

Thames Water
Draft Water Resources
Management Plan 2019

Statement of Response

Technical Appendices

**Appendix D: Response to Historic
England's representations**



Table of contents

A.	Introduction	1
B.	Historic England – West Midlands, South West and South East offices	1
	Issue 1 Abingdon reservoir	2
	Issue 2 Henley to SWOX	6
	Issue 3 Oxford Canal raw water transfer to Cropredy	7
	Issue 4 Medmenham South SWA.....	8
	Issue 5 Moulsoford 1, Mortimer, Ashton Keynes, Wessex to SWOX	8
	Conclusion.....	9
C.	Historic England - London	9
	Issue 6 Beckton re-use scheme, phases 1, 2 and 3.....	9
	Issue 7 TWRN extension: Coppermills to Honor Oak	11
	Issue 8 TWRN extension: Hampton to Battersea link	12
	Issue 9 Teddington Direct River Abstraction (DRA)	13
	Issue 10 Addington aquifer storage and recharge.....	14
D.	Mitigation	15
E.	Changes made to the draft plan	16



Appendix D.

Response to Historic England's representations

A. Introduction

D.1 This document sets out the main issues raised by Historic England, in their representations (2) to the public consultation on our draft Water Resources Management Plan 2019 (WRMP19), hereafter referred to as "draft plan". Historic England submitted two representations, the first from the West Midlands, South West and South East offices and the second from the London office. The structure of the appendix follows the structure of the representations submitted by Historic England. The issues raised by Historic England are shown in **bold font** and our consideration and response to the issues are shown in numbered paragraphs below each one. We have also set out the changes that we have made to our draft plan as a result of the issues raised or, where we have not made changes we have set out the reasons for this.

B. Historic England – West Midlands, South West and South East offices

From the long list of all option elements in Figure 6.3 in the Strategic Environmental Assessment (Appendix B of the Management Plan) we have identified those elements that fall within our WM, SW or SE Regions. These are set out in Appendix 1 to this letter. Of this long list of elements, we note that 21 elements are identified in Figure 6.3 as having a major, moderate or minor adverse on Sustainability Objective 7.1: "*To conserve and enhance the historic environment, heritage assets and their settings, and protect archaeologically important sites*". These are set out in Appendix 2 to this letter. However, we have focused our assessment of the options and elements on the nine elements in the Preferred Programme that would be anticipated to have adverse impacts on the historic environment and which therefore give rise to the greatest concerns for Historic England in relation to its WM, SW and SE Regions:

- the proposed reservoir at Abingdon
- Henley to SWOX
- Oxford Canal to Cropredy
- Medmenham South SWA
- Mortimer disused source
- Groundwater: Moulsoford
- Ashton Keynes release of constraints



- East Woodhay borehole pumps, and
- Wessex to SWOX

Issue 1 Abingdon reservoir

Point a

The proposed reservoir would not result in the loss of any (currently) designated heritage assets. However, the Strategic Environmental Assessment identifies a risk of construction effects on several heritage assets, including Scheduled Monuments, a Conservation Area and a Registered Park and Garden, noting that these effects would be temporary and long-term.

Historic England generally concurs with this assessment. There are indeed a number of conservation areas centred on historic villages nearby: Steventon, Drayton, Marcham and East Hanney, and a number of other designated heritage assets.

However, at Steventon, a large amount of modern housing stands between the conservation area and the Causeway (grade II* listed and lined with highly graded buildings) and as the land is very flat we do not consider that there will be intervisibility, so we not consider that there will be any direct impacts.

For Drayton modern development and the A34 mean that there is very unlikely to be a significant impact on the character or appearance of the conservation area.

Likewise, in Marcham, the conservation area would be shielded from the reservoir by modern development. However, it may be visible from the Priory, which is grade II* listed and its rural context is very important. This needs to be scoped into any heritage assessment and future Environmental Impact Assessment (EIA).

For East Hanney, the bund would be very close, and we believe that it would be noticeable from the south-east corner of the conservation area, particularly at the junction of the A338 and Steventon Road. We consider that this impact is likely to be low but it still ought to be scoped into any future EIA and investigated further.

- D.2 The agreement by Historic England with the Strategic Environmental Assessment (SEA) conclusion for this option is noted. Reference to EIA scoping is also noted and would apply to any subsequent application for such a development. The SEA assessment for Abingdon Reservoir has been reviewed and updated to have regard to the further information provided by Historic England.

Point b

However, of much greater concern to us is the likely impact on archaeological remains and the archaeological significance of the reservoir site. Although neither Table 11-8 nor paragraph 11.38 of Section 11 of the Draft WRMP19 nor, worryingly, the Strategic Environmental Assessment, contain any reference to the potential archaeological impacts of the reservoir (although Sustainability Objective 7.1 does include references to archaeology), we consider that the implications for (as yet unknown) archaeology are very great indeed.



The reservoir site spans several Pleistocene river terraces and the Holocene floodplain area and, as a result, the 'overburden' (thought to be c 2 – 5m deep) that overlies the bedrock clays (that will be excavated to construct the borrow pits and reservoir) has potential to contain evidence of human activity from the Palaeolithic onwards.

Not only might the sands and gravels of the river terraces contain Ice Age stone tools and environmental evidence, but the alluvial floodplain deposits are likely to contain a wealth of waterlogged artefacts, structures and environmental remains dating from the later prehistoric and historic periods. Associated evidence for 'dryland' archaeology is likely to also exist on the higher ground.

The scale of the site means that any evidence preserved will have greater significance, as it will represent archaeological activity and associations at a landscape scale. All this archaeology will be destroyed by the excavation of the reservoir and other features of the scheme.

The likelihood that archaeology will be encountered is noted in Table 2.17 in the 'Environmental Mitigation' section of the document (2.5). However, the approach to mitigation is identified as a Watching Brief in this table, which would be totally inadequate. It is suggested in 2.6.14 that any archaeological investigation would take place at the same time as stripping the site of vegetation and overburden. Although this makes sense, such archaeological investigation is likely to require far more detailed recording than a 'watching brief' on construction work implies.

- D.3 Reference to archaeological impacts is included in the SEA assessment matrix for this option contained in Appendix F of the Environmental Report (Appendix B of the draft plan). Furthermore, the proposed programme of works for the Abingdon site includes for a period of some 12 months for archaeological and ecological works prior to the submission of any application.
- D.4 The mitigation measures for the Abingdon Reservoir option with regard to archaeology have been reviewed and updated within the SEA assessment for this option. Further meetings with Historic England and Oxfordshire County Council to confirm mitigation measures as part of the detailed design process are proposed. These mitigation measures will include review of previous desk based and field studies, further targeted field evaluations and targeted excavations alongside watching briefs during overburden stripping where archaeology has been identified.
- D.5 The revised draft plan has been updated to have regard to the potential archaeological impacts of the Abingdon reservoir scheme within Section 11 of the revised draft plan.

Point c

A more robust approach to archaeology, given the likely significance of the site would be:

- 1. A desk-based assessment, which should include a geoarchaeological deposit model, identifying the likely depth and distribution of deposits of archaeological potential across the site for the full Quaternary sequence; as well as an assessment of the potential for Palaeolithic remains.**



2. **Preliminary field evaluation (geophysical and borehole survey);**
3. **Use of 1 and 2 to target trenches (and deeper test pits) for a further stage of field evaluation;**
4. **Targeted excavation during ground reduction of the overburden where archaeology has been identified (alongside strip / map and sample and a watching brief as appropriate).**

We stress the need for a staged approach to archaeological investigation, as described above, as well as a window within the programme of groundworks for it to take place.

- D.6 We note the comments made by Historic England in respect of archaeology and following discussion with Historic England additional details have been provided on the desk based assessment work considered within the reservoir feasibility report, the details of which were also considered within the SEA assessment. The mitigation measures proposed by Historic England are noted and associated updates have been made to the specified mitigation within the SEA assessment for this option.

Point d

As acknowledged in the Sustainability Objective 7.1, changes in the water environment in areas adjacent to the site might also impact on archaeology not directly removed by the scheme. Whether such archaeology (currently known or as yet unknown) would continue to survive preserved following reservoir construction should be considered, preliminarily at least as part of any baseline information gathering for the SEA. This should therefore consider the range of archaeological evidence likely to currently exist on the site and whether such evidence would continue to be preserved if the water environment changes as a result of the scheme.

Specialist input on the above issues is likely to be needed from the desk-based stage onwards and Historic England would be happy to provide archaeological science advice on these matters, in conjunction with Oxfordshire County Council, to ensure that appropriate measures are put in place, if required.

- D.7 The archaeological assessment work undertaken as part of the reservoir feasibility report, which informed the SEA assessment of this option, had regard to the previous archaeological works undertaken in and around the proposed site. Further details on the background archaeological works undertaken can be provided to Historic England. Further investigations and details on risks to archaeological features and associated mitigation measures will be developed further during design development, undertaken as part of the detailed design process and we would engage with Historic England to mitigate concerns in the final design.

Point e

However, we are aware that a considerable amount of work has been undertaken since the idea of the reservoir was first proposed including desk based studies, field walking, geophysics and evaluation. However, we understand that none of this has been comprehensive due to ownership and access constraints. Accordingly, whilst



we have reports for most of the work we do not have them for all and this is especially true of the geophysical surveys.

We are aware that an assessment was made by Oxford Archaeology a few years ago, which we are advised provides a useful guide to what has been undertaken to date. However, I am not aware that Historic England has a copy, and we would be grateful if one could be provided to us. Indeed, we think it would be useful if Thames Water could make digital copies of all field work reports available to both you and Oxfordshire County Council. This would ensure that parties are fully aware of all the evidence.

It would also be useful if a Lidar study and an aerial photographic study, including all photographic records taken since the completion of the NMP Thames Gravel Survey, were undertaken, and regard had to the Oxfordshire Historic Landscape Character Assessment, which has now been completed and not, we believe, previously considered (see below)

We consider that if all this was done, we would be well placed to assess both the significance of the landscape and the component archaeological features and decide whether further assessment/investigation is required at this stage. Such assessment should include whether the combination of site types suggests an archaeological landscape of such importance as to require preservation or whether the extent of monuments present are of a similar density and type found elsewhere within the wider Vale.

We suggest that it might be helpful for representatives of Thames Water, their heritage consultants, the Oxfordshire County Archaeologist and ourselves meet to discuss the existing assessments and need for further assessments. Historic England would be pleased to convene such a meeting.

- D.8 Comments noted and further details on the background archaeological works undertaken can be provided to Historic England. Further investigations and details on archaeological features and associated mitigation measures will be developed further during design development and we would engage with Historic England to mitigate concerns in the final design. We consider that the level of assessment completed is appropriate for an SEA and that it is important to ensure all schemes are assessed at the same level of detail. If the reservoir is progressed there would be more detailed work to support the planning application and further engagement with Historic England and other bodies would be undertaken during this period. In consultation with our heritage consultants, assessment work including aerial photographic surveys, Lidar surveys and historic character landscape assessments are considered to be suitable at planning application stage and would be considered as part of more detailed project level assessment work.

Point f

The Strategic Environmental Assessment also identifies the removal of existing landscape features as a temporary but longer-term construction effect pending the new vegetation maturing and aiding “the integration of the reservoir into the landscape”. However, and more important than any impact on particular designated assets, the proposed reservoir would have a huge impact on the landscape.



This has heritage significance; the settlement pattern of small villages from which a rich, flat agricultural landscape is cultivated is an important part of Oxfordshire's historic landscape character and the reservoir would obliterate a very substantial area of that. Any associated planting around the outskirts of the reservoir would not reinstate that landscape character.

The general principle of the National Planning Policy Framework is that harm to heritage assets should be avoided where possible. In the case of the proposed reservoir, we note that there is an alternative option in the form of a Severn-Thames transfer. We note that the SEA also assesses the potential impacts of this scheme on Sustainability Objective 7.1 to be "major adverse". This appears to be because of the potential construction risks to a range of listed buildings, scheduled monuments, registered historic parks and gardens and other heritage assets around Deerhurst and along the route.

However, any risks arising purely from the construction phase of any elements will be temporary. The potential harm to heritage assets arising from a Severn-Thames transfer scheme therefore need only be temporary, whereas the potential harm that would arise from the proposed reservoir at Abingdon would be permanent. In terms of harm to heritage assets therefore, the preference should be for the transfer scheme.

- D.9 Comments noted and further discussions have been held with Historic England. The SEA conclusion of major adverse effects for both the reservoir and Severn-Thames transfer scheme has been agreed by Historic England to adequately summarise the potential heritage impacts of both these schemes. The SEA also recognises the permanent and temporary nature of the effects. We consider that the level of assessment completed is appropriate for a strategic assessment and that it is important to ensure all schemes are assessed equally.
- D.10 The general principle of the National Planning Policy Framework that harm to heritage assets should be avoided is recognised. More detailed work would be carried out during design development and to support any future planning applications. Further engagement with Historic England and other bodies would be undertaken during this period. A 12-month period has also been included in the draft programme of works for the reservoir prior to the submission of any application to enable assessment of archaeological and ecological impacts. Assessment work including historic character landscape assessments would be considered as part of more detailed project level assessment work.
- D.11 The SEA has regard to a number of objectives of which heritage is one. The results from the SEA as a whole are one of a number of factors that has an influence on the choice of the options included in the reasonable alternative programmes and preferred programme. The reasonable alternative programmes and preferred programme include for a number of options and schemes to provide additional water resources over the plan period. These options are not restricted to either the Severn Thames Transfer option and/or a new reservoir option.

Issue 2 Henley to SWOX

We note that the SEA identifies a temporary but extensive moderate adverse construction effect in respect of "recreational resources including a nearby



registered park and garden”. We consider the Grade II registered park and garden of Greys Court, which lies some 100 – 150m to the west of the proposed new pumping station and construction compound at New Farm, to be a heritage asset rather than a recreational resource, and the concern should be the potential impact on the significance of this asset.

We are not aware of the relationship of the land to the east of Greys Court to its Park, nor the contribution of this land to the significance of the Park, but we are satisfied that the impact of the construction compound and activities would be temporary, and the permanent impact of the proposed pumping station would be negligible. We are also satisfied that the Conceptual Design Report identifies and manages the potential for archaeological remains on the site of the pumping station and along the route of the proposed pipeline.

- D.12 We note the comments made and we have amended the SEA assessment for this option contained in Appendix E of the SEA – Environmental Report (Appendix B of the revised draft WRMP) to clarify the Registered Park as a heritage asset.

Issue 3 Oxford Canal raw water transfer to Cropredy

We note that for the “Oxford Canal” scheme the SEA identifies a risk of moderate adverse construction effects on several heritage assets, including several Scheduled Monuments and a Registered Parks and Garden, as well as construction works within a Conservation Area. However, it appears to us that references to the Oxford Canal” scheme within the SEA is to the “Oxford Canal – Duke’s Cut to Farmoor 15 MI/d Pipeline” scheme (page 117 of the SEA), not to the alternative variant “Oxford Canal to Cropredy” scheme which is the scheme indicated in Figure 7.5 of the SEA as part of the preferred programme.

Unfortunately, whilst we have access to a Conceptual Design Report for the alternative Oxford Canal Scheme: “Oxford Canal – Duke’s Cut to Farmoor 15 MI/d Pipeline, we do not appear to have the CDR for the Raw Water Transfer to Cropredy element. However, Thames Water has advised us that this scheme would require a new pumping station at the Grade II Atherstone Lock and the rebuilding of existing pumping stations at the Grade II listed Hillmorton and Napton Locks. There is therefore the potential for harm to the significance of these listed structures which, depending on the precise nature of the works, could result in greater harm to that significance than the “minor” indicated in the SEA. The harm could also be permanent, resulting from the operational phase.

- D.13 We note the comments made and, following further discussions with Historic England, a review and updates to the SEA assessment for this option has been undertaken to have regard to the Listed Buildings and works within a conservation area. The scope of the works are such that the SEA assessment conclusion has remained as a potential moderate residual adverse effect. We also advise Historic England that the raw water transfer via the Oxford Canal (15 MI/d) has been advanced in our revised draft plan to be operational in 2030. We are seeking further comment on the main changes to our revised draft plan and will write to Historic England to advise them when this will happen.



Issue 4 Medmenham South SWA

We note that the SEA identifies risks of moderate adverse construction effects on several heritage assets close to the construction sites, including a Registered Park and Garden and some Scheduled Monuments. We appear to have no Conceptual Design Report for this scheme and so are not entirely sure what will be constructed or where.

However, Thames Water has provided us with a map showing the location of the Medmenham Intake which would be close to the Roman Villa at Mill End scheduled monument and Mill End Hambleden Conservation Area, although there are no Registered Parks and Gardens in the vicinity of the intake. Accordingly, the impact could be minor to moderate adverse on the scheduled monument.

- D.14 Comments noted and following further discussions with Historic England a review and updates to the SEA assessment for this option has been undertaken. Having regard to the nearby scheduled monuments, listed buildings, two Registered Parks and Gardens, and the close proximity to the Mill End Hambleden Conservation Area, a potential moderate residual adverse effect has been identified for this option.

Issue 5 Moulsoford 1, Mortimer, Ashton Keynes, Wessex to SWOX

No explanation is given in the SEA as to why these elements are considered likely to have minor adverse impacts on the historic environment. There appear to be no designated heritage assets that would be affected by the Moulsoford scheme.

There are listed structures to the north and south-east of the Mortimer site, the setting of which may be affected by the Works, but as the recommissioning of existing boreholes we do not anticipate any further significant impacts on the significance of these listed structures.

The Ashton Keynes site lies within the Ashton Keynes Conservation Area and within the setting of the Moated Site at Church Farm Scheduled Monument. However, as the proposal is simply to replace two pumps with higher capacity pumps, we do not consider that this element would have any more than a negligible or possibly minor effect on the designated heritage assets.

The Wessex to SWOX scheme does not appear to affect any designated heritage assets.

- D.15 To note as a result of revisions to the draft plan in response to representations and new information none of the above options now form part of the preferred programme in the revised draft WRMP19. However, comments are noted and following further discussions with Historic England further details and updates to the SEA matrices have been undertaken. The Moulsoford assessment concludes potential minor adverse effects which has regard to potential archaeological remains associated with the excavation works around the borehole and pipeline. The Mortimer assessment concludes potential minor adverse effects which has regard to potential effects on listed structures. The Ashton Keynes assessment concludes potential minor adverse effects which has regard to the conservation area and scheduled



monuments. The Wessex to SWOX assessment concludes potential minor adverse effects which has regard to listed buildings in proximity to the pipeline route.

Conclusion

In conclusion, the comments in this letter are based on the information available to Historic England at this time. As schemes are refined further assessment may be necessary and we would be pleased to comment further. Historic England has published Good Practice Advice in Planning Notes that set out how we consider impacts on the significance of heritage assets should be assessed: 2: Managing Significance in Decision Taking (<https://historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/>) and 3: The Setting of Heritage Assets (<http://www.historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/>).

- D.16 We note the comments made by Historic England at this time and welcome the opportunity to continue to discuss matters of concern with Historic England.

C. Historic England - London

From the long list of all option elements in Figure 6.3 in the Strategic Environmental Assessment (Appendix B of the Management Plan) we have listed those in the London region that are identified as having major, moderate or minor adverse impacts on sustainability objective 7.1 (see Appendix). Sustainability objective 7.1 relates to the historic environment and states: *“To conserve and enhance the historic environment, heritage assets and their settings, and protect archaeologically important sites”*. However, we have focused our assessment of the options and elements on those in the Preferred Programme that are anticipated to have adverse impacts on the historic environment and which therefore give rise to the greatest concerns for Historic England in relation to the London region:

- Beckton indirect potable re-use scheme
- Network Reinforcement: Coppermills to Honor Oak and Hampton to Battersea
- Teddington direct river abstraction scheme
- Addington aquifer storage and re-charge at south east London

Issue 6 Beckton re-use scheme, phases 1, 2 and 3

This is identified as having a major adverse impact on objective 7.1 (Table 7.5, Technical Appendices, Appendix B). We have considered the information contained in the Beckton Water Reuse Conceptual Design Report (CDR Feb 2018) to assess the likely effects on the historic environment.

The principal elements of infrastructure are:



- A new reuse plant proposed at Beckton potentially on land outside the existing sewage treatment works (STW) site.
- The conveyance for the treated water to the discharge location upstream of the pump station inlet at King George V (KGV) Reservoir, comprising of a bored tunnel from Beckton to Lockwood Reservoir at Coppermills WTW, and then from Lockwood to KGV. A number of shafts are required along the tunnel route.
- Pumping station at Coppermills
- Additional capacity in the Thames Water Ring Main (as set out in the Network Reinforcement CDR).

At Beckton, the setting of the existing Beckton STW (chimney listed grade II) requires consideration. There are no other designated assets within the site, or the adjoining land identified in Figure 2.

We note the locations in the CDR identified for the tunnel conveyance intermediate shafts, and the drive shafts at Beckton and Tottenham Marshes. These are indicative locations at this stage and so these comments are based on existing information. The treatment of the external appearance of the shafts should be carefully considered. Particular care will be needed in respect of intermediate shaft 3 close to the boundary of Wanstead Park, grade II* Registered Park and Garden, and shaft 5 at Coppermills within the setting of the grade II listed storehouse. The receiving shaft at King George V Reservoir should be sensitively designed to respect and, if possible, enhance the open land that forms the setting of the grade II listed pump house, water tower, retort house and associated historic water infrastructure, and Enfield Lock Conservation Area.

The route of the River Lee diversion discharge tunnel is currently shown as passing underneath the listed structures referred to above at King George's Reservoir, and we recommend careful investigation to assess if this can be achieved without harm to them, or whether changes should be made to the route. Equal care must be taken to avoid harm to the listed buildings and conservation area at Ponders End since the tunnel route appears to run underneath these assets between intermediate shafts 8 and 9.

We note the reference to liaison on heritage issues, including archaeological remains (CDR, p29, and table 2.10) and look forward to further discussion on relevant issues. Please note, we should now be referred to as Historic England.

We agree with the conclusion in the SEA environmental report of major adverse effects, together with the changes to the Network Reinforcement proposals. We would like to see more detail of the assessment. The general statement that there is a 'risk of construction effects on several heritage assets (such as scheduled monuments, conservation areas and registered parks and gardens)' does not assist. It is also unclear as to whether permanent harm is expected or simply during construction. The impact on, for instance, archaeological remains will be permanent, and is part of the sustainability objective.



- D.17 To note as a result of revisions to the draft plan in response to representations and new information Beckton reuse no longer features in our preferred programme in the revised draft plan. The preferred programme in our revised draft plan comprises ongoing demand management, innovative groundwater development, Deephams reuse scheme (45 MI/d) and the Oxford Canal raw water transfer (15 MI/d) in 2030 the South East strategic reservoir option from the mid 2030s, and in the long-term a supported Severn Thames transfer. Further detail on the preferred programme is presented in Section 11 of the revised draft plan.
- D.18 However, we note your comments regarding the setting of existing Beckton STW, the shaft locations for tunnel conveyance and the tunnel route. In the event that this scheme was to be developed these aspects would be explored further during design development and we would engage with Historic England to mitigate concerns in the final design. Tunnel alignments would be developed further during design development. Where possible we would align the tunnels so that historic assets are outside the zone of influence. Where this is not possible, due to constraints on the alignment, detailed settlement analysis would be undertaken to demonstrate how best to minimise the impacts during construction. This would include stringent control and monitoring requirements during tunnelling, to limit settlement to minimum acceptable levels. A review and update to the SEA assessment has been undertaken in light of the comments received.

Issue 7 TWRN extension: Coppermills to Honor Oak

These comments are based on information within the Network Reinforcement CDR, May 2017.

The proposed New Honor Oak shaft (C-DR-DD01-XX-0008) is proposed closer to the Grade II listed pumping station than the existing shaft, and Peckham Rye Park (Registered Park and Garden, grade II) lies to the west. The settings of these heritage assets should be carefully considered in terms of their size, bulk and visual appearance.

The tunnel route to the north runs beneath Nunhead Cemetery a registered park and garden (grade II*), which contains numerous listed monuments and is a designated a conservation area. A robust assessment should be made of any likely ground disturbance to ensure subsidence is avoided.

From map C-DR-DD01-XX-0006 giving a general indication of locations of intermediate shafts, and the figures, we have the following comments:

- **Shaft 2 (figure A2) is located in Victoria Park, a Registered Park and Garden (grade II* and a conservation area). This location should be avoided as this is likely to be an alien feature within the designed landscape.**
- **Shaft 3 (figure A3) is located in the vicinity of the Regent's Canal Conservation Area, and therefore the character of the conservation area should be a consideration.**
- **Shaft 5 (figure A4) appears in close proximity to Hatcham Conservation Area at New Cross. This should be a consideration in future design.**



- D.19 To note as a result of revisions to the draft plan in response to representations and new information the Coppermills to Honor Oak conveyance no longer features in our preferred programme in the revised draft plan. The preferred programme in our revised draft plan comprises ongoing demand management, innovative groundwater development, Deephams reuse scheme (45 Ml/d) and the Oxford Canal raw water transfer (15 Ml/d) in 2030 the South East strategic reservoir option from the mid 2030s, and in the long-term a supported Severn Thames transfer. Further detail on the preferred programme is presented in Section 11 of the revised draft plan.
- D.20 We note your comments regarding the new Honor Oak shaft, tunnel route and intermediate shaft locations. In the event that this scheme was to be developed these aspects would be explored further during design development and we would engage with Historic England to mitigate concerns in the final design. Tunnel alignments would be developed further during design development. Where possible we would align the tunnels so that historic assets are outside the zone of influence. Where this is not possible, due to constraints on the alignment, detailed settlement analysis would be undertaken to demonstrate how best to minimise the impacts during construction. This would include stringent control and monitoring requirements during tunnelling, to limit settlement to minimum acceptable levels.

Issue 8 TWRN extension: Hampton to Battersea link

These comments are based on information within the Network Reinforcement CDR, May 2017.

Hampton shaft: The Hampton Water Treatment Works is characterised by numerous listed buildings which individually are of special historic interest, and as a collection have high landmark quality within the Hampton Conservation Area. As a result, we are concerned that no drawings are available within the CDR to assess the potential nature of the development and its effect on these important heritage assets. (Drawing C-DR-DD001-XX-0003 is not available in the CDR). We note that this is to be discussed further and we would welcome the opportunity to provide further advice on this site.

Battersea shaft: Drawing C-DR-DD001-XX-0004 is not available to us for comment. The shaft appears to be located close to the (listed grade II*) former Battersea power station.

Intermediate shafts: General information is provided in section 2.2.3 of the CDR, although the illustrative figures are not included in the report. Based on general information we note:

- **Shaft 2, Radnor Gardens – this is very sensitive lying within Twickenham Riverside conservation area and in proximity to listed buildings and the river.**
- **Shaft 3, Petersham Meadows – this is within the Terrace and Buccluech Gardens registered park and garden (grade II), Richmond Hill conservation area and in a highly prominent location on the riverside. On the basis of current general siting this gives rise to very serious concerns.**



- **Shaft 4, Sheen car park – this is within Richmond Park registered park and garden (grade I), one of London's Royal Parks and is highly sensitive. This is also designated as a conservation area. This site causes serious concern based on current information.**

- D.21 To note as a result of revisions to the draft plan in response to representations and new information the Hampton to Battersea conveyance no longer features in our preferred programme in the revised draft plan. The preferred programme in our revised draft plan comprises ongoing demand management, innovative groundwater development, Deephams reuse scheme (45 Ml/d) and the Oxford Canal raw water transfer (15 Ml/d) in 2030, the South East strategic reservoir option from the mid-2030s and, in the long-term, a supported Severn Thames transfer. Further detail on the preferred programme is presented in Section 11 of the revised draft plan.
- D.22 We have, however, carried out further work to develop the tunnel alignment for the Hampton to Battersea ring main extension; the proposed tunnel alignment has been amended to pass to the south of Richmond Park, revised alignments are included in the updated CDR. We consider that this revised alignment should address some of the comments raised. The location of the Battersea shaft remains close to former Battersea power station. As such, in the event that this scheme was to be developed, we would engage with Historic England during the design development of this option to mitigate concerns in the final design.
- D.23 We note your comments regarding locations within conservation areas. Regard to the architectural design of permanent buildings would also be developed further during design development and we would engage with Historic England to mitigate concerns in any final design.

Issue 9 Teddington Direct River Abstraction (DRA)

This is identified as having a moderate adverse impact on objective 7.1 (Table 7.5, Technical Appendices, Appendix B). We have considered the information contained in the Teddington Direct River Abstraction Conceptual Design Report (Feb 2018) to assess the likely effects on the historic environment.

The tunnel route for the effluent transfer from Mogden to Teddington appears to run directly beneath Orleans House Octagon Room, a grade I listed building, and potentially Riverside House (listed grade II) just before reaching the north bank of the Thames. We note that the route has been chosen overall to limit tunnelling under buildings, but also that ground movement within London Clay is not expected to be a significant risk (p15, CDR). It would be advisable to ensure that this is indeed the case for the listed buildings in this location.

Historic England welcomes the review of the location of the intermediate shaft on the tunnel route, which had previously been sited in the car park to Ham House (CDR November 2016). The new location avoids permanent harm to the setting of this highly significant heritage asset, and we note that measures are proposed to mitigate the impact during excavation and construction (table 2.8).



The direct river abstraction site south of housing in Biggin Hill Close lies within the Riverside North conservation area. This location allows for direct connection to the Thames Lee Tunnel. This development is likely to have a significant impact on the riverside conservation area. It is not clear from drawing no. MMD-356236-C-DR02-XX-006 RevB, in the CDR, whether the riverside walk would be permanently diverted. If other locations are not available, all opportunities to mitigate these effects must be taken, including consideration of very high quality architectural design for the permanent buildings. The intake screen here, and on the opposite side of the river at the Teddington reception shaft site, must also be designed to minimise the potential adverse impact in order to maintain the enjoyment of the Thames riverside.

We consider that the assessment of moderate adverse effects for the historic environment within the SEA, may under-estimate the likely effects. We do not consider that all the impacts are fully itemised, but are instead covered with a general statement of a 'risk of construction effects on several heritage assets (such as scheduled monuments, conservation areas, registered parks and gardens). In relation to the Thames path and Riverside North Conservation Area the judgement on the nature, and magnitude, of permanent effects should be made apparent, and may suggest a major adverse impact.

- D.24 We have undertaken further work on the Teddington DRA option since the draft plan was published specifically to address concerns raised by the Environment Agency in respect of the potential environmental impacts of the scheme on the hydrology of the River Thames upstream and downstream of Teddington Weir. Further information is provided in Appendix K to the Statement of Response. Based on the further work, and discussions with the Environment Agency, we have agreed that the compliance with WFD objectives of a Teddington DRA option remains uncertain. In consequence the Teddington DRA option is not considered a feasible option and has been removed from our revised draft plan. Further work will be completed on the scheme in the next five years and we will take account of Historic England's comments as part of this work.

Issue 10 Addington aquifer storage and recharge

This is identified as having a moderate adverse impact on objective 7.1 (SEA environmental report, Table 7.5, Technical Appendices, Appendix B). Reference is made to a potential impact on heritage assets such as listed buildings (p132). We are unable to assess this impact and request further detail so that we can advise as to the degree of impact.

- D.25 The reference to Listed Buildings relates to the Grade II Listed Building 'Engine house and boiler house with adjoining chimney at the Addington Well pumping station' that is located and associated within the existing water infrastructure site. The construction work involved would be planned so as to minimise potential damage to the heritage asset, although minor impacts on the setting of this asset are likely to occur during the construction period. During construction there is the small risk of unknown assets being at risk from the excavation for the borehole and pipeline. This is considered limited as the work would take place within an existing and developed water infrastructure site. A watching brief, surveys and investigation



would minimise risk of harm to unknown assets. An assessment of minor temporary adverse effect has been reached for this option.

D. Mitigation

Point a

We note and welcome the offer from Thames Water to consider whether, in dialogue with stakeholders, further mitigation measures can be applied to reduce adverse effects. Mitigation, as set out in section 10 of Appendix B: Strategic Environmental assessment – environmental report, could be more ambitious for the historic environment. For instance, we suggest this should include requiring high standards of architectural design in new buildings, following in the tradition of pride in water infrastructure begun by Victorian architects. Other forms of mitigation could be thorough interpretation of heritage features, or by opening them to public access. With respect to archaeology, there may be opportunities for public engagement during investigation of sites.

- D.26 Comments noted and further discussions have been held with Historic England. We will continue to engage with Historic England during the design development of options to mitigate concerns. Regard to the architectural design of permanent buildings will be developed further during design development and we would engage with Historic England to enable comments on the design and mitigation measures to be taken into account.

Point b

For the avoidance of doubt, we have not considered non-designated archaeological remains in the above response. Many of the areas affected by the proposed infrastructure fall within Archaeological Priority Areas or other areas of historic importance. The comments of the Greater London Archaeological Advisory Service (GLAAS) will be supplied separately and should be considered alongside this response to ensure the totality of the historic environment impacts are assessed appropriately.

- D.27 We note that we did receive a response from the Greater London Archaeological Advisory Service (GLAAS) on 17 July 2018. The closing date for representations to the public consultation was 29 April 2018 and whilst we were happy to accommodate late responses this representation was received too late to be included in the Statement of Response but we thank GLAAS for their submission and will follow up directly with GLAAS to discuss their comments and ensure their concerns are addressed in revisions to the draft plan.



E. Changes made to the draft plan

D.28 The following changes have been made to the draft plan in response to comments received from Historic England:

- The SEA assessment matrices (Appendices E and F of the Environmental Report (Appendix B of the revised draft plan) have been updated to reflect the comments from Historic England and the need for further meetings with Historic England;
- The Environmental Report (ER) (Appendix B of the revised draft plan) and Section 10 of the revised draft plan have been updated to provide further details on the consideration of the SEA in determining the reasonable alternative programmes and the preferred programme as well as providing details on the revised reasonable alternative programmes and preferred programme; and
- Section 11 of the revised draft plan has been updated to include reference to potential archaeological impacts of the Abingdon reservoir scheme.