

A2AT Gate Two Submission

Environmental Assessment

Appendix A Water Framework Directive Screening
Assessment

Anglian Water & Affinity Water

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Prepared by	Checked by	Verified by	Approved by
Charles Dodd Graduate Water Scientist	Owen Tucker Associate Director - Water Science	Owen Tucker Associate Director - Water Science	Dr Phil Aldous BSc, PhD, LLM, DMS Water Sector Director (Environment)
Rachel Coombes Senior Geomorphologist			

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Prepared for:

Anglian Water & Affinity Water

Prepared by:

AECOM Limited

The Colmore Building

Colmore Circus Queensway

Birmingham B4 6AT

United Kingdom

T: +44 (121) 710 1100

aeom.com

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Water Framework Directive Screening Assessment

A.1 Introduction

Purpose of this report

This report supports the Environment Assessment Report (EAR), that accompanies the gate two submission report to the Regulators' Alliance for Progressing Infrastructure Development (RAPID) for the Anglian Water to Affinity Water Transfer (A2AT) Strategic Regional Option (SRO). This report presents the Water Framework Directive (WFD) assessment of the A2AT scheme; the scope of this report is to consider the pipeline infrastructure only and does not assess the impact of initially abstracting the water from source for reasons explained later in this report.

A.2 A2AT Scheme Description

Preferred Option

The preferred option that emerged from the initial appraisal stage at gate two was the SLR to WRZ5 option that emerged from gate one. The SLR to WRZ5 option interfaces with the SLR scheme at the existing Etton Service Reservoir. A new break tank and pumping station at Etton Service Reservoir are designed to transfer the flow via a new pipeline to another new break tank and pumping station at an intermediate point along the route. From here, the water would be pumped via a new pipeline to a new conditioning plant and service reservoir in the Affinity Water resource zone WRZ5 at Sibleys Service Reservoir.

During the design process, the project team considered an additional route between SLR and WRZ5. This variant, known as the 'Western Route', takes the route via Grafham Water and offers additional operational flexibility to Anglian Water. The original SLR to WRZ5 route was named the 'Eastern Route' for clarity. Both routes are considered in this report as part of the same SLR to WRZ5 preferred option.

Eastern Route

Gate one work on the SLR to WRZ5 option identified that it would cross the Nene Washes SPA / SAC and that mitigation to overcome the impacts would be necessary, through a commitment to using trenchless techniques, where boring or tunnelling facilitates subterranean construction without the need for open trenches to be cut. Further investigation during the gate two optioneering stage determined that the measures required (routing it through the existing road corridor north of Whittlesley) would be technically complex.

Instead, it was decided to avoid this impact altogether by routing the Eastern Route to the west of Peterborough, hence it runs from Etton Service Reservoir southwards towards Washingley and Folksworth. It then turns eastwards to join the original gate one SLR to WRZ5 route just north-west of Woodhurst. The pipeline route continues to a proposed intermediate pumping station located south-west of Duxord before continuing to the termination point at the existing Sibleys Service Reservoir.

Western Route

The Western Route initially follows the same corridor as the Eastern Route, passing west of Peterborough, towards Washingley and Folksworth. From this point the route continues southwards towards Anglian Water's existing Grafham Water site, passing through approximately 1km to the east. From Grafham Water, the route continues south then south eastward to an intermediate pumping station near East Hatley and a break pressure tank near Langley Park Rally School before terminating to the southeast at the existing Sibleys Service Reservoir.

The preferred option, with both the Eastern Route and Western Route variants, is shown in Figure 1, below.

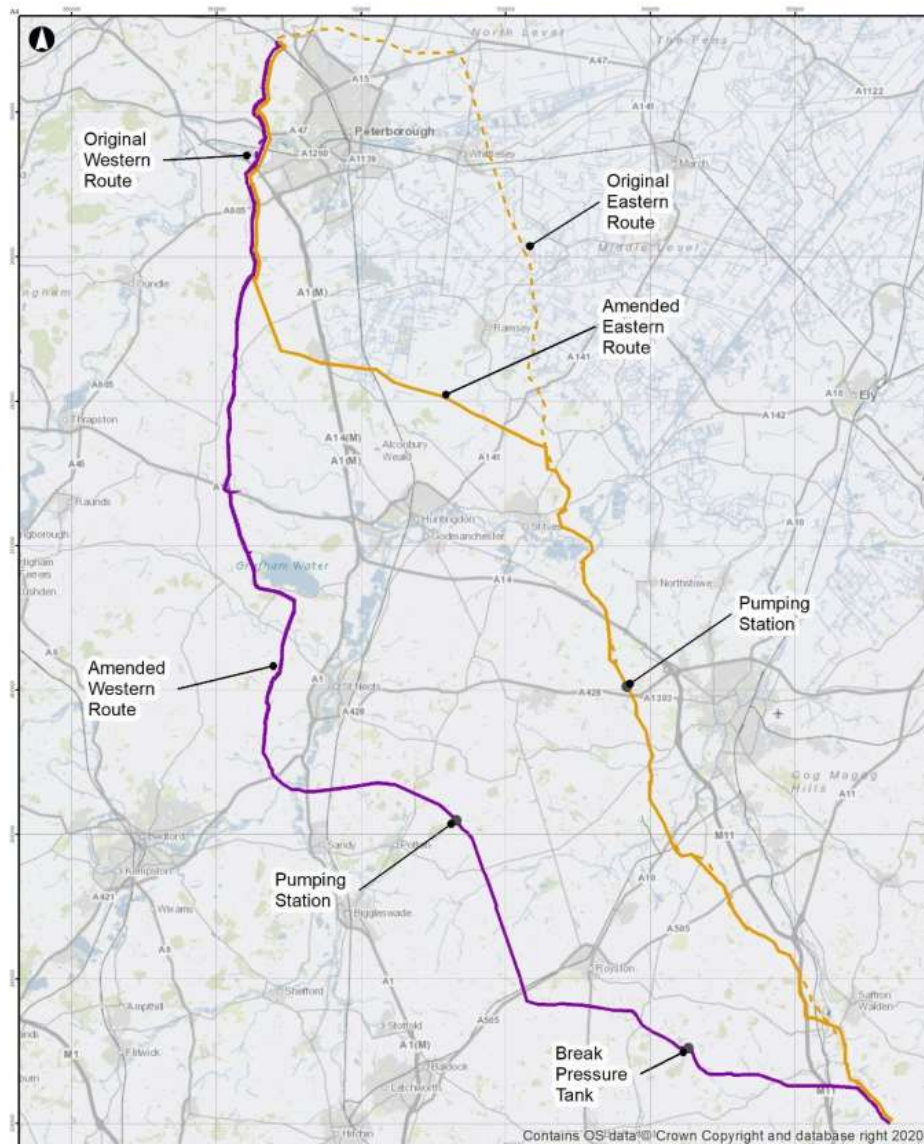


Figure 1. A2AT Eastern and Western Routes (source: Arup, Concept Design Report)

The pipeline will be subject to an ongoing maintenance programme, although no details of what this may involve are currently available. There are also no details of how the pipeline would be drained should this

be required either for maintenance or an emergency situation, however unlikely (e.g., if an issue occurred in Etton Service Reservoir and water had been transferred through A2AT, it would need to be drained and washed through). The rates and volumes of water will depend upon the utilisation of the transfer at the particular time and no information on potential scenarios is available at this stage.

Before the pipeline is operational it is best practice for it to be hydrostatically tested to identify any leaks so they can be rectified before it goes into full operation. However, at this stage this does not form part of the concept design that is being carried out. Thus, there is no information on how much water would be needed (assuming it would be done in sections and the water used for testing recycled), where the water for testing would come from (it is likely that this would come from the source that would ultimately be conveyed along the pipeline but this remains to be confirmed), whether any biocides or disinfectant would be required (if using treated water from Etton Service Reservoir this may not be necessary) and where the water would be discharged (i.e. either returned into the water supply system for further treatment or discharged to a watercourse potentially under a temporary water activity permit from the Environment Agency).

A.3 Methodology

Introduction to the Water Framework Directive

The WFD, EC Directive 2000/60/EC¹ aims to protect and enhance the quality of the water environment across all European Union (EU) member states. England and Wales had adopted the WFD as national law by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017². Following the departure of the United Kingdom from the EU these regulations continue to apply until they are revoked or superseded by new legislation.

The WFD takes a holistic approach to the sustainable management of water by considering the interactions between surface water, groundwater and water-dependent ecosystems. Ecosystem quality is evaluated according to interactions between biological, physico-chemical and hydromorphological elements (or 'Quality Elements').

Under the WFD, 'Water bodies' are the basic management units and are defined as all or part of a river system or aquifer. Water bodies form part of larger River Basin Districts (RBD), for which River Basin Management Plans (RBMPs) are developed and environmental objectives are set. RBMPs are produced every six years, in accordance with the river basin management planning cycle. Cycle 2 plans were published in February 2016, and the most recent RBMP data available on the online Catchment Data Explorer is from 2019, which were due to be updated to Cycle 3 plans in 2021 but have not yet been published. The Environment Agency ran a public consultation on the draft Cycle 3 RBMP in the spring 2022 with the results to be published later in 2022. River basin management cycle 3 will run for six years concluding in 2027. At which point, it remains unclear what regulatory regime will be in place for the protection and enhancement of the water environment in England.

The WFD requires water bodies to be classified according to their current condition (i.e. the 'Status' or 'Potential,' depending on whether they are heavily modified or are classified as artificial water bodies) and to set a series of objectives for maintaining or improving conditions so that water bodies maintain or reach Good Status or Potential.

¹ Official Journal of the European Communities (2000) Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy

² The Water Environment (Water Framework Directive) (England Wales) Regulations (2017), available online at: <https://www.legislation.gov.uk/ukksi/2017/407/contents/made>

The Environment Agency is under a duty to exercise its relevant functions so as to best secure that the requirements of WFD for the achievement of environmental objectives are co-ordinated. The overall aims and objectives of the WFD as to:

- Enhance the status and prevent further deterioration of surface water bodies, groundwater bodies and their ecosystems;
- Ensure progressive reduction of groundwater pollution;
- Reduce pollution of water, especially by Priority Substances and Certain Other Pollutants;
- Contribute to mitigating the effects of floods and droughts;
- Promote sustainable water use; and
- Achieve at least good surface water status for all surface water bodies and good chemical status in groundwater bodies by 2015 (or good ecological potential in the case of artificial or heavily modified water bodies).

As a result, new schemes that have the potential to impact on current or predicted WFD status (or leading to the reduction in the class of any parameter) are required to assess their compliance against the WFD objectives of the potentially affected water bodies. In addition, where a water body is not currently at Good Ecological Status or a lesser target status where this can be justified, new schemes must also not prevent the future improvement of that water body.

In determining whether a scheme is compliant or non-compliant with the WFD objectives for a water body, the Environment Agency and partnering organisations must also consider the conservation objectives of any Protected Areas (i.e., sites designated under other EU Directives as transposed in English law such as Natura 2000 sites plus water dependent Sites of Special Scientific Interest) and adjacent WFD water bodies, where relevant.

Assessment methodology

The All Company Working Group (ACWG) has published guidance for environmental assessments of Strategic Resource Options (SROs), to enable consistency of environmental assessments. The guidance includes a framework for undertaking WFD assessments³, which includes an accompanying reporting spreadsheet tool.

The ACWG guidance identifies three WFD objectives which set out the purpose of the WFD assessment. The objectives are established from the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, and include:

- **Objective 1:** To prevent deterioration of any WFD element of any water body- in line with Regulation 13(2)a and 13(5)a;
- **Objective 2:** To prevent the introduction of impediments to the attainment of 'Good' WFD status or potential for any water body, or any assessed element. It is accepted that for some water bodies achievement of Good status or potential is currently technically infeasible or disproportionately costly. Where this is the case, the test is applied to the currently agreed objectives for that water body rather than against Good status/potential - in line with Regulation 13(2)b and 13(5)c; and

³ Set out in Mott MacDonald Limited (2021) WRE Integrated Environmental Assessment Methodology

- **Objective 3:** To ensure that the legally binding planned programme of water body Mitigation Measures in the draft Basin Management Planning (RBMP3) to protect and enhance the status of water bodies are not compromised using 2019 objectives.

SRO options are tested on their compliance with the WFD through these objectives.

The assessment process follows a two-stage approach: **Level 1 Basic Screening**, and **Level 2 Detailed Impact Screening**. Both stages of assessment are supported using the spreadsheet assessment tool which identifies the anticipated level of impacts to water bodies from a range of pre-defined activities at Level 1 and is supported by expert judgement at Level 2.

Site surveys have not been undertaken to inform these assessments at this stage, therefore expert judgement has been applied to identify how scheme activities have the potential to impact WFD quality elements, with assumed mitigation in place. The magnitude of impact and site specific impacts should be identified at further stages of the assessment through more detailed desk study and site surveys.

Level 1: basic screening

The Level 1 screening firstly identifies water bodies that have the potential to be impacted by scheme activities. WFD water bodies that have the potential to be impacted by the scheme were identified through a desk study, using freely available online resources. Further data on the water bodies and catchments has been requested from the Environment Agency through a Freedom of Information request.

The assessment tool includes a list of pre-defined activities which are reviewed against the SRO option. Each activity has an associated score from -2 to 3, which are assigned to a water body if the activity is expected to occur; the impact scores and their descriptions are provided in Table 1.

Table 1 Scoring system used in Level 1: basic screening

Impact	Impact score	Description
Very beneficial	-2	Impacts that, taken on their own, have the potential to lead to the improvement in the ecological status or potential of a WFD quality element for the entire waterbody
Beneficial	-1	Impacts that, when taken on their own, have the potential to lead to a minor localised or temporary improvement that does not affect the overall WFD status of the waterbody or any quality elements
No/minimal	0	No measurable change in the quality of the water environment or the ability for target WFD objectives to be achieved.
Low (adverse)	1	Impacts that, when taken on their own, have the potential to lead to a minor localised, short-term and fully reversible effects on one or more of the quality elements but would not result in the lowering of WFD status. Impacts would be very unlikely to prevent any target WFD objectives from being achieved.
Medium (adverse)	2	Impacts that, when taken on their own, have the potential to lead to a widespread or prolonged effect on the quality of the water environment that may result in the temporary reduction in WFD status. Impacts have the potential to prevent target WFD objectives from being achieved.
High (adverse)	3	Impacts when taken on their own have the potential to lead to a significant effect and permanent deterioration of WFD status. Potential for high impact on preventing target WFD objectives from being achieved.

The maximum impact score recorded for each water body determines whether it is taken forward for further assessment at Level 2. Therefore, if any water body attains a maximum score above 1 (i.e., at least one of the scheme activities has a medium or high impact), it is carried through to Level 2 assessment.

The activities considered in the assessment include construction works and operating impacts of the scheme. However, given the localised, short-term nature of many construction impacts, they are often screened out at Level 1 as they would not lead to WFD non-compliance.

Level 2: detailed impact screening

The Level 2 assessment firstly sets out potential impacts that may occur as a result of scheme activities. Consideration is then given to whether the potential impacts are likely to effect biological, hydromorphological, physiochemical or chemical status elements; this aspect is automated through the spreadsheet tool. The spreadsheet sets out the published cycle 2 RBMP status of each WFD status element and requires comments on the impacts of activities that have the potential to impact the status elements that are monitored for that waterbody. Assessment is also made as to whether there may be a deterioration between status classes, for monitored elements, which therefore assesses WFD Objective 1 and, whether there would be any impediments to reaching Good Ecological Status (GES) or Good Ecological Potential (GEP), which is the assessment for WFD Objective 2.

Assessment is also made and recorded on levels of data confidence and design certainty, based on professional judgement on the quality and availability of physical data and design information available at the time of the assessment. The confidence and certainty are recorded as Low, Medium or High, and comments are included within the assessment table regarding requirements for design information or data that are required to increase the confidence level.

The Level 2 assessment also provides a framework to assess the scheme components against WFD Objective 3. The spreadsheet lists the relevant categories for Reasons for Not Achieving Good (RNAG) and Programme of Measures (PoM) published by the Environment Agency for the given water body and assessment is undertaken as to whether the scheme has the potential to impact the measure. An impact score is assigned from -2 to 3, and assessment against objectives is made by considering whether the scheme: assists the attainment of water body objectives; impedes the attainment of GES or GEP; and, whether it compromises water body objectives. The assessment spreadsheet allows for the consideration of mitigation and a subsequent post-mitigation assessment score.

The summary sheet within the Level 2 assessment includes opportunity to list for each waterbody any further requirements to improve certainty of the assessment outcomes and any further mitigation that may be required.

It is noted that a Level 2 assessment is only required if a waterbody attains a maximum score above 1 in the Level 1 assessment.

Consultation

Feedback from relevant stakeholders was received on 20th May 2022 (by e-mail) in response to the methodology for the gate two assessment, details of which and the relevant responses by AECOM are provided in Table 2 and Table 3. Some of the comments refer to previous Level 1 WFD screening assessment that was carried out at gate one by another party. It is noted also that the preferred option has been amended since these comments were provided.

Table 2 Stakeholder Comments and Responses Prior to the Assessment

EA / NAU comments	Response
"The Stage 1 assessment states "The Level 1 WFD assessment indicated that the SLR and Fens Reservoir options are anticipated to have very low risks of being non-compliant with WFD objectives and do not require further assessment." Therefore, at stage 2 we will undertake a qualitative review and refresh of the Level 1 WFD	<p>Firstly, the scope of the previous WFD assessment was wider than that undertaken here given that that considered the sources as well as the proposed new pipeline. Our scope is limited to the pipeline infrastructure only and associated water treatment works/pumping stations.</p> <p>The assessment carried out at the Level 1 phase was done under the assumption that pipelines would be underground and therefore would</p>

EA / NAU comments	Response
<p>assessment prepared at Stage 1 only". How much was looked at for the transfer options at Stage 1/ level 2 for SLR/ Fens? In our comments on the SLR Environmental metrics for site fine screening report (Jan 2022) we said, "We note that the outcome of the Level 1 WFD assessments indicates that Level 2 assessments would be required on all waterbodies assessed".</p>	<p>not cross watercourses above ground or cause direct impacts. There is no indication as far as we can see that the effects of transferring water from waterbody to another in terms of changing the amount of water in the waterbody was considered as part of the assessment (i.e., it only considered the fact there would be a pipeline crossing waterbodies).</p>
<p>I note the recognition that the South Lincs and Fen Reservoir options are currently evolving and so the prospect of further WFD assessment remains open</p>	<p>Any changes to the SLR etc. would be covered by the separate WFD assessment being undertaken for that SRO. The assumption for the A2AT is that the design volume of treated water is available for transfer.</p>
<p>No further comments at this stage, however I agree with Claire's comment from section 1.36 (WFD) that a stage 2 assessment may be required.</p>	<p>A Level 2 assessment is not required at this stage given that none of the waterbodies fail the Level 1 assessment. It is recognised that a Level 2 assessment would not produce meaningful results in the absence of more detailed scheme information including proposed construction methods.</p>

Table 3 Client Comments and Responses Prior to the Assessment

Additional comments from Anglian Water 30 th May	Response
Was the potential impact on the Nene Washes SPA considered previously?	The Eastern Route has been amended to now avoid the Nene Washes SPA and SAC.
Stakeholders were particularly interested in the project addressing the impacts of river crossings by the pipelines and also on the potential for a groundwater pathway to be created by the pipelines.	<p>The impact of crossings will be considered as the primary issue for the water environment. However, without detailed information on crossing methods, which are unlikely to be available, this will have to be based on assumptions.</p> <p>For this stage it is suggested that a semi-quantitative risk assessment (RAG classification) of different sections of the route (assuming this will have a chainage) is undertaken considering:</p> <ol style="list-style-type: none"> 1. Whether pipeline is parallel, sub-parallel or perpendicular to groundwater flow (noting that gradients may be very shallow so flows may be very slight/imperceptible) 2. Depth of the pipeline 3. Permeability of sand/gravels around pipeline compared to surrounding strata/aquifer 4. Presence of GWDTE (Groundwater Dependent Terrestrial Ecosystems) and watercourses supported by baseflow <p>There may be limitations due to some data gaps that would require assumptions to be made. Where there are data gaps it is recommended that further survey/investigations are undertaken at later stages of the project.</p>

Limitations and assumptions

At the time of writing, very little detailed information is available about the design of the pipeline element of the A2AT scheme. Proposed construction methods and full details of the infrastructure are not known. Therefore, assumptions have been made about the potential construction methods, which are generally assumed to follow best practice. Details of such assumptions are included throughout the WFD screening spreadsheets, but key points are provided in the bullet points below.

- At this stage it is not known if any new or modified culverts are required. It is known that the pipeline will be below ground but temporary culverts/culvert extensions may be required for plant access, and for access to new above ground installations (AGI) (such as break tanks and pumping stations, noting that some infrastructure will be placed below ground). If required, appropriate precautions will be taken when working in the channels of or adjacent to watercourses, providing new culverts and or extending culverts, if required, to appropriately manage flood risk and the potential for deposition of silt or release of other forms of suspended material or pollution within the water column following best practice pollution prevention guidance. Temporary culverts will be in place for the minimum time and sized accordingly to the channel and flow regime expected. It is also assumed that the banks and bed will be reinstated as found or better, subject to a pre-works survey. It is assumed that permanent culverts will be avoided where possible or otherwise would only potentially be proposed on minor watercourses (with clear-span structures with abutments set back on larger watercourses). Any culverts would need to be agreed with the Environment Agency and / or Lead Local Flood Authority/Internal Drainage Board. They should be kept to a minimum length, but sized appropriately to the channel and flow regime expected, and with features to minimise adverse impacts on sediment transport, severance of biological communities etc.
- It is assumed that that Contractor will adopt the most suitable methods to manage construction site runoff (attenuation and treatment) and that this may involve bespoke, temporary sustainable drainage techniques alone or in combination with other proprietary measures.

- As the project develops a suitable drainage strategy will be required for any new or modified AGIs to ensure that there are appropriate means of capturing, attenuating and discharging surface water runoff from roofs and impermeable surfaces. Although the size of these installations is not likely to be spatially significant, it is assumed that each will involve sustainable drainage systems where appropriate to do so. The drainage strategy will need to include a water quality risk assessment to ensure that drainage systems include an appropriate treatment train depending on the level of risk (which is expected to be low).
- At this stage it is not known whether any new surface water outfalls from new or modified AGIs will be required. It is assumed that where possible existing outfalls will be used. If not possible, then we recommend that new ditchcourses are constructed to connect to the existing and natural watercourse (if infiltration is not proposed) as this avoids the need for a new engineered outfall with headwall and possibly bed scour protection. Construction works will be to a limited section of the bank but would most likely require some vegetation clearance and works in the channel. All works will need to be carried out in accordance with best practice pollution prevention measures. A flood risk activity permit would be required from the Environment Agency for works to a Main River, and a Land Drainage Consent for works to an Ordinary Watercourse from the Lead Local Flood Authority (LLFA) or Internal Drainage Board.
- In keeping with best practice, appropriate precautions will be taken when working in the channels of or adjacent to watercourses, to appropriately manage flood risk and the potential for deposition of silt or release of other forms of suspended material or pollution within the water column. However, these works are anticipated to be minor in nature.
- It is assumed that bedding material for pipelines will be constructed such that they do not form preferential pathways for groundwater flow. Information to date suggests that trenchless technology will be used where the pipeline crosses waterbodies; it is also assumed that watercourse crossings will be as perpendicular to the channel as possible whilst being carried out using a non-intrusive technique (e.g. Horizontal directional drilling, micro-tunnelling or boring) with the careful management of any dewatering within launch and receiving pits and the risk that drilling fluids 'frack out' under the watercourse (e.g. bentonite) by the application of suitable pre-works risk assessments when designing the crossing. The pipeline should be installed at sufficient depth below the natural bed of the watercourse as agreed with statutory stakeholders, but expected to be at least 1.5 m. This is to ensure that there is minimal risk of any future exposure from bed scour. For more minor watercourses it may be possible to agree with regulators that the pipeline could be installed across the watercourse using an intrusive technique involving the temporary diversion, fluming or over-pumping of the flow and excavation through the beds and bank. Locations where this is appropriate would need to be agreed with statutory consultees and would be subject to the required consents (works beneath the bed of main rivers may also require a Flood Risk Activity Permit). In addition to suitable ecology surveys and mitigation (e.g., timing of the works) a pre-works morphology survey will also be required to provide the evidence for full reinstatement once the pipe is installed. Where possible the bed and banks of the watercourse should be reinstated in an enhanced way. With landowner agreement there may be opportunities to extend enhancement works a short distance upstream and downstream of the crossing point.
- Regarding removal or decommissioning of the pipeline, risks would be similar to the original laying of the pipeline, although it is assumed that any pipe sections beneath watercourses would be left in situ (assuming they are placed sufficiently deep originally that there is no risk of ever being exposed by bed scour).

The assessments and the assumptions behind them should be reviewed as the design progresses and further details become available on the A2AT scheme and construction methods.

A.4 Baseline

The current (2019 Cycle 2 data) WFD status and a summary of key WFD quality elements is provided in Table 4 for the waterbodies assessed for the Western Route and Table 5 for the waterbodies assessed for the Eastern Route.

In total, 28 surface water bodies were assessed for the Western Route. Of the 28 waterbodies, 21 are classified as heavily modified, and one is classified as artificial, indicating that the majority of waterbodies within the assessment have been subject to notable hydromorphological modifications. Two of the waterbodies are currently at good overall ecological status or potential; one is classified as Bad, three as poor, and 21 moderate. In terms of biological status elements, there is variation within the waterbodies; two are presently at Good status, 22 at moderate, three at poor and one at bad. However, all waterbodies are currently at Fail for Chemical status elements, as all are failing for priority hazardous substances.

21 surface water bodies were assessed for the Eastern Route. Of the 21 water bodies in total, seventeen are designated as heavily modified, and two as artificial, reflecting the generally high extent of hydromorphological modifications to the water bodies in this area, as per those along the western route. One of the water bodies is currently at good overall ecological status or potential, whilst sixteen are at Moderate, three are at poor, and one is at bad status. In terms of biological status elements, one is at High status, six are at good status, eight are at moderate, four are at poor and one is at bad status (one waterbody does not have a biological classification). All water bodies are currently at Fail for Chemical status elements, as all are currently failing for priority hazardous substances.

Table 4 Summary of WFD Status of the Waterbodies Screened into the Assessment of the Western Route

Management Catchment	Operational catchment	Water body ID: Water body name	Overall water body status 2019 (overall water body objective)	Heavily modified water body (HMWB)?	Ecological	Biological quality elements	Physico-chemical quality elements	Hydromorphological Supporting elements	Specific pollutants	Chemical	Priority Hazardous Substance	Other pollutants
Welland	Welland Lower	GB105031050595: Brook Drain (including Marholm Brook)	Poor	Heavily modified	Poor	Poor	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Nene	Nene Middle	GB105032050330: Billing Brook	Bad	Not designated artificial or heavily modified	Bad	Bad	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Nene	Nene Middle	GB105032050340: Stanground Lode	Moderate	Heavily modified	Moderate	Good	Good	Supports Good	High	Fail	Fail	Does not require assessment
Nene	Nene Middle	GB105032050381: Nene – Islip to Tidal	Moderate	Heavily modified	Moderate	Good	Moderate	Supports Good	High	Fail	Fail	Good
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037490: Debden Water	Moderate	Heavily modified	Moderate	N/A	N/A	N/A	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037540: Wicken Water	Moderate	Not designated artificial or heavily modified	Moderate	Moderate	Good	Supports Good	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037550: Cam (Newport to Audley End)	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037560: Wendon Brook	Good	Heavily modified	Good	High	Good	Supports Good	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037610: Rhee (DS Wendy)	Moderate	Heavily modified	Moderate	Poor	Moderate	Supports Good	High	Fail	Fail	Good
Ouse Upper and Bedford	Ivel	GB105033037820: Millbridge and Potton Brooks	Moderate	Heavily modified	Moderate	Poor	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033038020: Whaddon Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	N/A	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033038030: Mill River	Poor	Not designated artificial or heavily modified	Poor	Poor	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033038060: Mel	Moderate	Heavily modified	Moderate	High	High	N/A	High	Fail	Fail	Does not require assessment

Management Catchment	Operational catchment	Water body ID: Water body name	Overall water body status 2019 (overall water body objective)	Heavily modified water body (HMWB)?	Ecological	Biological quality elements	Physico-chemical quality elements	Hydromorphological Supporting elements	Specific pollutants	Chemical	Priority Hazardous Substance	Other pollutants
Cam and Ely Ouse	Cam Rhee and Granta	GB105033038100: Rhee (US Wendy)	Moderate	Heavily modified	Moderate	Poor	Moderate	N/A	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033038190: Stone Brook	Moderate	Heavily modified	Moderate	Poor	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042810: Cock Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042820: Alconbury Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042830: Ellington Brook (Trib)	Moderate	Heavily modified	Moderate	N/A	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042870: Ellington Brook	Moderate	Heavily modified	Moderate	Good	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033043220: Colmworth Brook	Poor	Not designated artificial or heavily modified	Poor	Poor	Good	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033043230: Begwary Brook	Moderate	Heavily modified	Moderate	Good	Good	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033043240: Abbotsley and Hen Brooks	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033043260: Duloe Brook	Moderate	Not designated artificial or heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033043270: Kym	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033043310: Diddngton Brook	Good	Heavily modified	Good	N/A	N/A	N/A	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033047921: Ouse (Roxton to Earith)	Moderate	Heavily modified	Moderate	Good	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Old Bedford and Middle Level	Middle Level	GB205033000050: Middle Level	Moderate	Artificial	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Good
Lee Upper	Lee Upper	GB106038040130: Stort (at Clavering)	Moderate	Not designated artificial or heavily modified	Moderate	Good	Moderate	Supports Good	High	Fail	Fail	Does not require assessment

Table 5 Summary of WFD Status of the Waterbodies Screened into the Assessment of the Eastern Route

Management Catchment	Operational catchment	Water body ID: Water body name	Overall water body status 2019 (overall water body objective)	Heavily modified water body (HMWB)?	Ecological	Biological quality elements	Physico-chemical quality elements	Hydromorphological Supporting elements	Specific pollutants	Chemical	Priority Hazardous Substance	Other pollutants
Welland	Welland Lower	GB105031050595: Brook Drain (including Marholm Brook)	Poor	Heavily modified	Poor	Poor	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Nene	Nene Middle	GB105032050330: Billing Brook	Bad	Not designated artificial or heavily modified	Bad	Bad	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Nene	Nene Middle	GB105032050340: Stanground Lode	Moderate	Heavily modified	Moderate	Good	Good	Supports Good	High	Fail	Fail	Does not require assessment
Nene	Nene Middle	GB105032050381: Nene – Islip to Tidal	Moderate	Heavily modified	Moderate	Good	Moderate	Supports Good	High	Fail	Fail	Good
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037490: Debden Water	Moderate	Heavily modified	Moderate	N/A	N/A	N/A	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037550: Cam (Newport to Audley End)	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037570: Tributary of Cam	Moderate	Heavily modified	Moderate	Good	Moderate	Supports Good	N/A	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037590: Cam (Audley End to Stapleford)	Poor	Heavily modified	Poor	Poor	Moderate	Supports Good	High	Fail	Fail	Good
Cam and Ely Ouse	Cam Rhee and Granta	GB105033037610: Rhee (DS Wendy)	Moderate	Heavily modified	Moderate	Poor	Moderate	Supports Good	High	Fail	Fail	Good
Cam and Ely Ouse	Cam Rhee and Granta	GB105033038120: Hoffer Brook	Moderate	Heavily modified	Moderate	High	Moderate	N/A	High	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Lower	GB105033042680: Bin Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	N/A	Fail	Fail	Does not require assessment
Cam and Ely Ouse	Cam Lower	GB105033042690: Bourn Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	N/A	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042740: Fen Drayton Drain	Good	Heavily modified	Good	Good	N/A	Supports Good	N/A	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042770: Swavesey Drain	Poor	not designated artificial or heavily modified	Poor	Poor	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042800: Marley Gap Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033042820: Alconbury Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Old Bedford and Middle Level	Middle Level	GB105033043140: Bury Brook	Moderate	Heavily modified	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Ouse Upper and Bedford	Great Ouse Lower	GB105033047921: Ouse (Roxton to Earith)	Moderate	Heavily modified	Moderate	Good	Moderate	Supports Good	High	Fail	Fail	Does not require assessment

Management Catchment	Operational catchment	Water body ID: Water body name	Overall water body status 2019 (overall water body objective)	Heavily modified water body (HMWB)?	Ecological	Biological quality elements	Physico-chemical quality elements	Hydromorphological Supporting elements	Specific pollutants	Chemical	Priority Hazardous Substance	Other pollutants
Old Bedford and Middle Level	Old Bedford	GB205033000010: Counter Drain (Sutton and Mepal IDB incl. Cranbrook Drain)	Moderate	Artificial	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Does not require assessment
Old Bedford and Middle Level	Middle Level	GB205033000050: Middle Level	Moderate	Artificial	Moderate	Moderate	Moderate	Supports Good	High	Fail	Fail	Good
Cam and Ely Ouse	South Level and Cut-Off Channel	GB205033043375: Old West River	Moderate	Heavily modified	Moderate	Good	Moderate	Supports Good	High	Fail	Fail	Does not require assessment

A.5 Level 1 WFD assessments

Western Route

The Level 1 WFD assessment is summarised below. The outcome indicates that no further assessment is required.

Table 6 Level 1 WFD Assessment Outcomes for the Western Route

Western Route	
Number of waterbodies passing WFD assessment	28
Waterbodies passing Level 1 WFD assessment	GB105031050595: Brook Drain (including Marholm Brook) GB105032050330: Billing Brook GB105032050340: Stanground Lode GB105032050381: Nene – Islip to Tidal GB105033037490: Debden Water GB105033037540: Wicken Water GB105033037550: Cam (Newport to Audley End) GB105033037560: Wendon Brook GB105033037610: Rhee (DS Wendy) GB105033037820: Millbridge and Potton Brooks GB105033038020: Whaddon Brook GB105033038030: Mill River GB105033038060: Mel GB105033038100: Rhee (US Wendy) GB105033038190: Stone Brook GB105033042810: Cock Brook GB105033042820: Alconbury Brook GB105033042830: Ellington Brook (Trib) GB105033042870: Ellington Brook GB105033043220: Colmworth Brook GB105033043230: Begwary Brook GB105033043240: Abbotsley and Hen Brooks GB105033043260: Duloe Brook GB105033043270: Kym GB105033043310: Diddngton Brook GB105033047921: Ouse (Roxton to Earith) GB205033000050: Middle Level GB106038040130: Stort (at Clavering)
Number of waterbodies failing Level 1 WFD assessment	0

Eastern Route

The Level 1 WFD assessment is summarised below. The outcome indicates that no further assessment is required.

Table 7 Level 1 WFD Assessment Outcomes for the Eastern Route

Western Route

Number of waterbodies passing WFD assessment	21
Waterbodies passing Level 1 WFD assessment	GB105031050595: Brook Drain (including Marholm Brook) GB105032050330: Billing Brook GB105032050340: Stanground Lode GB105032050381: Nene – Islip to Tidal GB105033037490: Debden Water GB105033037550: Cam (Newport to Audley End) GB105033037570: Tributary of Cam GB105033037590: Cam (Audley End to Stapleford) GB105033037610: Rhee (DS Wendy) GB105033038120: Hoffer Brook GB105033042680: Bin Brook GB105033042690: Bourn Brook GB105033042740: Fen Drayton Drain GB105033042770: Swavesey Drain GB105033042800: Marley Gap Brook GB105033042820: Alconbury Brook GB105033043140: Bury Brook GB105033047921: Ouse (Roxton to Earith) GB205033000010: Counter Drain (Sutton and Mepal IDB incl. Cranbrook Drain) GB205033000050: Middle Level GB205033043375: Old West River
Number of waterbodies failing Level 1 WFD assessment	0

The Level 1 WFD assessment indicated that neither route is likely to have a significant risk of being non-compliant with WFD objectives. Therefore, a Level 2 assessment is not required for either route.

A.6 Conclusions

Assessment conclusions

This report provides detail on the methodology and an overview of the results of the Level 1 WFD screening assessment of the A2AT scheme at the concept design stage for gate two. The outcomes of the screening assessment are that all of the water bodies passed the assessment for both routes, meaning they have a low risk of being non-compliant with the objectives of the WFD, subject to the appropriate development of the design and implementation of mitigation measures.

However, at the time of assessment, key information about the design of the A2AT scheme and how it will be constructed and maintained was unavailable. Therefore, assumptions were made about the likely activities and the potential construction methods, which are generally assumed to follow best practices. It is therefore likely that this Level 1 assessment will require following receipt of such information as the design progresses, especially where the design and construction methods may differ from those made in this assessment. These updates may trigger the requirement for Level 2 assessments to be carried out.

Recommendations for further assessment

The Level 1 assessment should be reviewed and if necessary updated following receipt of further information. This may result in the requirement for a Level 2 assessment to be undertaken, which would consider the potential impact of the scheme on WFD quality elements, in order to assess whether there may be deterioration between status classes for monitored elements and if the scheme would impede achievement of GES or GEP. The Level 2 assessment would also assess whether the scheme may impact the current RNAG or PoM for each waterbody. Importantly, the Level 2 assessment would include details on requirements to improve confidence in the assessment.

