Hampshire Water Transfer and Water Recycling Project

Design Principles Document

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1 Introduction

1.1.1 This Design Principles Document (DPD) has been prepared on behalf of Southern Water Services Limited (hereafter referred to as 'the Applicant') to accompany the Development Consent Order (DCO) application for the Hampshire Water Transfer and Water Recycling Project (the 'Project').

~~1.1.1~~1.1.2 This document has been updated at Deadline 1 having regard to Relevant Representations and ongoing engagement with various stakeholders. References to other Application documents have not been updated from the original submission. Please refer to the latest version of the Guide to the Application (Document reference 1.3, DCO Volume 1) for the list of current versions of documents.

1.2 Purpose of this document

1.2.1 The DPD contains the General Design Principles and Site Specific Design Principles (together, the 'Design Principles') with which the detailed design of the Project will be required to comply with.

1.2.2 General Design Principles (GDPs) are applicable to all or more than one Project component, whilst the Site Specific Design Principles (SSDPs) are relevant to individual Project components.

1.2.3 The DPD also contains the following Design Principles Plans at Appendix A which, alongside the relevant design principles, control various parameters for the built form of above ground plant. These plans are titled as follows:

- Water Recycling Plant (WRP) Design Principles Plan
- Break Pressure Tank / Intermediate Pumping Station E (BPT/IPS-E) Design Principles Plan
- Intermediate Pumping Station F (IPS-F) Design Principles Plan
- Intermediate Pumping Station G (IPS-G) Design Principles Plan
- Break Pressure Tank K (BPT-K) Design Principles Plan

1.2.4 In addition, the plans in Appendix B of the DPD set out the location of the Environmental Mitigation and Enhancement Areas (EMEAs). The plans and the associated design principles draw a distinction between 'environmental mitigation' and 'additional environmental enhancement'. In this document 'environmental mitigation' means the Applicant's proposals to mitigate the potential adverse environmental effects of the Project that have been assessed and are reported in the Environmental Statement (ES) (DCO Volume 6). Such environmental mitigation can take a number of different forms including avoiding or limiting the extent of the potential adverse effect, improving or enhancing existing habitats or providing replacement habitats. In each case the provision of the environmental mitigation is necessary to deliver the Project within the 'Rochdale Envelope' assessed in the ES. Consequently, alongside seeking to negotiate the acquisition of the interests in land that it requires, the Applicant is seeking appropriate powers of compulsory acquisition to safeguard the delivery of the environmental mitigation.

In addition, the Applicant has gone further than just identifying mitigation and has also identified 'additional environmental enhancements' where it considers it would be appropriate in land use planning terms and beneficial environmentally, to carry out additional environmental enhancements in and around the Project. However, such additional enhancements are not necessary for the delivery of the Project and so the Applicant is not seeking powers of compulsory acquisition solely for the purposes of securing delivery of these additional environmental enhancements. The Applicant intends to negotiate with the persons with interests in the land identified for the additional environmental enhancements but their delivery is subject to agreeable terms being reached in a timely manner. As such, nothing in this DPD is to impose on the Applicant any requirement to deliver the additional environmental enhancements should development consent for the Project be granted.

1.2.5 The DPD uses terminology and abbreviations which are listed and explained at the end of this document in the Glossary and Abbreviations lists. Where a Design Principle makes reference to another application document, the document reference can be found in the Abbreviations list.

1.3 Interaction with other documents

1.3.1 The Design Approach Document (Document reference 5.12, DCO Volume 5) sets out how the Design Principles were developed by the Project's multidisciplinary team and through consultation and engagement with local authorities and other stakeholders, and how the Design Principles demonstrate good design.

2 General Design Principles

2.1.1 General Design Principles, applicable to all or more than one Project component, are set out in Table 2-1.

Table 2-1 General Design Principles

Reference	Topic	Design Principle
GDP_1	**Building integration**	Detailed design will seek to positively integrate permanent buildings into their landscape setting, with high quality design (and screening such as by natural features where appropriate), materials and colour palette appropriate to context, without compromising operational function.
GDP_2	**Areas of significant archaeological remains**	Where post-consent surveys identify significant archaeological remains in areas where intrusive works are proposed, the width of the works and horizontal placement within the limits of deviation will seek to reduce impacts to such remains, having regard to engineering practicability, other design principles and the measures within the Outline CEMP or the relevant approved CEMP as the case may be.
GDP_3	**Historic Parkland**	Detailed design will seek to minimise, as far as reasonably practicable, the loss of historic parkland characteristics (including Wickham Park, Bishops Waltham Deer Park, Wintershill Hall Park and Marwell Park), particularly mature planting, earthwork features and water features in accordance with the Outline LEMP and Outline WSI or the relevant approved LEMP and SSWSIs as the case may be.
GDP_4	**Sustainable resources and materials**	The quantities of cut and fill with respect to excavated materials, will, in accordance with the Outline SRMP or the relevant approved SRMP as the case may be and the relevant approved Minerals Management Strategy[1], be balanced as far as reasonably practicable across the Project to reduce the import of aggregates and soils, and export of surplus excavated material. The principles of sustainable use of materials and designing out and minimisation of waste will be incorporated throughout the design, including: • Design for reuse and recovery (on or off-site) • Design for off-site construction • Design for materials optimisation

[1] The Minerals Management Strategy would be produced post consent, as per the Outline CEMP.

Reference	Topic	Design Principle
		• Design for waste efficient procurement • Design for deconstruction and flexibility
GDP_5	**Sustainable water strategy**	To help reduce water consumption, the detailed design for the WRP site and AGPs should consider incorporating measures of sustainable water use.
GDP_6	**Minimising light impacts**	The detailed design will seek to avoid impacts from permanent lighting on local communities and amenity, dark landscapes, nature conservation and heritage locations (including impacts to the SDNP International Dark Sky Reserve and Chichester Harbour National Landscape) in the first instance and where this is not practicable, reduce impacts as far as practicable. The detailed design for permanent lighting affecting such locations will have regard to the Bats and Artificial Lighting at Night Guidance Note 08/23 [1].
GDP_7	**Car parking**	Detailed design for any operational car parking required will be positioned within the facility perimeter fencing for the WRP site and AGPs. Where reasonably practicable, operational car parking will be located away from public and residential views.
GDP_8	**Permeable surfaces**	The detailed design will seek to incorporate permeable surfaces in areas of permanent hard standing where reasonably practicable, having regard to the need to manage surface water runoff and flows to reduce pollution risk especially in operational areas where fuel or other substances potentially harmful to the water environment may be stored or handled. Permeable surfaces will not be placed on the public highway and the Project will not drain into the public highway drainage system; this excludes the access to the WRP site where surface water runoff will be drained at the existing runoff rate into the drainage ditch along Harts Farm Way to replicate existing conditions at the access point.
GDP_9	**Landscape-scale approach**	Detailed design will adopt a landscape-scale approach to design to maximise integration.
GDP_10	**Environmental protection**	The detailed design will, where reasonably practicable, seek to minimise impact on landscape, ecology, heritage and the water environment (including groundwater and surface water).
GDP_11	**Retention of existing landscape features, wildlife**	Existing landscape features, wildlife corridors and vegetation within the Order Limits will be retained and protected to the extent it is reasonably practicable to do so having regard to the nature of the works proposed and other measures secured through the

Reference	Topic	Design Principle
	corridors and vegetation	DCO, to maintain visual continuity and ecological connectivity.
GDP_12	**Respecting local distinctiveness and biodiversity**	Detailed design will seek to recognise and respect the positive attributes of local landscape, biodiversity, heritage and recreational character and values whilst having regard to the purpose of the infrastructure and the operational, safety and security standards it needs to meet.
GDP_13	**Landscape reinstatement planting**	Where the removal of vegetation (on land that would not contain above ground structures) during construction cannot be avoided, reinstatement planting will be undertaken. Loss of existing habitat and landscape features will be mitigated with replacement planting undertaken as close to the location of the existing vegetation as practicable having regard to the powers of the undertaker under the DCO.
GDP_14	**Climate resilience**	All water infrastructure assets will be designed to be resilient for the anticipated climate conditions at the end of its operational life. This includes meeting requirements on ambient design temperatures and wind pressures provided in relevant British Standards. The permanent water infrastructure assets will use materials that provide sufficient thermal protection to mitigate the risk of increased high temperatures.
GDP_15	**Embodied carbon emissions**	The detailed design of the Project will include measures to reduce carbon emissions across the whole lifecycle as far as reasonably practicable and in accordance with the Outline CMP or the relevant approved CMP as the case may be.
GDP_16	**Statutory and non-statutory designated ecological sites**	The detailed design will follow the mitigation hierarchy (avoid, minimise, mitigate, compensate) with respect to statutory and non-statutory designated ecological sites.
GDP_17	**Badger mitigation**	The design for new habitats for badger mitigation at applicable EMEAs will be compliant with the requirements of any relevant Natural England licence, the Outline CEMP and Outline LEMP, or the relevant approved CEMP and LEMP as the case may be.
GDP_18	**Operation and function**	The other design principles included in this document must not impede the efficient operation and function of the permanent infrastructure.
GDP_19	**Safety, security and emergency**	Detailed design will comply with all relevant safety and security standards.

Reference	Topic	Design Principle
		All Security and Emergency Measures (Water and Sewerage Undertakers and Water Supply Licensees) (Amendment and Revocation) Direction 2024 [2] and Network Information Systems Direction 2018 [3] proposals are to be developed in accordance with Southern Water's security standards, current at the time of commissioning.
GDP_20	**Ground gas protection measures**	Ground gas protection measures will be installed where confirmed as being required by a ground gas risk assessment. These measures may include the structural barrier of the floor slab, ventilation measures and a ground gas resistant membrane. A specialist ground gas protection measures designer will be engaged to design these measures.

3 Site Specific Design Principles

3.1 Water Recycling Plant site

3.1.1 SSDPs, applicable to the WRP site (Work Number 1), are set out in Table 3-1.

Table 3-1 Water Recycling Plant SSDPs

Reference	Topic	Design Principle
Masterplanning principles		
WRP_1	**Hazardous waste minimisation**	Using information gathered through post-DCO ground investigation, the detailed design will seek to minimise intrusive works in areas that would generate material requiring management as hazardous waste.
WRP_2	**Hermitage Stream**	Opportunities to improve bank protection, estuarine (including gravel bars and mudflats that are exposed during low tide) and riparian habitats in the tidal Hermitage Stream will be explored during the detailed design of the WRP SuDS outfall and delivered where practicable. The design of the hard infrastructure comprised in the SuDS outfall will seek to reduce disturbance of the existing scour protection on the banks of Hermitage Stream and not protrude into Hermitage Stream more than existing outfalls[2]. The design will retain existing transitional habitats (including gravel bars and mudflats that are exposed during low tide) at the foot of the banks and avoid operational disturbance to these habitats. To deter the passage of eels inside the SuDS outfall pipe, a step will be placed within the SuDS outfall pipe. The step will be a minimum of 0.3m in height and have an overhang/lip.
WRP_3	**Reducing noise and vibration impacts**	Detailed design will ensure that operational noise levels at noise sensitive receptors do not exceed the Lowest Observed Adverse Effect Level, as identified in ES Chapter 15 Noise and vibration. Mitigation measures will be adopted according to the following mitigation hierarchy: • Avoidance of noise and vibration

[2] The existing outfalls referred to include the two outfalls on the eastern bank of the Hermitage Stream visible from the Harts Farm Way bridge facing north and one further outfall on the western bank of the Hermitage Stream visible from the A27 bridge facing south.

Reference	Topic	Design Principle
		• Control of noise and vibration at source • Implement good practice environmental noise management measures • Mitigate the propagation pathway, for example by introducing boundary screening
WRP_4	**Ground gas protection measures**	Ground gas protection measures, aligning with those required for a Characteristic Situation 3 (as per British Standard 8485:2015+A1:2019 [4]), will be incorporated into the design of the WRP site.
WRP_5	**Inclusivity and accessibility**	The pedestrian crossing and shared use surface will be inclusive and accessible in accordance with Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure [5] and British Standard 8300-1:2018 [6].
WRP_6	**Access Positioning**	The distance between the permanent vehicle access and the pedestrian crossing will be reduced as far as practicable, without compromising highways safety requirements, to minimise loss of vegetation on the north side of Harts Farm Way.
WRP_7	**Maximum width of the permanent vehicle access**	The width of the permanent vehicle access will not exceed 10m.
WRP_8	**Maximum combined width of the shared use surface and safety margin**	The combined width of the shared use surface and safety margin between the pedestrian crossing point and the permanent vehicle access will not exceed 4m.
Building principles		
WRP_9	**Maximum building height within Zone 1 (as defined on the WRP Design Principles Plan)**	The maximum building or structure height within Zone 1 will not exceed 14.5m above the highest existing ground level point in Zone 1.
WRP_10	**Maximum extent of the main process building within Zone 1 (as defined on the**	The maximum dimensions for the main process building will not exceed 170m x 115m.

Reference	Topic	Design Principle
	WRP Design Principles Plan)	
WRP_11	**Maximum building height within Zone 2 (as defined on the WRP Design Principles Plan)**	The maximum building or structure height within Zone 2 will not exceed 9.8m above the highest existing ground level point in Zone 2.
WRP_12	**Maximum building height within Zone 3 (as defined on the WRP Design Principles Plan)**	The maximum building or structure height within Zone 3 will not exceed 5m above the highest existing ground level point in Zone 3.
WRP_13	**Landscape integration**	The architecture and aesthetics of the main process building within the WRP site will consider visual impact from Broadmarsh Coastal Park, the coastal path, and the more distant views of Langstone Harbour and Farlington Marshes – and amenity of their users.
WRP_14	**Buildings, finishes and fencing**	The detailed design of buildings (including finishes) and fencing will seek to respect and reinforce the local character by using materials and a colour palette appropriate to the local context, while also exploring opportunities for innovation and creativity - this will be informed by a colour assessment.
Environmental principles		
WRP_15	**Environmental mitigation: Boundary planting reinforcement - south and west edge**	Existing vegetation on the south and west of the site boundary will be reinforced as far as reasonably practicable with interplanting and widened with new tree and scrub planting, to help screen views into the site and improve ecological corridors, in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.
WRP_16	**Environmental mitigation: Boundary planting reinforcement - north and east edge**	Existing vegetation along the north of the site boundary and east along Hermitage Stream will be interplanted with resilient species, to reinforce the existing mature trees, protecting mature tree stock in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.

Reference	Topic	Design Principle
WRP_17	**Environmental mitigation: Green/brown roof**	The main process building (within Zone 1) will have a green/brown roof to provide open mosaic habitat mitigation within the facility boundary, enhance biodiversity, and to reduce impacts on key views from the south. The specification for the habitat to be provided on the green/brown roof will be in accordance with the Outline LEMP or the relevant approved LEMP as the case may be. The extent of the green/brown roof will be determined at the detailed design stage, covering as large an area as reasonably practicable.
WRP_18	**Environmental mitigation: Provision of open mosaic habitat**	The detailed design will deliver open mosaic habitat mitigation within areas of the WRP site not in active use, additional to the open mosaic habitat that will be provided on the roof of the main process building. The specification for the habitat to be provided will be in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.
WRP_19	**Environmental mitigation: Shared use surface safety margins**	Where practicable having regard to the highway authority's maintenance requirements, the soft safety margins of the shared use surface will be meadow strips for landscape integration and to improve amenity for people using the path. If hard safety margins are needed, the same surfacing material as the adjacent shared use surface will be provided with marking delineations, or a different coloured material with similar skid resistance properties to the shared use surface as per Hampshire County Council Technical Guidance Note 10 – Pedestrian and Cycle Facilities [7] (or the relevant guidance at the time of detailed design).

3.2 Break Pressure Tank / Intermediate Pumping Station E

3.2.1 SSDPs, applicable to BPT/IPS-E (Work Number 5C), are set out in Table 3-2.

Table 3-2 Break Pressure Tank / Intermediate Pumping Station E SSDPs

Reference	Topic	Design Principle
Masterplanning principles		
BPT/IPS-E_1	**BPT/IPS-E Design Principles Plan**	The footprint of the final BPT/IPS-E site will be located within the 'Location of Above Ground Plant' area as outlined in green on the BPT/IPS-E Design Principles Plan. The construction compounds and environmental mitigation and enhancement will be undertaken in the areas identified on the BPT/IPS-E Design Principles Plan.
BPT/IPS-E_2	**Landscape integration**	Detailed design will deliver the operational requirements for the site at a scale, density, and layout that is sensitive to the historical and landscape context. The detailed design of BPT/IPS-E (including the scale, layout and density of structures and landforms) will consider the Fort Widley Scheduled Monument to the west to avoid and/or minimise harm to its setting.
BPT/IPS-E_3	**Screening landform to the north and east**	A new landform (not exceeding the finished level of buildings and structures/any part of the development of BPT/IPS-E (excluding fencing)) will be created to the north and the east of the AGP site to screen the lower levels of the facility and reduce impact on views from promoted routes and residential properties to the north and east. The northern slope will blend naturally into the landscape with as gradual a slope as practicable, and the southern slope will not exceed 1:2.
BPT/IPS-E_4	**Interpretive information boards**	Interpretive information boards or similar should be installed near BPT/IPS-E along New Down Lane. These boards should engage the local community by providing information about the Project and BPT/IPS-E, connecting it to users of local walking routes like the Wayfarers Walk and the wider PRoW network. The boards should be easily accessible to those using New Down Lane and include a bench for seating.

Reference	Topic	Design Principle
BPT/IPS-E_5	**Reducing noise and vibration impacts**	Detailed design will ensure that operational noise levels at noise sensitive receptors do not exceed the Lowest Observed Adverse Effect Level, as identified in ES Chapter 15 Noise and vibration. Mitigation measures will be adopted according to the following mitigation hierarchy: • Avoidance of noise and vibration • Control of noise and vibration at source • Implement good practice environmental noise management measures • Mitigate the propagation pathway, for example by introducing boundary screening
Building principles		
BPT/IPS-E_6	**Maximum footprint of BPT/IPS-E**	The maximum footprint of the final BPT/IPS-E site will not exceed 8,890m^2.
BPT/IPS-E_7	**Maximum building / structure height**	To reduce impact on views from residential areas and PRoWs to the north, and to integrate into the landscape, buildings and structures will be embedded into the hillside to reduce their overall height relative to existing ground levels. Buildings and structures will be embedded into the hillside such that no part of the development (including roofs, parapets and plant but excluding fencing) will exceed the level of the existing ground at any point along the southern boundary of the excavation, as measured prior to excavation. The maximum building or structure height will not exceed 8m from finished floor level. Detailed design will seek to deliver building heights lower than 8m and seek to place the tallest buildings and structures towards the south of the site.
BPT/IPS-E_8	**Buildings, finishes and fencing**	The detailed design of buildings (including finishes) and fencing will respect and reinforce the local character by using materials and a colour palette appropriate to local context, while also exploring opportunities for innovation and creativity – this will be informed by a colour assessment.
BPT/IPS-E_9	**Green roofs/walls**	Consideration will be given to green roofs and walls on the north and west facades where practicable to soften the roofline and visual impact in key views from New Down Lane and the

Reference	Topic	Design Principle
		residential area to the north, and to enhance biodiversity.
BPT/IPS-E_10	**Swift boxes**	Where practicable, swift boxes will be installed on BPT/IPS-E, ideally on the eastern elevation, as this will provide unobstructed access from the nest boxes to suitable feeding habitat.
Environmental principles		
BPT/IPS-E_11	**Environmental mitigation: Trees and shrubs west of BPT/IPS-E**	Having regard to the potential for impacts on views from New Down Lane, trees and shrubs will be planted between New Down Lane and BPT/IPS-E where reasonably practicable, dependent on other operational, safety and security requirements. Opportunities to extend and connect any new planting with the existing woodland strip south of the AGP along Portsdown Hill Road will be considered, using the same or similar mix of native tree and shrub species. This will enhance the local landscape character and create a stronger habitat network.
BPT/IPS-E_12	**Environmental mitigation: Landform planting**	On the landform to the north and east of BPT/IPS-E (see BPT/IPS-E_2), landscape integration planting and landscape screening planting will be delivered. Clumps of vegetation, predominantly comprising shrub with some small trees, will be planted along the full extent of the new landform top and slopes to blend them with the surrounding landscape in accordance with the Outline LEMP or the relevant approved LEMP as the case may be. Planting will be of the same or similar mix of native tree and shrub species found in the local area and be of a density and layout designed to complement the historic landscape character and preserve open westward views from Fort Widley.
BPT/IPS-E_13	**Environmental mitigation: Chalk grassland habitat**	Outside of the operational area for BPT/IPS-E, chalk grassland habitat will be provided throughout to support the Portsdown SSSI to the south.
BPT/IPS-E_14	**Environmental mitigation: Hedgerow gaps**	Planting of the hedge on the west side of the site (east of New Down Lane) will be delivered, in accordance with the Outline LEMP or the relevant

Reference	Topic	Design Principle
		approved LEMP as the case may be, to fill the gaps in the hedgerow to screen views from Fort Widley to BPT/IPS-E through the gaps in the existing treeline.

3.3 Intermediate Pumping Station F

3.3.1 SSDPs, applicable to IPS-F (Work Number 5A), are set out in Table 3-3.

Table 3-3 Intermediate Pumping Station F SSDPs

Reference	Topic	Design Principle
Masterplanning principles		
IPS-F_1	**IPS-F Design Principles Plan**	The footprint of the final IPS-F site will be located within the 'Location of Above Ground Plant' area as outlined in green on the IPS-F Design Principles Plan. The construction compounds and environmental mitigation and enhancement will be undertaken in the areas identified on the IPS-F Design Principles Plan.
IPS-F_2	**Welborne Garden Village**	The fence line for IPS-F will be separated from Welborne Garden Village by the greatest reasonably practicable distance. Tree, hedgerow or scrub planting will be positioned between the road and fence where reasonably practicable, dependent on operational, safety and security requirements, and any planting will have regard to the need to maintain visibility for highway users. Opportunities for a holistic approach on environmental enhancement and connectivity will be sought in collaboration with the Welborne Garden Village development.
IPS-F_3	**PRoW diversion and enhancements**	The PRoW will be subject to a permanent diversion, as detailed in the Framework RoWMP and other provisions of the DCO. The diverted PRoW will have accessible, multi-functional gates and surfaces. Native hedgerow will be established between the PRoW and AGP where practicable having regard to the highway authority's maintenance requirements. Where the PRoW passes through proposed woodland and hedgerow planting, meadow strips will be established on both sides of the diverted path, to improve amenity for local residents of Welborne and habitat connectivity (see the environmental principles).
IPS-F_4	**Reducing noise and vibration impacts**	Detailed design will ensure that operational noise levels at noise sensitive receptors do not exceed the Lowest Observed Adverse Effect Level, as identified in ES Chapter 15 Noise and vibration.

Reference	Topic	Design Principle
		Mitigation measures will be adopted according to the following mitigation hierarchy: • Avoidance of noise and vibration • Control of noise and vibration at source • Implement good practice environmental noise management measures • Mitigate the propagation pathway, for example by introducing boundary screening.
Building principles		
IPS-F_5	**Maximum footprint of IPS-F**	The maximum footprint of the final IPS-F site will not exceed 6,325m^2.
IPS-F_6	**Maximum building height**	The maximum building height will not exceed 8m from existing ground level at its highest point. To reduce the impact on views from the residential areas of Welborne Garden Village to the south west, consideration will be given to embedding the building into the existing levels of the hillside to reduce its height and visibility.
IPS-F_7	**Buildings, finishes and fencing**	The detailed design of buildings (including finishes) and fencing will have regard to the visual impact to surrounding PRoW and viewpoints and on residential areas of Welborne Garden Village to the south west, and seek to respect and reinforce the local rural character by using building forms, materials and a colour palette appropriate to local context, and explore opportunities for innovation and creativity - this will be informed by a colour assessment.
Environmental principles		
IPS-F_8	**Environmental mitigation: Woodland and scrub**	Woodland and scrub planting will be extended into the north-west and north-east areas of the AGP field. The planting will use species similar to those found locally (such as the Old Chalk Pit woodland south of the AGP), and integrate the AGP into the landscape, enhance biodiversity and protect views from the diverted PRoW.
IPS-F_9	**Environmental mitigation: Hedgerow enhancement**	Existing surrounding hedgerows will be enhanced to increase biodiversity, green infrastructure connectivity and landscape pattern. Enhancements will be in keeping with the historic landscape character and dependent on the

Reference	Topic	Design Principle
		existing condition of the hedgerow. Mixed native species of the same or similar composition found in the local area will be used. Hedgerow planting will provide enhancements for the species that utilise the habitat for nesting, foraging or commuting.
IPS-F_10	**Environmental mitigation: Southeastern Woodland**	A new broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d, as set out in the Outline LEMP or the relevant approved LEMP as the case may be) will be created, of a minimum of 20m width, along the length of the farm track along the southeastern boundary of Work No. 5A (south-east of IPS-F and the farm track), integrating into the existing woodland. This planting will provide visual screening for PRoW users to the south-east, improve habitat connectivity, and integrate with the existing landscape. Planting will be designed to allow continued use of the farm track and will adhere to over-pipeline planting requirements as described in the Outline LEMP.

3.4 Intermediate Pumping Station G

3.4.1 SSDPs, applicable to IPS-G (Work Number 5B), are set out in Table 3-4.

Table 3-4 Intermediate Pumping Station G SSDPs

Reference	Topic	Design Principle
Masterplanning principles		
IPS-G_1	**IPS-G Design Principles Plan**	The footprint of the final IPS-G site will be located within the 'Location of Above Ground Plant' area as outlined in green on the IPS-G Design Principles Plan. The construction compounds and environmental mitigation and enhancement will be undertaken in the areas identified on the IPS-G Design Principles Plan.
IPS-G_2	**Reducing noise and vibration impacts**	Detailed design will ensure that operational noise levels at noise sensitive receptors do not exceed the Lowest Observed Adverse Effect Level, as identified in ES Chapter 15 Noise and vibration. Mitigation measures will be adopted according to the following mitigation hierarchy: • Avoidance of noise and vibration • Control of noise and vibration at source • Implement good practice environmental noise management measures • Mitigate the propagation pathway, for example by introducing boundary screening.
IPS-G_9	**Landowner access**	The detailed design must make provision for a private means of access to the field within which IPS-G is situated for the benefit of that land.
Building principles		
IPS-G_3	**Maximum footprint of IPS-G**	The maximum footprint of the final IPS-G site will not exceed 6,990m^2.
IPS-G_4	**Maximum building height**	The maximum building height will not exceed 8m from existing ground level at its highest point.
IPS-G_5	**Buildings, finishes and fencing**	The detailed design of buildings (including finishes) and fencing will seek to respect and reinforce the local character by using materials and a colour palette appropriate to local context, while also exploring opportunities for innovation and creativity – this will be informed by a colour assessment.

Reference	Topic	Design Principle
Environmental principles		
IPS-G_6	**Environmental mitigation: Northern and eastern visual screening**	To provide visual screening for residential areas of Wickham to the east and users of the PRoW to the north, new woodland and scrub planting of a minimum of 15m wide, where reasonably practicable dependent on other operational, safety and security requirements, will be planted on the north-east and south-east side of IPS-G, connecting to the existing woodland to the west and existing hedgerow along the farm track to the south in accordance with the Outline LEMP or the relevant approved LEMP as the case may be. To integrate the new landscape screening and further enhance the landscape, new trees and scrub will be planted east of the landscape screening at the edge of Work No. 5B.
IPS-G_7	**Environmental mitigation: Western woodland and scrub**	To enhance connectivity and biodiversity, new woodland and scrub planting will be incorporated between the north west edge of IPS-G and the existing woodland to the west which forms the border of private properties on Titchfield Lane. Mixed native species of the same or similar composition found in the local area will be used. Landscape enhancement and integration planting will consider the Wickham Park golf course historic character.
IPS-G_8	**Environmental mitigation: Hedgerow**	Hedgerow will be created to the south of IPS-G along the farm track. To increase biodiversity and green infrastructure connectivity, a 20m wide band of broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d as set out in the Outline LEMP or the relevant approved LEMP as the case may be) and scrub will be created to connect the visual screening planting to the wooded boundary of Park Place where reasonably practicable dependent on other operational, safety and security requirements. Existing hedgerows surrounding IPS-G will be enhanced to increase biodiversity, connectivity and landscape pattern. Enhancements will be in keeping with the historic landscape character and dependent on the existing condition of the hedgerow. Mixed native species of the same or similar composition found in the local area will be

Reference	Topic	Design Principle
		used. Hedgerow planting will provide enhancements for the species that utilise the habitat for nesting, foraging or commuting. All planting and enhancement will be in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.

3.5 Break Pressure Tank K

3.5.1 SSDPs, applicable to BPT-K (Work Number 5D), are set out in Table 3-5.

Table 3-5 Break Pressure Tank K SSDPs

Reference	Topic	Design Principle
Masterplanning principles		
BPT-K_1	**BPT-K Design Principles Plan**	The footprint of the final BPT-K site will be located within the 'Location of Above Ground Plant' area as outlined in green on the BPT-K Design Principles Plan. The construction compounds and environmental mitigation and enhancement will be undertaken in the areas identified on the BPT-K Design Principles Plan.
BPT-K_2	**Reducing noise and vibration impacts**	Detailed design will ensure that operational noise levels at noise sensitive receptors do not exceed the Lowest Observed Adverse Effect Level, as identified in ES Chapter 15 Noise and vibration. Mitigation measures will be adopted according to the following mitigation hierarchy: • Avoidance of noise and vibration • Control of noise and vibration at source • Implement good practice environmental noise management measures • Mitigate the propagation pathway, for example by introducing boundary screening.
BPT-K_3	**Habitat mitigation**	The footprint and design of BPT-K, access route and pipelines will be developed to minimise the loss of mature trees.
BPT-K_4	**Landowner access**	The detailed design must make provision for a private means of access to the field to the west of BPT-K for the benefit of that land. The private means of access is to be located to the north of the BPT-K footprint and be suitable for agricultural vehicles and machinery, equivalent to the use of the existing access. The private means of access may be shared with the means of access to the BPT-K site.
Building principles		
BPT-K_5	**Maximum footprint of BPT-K**	The maximum footprint of the final BPT-K site will not exceed 4,650m^2.

Reference	Topic	Design Principle
BPT-K_6	**Maximum building height**	The maximum building height will not exceed 5.6m from existing ground level at its highest point. To reduce impact on residential views to the north west, BPT-K will be embedded into the existing hillside to help it blend into the field as far as reasonably practicable. A green roof will be considered to help further integrate BPT-K into the landscape and enhance biodiversity.
BPT-K_7	**Buildings, finishes and fencing**	The detailed design of buildings (including finishes) and fencing will seek to respect and reinforce the local character by using materials that weather and a colour palette appropriate to local context, while also exploring opportunities for innovation and creativity – this will be informed by a colour assessment. Having regard to sensitive views from the north, appropriate measures for the northern facades will be adopted where reasonably practicable. Consideration will be given to the following: • Keeping buildings and structures below the existing skyline in views from the north to retain the perception of the wooded skyline • Integrating green walls into the proposed buildings and structures facing the SDNP with similar species to the grassland within Wintershill parkland • Providing standalone green walls offset from the proposed buildings and structures facing the SDNP with similar species to the grassland within Wintershill parkland
Environmental principles		
BPT-K_8	**Environmental mitigation: Northern woodland screening**	The existing treeline adjacent north of BPT-K (running north-west to south-east) will be reinstated and widened to a minimum of 20m through the creation of broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d), as set out in the Outline LEMP or the relevant approved LEMP as the case may be. This planting will screen views of the AGP from within the SDNP and residences in Lower Upham, enhance habitat connectivity, integrate BPT-K with the existing historic landscape, and mitigate for the loss of lines of trees and woodland.

Reference	Topic	Design Principle
BPT-K_9	**Environmental mitigation: Parkland**	In the field west and north of BPT-K, the existing grassland will be enhanced and neutral grassland with a sward dominated by perennial ryegrass and crested dog's tail (UKHab type g3c6) with scattered trees will be planted. The planting will reflect the species mix, density, layout and appearance of the historic landscape surrounding Wintershill Hall, including the wood-pasture and parkland habitat, as well as provide screening of views to the north and enhance biodiversity. Standing and fallen deadwood will be left on-site to provide habitat for invertebrates and fungi; a feature associated with the existing wood-pasture and parkland to the south.
BPT-K_10	**Environmental mitigation: Habitat enhancement**	Lowland mixed deciduous woodland to the south and east, and the ecologically valuable line of trees north-east of BPT-K will be protected, enhanced and widened to increase biodiversity, green infrastructure connectivity and landscape pattern. Enhancements will be in keeping with the historic landscape character. Mixed native species of the same or similar composition found in the local area will be used. Linear woodland features will provide enhancements for the species that utilise the habitat for nesting, foraging or commuting.
BPT-K_11	**Environmental mitigation: Grassland**	Outside of the operational area for BPT-K, opportunities will be sought to deliver grassland in order to reduce visual impact.

3.6 Budds Farm Wastewater Treatment Works

3.6.1 SSDPs, applicable to the pumping station at Budds Farm Wastewater Treatment Works (BFWTW) (Work Number 5E), are set out in Table 3-6.

Table 3-6 Budds Farm Wastewater Treatment Works SSDPs

Reference	Topic	Design Principle
BFWTW_1	**Maximum footprint of BFWTW pumping station**	The maximum footprint of the BFWTW pumping station will not exceed 1,500m^2.
BFWTW_2	**Maximum building height**	The BFWTW pumping station will have a maximum building height of 3.3m above 5.38m AOD which is the H++ allowance[3]. The maximum building/structure height will not exceed 10.3m AOD.
BFWTW_3	**Bird and Solent Wader and Brent Goose Strategy (SWBGS) mitigation**	The detailed design, which will consider the extent of the protection required, will seek to avoid or, where this is not practicable, minimise adverse effects on birds utilising the SWBGS sites within 200m of the above ground works. Both temporary and permanent barriers to the movement of birds between feeding and roosting grounds will be avoided and existing lines of sight will be maintained. In addition, creating barriers to movement between Chichester and Langstone Harbour SPA/Ramsar and the lagoon will be avoided.
BFWTW_4	**SWBGS mitigation**	Lighting design will avoid illuminating the lagoons and the coastal habitat, to minimise disturbance of species using these features for resting, foraging or commuting routes.
BFWTW_5	**Habitat mitigation**	The detailed design of the works at BFWTW will seek to retain HPI habitats to the extent that it is reasonably practicable to do so, having regard to the nature of the works proposed and other measures secured through the DCO. Where this is not practicable, the extent of the loss of HPI habitats will be reduced. Where habitat loss cannot be avoided, new HPI will be created in good condition as soon as practicable following habitat loss, in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.

[3] The H++ allowance represents a credible maximum scenario for sea level rise due to climate change. It is used to account for extreme climate change impacts and involves adding 1.9m to the present-day 1 in 200-year tidal flood level. Further information is contained in ES Appendix 19.1 Flood Risk Assessment, Volume II (Document reference 6.2, DCO Volume 6).

3.7 Pipelines

3.7.1 Table 3-7 sets out the SSDPs for the following Project components:

- Pipelines between Budds Farm WTW and the WRP site (Work Number 2).
- Pipelines between the WRP site and Bedhampton Springs (Work Number 3).
- Pipeline between the WRP site and Otterbourne WSW (Work Number 4).

Table 3-7 Pipelines SSDPs

Reference	Topic	Design Principle
Applicable to all Project pipelines (Work Numbers 2, 3 and 4)		
PL_1	**Pipeline reinstatement**	The detailed design will incorporate measures to avoid reinstated backfill around underground pipelines becoming a preferential route for subsurface flows.
PL_2	**Minimum pipeline depths**	At watercourse intersections crossed by open trenching, the crown of the pipeline will be installed at a minimum depth of 1.5m below the bed of the watercourse. At watercourse intersections crossed by trenchless techniques, the crown of the pipeline will be installed at a minimum depth of 2.5m below the bed of the watercourse. At road intersections crossed by open trenching, the crown of the pipeline will be installed at a minimum depth of 1.5m below surface level. At road intersections crossed by trenchless techniques, the crown of the pipeline will be installed at a minimum depth of 2.5m below surface level. Where open trenching is undertaken within agricultural land or other undeveloped land, the crown of the pipeline will be installed at a minimum depth of 0.9m below surface level. Where trenchless techniques are used, the crown of the pipeline will be installed at a minimum depth of 2.5m below surface level.
PL_3	**Groundwater pipeline mitigation**	Where the pipeline is installed below groundwater level, the pipe bedding material will be permeable to promote movement of groundwater around the pipeline (i.e. the pipeline will not form a substantial barrier to groundwater flow). To minimise the potential for groundwater flow along the line of the pipe (i.e. to prevent the pipeline acting as a preferential flow path), clay stanks will be used at regular intervals.
PL_4	**Groundwater resources**	The detailed design will seek to minimise works that interact with the chalk within SPZ1 and SPZ1c as far as reasonably practicable. Where interaction with

Reference	Topic	Design Principle
		the chalk in SPZ1 or SPZ1c cannot be avoided, works will be undertaken in accordance with the Outline CEMP or relevant approved CEMP as the case may be.
Applicable to the Pipelines between Budds Farm WTW and the WRP site (Work Number 2)		
PL_5	**Maximum diameter of Pipelines between Budds Farm WTW and the WRP site**	The external diameter of the Pipelines casing will not exceed 2.83m.
Applicable to the Pipelines between the WRP site and Bedhampton Springs (Work Number 3)		
PL_6	**Maximum diameter of Pipelines between the WRP site and Bedhampton Springs**	Where the Pipelines are installed underground, there will either be two pipelines within one single casing with a maximum external diameter of 2.83m, or two parallel pipelines within casings with maximum external diameters of 1.78m and 1.43m respectively. Where the Pipelines are installed above ground, there will be two parallel pipelines with maximum external diameters of 1.4m and 1.2m respectively.
PL_7	**Maximum height above ground of Pipelines between the WRP site and Bedhampton Springs**	Within the Bedhampton Springs site, the crown of the Pipelines will have a maximum height of 2m above ground, except at the crossing of Old Mill Dam where the Pipelines will be located within a bridge structure which will have a maximum height of 3m above ground. The above ground element of the design will be restricted to the area indicated on the Bedhampton Springs Design Principle PL_7 Plan included at Appendix C.
PL_8	**PRoW**	PRoW will be subject to a short-term temporary diversion to allow continued access to the existing PRoW network, as detailed in the Framework RoWMP and other provisions of the DCO. PRoW will be subject to a permanent diversion and enhancement as part of Portsmouth Water's development proposals, and any temporary mitigation associated with the Project will seek, so far as is practicable, to align with these proposals at this location. Following construction, the PRoW will be reinstated in accordance with the details in the

Reference	Topic	Design Principle
		Framework RoWMP or the relevant approved RoWMP as the case may be.
PL_9	**Over land pipe section**	The detailed design of the above ground pipeline route will optimise existing visual screening from hedgerows, woodland and structures, particularly in views across the millpond and from the Grade II listed Old Mill, where reasonably practicable. The materials and finishes of all components of the above ground pipe and associated structures will seek to respect and reinforce the local character where reasonably practicable, by using similar materials and colour palettes found in the area - this will be informed by a colour assessment. To ensure clear identification of pipe contents, promote operational safety, and support good practice maintenance and health and safety procedures, regard will be given to British Standard 1710:2014 [8] (or the relevant British Standards at the time of detailed design).
Applicable to the Pipeline between the WRP site and Otterbourne WSW (Work Number 4)		
PL_10	**Maximum diameter of the Pipeline between the WRP site and Otterbourne WSW (excluding Section D[4])**	Where open trenching is used within agricultural land or other undeveloped land, the external diameter of the Pipeline will not exceed 1.4m. Where open trenching is used at watercourse and road intersections, the external diameter of the Pipeline will not exceed 1.4m. Where trenchless techniques are used, the external diameter of the Pipeline casing will not exceed 2.83m.
PL_11	**Maximum diameter of Section D[4] of the Pipeline**	Within Section D[4], the external diameter of the Pipeline casing will not exceed 4m.
PL_12	**Minimum pipeline depth within the area indicated on the Section D Design Principle PL_12 Plan**	Within the area indicated on the Section D Design Principle PL_12 Plan included at Appendix D, the crown of the pipeline will be installed at a minimum depth of 15m below surface level.

[4] Section D of the Pipeline between the WRP site and Otterbourne WSW ~~comprises the section of Work No. 4 that is situated between Work No. 1 and Work No. 6F (inclusive)~~ comprises crossing TC_D_1 as shown on sheets 4, 5 and 6 of the Reduced Working Width and Trenchless Crossing and Tunnelling Schedules and Plans, Appendix A of the Outline Construction Environmental Management Plan - 2 of 3 documents [APP-413].

Reference	Topic	Design Principle
PL_13	Minimum pipeline depths at specific watercourses	At the River Meon and River Hamble (crossings TC_G_2a, TC_G_2b and TC_J_1 as per Table A-2, Appendix A of the Outline Construction Environmental Management Plan (Document reference 7.1, DCO Volume 7, Version 1 - 1 of 3 documents)) the crown of the pipeline will be installed at a minimum depth of 4.5m below the bed of the watercourse. At the River Itchen (crossing TC_M_1 as per Table A-2, Appendix A of the Outline Construction Environmental Management Plan (Document reference 7.1, DCO Volume 7, Version 1 - 1 of 3 documents)) the crown of the pipeline will be installed at a minimum depth of 10m below the bed of the watercourse.

3.8 Environmental Mitigation and Enhancement Areas

3.8.1 SSDPs, applicable to EMEAs (Work Number 7), are set out in Table 3-8.

3.8.2 As per paragraph 1.2.4, the plans in Appendix B of the DPD set out the location of the EMEAs and identify the EMEAs that would provide environmental mitigation and those that would provide additional environmental enhancement.

Table 3-8 Environmental Mitigation and Enhancement Areas SSDPs

Reference	Topic	Design Principle
EMEA_1	**EMEA Plans**	The location and extent of the EMEAs within Work Number 7 will be as per the EMEA Plans.
EMEA-WRP	**Additional environmental enhancement**	Existing vegetation on the west of the WRP site boundary will be reinforced as far as reasonably practicable with interplanting and widened with new tree and scrub planting, to help screen views into the site and improve ecological corridors. Existing vegetation along the north of the site boundary will be interplanted with resilient species, to reinforce the existing mature trees, protecting mature tree stock.
EMEA-E-1	**Environmental mitigation**	The northeastern corner of EMEA-E-1 (historic protected species mitigation associated with Portsmouth Water) will be protected from construction activity as far as reasonably practicable. Measures to prevent isolation of protected species during construction will be provided in line with the Outline CEMP or the relevant approved CEMP as the case may be.
EMEA-E-2a	**Environmental mitigation**	Gaps in the existing hedgerow bordering New Down Lane (to the west) will be filled and hedgerow with trees will be delivered, in accordance with the Outline LEMP or the relevant approved LEMP as the case may be, to help screen views from Fort Widley to BPT/IPS-E. Trees provided will predominantly be located towards the south of the existing hedgerow.
EMEA-E-2b	**Additional environmental enhancement**	Chalk grassland habitat will be created to support the Portsdown SSSI to the south, in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.
EMEA-E-3	**Additional environmental enhancement**	Reinstate and enhance grassland to good condition, either neutral grassland with a sward dominated by false oat-grass (UKHab type g3c5) or other calcareous grassland to support the Motte & Bailey & Chalk Pit SINC to the north in accordance with the

Reference	Topic	Design Principle
		Outline LEMP or the relevant approved LEMP as the case may be.
EMEA-F-1	**Environmental mitigation**	Mature trees will be avoided where practicable. The line of trees will be reinstated and enhanced after construction.
EMEA-F-2	**Environmental mitigation**	Protected species mitigation will be provided as determined by pre-construction surveys. Impacts to the veteran tree root protection area and canopy will be avoided. Loss of HPI woodland will be mitigated through reinstatement and creation of broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d as set out in the Outline LEMP or the relevant approved LEMP as the case may be) and scrub associated with the woodland to the north-east and the veteran tree. The area east of the veteran tree will be protected from all construction activity.
EMEA-G-1	**Environmental mitigation**	Loss of HPI lowland mixed deciduous woodland (UKHab type w1f) will be mitigated through the creation of broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d as set out in the Outline LEMP or the relevant approved LEMP as the case may be) within grassland along the existing woodland edge and will consider the Wickham Park golf course landscape character and historic character.
EMEA-G-2	**Environmental mitigation**	Mature trees will be avoided where practicable. Hedgerow with trees and wet woodland will be reinstated and enhanced after construction, as set out in the Outline LEMP or the relevant approved LEMP as the case may be, and will consider the Wickham Park golf course landscape character and historic character.
EMEA-J-1	**Environmental mitigation**	Loss of HPI woodland will be mitigated through the creation of lowland mixed deciduous woodland (exact NVC sub-community to be determined by pre-construction surveys) within grassland along the woodland edge, as set out in the Outline LEMP or the relevant approved LEMP as the case may be.
EMEA-J-2	**Environmental mitigation**	Loss of HPI woodland will be mitigated through the creation of lowland mixed deciduous woodland (exact NVC sub-community to be determined by pre-construction surveys) within grassland along the

Reference	Topic	Design Principle
		woodland edge, as set out in the Outline LEMP or the relevant approved LEMP as the case may be.
EMEA-J-3 and EMEA-J-4	**Environmental mitigation**	Protected species mitigation will be provided as determined by pre-construction surveys. Loss of HPI woodland will be mitigated through the creation of lowland mixed deciduous woodland (exact NVC sub-community to be determined by pre-construction surveys), as set out in the Outline LEMP or the relevant approved LEMP as the case may be, within grassland along the woodland edge.
EMEA-J-5	**Environmental mitigation**	EMEA-J-5 will be protected from all construction activity. Protected species mitigation will be provided as determined by pre-construction surveys. Associated planting in this EMEA will be in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.
EMEA-K-1a	**Environmental mitigation**	Protected species mitigation to be provided as determined by pre-construction surveys, associated planting in this EMEA will be in accordance with the Outline LEMP or the relevant approved LEMP as the case may be.
EMEA-K-1b and EMEA-K-2	**Additional environmental enhancement**	Landscape reinstatement and enhancements will be delivered associated with the River Hamble and to improve connectivity between SDNP and NFNP. River bank restoration, riparian grassland creation and enhancement, and PRoW enhancements will be considered (as set out in the Outline LEMP or the relevant approved LEMP as the case may be). Where this EMEA borders the park lug, planting will consider impacts to and enhancements of the historic earthworks and planting associated with the Bishop's Waltham deer park.
EMEA-K-3	**Additional environmental enhancement**	Landscape enhancements will be delivered in this EMEA, associated with the River Hamble and to improve connectivity between SDNP and NFNP. River bank restoration and species enhancements, and PRoW enhancements will be considered. Where this EMEA borders the park lug, planting will consider impacts to and enhancements of the historic earthworks and planting associated with the Bishop's Waltham deer park. Other neutral grassland habitat will be created for BNG as set out in the BGP.

Reference	Topic	Design Principle
EMEA-K-4	**Additional environmental enhancement**	Creation of other neutral grassland habitat for BNG as set out in the BGP.
EMEA-K-5	**Additional environmental enhancement**	Creation of other neutral grassland habitat for BNG as set out in the BGP.
EMEA-L-1	**Environmental mitigation**	Loss of woodland across the Project will be mitigated through the creation of broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d as set out in the Outline LEMP or the relevant approved LEMP as the case may be) here, linking to Chestnut Gully and Park Hills Woods complex to the south.
EMEA-L-2	**Environmental mitigation**	Loss of HPI woodland across the Project will be mitigated through the creation of broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d as set out in the Outline LEMP or the relevant approved LEMP as the case may be) here, linking to Chestnut Gully and Park Hills Woods complex to the south.
EMEA-L-3	**Environmental mitigation**	Loss of woodland across the Project will be mitigated through the creation of broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d, as set out in the Outline LEMP or the relevant approved LEMP as the case may be) here, linking to Chestnut Gully and Park Hills Woods complex to the south. Enhancement planting will have consideration to ancient woodland to the north.
EMEA-L-4	**Additional environmental enhancement**	Creation and enhancement of grassland areas to moderate condition will be delivered.
EMEA-L-5	**Environmental mitigation**	Fielders Farm Meadows SINC will be reinstated and enhanced to good condition (including treatment and removal of Schedule 9 Himalayan balsam) as set out in the Outline CEMP or the relevant approved CEMP as the case may be. The translocation of notable plant species may be required. In the northeastern corner of EMEA-L-5, planting will consider impacts to and enhancements of the scheduled park pale fishpond dam adjacent east at Fisher's Pond.

Reference	Topic	Design Principle
EMEA-L-6a	**Environmental mitigation**	If required, following pre-construction surveys at Bow Lake, otter mitigation will be delivered along the watercourse to provide additional shelter and screening. Design of otter mitigation will follow good practice as set out in NatureScot - Protected Species Advice for Developers – Otter [9] and will be in line with the Outline CEMP or the relevant approved CEMP as the case may be.
EMEA-L-6b	**Additional environmental enhancement**	Current poor modified grassland will be enhanced to other neutral grassland in moderate condition for BNG as set out in the BGP.
EMEA-L-7	**Additional environmental enhancement**	Wet woodland will be created to increase the area of the existing woodland parcel.
EMEA-M-1	**Additional environmental enhancement**	Enhancements to the Otterbourne Stream will be carried out, delivering improved habitat for southern damselfly. The existing Coastal and Floodplain Grazing Marsh HPI (NVC MG7d) will be enhanced from poor condition.
EMEA-M-2	**Additional environmental enhancement**	Broadleaved woodland where oak is the predominant tree species (NVC W10c) will be enhanced to good condition.

3.9 Invasive Non-Native Species Treatment at Otterbourne Water Supply Works

3.9.1 SSDPs, applicable to the Invasive Non-Native Species (INNS) Treatment at Otterbourne Water Supply Works (WSW) (Work Number 10), are set out in Table 3-9.

Table 3-9 INNS Treatment at Otterbourne WSW SSDPs

Reference	Topic	Design Principle
Masterplanning principles		
OWSW_1	**Landscape integration**	Detailed design will deliver the operational requirements for the INNS Treatment Plant at a scale, density, and layout that is sensitive to the South Downs National Landscape to the east.
OWSW_2	**Reducing noise and vibration impacts**	Detailed design will ensure that operational noise levels at noise sensitive receptors do not exceed the Lowest Observed Adverse Effect Level, as identified in ES Chapter 15 Noise and vibration. Mitigation measures will be adopted according to the following mitigation hierarchy: • Avoidance of noise and vibration • Control of noise and vibration at source • Implement good practice environmental noise management measures • Mitigate the propagation pathway, for example by introducing boundary screening.
Building principles		
OWSW_3	**Maximum extent**	If the INNS Treatment Plant is to be housed in a new building, its extent will not exceed 288m^2 and it will be contained within the existing fenceline at Otterbourne WSW.
OWSW_4	**Maximum building / structure height**	The maximum height of any new INNS treatment building will not exceed 8m from existing ground level at its highest point. This design principle does not apply to the reuse of an existing building which does not result in the existing building altering its height in excess of 8m above ground level.
OWSW_5	**Buildings and finishes**	The detailed design of any new building (including finishes) will seek to blend and be consistent with the existing character of Otterbourne WSW by using materials and a colour palette appropriate to local context.

References

[1] Bat Conservation Trust and Insititution of Lighting Professionals, “Bats and Artificial Lighting at Night Guidance Note 08/23,” 2023. [Online]. Available: https://theilp.org.uk/resource/gn08-bats-and-artificial-lighting-pdf.html.

[2] Department for Environment, Food & Rural Affairs, “Water company security and emergency measures: 2024 ministerial direction,” 2024. [Online]. Available: https://www.gov.uk/government/publications/water-company-security-and-emergency-measures-2024-ministerial-direction.

[3] UK Government, “Network and Information Systems Regulations 2018,” 2018.

[4] British Standards Institution, “BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings,” 2019.

[5] Department for Transport, “Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure,” 2021.

[6] British Standards Institution, “BS 8300-1 Design of an accessible and inclusive built environment. External environment. Code of practice”.

[7] Hampshire County Council, “Technical Guidane Note 10 - Pedestrian and Cycle Facilities (Revision 1),” 2026.

[8] British Standards Institution, “BS 1710:2014 Specification for identification of pipelines and services,” 2014.

[9] NatureScot, “Protected Species Advice for Developers - Otter,” N.D.. [Online]. Available: [redacted]

Glossary

Term	Definition
AGPs	Collective term to describe the components that comprise Work No. 5: Intermediate Pumping Station F (IPS-F); Intermediate Pumping Station G (IPS-G); Break Pressure Tank and Intermediate Pumping Station E (BPT/IPS-E); and Break Pressure Tank K (BPT-K).
Footprint	The area of the site contained within the external fenceline.
General Design Principle (GDP)	A design principle that is applicable to all or more than one Project component.
Landscape-scale approach	Landscape-scale approach is holistic and looks beyond local considerations and considers how patterns, forms and features combine to influence how the wider landscape is experienced
Site Specific Design Principle (SSDP)	A design principle that is relevant to a specific Project component
Shared use surface	A route or surface which is available for use by both pedestrians and cyclists
g3c5	Neutral grassland with a sward dominated by false oat-grass (UKHab type g3c5)
g3c6	Neutral grassland with a sward dominated by perennial ryegrass and crested dog's tail (UKHab type g3c6)
MG7d	Coastal and Floodplain Grazing Marsh HPI (NVC MG7d)
w1f	Lowland mixed deciduous woodland (UKHab type w1f)
W8d	Broadleaved woodland where ash and field maple are the predominant tree species (NVC sub-community W8d)
W10c	Broadleaved woodland where oak is the predominant tree species (NVC W10c)

Abbreviations

Term	Definition and Document reference (where applicable)
DCO documentation	
BGP	Biodiversity Gain Plan (including Habitat Management and Monitoring Plan) (Document reference 7.11, DCO Volume 7)
ES Chapter 15 Noise and vibration	ES Chapter 15 Noise and vibration, Volume I (Document reference 6.1, DCO Volume 6)
Outline CEMP	Outline Construction Environmental Management Plan (Document reference 7.1, DCO Volume 7)
CEMP[5]	Construction Environmental Management Plan
Outline CMP	Outline Carbon Management Plan (Document reference 7.8, DCO Volume 7)
CMP[5]	Carbon Management Plan
Outline LEMP	Outline Landscape and Ecology Management Plan (Document reference 7.5, DCO Volume 7)
LEMP[5]	Landscape and Ecology Management Plan
Framework RoWMP	Framework Rights of Way Management Plan Appendix B of the Framework Construction Traffic Management Plan (Document reference 7.2, DCO Volume 7)
RoWMP[5]	Rights of Way Management Plan
Outline SRMP	Outline Soil Resource Management Plan Appendix B of the Outline CEMP (Document reference 7.1, DCO Volume 7)
SRMP[5]	Soil Resource Management Plan
Outline WSI	Outline Written Scheme of Investigation (Document reference 7.6, DCO Volume 7)
SSWSI[5]	Survey Specific Written Scheme of Investigation
Other terminology and abbreviations	
EMEA	Environmental Mitigation and Enhancement Area
HPI	Habitat of principal importance
m	Metre(s)
NFNP	New Forest National Park
NVC	National Vegetation Classification
PRoW	Public Right of Way

[5] The CEMP, CMP, LEMP, OMP, RoWMP, SRMP and SSWSI would be produced post consent, as secured by DCO Requirement.

Term	Definition and Document reference (where applicable)
SDNP	South Downs National Park
SINC	Site of Importance for Nature Conservation
SPZ1	Source Protection Zone 1 (Inner Protection Zone)
SPZ1c	Source Protection Zone 1c (Subsurface activity)
SuDS	Sustainable Drainage System
UKHab	United Kingdom Habitat Classification System
WRP	Water Recycling Plant
WSW	Water Supply Works
WTW	Wastewater Treatment Works

Appendix A Design Principles Plans – Water Recycling Plant site and Above Ground Plant Sites

OTTERBOURNE WSW
COLDEN COMMON
CHANDLER'S FORD
EASTLEIGH
FAIR OAK
BPT-K
BISHOP'S WALTHAM
WALTHAM CHASE
CITY OF SOUTHAMPTON
BEASTLEIGH DISTRICT
HEDGE END
IPS-G
IPS-F
WATERLOOVILLE
PETERSFIELD
HAVANT THICKET RESERVOIR
HORNDEAN
FAREHAM
FAREHAM DISTRICT
BPT / IPS-E
WRP
EMSWORTH
HAVANT DISTRICT
BUDDS FARM WTW
CITY OF PORTSMOUTH
PORTSMOUTH HARBOUR
PORTSMOUTH
LANGSTONE HARBOUR
HAYLING ISLAND
GOSPORT DISTRICT
GOSPORT
THE SOLENT
SOUTHAMPTON WATER
PORTSMOUTH
KEY PLAN
SCALE 1:100000
SCALE 1 : 100000
m1000 0 10000m

NOTES

REFERENCES

710166-SWS-XX-XX-DR-Z-08401	DESIGN PRINCIPLES PLAN WATER RECYCLING PLANT
710166-SWS-XX-XX-DR-Z-08402	DESIGN PRINCIPLES PLAN BPT / IPS-E
710166-SWS-XX-XX-DR-Z-08403	DESIGN PRINCIPLES PLAN IPS-F
710166-SWS-XX-XX-DR-Z-08404	DESIGN PRINCIPLES PLAN IPS-G
710166-SWS-XX-XX-DR-Z-08405	DESIGN PRINCIPLES PLAN BPT-K

LEGEND

ORDER LIMITS

ABBREVIATIONS

AGP	ABOVE GROUND PLANT
BPT	BREAK PRESSURE TANK
IPS	INTERMEDIATE PUMPING STATION
WRP	WATER RECYCLING PLANT
WSW	WATER SUPPLY WORKS
WTW	WASTEWATER TREATMENT WORKS

CURRENT VERSION INFORMATION

DATE	ORIG	CHKD	REVD	APPR	REV	STS	REASON FOR ISSUE
14/05/26	NS	AC	GF	KW	P01	A3	Authorised & Accepted - Definition
14/05/26	NS	AC	GF	KW	P02	A3	Authorised & Accepted - Definition

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PROJECT TITLE
HAMPSHIRE WATER TRANSFER AND WATER RECYCLING PROJECT

DRAWING TITLE
DESIGN PRINCIPLES KEY PLAN

SITE UNIT MNEMONIC	SITE UNIT NO.	MASTER SIZE
		A3
PRN	SCALE	STATUS
710166	AS SHOWN	A3
S.W. DRAWING NO.		REVISION
710166-SWS-XX-XX-DR-Z-08400		P02

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RAILWAY TRACKS

MILL LANE

HERMITAGE STREAM

A27

A27

BROADMARSH
BUSINESS AND
INNOVATION
CENTRE

ZONE 3

ZONE 2

ZONE 1

HARTS FARM WAY

SCALE 1 : 2000

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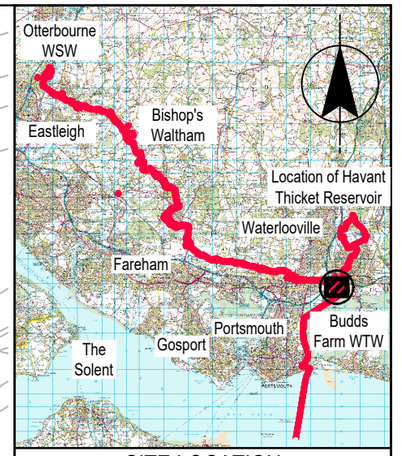

SITE LOCATION

SCALE : NTS

REFERENCES

710166-SWS-XX-XX-DR-Z-08100 DESIGN PRINCIPLES KEY PLAN

LEGEND

- ORDER LIMITS
- WORK No.1 - WRP
- ZONE BOUNDARY

ABBREVIATIONS

AGP	ABOVE GROUND PLANT
BPT	BREAK PRESSURE TANK
IPS	INTERMEDIATE PUMPING STATION
WRP	WATER RECYCLING PLANT
WSW	WATER SUPPLY WORKS
WTW	WASTEWATER TREATMENT WORKS

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PROJECT TITLE

HAMPSHIRE WATER TRANSFER AND
WATER RECYCLING PROJECT

DRAWING TITLE

DESIGN PRINCIPLES PLAN
WATER RECYCLING PLANT

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PRN	SCALE	STATUS
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S.W. DRAWING NO.		REVISION
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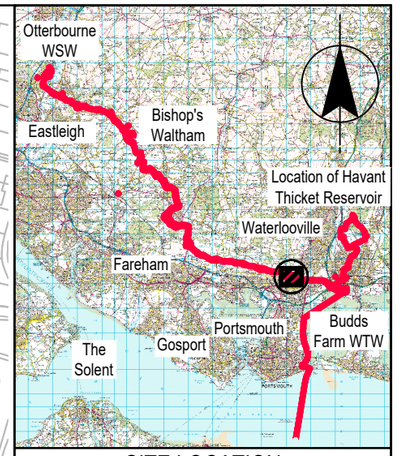

SITE LOCATION

SCALE : NTS

NEW DOWN LANE

PORTSDOWN HILL ROAD

PORTSDOWN HILL ROAD

CANDYS
PIT

SCALE 1 : 2000

m100 0 100m

REFERENCES

710166-SWS-XX-XX-DR-Z-08100 DESIGN PRINCIPLES KEY PLAN

LEGEND

- ORDER LIMITS
- CONSTRUCTION COMPOUND
- ENVIRONMENTAL MITIGATION AND ENHANCEMENT AREA
- LOCATION OF AGP
- WORK No.5C - ABOVE GROUND PLANT

ABBREVIATIONS

AGP	ABOVE GROUND PLANT
BPT	BREAK PRESSURE TANK
IPS	INTERMEDIATE PUMPING STATION
WRP	WATER RECYCLING PLANT
WSW	WATER SUPPLY WORKS
WTW	WASTEWATER TREATMENT WORKS

DATE	ORIG	CHKD	REVD	APPR	REV	STS	REASON FOR ISSUE
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PROJECT TITLE

HAMPSHIRE WATER TRANSFER AND WATER RECYCLING PROJECT

DRAWING TITLE

DESIGN PRINCIPLES PLAN
BPT / IPS-E

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PRN	SCALE	STATUS
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S.W. DRAWING NO.		REVISION
710166-SWS-XX-XX-DR-Z-08402		P02

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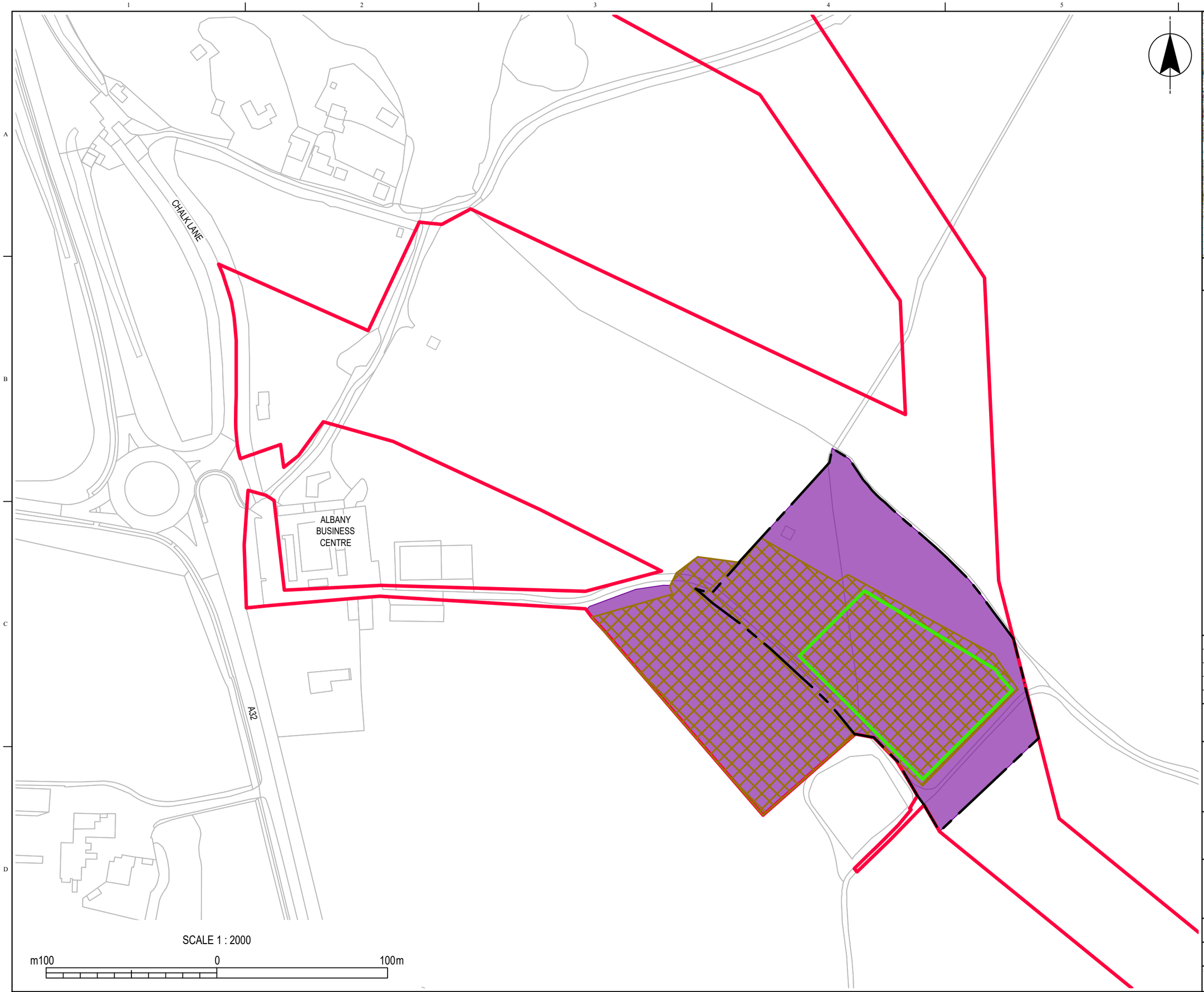



SITE LOCATION

SCALE : NTS

REFERENCES

710166-SWS-XX-XX-DR-Z-08100 DESIGN PRINCIPLES KEY PLAN

LEGEND

- ORDER LIMITS
- CONSTRUCTION COMPOUND
- ENVIRONMENTAL MITIGATION AND ENHANCEMENT AREA
- LOCATION OF AGP
- WORK No.5A - ABOVE GROUND PLANT

ABBREVIATIONS

AGP	ABOVE GROUND PLANT
BPT	BREAK PRESSURE TANK
IPS	INTERMEDIATE PUMPING STATION
WRP	WATER RECYCLING PLANT
WSW	WATER SUPPLY WORKS
WTW	WASTEWATER TREATMENT WORKS

DATE	ORIG	CHKD	REVD	APPR	REV	STS	REASON FOR ISSUE
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PROJECT TITLE

HAMPSHIRE WATER TRANSFER AND WATER RECYCLING PROJECT

DRAWING TITLE

DESIGN PRINCIPLES PLAN
IPS-F

SITE UNIT MNEMONIC	SITE UNIT NO.	MASTER SIZE
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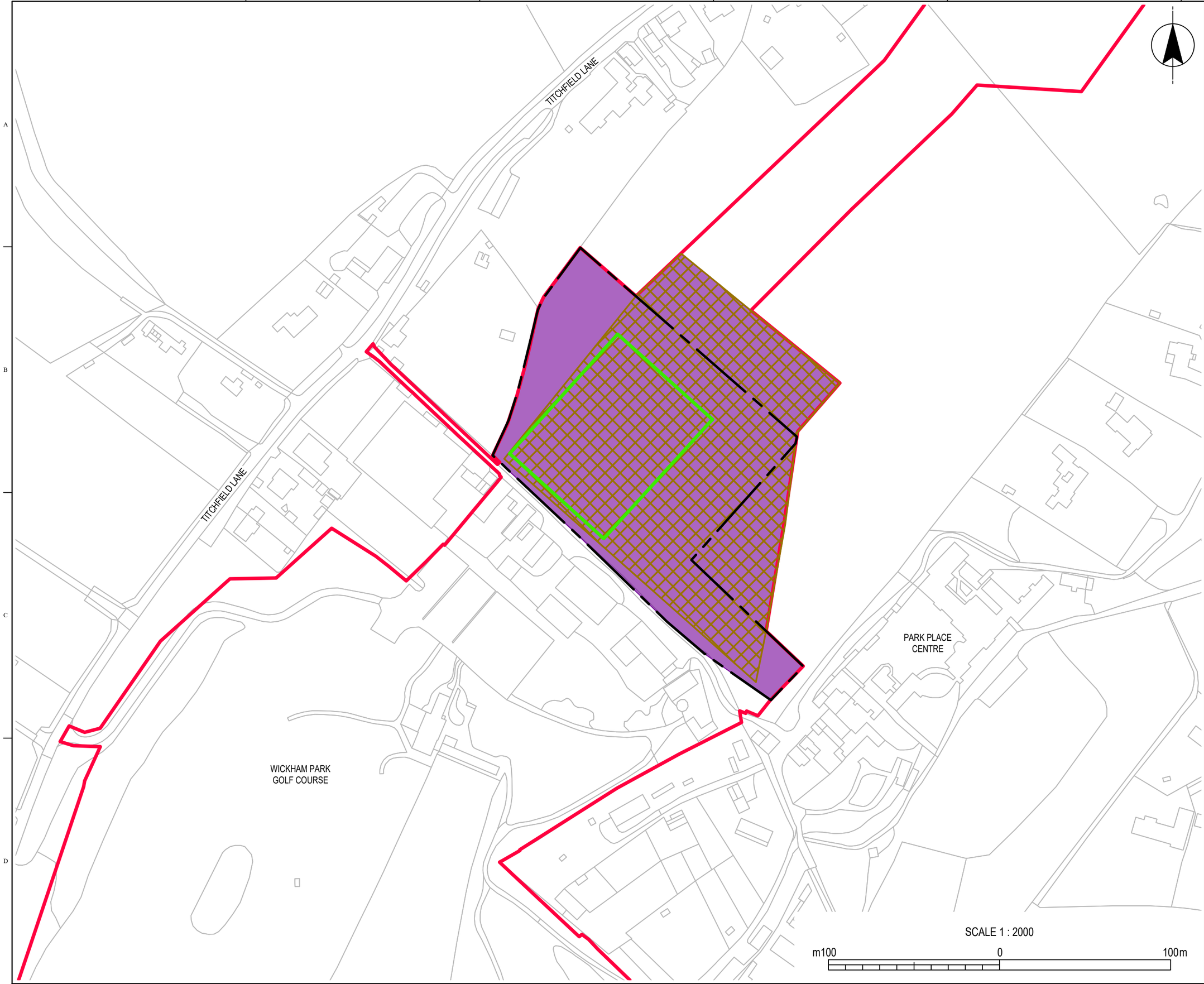

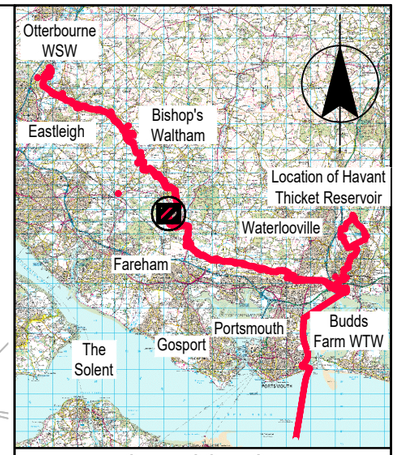

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REFERENCES

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LEGEND

- ORDER LIMITS
- CONSTRUCTION COMPOUND
- ENVIRONMENTAL MITIGATION AND ENHANCEMENT AREA
- LOCATION OF AGP
- WORK No.5B - ABOVE GROUND PLANT

ABBREVIATIONS

AGP	ABOVE GROUND PLANT
BPT	BREAK PRESSURE TANK
IPS	INTERMEDIATE PUMPING STATION
WRP	WATER RECYCLING PLANT
WSW	WATER SUPPLY WORKS
WTW	WASTEWATER TREATMENT WORKS

SCALE 1 : 2000

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DATE	ORIG	CHKD	REVD	APPR	REV	STS	REASON FOR ISSUE
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DRAWING TITLE
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IPS-G

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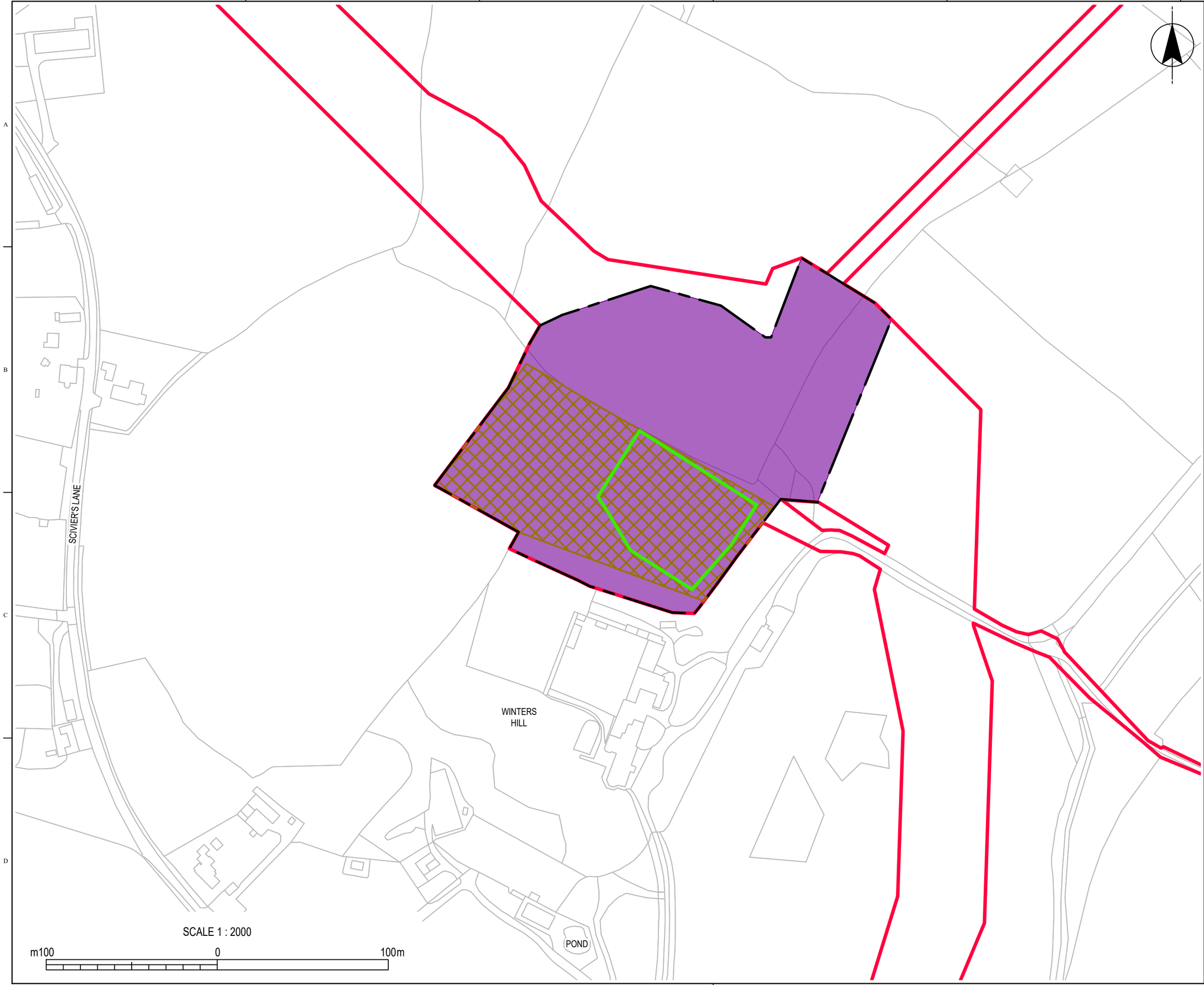

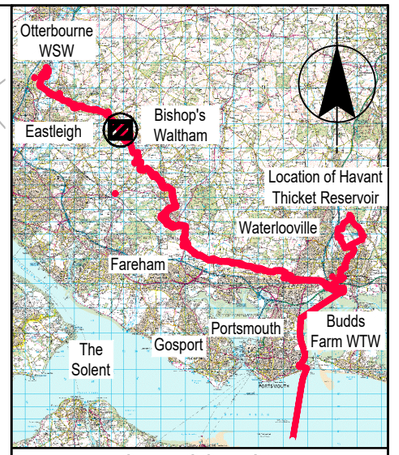

SITE LOCATION

SCALE : NTS

REFERENCES

710166-SWS-XX-XX-DR-Z-08100 DESIGN PRINCIPLES KEY PLAN

LEGEND

- ORDER LIMITS
- CONSTRUCTION COMPOUND
- ENVIRONMENTAL MITIGATION AND ENHANCEMENT AREA
- LOCATION OF AGP
- WORK No.5D - ABOVE GROUND PLANT

ABBREVIATIONS

AGP	ABOVE GROUND PLANT
BPT	BREAK PRESSURE TANK
IPS	INTERMEDIATE PUMPING STATION
WRP	WATER RECYCLING PLANT
WSW	WATER SUPPLY WORKS
WTW	WASTEWATER TREATMENT WORKS

DATE	ORIG	CHKD	REVD	APPR	REV	STS	REASON FOR ISSUE
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DRAWING TITLE

DESIGN PRINCIPLES PLAN
BPT-K

SITE UNIT MNEMONIC	SITE UNIT NO.	MASTER SIZE A3
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S.W. DRAWING NO. 710166-SWS-XX-XX-DR-Z-08405		REVISION P02

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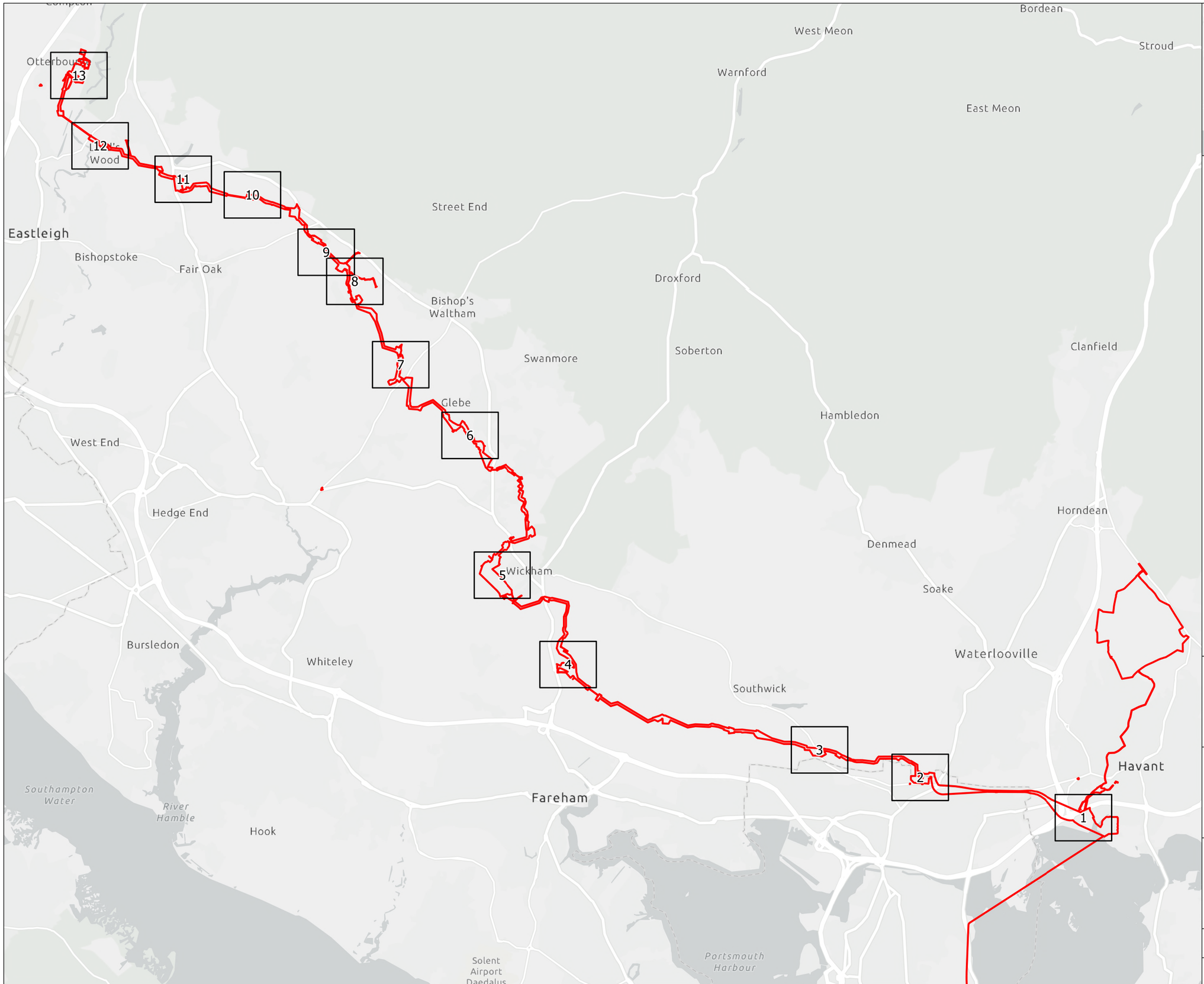
Appendix B Environmental Mitigation and Enhancement Areas Plans





Order Limits

Map Sheet Extent

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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WATER for LIFE from Southern Water

Hampshire Water Transfer and Water Recycling Project Environmental Mitigation and Enhancement Areas Overview Sheet

Drawn	GIS Checked	Checked	Approved
JS	BW	NC	KW
Scale at A3	Status	Revision	Security
1:85,000	INF	01	STD

710166-PSF-SWS-ENG-SRO-DR-1199

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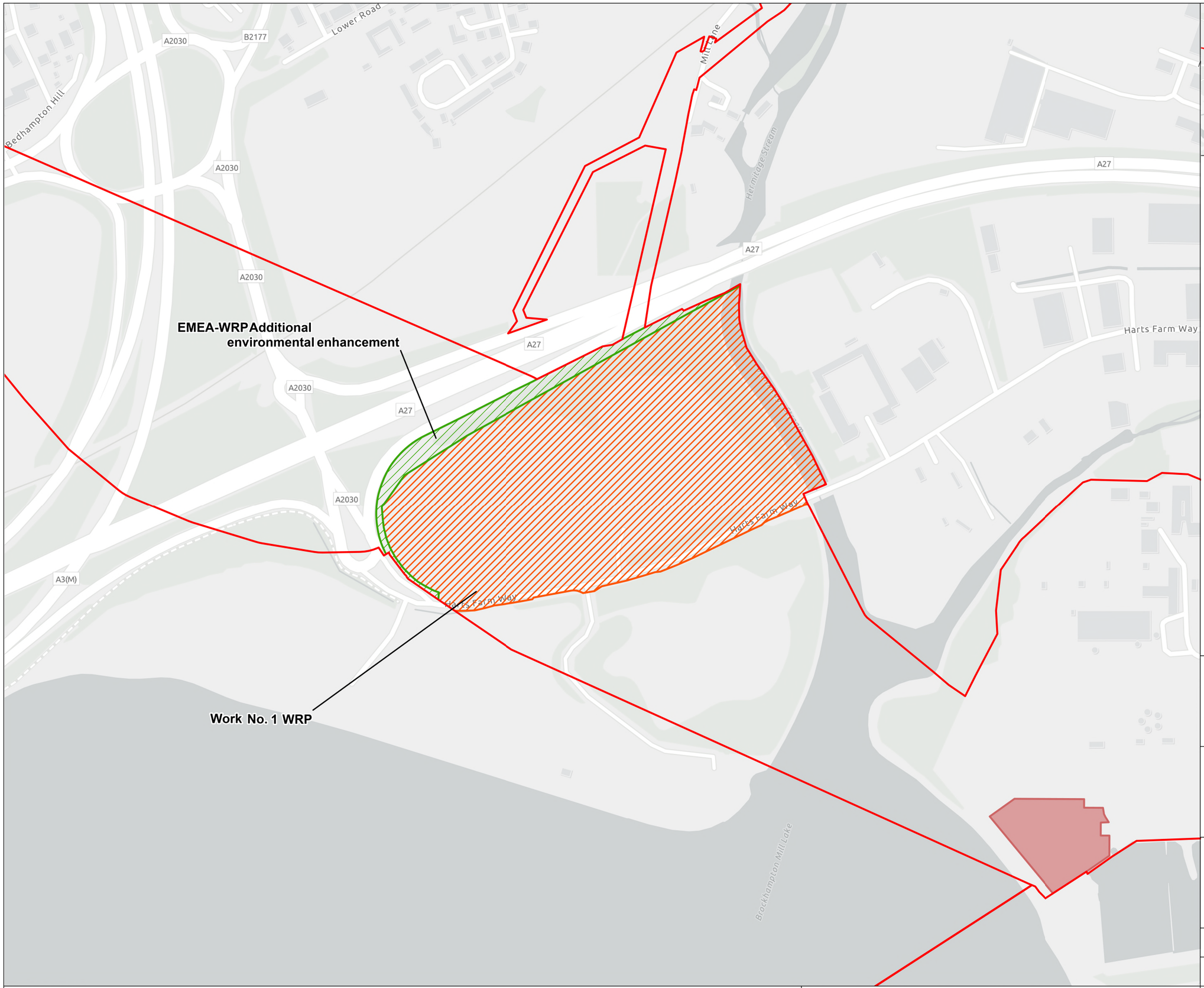

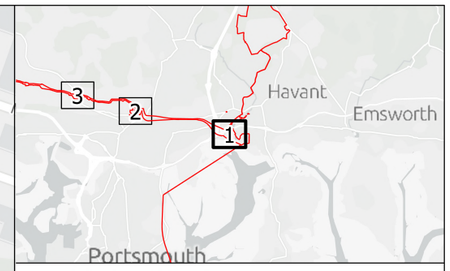

- Order Limits
- Work No. 1 - WRP Site
- Work No. 5 – Above Ground Plant
- Additional environmental enhancement

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Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 1 of 13

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JS	BW	NC	KW
Scale at A3	Status	Revision	Security
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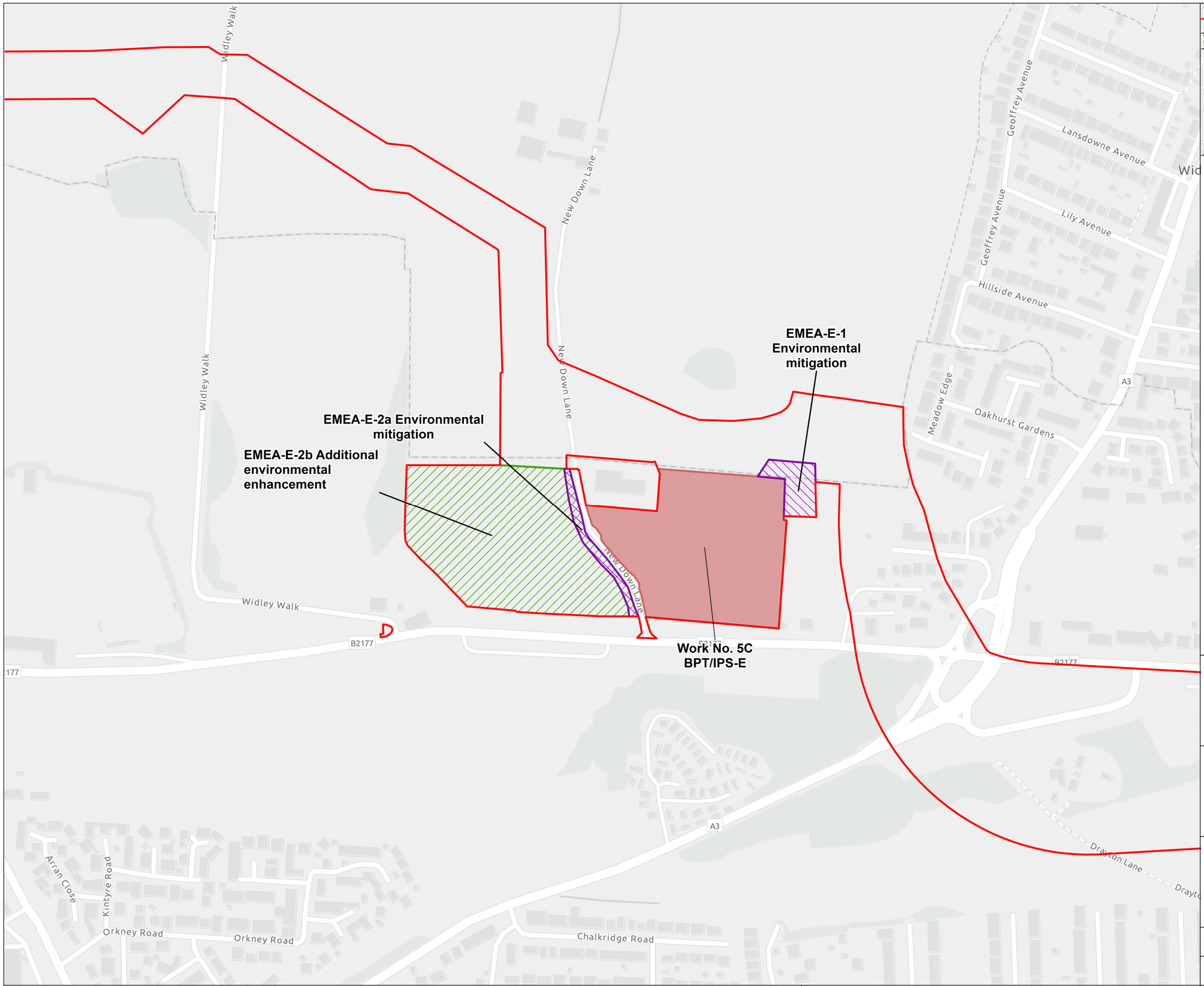

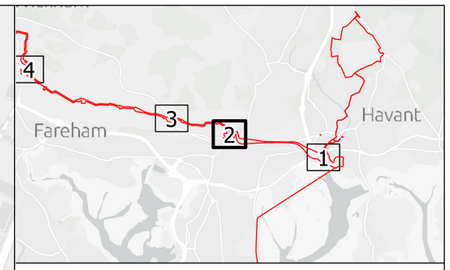

- Order Limits
- Work No. 5 – Above Ground Plant
- Additional environmental enhancement
- Environmental mitigation

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Hampshire Water Transfer and Water Recycling Project Environmental Mitigation and Enhancement Areas Sheet 2 of 13

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JS	BW	NC	KW
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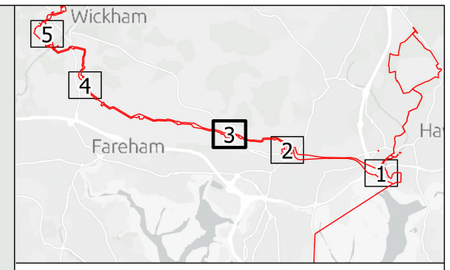

Order Limits

Additional environmental enhancement

Coordinate system: British National Grid; Datum: OSGB 1936

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WATER for LIFE from Southern Water

Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 3 of 13

Drawn	GIS Checked	Checked	Approved
JS	BW	NC	KW
Scale at A3	Status	Revision	Security
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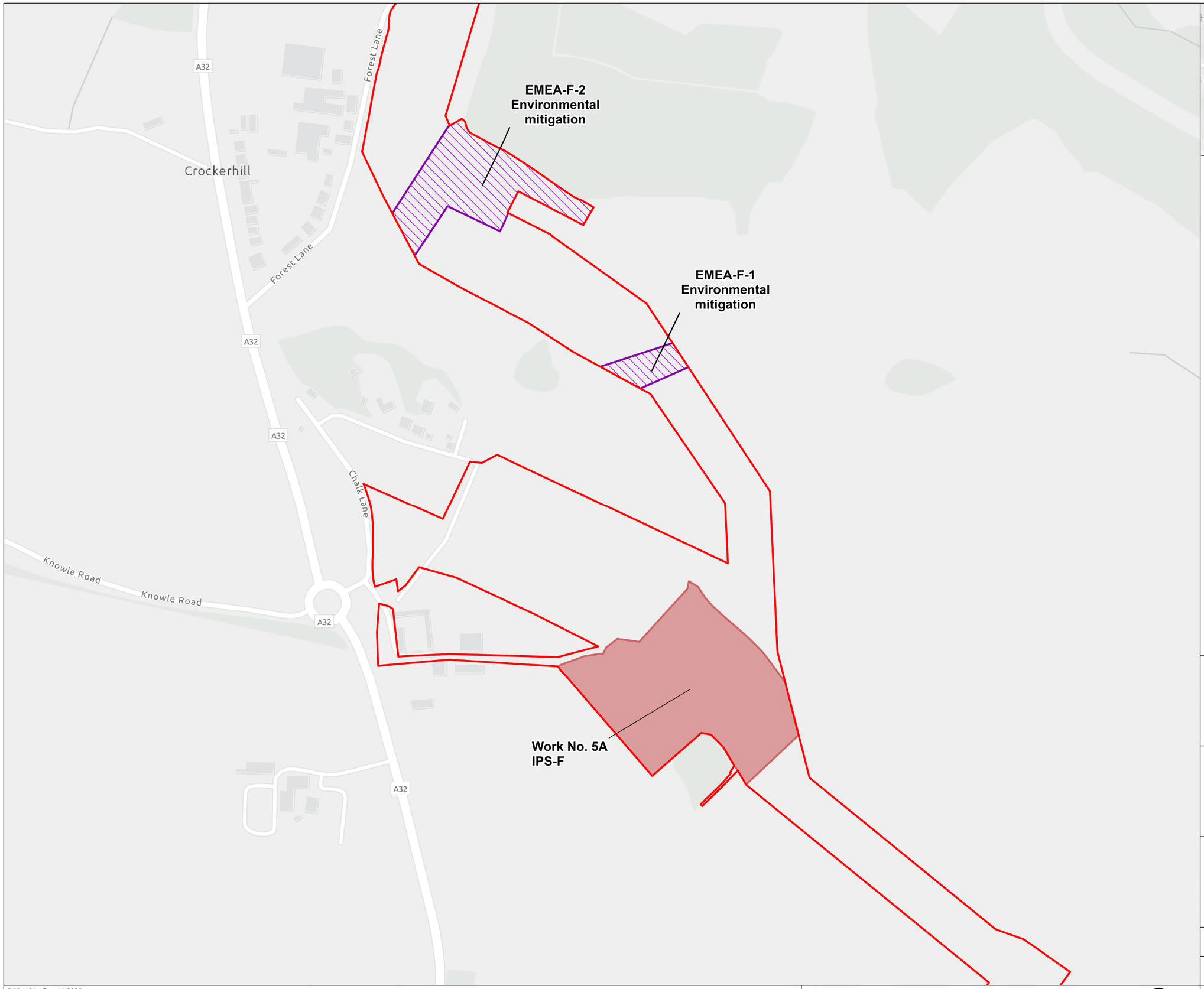

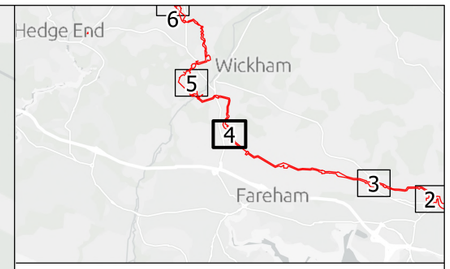

Order Limits
Work No. 5 – Above Ground Plant
Environmental mitigation

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 4 of 13

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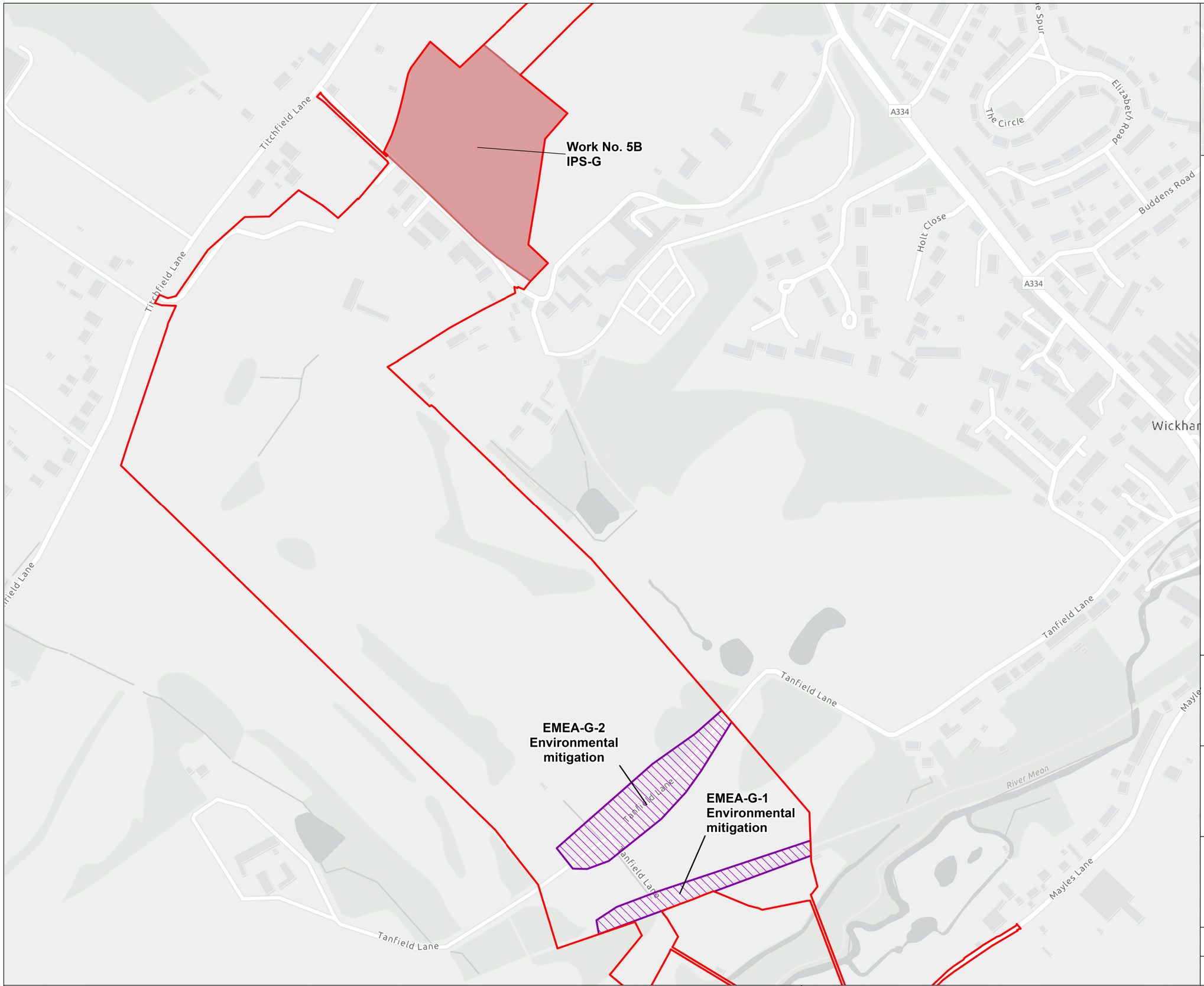

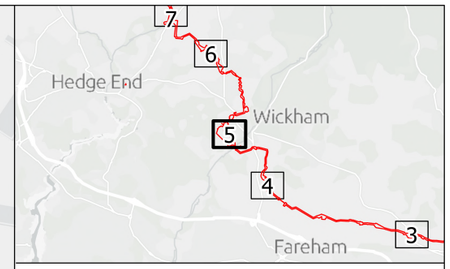

Order Limits
Work No. 5 – Above Ground Plant
Environmental mitigation

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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WATER for LIFE from Southern Water

Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 5 of 13

Drawn	GIS Checked	Checked	Approved
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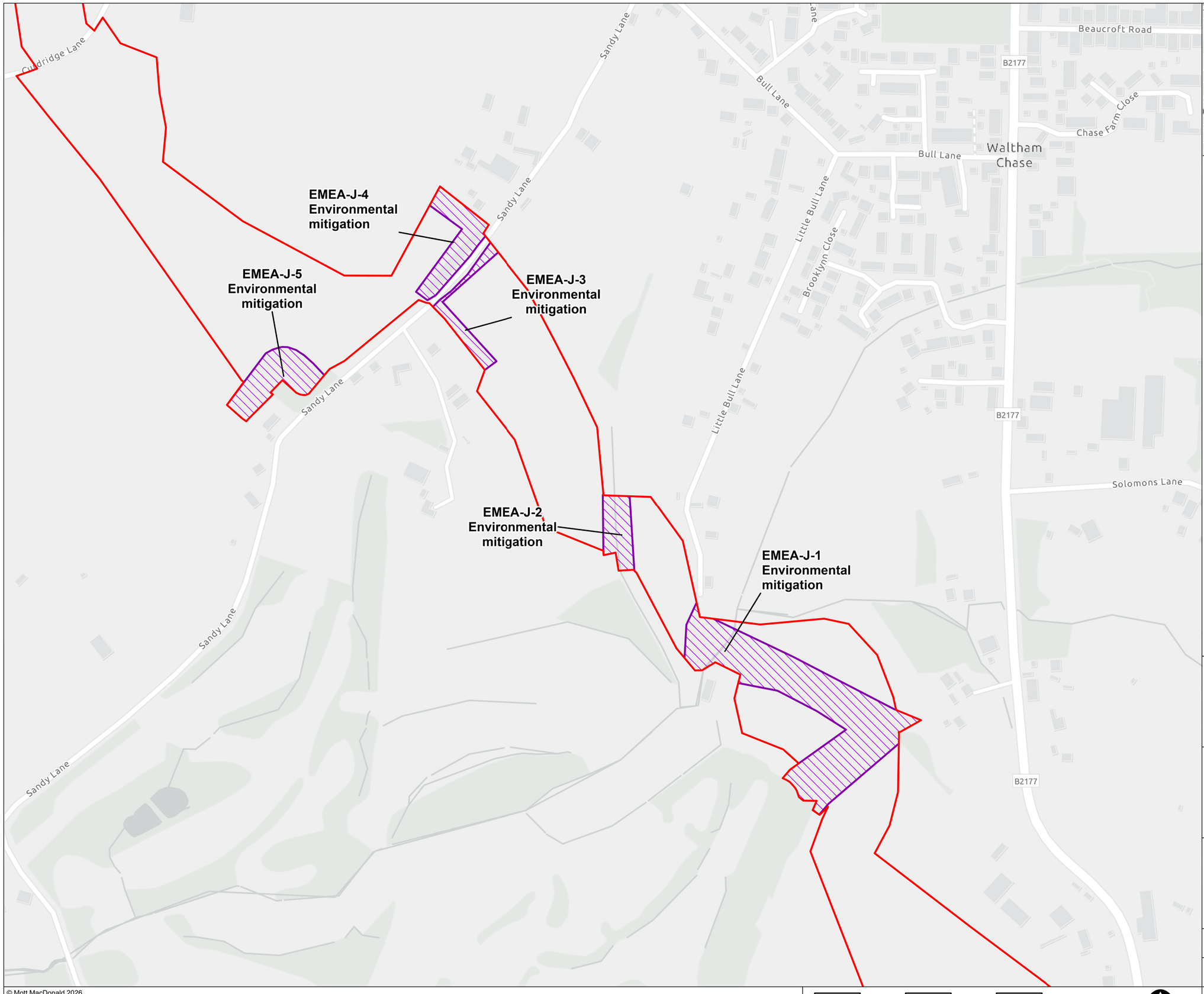

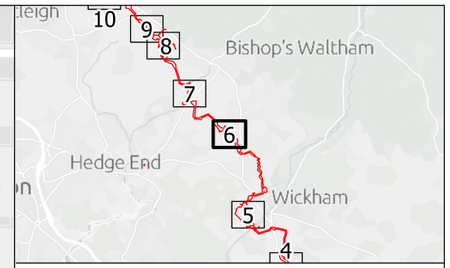

Order Limits
Environmental mitigation

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 6 of 13

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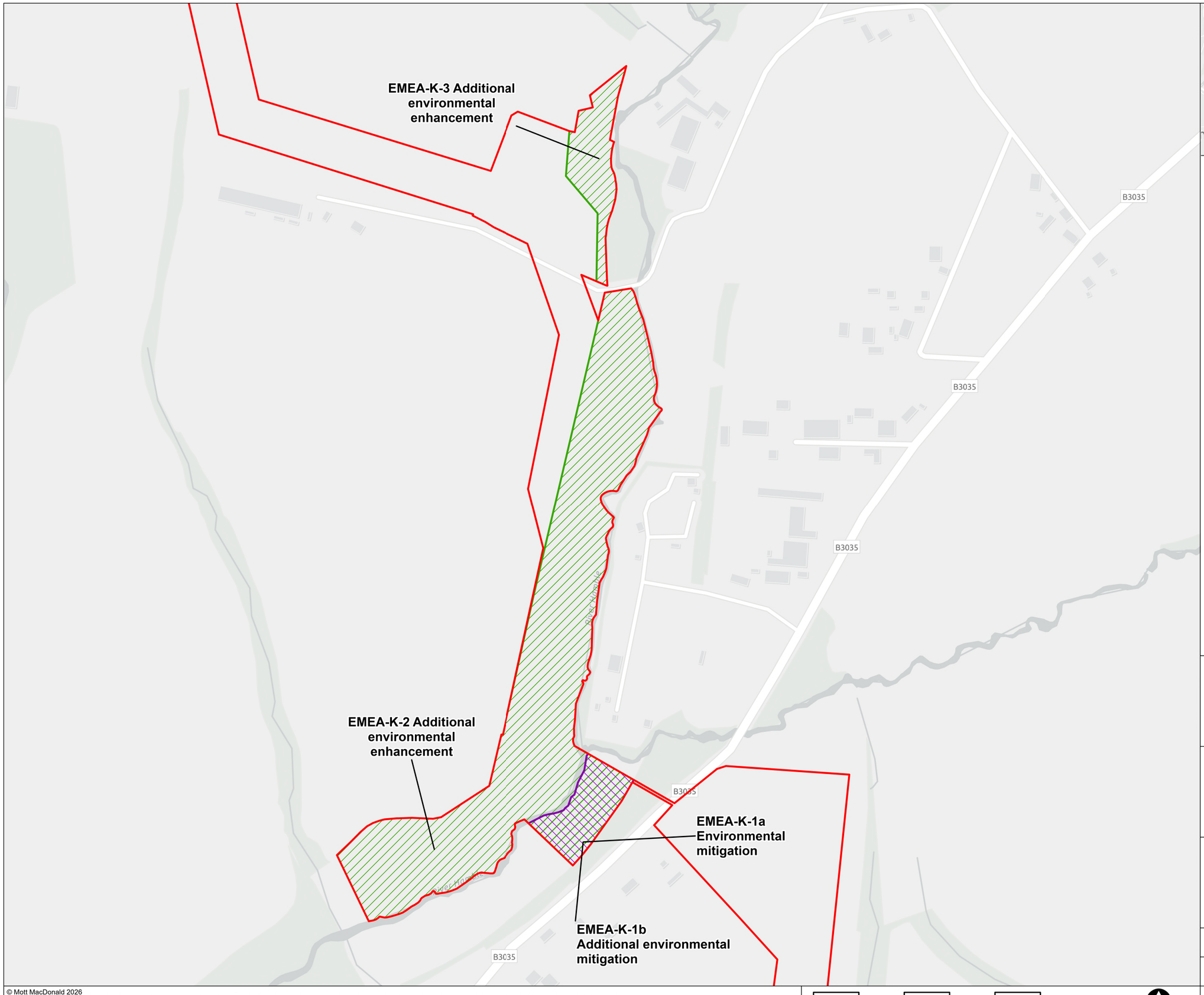

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 7 of 13

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Scale at A3	Status	Revision	Security
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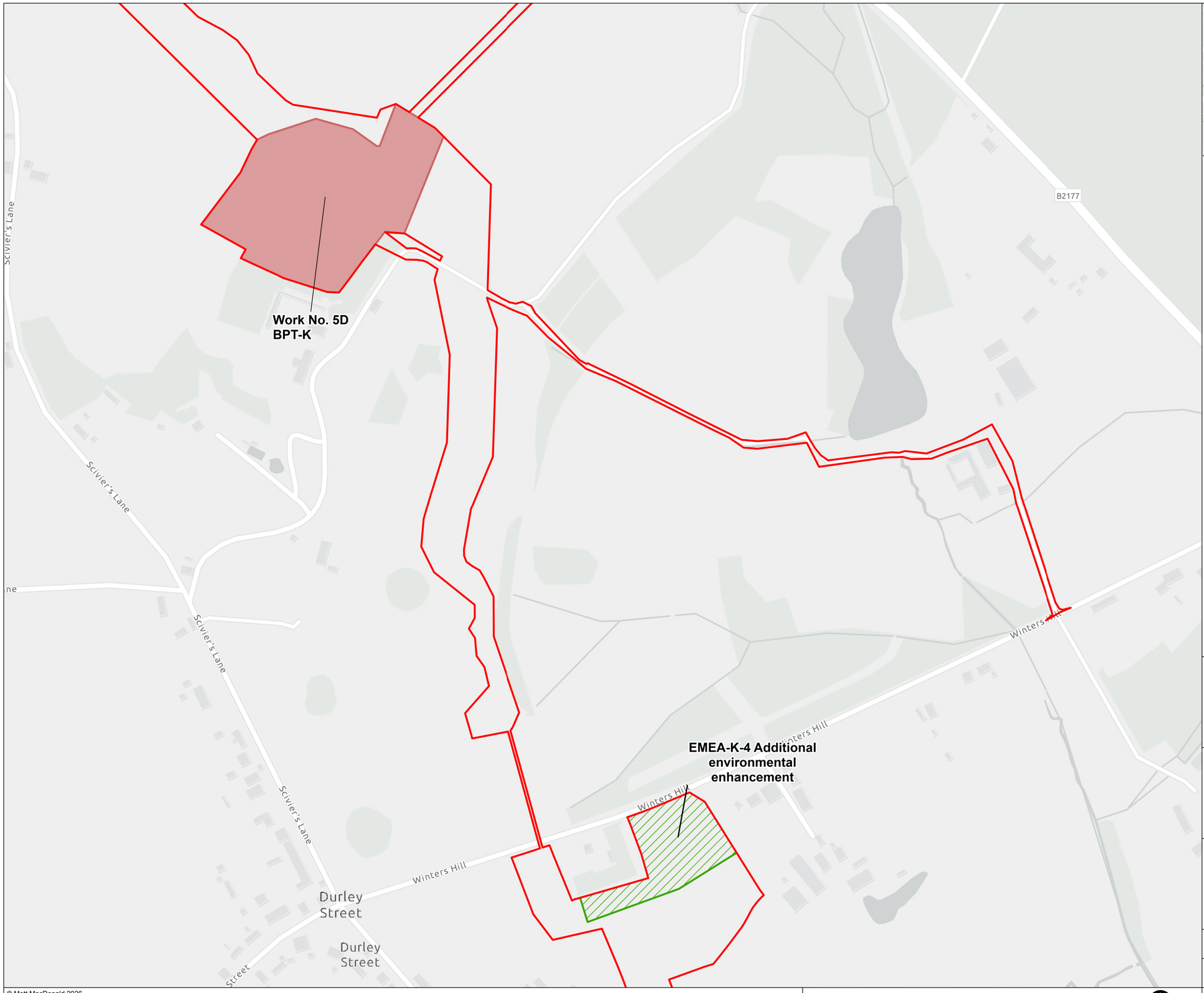

Order Limits

Work No. 5 – Above Ground Plant

Additional environmental enhancement

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 8 of 13

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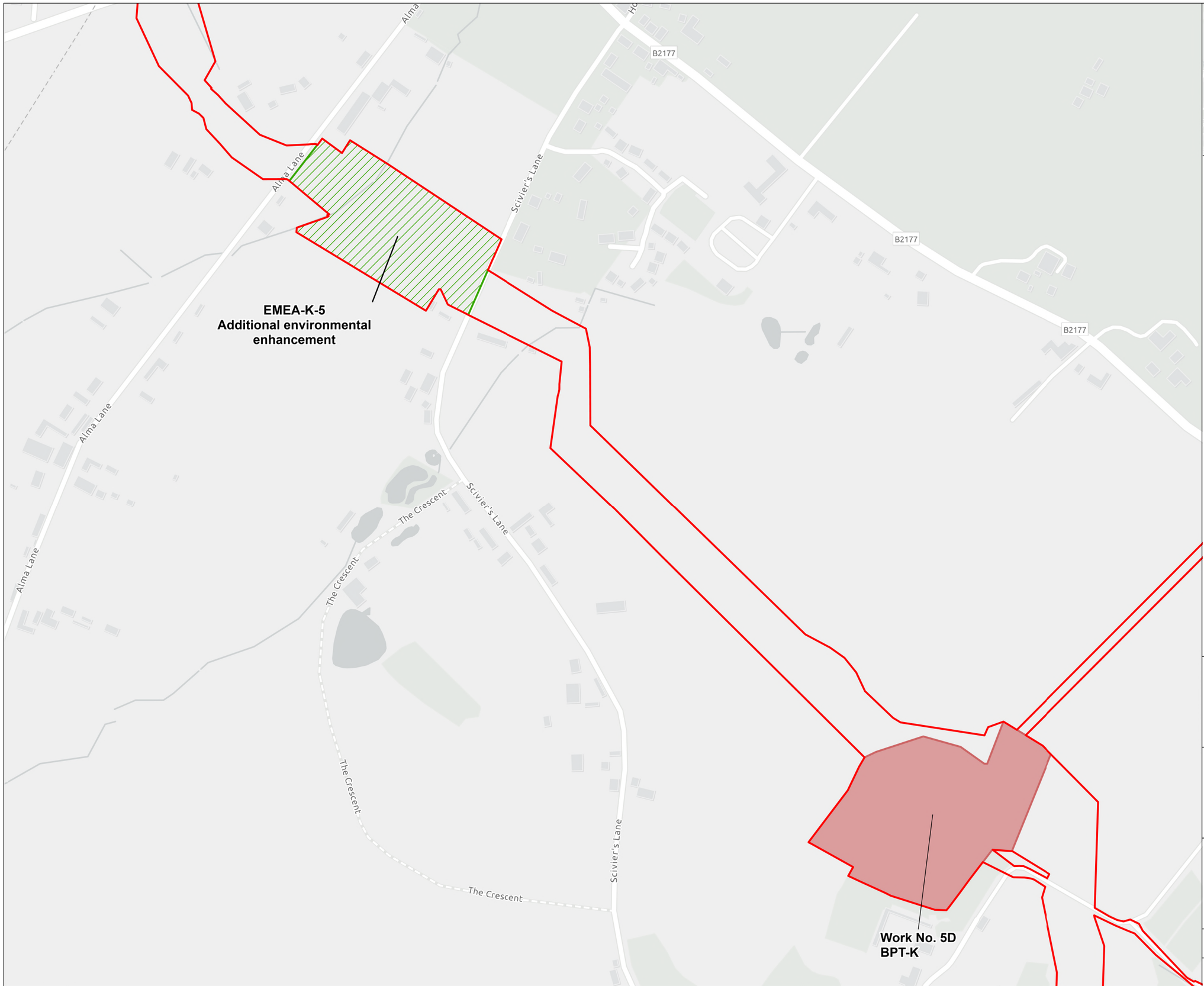

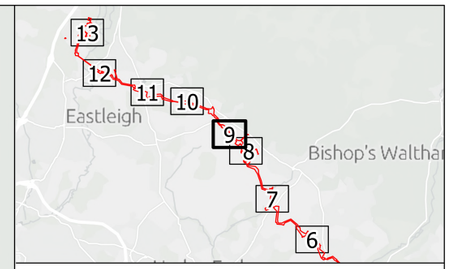

Order Limits

Work No. 5 – Above Ground Plant

Additional environmental enhancement

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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WATER for LIFE from Southern Water

Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 9 of 13

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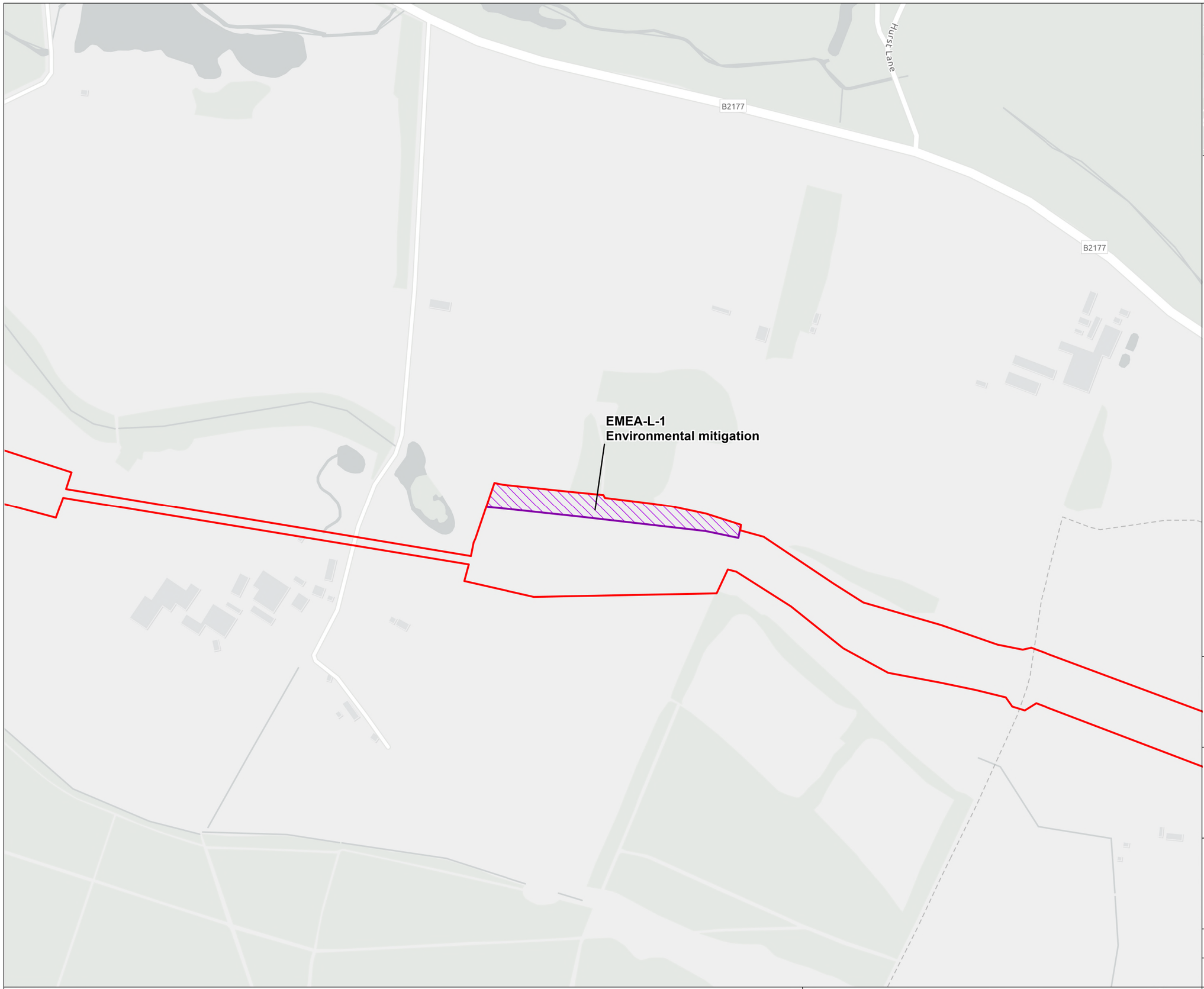

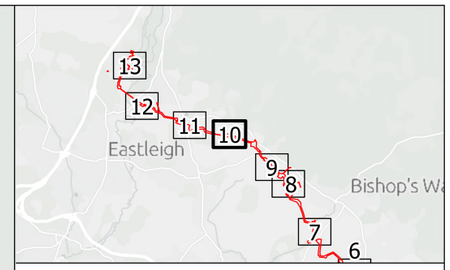

Order Limits

Environmental mitigation

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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WATER for LIFE from Southern Water.

Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 10 of 13

Drawn	GIS Checked	Checked	Approved
JS	BW	NC	KW
Scale at A3	Status	Revision	Security
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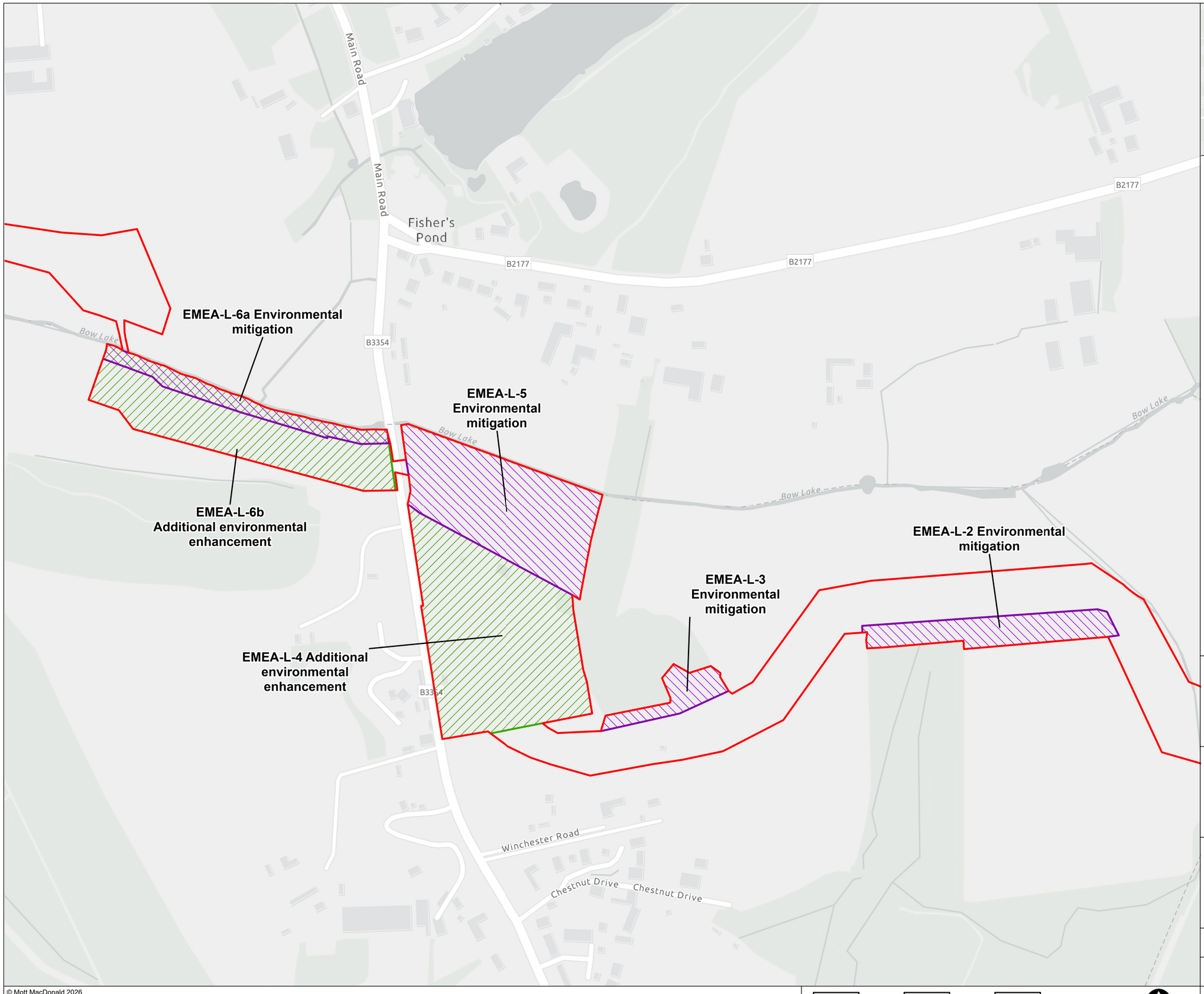

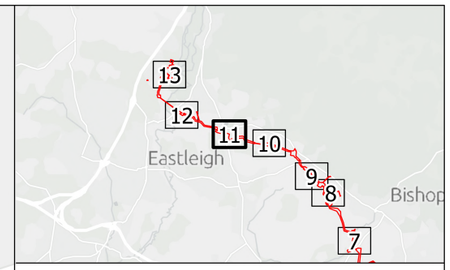

Order Limits

Additional environmental enhancement

Environmental mitigation

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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WATER for LIFE from Southern Water.

Hampshire Water Transfer and Water Recycling Project Environmental Mitigation and Enhancement Areas Sheet 11 of 13

Drawn	GIS Checked	Checked	Approved
JS	BW	NC	KW
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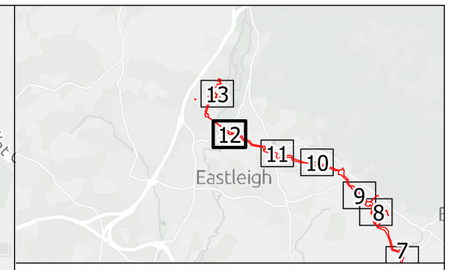

Order Limits

Additional environmental enhancement

Coordinate system: British National Grid; Datum: OSGB 1936

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WATER for LIFE from Southern Water.

Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 12 of 13

Drawn	GIS Checked	Checked	Approved
JS	BW	NC	KW
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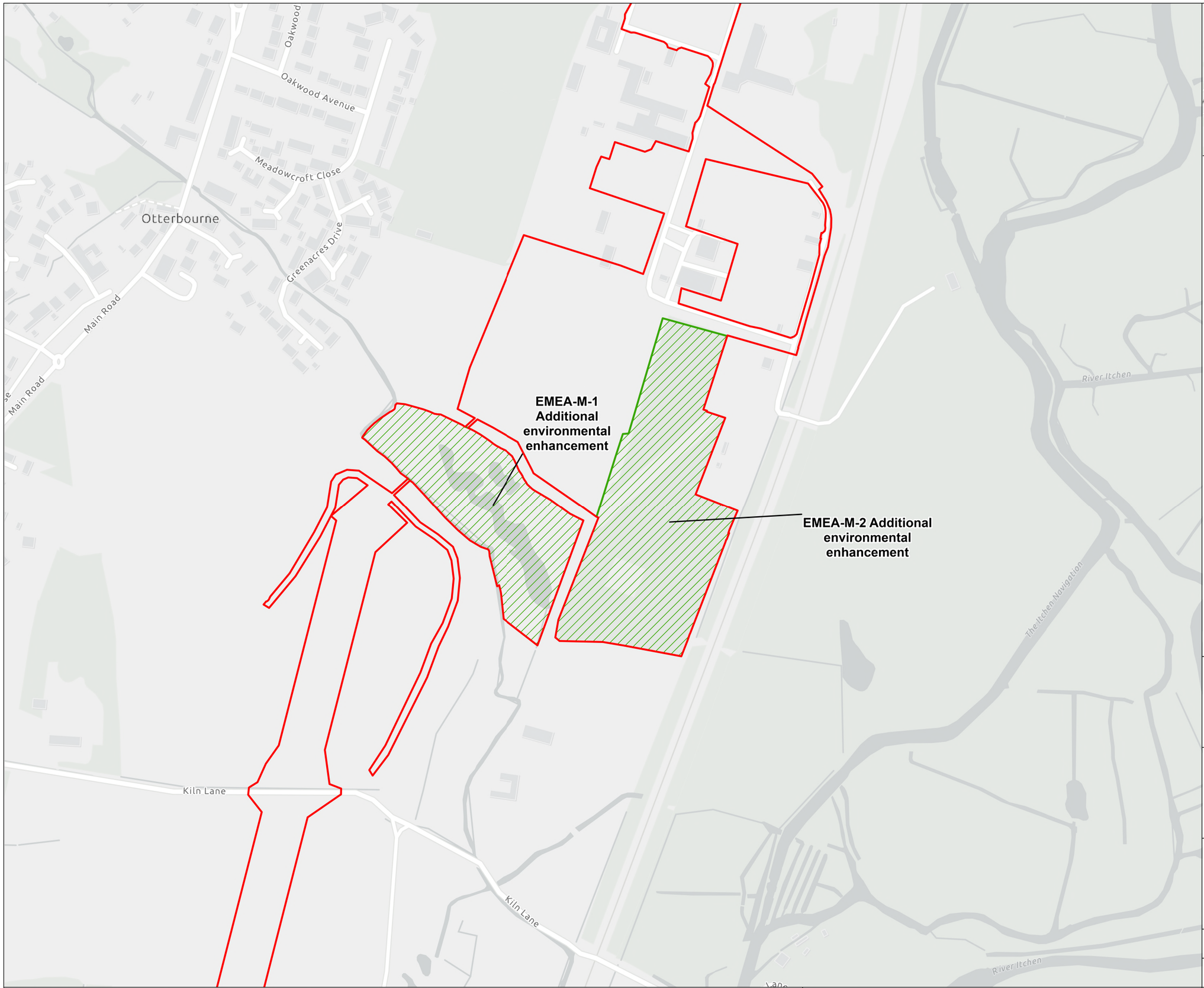

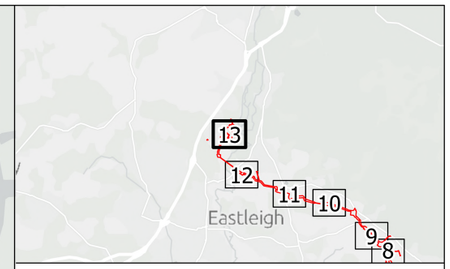

Order Limits

Additional environmental enhancement

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Data sources: Scheme Data: Southern Water (2026).

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Hampshire Water Transfer and Water Recycling Project
Environmental Mitigation and Enhancement Areas
Sheet 13 of 13

Drawn	GIS Checked	Checked	Approved
JS	BW	NC	KW
Scale at A3	Status	Revision	Security
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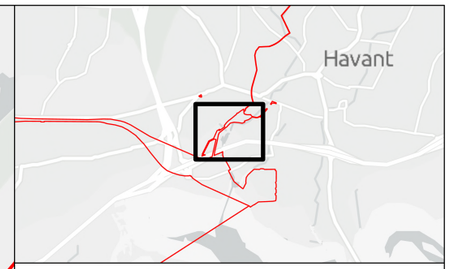
Appendix C Bedhampton Springs Design Principle PL_7 Plan





Order Limits

Work No. 3 – WRP to Bedhampton Springs Pipelines

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water (2026).

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Hampshire Water Transfer and Water Recycling Project
Bedhampton Springs Design Principle PL_7 Plan

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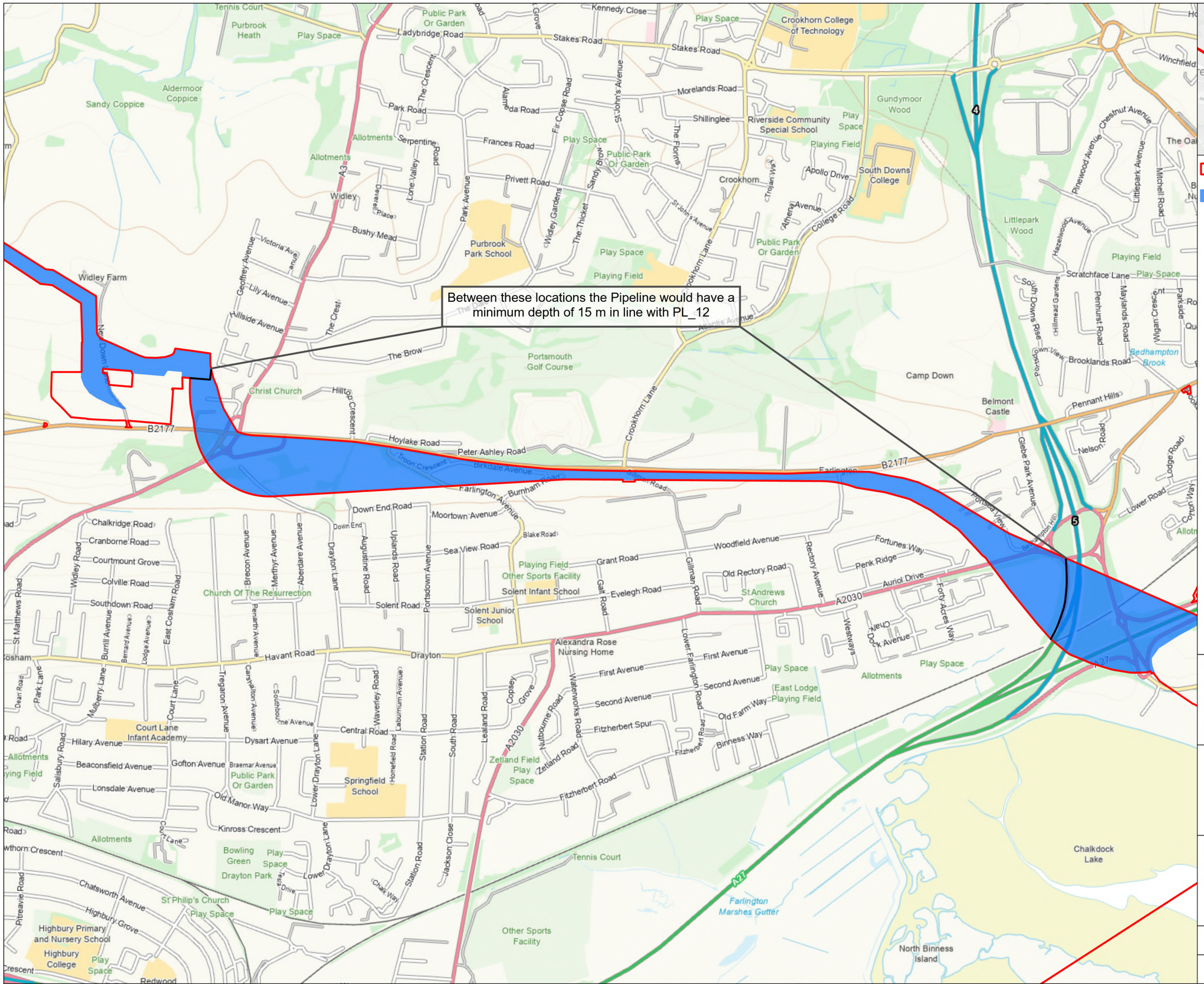
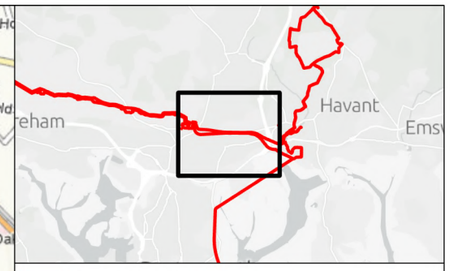
Appendix D Section D Design Principle PL 12 Plan





Order Limits

Work No. 4 – WRP site to Otterbourne WSW Pipeline

Coordinate system: British National Grid; Datum: OSGB 1936

Data sources: Scheme Data: Southern Water, 2026.

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Hampshire Water Transfer and Water Recycling Project
Section D Design Principle PL_12 Plan

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