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Didcot Garden Town HIF 1 Scheme

Foul Sewage & Utilities Assessment

September 2021

Quality information

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1. Introduction

- 1.1.1 AECOM prepared this Foul Sewage and Utilities Assessment to provide an initial appraisal of key utility services in relation to the proposed Didcot Garden Town Housing Infrastructure Fund (HIF1) Scheme, on behalf of Oxfordshire County Council (OCC), as part of the planning application.
- 1.1.2 The planning application is seeking full planning permission for:
- the dualling of the A4130 carriageway (A4130 Widening) from the Milton Gate Junction eastwards including the construction of three roundabouts;
 - a road bridge over the Great Western Mainline (Didcot Science Bridge) and realignment of the A4130 north east of the proposed road bridge including the relocation of a lagoon;
 - construction of a new road between Didcot and Culham (Didcot to Culham River Crossing) including the construction of three roundabouts, a road bridge over the Appleford railway sidings and road bridge over the River Thames;
 - construction of a new road between the B4015 and A415 (Clifton Hampden bypass) including the provision of one roundabout and associated junctions; and
 - controlled crossings, footways and cycleways, landscaping, lighting, noise barriers and sustainable drainage systems.
- 1.1.3 AECOM has held initial discussions and consultations with affected utility service providers, and our review includes the outcomes from these consultations, along with any quotations received in response to formal enquiries.
- 1.1.4 This report does not include an assessment of surface water drainage as this is considered as part of the Drainage Strategy Report which has been submitted as part of the suite of planning application documents.

2. Methodology

2.1 Scope of Works

- 2.1.1 This Foul Sewer and Utilities Assessment identifies the location of existing services as supplied by different providers, where they are impacted within the scheme boundary, and where possible determine protection and diversion needs, with regards to existing and future need, programme, timescales and cost. The key processes are as follows:
- Consultation with utility service providers for existing assets details;
 - Establishing existing locations and routes of existing services within proximity of the site;
 - Consultation with utility providers to confirm connection points, diversions and service protection; and
 - Confirming future service connection points for future planned development.

- 2.1.2 The electrical supplies to the proposed street lighting included as part of the highway design, are to be made via Distribution Network Operator (DNO) Connections. The proposed street lighting electrical design utilises the existing supply arrangements on site, which are DNO connection to the LV networks.
- 2.1.3 No new utilities supplies are required to be provided to service any part of the proposed highway scheme.

2.2 Information and Assumptions

- Data received from statutory undertakers;
- Ground Penetration Radar survey (GPR)
- Utility information provided by stakeholders and developers
- Topographic Survey; and
- NRSWA C3 and C4 information for statutory undertakers

2.3 Limitations

- 2.3.1 The limitations are as follows:

The information, views and conclusions drawn concerning these sites are based, in part on information supplied to AECOM by other parties. AECOM has proceeded in good faith on the assumption that this information is accurate. AECOM accepts no liability for any inaccurate conclusions, assumptions or actions taken resulting from any inaccurate information supplied to AECOM.

3. Utilities Assessment

3.1 Existing Utilities

- 3.1.1 Existing utilities information are based on records received from Statutory Undertakers and GPR. The exact location, depth, size, and material of individual network infrastructure is unknown at this stage of the design and will need to be confirmed in due course. However, the information supplied by the Statutory Undertakers and used in the preparation of this assessment is appropriate and sufficient to inform planning at this stage of the process.
- 3.1.2 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0101 to 0119 show the combined utility information for each scheme detailing the approximate location of the services based on the information received from the respective companies. In addition, the Table 3.1 provides a summary of statutory undertakers that are affected as per the available information at the date of the writing of this report.

Table 3.1: Affected Statutory undertakers listed by scheme

Statutory Undertakers	A1430 Widening	Didcot Science Bridge	Didcot to Culham River Crossing	Clifton Hampden Bypass
National Grid (Electricity)		X		
Openreach	X	X	X	X
Southern Gas Network (SGN)				X
Scottish & Southern Electricity Networks (SSEN)	X	X	X	X
SSE Enterprise Telecoms (SSEET)		X	X	X
Thames Water	X		X	X
Virgin Media			X	
Vodafone	X		X	X
Gigaclear				X
CloudHQ (Instalcom)			X	X
Lumen Technologies (formerly CenturyLink)		X (Network Rail land)		

3.1.3 A brief description of each company's apparatus is listed below. A formal request for C4 budget estimates were made to each affected utility company and a copy of the estimates received have been included in Appendix A. In the instances, where C4 Estimates have not been received, the C3 estimated cost have been included.

3.1.4 Appropriate precautions must be taken prior to any excavation to identify the location of existing infrastructure because plans supplied by the utility companies show approximate routes of apparatus only and do not show private services.

3.1.5 For this assessment some private utility records were supplied by adjacent landowners and developers. A summary of how these are impacted by the works is discussed in the following sections.

3.2 Proposed Diversions

3.2.1 Following workshops, detailed discussions, sharing of information and receipt of the C4 returns from the Statutory Undertakers, Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0001 to 0019 show the combined utility information for the scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus required as a consequence of the scheme. These diversions based on the information received from the respective companies in their C4 Detailed Design returns. Plans indicating the location and extent of the existing and proposed diversions are contained in Appendix B.

3.3 Utility Service Providers

• National Grid (Electricity)

Didcot Science Bridge

3.3.1 Electricity records, provided by National Grid in Appendix B, indicate that the Didcot Science Bridge scheme is affected by below ground apparatus running north-south along A4130 through its junction with Hawksworth, continuing into a jointing bay

located in fields to the northwest of Southmead Industrial Estate. A branch of the cable runs along Hawksworth from its junction with A4130 continuing eastwards.

- 3.3.2 National Grid reviewed cross sections and long sections of the proposed scheme and confirmed that the cover to be provided to their apparatus in the final design is acceptable to them. Therefore, no diversionary works are proposed.
- 3.3.3 A National Grid jointing bay is shown in close proximity to the proposed carriageway. The jointing bay consist of several 11kV and 66kV cable joints. The location of the jointing bay is shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0106 and on the utilities plans included in Appendix B.
- 3.3.4 Discussion with National Grid Electricity have recognised that the area around an existing 66kV / 11kV cable jointing bay, must remain undisturbed during construction of the scheme and precautions must be agreed with National Grid prior to works commencing.
- 3.3.5 National Grid may have fibre links running in the area for which they do not have any asset drawings. Trial pits are to be carried out prior to construction to confirm possible fibre cable locations. During the Detailed Design stage, contact must be made with National Grid, Area Substation team leader to co-ordinate the investigatory works.

- **Openreach (BT)**

A4130 Widening

- 3.3.6 Openreach records indicate that there are underground ducts in the existing A4130 westbound footway east of Milton Gate. The ducts continue to the east along the westbound carriageway footway. The proposed carriageway layout leading to the new roundabout east of Milton Gate will clash with existing service.
- 3.3.7 Diversion have been proposed by Openreach and have returned a C4 Detailed cost estimated cost of £52,880.84, provided in Appendix A.
- 3.3.8 Plans provided by Openreach are included in Appendix B and show the existing apparatus and the proposed Diversions. The proposed works include diversion of the cable to the south of the A4130, running eastwards along the proposed shared footpath/cycleway adjacent to the westbound carriageway; before it continues across the proposed Backhill Roundabout, continuing eastwards along the proposed shared footpath/cycleway adjacent to the westbound carriageway.
- 3.3.9 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0001 to 0003 show the combined utility information for the A1430 Widening scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Didcot Science Bridge

- 3.3.10 Records provided in Appendix B indicate that there are underground services located within the proposed works and are affected in several locations. The proposed scheme crosses the Great Western Mainline and the existing A4130 on Didcot Science Bridge.
- 3.3.11 BT Openreach have ducts on the verge of the existing A4130 and Milton Road. Both these sets of ducts are to be slewed out of the way of any works required for the construction of bridge abutments. BT Openreach have a significant number of ducts and the records show a large number of chambers in the vicinity of the RWE

Gatehouse and former Didcot A power station. Many of these are non standard or not Openreach property, so may not be identified as Openreach apparatus.

- 3.3.12 Diversion have been proposed by Openreach and have returned a C4 Detailed cost estimated cost of £46,926.44, provided in Appendix A.
- 3.3.13 Within their C4 Estimate, Openreach have allowed for the lowering of ducts/cables to carriageway specification for those recorded. During the Detailed Design stage, once the location of, and the connections required to a potential relocated RWE gatehouse north of the Science Bridge Link Road alignment have been confirmed, Openreach are to be consulted on the diversions required.
- 3.3.14 Openreach also recommends that a site meeting would be advantageous along with trial holes to confirm service location due the large number of chambers and unrecorded nonstandard chambers and ducts in the Gatehouse/Purchas Road area.
- 3.3.15 The remaining two sites are near the Purchas Road roundabout, in both verges of the existing A4130 Northern Perimeter Road. The proposed works are largely the adjustment of existing chambers (as required) to accommodate the proposed layout alignment and levels.
- 3.3.16 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0004 to 0006 show the combined utility information for the Didcot Science Bridge scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Didcot to Culham River crossing

- 3.3.17 Openreach records provided in Appendix B indicate that there are existing underground services located throughout the scheme extents. Near the A4130/Collett roundabout, underground services are in the A4130 westbound verge running west-east, crossing Collett at two locations before continuing beyond the extents of the schemes on both sides of the roundabout. There are also ducted services running northwards from the A4130/Collett roundabout along Hill Farm Road turning west along Portway Road. They also continue across Appleford Level Crossing continuing northwards along the B4016 and beyond the scheme extents. There are also underground services located on the A415 Abingdon Road running westwards along the westbound verge from the point where the railway crosses the A415.
- 3.3.18 The proposed construction of the new road between Didcot and Culham will impact the existing infrastructure in several places. Openreach provided proposals for diversions and adjustment to accommodate the new road as shown in their C4 Detailed Design in Appendix B.
- 3.3.19 Diversion have been proposed by Openreach and have returned a C4 Detailed cost estimated cost of £139,030.46, provided in Appendix A.
- 3.3.20 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0007 to 0015 show the combined utility information for the Didcot to Culham River Crossing scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Clifton Hamden Bypass

- 3.3.21 Openreach records provided in Appendix B indicate that there are existing underground services located northeast of Culham Railway Station running in the general direction of Station Road; then continuing onto the A415 past its junction with Main Avenue, running northeast-northwest along the A415 southbound verge. This

service also crosses the carriageway to the north and the south of Main Avenue respectively, toward the Culham Science Centre. Then it continues along Perimeter Road to the west and along the Thame Lane verge to the east where it services the Culham Treatment Works and continues east.

- 3.3.22 The existing underground services will be impacted in several locations in the vicinity of Culham Science Centre and along Thame Lane in the locality of the Culham Treatment Works, by the proposed scheme.
- 3.3.23 Diversions have been proposed by Openreach and have returned a C4 Detailed cost estimated cost of £123,400.92, provided in Appendix A.
- 3.3.24 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 to 0019 show the combined utility information for the Clifton Hampden Bypass scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

- **Southern Gas Network (SGN)**

Didcot Science Bridge

- 3.3.25 Records provided by SGN and included in Appendix B show an underground 90mm diameter medium pressure gas main in the southern verge of the A4130 Northern Perimeter Road.
- 3.3.26 Further to discussions, SGN confirmed that the apparatus can remain in its current location subject to confirmation of apparatus location on site and detailed design of the scheme.

Didcot to Culham River crossing

- 3.3.27 Records provided by SGN and included in Appendix B show an underground 90mm diameter medium pressure gas main in the southern verge of the A4130 Perimeter Road on the approach to Collett Roundabout. A 180mm diameter medium pressure gas main continues north along the eastern verge of the proposed scheme.
- 3.3.28 Further to discussions with SGN it was confirmed that the apparatus can remain in its current location and is unaffected by the works

Clifton Hampden Bypass

- 3.3.29 Records provided by SGN and included in Appendix B show an underground 250mm diameter medium pressure gas main that crosses the A415 to north of the A415/main Avenue junction running northwards along the northbound A415 verge. It then branches westwards towards the Culham Science Centre running in fields.
- 3.3.30 The proposed scheme will impact the gas main on the A415 north of the A415/Main Avenue junction and on Thame Lane north of its junction with Main Avenue. Diversion have been proposed by SGN and have returned a C4 Detailed cost estimated cost of £154,349.91., provided in Appendix A.
- 3.3.31 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 to 0019 show the combined utility information for the Clifton Hampden Bypass scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

- **Scottish & Southern Electricity Networks (SSEN)**

A4130 Widening

- 3.3.32 SSEN's records included in Appendix B, show existing overhead 11kV lines west of Backhill Lane where cables converge from the south and west, continuing eastwards before crossing the A4130 northwards and to the east of New Farm where underground services cross the A4130 in two locations.
- 3.3.33 The proposed diversionary works include diversion of an overhead 11kV high Voltage cable into ducts across the southern arms of the proposed Backhill Roundabout, diversion of an overhead 11kV high Voltage cable east of New Farm, 11kV ducted cables from West of Old A4130 Roundabout to East of Old A4130 Roundabout. There are also Low Voltage diversions at New Farm.
- 3.3.34 SEEN provided a C3 budget cost estimate of £192,700.00 for the works, and is provided in Appendix A.
- 3.3.35 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0001 to 0003 show the combined utility information for the A4130 Widening scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Didcot Science Bridge

- 3.3.36 SSEN's records included in Appendix B, show existing 2 x 11kV underground apparatus is located northwest of A4130/Purchas Road junction in open fields adjacent to RWE's compound running east to west before 1 x11kV cable turns into the Gate house then continues westwards on leaving the gatehouse. The other 1 x 11kV cable turns southwards travelling parallel to Purchas Road.
- 3.3.37 SSEN has proposed lowering this cable in two locations, the first in the open field and the other along its length as it turns southwards travelling parallel to Purchas Road. This is to facilitate the proposed new carriageway layout.
- 3.3.38 SSEN provided a C3 budget cost estimate of £196,800.00 for the works, and is provided in Appendix A.
- 3.3.39 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0004 to 0006 show the combined utility information for the Didcot Science Bridge scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Didcot to Culham River crossing

- 3.3.40 Records supplied by SSEN and included in Appendix B, show a number of high voltage (11kV) overhead cables will be impacted along the proposed road, north of the A4130/Collett roundabout to Appleford level crossing then along the existing Access Road to FCC and Hanson. High Voltage (33kV) overhead cables cross the proposed scheme 80m north of Collett Roundabout.
- 3.3.41 Diversions are required to the existing ducted High Voltage (HV) cables in the around Collett Roundabout and then north for approximately 150m and then ducting of the existing overhead cables north to Appleford Level Crossing. Low voltage diversions are required near Collett Roundabout and at Hill Farm Appleford. An existing 11kV overhead cable will require to be ducted near Appleford Level Crossing and diversion of 11kV overhead cables is required on B4016. Diversion of 11kV overhead cables are required near Zouch Farm and north of A415 Abingdon Road.

- 3.3.42 SSEEN provided a C3 budget cost estimate of £192,700.00 for the works, and is provided in Appendix A.
- 3.3.43 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0007 to 0015 show the combined utility information for the Didcot to Culham River Crossing, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Clifton Hamden Bypass

- 3.3.44 Records supplied by SSEN and included in Appendix B, show underground apparatus on the A415 Abingdon Road near the Culham Science Centre. These services will be affected by the proposed scheme.
- 3.3.45 Diversions are required to the existing ducted HV cables north of the A415 east of Culham railway station, HV cables and Low Voltage (LV) Cables at the main entrance to Culham Science Centre and on the A415 east of Fullamoor Cottages
- 3.3.46 SEEN provided a C3 budget cost estimate of £65,600.00 for the works, and is provided in Appendix A.
- 3.3.47 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 to 0019 show the combined utility information for the Clifton Hamden Bypass, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

- **SSE Enterprise Telecoms (SSEET)**

Didcot Science Bridge

- 3.3.48 Records supplied by SSEET and included in Appendix B, show that existing underground services run north-south along the A4130 in the vicinity of the mini roundabout at the junction of A4130 and Purchas Road. These services will be impacted by the proposed works.
- 3.3.49 SSEET returned a C3 budget estimated cost for diversion works of £88 708.04. Refer to Appendix A for a copy of the C3 Estimate.
- 3.3.50 SSEET cables are carried in Vodafone ducts at this location and Vodafone have included in their C4 returns detailed estimated costs for the diversion of the ducts which are leased to SSEET. Therefore, SSEET will only have costs associated with the pulling of their fibre optic cables and service downtime costs.
- 3.3.51 SSEET have not provided any details with regards to the work required at C3 stage and have not returned a C4 Estimate.
- 3.3.52 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0004 to 0006 show the combined utility information for the Didcot Science Bridge, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Didcot to Culham River crossing

- 3.3.53 Records supplied by SSEET and included in Appendix B, show existing underground services run east-west along the westbound verge of the A4130 near the A4130/Collett roundabout, and along the A415 Abingdon Road west of Culham Station. These services will be impacted by the proposed works.
- 3.3.54 SSEET returned a C3 budget estimated cost for diversion works of £96,782.28. Refer to Appendix A for a copy of the C3 Estimate.

- 3.3.55 SSEET cables are carried in Vodafone ducts at this location and Vodafone have included in their C4 returns detailed estimated costs for the diversion of the ducts which are leased to SSEET. Therefore, SSEET will have costs associated with the pulling of their fibre optic cables and service downtime costs.
- 3.3.56 SSEET have not provided any details with regards to the work required at C3 stage and have not returned a C4 Estimate.
- 3.3.57 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0007 to 0015 show the combined utility information for the Didcot to Culham River Crossing, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Clifton Hamden Bypass

- 3.3.58 Records provided by SSEET and included in Appendix B indicate that existing underground apparatus will be affected by the proposed Clifton Hampden Bypass; located on the A415 Abingdon Road east of Culham Railway Station. SSEET have not provided any details with regards to the work required at C3 stage and have not returned a C4 Estimate.
- 3.3.59 SSEET cables are carried in Vodafone ducts at this location and Vodafone have included in their C4 returns detailed estimated costs for the diversion of the ducts which are leased to SSEET. Therefore, SSEET will only have costs associated with the pulling of their fibre optic cables and service downtime costs.
- 3.3.60 SSEET have not provided any details with regards to the work required at C3 stage and have not returned a C4 Estimate. The estimated cost provided at C3 for future work was £95,322.44. Please refer to Appendix A for a copy of the C3 Estimate.
- 3.3.61 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-00016 to 0019 show the combined utility information for the Clifton Hamden Bypass, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

- **Thames Water**

A4130 Widening

- 3.3.62 Records show an existing foul sewer that runs north-south along the Backhill Lane track continuing through the Backhill Tunnel under the existing A4130. Thames Water has confirmed following application submission, that a concrete protection slab is to be needed for approximately 47m of the 150mm diameter existing sewer during construction of the proposed road.
- 3.3.63 To the east of New Farm running north-south along the public footpath is a Thames Water distributor main. They've indicated that approximately 38m of this main is to be diverted to accommodate the new road layout.
- 3.3.64 Approximately 72.5m of Thames Water distribution main that runs north-south, north of Meadow Lane is also to be diverted, so that it crosses under the new carriageway construction.
- 3.3.65 An estimated cost of £526,948.56 has been quoted by Thames Water to complete the diversionary works. Please refer to Appendix A for a copy of the C4 Estimate provided by Thames Water.
- 3.3.66 Plans showing the existing Thames Water apparatus impacted by the scheme and the diversion proposals are included in Appendix B.

- 3.3.67 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0001 to 0003 show the combined utility information for the A4130 Widening scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Didcot to Culham River crossing

- 3.3.68 Thames Water records show existing underground foul sewers and mains water in a number of locations along the proposed route of the scheme.
- 3.3.69 Thames Water returned a Draft C4/C3 update Diversion Design and a Cost Estimate of £1,339,531.69. Please refer to Appendix A for a copy of the C4 Estimate provided by Thames Water.
- 3.3.70 Plans showing the existing Thames Water apparatus impacted by the scheme and the diversion proposals are included in Appendix B.
- 3.3.71 The Thames Water C4 Estimate detailed in this report is a Draft C4/C3 update Design and cost estimate to inform the Planning Application Submission.
- 3.3.72 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0007 to 0015 show the combined utility information for the Didcot to Culham River crossing scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

Clifton Hamden Bypass

- 3.3.73 Thames Water records, indicate that foul and mains water underground services are located in a number of locations throughout the scheme including along the A415 east of Culham Station, crossing Thame Lane in a number of places, and B4015 Oxford Road.
- 3.3.74 Thames Water returned a Draft C4/C3 update Diversion Design and a Cost Estimate of £3,215,696.61. Please refer to Appendix A for a copy of the C4 Estimate provided by Thames Water.
- 3.3.75 Plans showing the existing Thames Water apparatus impacted by the scheme and the diversion proposals are included in Appendix B.
- 3.3.76 The Thames Water Draft C4 Estimate discussed in this report is a draft C4/C3 update Design and cost estimate prepared by Thames Water to inform the Planning Application Submission.
- 3.3.77 Site surveys and investigations of existing Thames Water infrastructure will be carried out by Thames Water to confirm their Draft C4 design assumptions. Manhole and CCTV surveys will be carried out and any environmental inspections as required.
- 3.3.78 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-00016 to 0019 show the combined utility information for the Clifton Hamden Bypass, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

• **Virgin Media**

Didcot to Culham River crossing

- 3.3.79 Virgin Media records show existing underground services near the A4130/Collett roundabout. These services will be impacted by the proposed roundabout layout for the scheme. Please refer to proposed utility diversion drawings provided by Virgin Media in Appendix B for details.

- 3.3.80 Virgin Media provided a C4 Estimate for the diversion and adjustment works at this location totalling £40,299.69. Please refer to Appendix A for a copy of the C4 Estimate.
- 3.3.81 Virgin Media have confirmed that it will take approximately 12 weeks for completion of the works following issue of the C5 advanced Payment and a programme of works and start date have been agreed.
- 3.3.82 Some of the materials needed for this diversion may have a long lead delivery time and may require advanced ordering. Consideration must be given to this when programming your works. For operational reasons, six months may be necessary to programme some works.
- 3.3.83 Drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0007 to 0015 show the combined utility information for the Didcot to Culham River crossing scheme, detailing the approximate location of the existing services and proposals for the diversion of the apparatus.

- **Vodafone**

Didcot Science Bridge

- 3.3.84 Records show that there are existing underground ducts (leased to SSET) that run north-south along the A4130 past the mini roundabout at the junction of A4130 and Purchas Road, continuing northwards along A4130; and also, on the A4130 and Milton Road running west-east, east of the Old Milton Road/Milton Road junction where the proposed scheme crosses the Great Western Mainline. Please refer to proposed utility diversion drawings provided by Vodafone in Appendix B for details.
- 3.3.85 Vodafone has provided a C3 Estimate for the diversions and adjustment works at these locations totalling £148,179.74. Please refer to Appendix A for a copy of the C3 Estimate.
- 3.3.86 Vodafone are to deliver ducts to site and will supervise the laying of duct by the Principal Contractor (PC). The PC will provide all Traffic Management and will excavate and reinstate all civils work. A site survey will be required prior to commencement of diversionary works.
- 3.3.87 No opportunity for Deferral of Renewal, Betterment, or Materials Recovery has been identified.
- 3.3.88 At the time of drafting this report, Vodafone have not returned a C4 detailed design and estimate. The C4 costs associated with the Vodafone diversions is due to be returned in the near future. For the purpose of this report the C3 Budget Estimate has been used.
- 3.3.89 Utility Diversion drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0004 to 0006 shows existing utilities and the proposed diversions required as a consequence of the scheme.

A4130 Widening

- 3.3.90 Vodafone records indicate that there are ducts running along the northern verge of the existing A4130. No diversions will be required to the existing underground services for this section of the works. However, some adjustment of existing frames and levels may be required in two locations east of the A4130/Milton Gate junction. Please refer to proposed utility diversion drawings provided by Vodafone in Appendix B for details.

- 3.3.91 Vodafone estimates that these works will cost £6,661.50. A copy of the C4 Estimate provide by Vodafone is included in Appendix A.
- 3.3.92 Please refer to proposed utility drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0001 to 0003 for details.

Didcot to Culham River crossing

- 3.3.93 Records provided by Vodafone, show underground apparatus in several locations throughout this section of the scheme including along the A4130 Abingdon Road, on all four arms of the A4130/Collett roundabout, continuing northwards past Hill Farm Cottage towards the level crossing; and on the A415 Abingdon Road east of Culham Railway Station.
- 3.3.94 The proposed scheme layout will impact the existing services in a number of locations and diversionary works will be required. Please refer to proposed utility diversion drawings provided by Vodafone in Appendix B for details.
- 3.3.95 Vodafone has provided a C4 Estimate for these diversionary works totalling £82,490.76. Please refer to Appendix A for a copy of the C4 Estimate.
- 3.3.96 Please refer to proposed utility drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0007 to 0015 for details.

Clifton Hampden Bypass

- 3.3.97 Records provided by Vodafone indicate that existing underground apparatus will be affected by the proposed Clifton Hampden Bypass; located on the A415 Abingdon Road east of Culham Railway Station.
- 3.3.98 The existing apparatus runs eastwards from Culham Railway Station along the eastbound verge following the alignment of the existing carriageway. Two branches run off to the north towards the Culham Science Centre on both sides of Main Avenue, Culham Science Centre junction. The main duct continues eastwards along A415 in the eastbound verge. Ducts also run along the northbound verge of the B4105 Oxford Road.
- 3.3.99 The proposed scheme layout will impact the existing services in a number of locations diversionary works will be required. The proposals include diverting the existing cable approximately 15m across the A415 carriageway to the westbound verge, east of Station Road' western junction. It then continues eastward for approximately 450m before tie in to the existing network to the west of Culham Science Centre Access. Please refer to proposed utility diversion drawings provided by Vodafone in Appendix B for details.
- 3.3.100 Vodafone provided a C4 Estimate for these diversionary works totalling £332,177.62. Please refer to Appendix A for a copy of the C4 Estimate.
- 3.3.101 Please refer to the Proposed Combined Utility drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 to 0019 for details.

• **Gigaclear**

Clifton Hampden Bypass

- 3.3.102 Records drawings provided by Gigaclear and included in Appendix B indicate that their existing underground network will be affected in two locations by the proposed Clifton Hampden Bypass. The first is located on the A415, east of the A415 Abingdon

Road /Main Avenue, Culham Science Centre junction and the second is on the B4015 Oxford Road north of Courtiers Green, Clifton Hampden.

- 3.3.103 In the first location, the apparatus is located underground running along the westbound carriageway verge of the A415 Abingdon Road, terminating to the west of its junction with Main Avenue, Culham Science Centre, where it serves houses. Immediately, east of the junction it crosses the carriageway to the eastbound verge continuing eastwards to where it eventually crosses back to the westbound verge and continues eastbound until it turns south eastwards along High Street, Clifton Hampden. Please refer to proposed utility diversion drawings provided by Gigaclear in Appendix B for details.
- 3.3.104 The proposed layout of the new junction connecting the existing A415 Abingdon Road to the new Clifton Hampden Bypass, will clash with the existing Gigaclear cable. Gigaclear has proposed that the existing cable will need to be diverted via the new junction.
- 3.3.105 In the second location, the existing underground cable is in the northbound footway of the existing B4015 continuing northwards.
- 3.3.106 The proposed carriageway layout diverts away from the existing B4015 to form the new carriageway that will connect the existing B4015 to the proposed bypass via a 'T- junction'. To the north of this diverge, it was proposed that the existing carriageway be made redundant and converted to a footway/cycleway.
- 3.3.107 On the B4015 Oxford Road, the existing underground Gigaclear cable is to be diverted to accommodate the new road layout. A 90mm PVC duct is to be installed; to reconnect the existing cable from the B4015 northbound footway via a new road crossing to the existing cable located in the proposed footway/cycleway. At the scheme tie-in point, a 90mm PVC duct is to be provided to provide a new road crossing.
- 3.3.108 Please refer to the Proposed Combined Utility drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 to 0019 for details of existing utilities and proposed diversions. Gigaclear have estimated £26,952.55 to complete the works. A copy of the estimate has been included in Appendix A.

- **CloudHQ (Instalcom)**

Didcot to Culham River crossing

- 3.3.109 Utility records provided by Instalcom, indicate that there are fibre cables at Appleford level Crossing and along the A415 Abingdon Road west of Culham Station.
- 3.3.110 The proposed bypass road will conflict with these services at these locations. Instalcom have advised that an estimated C4 cost of £186,618.65 will be necessary to carry out the proposed diversionary work. A copy of the C4 Detailed Estimate is provided in Appendix A.
- 3.3.111 Instalcom have proposed that ducts are slewed and lowered to locations unaffected by the proposed scheme.
- 3.3.112 Please refer to the Proposed Combined Utility drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0007 to 0015 for details. A copy of the proposed C4 diversion plans are included in Appendix B.

Clifton Hampden Bypass

- 3.3.113 Utility records provided by Instalcom indicate that there are underground services situated on the northbound carriageway of the A415 in the general vicinity of the Science Centre. There are also cables in ducts on the B4015 Oxford Road.
- 3.3.114 The proposed bypass road will conflict with these services at these locations. Instalcom have advised that a C4 detailed design estimated cost of £187,897.85, will be necessary to carry out the proposed diversionary work.
- 3.3.115 Please refer to the Proposed Combined Utility drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 to 0019 for details. A copy of the Instalcom proposed C4 diversion plans are included in Appendix B.

- **Lumen Technologies (Formerly CenturyLink)**

Didcot Science Bridge

- 3.3.116 Lumen Technologies have indicated that their apparatus is located within Great Western Mainline railway corridor and therefore shouldn't be affected by the proposed works. However, the exact location and specification of the Science Bridge abutments are not known at this stage of the design; and as such the exact location of services within the railway corridor will be needed for detailed design stage.

3.4 Adjacent Landowners and Developers

A4130 Widening

- **Didcot Growth Accelerator Enterprise Zone**

- 3.4.1 Mays Properties Limited and Minscombe Properties Limited are the developers of land to the south west of the proposed Backhill Roundabout, known as Milton Interchange which forms part of the Didcot Growth Accelerator Enterprise Zone.
- 3.4.2 AECOM and the developer met on several occasions and Mays Properties Limited requested that utilities corridors are provided across the A4130 at two locations for them to utilise for any incoming utility service required in future to service the development site. The utilities corridors will include ducts for future EHV, HV, gas, potable water mains and communications. The location and layout of the utilities corridors are shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0001.

- **Valley Park**

- 3.4.1 The Valley Park development site is proposed in the area south and south west of the proposed Old A4130 Roundabout.
- 3.4.2 AECOM and the Valley Park developers met on several occasions and they requested that the scheme design includes for the provision of utility services within the proposed southern verge of the proposed A4130 to provide service connections to their development site. This includes high voltage power supply, gas supply and BT connections.
- 3.4.3 Valley Park developers also requested the proposed highway scheme accommodates diversion of utilities required to allow the development to proceed. This includes diversion of high voltage overhead power cables and diversion of Thames Water 15" trunk main.
- 3.4.4 This is to ensure that any proposed service supply or utility diversion does not require civils works to install ducts and pipes within the newly constructed highway scheme.

- 3.4.5 During detailed design of the scheme, the designer must co-ordinate with the developer, the proposed alignment of the utility supply points and existing utility diversions to ensure the proposed utilities alignment does not conflict with the proposed Didcot Science Bridge, southern abutment or piers or the proposed Old A4130 Culvert, and that they are accommodated within the highway scheme.
- 3.4.6 The alignment of the proposed utility supplies to the development and the proposed diversions are shown on drawings GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0002 and 0003.

Didcot Science Bridge

- **Former Didcot A Power Station Site**

- 3.4.7 Clowes are the developers of the former Didcot A Power Station site which is the area North of the Great Western mainline and Milton Road.
- 3.4.8 AECOM and the developer met on several occasions and Clowes provided details of the proposed utility services required to service their development site. The utilities to be provided will include ducts for future 2 no. HV duct routes, gas, potable water mains and BT Openreach. The ducts are to be located within the northern verge of the highway scheme. The location and layout of the utilities for Clowes are shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0005.

- **RWE**

- 3.4.9 The RWE development site is proposed within the former Didcot A power station site.
- 3.4.10 AECOM and RWE met on several occasions and they provided historical information on the utility infrastructure within the Didcot A power station site. This covered both Statutory Authority apparatus as well as private utility apparatus.
- 3.4.11 A review of all utilities within the site has been carried out and all apparatus considered as potentially requiring to be diverted has been shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0102.
- 3.4.12 Part of the security fencing and gates will likely be demolished as a consequence of the highway scheme. All existing comms, BT connections, CCTV, power connections, electric fence sensors and other services are currently all connected to the existing gatehouse. RWE have yet to confirm their requirements, or their preferred location, for a potential replacement gatehouse. As such the diversion design and alignment of the existing apparatus which requires to be diverted has not been developed. The diversion design can only be developed once the location of the proposed gatehouse (if any) has been confirmed.
- 3.4.13 During detailed design of the scheme, the designer must co-ordinate the proposed alignment of the utility supply points and existing utility diversions with RWE, to ensure the diversion of the utility apparatus, serves the ongoing operation of the RWE site and planned redevelopment of the site.

Didcot to Culham River crossing

- **D-Tech**

- 3.4.14 Reef Estates are the developers of the Land Development Order (LDO) D-Tech site which borders both sides of the proposed scheme from Collett Roundabout northwards for approximately 350m to the west and 770m to the east.

- 3.4.15 To service the proposed D-Tech development site Reef Estates have proposed a new water main supply from the Collett Roundabout northwards for 300m in the eastern verge and along the link road to the east. A new sewer outfall from the link road southwards for 300m to Collett Roundabout is also to be provided. Connection points to Thames Water supply points and sewer outfalls are to be confirmed by the developers.
- 3.4.16 Reef Estates also requested two services trenches are provided at approximate 100m and at 220m north of Collett Roundabout.
- 3.4.17 Locations of proposed new water supply, new sewers and service trenches are shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0107 and 0108

- **Hanson / FCC**

- 3.4.18 The proposed scheme crosses the Sutton Courtney Landfill 90 Acre remediation site. The landfill site includes a network of methane gas carrier pipes which are connected to a flare compound. There are also borehole monitoring points which will be affected by the proposed scheme. The continuity of the gas carrier network and the relocation or replacement of the installations will be finalised during the detailed design stage of the scheme following agreement of the required works with FCC.
- 3.4.19 Locations of methane gas carrier network are shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0110.

Clifton Hamden Bypass

- **Culham Science Centre**

- 3.4.20 Further to detailed discussions with representatives from Culham Science Centre, historical records of existing utilities within the facility were provided and reviewed for impact by the proposed scheme. There are a number of utility services supply the existing Culham Science Centre, the majority of which are in the vicinity of the Main Access Road.
- 3.4.21 There are a number of private surface water drainage outfall pipes which come from the facility. A clash check has been carried out to confirm if the proposed scheme will impact on the existing outfall pipes and subject to review at detailed design stage, the check indicated there will be sufficient cover to the existing pipes after scheme is constructed. Confirmation of the invert levels will be required during detailed design and monitored / protected during the works.
- 3.4.22 All Statutory Undertakers apparatus and supplies to the centre have been reviewed and diversions have been proposed as required by the impact of the proposed scheme.
- 3.4.23 A private gas supply main is shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 near the existing main access to Culham Science Centre. This gas main is shown on Culham Science Centre records as abandoned, however investigations will be required to confirm this.
- 3.4.24 Locations of existing apparatus and proposed diversions are shown on drawing GEN_PD-ACM-VUT-DGT_UTL_ZZ_ZZ-DR-T-0016 to 0019.

3.5 Estimated Utility Cost Summary

- 3.5.1 The estimated costs associated with the proposed diversions shown on the C4 Detailed Design proposals have been prepared by each of the Utility Companies and the estimated costs of the Works required, are detailed in Table 3.2.
- 3.5.2 All cost estimates shown in this report are inclusive of the NRSWA Cost Sharing discount of 18%, which is conditional on the advance payment prior to works commencing on site, as detailed in the C4 returns. All cost estimates are exclusive of VAT.
- 3.5.3 Where a C4 Detailed Estimate has not been received, The C3 Budget Estimate has been used to confirm total costs.

Table 3.2: Utility Cost Summary

Statutory Undertakers	Note	Cost
		(£) Excluding VAT *Including discounts
National Grid (Electricity)		
• Didcot Science Bridge	No works required	£0.00
Openreach		
• A4130 Widening	C4 Received	£52,880.84
• Didcot Science Bridge	C4 Received	£46,926.44
• Didcot to Culham River Crossing	C4 Received	£139,070.46
• Clifton Hampden Bypass	C4 Received	£123,400.92
Southern Gas Network (SGN)		
• Clifton Hampden Bypass	C4 Received	£154,349.91
Scottish & Southern Electricity Networks (SSEN)		
• A4130 Widening	C3 Received	£192,700.00
• Didcot Science Bridge	C3 Received	£196,800.00
• Didcot to Culham River Crossing	C3 Received	£606,800.00
• Clifton Hampden Bypass	C3 Received	£65,600.00
SSE Enterprise Telecoms (SSEET)		
• Didcot Science Bridge	C3 Received awaiting C4	£88,708.04
• Didcot to Culham River Crossing	C3 Received awaiting C4	£96,782.28
• Clifton Hampden Bypass	C3 Received awaiting C4	£95,322.44
Thames Water		
• A4130 Widening	Draft C4 received	£526,948.56
• Didcot to Culham River Crossing	Draft C4 received	£1,339,531.69
• Clifton Hampden Bypass	Draft C4 received	£3,215,696.61
Virgin Media		
• Didcot to Culham River Crossing	C4 Received	£40,299.69
Vodafone		
• A4130 Widening	C4 Received	£6,661.50
• Didcot Science Bridge	C3 Received awaiting C4	£148,179.74
• Didcot to Culham River Crossing	C4 Received	£82,490.76

• Clifton Hampden Bypass	C4 Received	£332,177.62
Gigaclear		
• Clifton Hampden Bypass	C4 Received	£26,952.55
CloudHQ (Instalcom)		
• Didcot to Culham River Crossing	C4 Received	£186,618.65
• Clifton Hampden Bypass	C4 Received	£187,897.85
Total		£7,952,796.54

Appendix A - C3 / C4 Cost Estimate

Appendix A1 – Openreach C4 Cost Estimate

Appendix A2 – SGN C4 Cost Estimate

Appendix A3 – SSEN C3 Cost Estimate

Appendix A4 – SSEET C3 Cost Estimate

Appendix A5 – Thames Water Draft C4 / C3 Cost Estimate

Appendix A6 – Virgin Media Draft C4 Cost Estimate

Appendix A7 – Vodafone Draft C4 / C3 Cost Estimate

Appendix A8 – Gigaclear C4 Cost Estimate

Appendix A9 – Instalcom C4 Cost Estimate

Appendix B - Utility Records and Diversion Plans

Appendix B1 – Openreach C4 Records and Diversion Plans

Appendix B2 – SGN C4 Records and Diversion Plans

Appendix B3 – SSEN C3 Records and Diversion Plans

Appendix B4 – SSEET C3 Records and Diversion Plans

Appendix B5 – Thames Water Draft C4 / C3 Records and Diversion Plans

Appendix B6 – Virgin Media Draft C4 Records and Diversion Plans

Appendix B7 – Vodafone Draft C4 / C3 Records and Diversion Plans

Appendix B8 – Gigaclear C4 Records and Diversion Plans

Appendix B9 – National Grid Records

Appendix B10 – Instalcom C4 Records and Diversion Plans

