Hampshire Water Transfer and Water Recycling Project

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Executive summary

1. This Outline Written Scheme of Investigation (WSI) presents the proposed outline scope, methodologies and commitments to archaeological survey, mitigation and subsequent reporting and publication identified as the outcomes of the Environmental Impact Assessment process for the Hampshire Water Transfer and Water Recycling Project (hereafter referred to as 'the Project').
2. The Outline WSI sets out the context of the works, the legislative and policy background, identifying relevant guidance, before setting out a summary of the archaeological baseline, including a summary of works carried out pre-application. A project-specific research agenda is then set out to guide the outline scope and methods of the archaeological works.
3. These works take the form of a staged programme of archaeological investigation intended to allow the definition of locations and methodologies for detailed investigation through non-intrusive survey, set-piece excavation, watching brief, topographic survey and purposive geoarchaeological investigation. Any such works would be governed by the principles of:
    1. Deliverability
    2. Specificity
    3. Research focus
    4. Proportionality
4. At each stage, the need for and value of the proposed archaeological work shall be reviewed to ensure that works conform to the stated principles.
5. Specific scope and methodologies would be set out in Survey-Specific WSIs agreed with the relevant local planning authority Archaeologist(s) and responding to the model clauses at Appendix A .
6. The location of where archaeological works will be required will also be assessed where the Project physical impacts would remove or damage archaeological remains. A live document will be produced post-consent to identify and confirm which areas would require archaeological survey(s) identified in this document.
7. Project roles are defined and the responsibilities of those roles set out within this Outline WSI. Non-investigation mitigation is identified and cross-referenced to the appropriate control documents, and sensitive and precautionary approaches to construction works are set out.
8. Processes for monitoring archaeological works in progress, post-excavation assessment, analysis and reporting are set out, and an outline engagement strategy is included in this Outline WSI.

1 Introduction

1.1 Project background

1.1.1 This document has been updated at Deadline 1 to progress Statements of Common Grounds and having regard to Relevant Representations. 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.

~~1.1.1~~1.1.2 The Hampshire Water Transfer and Water Recycling Project (hereafter referred to as the 'Project') comprises a combination of water transfer and water recycling infrastructure designed to help address forecast water supply deficits across the Hampshire supply area during both normal weather conditions and periods of drought.

~~1.1.2~~1.1.3 The Project would use an advanced treatment process to turn treated ~~wastewater1~~wastewater into purified recycled water at a Water Recycling Plant (WRP) site to be located at a site south of Havant in the vicinity of Budds Farm Wastewater Treatment Works. The recycled water would then be transferred via a pipeline to Bedhampton Springs. This would supplement the source water proposed to be stored in the reservoir by Portsmouth Water.

1.2 Purpose of Outline Written Scheme of Investigation

1.2.1 The Outline Written Scheme of Investigation (WSI) sets out the proposed outline scope and commitments to archaeological survey, mitigation and subsequent reporting and publication to be undertaken post-consent. This includes both initial informative survey stages, for example trial trenching and subsequent mitigation measures, where required. This therefore sets out an overarching mitigation strategy for effects arising on archaeological heritage assets as a result of the Project to be undertaken within the Order Limits.

1.2.2 The Outline WSI as certified by the Secretary of State will, as a requirement in the Development Consent Order (DCO) for the Project, be implemented by the Contractor. The Requirement will provide for subsequent detailed Survey-Specific WSIs (SSWSIs) to be produced by the Archaeological Clerk of Works (ACoW) in accordance with this Outline WSI, providing evidence of how they will ensure its requirements would be implemented.

1.2.3 The Outline WSI sets out a process of staged archaeological and geoarchaeological investigation (section 4.1). This process requires:

1. An initial stage of investigative work through the implementation of an agreed programme of trial trenching and/or geoarchaeological test pitting (section 7.3) for which a SSWSI would be required. These works would normally cover the spatial extent of the Order Limits where there is a potential for archaeological remains to be affected by construction works (i.e. excluding areas of known prior disturbance or areas where no disturbance would arise, e.g. tunnelled sections) to allow for informed decision making post-consent. These surveys

may be carried out and reported in discrete spatial blocks or areas to allow for decision-making to be more closely aligned to the design and construction programme.

2. An initial interim report would be produced on completion of each phase of the initial investigative surveys, supported by sufficient specialist assessment to inform decision making in design and mitigation planning, along with identifying areas which would not require any further archaeological mitigation works.
3. Some areas may require a second stage of mitigation works, comprising targeted archaeological excavation and/or monitoring of construction works, topographic survey and purposive geoarchaeological investigation (section 8). These works would be defined by a SSWSI(s) as appropriate and have specific research aims (section 6) and be targeted on those identified significant archaeological remains which would be subject to direct physical disturbance, and areas not subject to disturbance or which have been adequately recorded during the initial surveys would be excluded from the scope.
4. Once the fieldwork elements set out in the SSWSI(s) as required, in advance of construction works is complete, construction works will proceed. Interim post-excavation reporting would be produced and full post-excavation assessment, analysis and publication (where appropriate) of results would be deferred to the completion of mitigation surveys.
5. In parallel to fieldwork and reporting, an archaeological outreach and engagement scheme would be implemented to inform the public of the purpose and results of the ongoing work.

1.2.4 It is anticipated that the initial informative survey stages of mitigation would take place as part of the wider pre-construction programme and activities, followed by bespoke mitigation requirements based on the findings and recommendations of the initial survey's, on a case-by-case basis as required, in ongoing consultation and engagement with the archaeological advisors for Fareham Borough Council, Eastleigh Borough Council, Portsmouth City Council ~~Archaeological Advisor, Hampshire County Council (HCC) Archaeological Advisor,~~and Havant Borough Council, the Winchester City Council (WCC) Archaeological Advisor and Historic England (HE).

1.3 Project roles

1.3.1 The Project roles are defined as follows:

The Applicant

1.3.2 Southern Water Services ('the Applicant') has put forward the Project and will remain the undertaker under the DCO, but will not be acting directly as client or contractor during the Project construction period. The Applicant will be informed of progress for works being carried out and will have ultimate responsibility for ensuring that all requirements are complied with.

The Contractor

1.3.3 The Applicant will have tendered and awarded the Project to a Contractor (who will be responsible for the construction and operation of the Project. The Contractor

will assume the role of client and Contractor and agree the programme of works alongside the ACoW (see paragraph 1.3.4), local planning authority Archaeological Advisor(s) (see paragraph 1.3.10) and any appointed Archaeological Contractor(s). The Contractor will be informed of progress during periods of archaeological works and will review and approve interim reporting, as well as health and safety documentation produced for works being carried out. Specific responsibilities for the Contractor are detailed within this document and will be specified in subsequent SSWSIs.

Archaeological Clerk of Works

1.3.4 The Archaeological Clerk of Works (ACoW) will be appointed by the Contractor to provide environmental and consenting support to the Contractor regarding archaeology and cultural heritage, to author SSWSIs in consultation with the local planning authority Archaeological Advisor(s), and to monitor works for compliance with any drafted SSWSI and the Outline WSI. However, this excludes the undertaking of the non-intrusive and intrusive site survey work and subsequent reporting.

1.3.5 This will be a suitably qualified person from an organisation (e.g. a consultancy) with experience of providing archaeology and cultural heritage advice on equivalent sized and complex linear projects.

Archaeological Contractor(s)

1.3.6 The Archaeological Contractor(s) will be appointed to work in compliance with the principles and methods within this document. They will also ensure the compliant delivery of specified archaeological works (non-intrusive and intrusive site survey work and subsequent reporting) in line with SSWSI(s).

1.3.7 The Archaeological Contractor(s) will be responsible for obtaining site-specific licences or permits in respect of Protected Military Remains and for reporting any finds of reportable material, except where another person is specifically agreed with the Contractor and the relevant authority as having this responsibility.

1.3.8 The Archaeological Contractor(s) will be (or will have equivalent experience and competence to) a Registered Organisation with the Chartered Institute for Archaeologists (CIfA). The chosen Archaeological Contractor(s) will ensure conformity with all relevant national, regional and local standards and guidance including all CIfA standards and guidance, in addition to standards identified in this document.

1.3.9 Specific responsibilities are noted within this Outline WSI and will be referenced within subsequent SSWSIs.

Local planning authority Archaeological Advisor

1.3.10 The relevant local planning authority Archaeological Advisor(s) will be consulted on the scope and methods of works detailed in the subsequent SSWSIs to confirm that these are in accordance with the formally agreed Outline WSI or represent appropriate variations.

1.3.11 The relevant local planning authority Archaeological Advisor(s) will be informed in advance of the survey date for fieldwork and be provided with regular updates on

the progress of surveys by email pursuant to a SSWSI. Reasonable access to the site will be afforded for inspection/monitoring visits by the local planning authority Archaeological Advisor(s). Monitoring requirements will vary by the nature and method of the specific archaeological works and will be set out in the relevant SSWSI.

Historic England

1.3.12 The local planning authority Archaeological Advisor(s) may consult the HE Regional Science Advisor (RSA), where required, on the scope and methods of works detailed in the subsequent SSWSIs in matters pertaining to archaeological science (sampling strategies, geoarchaeological works).

1.4 Aims and objectives

1.4.1 The general aims and objectives for the post-consent stages of survey and evaluation work to be undertaken in accordance with the Outline WSI are to:

1. Refine the understanding of the archaeological and historic environment resource within the Order Limits, including clarifying the presence/absence and extent of any buried archaeological remains.
2. Characterise the location and nature of those archaeological remains and deposits of geoarchaeological interest within the Order Limits, which would be subject to disturbance during construction works.
3. Assess the degree of existing impacts to sub-surface features and horizons and to characterise the extent of archaeological survival of buried deposits within the Order Limits.
4. Analyse and interpret the results with specific reference to the agreed archaeological research agenda.
5. Produce reports which will present the results of the works in sufficient detail, including information to allow informed decisions to be made concerning ongoing, and where appropriate mitigation strategies.

1.4.2 SSWSIs will be developed to fulfil the aims set out above. In addition to this, the SSWSIs and subsequent mitigation related WSIs produced in the post-consent/pre-construction phases will respond to and seek to refine the agreed research aims and objectives for the archaeological works associated with the Project outlined in section 6.

1.5 Scope of Outline and subsequent Survey-Specific Written Scheme of Investigations

1.5.1 This Outline WSI sets out the proposed outline scope, methodologies and commitments to archaeological survey, evaluation and investigation which were identified as the outcomes of the Environmental Impact Assessment (EIA) process in the Environmental Statement (ES) Chapter 7 Archaeology and cultural heritage, Volume I (Document reference 6.1, DCO Volume 6).

1.5.2 This Outline WSI sets out the process for investigation and the terms of reference for, aims of and generic standards to be referenced in any subsequent SSWSI.

1.5.3 As the identification of the scope of specific SSWSI(s) requires detail design of the Project which is not currently available at this time, a live document will be produced post-consent by the ACoW to identify and confirm which areas would require archaeological survey(s) identified within this Outline WSI. The live document will also identify which SSWSI(s) apply to proposed works in those areas.

1.5.4 Each post-consent stage of mitigation work (survey stage – see Appendix C) would be subject to a separate SSWSI, which will provide details of survey-specific scope, aims and methods in line with this Outline WSI and will be consulted with the relevant local planning authority Archaeological Advisor(s). Where appropriate, reference should be made to previous WSIs agreed with local planning authority Archaeological Advisors during the pre-application period[1].

1.5.5 As part of the full archaeological mitigation, SSWSIs would be produced for any necessary works recommended by the initial survey that are in accordance with the principles of deliverability, specificity, research focus and proportionality set out in sections 5 and 7. These will detail the subsequent mitigation measures to be undertaken within the Order Limits. These would be informed by the results of the initial informative stage survey and evaluation.

1.5.6 As per ES Chapter 3 Description of the Proposed Development, Volume I (Document reference 6.1, DCO Volume 6), the Project route is discussed in component sections (Sections D to M), which can be found in Works plans (Document reference 2.3, DCO Volume 2) and are also presented in the figures in Appendix B .

1.5.7 Example (model) clauses (Appendix A) have been included as a minimum for the standards to be used in the SSWSIs. These relate to methodologies for geophysical survey, archaeological trial trenching, archaeological excavation, archaeological monitoring/watching brief, topographic survey and geoarchaeological surveys.

1.5.8 As detailed in section 8 of this Outline WSI, archaeological mitigation will also take the form of avoidance and non-investigative measures. This will be discussed with the ACoW, local planning authority Archaeological Advisor(s) and the Archaeological Contractor(s) but is anticipated to include areas where a sensitive and precautionary approach is adopted alongside preservation in-situ and/or investigative works. Due to the nature of known archaeology this approach is anticipated in, but not limited to, the areas identified in Table 1-1 which are cross referenced to the figures associated with ES Chapter 7 Archaeology and cultural heritage, Volume I (Document reference 6.1, DCO Volume 6).

1.5.9 This Outline WSI should also be read alongside the Outline Construction Environmental Management Plan (CEMP) (Document reference 7.1, DCO Volume 7, Version 1) and Outline Landscape and Ecological Management Plan (LEMP) (Document reference 7.5, DCO Volume 7, Version 1), as these documents contain

[1] Royal HaskoningDHV (RHDHV) (2022a) Written Scheme of Investigation for Phase 1 Archaeological Geophysical Survey [56]

RHDHV (2022b) Written Scheme of Investigation for Archaeological and Geoarchaeological Monitoring of Ground Investigation Works [54]

RHDHV (2023) Written Scheme of Investigation for Phase 2 Archaeological Geophysical Survey [57]

RHDHV (2024) Written Scheme of Investigation for Archaeological Trial Trenching [55]

environmental management measures and project commitments relevant to the archaeological works. The production of SSWSIs shall take account of and cross reference any specific measures required for archaeological works contained within these documents, where relevant.

Table 1-1 Areas requiring sensitive and precautionary approach

Site	Location	~~Environmental Statement Chapter 7 –~~ Figure Number (Appendix B)	Issue	Outline documentation for reference and actions
Break Pressure Tank and Intermediate Pumping Station E	Section E: Portsdown Hill to Boarhunt	Figure ~~7.~~3 (Sheet 2 of ~~65~~)	Site is located within the setting of Fort Widley	Landscape mitigation and planting is set out in the Indicative Environmental Masterplan, appended to the Design Approach Document (Document reference 5.12, DCO Volume 5), and the Outline ~~Landscape and Ecology Management Plan (~~LEMP~~)~~ (Document reference 7.5, DCO Volume 7).
Pigeon House Farm	75m south of Section E: Portsdown Hill to Boarhunt	~~Figure 7.2 (Sheet 3 of 12) and Appendix B, Figure 2 of this document~~Figure 2	Fragmentary wreckage from a Second World War (WWII) aircraft crash site located south of the Order Limits may be present within the Order Limits as a result of plough disturbance	All intrusive works in identified area to be carried out under Protection of Military Remains Act (PMRA) 1986 licence. Metal-detector survey of area of interest to be carried out in advance of any intrusive works. All staff to be made aware of potential for finds of wreckage and made aware of reporting procedures.
Wickham Park	Section G: Crockerhill to Wickham	Figure ~~7.2~~3 (Sheet ~~53~~ of 12)	Site is located within the non-designated parkland at Wickham Park	In-principle measures for avoidance of parkland features and restoration of parkland landscape are set out in the Design Principles Document (Document reference 5.11, DCO Volume 5) and will be agreed with the relevant local planning authority.
Frith Farm	Section H: Wickham to Shedfield	~~Figure 7.2 (Sheet 6 of 12), and Appendix B, Figure 2 of this document~~ Figure 2,	A WWII aircraft crash site has been identified at Frith Farm. Aircraft was recovered by the Royal Air Force (RAF) at the time of the crash and site has subsequently been partially excavated.	All intrusive works in identified area to be carried out under PMRA 1986 licence. Metal-detector survey of area of interest to be carried out in advance of any intrusive works. All staff to be made aware of potential for finds of wreckage and made aware of reporting procedures.
Bishop's Waltham Park	Section K: The River Hamble to Lower Upham	Figure ~~7.2~~3 (Sheet ~~74~~ of ~~125~~)	Site is located within the non-designated parkland Bishop's Waltham	In principle measures for avoidance of parkland features and restoration of parkland landscape are set out in the Design Principles Document

Site	Location	~~Environmental Statement Chapter 7~~ Figure Number (Appendix B)	Issue	Outline documentation for reference and actions
				(Document reference 5.11, DCO Volume 5,) and will be agreed with the relevant local planning authority.
BPT-K	Section K: The River Hamble to Lower Upham	Figure ~~7.~~23 (Sheet ~~74~~ of ~~125~~)	Site is located within the non-designated parkland at Wintershill	Landscape mitigation and planting is set out in Indicative Environmental Masterplan, appended to the Design Approach Document (Document reference 5.12, DCO Volume 5), and the Outline LEMP (Document reference 7.5, DCO Volume 7).
Fisher's Pond	Section L: Lower Upham to Brambridge	Figure ~~7.~~23 (Sheet ~~85~~ of ~~125~~)	Medieval fishponds are located at Fisher's Pond.	Earthworks to be surveyed in advance of any works to allow for reconstruction following any intrusive works.
Marwell Park	Section L: Lower Upham to Brambridge	Figure ~~7.~~23 (Sheet ~~8~~ 5 of 12)	Site is located within the non-designated parkland at Marwell	In principle measures for avoidance of parkland features and restoration of parkland landscape are set out in the Design Principles Document (Document reference 5.11, DCO Volume 5,) and will be agreed with the relevant local planning authority.

2 Legislation, policy and guidance

2.1 Legislation

2.1.1 The primary legislation relating to the consent regime for the Project is provided by the Planning Act 2008. in compliance with the obligations relating to Listed Buildings, Conservation Areas and Scheduled Monuments set out in the Infrastructure Planning (Decisions) Regulations 2010, and the development will be authorised by a DCO issued under that legislation.

2.1.2 DCO Schedule 2 disapplies the Burials Act 1857 and replaces the licencing process therein with a specific provision (Document reference 3.1, DCO Volume 3).

2.1.3 Other statutory provisions that may bear directly on the delivery of any SSWSIs comprise:

1. Protection of Military Remains Act 1986, which regulates disturbance of the remains of aircraft and vessels lost in military service [1].
2. Treasure Act 1996, which defines classes of archaeological material as Treasure and sets out processes for reporting and defining ownership of such material [2].

2.2 Planning policy

2.2.1 The Planning Act 2008 provides for the designation of National Policy Statements setting out national policy in relation to Nationally Significant Infrastructure Projects (NSIPs) and projects directed of national significance. For water resource projects, this policy has been published as the National Policy Statement for water resources infrastructure [3].

2.2.2 Also, of relevance is the National Planning Policy Framework (NPPF) Section 16: Conserving and enhancing the historic environment; although the NPPF is not directed specifically at NSIPs or directed projects of national significance, this sets out the principal national policy on the importance, management and safeguarding of heritage assets within the town and country planning process [4].

2.3 Standards, guidance and good practice

2.3.1 The following relevant standards, guidance and good practice, produced by the CIfA and the Association of Local Government Archaeological Officers (ALGAO) have been considered in the production of this Outline WSI and will apply, as amended and updated to SSWSIs:

1. CIfA (2020a) Standard and guidance for geophysical survey [5]
2. CIfA (2023a) Standard for archaeological field evaluation [6]
3. CIfA (2023b) Universal guidance for archaeological field evaluation [7]
4. CIfA (2023c) Standard for archaeological monitoring and recording [8]

5. CIfA (2023d) Universal guidance for archaeological monitoring and recording [9]
6. CIfA (2023e) Standard for archaeological excavation [10]
7. CIfA (2023f) Universal guidance for archaeological excavation [11]
8. CIfA (2020b) Standard and guidance for the collection, documentation, conservation and research of archaeological materials [12]
9. CIfA (2020c) Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives [13]
10. ALGAO (2015) Advice Note for Post-Excavation Assessment [14]
11. CIfA (2022) Code of Conduct [15]
12. CIfA (2020d) Standard and guidance for the archaeological investigation and recording of standing buildings or structures [16]
13. Archaeology and Planning: Guidance for Contractors [17]

2.3.2 Also of relevance to the drafting of any SSWSIs is the following non-exhaustive list of publications from HE and others (see https://historicengland.org.uk/advice/find/a-z-publications/). These will be consulted and referenced as appropriate to the proposed survey. Other survey and investigation-specific guidelines will also apply to specific elements of the SSWSIs in addition to those listed below:

1. Historic England (2025) Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (~~3nd~~3rd Edition) [18]
2. Historic England (2015a) Management of Research Projects in the Historic Environment (MoRPHE): The MoRPHE Project Managers' Guide [19]
3. Historic England (2015b) Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record [20]
4. Historic England (2016a) Preserving Archaeological Remains: Decision-taking for Sites under Development [21]
5. European Archaeologiae Consilium (EAC) (2016) Guidelines for the Use of Geophysics in Archaeology. Questions to Ask and Points to Consider (EAC Guideline 2) [22]
6. Historic England (2016b) Understanding Historic Buildings. A Guide to Good Recording Practice [23]
7. Historic England (2017) Understanding the Archaeology of Landscapes [24]
8. Historic England (2024) Geospatial Specifications for Cultural Heritage [25]
9. Hampshire Archaeological Strategy Archaeological advice for planning (last accessed) 2025 [26]

3 Archaeological and historical background

3.1 Summary of baseline conditions

3.1.1 This section summarises the current baseline information on the known heritage and archaeology present within the Order Limits. Where relevant to an understanding of the potential archaeological baseline, contextual information from sites or material recovered from outside the Order Limits is also discussed.

3.1.2 A more detailed summation of the baseline is set out in ES Chapter 7 Archaeology and cultural heritage, Volume I (Document reference 6.1, DCO Volume 6), and associated appendices including the ES Appendix 7.1 Historic environment baseline study, ES Appendix 7.3 Detailed gradiometer survey report - Phase 1, ES Appendix 7.8 Detailed gradiometer survey report - Phase 2, ES Appendix 7.4 Geoarchaeological desk-based assessment and landscape characterisation and subsequent ES Appendix 7.5 Geoarchaeological monitoring reporting, of Ground Investigation (GI)-led boreholes, and the evaluation reporting on the targeted Trial Trenching campaign in ES Appendix 7.9 Trial trenching report, Volume II (Document reference 6.2, DCO Volume 6) and discussed in section 3.2, 3.3 and 3.4.

3.1.3 The data currently available that has been assessed within these reports supports the presence of below-ground archaeological remains indicated by features including cropmarks, soil/parch marks, depressions, and ditches. As is noted within records contained within the Historic Environment Record (HER), there is also potential for former structures, sites and/or buildings that survive as sub-surface archaeological remains though extant above surface remains no longer standing. There is also potential for as yet unknown archaeological deposits.

3.1.4 Both desk-based research and field evaluation conducted to date highlight the presence of possible archaeology dating across periods within the Order Limits of the Project.

Prehistoric Period 1,000,0000BP – 43AD

3.1.5 Evidence of Palaeolithic activity across the Order Limits is limited to findspots of artefactual material, primarily hand axes. Parts of the Order Limits, primarily around the WRP site, however, fall within areas of potential for Palaeolithic activity as noted in the Geoarchaeological Desk Based Assessment (GDBA) (ES Appendix 7.4 Geoarchaeological desk-based assessment and landscape characterisation, Volume II (Document reference 6.2, DCO Volume 6)) [27]. While there are no records dating to the Mesolithic (10,000 – 4,000 BC) or Neolithic (4,000 – 2,500 BC) within the Order Limits, isolated findspots of material of this date and recorded Neolithic sites within the study area, including Bevis's Grave Long Barrow (NHLE 1012831) situated towards the eastern end of the Pipeline between the WRP site and Otterbourne WSW (Section D: The WRP site to Portsdown Hill (Work Number 4) as identified in ES Chapter 3 Description of the Proposed Development, Volume I (Document reference 6.1, DCO Volume 6)) on the crest of Portsdown Hill, suggest that remains of this date are likely to be present. Buried dry river valleys on Portsdown Hill appear likely to preserve land surfaces and environmental evidence for the Mesolithic period.

3.1.6 Similarly, while there are no records of Bronze Age (2,500 – 700 BC) activity recorded within the Order Limits, bowl barrows recorded along the crest of Portsdown Hill and an inhumation site at the crossroads at Southwick Hill Crossroads are suggestive of a wider pattern of use of this landscape that is likely to have left archaeological material within the site.

3.1.7 Occupation of the area during the Iron Age (700 BC – AD 43) is evidenced by findspots and evidence for Iron Age settlements within the surrounding area of the Order Limits. These settlements are suggestive of small-scale, rural settlement, associated with areas in agricultural use.

Romano-British AD43 – 410

3.1.8 The Order Limits contain several features likely associated with the Romano-British period (AD 43 – 410). The route of the Pipeline between the WRP site and Otterbourne WSW (Work Number 4) intersects the mapped locations of Roman Roads including one connecting Bitterne to Chichester, which has been mapped by Margary as Route 421 [28]. The geophysical survey (discussed in section 3.2) identified a series of linear features and pits adjacent to the alignment of the Roman Road within the Order Limits south-west of Wickham (Section G – Work Number 4) , specifically the area north of Wickham Park Golf Club [29].

Early Medieval AD410 – 1066

3.1.9 Settlements recorded in the Domesday Survey of 1086 at the very start of the Medieval period would already have been in existence during the Early Medieval period, and it is likely that associated remains survive in the wider landscape around these village centres. Some of these villages were later deserted, while others, such as Boarhunt located to the north of the Order Limits, remain as extant village centres, with many examples of such settlement centres surrounding the Order Limits. Again, recorded archaeological remains of this period are sparse, but two individual inhumations situated approximately 20m apart and a larger inhumation burial area have been recorded at Portsdown Hill, to the east of the Order Limits.

Medieval AD1066 – 1540

3.1.10 Evidence of activity dating to the medieval period (AD 1066 – 1540) is abundant along the Order Limits reflecting the occupation of the area in this period. Much of this activity is associated with the land holdings of the Bishops of Winchester, including the use of the land as fishponds and deerparks, which is well-evidenced within the Order Limits.

3.1.11 One concentrated area of medieval activity is a series of former fishponds within the former Marwell Park at Fisher's Pond (Section L – Work Number 4), towards the western end of the Pipeline between the WRP site and Otterbourne WSW. This feature comprised a chain of ponds that used the natural topography to store and manage water for the cultivation of fish. Other former parks are recorded at Wickham Park and Bishop's Waltham, where a substantial earthwork thought to be the park 'lug' or boundary survives.

3.1.12 A former motte and bailey castle, most likely built during the 12th century 'Anarchy' is also present at Pinsley Motte, approximately 100m north of the Order Limits near Boarhunt.

3.1.13 As well as these specific sites, the cropmarks and earthworks of medieval banks visible on aerial photography across the Order Limits support the wider agricultural use of the area during the medieval period.

Post Medieval AD1540 – 1901

3.1.14 Evidence for post-medieval activity (AD 1540 – 1901) is extensive within both the Order Limits and wider environs, primarily relating to land divisions, farmsteads and other agricultural practice evidence, but also including chalk mining, which was common across Portsdown Hill and recorded towards the western end of Portsdown Hill near Crockerhill (Sections E to F – Work Number 4).

3.1.15 Following the Reformation, large areas of land previously belonging to the church were transferred to secular ownership. This resulted in changes of land use in some instances, and it was not long after the Reformation that the ponds at Fisher's Pond were drained and turned into meadow pasture.

3.1.16 In the 1860s and 1870s, a system of forts and associated structures, known as the Palmerston Forts, were constructed to defend Portsmouth and its naval base along Portsdown Hill. As part of the 'northern line' of this network of new defences, intended to defend Portsmouth from attack overland from the north, four forts were built to the south of the Order Limits. Land was purchased from the Southwick Estate to construct the forts, and a firing line and clearance line were established to the north of the forts to enable their effective operation. The Forts are, Fort Purbrook (scheduled monument and Grade II* Listed NHLE 1092134/1387127), Fort Nelson (scheduled monument and Grade I Listed; NHLE 1001860; NHLE 1350616), Fort Southwick (scheduled monument and Grade I Listed; NHLE 1001808; NHLE 1003802; NHLE 1167213; NHLE 1104368), and Fort Widley (scheduled monument and Grade II* Listed; NHLE 1001862; NHLE 1350616; NHLE 1387129).

Modern AD1901 – present day

3.1.17 During the First World War, several zig-zag trenches were dug across Portsdown Hill to the east of the Order Limits. These have been interpreted either as practice trenches for training soldiers, or as defensive trenches to defend/control access to key roads and to the approaches to the forts.

3.1.18 Consistent with military patterns in the post-medieval period, the defence of Portsmouth Dockyard and the neighbouring harbours was of paramount importance during the WWII. This defence comprised defences against land-based and airborne attack, and there are numerous records of military defence points including batteries and associated range finders as well as public shelters air-raid built into Portsdown Hill.

3.1.19 A WWII plane crash site has been identified by documentary records and geophysical survey outside of the Order Limits to the south of Pigeon House Farm, Appendix B , Figure 2. The pilot, Sergeant Hubert Hastings (Paddy) Adair of the RAF, died when his Hurricane fighter aircraft AK-D-V7602 was shot down and

crashed at the site. This site was partially excavated in 1979, but it is believed that elements of the aircraft and remains of the pilot remain at the crash site.

3.1.20 A second WWII crash site is recorded within the Order Limits at Frith Farm (Section H – Work Number 4), Appendix B , Figure 2. The pilot, Hugh Clark, bailed out before the crash, and the wreckage was salvaged by the RAF at the time. The site was excavated in 2018 by a team from Winchester University, which identified a substantial impact crater and recovered fragmentary elements of the aeroplane. Debris, potentially from the crash was observed within the field during excavation.

Unknown date

3.1.21 A number of heritage resources of an unknown date have been identified throughout the Order Limits and the surrounding area. Although it is not possible to confirm a period for these resources without detailed archaeological investigation, it is possible to ascribe possible periods based on the interpretation of the available evidence.

3.1.22 There are historic records of discoveries that were found outside of archaeological observation, such as flint foundations uncovered in 1920 near Fort Widley and a human skeleton found beneath a residence on Portsdown Hill.

3.1.23 The remains of some field systems across Portsdown Hill have been ascribed an uncertain date by the Winchester HER (WHER) and may be medieval or post-medieval in date, based on their form and layout.

3.2 Summary of previous geophysical surveys

3.2.1 Two phases of geophysical survey have been carried out within the Order Limits as described in paragraphs 3.2.2 and 3.2.11, which has covered approximately 70% of the Project.

3.2.2 Phase 1 was carried out across 275.2ha between March 2023 and September 2023 with targeted land parcels identified to be priority areas within the Order Limits, based on an initial assessment of their archaeological potential from desk-based sources [29].

3.2.3 The priority areas included land parcels within Section D: The Water Recycling Plant site to Portsdown Hill , Section E: Portsdown Hill to Boarhunt , Section F: Boarhunt to Crockerhill), Section G: Crockerhill to Wickham, Section J: Shedfield to the River Hamble, Section K: The River Hamble to Lower, Section L: Lower Upham to Brambridge and Section M: Brambridge to Otterbourne WSW of the Pipeline between the WRP site and Otterbourne WSW.

3.2.4 Geophysical survey was only undertaken on two small land parcels within Section D ahead of GI works as Section D is to be tunnelled, with the exception of the intermediate shaft south of Fort Purbrook and any associated works.

3.2.5 Survey within Section D, to the north of Portchester Road did not identify any geophysical anomalies. Survey did however identify a series of weak positive linear anomalies, aligned north-east to south-west, 36m long and 10m wide, in the northern portion of Section D. These were interpreted as medieval to post-medieval ridge and furrow.

3.2.6 Survey within Section E and Section F identified the most numerous archaeological and suspected archaeological anomalies. These have initially been interpreted as former field boundaries, potential extraction pitting, potential sub-circular and rectilinear enclosures, ridge and furrow cultivation and historical landscape features. The clearest evidence of archaeological activity is that of a ring ditch within Section F. The results of the survey were not suggestive of the presence of any shrunken or deserted medieval villages, such as to the south-west of Boarhunt.

3.2.7 Survey within Section G identified multiple linear and discreet archaeological features to the north and south of Titchfield Lane. On both sides of Titchfield Lane, a number of linear anomalies were interpreted as a possible enclosure ditch system, with a number of sub-circular anomalies representative of extraction or refuse pits. It is possible these pertain to a ladder settlement, or routeway between field systems of Romano-British or medieval date. This is supported by the presence of a known intersection of two Roman Roads within this area.

3.2.8 Survey within Section J has identified a series of former field boundaries and amorphous disturbance interpreted as probable tree throws to the north of Woodman's Farm, which align with field boundaries on 1888-1912 Ordnance Survey Six Inch mapping.

3.2.9 Survey within Section K identified weak positive parallel linear anomalies in the north-west of Wintershill Hall Park. Due to the relatively equal spacing and how these anomalies respect the southern field boundary, it is likely that these relate to post-medieval ridge and furrow cultivation, however modern ploughing or land drains may equally be the cause of these features.

3.2.10 Survey within Section L identified several positive linear anomalies to the west of the park pale at Marwell Manor and on the western side of Winchester Road across Fisher's Pond. These have been initially interpreted as possible archaeological ditch boundary or enclosure features of unknown date. The features may be older field boundaries given their alignment to current and known former field boundaries. The gradiometer survey did not positively identify any features that may be interpreted as part of the postulated complex of ponds at Fisher's Pond.

3.2.11 The Phase 2 geophysical survey was undertaken between June 2024 and October 2024 for targeted areas within the Order Limits that were not included as part of the Phase 1 survey. In total 67.66ha were covered in this second phase [30].

3.2.12 Surveys within Section E continued along the route to the west of the area surveyed as part of the Phase 1 survey along Portsdown Hill. Within Section E, alongside observations of several positive linear anomalies attributed to ditches and field boundaries, the survey identified features corresponding to a possible agricultural enclosure. This is attributed to having a likely prehistoric date due to the known Mesolithic and Bronze Age funerary and settlement activity within 500m to the south-east of the area.

3.2.13 Survey within Section F identified possible pitting and postholes pertaining to possible prehistoric settlement, as well as field boundaries and small enclosures of uncertain date.

3.2.14 Survey in Section G identified several fragmented linear anomalies, all aligned orthogonally, indicative of ditches forming field systems of an uncertain date. A 4m-by-4m pit like feature was also identified within the Order Limits at Frith Farm,

which was a result of the 2019 excavation of the Hawker Hurricane WWII plane crash.

3.2.15 A weak penannular anomaly was identified in the eastern part of Section H: Wickham to Shedfield, possibly indicating the presence of a prehistoric roundhouse based on its size and form. Section H of the Pipeline between the WRP site and Otterbourne WSW also contained a series of linear anomalies indicative of ridge and furrow field systems.

3.2.16 Similarly to the priority geophysical survey, Section J identified a series of field boundaries which have been identified on the Six-Inch Ordnance Survey (OS) County map from Hampshire and the Isle of Wight Sheet LVIII from 1871. Additionally, indications of modern ploughing and drains were identified.

3.2.17 Sections K, L and M all contained former field boundaries which were identified on historic OS mapping, areas of modern made ground and underground utilities.

3.3 Summary of previous geoarchaeological works and geoarchaeological baseline

3.3.1 A GDBA was undertaken in September 2023 [27]. To support the design of the Project, a series of GI surveys have also been undertaken [31].

3.3.2 Based on an initial assessment of the geology in the area - conducted through deposit modelling as part of the Geoarchaeological Landscape Characterisation - the site was split into Geoarchaeological Character Zones (GCZ) to separate areas of different geology. Sixteen of the 25 GCZs contained high or moderate-high archaeological significance. The two sections of the route potentially containing deposits of high Archaeological significance include the Order Limits running between Brockhampton and Havant (GCZ 5b), and a small section of the route situated between Bedhampton and Farlington (GCZ 5c).

3.3.3 Each zone was assessed for deposits of Palaeolithic potential. The Order Limits immediately west of Brockhampton (GCZ 6), the northern end of the temporary construction compound location (construction compound M-1, location shown in ES Figure 1.1 Location of the Proposed Development and Order Limits, Volume II (Document reference 6.3, DCO Volume 6)) in Otterbourne (GCZ 27), and the section of the Order Limits running south-east of Otterbourne to Brambridge (GCZ 26) have moderate-high or high Palaeolithic potential.

3.3.4 One zone, GCZ 13 which incorporates the Order Limits that run east past Crocker Farm, south of Wickham Common contains unknown potential deposits at an unknown depth.

3.3.5 A GI program comprised four phases, Phase 1 (24 interventions), Phase 2 (47 interventions), Phase 3a (14 interventions), Phase 3b (70 interventions) and Phase 3c (90 interventions). Selected interventions were identified for archaeological, geoarchaeological and/or combined archaeological monitoring. In total 14 interventions were archaeologically monitored, 40 geoarchaeologically and 47 subject to combined monitoring.

3.3.6 The review of geoarchaeological potential and proposed impacts established that the Project is likely to impact on Quaternary geological deposits with

geoarchaeological potential within defined areas of specific GCZs 5b-c, 6, 8, 12, 15, 17b, 19, 21, 24 and 26.

3.4 Summary of targeted archaeological trenching

3.4.1 A scheme of targeted archaeological trial trenching based on the Phase 1 geophysical survey was carried out between August 2024 and October 2024. A total of 67 trenches were excavated with the majority (64 of 67 trenches) located on the Portsdown Hill in Section E (Work Number 4) (see ES Figure 7.4 Coverage of archaeological surveys undertaken, Volume III (Document reference 6.3, DCO Volume 6). The remaining three trenches were excavated at Fisher's Pond [32].

3.4.2 Of the 67 trenches excavated, 19 trenches contained observable archaeological features and deposits. Consisting of ditches, postholes and pits, these features indicated three main phases of activity: Iron Age, Romano-British and post-medieval/Modern.

3.4.3 The majority of Romano-British activity observed during the trial trenching was located within New Barns Farm, an area incorporating land extending eastwards from Crooked Walk Lane situated within Section E (Work Number 4). Most features dated to this period comprised of ditches, the majority of which dating to the early-mid Romano-British period with one example (Trench 9.02) dating to the late Romano-British period. Iron Age activity was also observed within this area.

3.4.4 Iron Age activity was also observed across Pigeon House Farm and Widley Farm both also in Section E (Work Number 4). Trenches excavated within this area observed Iron Age activity including ditches, pitting and postholes.

3.4.5 Burnt material including flint was observed in postholes at Widley Farm.

3.4.6 The three trenches excavated at Fisher's Pond, located within Section L (Work Number 4), included small finds of ceramic building material within the topsoil.

3.4.7 The pottery excavated from the evaluation is noted to identify *"nearby settlement activity from the mid-late Iron Age and Romano-British periods"*. Pottery dating to the medieval and post-medieval period is also *"indicative of the cultivation of domestic refuse onto agricultural fields"* [32].

3.4.8 An indication is made in the report for the presence of some prehistoric activity due to an assemblage of flint including worked examples of undiagnostic flakes, though this is considered to be a *"background level of prehistoric activity"* [32].

3.4.9 Animal bones comprising 1052 fragments in total were also recovered. This assemblage was recovered from Iron Age and Romano-British context and has been retained by Wessex Archaeology.

3.4.10 Amongst the undated finds, a more unusual find was a small spherical flint bead which was recovered from Trench 3.03 south-east of Widley Farm in an undated pit. This is noted to potentially be a fossil sponge.

4 Development impacts and specific response

4.1 Staged programme of investigative work

4.1.1 The post-consent stages of evaluation work and survey will include:

1. Non-intrusive survey; comprising topographical and geophysical survey in areas identified at post-consent.
2. Archaeological Trial Trenching in areas to be identified at post-consent stage that will be within areas of archaeological potential to allow more detailed mitigation proposals to be developed and agreed (see section 7). This will be informed by previous stages of archaeological assessment and survey and then detailed in a subsequent SSWSI.
3. Targeted investigation of identified heritage assets or defined areas of potential:
    a. These will primarily comprise targeted archaeological excavation carried out under agreed SSWSI(s) in conformity with the Outline WSI and the generic standards set out in Appendix A .
    b. In some cases, more specific methodologies will be required to address specific research aims or archaeological remains; in these cases methodologies will be developed and agreed with the relevant local planning authority Archaeological Advisor(s) and the HE RSA as appropriate.
4. Targeted geoarchaeological and paleoenvironmental survey (where required based on project impacts identified post-consent).
5. In some cases, archaeological investigation such as topographic survey, will be carried out as part of or to inform for non-investigative mitigation, such as avoidance, consolidation or reinstatement of features. Any works required would be carried out in accordance with an agreed SSWSI. Standards for these activities are discussed in section 7.2 and 7.4.

4.1.2 These stages are graphically referenced in the flow chart within Appendix C of this report.

4.2 Areas of archaeological, geoarchaeological and historic interest

4.2.1 While survey and evaluation work still needs to be undertaken to complete coverage of pre-application surveys across areas of potential disturbance within the Order Limits, broad areas of archaeological (including geoarchaeological) and historical interest have been identified during the production of the ES. These areas will be refined through application of the proposed survey works.

4.2.2 Sites will be identified through proactive engagement through the development of the SSWSIs where this is merited by the results of the post-consent surveys.

4.2.3 Areas of archaeological, geoarchaeological, and historic interest as identified in the ES are as follows:

1. Prehistoric settlement and activity across Portsdown Hill.
2. Prehistoric material in raised beach deposits at the base of Portsdown Hill.
3. Dry river valleys on Portsdown Hill containing prehistoric material.
4. Romano-British activity aligned with the mapped Roman Road north of Wickham Park Golf Club.
5. Medieval fishponds and associated earthworks at Fisher's Pond in Marwell.
6. Historic parkland and associated features at Leigh Park, Wickham Park, Bishop's Waltham Park, Wintershill Hall and Marwell Park.
7. Post-medieval chalk pits across Portsdown Hill.
8. Remains of two WWII aircraft crash sites.

5 Resource assessment and research agenda for the Project

5.1.1 The archaeological works will be guided by a research agenda which will need to be responsive to the timetable and lifecycle of the Project and the ongoing results of evaluation surveys undertaken post-consent. The proposed research agenda sets the archaeological aims and objectives of the archaeological works, and any archaeological work must respond to the need for that work be justified by reference to those identified research aims. Any proposals for archaeological work must be justified against their contribution to those research aims. The themes presented in the research agenda also form the principal themes in the engagement strategy (section 11 below).

5.1.2 The research aims/themes may change as the Project progresses, with new aims and themes potentially arising and others being fully addressed as a result of the refined understanding of the archaeological remains present within the Order Limits. All subsequent SSWSIs will consequently review the appropriateness of the proposed scope and methods for site-specific works against the stated research objectives listed in Table 5-1, describing how the proposed works will meet those aims.

5.1.3 The research agenda for the Project has been developed based on the known and potential archaeological deposits and heritage well as the results from two phases of geophysical survey and a scheme of targeted trial trenching.

5.1.4 The research agenda references the Solent-Thames Research Framework for the Historic Environment: Resource Assessments and Research Agendas [~~39~~38] and has regard to the following research frameworks:

1. Hampshire County Council (2012) Archaeological Strategy for Hampshire [33]
2. Historic England (2017) Research Agenda [34]
3. Iron Age and Roman Research Agenda [35]
4. South-East research framework (2019) Early Palaeolithic [36]
5. South-East research framework (2019) Upper Palaeolithic and Mesolithic Periods [37]
6. Solent and Thames Research Framework for the Historic Environment Resource Assessments and Research Agendas (2014) [38]

5.1.5 Research aims/themes and objectives have been numbered for ease of cross referencing during stages of evaluation and mitigation. These topics are intended as a guide and other research aims may be developed where these can be justified by reference to relevant adopted research agendas and the available archaeological resource. The research topics will guide the post-excavation assessment and analysis phases of the Project and will be refined and updated in light of the results of the archaeological investigations.

Table 5-1 Research agenda

Theme	Objective	Rationale	Mapping to National and Regional Research Agendas
1. Agriculture and settlement	a) Understand rural settlement form and geography	Archaeological remains suggest that the proposed route passes through an area characterised by agricultural settlements. How do these settlements change over time? Are there different preferences for selection of settlement sites at different periods? How large are these settlements?	The Solent-Thames Research Agenda [38] has an ambition to characterise settlement and agricultural economies based on different environments (12.6.1).
	b) Understand relationship between settlements and their hinterlands		Researching the relationship between settlements and their hinterlands (such as at Wickham) is noted as a priority within the aims for the Romano-British period within the Solent-Thames Research Agenda [38] (12.7.2, 12.7.3)
	c) Understand changing agricultural patterns and their influence on the landscape		Researching settlement nucleation away from the road network to understand its context, character broader investigation into the character and development of the region's historic environment, particularly during the Roman and Early Medieval period. Solent-Thames Research Agenda [38] (12.7.4). The Hampshire archaeological strategy [33] identifies evolution of agricultural practices across Hampshire and how exploitation of the landscape results in the introduction, origin and evolution of settled agricultural communities in Hampshire from the Prehistoric to Modern periods.
2. Transport and contact	Does the material culture evidence inform understanding connections and trade between sites within the Order Limits and the wider regional context?	The site of a mapped Roman Road runs through the Order Limits south of Titchfield Lane and south of Tangier's Farm. At Titchfield Lane geophysical survey has highlighted	The relationship between the road network and settlement is highlighted as an opportunity for further research within the Solent-Thames Research Agenda [38] (12.7.4) The Hampshire archaeological strategy [33] identifies that sites may be able to establish

Theme	Objective	Rationale	Mapping to National and Regional Research Agendas
		the presence of possible archaeology.	territories of exploitation through the distribution of non-local materials, or the presence of local material at some distance, and or evidence of contact over distance, whether through trade or other exchange.
3. Elite landscapes	How were deerparks defined within the landscape and is there any evidence of archaeological features which indicate how they were managed?	The route of the Project passes through a number of managed landscape which are reflective of social and/or religious status over different periods of time. These include the medieval deerparks of Bishop's Waltham, Marwell Park and Wickham Park, the medieval fishponds at Fisher's Pond and the non-designated park of Wintershill Park.	The Solent-Thames Research Agenda [38] identifies research aims in understanding the management of water resources (16.4.6), the location of fishponds and fisheries (16.4.7), the use of parkland for animal husbandry (16.4.10) and Monastic life, diet, and health (16.10.4). The Hampshire archaeological strategy [33] identifies themes on elite landscapes along Portsdown Hill and along river valleys, specifically the Meon and Itchen.
	How did changing patterns of elite self-representation shape the design, use and survival of parkland?		
	What evidence do the monastic fishponds at Fisher's Pond provide about their construction, development and management and how does this contribute to our understanding of monastic food production and diet?		
4. Hampshire in War and at Peace	Understand strategic and tactical purpose/interaction of military sites, enhancing current knowledge on the positioning of military sites.	The presence of the Listed 19th century Palmerston forts within the vicinity of the Order Limits illustrates the military association with the landscape of Portsdown Hill.	17th to 19th century military sites are noted as an area where more research remains to be done within the Solent-Thames Research Agenda [38] (18.8.2). Associated remains found could support further research.
		The known WWII military aircraft crash site at Frith Farm also supports the potential for military-	Research aim 18.8.3, Solent-Thames Research Agenda [38], identifies the need for information about the region's wide range of

Theme	Objective	Rationale	Mapping to National and Regional Research Agendas
		associated archaeology to be present, along with the scheduled WWII Heavy Anti-aircraft gunsite (P12) at Monument Farm and the Pigeon House Farm WWII military aircraft crash site outside the Order Limits.	WWII defensive arrangements to be extended to include more on civilian defence, particularly air-raid shelters, and should include both identification and recording of sites and accompanying oral testimony. The Hampshire archaeological strategy [33] identifies that Hampshire has a rich and nationally important military heritage, with modern military heritage representing each of the three services.
5. Past environments	Investigate whether Palaeolithic deposits survive in-situ within the Project.	Completed geoarchaeological monitoring has identified areas of potential for buried in situ as well as ex situ Palaeolithic remains, such as raised beach deposits and river terraces.	A full list of research aims are outlined in the Geoarchaeological Monitoring Report at Table 49 [31]
	How has the topographic, geological and geomorphological zoning contributed to different activity within the Project?	The geoarchaeological deposit model and results from geoarchaeological monitoring and trial trenching have identified and confirmed character zones which have the potential to inform on preferences of certain activities in specific locations across the Project.	
6. Water Management	What can archaeological and paleoenvironmental deposits associated with medieval fishponds inform us on how they were managed?	Features including the medieval fishponds at Fisher's Pond indicate the historic management of water across the areas within and surrounding the Order Limits.	The later medieval section of the Solent-Thames Research Agenda [38] notes water management, including artificial waterbodies, as an opportunity for further research (16.4.6 – 16.4.8) and archaeological remains may inform on 16.10.4 Monastic life, diet, health and death.

Theme	Objective	Rationale	Mapping to National and Regional Research Agendas
	What can deposits from historic water meadows help us to understand about the management of these resources and the environment around their associated chalk streams?	The Project will be tunnelled underneath chalk streams, however some interaction with historic water meadows will occur, due to drill locations. Completed geoarchaeological works indicate that Holocene deposits may be suitable for paleoenvironmental material to be preserved.	The following research aim may be contributed to in respect of the remains of water meadows - Solent-Thames Research Agenda [38] 16.4.6 The management of water resources: water meadows and leats for mills. The Hampshire archaeological strategy [33] notes that the nature of the utilisation of the floodplain within river valleys may have had an impact on the nature of pre agricultural exploitation, as wells as the character of agricultural practice on the adjoining land, as with water meadows for instance. In the lower reaches of some of the valleys wide mature flood plains may have within them micro topography, such as 'islands', which may be the focus of particular activity, settlement or routes across the floodplain.

6 Survey-Specific Written Scheme of Investigations

6.1 Introduction

6.1.1 Each post-consent stage of initial evaluation work (ultimately informing subsequently required mitigation approaches - Appendix C) will be subject to a bespoke SSWSI produced in conformity with this Outline WSI.

6.1.2 The Contractor is ultimately responsible to produce all required SSWSIs throughout the course of the Project. The SSWSIs will be drafted by the ACoW who will consult with the local planning authority Archaeological Advisor(s). Any subsequent variations to the SSWSIs will be agreed with the relevant local planning authority Archaeological Advisor(s) prior to their implementation.

6.2 Format of Survey-Specific Written Scheme of Investigations

6.2.1 Each SSWSI will set out:

1. The scope and spatial extent (type of survey and location) of identified survey.
2. The specific research aims of the survey and explicit justification for the survey.
3. Methods and relevant standards for investigation.
4. Reporting arrangements.
5. Any outreach provisions (as deemed appropriate and deliverable).

6.2.2 Principles for each post-consent stage of survey to be incorporated into the SSWSIs are presented in section 6.3.

6.3 Survey and evaluation works

6.3.1 Each stage of survey and initial evaluation work will be undertaken post-consent and in advance of construction works. Works may be carried out during the delivery of construction works either as a specific recommendation (for a watching brief or other monitoring of construction works), or where such works would not be safe or practicable outside an established construction programme.

6.3.2 In the event that non-designated heritage assets cannot be avoided this will be followed by subsequent mitigation measures, as and where required (see section 7).

6.3.3 All recommendations for archaeological work, including fieldwork, post excavation analysis and reporting will be explicitly justified in the SSWSI in terms of:

1. Deliverability: all works must be safely practicable and use techniques that are demonstrably effective.
2. Specificity: all investigative work shall be specific to the particular nature of the observed or predicted archaeological remains and the circumstances of those works.

3. Research focus: all work must be justifiable in terms of meeting defined or identified project research aims and advancing those aims beyond the results of previous phases of investigation.
4. Proportionality: the scope and timescale for all work must be in proportion to the ~~value~~significance of the archaeological remains that would be affected and to the extent of any disturbance and to the effectiveness of that investigative method and must have regard to the timely delivery of the Project.

Non-Intrusive Survey-Specific Written Scheme of Investigation

6.3.4 Non-intrusive surveys and associated SSWSIs will be required in the following areas in advance of any intrusive works as understood at present:

1. North of Pigeon House Farm (Figure 2 in Appendix B) – metal detecting survey to identify, plot and recover any scattered metallic debris deriving from the adjacent aircraft crash site.
2. Frith Farm (Figure 2 in Appendix B) – metal detecting survey to identify, plot and recover any scattered metallic debris deriving from the adjacent aircraft crash site.
3. Fisher's Pond – earthwork survey of the surviving fishpond dams to allow for reconstruction in the event of disturbance.
4. Land South and West of Tangier's Farm including temporary construction compound locations J3, K1 and K2 – targeted 'mop-up' geophysical survey due to proximity to Wickham to Winchester Roman Road.
5. Locations where 'mop-up' geophysical survey is required due to route alignment change.

6.3.5 SSWSIs will be agreed with the local planning authority Archaeological Advisor(s) and, in the case of the WWII crash sites at Pigeon House Farm and Frith Farm, with the Ministry of Defence (MoD) Advisor as part of the necessary PMRA licence application.

6.3.6 SSWSIs will include additional details and requirements for the topographic earthwork survey at Fisher's Pond (and any other location as required). These will include survey level and outputs required. Methodologies for reinstatement and archaeological monitoring of works would also be covered and will also be informed by any on-site archaeological excavation or monitoring undertaken relating to earthworks.

Archaeological trial trenching Survey-Specific Written Scheme of Investigation

6.3.7 The results of the initial 2024 trial trenching are described in section 3.4 of this Outline WSI. A programme of further trial trenching will be undertaken post-consent. These will be focused primarily on potential archaeological anomalies identified from the analysis of the geophysical survey data, Aerial Photographic and Lidar Assessment and Geoarchaeological Assessment work, along with completion of any outstanding trenching from the 2024 fieldwork.

6.3.8 A trial trenching SSWSI, including trench locations which are appropriate and proportionate to the type of archaeological anomaly being targeted for evaluation and to sample and investigate apparently 'blank' areas with provision for any

contingency as required, will be agreed with the local planning authority Archaeological Advisor(s).

6.3.9 A contingency during trial trenching will be retained to extend trenches within the Order Limits of the Project. This will allow for any spatial refinement of future Set Piece Excavations.

6.3.10 The need for and scope of any detailed final mitigation proposals will be agreed with the relevant local planning authority Archaeological Advisor(s) following completion of any relevant trial trenching.

Purposive Geoarchaeological test pitting and coring Survey-Specific Written Scheme of Investigation

6.3.11 The geoarchaeological baseline, including the results of geoarchaeological desk-based assessment and monitoring of GI works is set out at section 3.3. The report on geoarchaeological monitoring sets out specific aims for the identified GCZ [31].

6.3.12 A geoarchaeological SSWSI, including test pit and coring locations which are appropriate and proportionate to the type of deposit sequence being targeted and having regard to the potential to use any planned GI surveys, will be agreed with the local planning authority Archaeological Advisor(s) and the HE RSA and will have considered the relevant national guidance [39].

6.3.13 The need for and the scope of any detailed final mitigation proposals will be agreed with the relevant local planning authority Archaeological Advisor(s) following completion of any relevant geoarchaeological test pitting and/or coring.

7 Mitigation measures

7.1 Introduction

7.1.1 The post-consent stages of survey and initial evaluation work have the potential to indicate the presence of previously unknown buried archaeological remains (and verify previously known/anticipated above-ground and buried site remains). This will enable the archaeological and historic environment resource associated with and impacted by the Project to either be safeguarded and/or better understood by means of subsequent mitigation measures in a manner that is both appropriate and proportionate to the significance of the remains present. This will be formally agreed with local planning authority Archaeological Advisor(s) (and HE, as required) as part of separate pre-construction and construction related SSWSIs.

7.1.2 The SSWSIs will be drafted by the ACoW who will consult with the local planning authority Archaeological Advisor(s). Any subsequent variations to the SSWSIs will be agreed with the relevant local planning authority Archaeological Advisor(s) prior to their implementation.

7.1.3 Subsequent mitigation measures are expected to comprise a combination of the following recognised standard approaches both in advance of and/or during construction:

1. Non-investigative mitigation including advancing and enacting of preservation in situ options and requirements (e.g. avoidance/micro-siting where possible).
2. Archaeological excavation: including subsequent post-excavation assessment, and analysis, publication and archiving.
3. Archaeological monitoring/watching brief: including subsequent post-excavation assessment, and analysis, publication and archiving (where appropriate).
4. Purposive geoarchaeological test pitting and coring: including where relevant subsequent post-excavation assessment, and analysis, publication and archiving.

7.2 Non-investigative mitigation and preservation in-situ

7.2.1 Certain areas within the Order Limits may require sensitive and precautionary approaches to construction works as identified in Table 1-1. The aim of these will be to ensure no accidental damage or accidental physical interactions occur with certain existing sensitive structures and features (of a historic nature) in identified areas, for example, the WWII aircraft crash site at Pigeon House Farm.

7.2.2 The Pipeline may have to be more constrained at certain locations and construction works will need to be conducted in a sensitive and controlled manner. Signage and temporary barriers will be required to ensure that no accidental damage or physical interactions occur, in certain instances, such as areas adjacent to Scheduled Monuments.

7.2.3 Specific constrained areas would be identified post-consent along with those identified in Table 1-1.

7.2.4 The above measures of precautionary working will be set out in the SSWSI(s) to which they are relevant to outline the strategies and measures the Archaeological Contractor(s) on behalf of the Contractor will implement to manage and reduce the impact of their activities during a construction.

7.2.5 Where well-preserved and/or significant archaeological remains survive within the Order Limits, local planning authority Archaeological Advisors may state a preference for preservation 'in-situ' of certain remains. These areas will be considered for exclusion from the development area in line with the relevant design principles set out in the Design Principles Document (Document reference 5.11, DCO Volume 5) which seek to reduce impact upon those areas of highest sub-surface archaeological potential, as part of a balanced decision taking into account other environmental and construction constraints on a case by case basis.

7.3 Archaeological excavation

7.3.1 Set Piece Excavation (SPE) is an intrusive form of fieldwork, which systematically identifies, examines and records archaeological deposits, features and structures, and recovers artefacts, ecofacts and other remains within a specified area where the extents of the archaeological remains are well defined by previous survey and evaluation work.

7.3.2 This type of mitigation will be recommended where the presence of a known site of archaeological importance and complexity has been highlighted by previous field survey and confirmed by trial trenching, and where micro-siting of the pipeline (for example) is not appropriate or achievable, and therefore the preservation in-situ of known archaeological deposits is not possible.

7.3.3 All set-piece excavation (SPE) SSWSIs will define a specific contingency of 5-10% of the intended area to allow for localised extension of excavation areas within the Order Limits of the Project allowing for specific problem solving where the specific objectives of that SPE require it.

7.3.4 SPE will lead to a programme of post-excavation assessment, analysis and publication.

7.3.5 Following completion of the SPE fieldwork, a post-excavation assessment will be carried out in accordance with HEs guidance MoRPHE [19]. This will result in the preparation of an Updated (Archaeological) Project Design (UPD) by the Archaeological Contractor(s), which will include proposals and a timetable for post-excavation analysis (including scientific dating, if appropriate), publication of the results (including a synopsis for publication) in an appropriate academic journal or monograph series, and preparation of the archive (including all paper records, reports and finds assemblages) for deposition in an appropriate museum or archive facility. Local planning authority Archaeological Advisors will be consulted on the proposals included in the UPD prior to issue.

7.3.6 Any SPE fieldwork will be carried out in advance of construction, to ensure that the most sensitive sites of identified archaeological significance are dealt with in advance of relevant construction activity and that construction will be able to progress in an effective and timely manner following the completion of the archaeological fieldwork. Post-excavation assessment, analysis and reporting to follow on a timetable agreed with the local planning authority Archaeological Advisor(s) in line with section 8 below.

7.4 Archaeological monitoring/watching brief

7.4.1 Archaeological monitoring/watching brief involves archaeological observation, and any subsequent required investigation conducted during certain groundworks (e.g. targeted areas of both topsoil stripping and excavation of the Pipeline trench if required) during the construction phase.

7.4.2 Where appropriate and as determined by an assessment of archaeological potential in locations identified and agreed in advance with local planning authority Archaeological Advisors, machine excavation required for construction will proceed under archaeological observation as set out in SSWSIs, but where this excavation is not controlled directly by the nominated on-site archaeologist(s).

7.4.3 Archaeological monitoring will normally be used where there is considered to be a lower potential of encountering archaeological remains. It will also be used for archaeological problem-solving, for example as a presence/absence test for linear or area features (e.g. field boundaries) anticipated to extend into a specific area of the works. Monitoring will also afford opportunities for recovery of material or recording that will not be proportionate outside the scope of an established construction programme (e.g. recovery of bulk samples from deep excavation). Consideration will also be given in areas of high archaeological potential for archaeological remains which are not susceptible to discovery by trial trenching or geophysical survey (e.g. Mesolithic sites).

7.4.4 An agreed mechanism will be established to allow for archaeological investigation during the archaeological monitoring works, where appropriate. However, it is not usually anticipated that substantial archaeological remains (which would generally be highlighted for SPE) will be found in areas that have been identified for archaeological monitoring, although the possibility still remains.

7.4.5 A contingency period will be included in the works programme to allow sufficient time for investigation and recording of archaeological remains that might be identified, disturbed or destroyed and could not be adequately recorded in the confines of the archaeological monitoring. This period would only apply to fieldwork, with post-excavation assessment, analysis and reporting to follow in line with section 8 below. Similarly, the extent of any area identified as containing such remains should be no larger than is necessary to protect those remains during construction works, and subject to that area being appropriately demarcated, construction works may continue while archaeological works are completed. The Archaeological Contractor(s) should also seek opportunities to prioritise recording that would facilitate the resumption of works.

7.4.6 The programmes of archaeological monitoring will also result in the preparation of a report and ordered archive. Where archaeological remains are investigated and recorded, post-excavation assessment, analysis and reporting may be required, as appropriate in consultation with local planning authority Archaeological Advisors.

7.5 Chance Finds Protocol

7.5.1 Following agreement with the relevant local planning authority Archaeological Advisor(s) (and HE, as required) that proportionate mitigation has been completed within the Order Limits, further formal archaeological investigation would not be

required. In these instances, the Contractor will then implement a protocol for reporting chance archaeological discoveries, including Treasure as an opportunity to engage with the workforce and allow reporting of remains that would be recovered outside archaeological investigation.

7.5.2 Each worksite team will have a 'Site Champion', a single person who is responsible for reporting discoveries to the ACoW who will then be responsible for reporting any such discoveries and agreeing any further action as appropriate with the local planning authority Archaeological Advisor(s).

7.5.3 Individual Site Champions for specific activities will be specified in method statements. The identity of the Site Champion will be clearly communicated to work teams, via pre-commencement briefings (toolbox talks) for example.

7.5.4 The Contractor, supported by the ACoW as appropriate, will be responsible for ensuring that construction teams are provided with appropriate training in the application of finds reporting, that all staff and subcontractors are aware of their responsibilities and that the Chance Finds Protocol is appropriately implemented.

7.5.5 Provision will be made by the Contractor, for the prompt reporting/recording to the ACoW of archaeological remains encountered during works.

7.5.6 Following completion of the construction works, a report will be produced by the Archaeological Contractor presenting any results during relevant activities and submitted to the local planning authority Archaeological Advisor(s) (and HE, as required). In the event that no discoveries are made, a nil discoveries report should be compiled by the ACoW in order to demonstrate adherence to the measures as will be set out in the construction-related mitigation WSI, to be produced in the post consent/pre-construction stages of the Project.

~~7.5~~7.6 External assurance

~~7.5.1~~7.6.1 Having agreed the SSWSIs, the ACoW will inform the relevant local planning authority Archaeological Advisor(s) (and HE, as required) of the proposed commencement dates of fieldwork for each survey/investigation type and then provide regular updates on the progress of the surveys.

~~7.5.2~~7.6.2 Reasonable and regular access to the site will be arranged for the local planning authority Archaeological Advisor(s) (and HE, as required), for inspection and monitoring visits. These will be accompanied by the ACoW and/or Archaeological Contractor(s).

8 Reporting of archaeological survey results

8.1.1 All SSWSIs shall include a clear plan for reporting through to post-excavation assessment and production of an Updated (Archaeological) Project Design (UPD) and is also laid out in Appendix C . The UPD shall outline the methodologies, responsibilities, and timelines for documenting findings as per the relevant CIfA standards for the specific survey type. The SSWSIs will also detail the data management plan for the required works and reference to CIfAs Dig Digital toolkit [40]. The UPD relates only to the analysis and reporting of the archaeological material recovered and would not influence design decisions.

8.1.2 Once the post-excavation assessment and UPD is complete, a structured review process should be undertaken to assess the significance of the findings. Based on this assessment, a decision should be made regarding the most appropriate format and scope of final analysis and publication, which shall be agreed by the relevant local planning authority Archaeological Advisor(s) (and HE, as required).

8.1.3 The UPD shall set out how the final results should be published and disseminated and what reasonable format, whether this is as a full monograph, journal article(s), other formats (e.g. web pages), or a combination of publication techniques, will be undertaken.

8.1.4 This decision shall consider the most effective and proportionate means of making the findings accessible to relevant audiences (see section 11.3).

9 Works controlled by statute

Human remains

9.1.1 Human remains will be treated in accordance with the process set out in accordance with Part 4 of the draft DCO (Document reference 3.1, DCO Volume 3).

Military remains

9.1.2 The areas indicated on Figure 2 (Appendix B) are subject to licencing under the PMRA 1986. Works will only take place in these areas where explicitly permitted by licence issued by the MoD for those works.

9.1.3 All works carried out under licence will adhere to the terms and conditions of such a licence.

Treasure

9.1.4 Any recovered artefacts that are designated Treasure as defined by the Treasure Act 1996 as amended by the Treasure (Designation) (Amendment) Order ~~2002~~2023 will be treated in accordance with said Act. All Treasure will be reported to H. M. Coroner and the Hampshire Finds Liaison Officer by the Archaeological Contractor(s). The ~~Contractor~~ACoW and the local planning authority Archaeological Advisor(s) will also be informed at the earliest opportunity by the Archaeological Contractor(s).

9.1.5 Any Treasure will be removed to a secure store. Where removal cannot be effected on the same working day as the discovery, the Archaeological Contractor(s) will provide suitable security measures which must be taken to protect the finds from theft.

10 Health, safety and environment

10.1.1 Health and safety considerations will be of paramount importance in conducting all archaeological fieldwork. Safe working practices will override archaeological considerations at all times.

10.1.2 All work will be carried out in accordance with the Health and Safety at Work Act 1974 and the Management of Health and Safety Regulations 1992, as well as all other relevant Health and Safety legislation, regulations and codes of practice in force at the time.

10.1.3 A design risk assessment will be carried out by the authors of any SSWSI to identify key health, safety and environment issues. The Archaeological Contractor(s) must develop a safe system of work which will facilitate the required archaeological surveys, having particular regard to control measures indicated in that design risk assessment.

10.1.4 The Archaeological Contractor(s) will supply a copy of their Health and Safety Policy and a site and task specific health and safety focused Risk Assessment Method Statement (RAMS) document to the Contractor before the commencement of any fieldwork. The Risk Assessment will have been read and understood by all staff attending the site before any survey and investigation works commence. The Risk Assessment will be subject to updates as any new risks are identified and regularly reviewed.

10.1.5 Any environmental constraints will be highlighted by the Contractor, considered and managed both prior to any archaeological works commencing and during the survey and investigation works themselves.

11 Outreach and engagement

11.1 Need for outreach and engagement

11.1.1 It is recognised that archaeological finds may generate public interest if the finds are significant. If significant finds are unearthed, a public outreach program may be implemented by the Applicant in line with section 11.1.5.

11.1.2 Where a specific opportunity for outreach is identified in advance of works commencing (e.g. significant finds requiring mitigation by further investigation) outreach proposals shall be set out in the relevant SSWSI.

11.1.3 Any finds of significant archaeological material that would provide a significant opportunity for outreach or engagement where such proposals have not been agreed in advance shall be reported to the Applicant's Communications Team for identification of appropriate action.

11.1.4 Outreach and engagement activities should seek guidance from and reference relevant public benefit strategies and toolkits such as Delivery of Public Benefit and Social Value for Archaeology in the Planning Process [41] and Toolkit for Public Engagement and Engagement Strategy [42].

11.1.5 Proactive engagement strategies will be sought through the development of the SSWSIs and in consultation with the local planning authority Archaeological Advisor(s) where this is merited by the results of the post-consent surveys.

11.2 Link to research themes

11.2.1 Identification of the need for archaeological outreach shall be set out with reference to the Project's archaeological research agenda (section 5). The broad research themes identified from the assessment work undertaken to date include:

1. Agriculture and settlement
2. Transport and contact
3. Elite landscapes
4. Hampshire in War and at Peace
5. Past environments
6. Water Management

11.3 Audiences

11.3.1 Any outreach proposals should have regard to the intended audience with respect to methods used and content of any press release/activities.

11.4 Activities

11.4.1 Any engagement programme which may be undertaken would be proportional to the significance of any archaeological finds identified and their potential to inform on the stated research themes (paragraph 11.2.1), tailored to the Project's needs:

11.4.2 These forms of engagement could encompass the following components:

1. Updates on social media, highlighting significant discoveries and promoting engagement events such as talks and open days at appropriate stages if appropriate.
2. Issuing press releases to local media if noteworthy archaeological finds are identified or when specific events warrant promotion. Coordination and distribution of these releases will be managed through the broader communication efforts of the Project.
3. Conducting publicly accessible talks delivered by the Archaeological Contractor(s) to local interest groups, including schools and Parish groups/councils, to discuss ongoing excavations.

Glossary

Term	Definition
Above Ground Plant (AGP)	This collectively refers to the Intermediate Pumping Stations and Break Pressure Tanks.
Applicant	Southern Water Services Limited.
Archaeological Restraint Area	Broad locations within Portsmouth City Council and Historic Environment Records where planning applications are more likely to have archaeological implications.
Archaeology	The study of past human activity through the recovery and analysis of material culture.
Archaeological Clerk of Works (ACoW)	A suitably qualified archaeological specialist to provide advice, prepare and monitor compliance with SSWSI's in line with this OWSI, and oversee archaeological compliance on behalf of the Contractor.
Archaeological Contractor	A suitably experienced archaeological company who will undertake field surveys and subsequent reporting on works detailed in the SSWSIs.
Break Pressure Tank (BPT)	BPT are anticipated to be required at high points along the pipeline route. Water is pumped to BPTs, where it then flows onwards using gravity from the tank. This reduces the amount of energy required to transfer water. BPTs reduce the overall maximum pressure in the pipeline system associated with changes in flow rate as a result of topography.
Construction compounds	Temporary areas required to facilitate the construction of the Proposed Development.
Contractor	The Applicant or a person appointed by the Applicant or by anyone else having the benefit of part or all of the DCO to carry out any construction element of the Project or to operate the Project.
Design principles	Design principles which reflect the design approach adopted for the Proposed Development and as set out in the Design Principles Document (Document reference 5.11, DCO Volume 5) and will control the detailed design post-consent in accordance with Schedule 2 of the draft Development Consent Order (Document reference 3.1, DCO Volume 3).
Designated heritage asset	These include World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Parks and Gardens, Registered Battlefields and Conservation Areas designated under the relevant legislation.
Desk-based Assessment (DBA) (archaeology)	A programme of assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater.
Development Consent Order (DCO)	A statutory order which provides consent for a project and means that a range of other consents, such as planning permission and listed building consent, will not be required. A DCO can also include powers authorising the compulsory acquisition and temporary possession of land and rights over land which is the subject of an application. A draft DCO (Document reference 3.1,

Term	Definition
	DCO Volume 3) is submitted by the applicant as part of its application.
Drought conditions	Droughts are naturally occurring events and are typically characterised by a prolonged period of abnormally low rainfall, leading to a shortage of water.
Environmental Statement (ES) (DCO Volume 6)	A document reporting the findings of the Environmental Impact Assessment which describes the likely significant effects arising from the Proposed Development on the environment and measures proposed to mitigate likely significant effects.
Geoarchaeology	The application of earth science principles and techniques to the understanding of the archaeological record (as defined by Historic England).
Geophysical survey	The means of non-intrusive survey by systematic collection of measurements of physical properties of the earth to provide spatial information allowing interpretation of site formation processes and/or the potential presence of archaeologically significant remains.
Hampshire Water Transfer and Water Recycling Project	This is the name of the Proposed Development, that is the Strategic Resource Option being delivered as part of the Water For Life Hampshire programme. A water supply scheme comprising a combination of both water transfer and water recycling technology that would play a major role in making up the shortfall in water supply across the Hampshire supply area, especially in a drought.
Heritage asset	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing) (as defined in National Planning Policy Framework Annex 2).
Historic environment	All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora (as defined in National Planning Policy Framework Annex 2).
Historic Landscape Characterisation (HLC)	HLC is a method of identification and interpretation of the varying historic character within an area that looks beyond individual heritage assets as it brigades understanding of the whole landscape and townscape into repeating HLC Types (as defined by Historic England).
Indicative Environmental Masterplan (Appended to the Design Approach Document (Document reference 5.12, DCO Volume 5))	A plan setting out the Green Infrastructure focus areas, placing the multi-functional environmental mitigation and enhancement measures within the framework of the landscape design comprises a series of indicative drawings, and a series of indicative plans for each of the Above Ground Plant sites, showing potential layouts and how the sites might appear once built.

Term	Definition
Made Ground	Areas where natural deposits have been replaced or altered by the introduction of artificial deposits and/or imported natural materials.
Mitigation	Measures intended to avoid, prevent, reduce and, where possible, offset likely significant adverse environmental effects. Measures follow the mitigation hierarchy as described in section 5.3 of Environmental Statement Chapter 5 EIA approach and methodology, Volume I (Document reference 6.1, DCO Volume 6).
Mitigation hierarchy	A systematic approach to guide decision-making and prioritise mitigation design. The hierarchy comprises stages in order of preference and effectiveness: avoid, prevent, reduce and remediate as described in section 5.3 of Environmental Statement Chapter 5 EIA approach and methodology, Volume I (Document reference 6.1, DCO Volume 6).
Monitoring	Measures to ensure the systematic and ongoing collection, analysis and evaluation of data related to the implementation and performance of a development. Monitoring can be undertaken to monitor conditions in the future to verify any environmental effects identified by the Environmental Impact Assessment, the effectiveness of mitigation or enhancement measures or ensure remedial action are taken should adverse effects above a set threshold occur. All monitoring measures adopted by the Proposed Development are reflected in Environmental Statement Appendix 5.5 Commitments Register, Volume II (Document reference 6.2, DCO Volume 6).
Nationally Significant Infrastructure Projects (NSIPs)	NSIPs are large scale major development projects in England or Wales which require permission under the Planning Act 2008. Projects are only defined as nationally significant if they meet the relevant threshold set out in the Planning Act 2008.
Non-designated heritage assets	Non-designated heritage assets are buildings, monuments, sites, places, areas or landscapes identified by plan-making bodies as having a degree of heritage significance meriting consideration in planning decisions but which do not meet the criteria for designated heritage assets.
Order Limits	The 'Order Limits' represent the extent of the area within which the Proposed Development, authorised by the Development Consent Order, may be carried out, including the permanent and temporary land needed for construction, operation and maintenance activities. The Order Limits are shown on the Works plans (Document reference 2.3, DCO Volume 2) and Land plans (Document reference 2.2, DCO Volume 2).
Otterbourne Water Supply Works (WSW)	An existing Southern Water site which abstracts water from river Itchen and ground sources, and will continue to do in certain circumstances after the Proposed Development. The Proposed Development would transfer source water from Havant Thicket Reservoir to Otterbourne WSW. The source water would be treated to strict regulatory standards at Otterbourne WSW prior to being supplied to customers.

Term	Definition
Outline Construction Environmental Management Plan (CEMP) (Document reference 7.1, DCO Volume 7)	Contains identified topic specific mitigation measures to be adopted during construction, and specifies plans and method statements to be produced by the Contractor to avoid and reduce environmental effects. Mitigation measures are generally tertiary mitigation, although some secondary mitigation measures are also included. The measures contained in the Outline CEMP are secured by a requirement in Schedule 2 to the Development Consent Order. Detailed CEMP(s) will be produced and submitted for approval in accordance with the corresponding requirement in Schedule 2 to the draft Development Consent Order (Document reference 3.1, DCO Volume 3).
Outline Landscape and Ecology Management Plan (LEMP) (Document reference 7.5, DCO Volume 7)	Provides a framework for delivering the Green Infrastructure strategy for the Proposed Development. This addresses the reinstatement of existing vegetation following construction, the implementation, maintenance and long-term management of proposed environmental mitigation, as well as strategic environmental enhancements within the Order Limits. The measures contained in the Outline LEMP are secured by a requirement in Schedule 2 to the Development Consent Order. The detailed LEMPs will be required to be produced and submitted for approval in accordance with the corresponding requirement in Schedule 2 to the draft Development Consent Order (Document reference 3.1, DCO Volume 3).
Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works	An underground pipeline approximately 35 kilometres long would transfer up to approximately 90 Megalitres per day of source water at maximum operation, from the Water Recycling Plant site to Otterbourne Water Supply Works. Above Ground Plant would support the transfer of water from the Water Recycling Plant site to Otterbourne Water Supply Works. Due to the length of the pipeline, it has been divided into sections: • Section D: The Water Recycling Plant site to Portsdown Hill • Section E: Portsdown Hill to Boarhunt • Section F: Boarhunt to Crockerhill • Section G: Crockerhill to Wickham • Section H: Wickham to Shedfield • Section J: Shedfield to the River Hamble • Section K: The River Hamble to Lower Upham • Section L: Lower Upham to Brambridge • Section M: Brambridge to Otterbourne Water Supply Works
Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site	Two pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site: one to transfer treated wastewater from Budds Farm Wastewater Treatment Works to the Water Recycling Plant site and the other to transfer reject water from the Water Recycling Plant site to Budds Farm Wastewater Treatment Works. The Pipelines would connect to the existing treated wastewater release infrastructure and the reject water would be released via the existing Eastney Long Sea Outfall using the existing Eastney Transfer Tunnel and Eastney

Term	Definition
	Pumping Station. The development required to connect into the existing treated wastewater infrastructure would form part of this component of the Proposed Development. The Pipelines between Budds Farm Wastewater Treatment works and the Water Recycling Plant site would be installed on the same route under the Hermitage Stream and Harts Farm Way and would be approximately 700m in length. The Pipelines between Budds Farm Wastewater Treatment works and the Water Recycling Plant site would transfer a maximum flow of approximately 82 Megalitres per day (Ml/d) of treated wastewater to the Water Recycling Plant site. The pipeline from the Water Recycling Plant site to Budds Farm Wastewater Treatment Works would be sized for the same transfer capacity of approximately 82Ml/d as it may be necessary to return the maximum volume of water being treated back to Budds Farm Wastewater Treatment Works.
Pipelines between the Water Recycling Plant site and Bedhampton Springs	The Pipelines would transfer recycled water from the Water Recycling Plant site to Bedhampton Springs, and source water from Bedhampton Springs back to the Water Recycling Plant site (before transfer to Otterbourne Water Supply Works). The Pipelines, connecting to pipelines being delivered by Portsmouth Water between Bedhampton Springs and Havant Thicket Reservoir, would enable the transfer at maximum operation of approximately 60 Megalitres per day (Ml/d) of recycled water from the Water Recycling Plant site to Havant Thicket Reservoir and approximately 90Ml/d of source water from Havant Thicket Reservoir to the Water Recycling Plant site, for onward transfer to Otterbourne Water Supply Works.
Project of national significance	Large scale development that has been directed by the Secretary of State to be treated as development for which a Development Consent Order is required under Section 35 of the Planning Act 2008 due to being a project of national significance.
Setting (of a heritage asset)	The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral (as defined in National Planning Policy Framework Annex 2).
Study area	A defined spatial scope (e.g. the area which may be impacted) for each topic assessment.
Treated wastewater	Wastewater that has been treated to strict regulatory standards and is typically released to rivers or the sea.
Trenchless crossings	Crossings where trenchless installation techniques will be used during construction of the Proposed Development.
Trial trenching	Archaeological investigation using discrete trenches to investigate an area or specific features of interest to provide information to inform consent or allow a scheme of mitigation to be designed.
Wastewater	A combination of water from kitchens, bathrooms, sinks and taps (in domestic and non-domestic properties) and rainwater from

Term	Definition
	roads and roofs, that is transported to, and cleaned at, a wastewater treatment works.
Water for Life Hampshire	This is the programme being progressed by the Applicant to address the sustainability objectives of to meet demand following a reduction in abstractions on Hampshire's two main rivers - The Test and Itchen - and ensuring a resilient water supply for the Applicant's customers, especially during times of drought.
Water Recycling Plant (WRP)	The WRP would receive a total maximum volume of approximately 82 Megalitres per day (Ml/d) of treated wastewater from Budds Farm Wastewater Treatment Works. This would provide a maximum output of approximately 60Ml/d of recycled water. Approximately 22Ml/d of reject water is produced from the water recycling process and would be combined with the existing Budds Farm Wastewater Treatment Works treated wastewater flows (that are generated by the existing operation of Budds Farm Wastewater Treatment Works), and released via the existing Eastney Transfer Tunnel, Eastney Pumping Station, and Eastney Long Sea Outfall operated by the Applicant.
Water Recycling Plant (WRP) site	The site containing the WRP, three pumping stations, a main process building, kiosks, administrative buildings and parking facilities. Located at a site north-west of Budds Farm Wastewater Treatment Works.

Abbreviations

Term	Definition
ALGAO	Association of Local Government Archaeological Officers
BPT	Break Pressure Tank
CIfA	Chartered Institute for Archaeologists
Contractor	The Applicant or a person appointed by the Applicant or by anyone else having the benefit of part or all of the DCO to carry out any construction element of the Project or to operate the Project.
DCO	Development Consent Order
EAC	Europaea Archaeologiae Consilium
EIA	Environmental Impact Assessment
ES	Environmental Statement
HCC	Hampshire County Council
HE	Historic England
HER	Historic Environment Record
HHER	Hampshire Historic Environment Record
MoD	Ministry of Defence
MoRPHE	Management of Research Projects in the Historic Environment
NPPF	National Planning Policy Framework
NSIP	Nationally Significant Infrastructure Project

Term	Definition
OASIS	Online Access to the Index of Archaeological Investigations
OS	Ordnance Survey
PPE	Personal Protective Equipment
RAMS	Risk Assessment Method Statement
SPE	Set-piece excavation
SSWSI	Survey-Specific Written Scheme of Investigation
UPD	Updated Project Design (term taken from HE good practice guidance (MoRPHE) and references only the *archaeological* project)
UXO	Unexploded Ordnance
WCC	Winchester City Council
WHER	Winchester Historic Environment Record
WRP	Water Recycling Plant
WSI	Written Scheme of Investigation
WWII	Second World War

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Appendix A Example (model) clauses – Mitigation Works Specification: Set-piece excavation and Archaeological Monitoring/Watching Brief

A.1 Introduction

A.1.1 The following sections provide example (model) clauses specific to the type of archaeological mitigation work (and the associated specifications) likely to be required following the evaluation stages post-consent. Preparation of pre-construction and construction related SSWSIs will be undertaken with reference to and inclusion of relevant model clauses, as outlined below.

A.1.2 The structure outlined below is anticipated to provide the framework only for the pre-construction and construction related mitigation WSIs, which would be tailored with specific requirements and circumstances on a case-by-case/site-by-site basis, as required.

A.1.3 The information provided is specific to the location of the Project within Hampshire, as well as more general local, regional and national-type approaches.

A.1.4 This appendix relates mainly to archaeological excavation and recording approaches and associated requirements to be undertaken under excavation and archaeological monitoring/watching brief scenarios.

A.2 General approach

A.2.1 All WSIs will be prepared in accordance with:

1. CIfA (2023a) Standard for archaeological field evaluation [10]
2. CIfA (2023b) Universal guidance for archaeological field evaluation [11]
3. CIfA (2023e) Standard for archaeological excavation [14]
4. CIfA (2023f) Universal guidance for archaeological excavation [15] CIfA (2023c) Standard for archaeological monitoring and recording [12]
5. CIfA (2023d) Universal guidance for archaeological monitoring and recording [13]
6. CIfA (2023) *CIfA: Code of Conduct* [15]
7. Historic England (2015a) *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* [19]
8. Archaeology and Planning: Guidance for Contractors (https://documents.hants.gov.uk/archaeology/archaeology-planning-contractors.pdf) [43]

A.2.2 The SSWSIs will also have regard to the Solent Thames Research Framework [38] and the Hampshire Archaeology Strategy [33].

A.3 Site Briefings (Toolbox Talks)

A.3.1 Site briefings will include, as a minimum; the Contractor's Health and Safety requirements/procedures; the Archaeological Contractor(s)'s Health and Safety requirements/procedures; and Unexploded Ordnance (UXO) awareness. There may also be ecological briefings ('toolbox talks') and requirements in specific relation to archaeological works.

A.3.2 It is assumed that the Contractor or their appointed UXO sub-contractors will be responsible for UXO survey and clearance across the Order Limits by a specialist UXO survey team, in advance of construction.

A.4 Archaeological monitoring

A.4.1 The location of excavation areas will be plotted on the ground using electronic survey equipment typically accurate to ±100 mm in the field with respect to the Ordnance Survey (OS) grid, in order to ensure that the positions are transcribed accurately from location plans.

A.4.2 Mechanical excavation will utilise suitable construction plant (and fully certified and experienced machine drivers), which for areas of excavation is anticipated to be a tracked 360 degree excavator(s) or other suitable plant, fitted with a flat bladed 'toothless' ditching bucket. The topsoil and subsoil within the excavation areas will be excavated in spits under the direct control and supervision of the Archaeological Contractor(s).

A.4.3 For areas outlined for excavation, the topsoil and subsoil will be removed until either the top of the latest archaeological horizon or undisturbed natural deposits are encountered. Particular attention will be paid to achieving a clean and well-defined horizon (surface) with the machine.

A.4.4 Topsoil and subsoil excavated from excavation areas will be stored separately. As far as practicable this will be beyond the limits of excavation areas, or where possible, within the limits of the excavation areas on archaeologically blank areas.

A.4.5 All spoil arising from excavation areas shall also be investigated and scanned with a metal detector by the Archaeological Contractor(s) to recover any artefacts.

A.4.6 The extent of excavation shall be clearly marked, and the ends enclosed/demarcated using high visibility fencing in order to highlight the archaeological excavation area and in order to ensure that no construction traffic can inadvertently enter the work area. The Archaeological Contractor(s) will make daily checks of any fencing.

A.4.7 If there are deep excavations then alternative fencing arrangements will be required and agreed in conjunction with the Archaeological Contractor(s) and the Contractor, this may involve fencing being erected around individual slots through features or over parts of the 'site'.

A.4.8 The machined surface will be cleaned by hand, where required, for the acceptable definition of archaeological remains. It is not anticipated that the entire excavation areas will require hand cleaning.

A.4.9 Provision will be made so that any areas in which sub-surface archaeological remains are identified as being present are not subject to prolonged periods of exposure. Archaeological remains and/or deposits left exposed to the elements for

extended periods can suffer weathering which can accelerate their degradation, damage and/or loss. In addition, archaeology left exposed may be the target of heritage crime (e.g. illegal metal detecting). The Archaeological Contractor(s) will be responsible for ensuring that adequate security and protection measures are put in place in order to alleviate this risk and will consult with the local planning authority Archaeological Advisor(s) on what is considered appropriate in terms of prolonged exposure.

A.5 Hand excavation of archaeological features

A.5.1 Archaeological features and deposits will be excavated using appropriate and well-maintained hand tools, such as a mattock, shovel and hand trowel, in an archaeologically controlled and stratigraphic manner in order to meet the aims and objectives of the investigation.

A.5.2 Hand excavation will be targeted to provide sufficient information on the form, extent, level of preservation and function, with emphasis on stratigraphic relationships between features and recovery of dating evidence. Archaeological excavation and recording will be confined to the working width of the machined area, noting that certain features (such as burials) may require extension (but not beyond the Order Limits).

A.5.3 The sampling strategy for archaeological features/deposits will follow the below points as a minimum, although the sampling strategy requires some flexibility to ensure sufficiency to characterise, date, phase and answer any relevant research questions for any archaeology encountered.

A.5.4 The sampling percentages cited below refers to the percentage of archaeological features/deposits exposed within any excavation area, which will be contained entirely within the Order Limits.

1. A minimum of 10% of the identified feature will be excavated along the length of all linear and curvilinear features (with each excavated section not less than 1m) within the Order Limits. Key intersections will be investigated to determine the stratigraphic relationship between features, and sections will be located at all ditch terminals and to provide equal spatial coverage along the length of the feature.
2. Discrete features, such as postholes and pits, less than 1.5m in diameter, will be half sectioned (50%) at a minimum. Full excavation (100%) may be undertaken if the nature of the fill allows for rapid excavation and the remaining half of the sample could help achieve the excavation's aims in line with the relevant research aims. Postholes which form part of a building will be 100% excavated.
3. A minimum 25% will be excavated from all discrete features, such as pits, greater than 1.5m in diameter. A complete section will be excavated across the feature to recover its full profile. Where fully justified (i.e. due to nature of the fill or failure of the sample to achieve its aims), and safe to do so, the feature may be subject to 100% excavation.
4. Smaller discrete features, such as stake holes, will be 100% excavated.
5. Structures, such as sunken floor buildings or kilns, will be 100% excavated.

6. Ring ditches and/or eaves-drip gullies believed to relate to structures will be investigated by excavated sections up to 2m wide, with all sections being fully recorded, to achieve a minimum 50% sample of the feature. Remaining deposits may require rapid hand excavation in order to achieve a 100% sample.
7. Early prehistoric remains (Mesolithic to Early Bronze Age) will be sampled at higher levels – 100% of postholes, pits less than 1.5m diameter and other small features.
8. All burials and funerary contexts will be 100% excavated where they cannot be left *in situ*. Human remains will be treated in accordance with the provisions set out within Part 4 of the draft DCO (Document reference 3.1, DCO Volume 3). Features associated with funerary remains, such as postholes or enclosing ditches around barrows, will be initially 50% sample excavated and recorded with the remaining deposits rapidly hand excavated to achieve a 100% sample [44] [45] [46].
9. Unurned cremations will not be half-sectioned but excavated in spits and/or quadrants or recovered as a bulk sample to be excavated off site in laboratory conditions. Urned cremations will be carefully recovered whole and excavated in laboratory conditions [47].

A.5.5 If deep features, such as shafts or wells, are encountered, hand-excavation will not proceed below a safe working depth from the machined surface. An appropriate methodology for achieving full excavation below this depth will be agreed in consultation with the ACoW, the local planning authority Archaeological Advisor(s) and the Contractor.

A.5.6 A separate method statement for excavation of deep features would be prepared by the Archaeological Contractor(s), if required.

A.5.7 Machine-assisted excavation may be permissible if large/deep deposits or homogenous and non-archaeological layers are encountered, but only after consultation with the ACoW and local planning authority Archaeological Advisors.

A.5.8 Any variation to the above would be agreed with the ACoW, the Contractor and, the Archaeological Contractor(s) and local planning authority Archaeological Advisor(s) and shall be confirmed in writing.

A.6 Archaeological recording

A.6.1 Excavation areas and any area excavated archaeologically during archaeological monitoring (watching brief) will be given a unique site code, and this will be written on all records, drawings, artefact bags and sample containers.

A.6.2 An accession number will also be obtained by the Archaeological Contractor(s) from Hampshire Cultural Trust prior to commencing work.

A.6.3 Following machine excavation, the extent of excavation areas and any area excavated archaeologically during archaeological monitoring (watching brief) will be accurately recorded using electronic survey equipment typically accurate to ± 100mm in the field with respect to the OS grid. The data will be overlaid at an appropriate scale onto the OS National Grid (using digital map data).

A.6.4 Archaeological remains will be recorded in plan using electronic survey equipment. All survey points used will be accurately tied into the OS National Grid.

A.6.5 A full written, drawn and photographic record will be made of archaeological features and deposits (contexts) with each context given a unique number and described on a separate record sheet. A context register, with brief details, will also be kept during the archaeological work.

A.6.6 In addition to the electronic survey of features, as a minimum, all interventions and areas of detailed archaeology will be planned by hand, using tape measures.

A.6.7 Hand drawn plans and sections of features will be produced at an appropriate scale (normally 1:20 for plans and 1:10 for sections) with Ordnance Datum (OD) heights recorded in metres, correct to two decimal places.

A.6.8 Each drawing will be given a unique drawing number. A drawing register, with brief details, will be maintained throughout the archaeological works.

A.6.9 Digital colour photography will form an integral part of the recording strategy, and all photographs will incorporate scales, an identification board and directional arrow. A photographic record will be maintained throughout. Photographs will be taken of all excavated features.

A.6.10 In addition to records of archaeological features, general photographs recording the context of the excavation and any area excavated archaeologically during archaeological monitoring (watching brief) will also be taken.

A.6.11 A photographic register, with brief details, will also be maintained throughout the archaeological works.

A.7 Artefact recovery

A.7.1 With respect to finds and landowner permissions for the removal of artefacts and ecofacts, it is common practice on linear, multi-phase schemes to approach the landowners at the end of the project to request their permission to deposit any artefacts in an appropriate local museum, once all items are accounted for. This process will be adhered to as part of the Project and will be facilitated and overseen by the Archaeological Contractor(s).

A.7.2 It is acknowledged that a landowner may want the finds (or particular finds) returned to them following completion of the assessment and analysis work. In this instance, the Archaeological Contractor(s) will return the finds to the landowner following ~~full and~~recording to a level proportionate to the significance of the finds, as agreed with the local planning authority Archaeological Advisor(s) (at an appropriate ~~recording,~~ juncture),as set out in the Hampshire Cultural Trust guidance [17], and conservation (if required), and approval by the local planning authority Archaeological Advisors. The Archaeological Contractor(s) will also advise the landowner on the appropriate care and suitable conditions for storage. Further details of an approach to returning the finds to a landowner will be set out within the SSWSIs.

A.7.3 Artefacts will be collected and labelled with the unique site code and context number of the deposit in which they were recovered.

A.7.4 Each ‘significant’ find will be recorded three dimensionally using electronic survey equipment typically accurate to ± 100mm in the field with respect to the OS grid and assigned a ‘Special Finds’ number. Similarly, if artefact scatters are encountered these will also be recorded three dimensionally. Lithic scatters will be

recorded, excavated and reported in line with HEs guidance on Managing Lithic Sites [48].

A.7.5 Bulk finds will be collected and recorded by context.

A.7.6 All archaeological artefacts that are collected from excavation areas and any area excavated archaeologically during archaeological monitoring (watching brief) that do not clearly belong to a particular context will be recorded as un-stratified and assigned the topsoil context number.

A.7.7 All non-modern and significant modern artefacts will be stored and processed in a manner appropriate to the material to reduce further deterioration.

A.7.8 Artefacts should be considered for post-excavation analyses before being washed. For example, flint tools and encrusted pottery should not be washed ahead of residue analysis.

A.7.9 All suitable retained artefacts will, as a minimum, be washed, weighed, counted and identified. Any artefacts requiring conservation or specific storage conditions will be dealt with immediately in line with First Aid for Finds [49].

A.7.10 Artefacts will be properly conserved after excavation and will be stabilised for storage, where required. If necessary, a conservator will visit the site to undertake 'first aid' conservation treatment. If any of the excavation areas and any area excavated archaeologically during archaeological monitoring (watching brief) result in the recovery of unstable artefactual remains (e.g. metallic objects or preserved wood/leather), the Archaeological Contractor(s) will commission the services of a suitable specialist to advise and implement conservation of unstable artefacts; to undertake x-ray analysis and to provide an assessment of potential summary, which will then be attached to the main report(s).

A.7.11 All finds and environmental samples will be processed (cleaned and marked), as appropriate. Each category of find or environmental/industrial material will be examined by a suitably qualified archaeologist or specialist and the results incorporated into the post-excavation assessment report.

A.7.12 The collection, documentation and conservation of all artefactual and ecofactual material will conform to CIfA Standards and guidance for the collection, documentation, conservation and research of archaeological materials [12].

A.8 Soil sampling strategy

A.8.1 Environmental samples will be taken from a range of contexts and phases encountered on site, and from any deposit where it is expected that worthwhile environmental evidence may be recovered. Such deposits will include, though not be restricted to, waterlogged and burnt contexts. Provision will be made for the recovery of material suitable for scientific dating.

A.8.2 The soil sampling strategy for each excavation area will be informed by the results of the evaluation works, and any bespoke soil sampling strategy identified by the specialists as part of the post-excavation assessment of the evaluation works will be detailed in the SSWSIs/Method Statements. Where practicable and deemed important, an environmental specialist will visit individual 'sites' and advise on an appropriate strategy to maximise the potential recovery, tied into the regional research agenda [38].

A.8.3 Flotation samples will be taken as part of a sampling strategy from a range of stratigraphically secure contexts, where present, and will typically be up to 40l in size. Where feasible, flotation samples will be taken as scatter samples, whereby tubs will be filled from different locations within the designated fill to avoid spatial preservation bias or missing biological remains invisible to the naked eye which can form discrete 'clusters' within the fill [18].

A.8.4 Samples must be taken from appropriately cleaned surfaces, be collected with clean tools and be placed in airtight, clean containers. They will be adequately recorded and labelled, and a register of all samples will be kept. Samples should be stored away from direct sunlight and extreme temperatures in an appropriately secure location prior to being sent to the appropriate specialist and processed as soon as possible as environmental remains deteriorate quickly. Prompt processing of environmental samples has the potential to inform ongoing sampling strategies.

A.8.5 Radiocarbon, dendrochronology, archaeomagnetic, pollen and monolith samples may be considered for collection where justified and warranted. These approaches would need to be agreed in consultation with the ACoW, the Archaeological Contractor(s), local planning authority Archaeological Advisor(s) and the Contractor. Samples selected for radiocarbon dating would take account of HE's guidance Radiocarbon Dating and Chronological Modelling [50] [51] and the potential value of using Bayesian models to develop robust dating chronologies will be considered.

A.8.6 Strategies for dating remains and sampling for Palaeoenvironmental remains will be agreed upon before, if not during, mitigation works and informed by results from the evaluation wherever possible.

A.8.7 Further advice on the appropriateness of the Archaeological Contractor(s) proposed strategies will be sought from the HE RSA (South-East), as appropriate, although the local planning authority Archaeological Advisor(s) would provide advice and recommendations in the first instance, again as required.

A.8.8 The sampling strategy, analysis of samples and subsequent reporting will follow best practice as recommended by HE [18].

A.8.9 All environmental samples will be processed as appropriate. Each category of environmental material will be examined by a suitably qualified archaeologist or specialist and the results incorporated into the report.

A.9 Human remains

A.9.1 Human remains will be treated in accordance with the provisions set out in Part 4 of the draft DCO (Document reference 3.1, DCO Volume 3).

A.9.2 The Archaeological Contractor(s) will be responsible for reporting any finds of reportable material, except where specifically agreed with the Contractor and the relevant authority.

A.9.3 If remains are suspected to be less than 100 years old, the Coroner and Police will be informed.

A.9.4 The works will also take place in accordance with the appropriate Environmental Health regulations. Other specific and bespoke requirements may also be required, on a case-by-case/site-by-site basis.

A.10 Treasure

A.10.1 Any recovered artefacts that are designated Treasure as defined by the Treasure Act 1996 will be treated in accordance with said Act [2]. All Treasure will be reported to H. M. Coroner. The Contractor and the ACoW will also be informed at the earliest opportunity.

A.10.2 Any Treasure will be removed to a secure store. Where removal cannot be affected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft.

A.11 Completion of archaeological fieldwork

A.11.1 The Archaeological Contractor(s) shall prepare and submit completion statements to the Contractor and the ACoW once each distinct excavation area and any area excavated archaeologically during archaeological monitoring/watching brief have been vacated.

A.11.2 Following internal review these will also be made available to the local planning authority Archaeological Advisor(s)/HE (as appropriate) for information and comment.

A.11.3 The completion statements will include:

1. A brief summary of the results of the works.
2. A general location plan and all features plan of the excavation areas and any areas excavated archaeologically during monitoring/watching brief.
3. Quantification of the primary archive including contexts, finds and samples.
4. A brief chronological summary of the archaeological remains.

A.12 Reporting requirements

A.12.1 Verbal progress reports and brief written progress reports will be provided to the Contractor and the ACoW regularly during the archaeological investigations and also at any stage during the works, upon reasonable request. The local planning authority Archaeological Advisor(s) and HE will also be regularly updated with progress as required.

A.12.2 The reporting of the archaeological investigations will be commensurate with the results of the investigation and will be produced in accordance with the relevant CIfA Standards and Guidance documents [6] [8] [7] [14] [10] [11]. The Management of Research Projects in the Historic Environment: The MoRPHE Project Mangers' Guide should also be considered relevant [19] and a Data Management Statement and a Retention policy should be set out in each report / the Post excavation assessment as relevant [43].

A.12.3 The post-excavation assessment report for excavation areas and any areas excavated archaeologically during monitoring/watching brief shall ultimately incorporate the results of the earlier programmes of archaeological trial trenching. This will ensure the results from all fieldwork are fully integrated.

A.12.4 Records and finds from other previous archaeological works (where applicable to the Project) should also be examined and integrated into the assessment report, wherever possible. All finds must be assessed in relation to latest existing local

and regional artefact type series. The content provided within the assessment report will adhere to best practice and available guidance, where relevant.

A.12.5 A draft report and data will be issued for review by the Contractor and the ACoW following completion of archaeological survey(s). The programme for the draft report delivery will be agreed between the Contractor, Archaeological Contractor(s) and ACoW ahead of survey completion and this timeframe will be notified to the local planning authority Archaeological Advisor(s).

A.12.6 It is anticipated that issue of the final report (and data) to the Contractor should follow within eight weeks of comments being provided on the draft report. The report will then be issued local planning authority Archaeological Advisor(s) for comment and agreement.

A.12.7 A fully collated and completed version of the report shall be included in PDF format. Both hard and digital version copies of the report will ultimately be lodged with HHER and/or WHER. The Archaeological Contractor(s) will be responsible for ensuring this is done. Upon request by the local planning authority Archaeological Advisor(s), a project 'hard-copy' of digital data shall also be submitted containing image files in JPEG or TIFF format, digital text files shall be submitted in Microsoft Word format, and figures and drawings in recent / compatible version AutoCAD and / or QGIS format.

A.12.8 A digital version of the report will be placed with OASIS (Online Access to the Index of Archaeological Investigations) at - http://www.oasis.ac.uk/. An OASIS form will be included as part of all reports produced. The Archaeological Contractor(s) will be responsible for ensuring this is done.

A.13 Archive preparation and deposition

A.13.1 The archive will consist of the documentary and digital records and any archaeological material generated during all phases of the fieldwork.

A.13.2 All records and materials produced will be quantified, ordered, indexed, marked with the unique project, site and context number and internally consistent. The archive will be kept secure at all stages of the Project.

A.13.3 The site archive will be deposited with the Hampshire Cultural Trust within an agreed timeframe (to be determined with the local planning authority Archaeological Advisor(s) post-consent) following completion of all archaeological fieldwork and reporting associated with the Project. It will then become publicly accessible (timeframe to be agreed with the local planning authority Archaeological Advisor(s) post-consent).

A.13.4 The Archaeological Contractor(s) will be responsible for identifying any specific requirements or policies of the museum/records office in respect of the archive, and for adhering to those requirements. The archive will conform to the standards required by the national guidelines in Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation [52] and Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives [13].

A.13.5 Finds must be appropriately conserved and stored in accordance with UK Institute of Conservators Guidelines [53]. The finds, as a permanent part of the site archive, shall be deposited with the Hampshire Cultural Trust. If this is not possible for all

or any part of the finds archive, then provision must be made for additional recording (e.g. photography, illustration, analysis), as appropriate.

A.13.6 Prior to the commencement of archaeological fieldwork, the Archaeological Contractor(s) will contact the HHER/WHER regarding the acquisition of further event numbers or confirming previous event numbers still apply. Event numbers may be issued on an area by area/stage by stage or project wide basis, but this will be confirmed with HHER/WHER personnel prior to starting the next stage of archaeological works in each instance.

A.13.7 Also at the start of work (immediately before fieldwork recommences) an OASIS online record (http://ads.ahds.ac.uk/project/oasis/) must be initiated by the Archaeological Contractor(s) and the main areas/stages of the Projects completed on details, location and creators forms.

A.13.8 All parts of the OASIS online form must be completed for submission to the HHER/WHER. This should include an uploaded .pdf version of the entire final reporting (a paper copy should also be included with the archive), as relevant to each stage of fieldwork.

A.13.9 The deposition of the archive forms the final stage of the (archaeological) Project. The Archaeological Contractor(s) must provide the Contractor and the ACoW with copies of all communication with the recipient museum/records office and written confirmation of the receipt/deposition of the archive.

A.13.10 The Archaeological Contractor(s) will liaise with the Contractor to address the transfer of ownership and any copyright issues.

A.14 Monitoring progress and site visits

A.14.1 The archaeological investigations will be subject to regular monitoring visits by the ACoW, who will have unrestricted access to the archaeological site, site records and any other information.

A.14.2 The work will be inspected to ensure that it is being carried out to the required standards and that it will achieve the stated aims and objectives.

A.14.3 The Archaeological Contractor(s) will only accept instruction from the Contractor.

A.14.4 If any problems are encountered during the archaeological works, these will be reported immediately to the Contractor and the ACoW.

A.14.5 Monitoring progress meetings between the ACoW and the Archaeological Contractor(s) will be held on site during the course of the excavation works, and any area excavated archaeologically during monitoring/watching brief. The local planning authority Archaeological Advisor(s) and HE (where applicable) shall be invited to attend in order to monitor the works on behalf of HCC or WCC. These meetings will be arranged by the ACoW.

A.14.6 The local planning authority Archaeological Advisor(s) will also be afforded access to the site on request (and as agreed with the Contractor and the Archaeological Contractor(s), outside of any formal monitoring progress meetings. Arrangements shall be made through the ACoW and the Archaeological Contractor(s) key named contacts.

A.14.7 Following topsoil strip and associated subsoil removal across excavation areas, an initial meeting between the Archaeological Contractor(s), the ACoW and local

planning authority Archaeological Advisor(s) may be held to further agree the excavation/recording/sampling strategy for each area/site/stage etc.

A.14.8 Where necessary to achieve the objectives of the investigation within the overall project programme, variations to the scope of works will be agreed with the local planning authority Archaeological Advisor(s) on site at progress meetings, as appropriate.

A.14.9 Any variations caused by ecological constraints, vegetation cover or ground conditions will be agreed with the Archaeological Contractor(s) and the ACoW and communicated to the local planning authority Archaeological Advisor(s)/HE (as appropriate).

A.14.10 Following the discovery of any unexpected archaeological sites during archaeological monitoring/watching brief work, the Archaeological Contractor(s) shall ensure that the archaeological remains are properly dealt with and sufficiently resourced beyond (in addition to) the monitoring/watching brief archaeologist(s) on site, where appropriate. A process for this shall be agreed between the Archaeological Contractor(s), the Contractor and the ACoW.

A.15 Security, confidentiality and publicity

A.15.1 Although information regarding the Project is in the public domain, the archaeological investigation works may attract interest.

A.15.2 In the event of any enquiries by the public, the Archaeological Contractor(s) will refer all enquiries to the Contractor without making any unauthorised statements or comments.

A.15.3 The Archaeological Contractor(s) will not disseminate information or images associated with the Project for publicity or information purposes, without the permission of the Contractor.

A.16 Copyright

A.16.1 The Archaeological Contractor(s) shall assign copyright in all reports and documentation/images produced as part of this Project to the Contractor. The Archaeological Contractor(s) shall retain the right to be identified as the author/originator of the material. A licence shall be granted to the HERs for the use of all reports arising from this Project for research enquiries and planning purposes (without recourse to the copyright holder for their use on each occasion).

A.16.2 The Archaeological Contractor(s) may apply in writing to use/disseminate any of the Project archive or documentation (including images), and any such permission will not be unreasonably withheld.

A.17 Resources and timetable

A.17.1 All archaeological personnel involved in the Project must be suitably qualified and experienced professionals. The Archaeological Contractor(s) will provide the Project and the ACoW with staff CVs of the Project Manager, Project Officer(s), Site Supervisor(s) and any proposed specialists. These will in turn be provided to the local planning authority Archaeological Advisers, if requested.

A.17.2 Site assistants' CVs will not be required, but all site assistants should ideally have a minimum of six months excavation experience. Additionally CVs must be made available upon request by the Contractor and the ACoW.

A.17.3 All equipment and tools required by the Archaeological Contractor(s) will be supplied by the Archaeological Contractor(s).

A.17.4 The Archaeological Contractor(s) must give immediate warning to the Contractor and the ACoW should any agreed programme date not be achievable, due to for example severe/extreme weather conditions.

A.18 Health and safety

A.18.1 The Archaeological Contractor(s) will adhere to any overarching risk assessments and any project specific health and safety plan prepared by the Contractor and/or their representatives.

A.18.2 The Archaeological Contractor(s) will provide the Contractor and/or their representatives with details of their public and professional indemnity insurance and all other insurances required by law.

A.18.3 The Archaeological Contractor(s) will have their own Health and Safety policies compiled using national guidelines, which conform to all relevant Health and Safety legislation. A copy of the Archaeological Contractor(s) Health and Safety policy will be submitted to the Contractor and/or their representatives.

A.18.4 The Archaeological Contractor(s) will prepare health and safety focused RAMS specific to the archaeological works to be undertaken and will submit these to the Contractor and/or their representatives for approval prior to entering the individual work sites.

A.18.5 Pre-Construction Information will be provided by the Contractor and/or their representatives in accordance with the Approved Code of Practice, as required.

A.18.6 The Archaeological Contractor(s) shall be responsible for identifying any buried or overhead services and taking the necessary precautions to avoid damage to such services, prior to the commencement of excavation works. Service location plans and UXO information (if available) will be obtained prior to site commencement during RAMS production, but these must be checked through appropriate means prior to the commencement of archaeological investigation works.

A.18.7 The Archaeological Contractor(s) will not commence any excavation works unless authorised to do so by the Contractor and/or their representatives.

A.18.8 The Archaeological Contractor(s) will adhere to the Contractors Personal Protective Equipment (PPE) requirements.

A.18.9 In undertaking the work site operatives are to abide by all statutory provisions and by-laws relating to the work in question, especially the Health and Safety at Work etc. Act 1974.

A.18.10 No lone working will be permitted at any time.

A.18.11 The archaeological works may be halted in the event that adverse/extreme weather, ground conditions or health and safety requirements demand it and the site-specific situation reassessed prior to any recommencement.

A.19 General provisions

A.19.1 Following completion of the archaeological investigation and recording works, the Archaeological Contractor(s) will leave work sites in a tidy and workmanlike condition at the end of each day, and remove all materials brought onto the site, including any grid pegs or other markers.

A.19.2 The Archaeological Contractor(s) is to allow the site records to be inspected and examined at any reasonable time, during or after the investigations, by the Contractor and the ACoW.

A.19.3 Access for parking and use/provision of site welfare facilities shall be agreed between the Contractor and the Archaeological Contractor(s) prior to entering each discreet work site.

A.19.4 Provision must be made for fencing of archaeological remains, or potential archaeological remains, where identified at/during construction, whilst archaeological investigation and recording works continue.

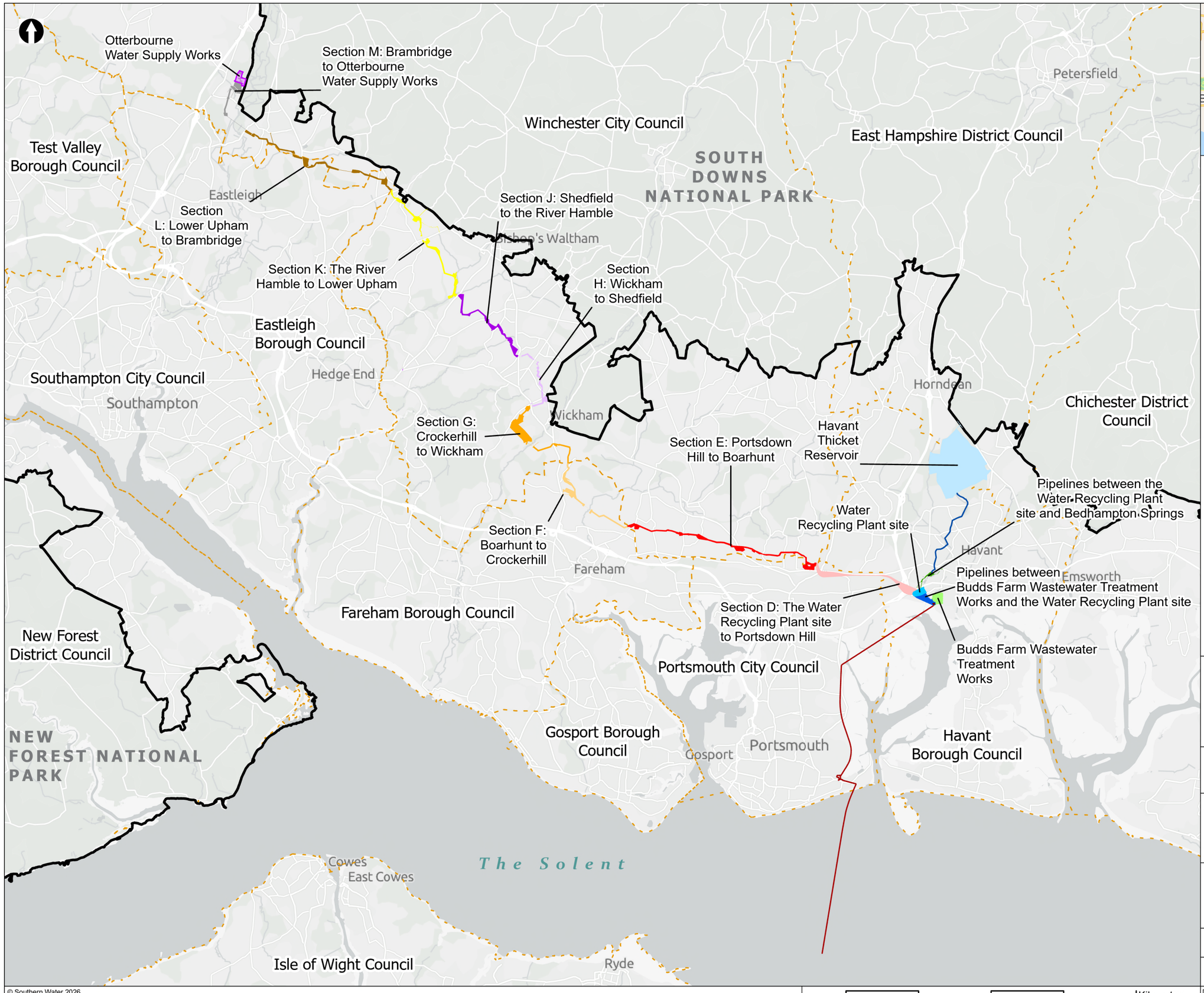
A.19.5 The Archaeological Contractor(s) will make provision for site security, in conjunction with the Contractor, particularly where sensitive archaeological remains are uncovered.

Appendix B Figures

Figure 1 DCO Order Limits and Component Sections
Figure 2 WWII Plane Crash Sites
Figure 3 Sensitive and Precautionary Approach Areas

Drawing Change Log

Drawing Number	Drawing Title	Updated Revision	Changes
Deadline 1			
Outline Written Scheme of Investigation Appendix B: Figures			
PC5223-RHD-WI-ZZ-D-Z-0001	Figure 3 Sensitive and Precautionary Approach Areas (Sheet 1 to 5)	01	New figure added showing Sensitive and Precautionary Approach Areas



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PROJECT TITLE

Hampshire Water Transfer and Water Recycling Project

Figure 1
DCO Order Limits & Component Sections

Drawn	GIS Checked	Checked	Approved
DL	MW	MP	AK
Scale at A3	Status	Revision	Security
1:125,000	Final	03	STD

Drawing Number

ForInformation-0001

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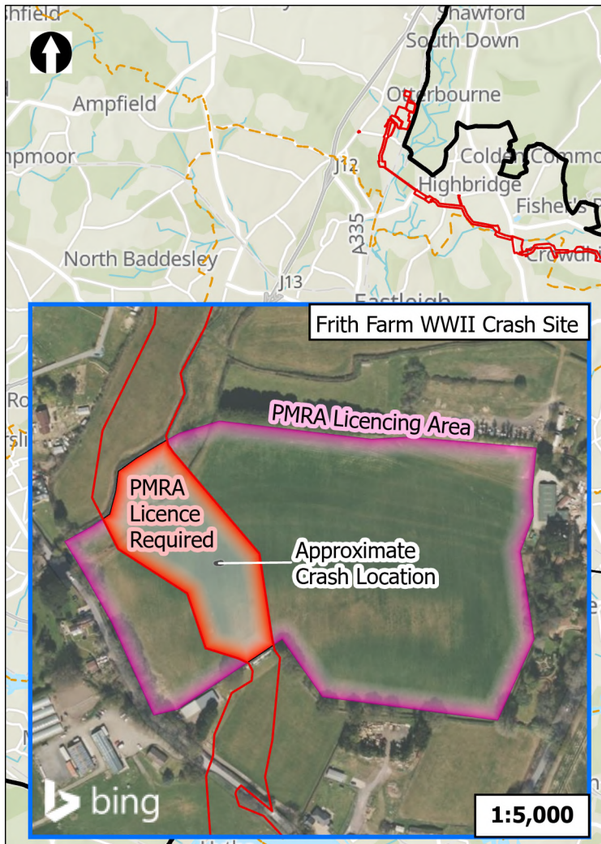
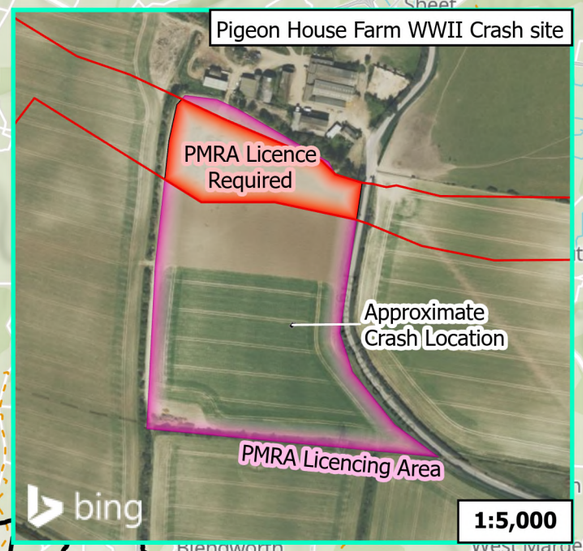
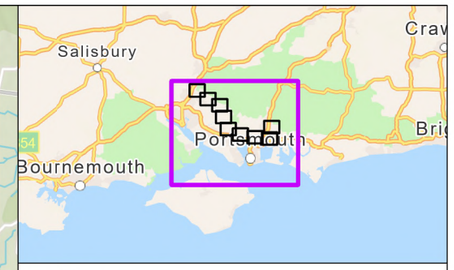
0 2.5 5 7.5 10 Kilometres







Order Limits
National Parks
Local planning authorities
WWII Hurricane Plane Crash Site
Approximate Crash Location

Coorcinate system: British National Grid; Datum: OSGB 1936
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PROJECT TITLE

Hampshire Water Transfer and Water Recycling Project

from Southern Water

Figure 2
WWII Plane Crash Sites

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Scale at A3	Status	Revision	Security
1:125,000	Draft	01	STD

Drawing Number
ForInformation-0002

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0 2.5 5 7.5 10 Kilometres

Sheet 5

Section L: Lower Upham to Brambridge

Section K: The River Hamble to Lower Upham

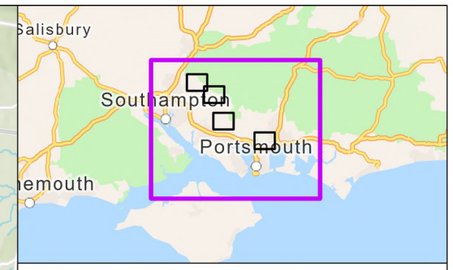
Sheet 4

Sheet 3

Section E: Portsdown Hill to Boarhunt

Section G: Crockerhill to Wickham

Sheet 2



- Sheet Extent Boxes 1:10K
- National Parks

Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works

- Section D: The Water Recycling Plant site to Portsdown Hill
- Section E: Portsdown Hill to Boarhunt
- Section F: Boarhunt to Crockerhill
- Section G: Crockerhill to Wickham
- Section H: Wickham to Shedfield
- Section J: Shedfield to the River Hamble
- Section K: The River Hamble to Lower Upham
- Section L: Lower Upham to Brambridge
- Section M: Brambridge to Otterbourne Water Supply Works
- Limits of Deviation for Otterbourne INNS Treatment Plant

Proposed Development components

- Budds Farm Wastewater Treatment Works
- Limits of Deviation for Budds Farm Pumping Station
- Pipelines between the Water Recycling Plant site and Bedhampton Springs
- Water Recycling Plant site
- Portsmouth Water Pipelines
- Pipelines between Budds Farm Wastewater Treatment Works and the Water Recycling Plant site
- Eastney LSO
- Havant Thicket Reservoir

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PROJECT TITLE

Hampshire Water Transfer and Water Recycling Project

from Southern Water

Figure 3
Sensitive and Precautionary Approach Areas
Sheet 1 of 5

Drawn	GIS Checked	Checked	Approved
DL	MW	TS	AK
Scale at A3	Status	Revision	Security
1:125,000	Final	01	STD

Drawing Number PC5223-RHD-WI-ZZ-D-Z-0001

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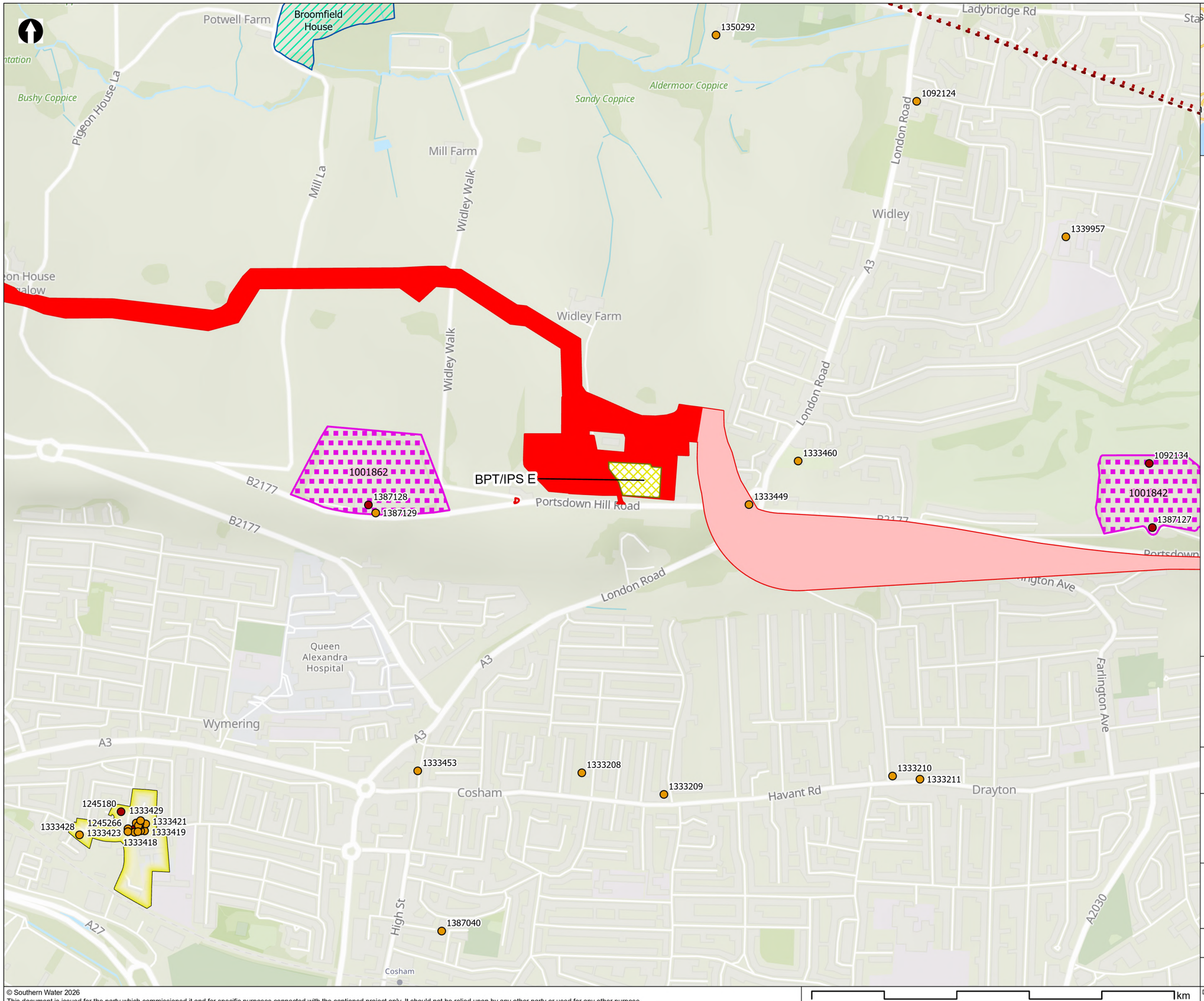
0 1 2 4 6 8 10 km



Order Limits

Sheet Extent Boxes 1:10K

Above Ground Plant

Break Pressure Tank & Intermediate Pumping Station

Scheduled Monuments

Listed Buildings

Grade

II

II*

Winchester City Council HER

Roman Roads

Historic Parks and Gardens

Hampshire HER

Roman Roads

Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works

Section D: The Water Recycling Plant site to Portsdown Hill

Section E: Portsdown Hill to Boarhunt

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0 0.2 0.4 0.6 0.8 1 km

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PROJECT TITLE

Hampshire Water Transfer and Water Recycling Project

WATER for LIFE from Southern Water

Figure 3
Sensitive and Precautionary Approach Areas
Sheet 2 of 5

Drawn	GIS Checked	Checked	Approved
DL	MW	TS	AK
Scale at A3	**Status**	**Revision**	**Security**
1:10,000	Final	01	STD

Drawing Number

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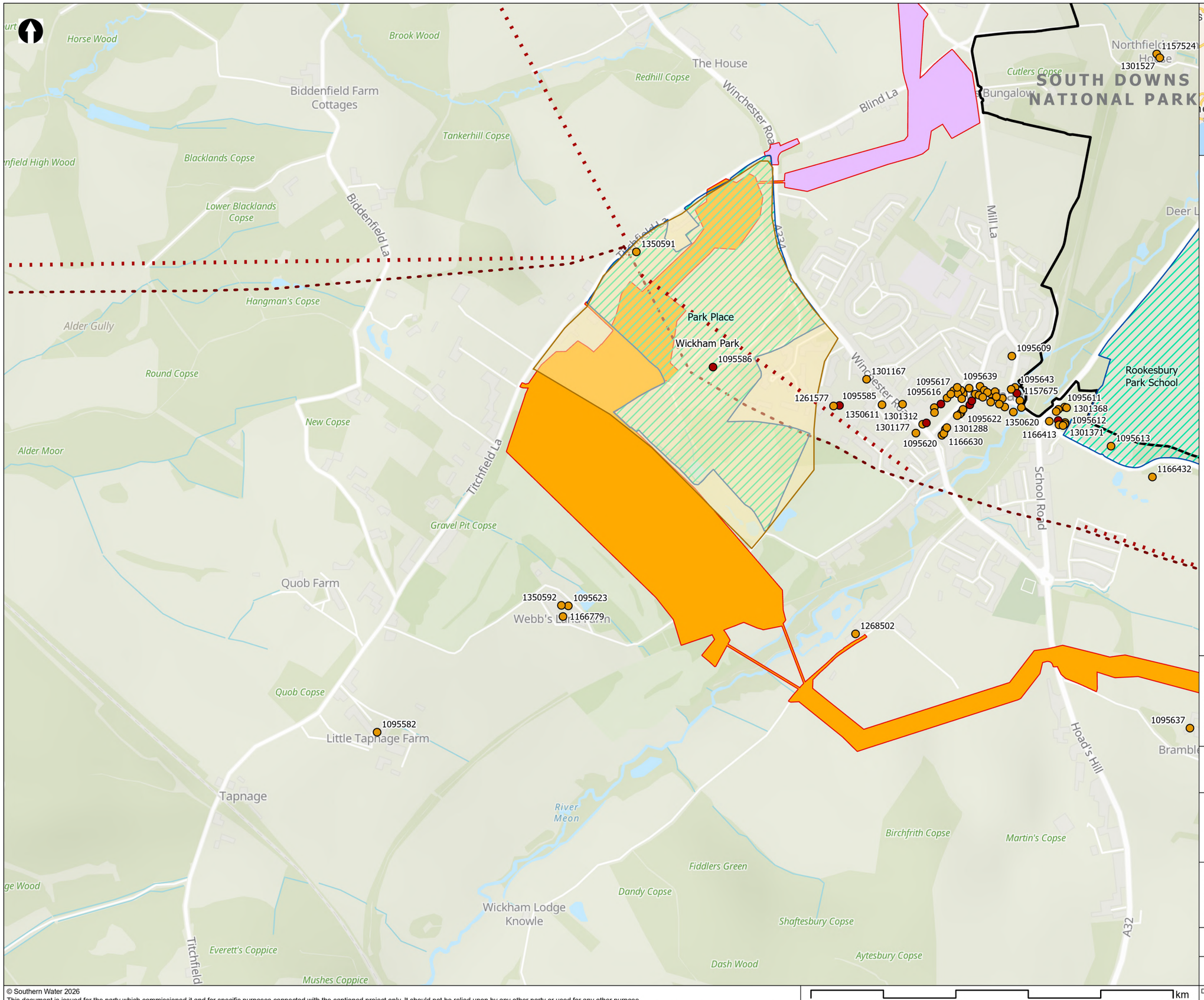

Order Limits
Sheet Extent Boxes 1:10K
National Parks

Listed Buildings

Grade
- II
- II*

Winchester City Council HER
- Roman Roads
- Historic Deerparks
- Historic Parks and Gardens

Hampshire HER
- Roman Roads

Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works
- Section G: Crockerhill to Wickham
- Section H: Wickham to Shedfield

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PROJECT TITLE

Hampshire Water Transfer and Water Recycling Project

from Southern Water

Figure 3
Sensitive and Precautionary Approach Areas
Sheet 3 of 5

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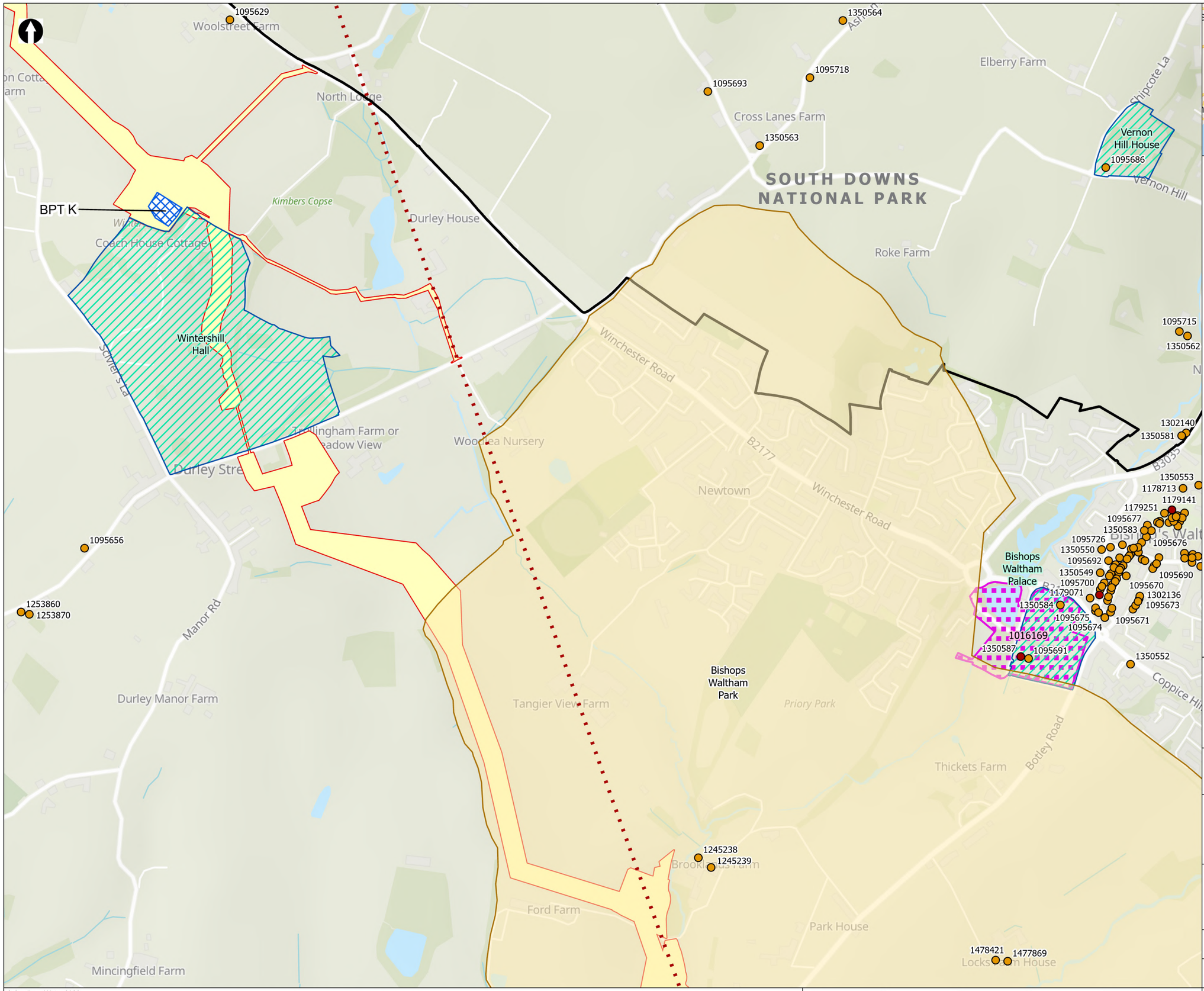

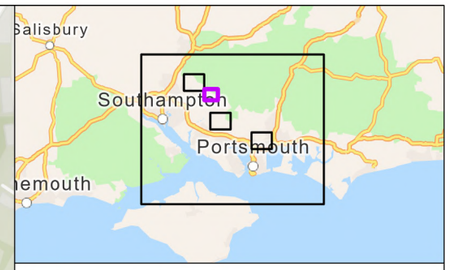

Order Limits
Sheet Extent Boxes 1:10K
National Parks

Above Ground Plant

Break Pressure Tank
Scheduled Monuments

Listed Buildings

Grade
II
II*

Winchester City Council HER
Roman Roads
Historic Deerparks
Historic Parks and Gardens

Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works

Section K: The River Hamble to Lower Upham

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Hampshire Water Transfer and Water Recycling Project

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Figure 3
Sensitive and Precautionary Approach Areas
Sheet 4 of 5

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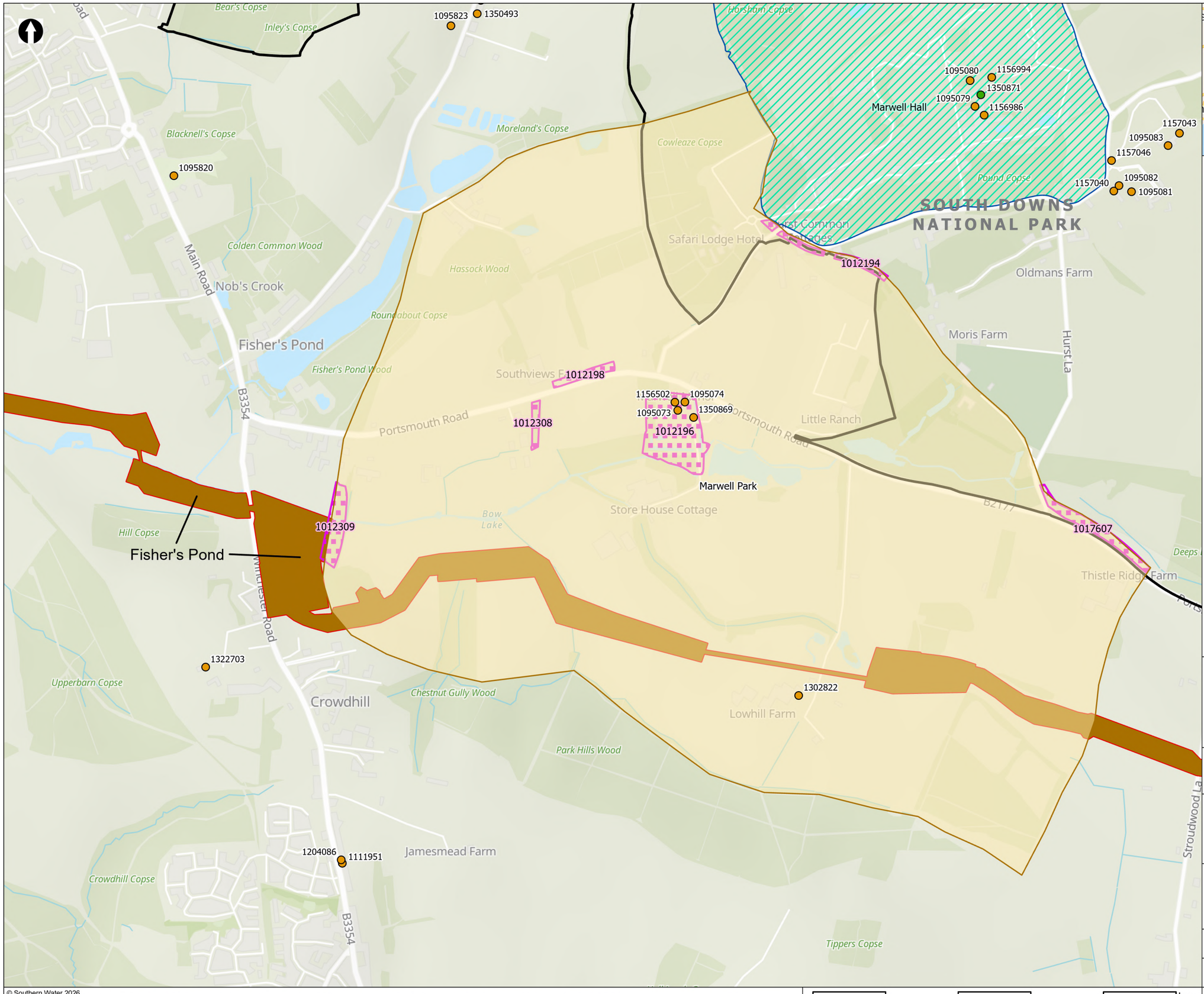

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Figure 3
Sensitive and Precautionary Approach Areas
Sheet 5 of 5

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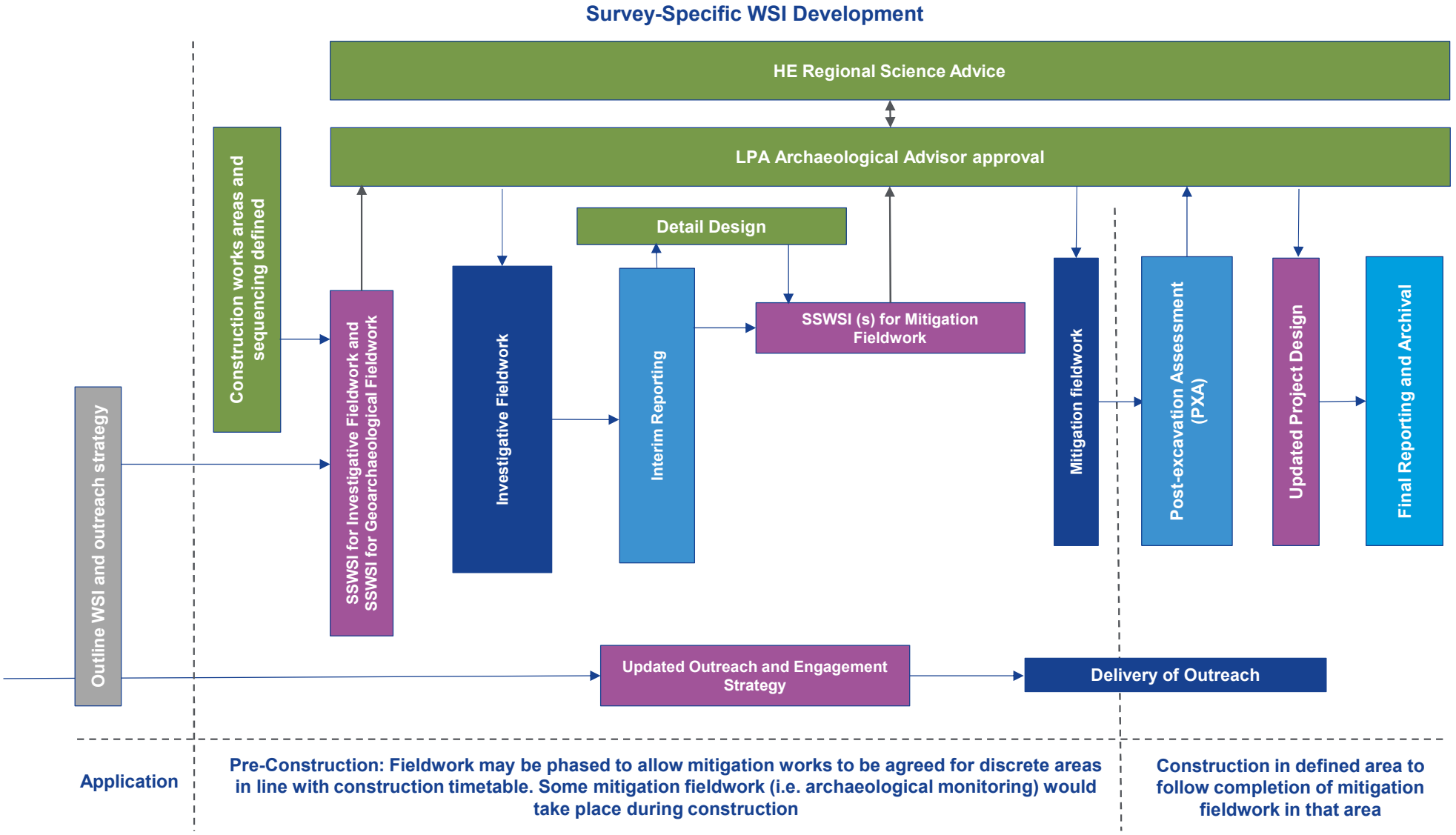
Appendix C Outline WSI and Survey-Specific WSI Interaction and Development


Survey-Specific WSI Development
HE Regional Science Advice
LPA Archaeological Advisor approval
Construction works areas and sequencing defined
Detail Design
Outline WSI and outreach strategy
SSWSI for Investigative Fieldwork and SSWSI for Geoarchaeological Fieldwork
Investigative Fieldwork
Interim Reporting
SSWSI (s) for Mitigation Fieldwork
Mitigation fieldwork
Post-excavation Assessment (PXA)
Updated Project Design
Final Reporting and Archival
Updated Outreach and Engagement Strategy
Delivery of Outreach
Application
Pre-Construction: Fieldwork may be phased to allow mitigation works to be agreed for discrete areas in line with construction timetable. Some mitigation fieldwork (i.e. archaeological monitoring) would take place during construction
Construction in defined area to follow completion of mitigation fieldwork in that area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