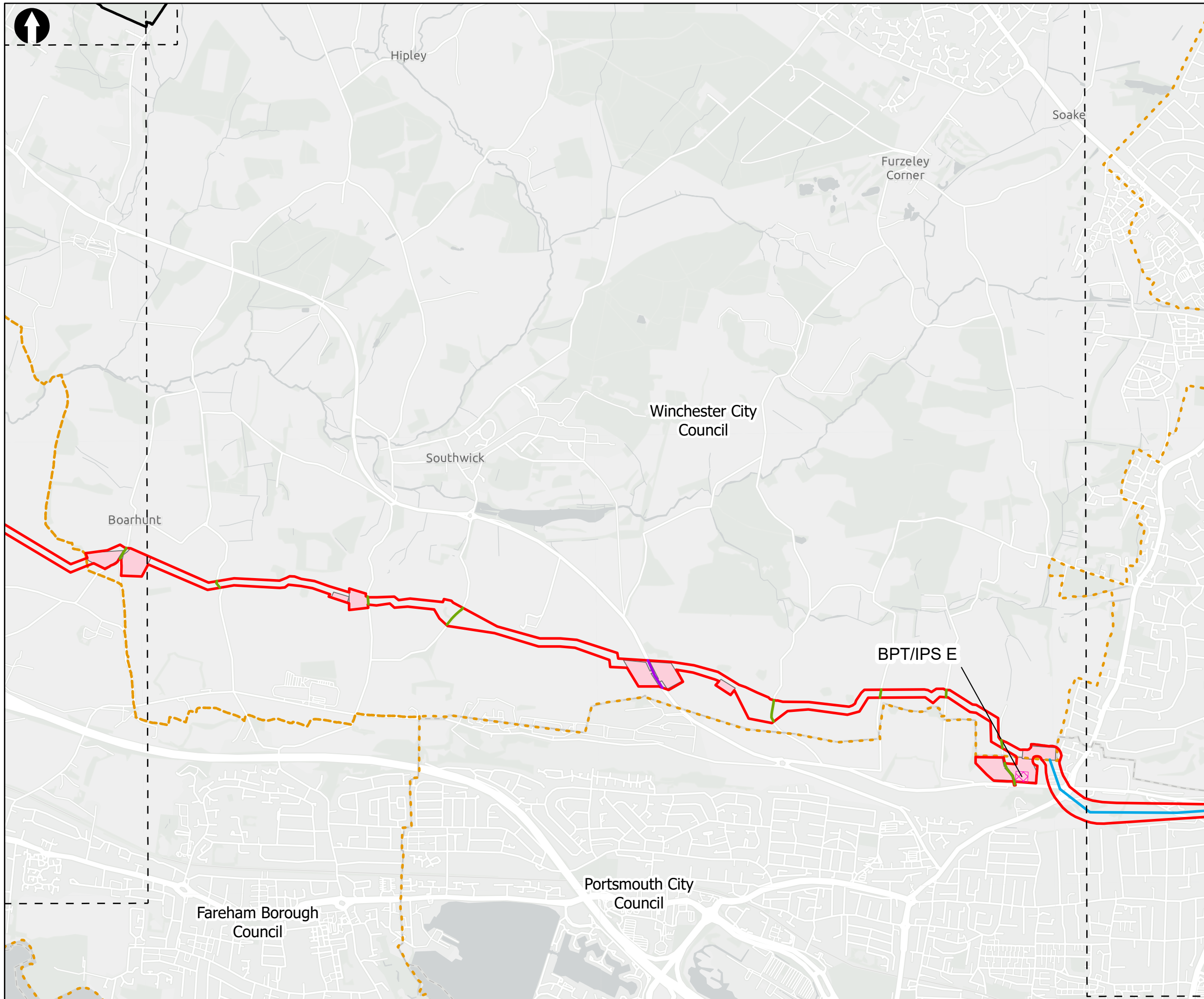
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 Figure Appendix A.1
 Road traffic management during construction
 Sheet 2 of 7

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Key to Symbols

- Draft Order Limits
- Potential Compound Locations
- Local planning authorities
- South Downs National Park

Above Ground Plant (AGP)

- Intermediate Pumping Station

Road Traffic Management Type

- Temporary Lane Closure
- Temporary Road Closure
- Tunnelled Section

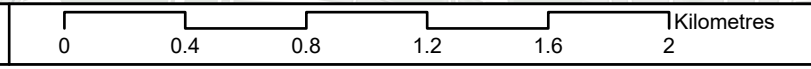
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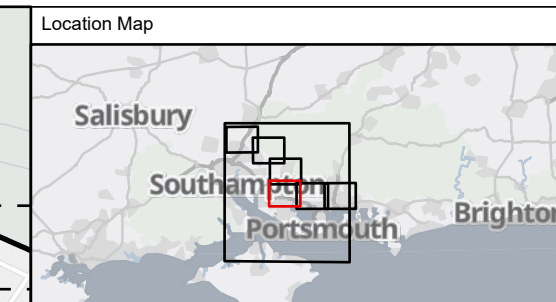
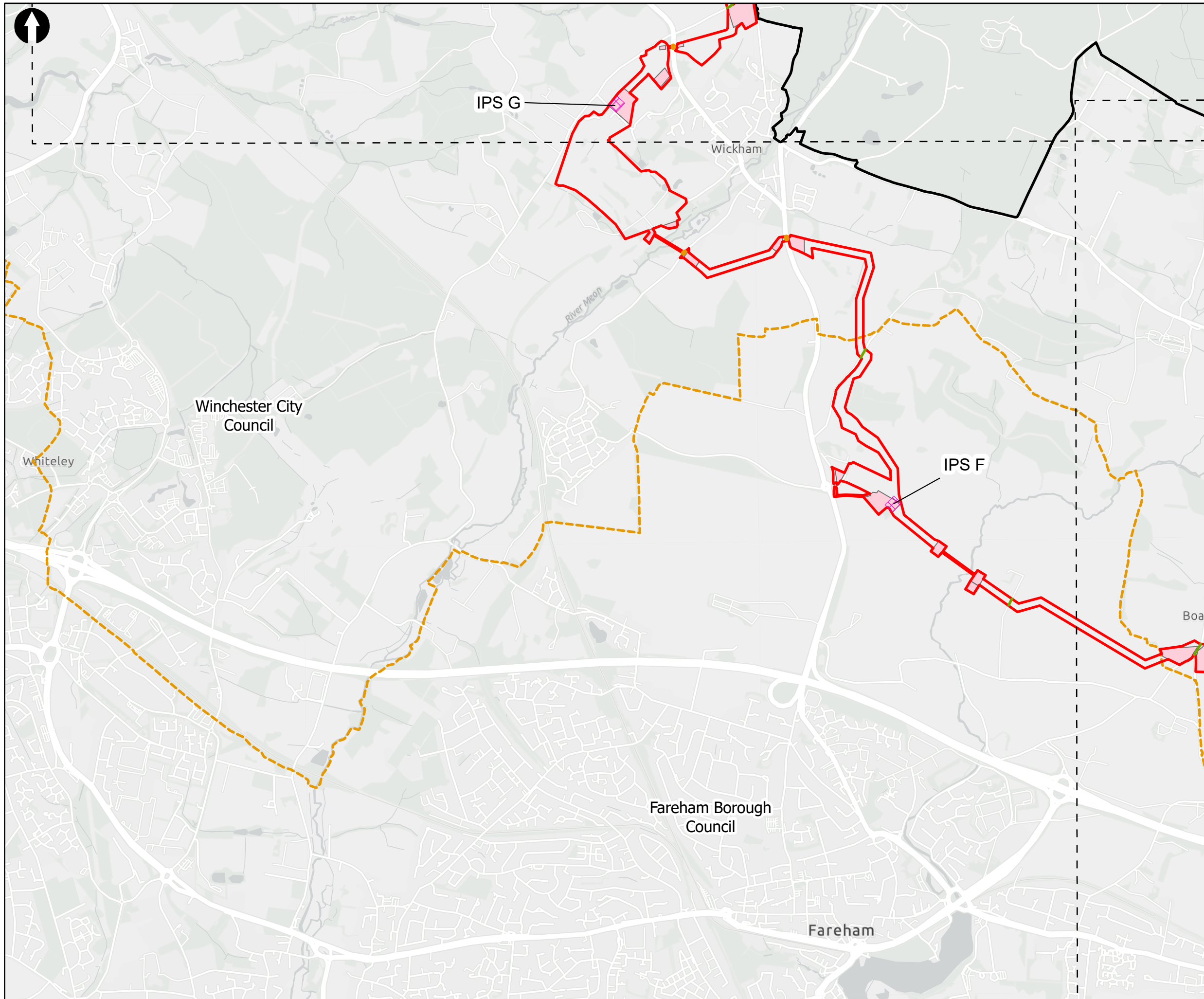
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Title
 Figure Appendix A.1
 Road traffic management during construction
 Sheet 3 of 7

Drawn MCP	GIS Checked GC	Checked JR	Approved MP
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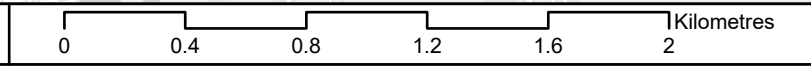
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- Potential Compound Locations
- Local planning authorities
- South Downs National Park
- Above Ground Plant (AGP)**
- X Intermediate Pumping Station
- Road Traffic Management Type**
- Temporary Road Closure
- Trenchless Crossing
- Sheet Extent Boxes 1:25K

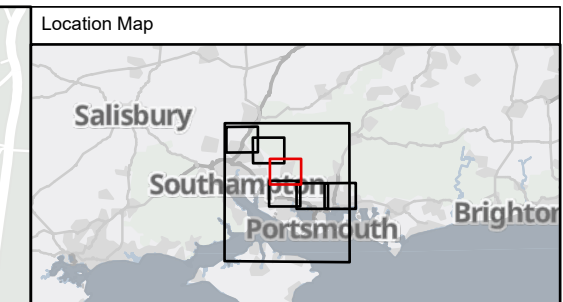
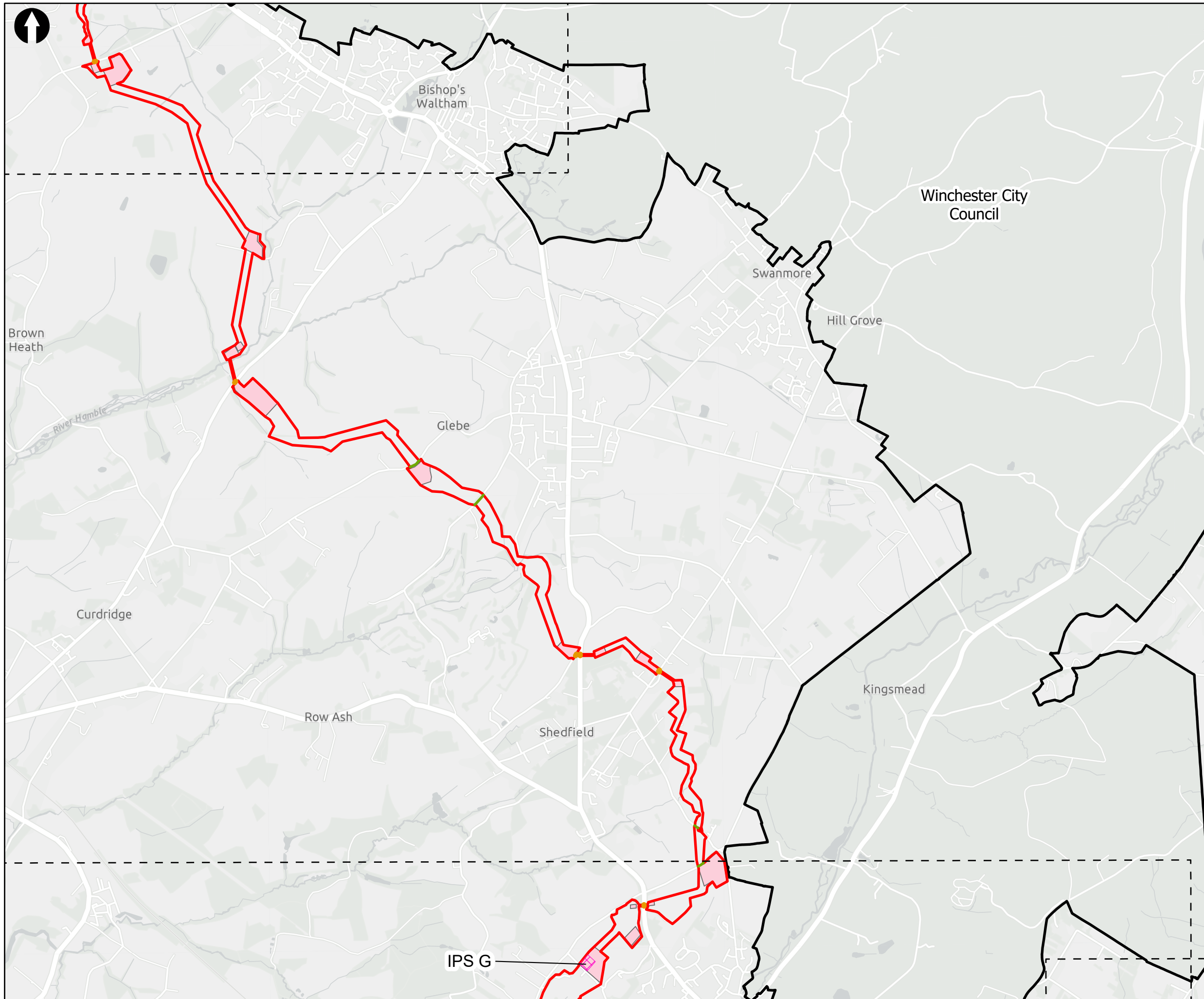
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 Figure Appendix A.1
 Road traffic management during construction
 Sheet 4 of 7

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Key to Symbols

- Draft Order Limits
- Potential Compound Locations
- Local planning authorities
- South Downs National Park

Above Ground Plant (AGP)

- Intermediate Pumping Station

Road Traffic Management Type

- Temporary Road Closure
- Trenchless Crossing

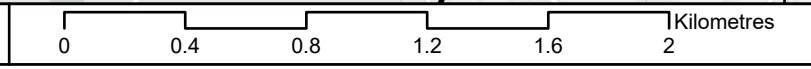
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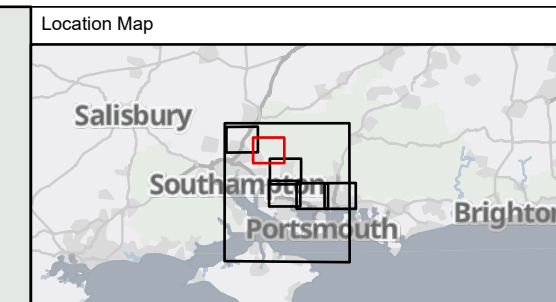
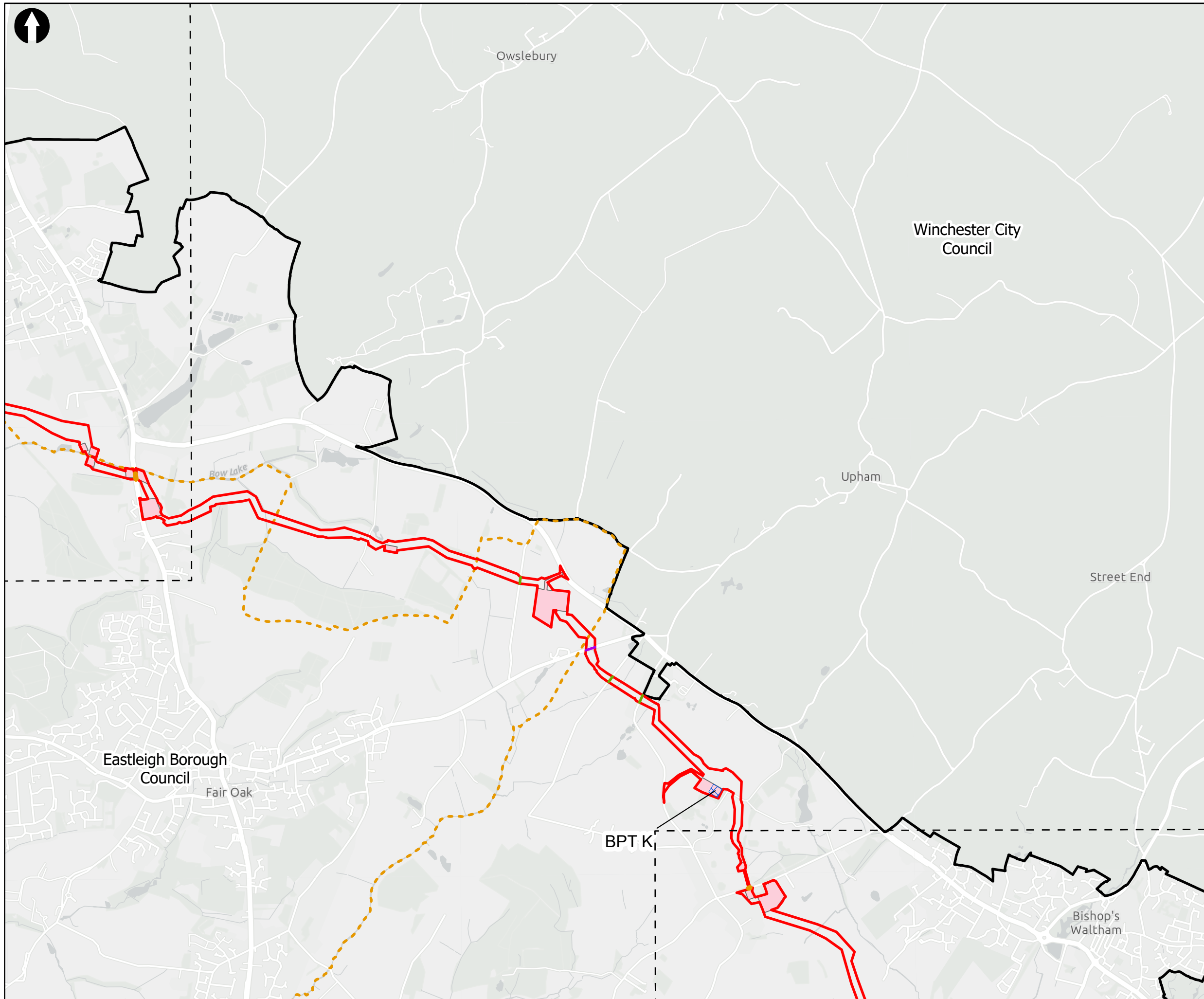
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 Figure Appendix A.1
 Road traffic management during construction
 Sheet 5 of 7

Drawn MCP	GIS Checked GC	Checked JR	Approved MP
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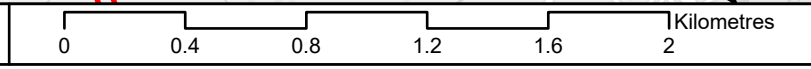
- Draft Order Limits
- Potential Compound Locations
- Local planning authorities
- South Downs National Park
- Above Ground Plant (AGP)**
- Break Pressure Tank
- Road Traffic Management Type**
- Temporary Lane Closure
- Temporary Road Closure
- Trenchless Crossing
- Sheet Extent Boxes 1:25K

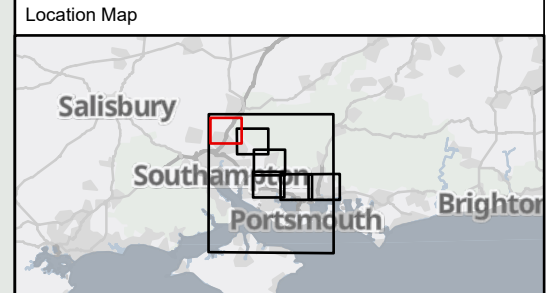
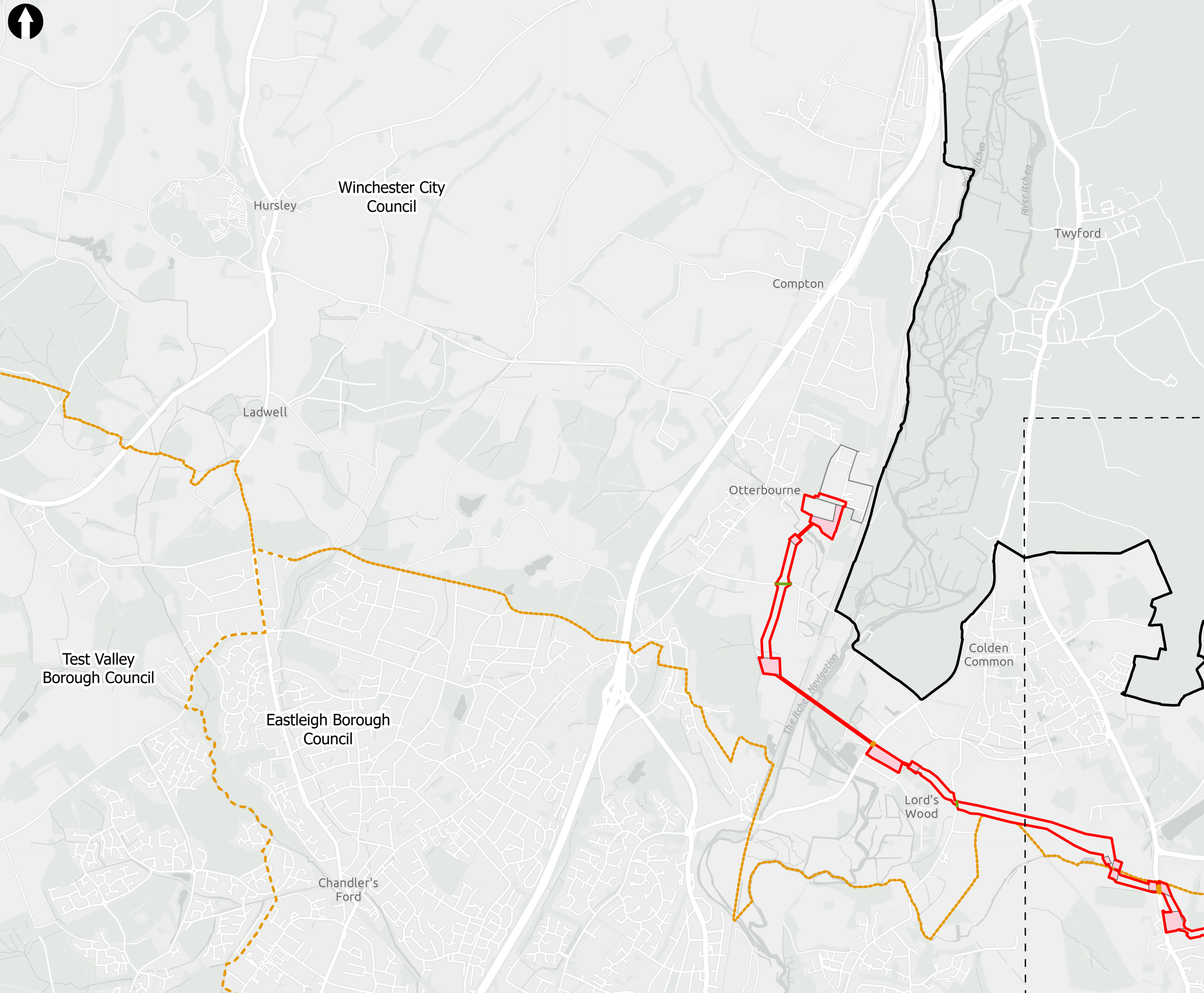
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 Road traffic management during construction
 Sheet 6 of 7

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Scale at A3 1:25,000	Status INF	Revision 01	Security STD





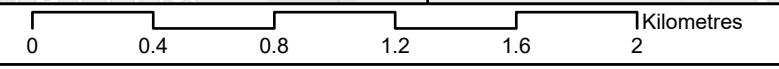
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- Draft Order Limits
 - Potential Compound Locations
 - Otterbourne Water Supply Works
 - Local planning authorities
 - South Downs National Park
- Road Traffic Management Type**
- Temporary Road Closure
 - Trenchless Crossing
- Sheet Extent Boxes 1:25K

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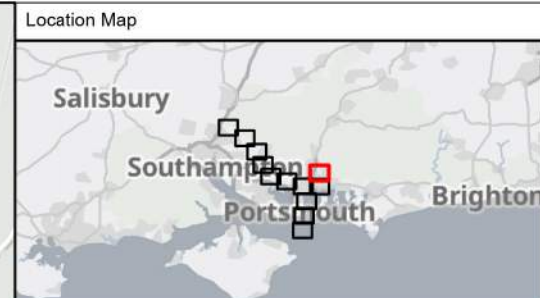
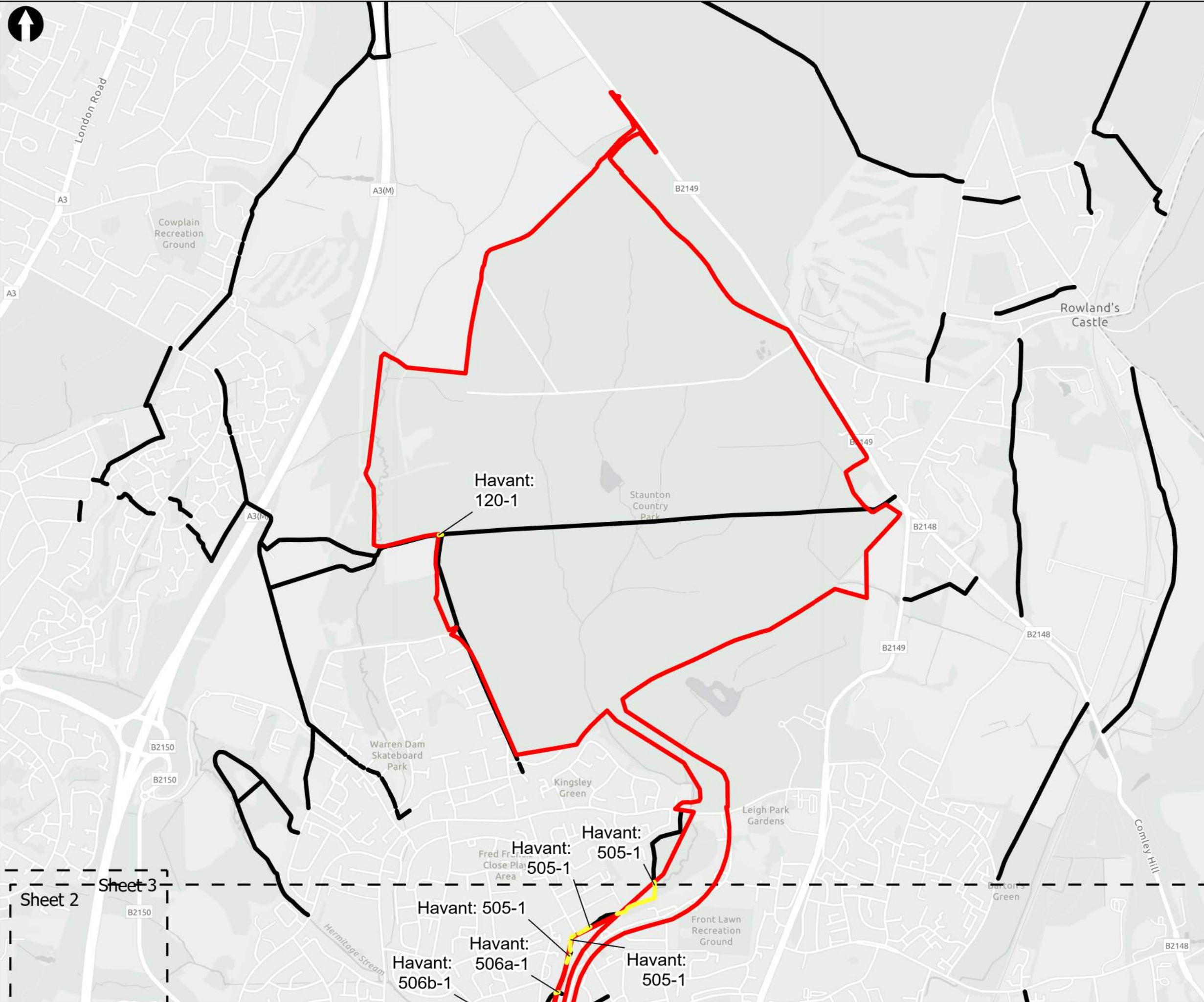


Title
Figure Appendix A.1
Road traffic management during construction
Sheet 7 of 7

Drawn MCP	GIS Checked GC	Checked JR	Approved MP
Scale at A3 1:25,000	Status INF	Revision 01	Security STD



Appendix B Public Rights of Way management proposals



- Key to Symbols**
- Draft Order Limits
 - Sheet Extent Boxes 1:15k
 - Public Right of Way Network
 - Trenchless or Tunnelled Pipeline Section

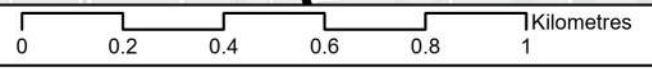
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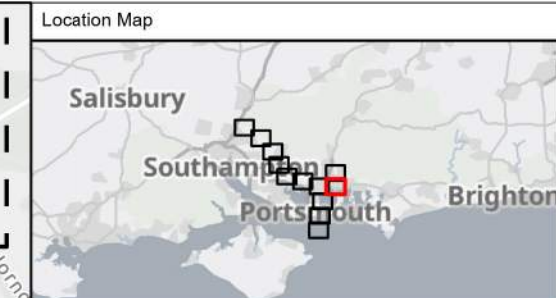
Title
 PRoW Mitigation (Construction Phase)
 Sheet 1 of 12

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Scale at A3 1:15,000	Status INF	Revision 01	Security STD

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- Key to Symbols**
- Draft Order Limits
 - Sheet Extent Boxes 1:15k
 - Public Right of Way Network
- Public Right of Way Mitigation**
- Kept Open
 - Trenchless or Tunnelled Pipeline Section

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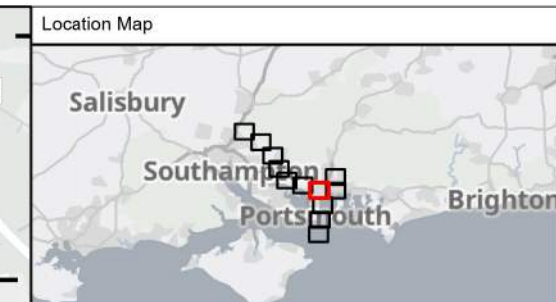
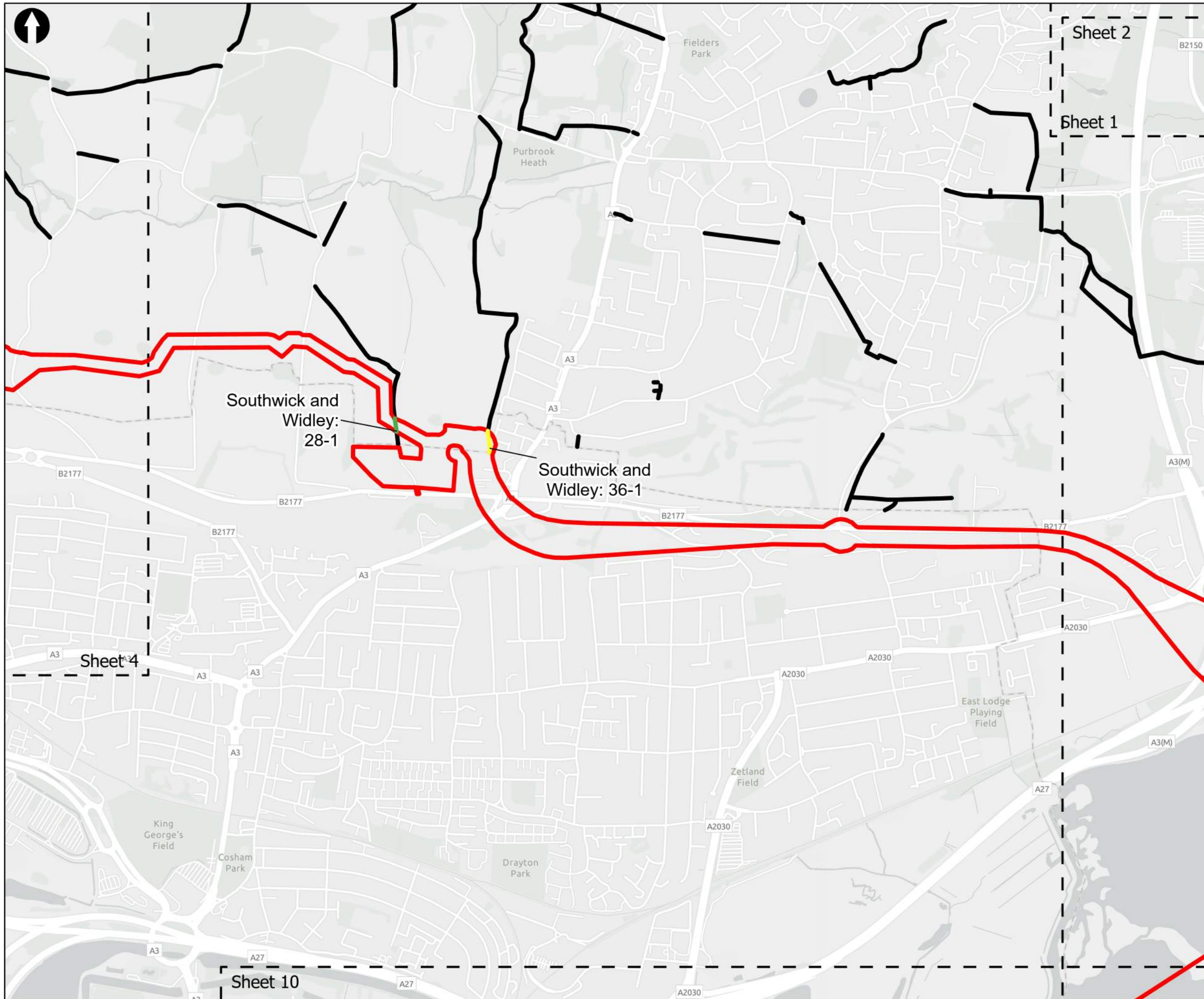
Title
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Scale at A3 1:15,000	Status INF	Revision 01	Security STD



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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:15k
- Public Right of Way Network

Public Right of Way Mitigation

- Kept Open
- Trenchless or Tunnelled Pipeline Section

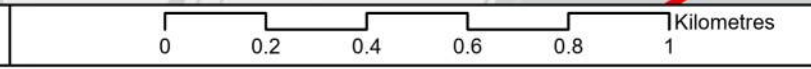
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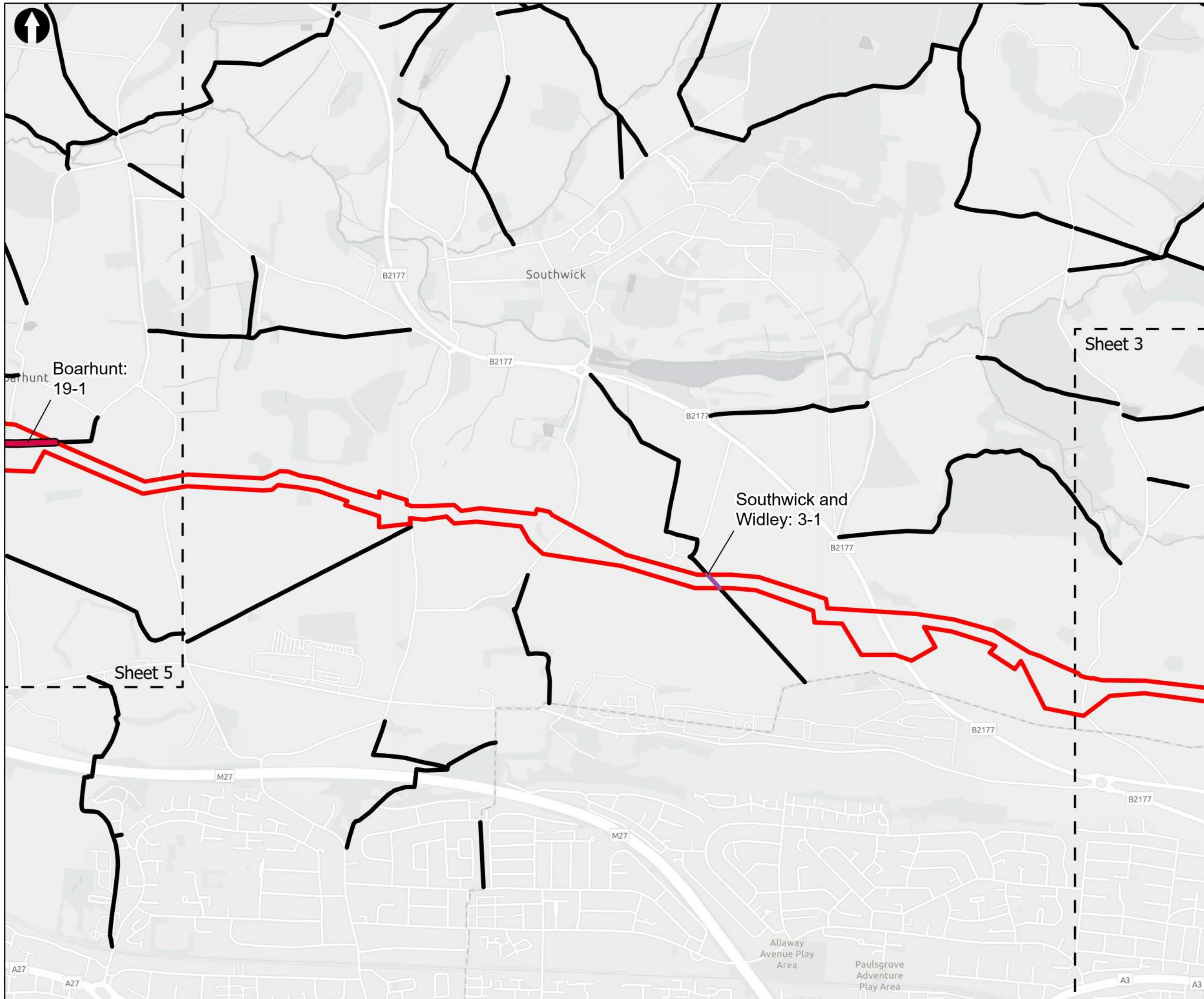
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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:15k
- Public Right of Way Network

Public Right of Way Mitigation

- Temporary Closure
- Not in use

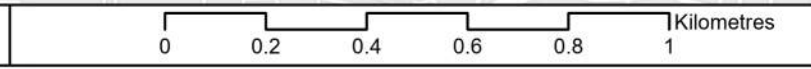
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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:15k
- Public Right of Way Network

Public Right of Way Mitigation

- Temporary Closure
- Kept Open
- Temporary Partial Closure

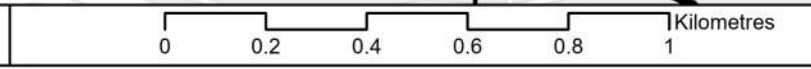
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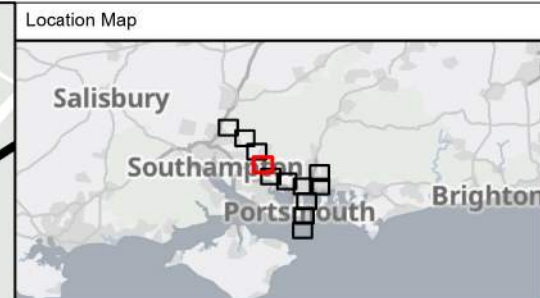
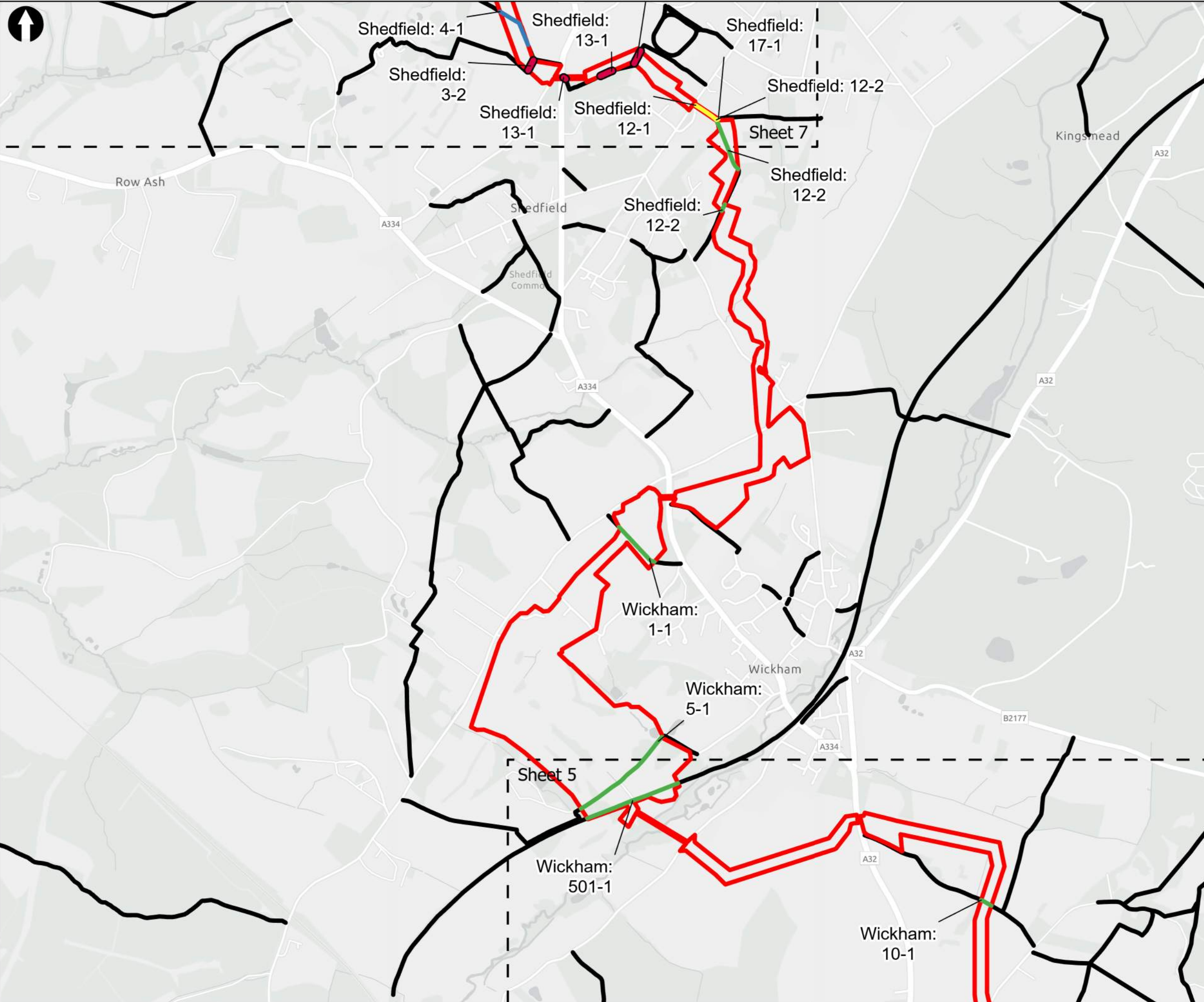
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- Key to Symbols**
- Draft Order Limits
 - Sheet Extent Boxes 1:15k
 - Public Right of Way Network
- Public Right of Way Mitigation**
- Temporary Closure
 - Temporary Diversion
 - Kept Open
 - Trenchless or Tunnelled Pipeline Section

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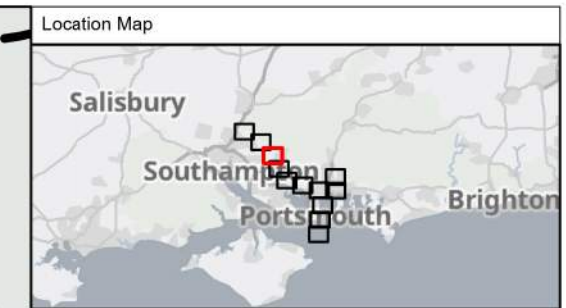
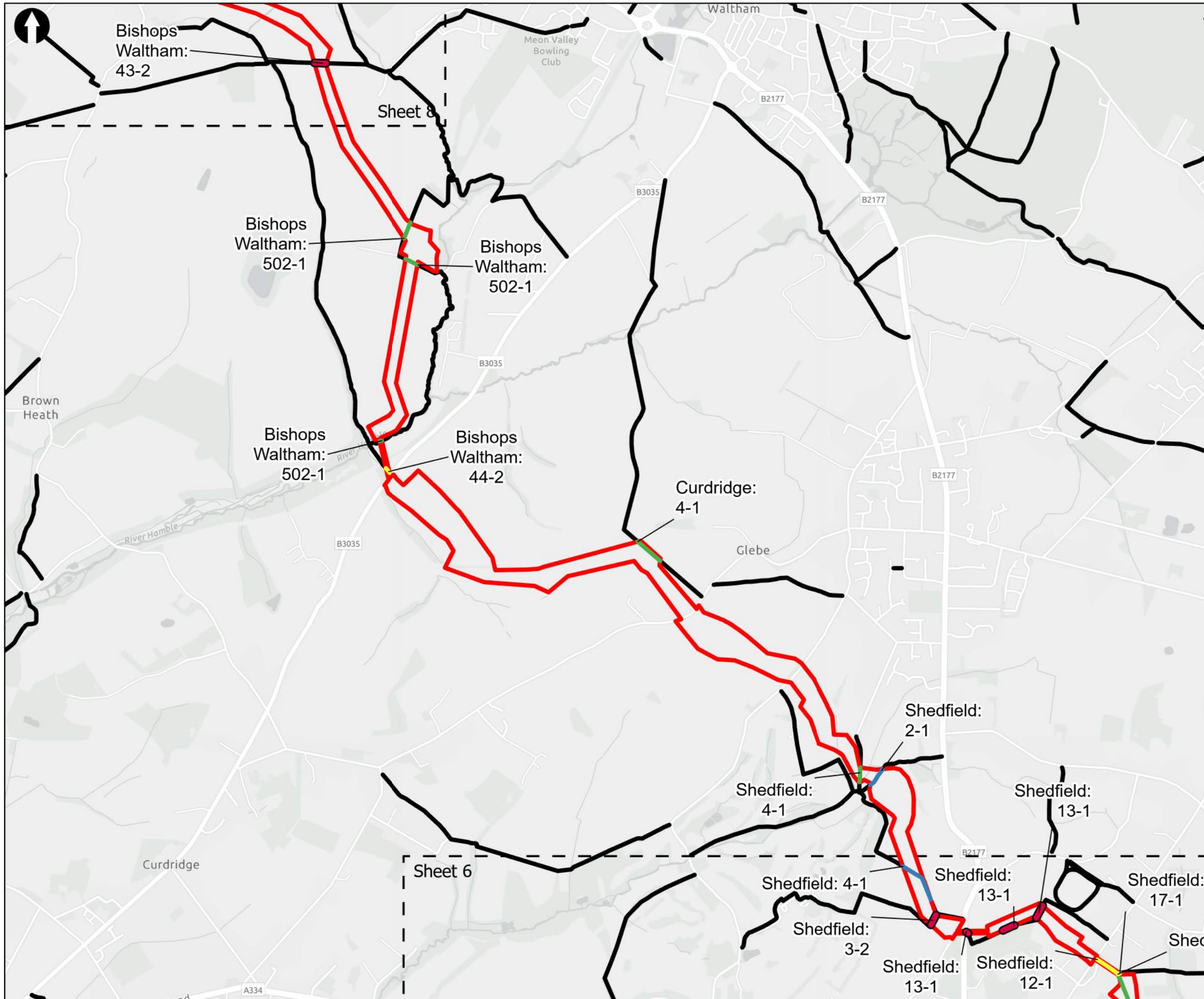
Title
 PRow Mitigation (Construction Phase)
 Sheet 6 of 12

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- Key to Symbols**
- Draft Order Limits
 - Sheet Extent Boxes 1:15k
 - Public Right of Way Network
- Public Right of Way Mitigation**
- Temporary Closure
 - Temporary Diversion
 - Kept Open
 - Trenchless or Tunnelled Pipeline Section

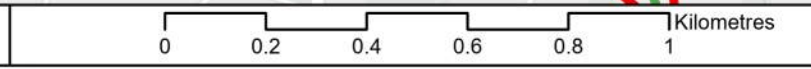
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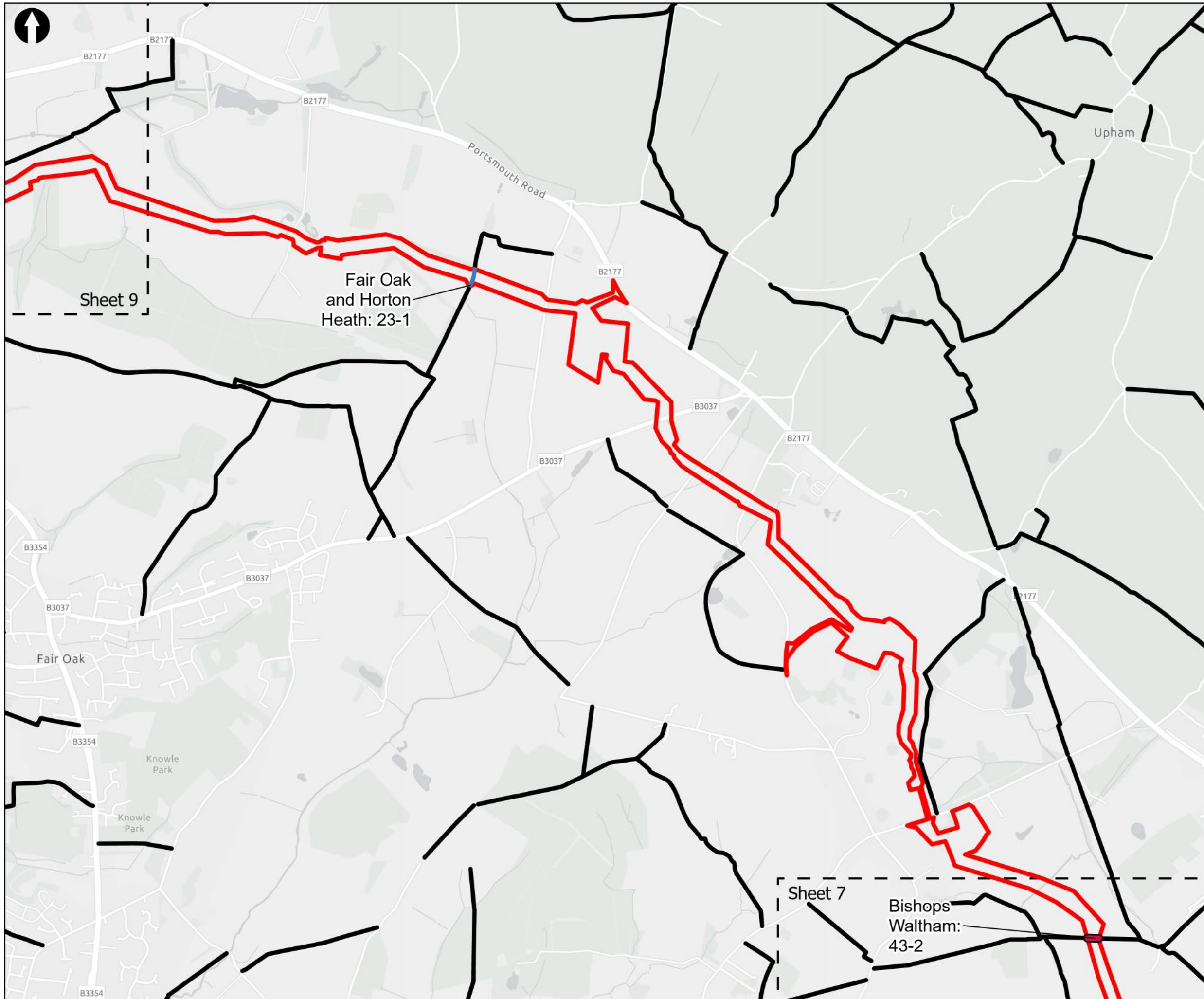
Title
 PRoW Mitigation (Construction Phase)
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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:15k
- Public Right of Way Network

Public Right of Way Mitigation

- Temporary Closure
- Temporary Diversion

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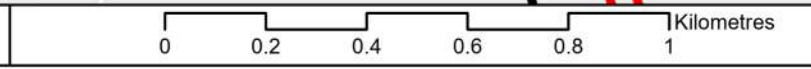


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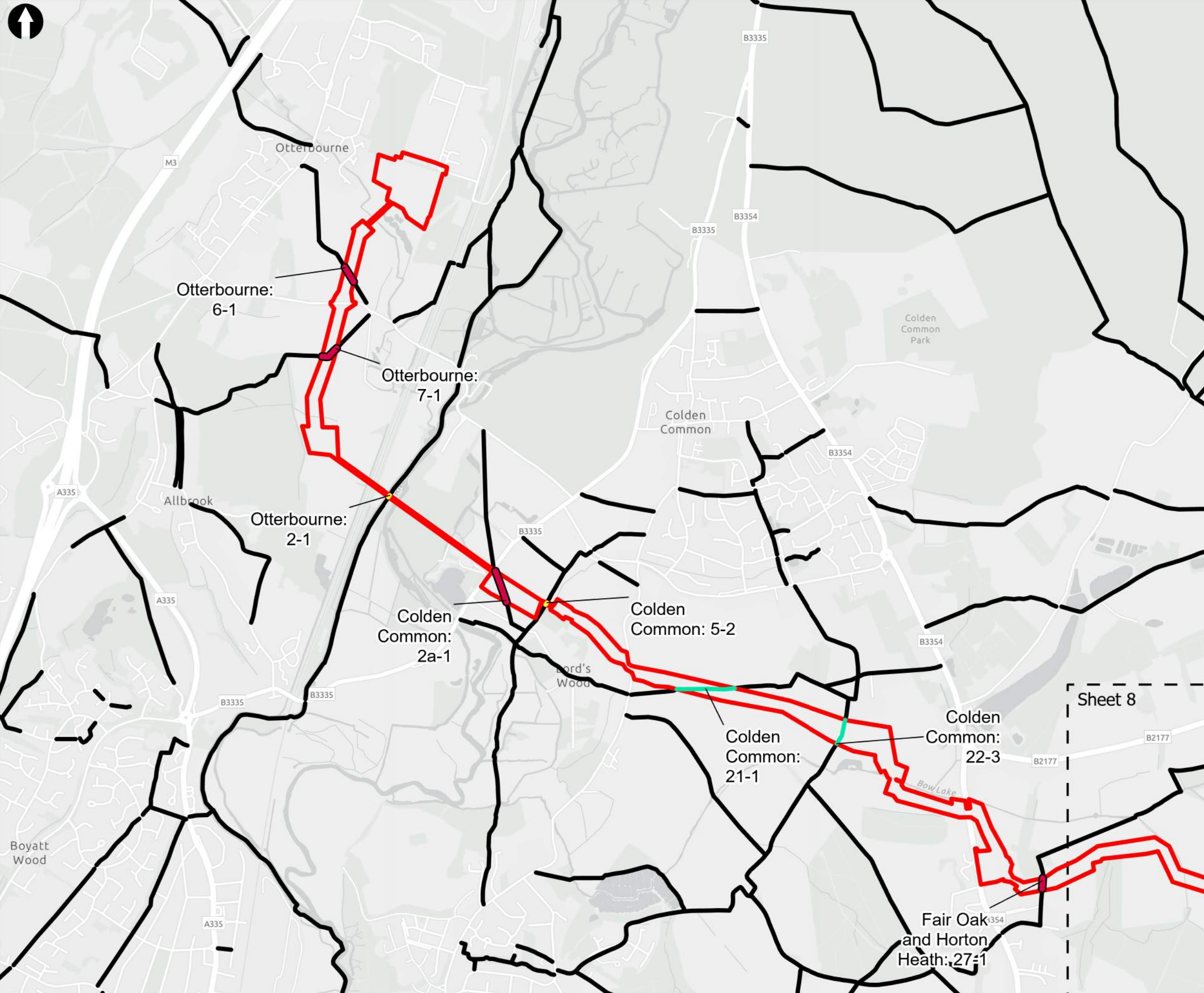
PRoW Mitigation (Construction Phase)
Sheet 8 of 12

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- Key to Symbols**
- Draft Order Limits
 - Sheet Extent Boxes 1:15k
 - Public Right of Way Network
- Public Right of Way Mitigation**
- Temporary Closure
 - Temporary Partial Closure
 - Trenchless or Tunnelled Pipeline Section

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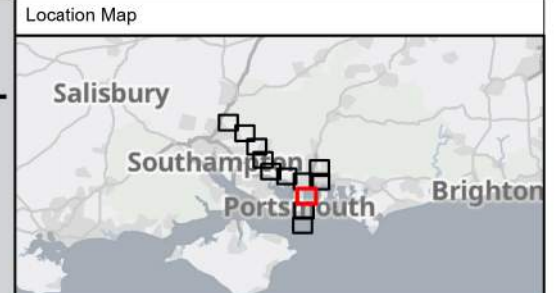
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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:15k

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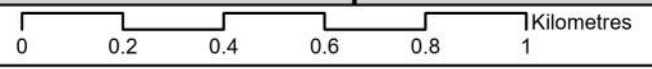


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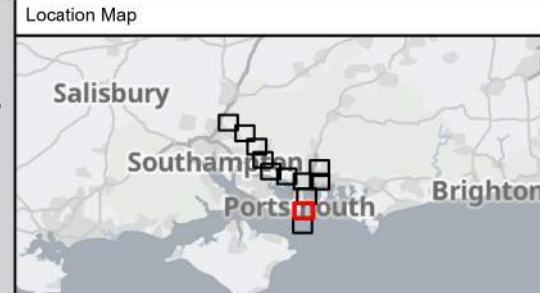
PRoW Mitigation (Construction Phase)
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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:15k

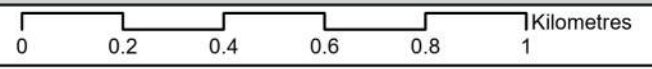
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Sheet 11

Location Map



Key to Symbols

-  Draft Order Limits
-  Sheet Extent Boxes 1:15k

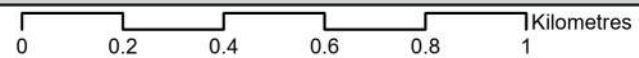
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Sheet 12 of 12

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N.B Some cells in the following table will be filled in at a future iteration following further scheme development.

PRoW Name	Proposed Category	More Detailed Management	Provisional Impact Time	Description of Other Information
Bishops Waltham 43-2	Closure is possible	If the footpath can't be kept open, the contractor is to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		Desire to return East to West connection. Trenchless crossing on Winters Hill.
Bishops Waltham 44-2	No impact	Trenchless crossing		Same PRoW crossed again
Bishops Waltham 502-1	Kept Open	Temporary diversion around construction compound (to the east/north)		
Bishops Waltham 502-1	No impact	Trenchless Crossing		Same PRoW crossed again
Boarhunt 19-1	Closed	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		
Budds Farm - tunnelled - to be added at future iteration				
Colden Common 21-1	Partial closure, open weekends	Sequence management of closures between Colden Common 21-1 and 22-3. Assumption closed weekdays and open on the weekends.		
Colden Common 22-3	Partial closure, open weekends	Sequence management of closures between Colden Common 21-1 and 22-3. Assumption closed weekdays and open on the weekends		

N.B Some cells in the following table will be filled in at a future iteration following further scheme development.

PRoW Name	Proposed Category	More Detailed Management	Provisional Impact Time	Description of Other Information
Colden Common 2a/1	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		Through a construction compound
Colden Common 5-2	No impact			Trenchless crossing
Curdridge 4-1	Kept Open	Potential for very minor diversion within extent of the dOL		
E-9 European long distance route	Kept open			Long distance trail
Fair Oak and Horton Heath 23-1	Diversion proposed - Detail review needed	Divert the Bridleway along the southern boundary of the pipeline route to Stroudwood Lane. Need to review dOL or alternative routes to the south.		This is a bridleway
Fair Oak and Horton Heath 27-1	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		There is a road to the left that will be kept open - Winchester Road - trenchless. No obvious option to the left.
Fareham 103-1	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		Not a lot of alternatives, road network quite far. Forest Lane to Chalk Lane. Fareham 106/1 may be an alternative potential for longer distance walks.
Fareham 106-1	No impact	Trenchless crossing		Trenchless crossing

N.B Some cells in the following table will be filled in at a future iteration following further scheme development.

PRoW Name	Proposed Category	More Detailed Management	Provisional Impact Time	Description of Other Information
Fareham 107-1	Partial closure, open weekends	Keep open on weekends - managed access. If the footpath can't be kept open on weekdays - contractor to identify an appropriate alternative route for the duration of the temporary closure.		This connects to a long distance trail at Boarhunt. Alan King Way - on the road there is crossing of the haul road that can be managed.
Havant 32-1	Kept open			Impacted by an access road
Havant 34-1	Kept Open (subject to Portsmouth Water proposals)	Temporary diversion required around compound		Need to understand what Portsmouth Water are doing. Long-distance trail.
Otterbourne 2-1	No impact			Will be tunnelled. Itchen Way
Otterbourne 6-1	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		Kiln Lane to the south will be closed for period of time when its crossed. Permissive footpath to the north will not be impacted as this section of the pipeline will be tunnelled.
Otterbourne 7-1	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.	TBC – this could be longer as trenchless crossing.	If alternative route is via Kiln Lane, contractor, footpath to be opened when Kiln Lane is closed.
Pilgrims trail on Pigeonhouse Lane	Kept open	Lane to be closed when road is crossed but open the rest of the time		
Shedfield 12-1	No impact	Trenchless crossing		Trenchless crossing
Shedfield 12-2	Kept open	Diversion around perimeter (north/east) of the construction compound		Divert around the perimeter of the construction compound.

N.B Some cells in the following table will be filled in at a future iteration following further scheme development.

PRoW Name	Proposed Category	More Detailed Management	Provisional Impact Time	Description of Other Information
				May need to increase the dOL for this to be achieved
Shedfield 12-2	Kept Open	Private road also provides access to farm buildings		
Shedfield 13-1	No impact	Trenchless crossing		Trenchless crossing
Shedfield 13-1	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		Lots of other streets in proximity. Blackhorse Lane / Winchester Lane possible local diversion routes
Shedfield 3-2	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Minor diversion via access track and St Annes Lanes		4 PRoW crossing near. St Annes Lane kept open (trenchless crossing)
Shedfield 2-1	Closure with diversion	Minor diversion with dOL to connect to Shedfield 4-1 to the north - need to check if possible through vegetation		4 PRoW crossing near. May need to push dOL to the north to allow more space
Shedfield 4-1	Kept Open	Private road also provides access to farm buildings		Alternative route for PRoW Shedfield 2-1
Shedfield 4-2	Closure with diversion	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Minor diversion to join 3-2 across the field, with access to St Annes Lane via farm track		4 PRoW crossing near
Southwick and Widley 28-1	Kept open	Access to the farm		
Southwick and Widley 3-1	Closed	No evidence footpath in use on satellite imagery - to be confirmed with Hampshire CC		Connects to Pilgrims Trail and near popular open space. Not clear

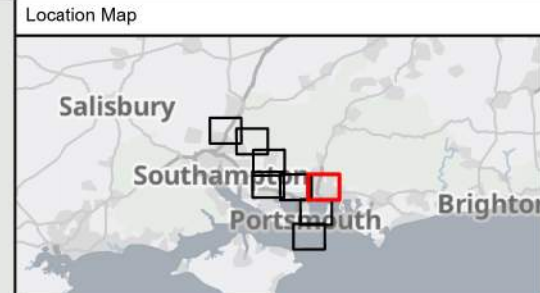
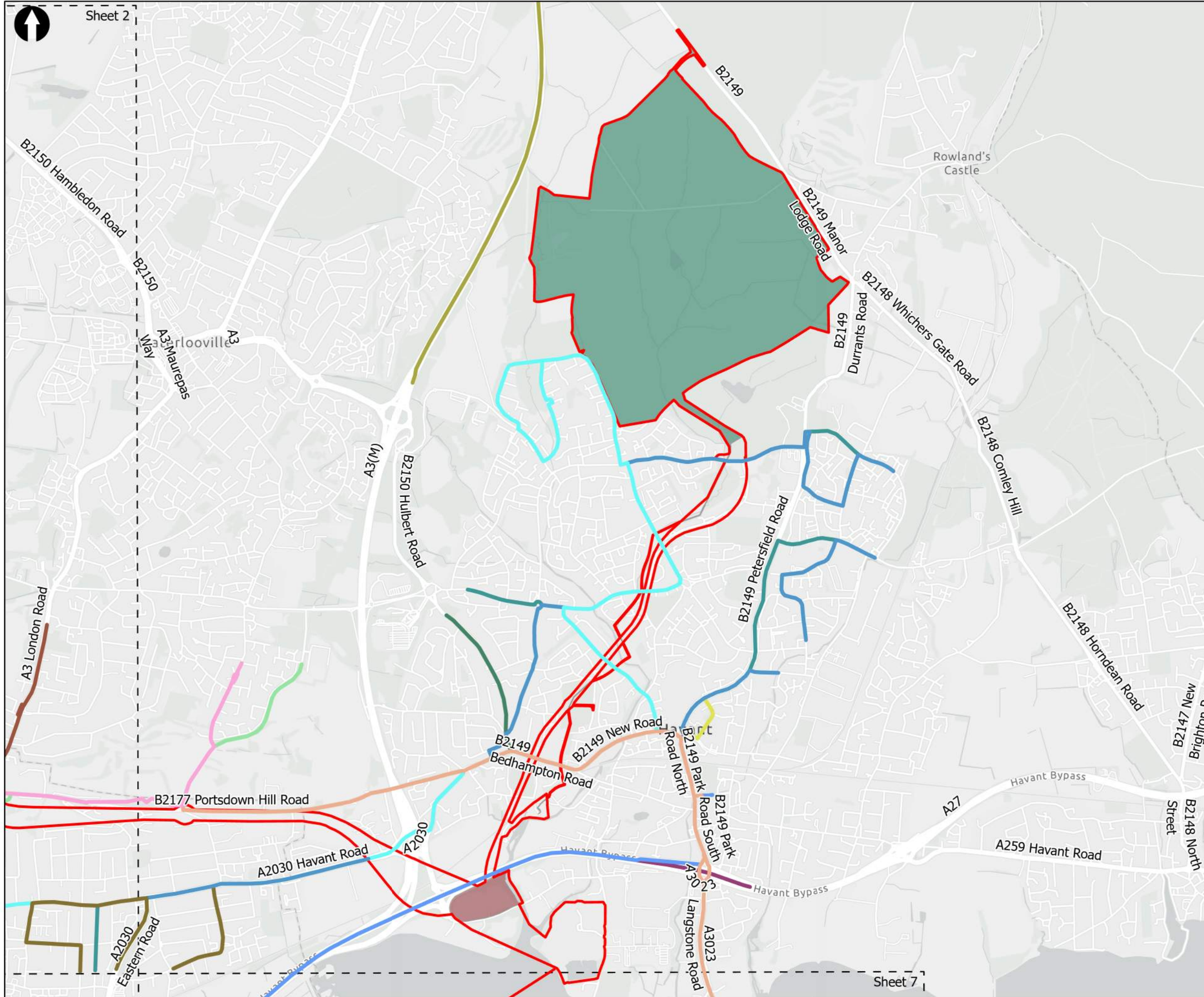
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PRoW Name	Proposed Category	More Detailed Management	Provisional Impact Time	Description of Other Information
				how the route works
Southwick and Widley 36-1	Not impacted	Tunnel in this location		
Wickham 10-1	Kept Open	Once pipeline has crossed the road it will be open, short term closures for pipe laying in the road.		
Wickham 1-1	Closure is possible	If the footpath can't be kept open - contractor to identify an appropriate alternative route for the duration of the temporary closure. Alternative routes deemed to be feasible.		Winchester road and Titchfield Lane 14-2 also comes straight onto the road Trenchless crossing on Winchester Road
Wickham 501-1	Kept Open	Any temporary impacts to be kept to the minimum		Meon Valley Trail
Wickham 5-1	Kept Open	Needed for access		Access road into treatment works and farm.

Appendix C Potential impacts on bus routes



Sheet 2



Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:25k

Bus Routes

- 20
- 21
- 22
- 23
- 30
- 31
- 621
- 7
- 700
- 725
- 737
- 8
- SD4
- SD5
- SD7

Principal Components of the Proposed Development

- Eastney Outfall
- Havant Thicket Reservoir
- Portsmouth Water Havant Thicket Reservoir Pipelines
- Water Recycling Plant

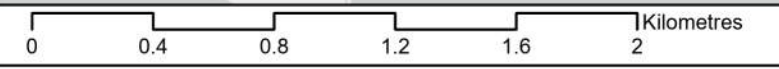
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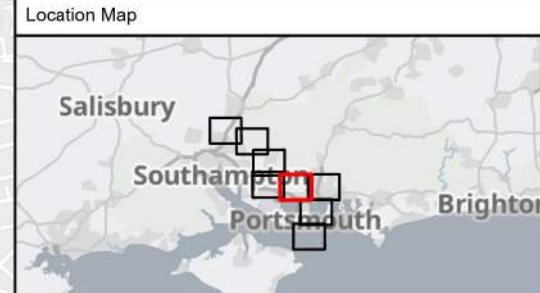
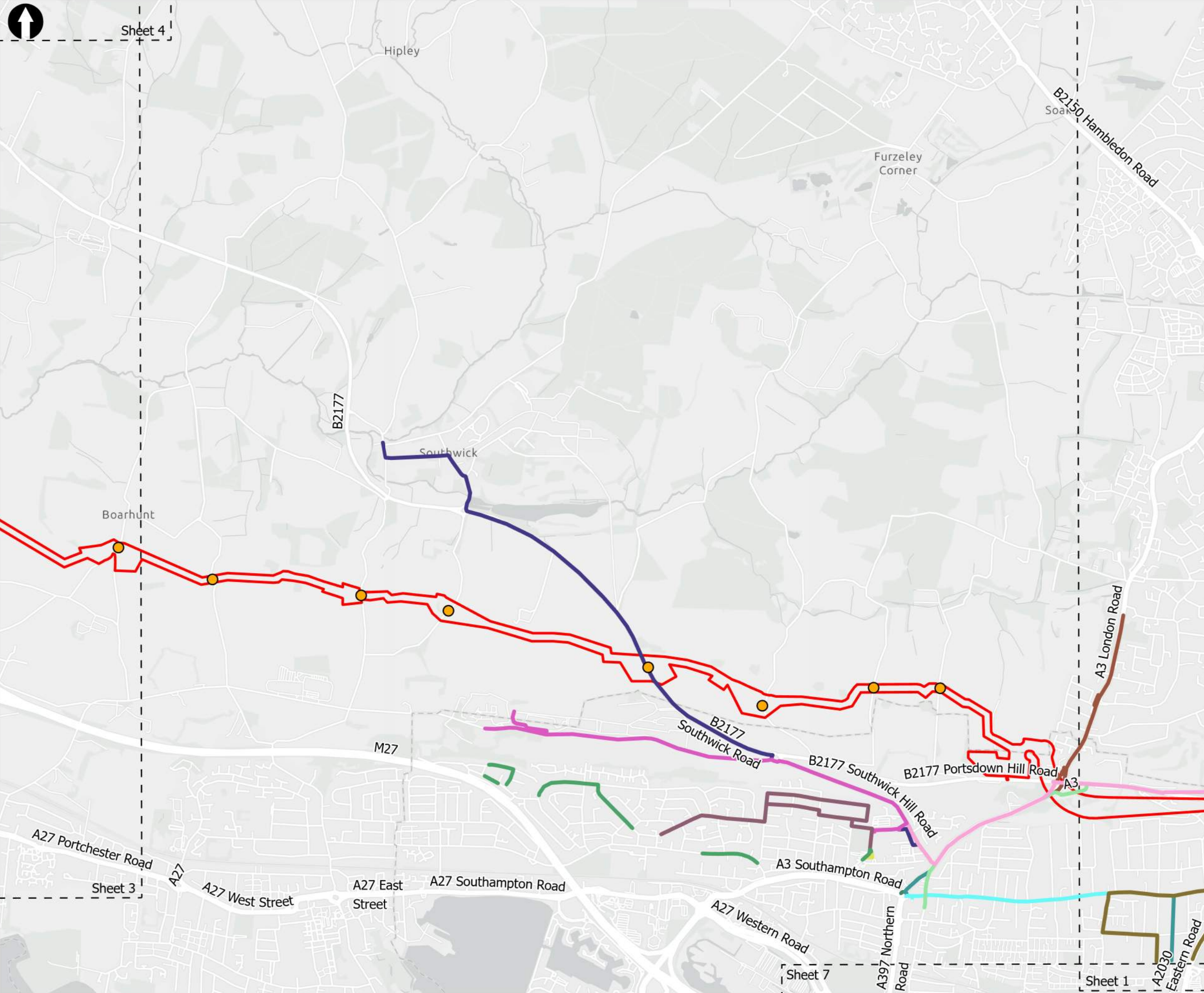
Title
 Bus routes within the vicinity of the draft Order Limits
 Sheet 1 of 8

Drawn ND	GIS Checked GC	Checked TL	Approved MP
Scale at A3 1:25,000	Status INF	Revision 01	Security STD

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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:25k
- Crossing Points

Bus Routes

- 18
- 2
- 20
- 21
- 22
- 23
- 3
- 38
- 621
- 7
- 8
- PC1
- QA1
- SD4
- SD5
- SD7

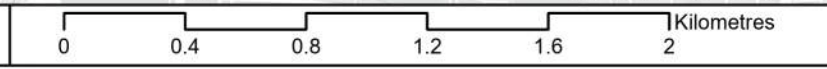
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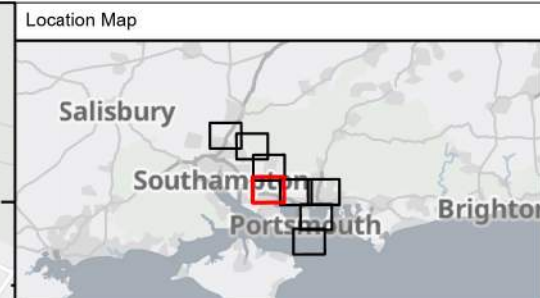
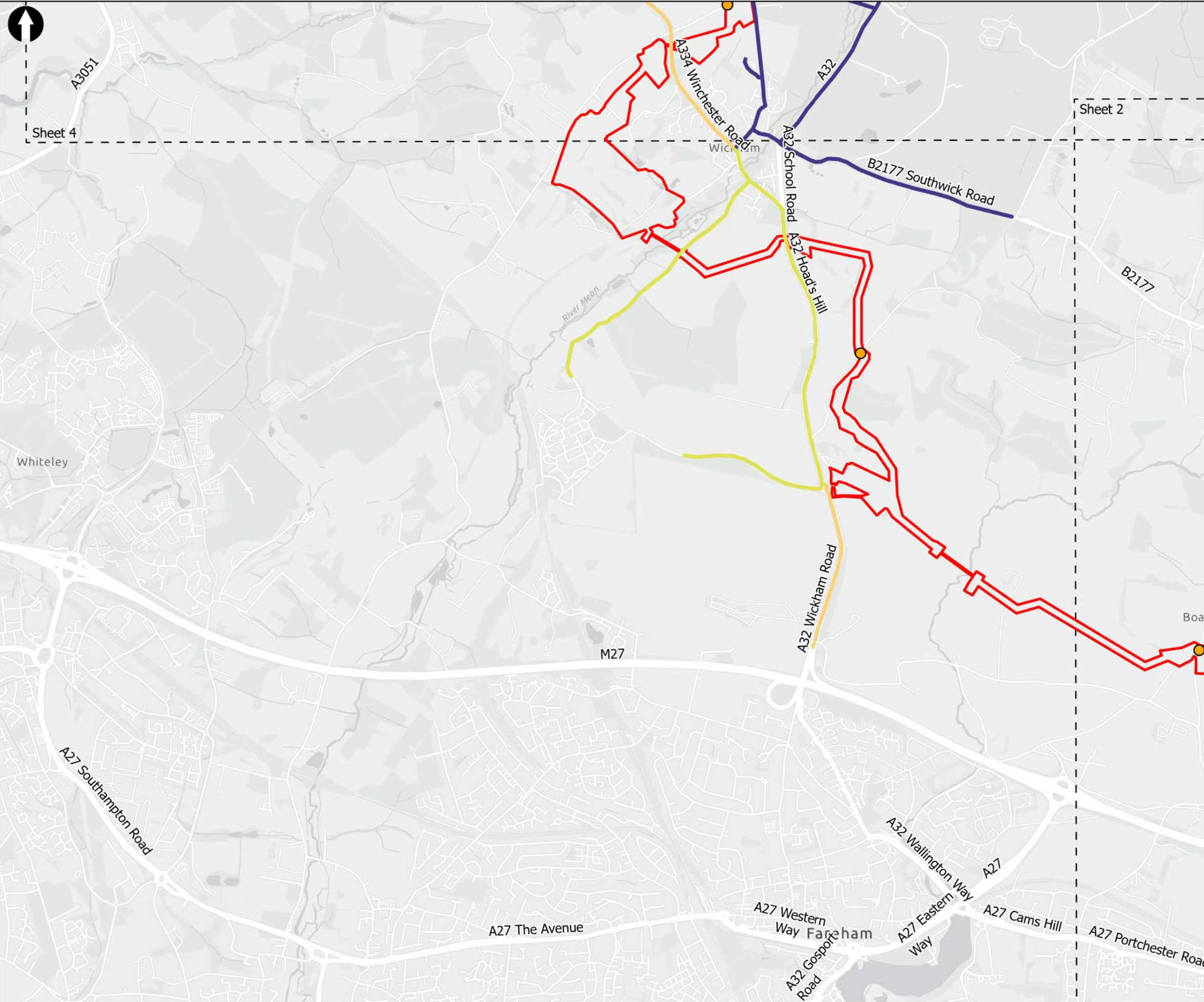
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- Key to Symbols**
- Draft Order Limits
 - Sheet Extent Boxes 1:25k
 - Crossing Points
- Bus Routes**
- 20
 - 38
 - 607
 - 69
 - 691
 - 96
 - SD4

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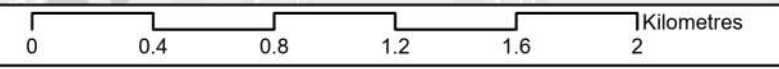


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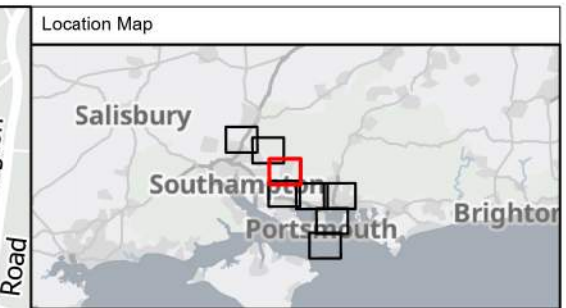
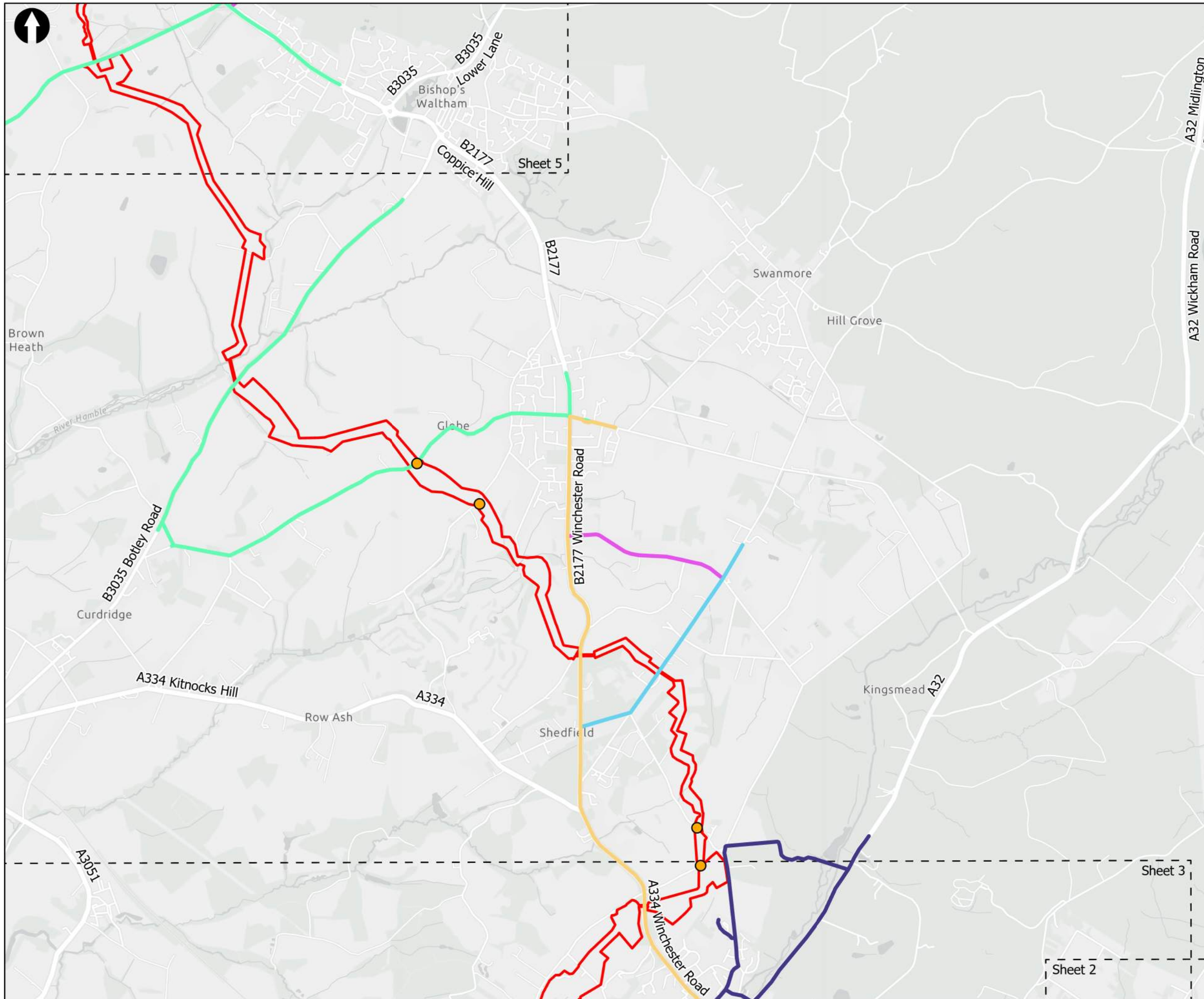
Bus routes within the vicinity of the draft Order Limits
 Sheet 3 of 8

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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:25k
- Crossing Points

Bus Routes

- 38
- 49
- 606
- 607
- 649
- 69
- 691
- 96
- SD4

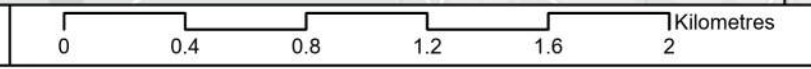
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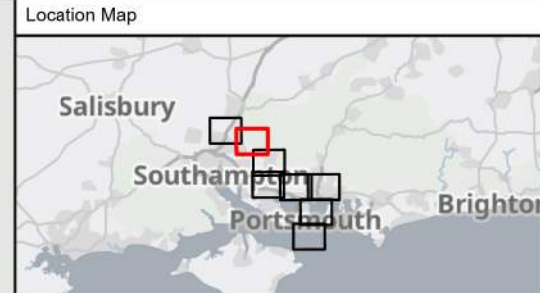
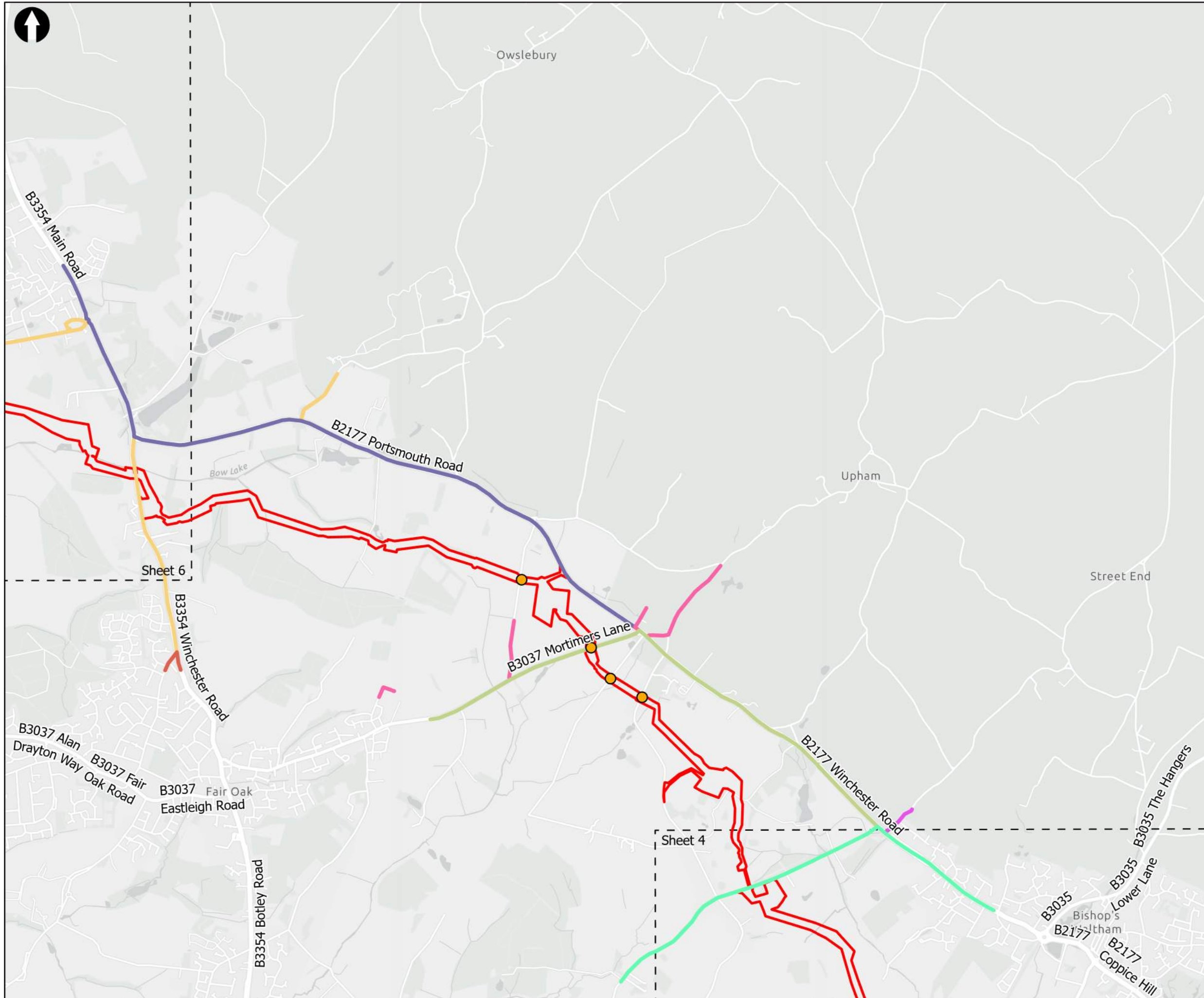
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 Bus routes within the vicinity of the draft Order Limits
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Key to Symbols

- Draft Order Limits
 - Sheet Extent Boxes 1:25k
 - Crossing Points
- Bus Routes**
- 2
 - 24V
 - 24Y
 - 49
 - 606
 - 607
 - 649
 - 69
 - 691

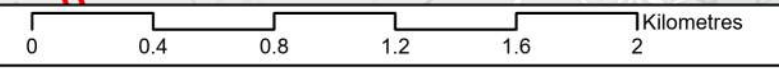
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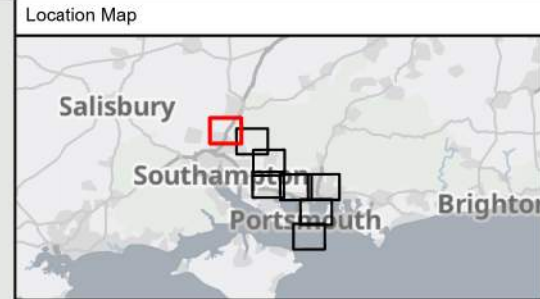
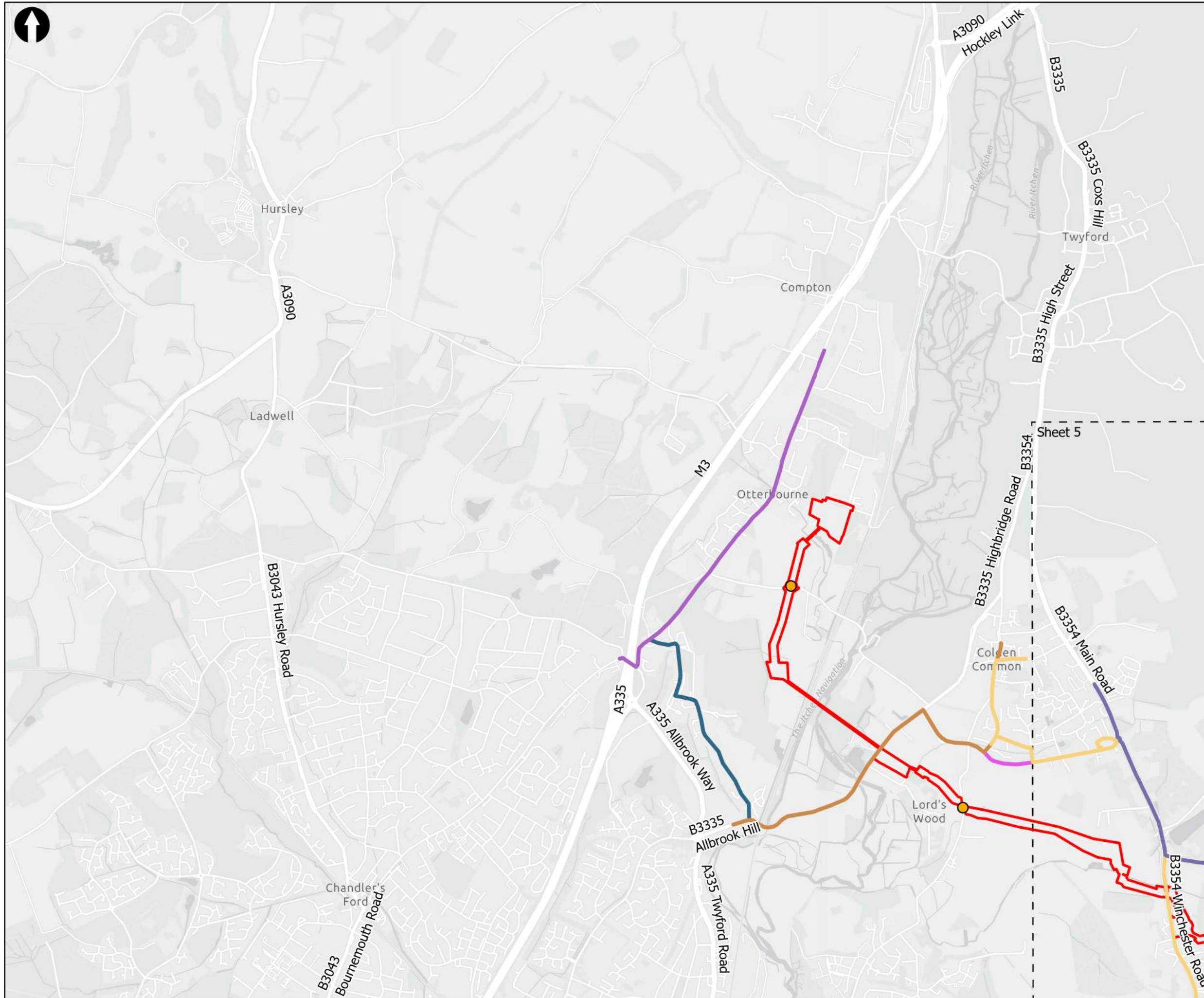
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 Bus routes within the vicinity of the draft Order Limits
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- Key to Symbols**
- Draft Order Limits
 - Sheet Extent Boxes 1:25k
 - Crossing Points
- Bus Routes**
- 1
 - 606
 - 623
 - 69
 - 691
 - E1
 - E2

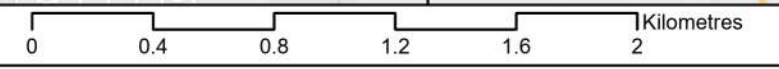
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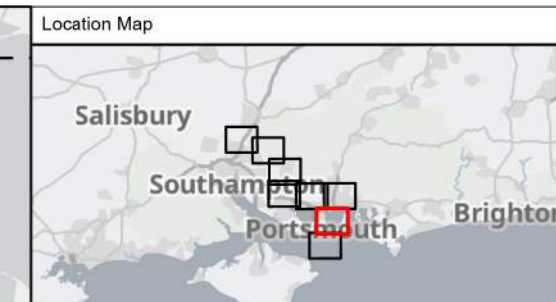
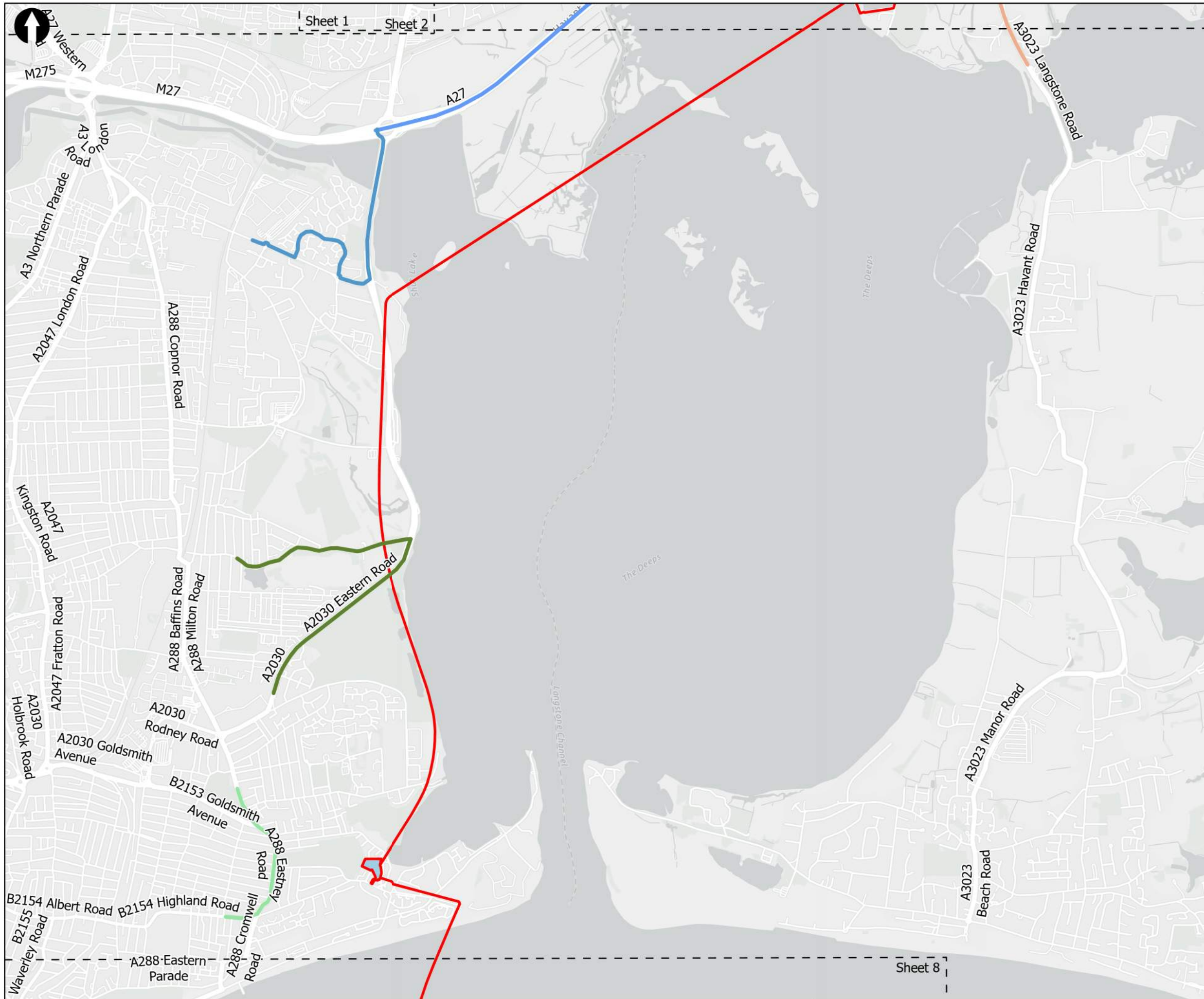
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Bus routes within the vicinity of the draft Order Limits
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Key to Symbols

- Draft Order Limits
- Sheet Extent Boxes 1:25k

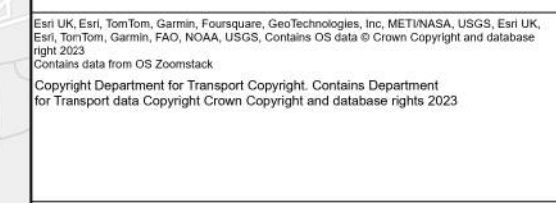
Bus Routes

- 2 (Red)
- 21 (Blue)
- 30 (Orange)
- 31 (Dark Blue)
- 621 (Teal)
- 700 (Light Blue)
- 725 (Purple)
- PC1 (Green)
- SD7 (Light Green)

Principal Components of the Proposed Development

- Eastney Outfall (Blue shaded area)

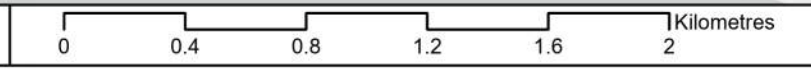
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Title

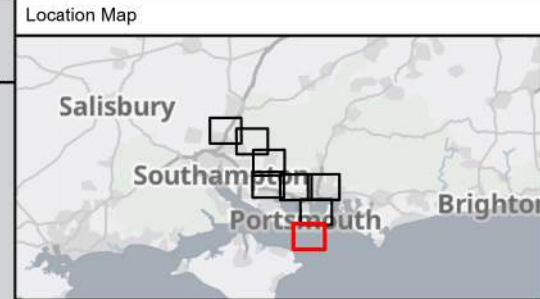
Bus routes within the vicinity of the draft Order Limits
 Sheet 7 of 8

Drawn ND	GIS Checked GC	Checked TL	Approved MP
Scale at A3 1:25,000	Status INF	Revision 01	Security STD





A288 Clarence Parade
 A288 South Parade
 Sheet 7
 A288 St Helens Parade
 A288 Eastern Parade



- Key to Symbols
- Draft Order Limits
 - Sheet Extent Boxes 1:25k
- Principal Components of the Proposed Development
- Eastney Outfall

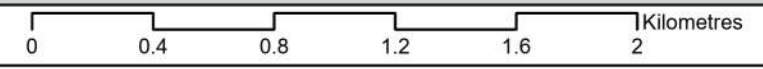
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Title

Bus routes within the vicinity of the draft Order Limits
 Sheet 8 of 8

Drawn ND	GIS Checked GC	Checked TL	Approved MP
Scale at A3 1:25,000	Status INF	Revision 01	Security STD





from
Southern
Water. 

The Southern Water logo graphic consists of three stylized, white, wavy lines that resemble water waves, positioned to the right of the word "Water".