Southampton to London Pipeline Project

Deadline 3

Response to Action Points from the Issue Specific Hearing on Environmental Matters on 3 December 2019 (ISH2)

Application Document: 8.20

Planning Inspectorate Reference Number: EN070005

Revision No. 1.0

December 2019

Contents

1 Response to Action Points from the Issue Specific Hearing on Environmental Matters on 3 December 2019 (ISH2)

Table 1.1: Applicants response to Action Point

Action No.	Action:	Applicant response to Action:
1	To provide a summary explaining route selection and how the route was picked with particular reference to the survey work that was undertaken prior to the selection of the route	The approach to route selection is set out in detail in Environmental Statement Chapter 4 (**Application Document APP-044**). Paragraphs 4.1.1 and 4.1.2. state '*The project design is the result of a process of iterative design development that was introduced at project inception. Environmental considerations have had a key influence on the project, with knowledge gained through the Environmental Impact Assessment (EIA) process and associated surveys, input from the engineering teams and consultees and Esso'*. '*Throughout the iterative design development process, the proposed pipeline route and above ground permanent and temporary infrastructure were systematically reviewed. This was achieved through feedback from the multi-disciplinary project team being recorded and incorporated as appropriate in the next stage of the proposed design. Examples of design adjustments include revisions made to reflect consultations and meetings with interested parties (such as land owners, local authorities and regulators), feedback from the formal consultation process, modelling or survey results (e.g. ecology surveys, flood levels, geotechnical surveys), or adding further technical design detail.'* The site surveys started in February 2018 and since work commenced on the project, over 2,000 individual surveys have been undertaken through 2018 and 2019. The site surveys, along with consultation feedback, have been used to identify constraints and options for routing the pipeline. Environmental survey work included surveys on topics such as ecology, arboriculture, landscape, heritage, botany, aquatics, watercourses, protected species and groundwater investigations. Engineering survey work has included detailed site walkovers, ground investigation, boreholes, topographical surveys, and ground penetrating radar surveys. These have been undertaken along the route with greater focus in areas that were found to have a higher concentration of constraints. The constraints from the field survey work were used at a local level to identify routing options for any given locality. For example, where sensitive habitats and protected species were identified, this was taken into

Action No.	Action:	Applicant response to Action:
		account and where possible, local routing options adopted that avoided an impact. Where avoidance of a feature proved not appropriate, information from the field survey activities was used to identify a local routing or methodology option that reduced impact, and the field survey results were also used to identify mitigation methods, for example, narrow working. The process of identifying the final routing was iterative by nature and for complex areas, such as Queen Elizabeth Park, repeat site visits were necessary, involving specific environmental technical specialists and pipeline design engineers to identify a possible route taking into account and balancing the various physical, environmental and engineering constraints. The subsequent surveys which have been undertaken in specific constrained areas through 2019 post application, are to aid in the development of construction execution planning and fine routing of the pipeline within the identified Limits of Deviation, and would not change the conclusions within the ES.
2	To provide an explanation as to how the various control documents would work together with particular reference to illustration 16.1 of Chapter 16 of the Environmental Statement (ES)[APP-056]	In the application, the Applicant collected all the good practice measures and mitigation that was identified through the EIA process into a single chapter of the Environmental Statement (ES) referred to as the Register of Environmental Actions and Commitments (REAC) (**Application Document APP-056**). This created a single repository for all the commitments contained in the ES. The REAC also identified the mechanism under the draft DCO (dDCO) that would secure the listed commitments. Some of these were embedded into the design, some of them would be implemented through the documents to be submitted for discharge under the dDCO requirements. The relevant requirements stipulated that such documents needed to reflect the REAC and therefore those commitments that were tagged for a particular document would be included in that document when it was submitted for discharge. Following the hearings that took place on 27 November and 3 and 4 December 2019, the Applicant has agreed to create outline versions of the discharge documents that contain the relevant commitments so that these can be placed in front of the Examining Authority as part of the examination and certified as part of Schedule 11 of the dDCO. The Applicant has undertaken to provide by Deadline 4 on 30 January 2020: • an Outline Landscape and Ecological Management Plan (LEMP);

Action No.	Action:	Applicant response to Action:
		• an Outline Construction Traffic Management Plan (CTMP); • an Outline Community Engagement Plan (CEP); • an Outline Surface Water and Drainage Plan (SWDP); • a more detailed Outline Construction Environmental Management Plan (CEMP); and • a revised Code of Construction Practice (CoCP) that contains more detail about construction at 'hotspots' identified at the hearings. Accordingly, the Applicant will make changes to the dDCO at Deadline 4 to ensure that: • all of the commitments currently in the REAC are contained in the dDCO itself or one of the certified documents; • the requirements in the dDCO will stipulate that documents which are submitted for discharge must follow the certified outline versions; and • following the production of outlines, it is likely that the REAC will no longer need to be a certified document in its own right. The REAC (i.e. Chapter 16 of the ES) will be updated at Deadline 4 as a continued record of all the commitments in the above documents for use during the examination but will not be updated following Deadline 4. The update will have a new illustration reflecting the changed control measures set out above.

<table>
<tr><th>Action No.</th><th>Action:</th><th>Applicant response to Action:</th></tr>
<tr><td>5</td><td>Confirm where in the ES the character of Queen Elizabeth Park is analysed</td><td>The character of Queen Elizabeth Park is analysed in the description of representative viewpoints 41 and 41a, set out in Appendix 10.3 of the ES (Application Document APP-116) as follows:

‘Surrounded by the urban extent of Farnborough, Queen Elizabeth Park is set within a broadleaved woodland to the north of Farnborough train station. Dense trees and shrubs enclose views within the park.’

The character of the park is illustrated in the two panoramic photographs provided for viewpoints 41 and 41a in Figure 10.4 of the ES (Application Document APP-064).</td></tr>
<tr><td>6</td><td>To signpost where in the Applicants response to the written questions it has been identified the total number of trees within the order limits that would be removed or to provide the answer to this question</td><td>The Applicant submitted the Tree and Hedgerow Worst Case Removal Plans at Deadline 2 (REP2-045). On sheet 1 of these plans is the Schedule of Measurements of Worst Case Tree and Hedgerow Removals which quantifies the extent of woodland removal based on the assumption used in the Environmental Impact Assessment that all vegetation within the Order Limits will be removed to facilitate the project.

<table>
<tr><th colspan="5">Schedule of measurements of worst-case tree and hedgerow removals</th></tr>
<tr><th>Section</th><th>Approximate potential removal of hedgerow to facilitate construction (restricted to 10m in accordance with Commitment O1)</th><th>Approximate potential removal of woodland field boundary to facilitate construction (restricted to 10m in accordance with Commitment O1)</th><th>Approximate potential removal of woodland areas to facilitate construction</th><th>Approximate potential targeted removal of secondary woodland for ecological benefit in accordance with Commitment HRA2</th></tr>
<tr><td>Section A</td><td>600 linear m</td><td>50 linear m</td><td>0.64ha</td><td>N/A</td></tr>
<tr><td>Section B</td><td>510 linear m</td><td>90 linear m</td><td>0.03ha</td><td>N/A</td></tr>
<tr><td>Section C</td><td>480 linear m</td><td>20 linear m</td><td>0.29ha</td><td>N/A</td></tr>
<tr><td>Section D</td><td>160 linear m</td><td>80 linear m</td><td>7.39ha</td><td>1.01ha</td></tr>
<tr><td>Section E</td><td>40 linear m</td><td>20 linear m</td><td>8.25ha</td><td>N/A</td></tr>
<tr><td>Section F</td><td>407 linear m</td><td>90 linear m</td><td>14.45ha</td><td>1.56ha</td></tr>
<tr><td>Section G</td><td>70 linear m</td><td>20 linear m</td><td>1.07ha</td><td>N/A</td></tr>
<tr><td>Section H</td><td>20 linear m</td><td>80 linear m</td><td>1.93ha</td><td>N/A</td></tr>
<tr><td>Subtotal</td><td>2287 linear m</td><td>450 linear m</td><td>34.05ha</td><td>2.57ha</td></tr>
</table>

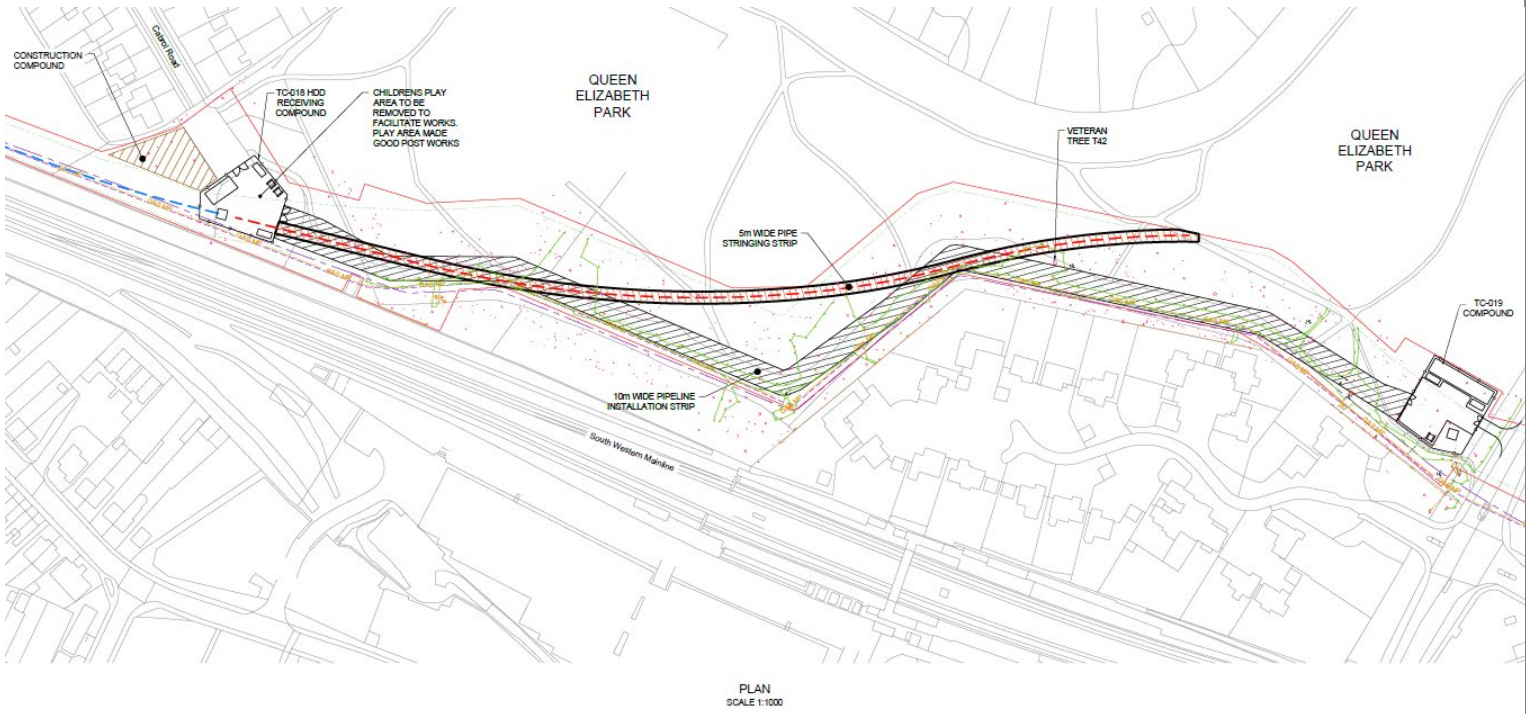
The Applicant does not anticipate clearing all the vegetation within the Order Limits, and as the Detailed Design progresses a more accurate understanding of the required tree removal will be contained in and</td></tr>
</table>

<table>
<tr><th>Action No.</th><th>Action:</th><th>Applicant response to Action:</th></tr>
<tr><td></td><td></td><td>inform the Arboricultural Management Plan secured as Requirement 6(2)(d)(ix) in the draft DCO (Document Reference 3.1 (4)).</td></tr>
<tr><td>7</td><td>Provide detail of the number of trees and the species of trees that would be lost in Queen Elizabeth Park – either in LEMP or Construction Environmental Management Plan (CEMP) or signpost to where this information has been provided</td><td>The tree survey of the intended working area within Queen Elizabeth Park as shown below was completed on 13 December 2019. The Applicant has initially identified 28 mature trees within the intended working area as shown in the Table 1.1 and Figure 1.1 below. The Applicant intends to retain as many of these mature trees as possible but further work is required to ascertain which trees may need to be removed.

The final tree survey report and an assessment of the trees that may need to be removed will be submitted at Deadline 4 and will be included in the outline CEMP.

Table 1.1 Species of mature identified
<table>
<tr><th>Species</th><th>Count</th></tr>
<tr><td>Beech</td><td>6</td></tr>
<tr><td>Goat willow</td><td>1</td></tr>
<tr><td>Hawthorn</td><td>1</td></tr>
<tr><td>Holly</td><td>2</td></tr>
<tr><td>Oak</td><td>7</td></tr>
<tr><td>Silver birch</td><td>7</td></tr>
<tr><td>Sweet chestnut</td><td>2</td></tr>
</table></td></tr>
</table>

Action No.	Action:	Applicant response to Action:
		Willow 2 TOTAL 28

Action No.	Action:	Applicant response to Action:
		Figure 1.1 – Stringing and Open Trench Area at Queen Elizabeth Park 

Action No.	Action:	Applicant response to Action:
8	Identify where in the Application the measures agreed with the Woodland Trust regarding working around Ancient Woodland, veteran and notable trees would be secured	Measures have not been agreed with the Woodland Trust regarding working around Ancient Woodland, veteran and notable trees, but rather with the Forestry Commission and Natural England. Indeed, the Woodland Trust's answers to written questions (**REP2-099**) refer to Natural England's standing advice rather than their own. The Applicant has instead agreed its approach regarding working around Ancient Woodland and veteran trees with the Forestry Commission and Natural England, as recorded in the Statements of Common Ground with those organisations (**REP2-025** and **REP1-005**). At Deadline 2, the Applicant published a Technical Note on Ancient Woodland and Veteran Trees (**REP2-061**) to reflect the steps it would carry out in relation to those two classifications.
9	Provide a written response to clarify how the equipment for the proposed auger bore pit would be delivered ie whether this would be delivered via Farnborough Road (A325) or from the proposed construction compound at Cabrol Road. If access would be via Farnborough Road signpost where in the draft Development	The Applicant has considered the views raised and confirms the intention is to utilise a temporary road access point off the A325 Farnborough Road (Work No. 8CZ) (this is a new access point to which has been added to Schedule 1 of the dDCO (**Document Reference 3.1(4))** to offload material and equipment and operate the reception pit area situated within the area to the west side of Queen Elizabeth Park. It will not be necessary for the equipment used for the trenchless crossing to utilise the route through QEP. This enables the works to be installed independently from other works being carried out in the park. This has not specifically been noted as an access point on the works plans but is within the existing order limits. The Applicant will locate the drive pit within Farnborough Hill School, therefore pipe for the trenchless crossing will be stored within the drive pit area to the east of A325 Farnborough Road and not within the park. The sketch below shows the equipment and proposed site set up for the trenchless works

Action No.	Action:	Applicant response to Action:
	Consent Order (dDCO) this access would be secured	
10	Provide a written note on the approach to trees in Queen Elizabeth Park including the results of the current tree survey work and in light of the proposed outline LEMP	The Order Limits were selected to avoid the northern section of the park in which the woodland consists of a greater number of more mature and notable trees, while in the southern section of the park the trees are more variable in age and are largely choked with dense areas of Rhododendron, an invasive non-native species that Rushmoor Borough Council has been endeavouring to eradicate. The approach to trees in Queen Elizabeth Park was initially informed by a tree walkover survey as outlined in Chapter 10 of the ES (**Application Document** APP-050). Paragraph 10.2.20 explains that '…*a targeted approach to the tree survey was undertaken by arboriculturists to record information about notable trees within 15m of the Order Limits. Notable trees are defined as prominent trees within the landscape and by nature will generally be the larger more mature specimens. Notable trees were assessed as Category A and B trees during the arboricultural survey, using the grading definitions within British Standard 5837:2012…*' The approach aims '*to capture tree data on woodlands, veteran/ancient trees and notable/mature trees that are likely to be lost or affected by the Project*' (Chapter 4, Paragraph 4.2.1 of Appendix 3 of the Scoping Report) (AS-019). The Notable Trees were shown on ES Figure 10.3 (**Application Document** APP-050) (Sheet 9) and noted in ES Appendix 10.2 (**Application Document** APP-115) which were submitted at the application. Notable Trees Plan (Sheet 41 and Sheet 42) were then submitted with the Applicant's response to the ExA's First Written Questions (REP2-045). The plans show the location of notable trees within Queen Elizabeth Park that were surveyed to inform the application. This was supplemented by the bat survey which assessed all trees for their potential to be used as bat roosts (**Application Document** APP-087 / APP-088 / APP-089) These surveys helped to inform the project design and led to the decision to adopt narrow working in Queen Elizabeth Park. This ensured that the maximum working width would be 15m through the wooded section of the park, thus reducing the amount of woodland affected, although the level of design meant the exact location of the narrow working could not be confirmed.

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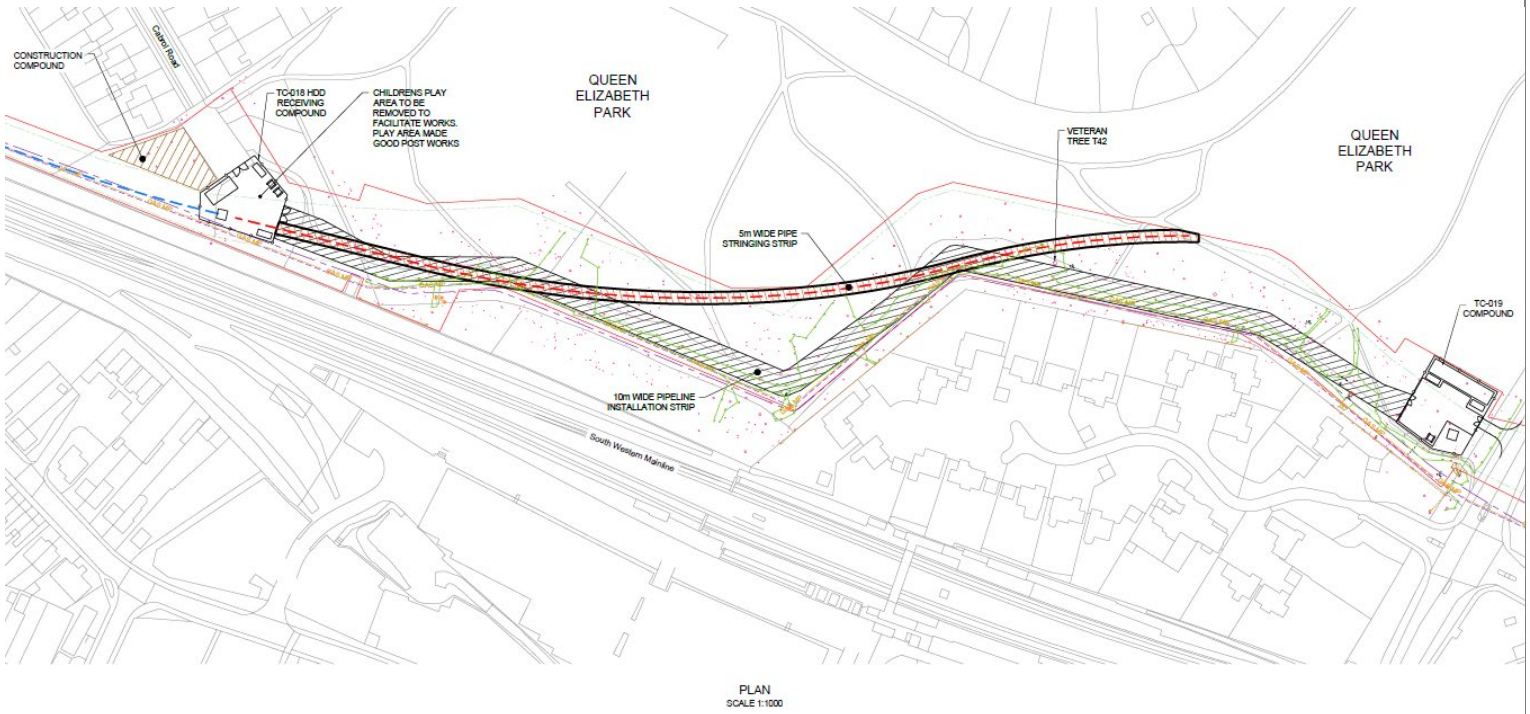
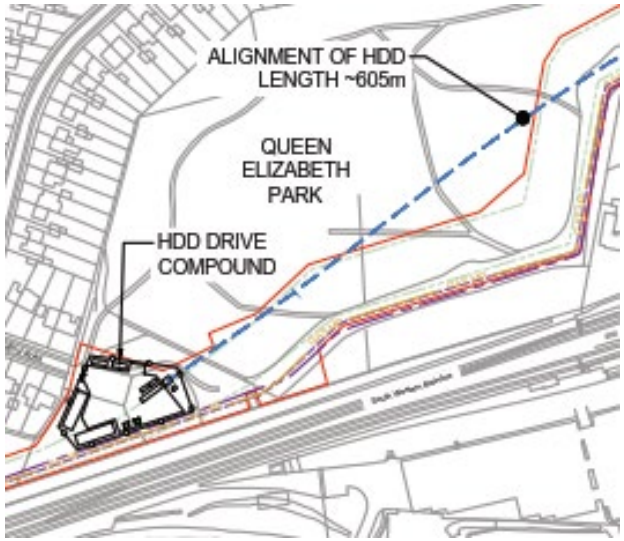
		Further design work has resulted in the project's intention to install the open trench section of the pipe in an alignment that largely follows the existing pedestrian and cycle path on the south side of the park. This working area for the pipe installation would be limited to a 10m wide working area to limit the impact on trees found on either side of the path. This intended route would mean that a significant percentage of the working area is already free of trees due to the presence of the path, the street lighting and adjacent verges to the path. As explained in the Technical Note: Ancient Woodland and Veteran Trees (**REP2-061**), *'At the time of submission of the application for Development Consent, there were no veteran trees recorded on the inventory within 15m of the Order Limits.'* However, since the application two veteran trees within 15m of the Order Limits in Queen Elizabeth Park have been added to the Woodland Trust Ancient Tree Inventory. The Applicant's approach to veteran trees explained in the Technical Note: Ancient Woodland and Veteran Trees (**REP2-061**) means, where the pipe cannot be installed outside of a Veteran trees' Root Protection Area (RPA), site-specific measures that would be employed to mitigate the effects on the RPA, for example hand digging/vacuum excavation under arboricultural supervision. These would be recorded in a method statement. The other 5m of the 15m narrow working area would be required for 'stringing' out pipe to facilitate the trenchless installation of the pipe west towards Stake's Lane. This pipe will be laid out on rollers above ground and is not expected to require the removal of any trees beyond those required for the open trench installation. In order to update the tree survey data submitted with the application, the Applicant has recently completed a supplementary tree survey to BS5837:2012, picking up all trees with a stem diameter of 75mm and above, based on topographic survey to provide a greater degree of accuracy for the park. The survey site works were completed on 16 December. The Applicant is currently preparing the final report, which will be submitted at Deadline 4. The supplementary tree survey details will be used to inform the detailed design of the pipeline and the mitigation measures. Following discussions with both Officers and Ward Councillors from Rushmoor Borough Council, the Applicant will remove the Rhododendron within the working area as this is a non-native invasive species.

Action No.	Action:	Applicant response to Action:
11	Provide written response to clarify the situation with regards to tree removal where stringing out would occur ie would trees need to be removed or could they be retained?	The Applicant will utilise a methodology for the stringing-out area which will limit the amount of vegetation and tree removal required by creating a 'workshop' area. The pipe will be delivered adjacent to the workshop area. This area will then be used to weld together pipes (12m long). As more pipes are added to form into a single long length the 'string' will be gradually drawn out, on a series of rollers and pipe supports, by means of small machinery such as six-tonne excavators and mobile power cable winches placed along the length of the stringing area. This technique will limit the need to clear wide areas and the pipe string will be able to snake around to avoid large trees and obstructions. In Queen Elizabeth Park the workshop would be located in the construction compound in the former playground area, and the pipe string (approximately 450m in length) would be positioned across the park such that large trees can be retained. The intended stringing area is shown on the sketch below (Figure 1.2) and would be further informed by the arboricultural survey.

Action No.	Action:	Applicant response to Action:
		Figure 1.2 – Narrow Working and Stringing Out Areas through QEP 

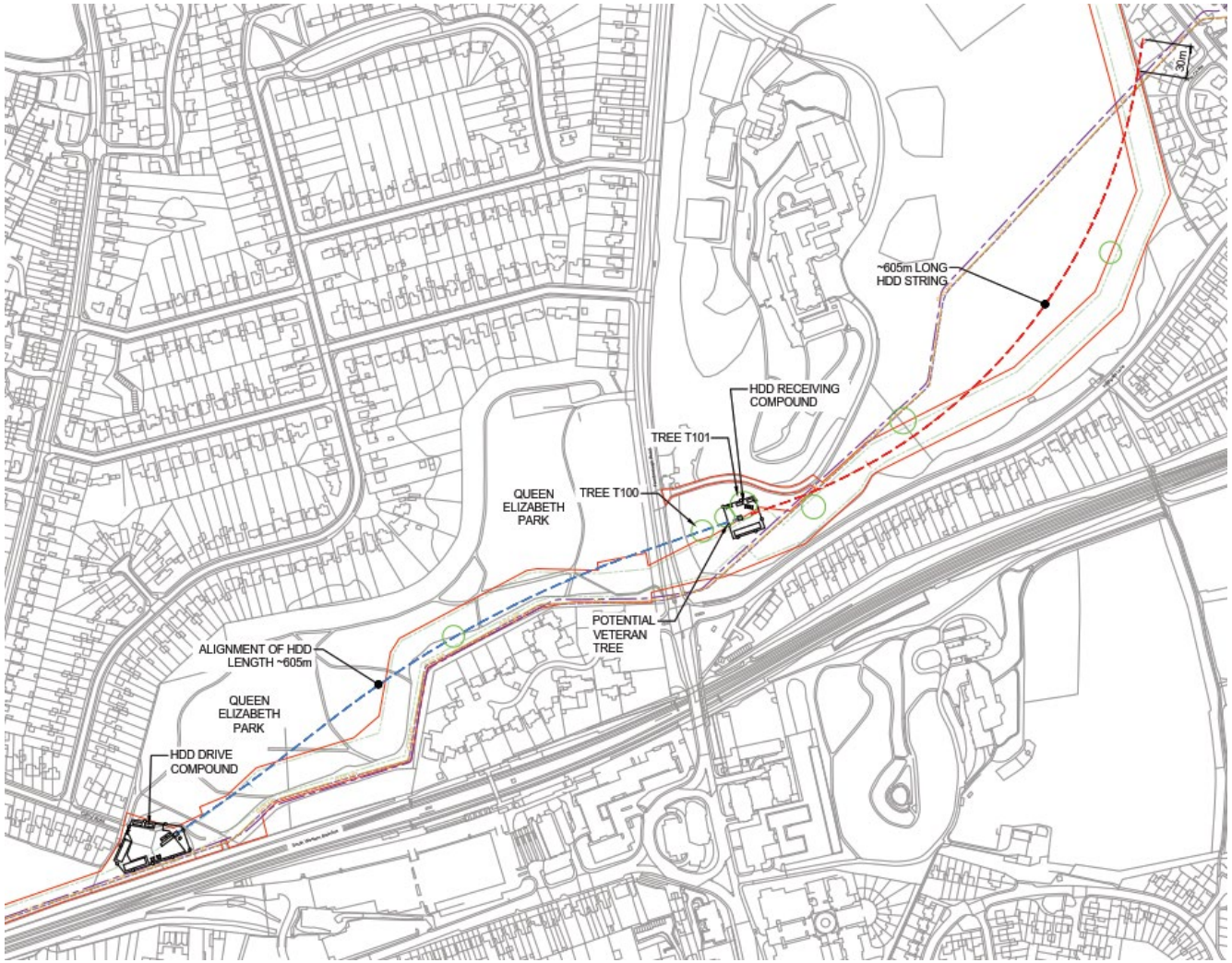
Action No.	Action:	Applicant response to Action:
12	Review the areas where narrow working widths are proposed and clarify if there are any other areas where a narrow working width is proposed where they would be separated into a 10m and a 5m section as proposed at Queen Elizabeth Park	The Applicant has produced a series of alignment sheets which show in greater detail where narrow working is utilised. The Applicant can confirm that the separation of the working areas as shown in Queen Elizabeth Park is the only area where we have this unique arrangement. In other areas we do have stringing areas running within the order limits and the widths of these have now been identified on the General Arrangement Plans and where stringing takes place within a narrow working area, it will be fully accommodated within that narrow working width. The Applicant has produced sketch Figure 1.2 above, which shows in greater detail how it is intended to work in Queen Elizabeth Park outlining the 5m and 10m working areas described.
14	Applicants to talk to representatives of Queen Elizabeth Park regarding bats in trees within the park and where the information on bats could be found in the application documents	Whilst at the examination hearings, the Applicant's Lead Ecologist spoke with a representative from the Queen Elizabeth Park group regarding the bat surveys undertaken and provided details of where the Queen Elizabeth Park specific information could be found within the application documents. This information is contained within the annex A of ES Appendix 7.7 - Bat Factual Report (Part 1 of 3) (**Application Document APP-087**).
15	Applicant to provide an assessment on whether as an alternative to open	The Applicant has undertaken studies of the potential to undertake a trenchless section of the route from the play area in QEP through to Farnborough Hill School.

Action No.	Action:	Applicant response to Action:
	cut a new trenchless section from Queen Elizabeth Park trenchless drill site in the play park to Farnborough Hill School going under most of the park and the A325 could be used	The Applicant has endeavoured to accommodate the route, however as noted below the option of using a HDD trenchless method (Option 1 & 2) would be less favourable as detailed below. In selecting the installation method in any location along the route the Applicant has had to take into account a range of considerations. The default method for installing the pipe is using open trench because this is the quickest method and provides the greatest level of certainty of delivery. The use of trenchless techniques requires working at much greater depths and regardless of ground investigation surveys there is always the risk of encountering difficult unknown geology which can cause delays and even failure of the HDD and the need to open trench. In addition the Applicant has compared the issues and impacts related to using trenchless techniques with the expected impacts of open trench. In QEP the Applicant believes that the intention to install the pipe adjacent to the existing cyclepath, to reduce the working area to 10m and its ability to retain a number of veteran and other mature trees, along with the reinstatement measures that had been agreed with Rushmoor's Officers and Elected Members, will deliver a better overall solution than a long HDD. The particular issues that relate to the alternative of an HDD from QEP to Farnborough Hill school are as follows: The HDD from Stake's Lane would still need to be strung out through QEP and this would involve some tree removal and disturbance to park users. Using the same location for an HDD to Farnborough Hill School would require the drilling area and compound in QEP to be present for a greater period of time which would delay reinstatement of the play area. In addition, for a HDD installation the compound area within QEP would need to be increased in size to accommodate all of the equipment associated with a HDD drill pit. To locate the HDD drive pit in this area of the park would require greater mobilisation of plant to the location, a larger drive compound and the potentially greater loss of trees in the south west corner. See Figure 1.3.

Action No.	Action:	Applicant response to Action:
		It also changes the nature of the work from an HDD receiving pit to a drive pit which will result in more noise, larger plant and greater disturbance. **Figure 1.3 – HDD Drive Pit Compound for drive to Farnborough Hill School options**  The HDD would require stringing out approximately 600m of pipe in the school grounds. Stringing out is not required for the currently proposed auger bore technique under the A325 and therefore would not impact the school's main playing fields. Unlike QEP, Farnborough Hill school is within the Farnborough Hill Conservation Area and accounts for approximately 50% of its area. The addition of a substantial stringing out operation as well as the required open trench works will have a greater impact on this designation. Rushmoor Borough Council has previously advised the Applicant of concerns about its impacts on the Conservation Area. Farnborough Hill school is a grade 1 listed building and the school grounds are included within this listing and the Applicant has looked to reduce the impacts on the building and its setting by aligning the open

Action No.	Action:	Applicant response to Action:
		trench works around the perimeter of the grounds in a committed narrow working area, while also avoiding the band of notable trees. The stringing out area is unlikely to be able to take a similar alignment. (See options below).

Figure 1.4 – HDD from play area in QEP to Farnborough School



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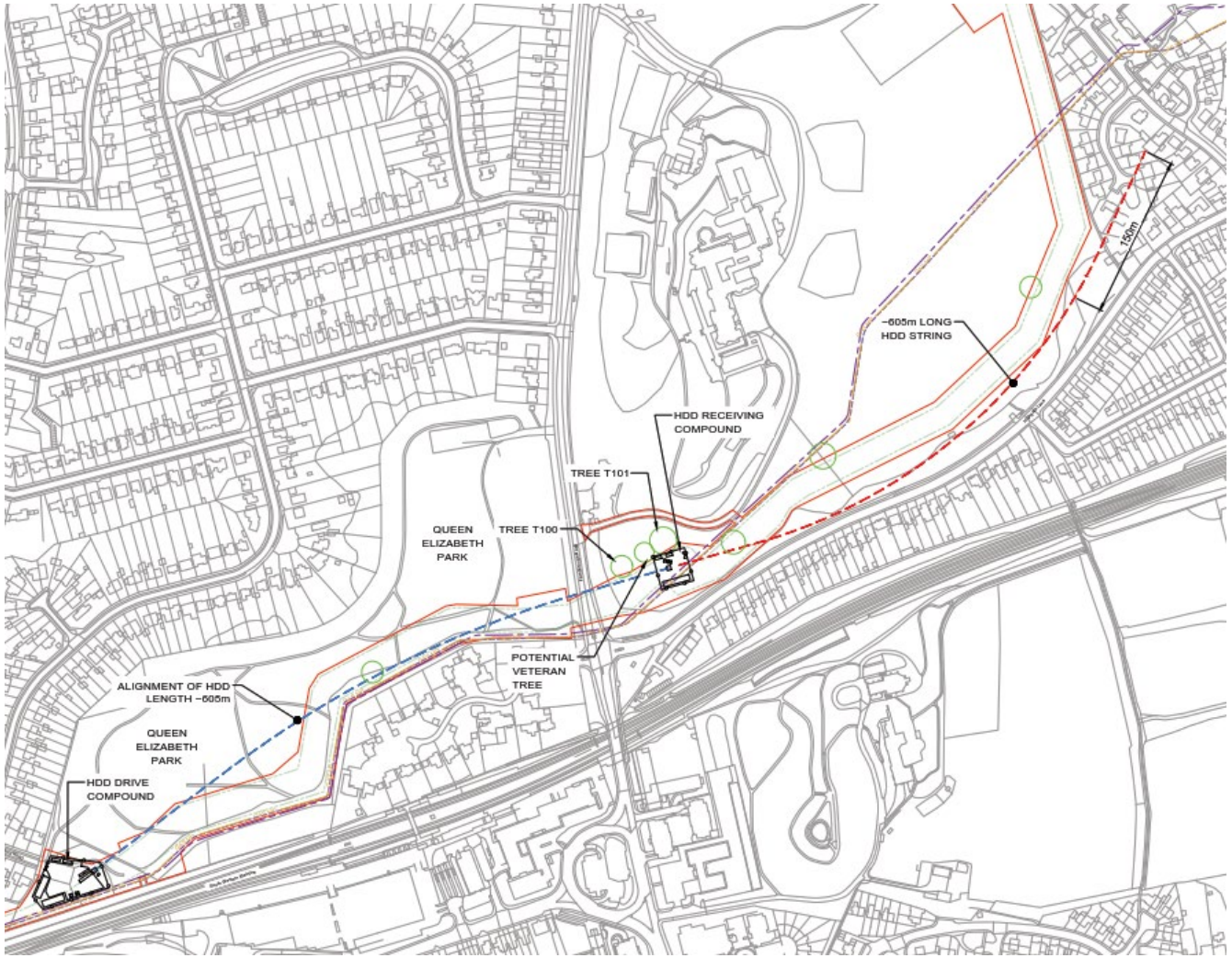
		The Applicant has been engaging with the school and one of their early requests was that, if the Applicant was installing the pipe within the school grounds, that the route should follow the perimeter of the playing fields in a narrow strip. This narrow working still affords the school open access to the majority of the main field/ grounds during the school holidays, this would allow activities to continue to take place during this period. The stringing out area is unlikely to be able to take a similar alignment. (See options below). An assessment of each of the options is as follows: HDD Option 1- Referring to the sketch (Figure 1.4) above. In order to provide sufficient stringing out distance within Farnborough Hill School (approximately 600m) the receiving compound needs to be in a location within the school ground which would likely necessitate removal of a number of trees in the southern corner of the grounds - including two Veteran Trees. Even when utilising the maximum radius bend for stringing, the string layout is shown to be approximately 30m short of the required length. This shortfall could be accommodated by moving the start point in QEP further back, out of the play area and nearer to the south east corner of the park, which would result in further tree loss. This stringing alignment would also require encroachment on the school grounds. HDD Option 2 - Referring to sketch (Figure 1.5) below. In order to reduce the potential loss of Veteran Trees in the school, this refined layout positions the receiving compound in a location that does not result in the removal of Veteran Trees, however due to the change in alignment there is insufficient stringing length, approximately 150m short. The string could potentially be broken into two sections, however welding, testing, & coating does take a number of days and whilst it is possible to restart a HDD string pull (it is standard practice to pull a string back in one continuous operation), it is has a higher risk of failure which could extend the installation period significantly and could require work to extend into the school term time.

Figure 1.5 – HDD from play area in QEP to Farnborough School – missing veterans trees



Action No.	Action:	Applicant response to Action:
		This alignment would also require the stringing area to pass through an area of notable trees on the school's southern boundary.
16	Provide a written response on what restrictions prevented the use of Farnborough Hill School to enable the use of trenchless techniques to be used through Queen Elizabeth Park	Refer to Hearing Action 15.
17	Assessment by the Applicant of the alternative route for the Queen Elizabeth Park section suggested by the Friends of Queen Elizabeth Park	The alternative route via Prospect Road has not been previously raised by other parties to the application, either as part of the public consultation or during the pre-application period. The Applicant has now considered the proposal and concludes it to be unviable for the following reasons: • Introduction of open trench street works the full length of Prospect Road from the junction with Stake lane to the roundabout with Prospect Avenue and then along the full length until the avenue meets the A325 is a distance of over 1.5km. The works would have to be undertaken with carriageway closures and the traffic being controlled with traffic management. This will lead to considerable congestion to the southern section of Prospect Road where it runs beneath the railway, primarily as this short section is already control by traffic lights. This in turn will impact on the already busy Cove Road. • At the northern end there is no viable route from the A325 junction with Prospect Ave to ultimately end up at Balmoral Drive, other than to continue with open trench street works along the A325, then crossing over at the junction where Ship Lane joins the A325. This bring the route back into the Applicant route down Ringwood road.

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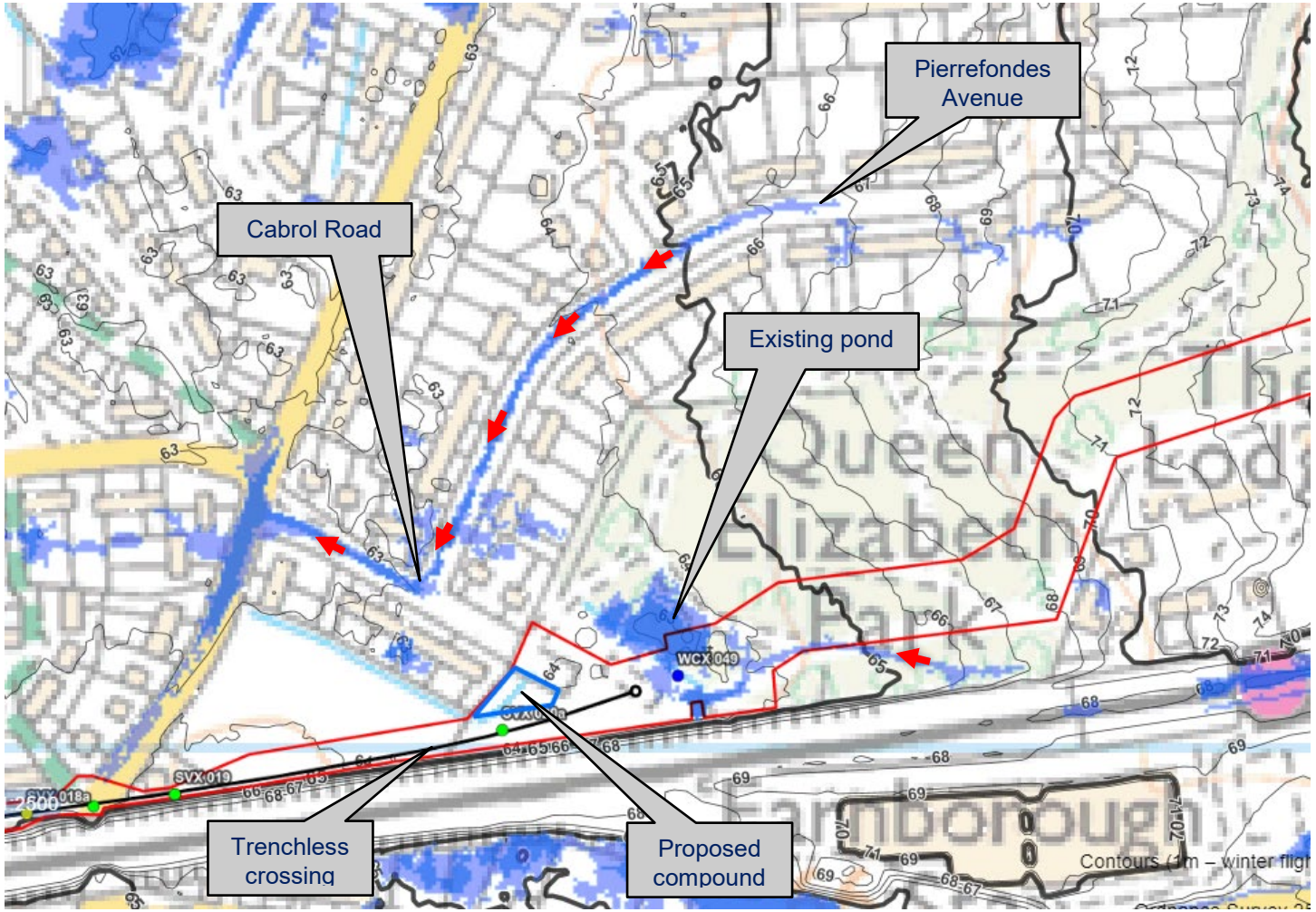
		• The route introduces a significant length of street works in an already heavily traffic congested area. • The route will require the Applicant to work in this area for a long duration as street works are considerably slower than working open areas such as parks and fields. As part of route corridor appraisal, the Applicant did consider West Heath road and a section of Prospect road, but discounted this as non-viable due to utilities congestion and taking cognisance of consultation feedback from local residents regarding previous traffic congestion linked with recent water mains replacement.
18	Drafting of a provision that in certain specific areas the construction period would be of a duration of no more than 2 years including a justification for the time period	We will incorporate this into the Code of Construction Practice (CoCP) which will be submitted at Deadline 4, to allow for engagement with the relevant stakeholders. This will address certain specific areas such as: • Suitable Natural Greenspaces (SANGs), less than 2 years; • Schools, dependant on requirements of the school (i.e. outside of term time); • Queen Elizabeth Park, intermittent duration of 12 months over a 2-year period with public access available outside of these periods; and • Turf Hill, Fordbridge, to address community concerns.
19	a) Applicant to take instruction as to how the alternative green commuter route would be secured/delivered by the Applicant given it would be on land	Pedestrians have multiple routes open in this area. The existing alternative path provides a green corridor route and there are alternative road diversions pedestrians could take. A review by the Applicant has estimated that between one and four minutes would be added to an approximate 22 to 24-minute journey time. (Using Prospect Road and Stake Lane as examples based on a diversion via Union Street). The Applicant has offered to upgrade the path, including lighting, if Rushmoor Borough Council deem it appropriate and would secure this through the land agreement. If Rushmoor accepts the Applicant's offer to carry out these works, the Applicant would deliver the upgrade in advance of the works.

Action No.	Action:	Applicant response to Action:
	outside of the Order Limits b) Provide detail of what the alternative green commuter route would consist of – lighting, surfacing and signposting and when it would be delivered	
21	Applicant and Council to continue discussions as to how, where and when the Queen Elizabeth play space would be re-provided including on a temporary basis	The Applicant has briefly discussed the issue with the Council since the Hearing and is currently preparing additional information on alternative temporary play space locations within Queen Elizabeth Park for further discussion with the Council after Deadline 3. The mechanism to secure the permanent reinstatement of the Neighbourhood Equipped Area of Play (NEAP) will be discussed at the same time. The Applicant will update the Examination in further written submissions at Deadline 4.
22	Written response on the issue with the surface water flooding on Cabrol Road and whether the proposed development could	The Risk of Flooding from Surface Water (RoFSW) mapping (Environment Agency, 2019) identifies areas at risk of surface water flooding. The RoFSW mapping identifies an overland flow path from the north along Pierrefondes Avenue southwards that could contribute to flooding in Cabrol Road (see **Figure** 1.6 below). The RoFSW mapping also identifies a smaller overland flow path from east to west in parallel to the railway through Queen Elizabeth Park. This second flow path appears to enter the pond at the western end of the

Action No.	Action:	Applicant response to Action:
	exacerbate this situation	park. When considering the 1% (1 in 100 (Medium)) Annual Exceedance Probability (AEP) extent this flow path does not appear to extend into Cabrol Road. The Rushmoor Borough Council Strategic Flood Risk Assessment (SFRA) (2015), makes no reference to flood history in relation to Cabrol Road based on historic reports provided by the Environment Agency, Hampshire County Council or Rushmoor Borough Council. In terms of the project, there would be no above-ground infrastructure at this location to result in loss of floodplain at Cabrol Road during operation. There would also be no additional impermeable surfaces introduced during the construction phase. During construction the Applicant does not anticipate having an effect on the flood flow path along Pierrefondes Avenue. The southern flow path through Queen Elizabeth Park is less defined where it enters the Order Limits and the Applicant does not anticipate its work in this area contributing to flows. While the Applicant expects to remove some trees in the southern part of the park, removal of trees would not change the nature of the ground surface, and the ground would remain permeable. Therefore, the project would not change surface water runoff rates as a result of the removal of the trees. A number of commitments have been made by the project so that the installation of the pipeline does not affect flood risk. These include: • Commitment W5: '*Topsoil and subsoil would be stockpiled for as short a duration as practicable within Flood Zone 3 and areas of High and Medium RoFSW*'. • Commitment W6: '*Stockpiles in Flood Zone 3 or areas of High or Medium RoFSW would not exceed 25m between breaks. Breaks in between stockpiles would be at least 5m. Breaks would be located opposite each other on either side of the excavation where practicable*.' • Commitment G127: '*the contractor(s) would subscribe to the Environment Agency's Floodline service which provides advance warning of potential local flooding events and subscribe to the Met Office's Weather Warnings email alerts system. The contractor(s) would implement a suitable*

Action No.	Action:	Applicant response to Action:
		flood risk action plan which would include appropriate evacuation procedures should a flood occur or be forecast'. The Applicant considers that with these measures in place, that the project would not increase flood risk to Cabrol Road. Red arrows in Figure 1.6 indicate predicted direction of overland flow based on the RoFSW mapping

Figure 1.6: Current understanding of Cabrol Road Surface Water Flood Risk based on RoFSW Mapping for 1 in 30 (dark blue) and 1 in 100 (light blue) events



Action No.	Action:	Applicant response to Action:
24	Submission of arboricultural and topographical survey for Turf Hill that has been provided to residents and the Council with covering note explaining the basis on which survey was undertaken	The arboricultural survey submitted to the Turf Hill residents and attached (Appendix 1 – 3 of this document) captures tree data at Turf Hill for trees that may be affected by the project. The results provide category and definition criteria together with information to inform tree protection during the construction phases. The survey strategy in Section 4 of Appendix 3 Survey Methodology Report of the Scoping Report (**AS-019**) outlined that the surveys aim to highlight the larger notable trees that may be impacted. For this reason, the stem diameter size has been increased from the 75mm suggested in the British Standard (BS) 5837:2012 (British Standards Institution, 2012). The topographical and arboricultural surveys of the Turf Hill study area were carried out adjacent to the residential properties north of Red Road, and residential properties on Colville Gardens and Herons Court. The purpose of the topographical survey was to establish the location of the trees and their root protection areas. A minimum size limit of 250mm stem diameter was set, as it was considered likely that smaller trees would have root protection areas that were encompassed by adjacent, larger trees. Trees within the Order Limits were surveyed. In addition, selected mature trees outside the Order Limits which could be at risk of impact were surveyed, noting that the maximum protection radius applied within BS 5837:2012 is 15m. Each individual tree was given a unique reference number based on its location within the project. The prefix 'T' was applied to individual trees as a specific reference number. The species, stem diameter, height, crown spreads, life stage, overall condition, category grading, and any observations or comments made by the surveyor were recorded.
25	Provision of a written statement between Affinity Water and Applicant clarifying the situation with regards to easements around the existing water	See attached signed written statement between Affinity Water and the Applicant clarifying the position regarding the existing 8" water main at Turf Hill, Lightwater (Appendix 4).

Action No.	Action:	Applicant response to Action:
	main across Turf Hill and restrictions regarding separation between the water main and the proposed pipeline	
26	Response on whether a reversion to route F1C at Turf Hill would be a material or non-material change to the application and if it would be a material change could such a change be made during the remainder of the Examination?	In the Applicant's view, it would be a material change, given the potential impacts on European species and European sites, and would require a reassessment and potential submission of the Habitats Regulations Assessment in order to determine potential adverse effects. Given the protection afforded to European species and European sites, the Applicant considers that this would require consultation with Regulators, landowners and the local community. The fact that F1C was consulted upon as an alternative does not change this; it is still a significant change to the application that has been made. The change could nevertheless still be proposed and made during the remaining time within the Examination, but the Applicant is not intending to make this change, given its likely greater impact on a Special Area of Conservation/Special Protection Area.
27	To verify if the Surrey Heath Management Plan has been submitted into the Examination and if not a copy to be submitted	In addition to providing the Surrey Heath Management Plan, the Applicant wishes to clarify the management arrangements of Turf Hill. The Turf Hill unit of the Thames Basins Heath Special Protection Area (SPA) and the Colony Bog and Bagshot Heath Site of Special Scientific Interest (SSSI) is managed by Surrey Heath Borough Council and not Surrey Wildlife Trust (as put forward by Surrey Heath Borough Council at the Issue Specific Hearing). This has been confirmed by Surrey Wildlife Trust to the Applicant on 4 December 2019. The Applicant corresponded and met with the Greenspace Officer (Countryside) for Surrey Heath Borough Council who the Applicant believes to be the relevant contact for the Turf Hill unit of the Thames Basins Heath SPA to discuss the project as outlined below:

Action No.	Action:	Applicant response to Action:
		• On 1 April 2019, when the Greenspace Officer was informed of the decision to select route F1a hybrid and not F1c, he stated that he was happy with this decision. • On 5 April 2019, when the Applicant met with the Greenspaces Officer, he confirmed he was happy with the sub-option selected stating that it was preferable to the original proposal that passed through the middle of Turf Hill. The following are attached to this response: • The correspondence from Surrey Wildlife Trust confirming that Surrey Heath Borough Council manage the Turf Hill unit of the SPA and SSSI (Appendix 5); • The correspondence with Surrey Heath's Greenspaces Officer on 1 April 2019 (Appendix 6); • The notes from the site meeting with Surrey Heath's Greenspaces Officer on 5 April 2019 (Appendix 7); and • Surrey Heath Borough Council's Turf Hill Park Management Plan 2015-2025 (Appendix 8).
28	Clarify when the Surrey Amphibian Reptile Group data with regards to sand lizards was available to the Applicant	Data from Surrey Amphibian and Reptile Group (SARG) on sand lizards at Turf Hill were received by the Applicant on 9 August 2018, showing presence of sand lizard records at Turf Hill. A site meeting with Natural England's reptile specialist was undertaken on 18 October 2018 to assess habitats for their suitability to support sand lizards along route options F1a and F1b/F1c.

Action No.	Action:	Applicant response to Action:
29	Confirm when the preferred route in Turf Hill was notified to the residents. In the consultation they received it was not apparent.	The Applicant concluded all public consultation activity before communicating the final route with those in the vicinity of the scheme. The Applicant sent a booklet to all properties within 50m of the Order Limits of the project (March 2019). Sub-option selection was summarised in the Design Refinements Consultation materials (January 2019), which was sent to prescribed consultees and added to the Applicant's website and included in the e-newsletter at this time. The Applicant did not consult further on the route through Turf Hill in the Design Refinements Consultation. Therefore, residents in the vicinity of Turf Hill were not included in the communications to those in the vicinity of the areas of route subject to consultation.
31	Provide copies of the correspondence between Rushmoor and Surrey Wildlife Trust regarding route selection at Turf Hill	In written and oral submissions Rushmoor Borough Council has raised concerns about the direct impacts of the project on the Thames Basin Heaths SPA and on local wildlife sites including Sites of Importance for Nature Conservation. The Surrey Wildlife Trust manages a significant proportion of the SPA. Exceptions include the Turf Hill unit which is managed by Surrey Heath Borough Council. Surrey Wildlife Trust has confirmed it supports the Applicant's view that the mitigation measures proposed for the Local Wildlife Sites are appropriate and that there will be no adverse effects on the integrity of the SPA. This is contained in the SOCG between the Applicant and Surrey Wildlife Trust submitted at Deadline 1 (**REP1-004**). In addition to this, the Applicant has been included in correspondence directly between the grouping of local authorities and Surrey Wildlife Trust in which the Trust reiterated its views on these points. The correspondence between the grouping of local authorities and Surrey Wildlife Trust (Appendix 9).
32	Explain how the decision was reached on the preferred route through balancing a	The Applicant understands that residents of Heronscourt and Colville Gardens do not agree with the route selection in this area. Following the final route release, the Applicant released an information sheet (**Application Document APP-038**) to further explain the process of route selection in this area.

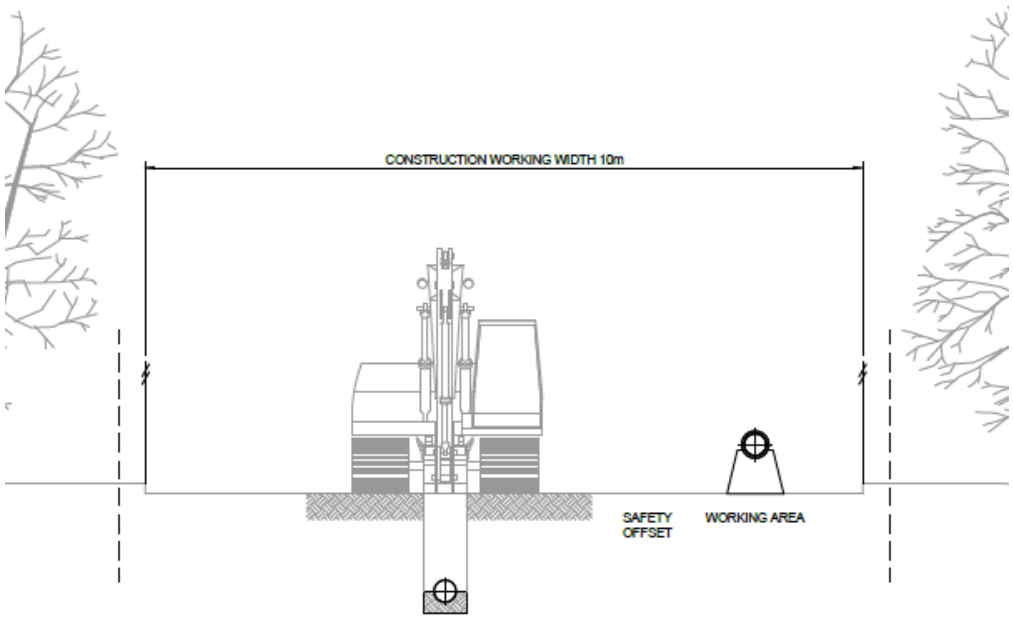
Action No.	Action:	Applicant response to Action:
	range of considerations including ecology, traffic lights, cost, timing of works and impact on residents	Since then, the Applicant has provided more detail both in the Responses to Relevant Representations (REP1-003) and the Written Questions (REP2-049). This information is summarised below. The Applicant would emphasise that there is sufficient evidence to demonstrate protected species are living in the heathland along the existing pipeline route, which has been validated by national and local environmental bodies. These have some of the highest levels of environmental protections both nationally and internationally. While it is never desirable to route through woodland, the Applicant has had to have regard to the hierarchy of designations within an area of designated heathland. Following significant consideration, engagement and consultation, the Applicant selected the route that best balances the competing environmental considerations in this sensitive area. In relation to the route selection in Turf Hill, the Applicant has had to balance the impact on the very sensitive designated sites and protected species on the one hand, with the impact of removing some trees with potential for bat habitat and the impact of construction on local residents. The constructability and the ecological impacts have been carefully balanced, and this has guided the routing of the proposed replacement pipeline and lead to the selection of the F1a/F1b hybrid route. Following the outcome of the statutory consultation, the Applicant considered carefully the issues identified and raised at consultation. Through a multi-disciplinary process, an assessment was made of the various options. As part of the consideration of the options concern was raised about the western part of route F1a given the narrowness of the track and other constraints in that area and it was determined that the route should start along F1b, which had also been the subject of consultation, joining back onto F1a by utilising an existing track. Building within a road is considered to be complex and the project was keen to minimise work in Red Road as traffic impacts were raised in consultation feedback. In balancing all the issues to determine the final selected route, significant weight was attached to the second guiding principle as option F1a would be likely to have better environmental outcomes versus the other options considered, especially relating to internationally and nationally important features along the final route. This was specifically in regard to the seasonal constraints around the ground nesting birds and the location of the primary habitat of the sand lizards. The SPA birds nest in the heathland over the Spring and Summer requiring works in that area to take place between November and February, while the sand

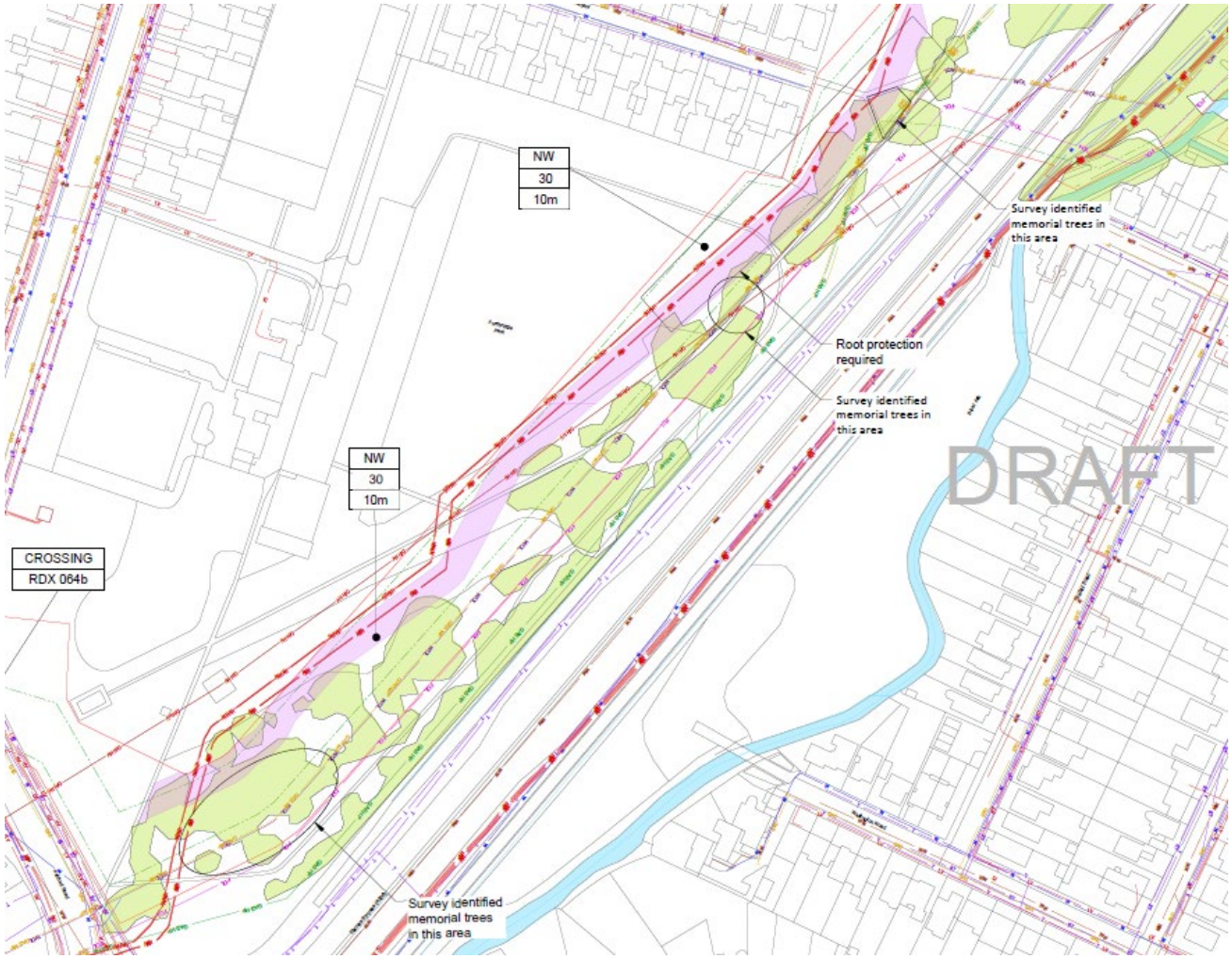
Action No.	Action:	Applicant response to Action:
		lizards will hibernate in the same habitat areas between August and March. This places a significant seasonal constraint on construction activities in the heathland to ensure no offence is committed. Other environmental issues such as construction noise and tree loss were considered, but these did not outweigh the weight given to the internationally protected species and their primary habitat. In weighing environmental matters, the view was taken that the highest form of environmental mitigation is avoidance. As there is an alternative viable route that avoids the protected species and their primary habitat, it is appropriate to select the alternative route when all other criteria are balanced.
34	Provide a note as to how the route at Chobham Common was selected and why it would appear that the approach to sand lizards was considered differently to Turf Hill	The Applicant considers its approach to sand lizards across the project to be consistent, where options to avoid environmental effects were considered prior to reducing the effects. The differing outcomes and proposals at Chobham Common and Turf Hill are due to the differing ecological baseline situations, described below. The habitat suitability survey for reptiles was undertaken at Turf Hill and Chobham Common in October 2018. This was undertaken by Jacobs ecologists and the Natural England specialist. The results of the habitat suitability survey are provided in Environment Statement Appendix 7.11 (**Application Document APP-092**). At Chobham Common, the survey results show that the habitats within the Order Limits are mainly of moderate suitability for reptile presence with relatively small and isolated areas of high potential habitat. The programme for mitigation to permit construction at Chobham Common within this mosaic of habitats would comprise relatively quick and simple measures involving habitat manipulation, taking approximately one week, with relatively small areas of trapping and translocation required. Conversely, the survey results show that the habitats at Turf Hill showed a high potential for sand lizards throughout the Order Limits for the combined F1b and F1c options. The programme for mitigation at this location to permit construction would comprise a much more complex and prolonged mitigation programme than that required at Chobham Common, as it would involve trapping and translocation of the entire F1b/F1c route option through Turf Hill. The mitigation would involve extensive fencing of the area required for construction, preventing use by the public for a minimum of two months (starting in July) prior to any vegetation removal or construction works.

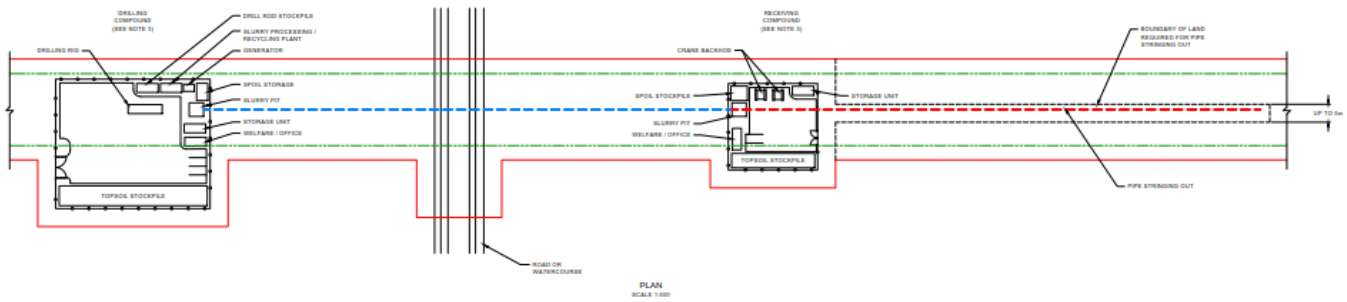
Action No.	Action:	Applicant response to Action:
		At Turf Hill, the F1a option follows an existing pathway through coniferous plantation woodland which is sub-optimal habitat for sand lizard. This would avoid the direct impact and complex mitigation required for sand lizard required for the F1b and F1c options. Further, the habitats along the central F1c route are used by the Special Protection Area (SPA) breeding birds, notably Dartford warbler, which breeds in gorse and heather, whereas the habitats along the F1a route are sub-optimal. Avoidance of the F1c route therefore also helps to reduce effects on habitats used by SPA breeding birds.
35	Provide a summary on route selection for Fordbridge Park and in particular why the route would go through the section of the park where the majority of trees are located rather than the adjacent area of open grass	When selecting the route, the Applicant looked to avoid the area of open grass to the south and the existing utility corridor towards the north edge of the park. This maximises the amount of open space available in the park. In recognition of the trees in this area (including the memorial trees) the Applicant has introduced Narrow Working techniques which would weave around the trees and overhead powerline towers in the park. The narrow working area – NW30 in Fordbridge Park is 10m width. The Applicant has provided an alignment sketch below (Figure 1.7) which shows an indicative pipe alignment and narrow working width towards the southern extent of the LOD and skirting the edge of the majority of the trees. General narrow working principles are noted below: Narrow Working @ 10m*:* • Limited turf removal and topsoil strip, to the minimum to allow the pipe to be installed; • Extensive use of ground protection track/matting or similar, to minimise turf damage; • No backfill material stored in the work area; • Utilisation of appropriately sized machinery for the given working width – non-metal tracked machines and smaller excavators; • Site fencing to utilise non-intrusive water-filled or similar base fixings so as not to impact on the surface below;

Action No.	Action:	Applicant response to Action:
		• In certain locations hand digging and other techniques will be required to reduce impacts in root protection areas; and • Trenching boxes and temporary sidewall support to be used rather than battering back (sloping) of trenches, to reduce width of trench to a minimum.

Figure 1.7 – 10m Working Width Cross Section



Action No.	Action:	Applicant response to Action:
		Figure 1.8 – Plan showing Narrow Working through Fordbridge Park 

Action No.	Action:	Applicant response to Action:
36	Provide clarification of what is meant by stringing and the activities that this would involve – with particular reference to Ashford Road	The definition of stringing the Applicant refers to in its documentation is in relation to the welded string lengths of pipe required for trenchless installations in relation to Horizontal Direction Drilling. The Applicant would utilise a methodology for the stringing out area which would limit the amount of vegetation and tree removal required by creating a 'workshop' area. The pipe would be delivered adjacent to the workshop area. This area would then be used to weld together pipes (12m long). As more pipes are added to form into a single long length, the 'string' would be gradually drawn out, on a series of rollers and pipe supports, by means of small machinery such as 6 tonne excavators and mobile power cable winches placed along the length of the stringing area. This technique would limit the need to clear wide areas and the pipe string would be able to snake around to avoid large trees and obstructions. In Ashford Road, the workshop would be in the area at the north end of Ashford Road in the location which would eventually become valve Works No. 2O, and the pipe string (approximately 270m in length) would be positioned along the verge. The below sketch shows a typical stringing area within the Order Limits. **Figure 1.9 – Plan of stringing out area** 

Action No.	Action:	Applicant response to Action:
37	Provide a written explanation as to why the Woodthorpe Road access is not being used and why Celia Crescent is being used	A resident representing Celia Crescent wrote to the Applicant both during the Design Refinements (second statutory) consultation and before the final route was released regarding this matter. At that time the Applicant considered the issue as noted below: • Celia Crescent is a narrow (it does not have a centre line) residential road and most properties have driveways with parking for two cars. • The road is accessed by delivery HGV and Council refuse lorries, both of which are of comparable size to the construction vehicles that the Applicant would use. In addition, there is an existing vehicle access gate into Fordbridge Park • The use of this access gate would have no impact on the ability for residents of Celia Crescent to access their properties. • All construction traffic would be accommodated within the trenchless work area and no vehicles would be parked in Celia Crescent. • The access point into the park is directly south of the working area and does not overly extend the Applicant's request for temporary powers significantly outside of the working area, or over any additional length of public footpaths. The Applicant considered the ExA's request to review an alternative potential access arrangement for the gate on Woodthorpe Road and notes the following: • Woodthorpe Road is a local road with a bus service, lined by residential properties and there is a residential property directly next to the park entrance. • This is a well-used pedestrian access, which is the main access on this side of the park. • There is some vegetation adjacent to the entrance which might require removal. • Potentially need either a bell mouth or traffic management to maintain a fence boundary to the park.

Action No.	Action:	Applicant response to Action:
		• When the Applicant discussed the access arrangements with Surrey County Highway Department and Spelthorne Borough Council, there was a preference not to access the works from Woodthorpe Road. Notwithstanding the bullet points above, at the Issue Specific Hearing on the 4 December 2019, the Applicant agreed to reconsider access to the Park from Woodthorpe Road. The Applicant will consult with both Spelthorne Borough Council and Surrey Highways Authority and will report progress to the Examining Authority through Statements of Common Ground.
39	SDNPA and the Applicant to provide further information on the proposals for the Persuasion hedge and details of how the measures required for its retention/protection would be secured	The Applicant issued a draft methodology for the crossing of HCX130 to the South Downs National Park Authority (SDNPA) for comment on 12 Dec 2019, which is attached (see Appendix 10 Technical Note - Hedge HCX 130). This will be a commitment within the Code of Construction Practice (CoCP) once the methodology has been agreed with SDNPA.

2 References

British Standards Institution (2012). BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations. London: British Standards Institution.

Appendix 1: Arboricultural Survey for Turf Hill - Covering Letter

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[redacted]
info@slpproject.co.uk

Southampton to London Pipeline Project

Dear Sir or Madam,

Esso's Southampton to London Pipeline Project – Arboricultural Survey in Turf Hill

As you may be aware, we accelerated our arboricultural survey of trees in Turf Hill, both within and outside of the Order Limits of our route for the replacement underground pipeline. The survey is now complete and the results are enclosed.

The survey was undertaken by a specialist arboricultural team and the results are presented in a technical report. To help you understand these results, we have provided some guidance below.

What is an arboricultural survey?

Arboricultural surveys assess the physiological and structural condition of a tree, its size, age, condition and an estimate of its height and root protection area. A root protection area is calculated to indicate the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability.

A qualified arboriculturalist surveyed each tree with a stem diameter greater than 250mm in accordance with British Standard 5837:2012.

What do the results show?

The report provides information about each tree (with a stem diameter over 250mm) within the Order Limits of the route, as well as those trees on the perimeter of the Order Limits. Each tree has been numbered (for example T1), key information has been captured and a category has been assigned in line with the British Standard (BS) for trees.

Enclosed within the report is a map, which shows the trees in the vicinity of the route in Turf Hill. Each blue, grey and red dot surrounded by a circle represents a tree, with the circle representing the crown of the tree. The additional pink circles represent the calculated root protection area of each tree. The trees are numbered on the map and more information about each tree can be found in the main report.

On the map the orange dashed lines represent a fence or gate, the solid green/yellow lines represent the unsurfaced path, and the brown dashed line represent the embankment.

Please find below and overleaf a summary of the BS categories as used in the report.

British Standard (BS) category	Colour on map	Description
B	Blue	Tree is of moderate quality and value with at least 20 years remaining life expectancy
C	Grey	Tree is of low quality and value with at least 10 years remaining life expectancy, or is a young tree with a stem diameter below 150mm

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Southampton to London Pipeline Project

U	Red	Tree is unsuitable for retention, as its condition is such that it cannot be realistically retained in the context of the current land use for longer than 10 years Note, category U trees can have existing or potential conservation value which it may be desirable to preserve

What are the results used for?

The installation team will plan where to place the pipeline within the Limits of Deviation. A number of factors will be used to select the final location for the pipeline, including the results of the tree survey and other factors such as ground conditions.

This information, along with the working methods set out in the Code of Construction Practice, the Construction Environmental Management Plan and the Arboricultural Mitigation Strategy, will shape the type of installation techniques used in the area. The chosen pipeline location and the installation techniques will then inform the likely duration and timing of the works.

We hope that you have found this guidance helpful. If you have any further questions, please do not hesitate to get in touch.

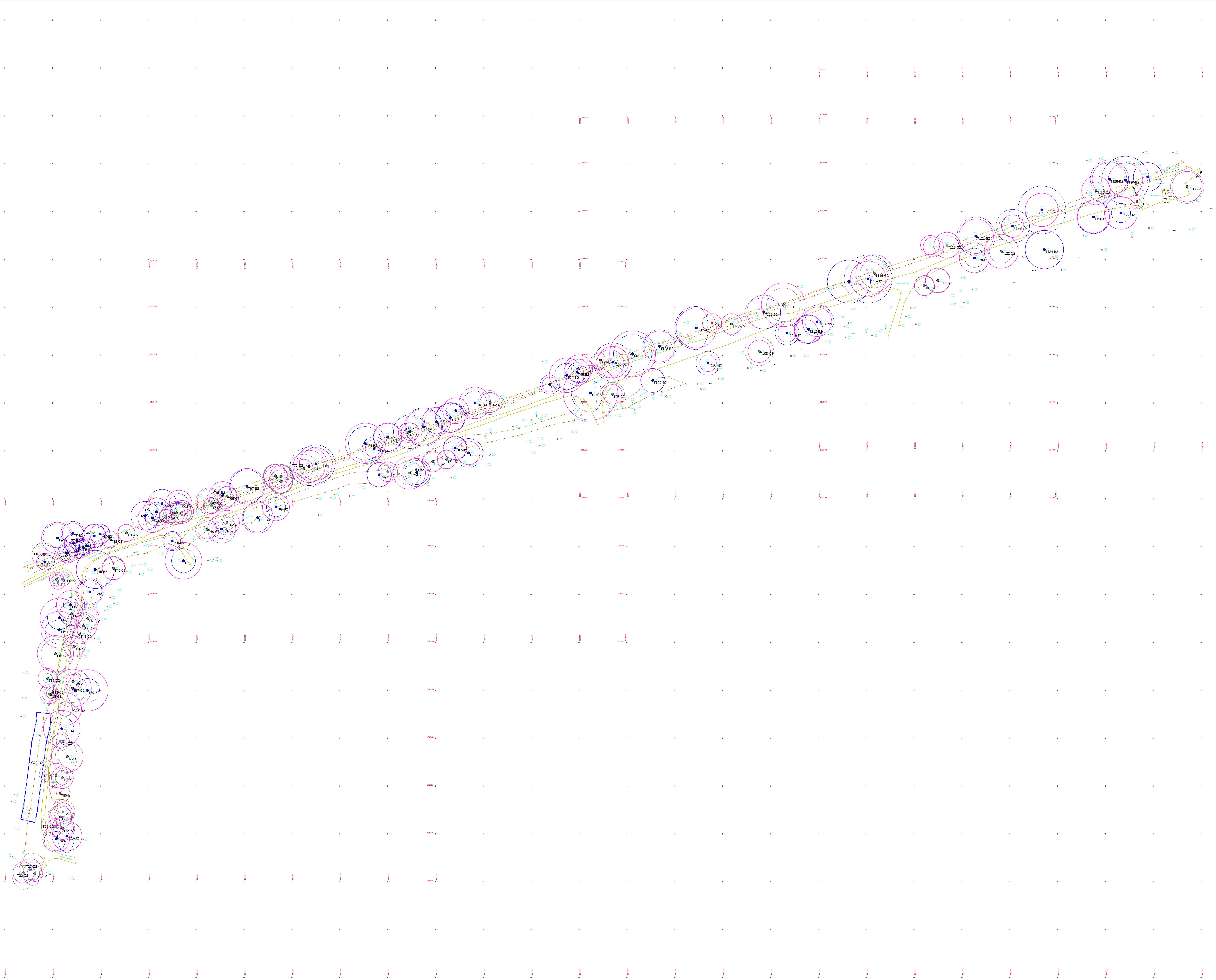
Yours sincerely,

[redacted]

Tim Sunderland

Southampton to London Pipeline Project Executive

Appendix 2: Arboricultural Survey for Turf Hill - Tree Constraints Plan



KEY

- Existing Tree or Group colour referenced in accordance with BS 5837:2012 as shown below
- Existing hedge or group colour coded as above in accordance with BS 5837.
- Blue - Category B tree of moderate quality and value.
- Grey - Category C tree of low quality and value.
- Red - Category U tree of poor quality and value.
- Blue - Cat B Groups/hedges of moderate quality and value.
- Grey - Cat C Groups/hedges of low quality and value.
- Root Protection Area as calculated in accordance with BS 5837:2012

GENERAL NOTES

-ALL DIMENSIONS IN MILLIMETRES
-DO NOT SCALE OFF THIS DRAWING
-ALL DIMENSIONS TO BE CHECKED ON SITE

REV.	DATE	INITIALS	DETAILS
.	.	.	.

CLIENT	DWG. TITLE
JACOBS UK LTD	TREE CONSTRAINTS PLAN

SITE: SLP PIPELINE - GUILDFORD ROAD, LIGHTWATER

PURPOSE OF ISSUE: -

DRG BY	CHECKED	AUTH'D	SCALE	DATE	DWG NO.	REV.
SAS	JBA	JBA	1:500 @A0	12.07.2019	JBA 19/172 TC01	-

JAMES BLAKE ASSOCIATES
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LANDSCAPE ARCHITECTURE o ARBORICULTURE o ECOLOGY

Appendix 3: Arboricultural Survey for Turf Hill - Tree Survey Schedule

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Tree Survey Schedule - Key

Life Stage	Description
NP	Newly planted
Y (Young)	An establishing tree that could be easily transplanted.
SM (Semi Mature)	An established tree still to reach its ultimate height and spread and with considerable growth potential.
EM (Early Mature)	A tree reaching its ultimate height and whose growth is slowing however it will still increase considerably in stem diameter and crown spread.
M (Mature)	A tree with limited potential for further significant increase in size although likely to have a considerable safe useful life expectancy.
OM (Over Mature)	A senescent or moribund tree with a limited useful life expectancy.
V (Veteran)	A tree older than typical for the species and of great ecological, cultural or aesthetic value.

Abbreviations	Description
Stem Ø (mm) at 1.5m	Diameter of stem in millimetres at 1.5m above ground level for single-stemmed trees or in accordance with Annex C of BS 5837 for multi-stemmed trees or trees with low forks or irregular stems.
Stems	Numbers of stems or M/S = Multi-Stemmed.
Height of (FSB)	Height of First Significant Branch above ground level.
Crown Spread **NSEW**	Crown spread at the four points, North, South, East and West.
Condition	Condition of the tree observed at the time of surveying G = Good; F = Fair; P = Poor; D = dead

Est Remaining Contribution (Years)	Estimated Remaining Contribution in Years (<10, 10+, 20+, 40+)

BS Category	Description
A	High quality and value (non-fiscal) with at least 40 years remaining life expectancy.
B	Moderate quality and value with at least 20 years remaining life expectancy.
C	Low quality and value with at least 10 years remaining life expectancy, or young trees with a stem diameter below 150 mm.
U	Unsuitable for retention. The existing condition is such that the tree/ trees cannot be realistically retained as in the context of the current land use for longer than 10 years. Note, category U trees can have existing or potential conservation value which it might be desirable to preserve.
Radii Single Stem (m)	Root Protection Radius in metres based on stem diameter.
RPA	Root Protection Area. A layout design tool indicating the minimum area surrounding the tree that contains sufficient rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. Assessed according to the recommendations set out in clause 4.6 of BS 5837. It is calculated by multiplying the radius squared by 3.142. Clause 4.6.2 of BS 5837 states that the RPA may be changed in shape, taking into account local site factors, species tolerance, condition and root morphology.

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Associate Directors: Vivienne Jackson : Jenny Beck BA (Hons) : Marie Lowe

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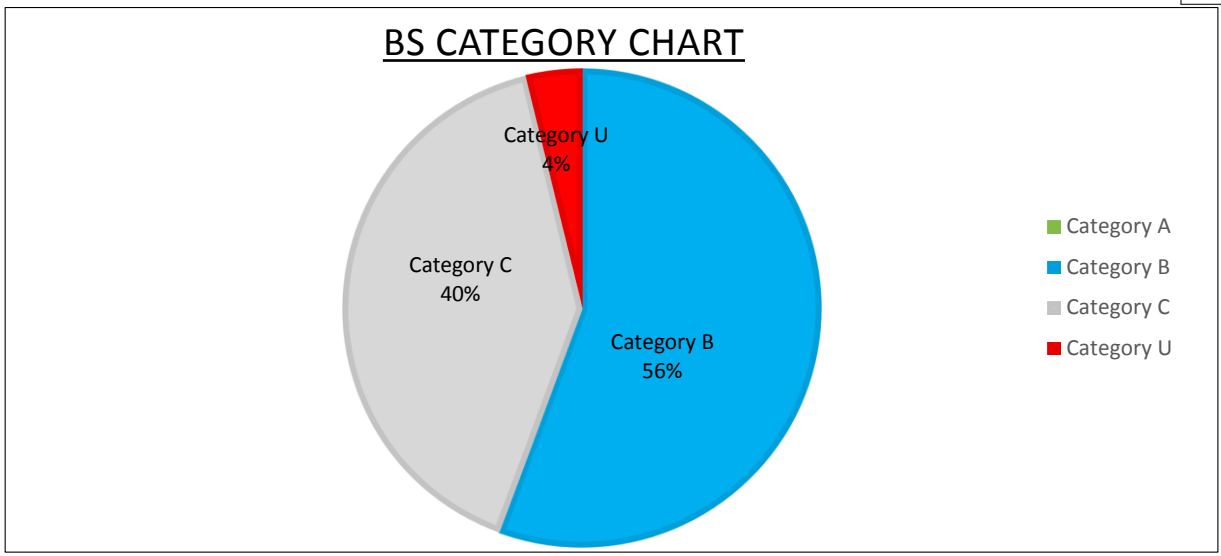
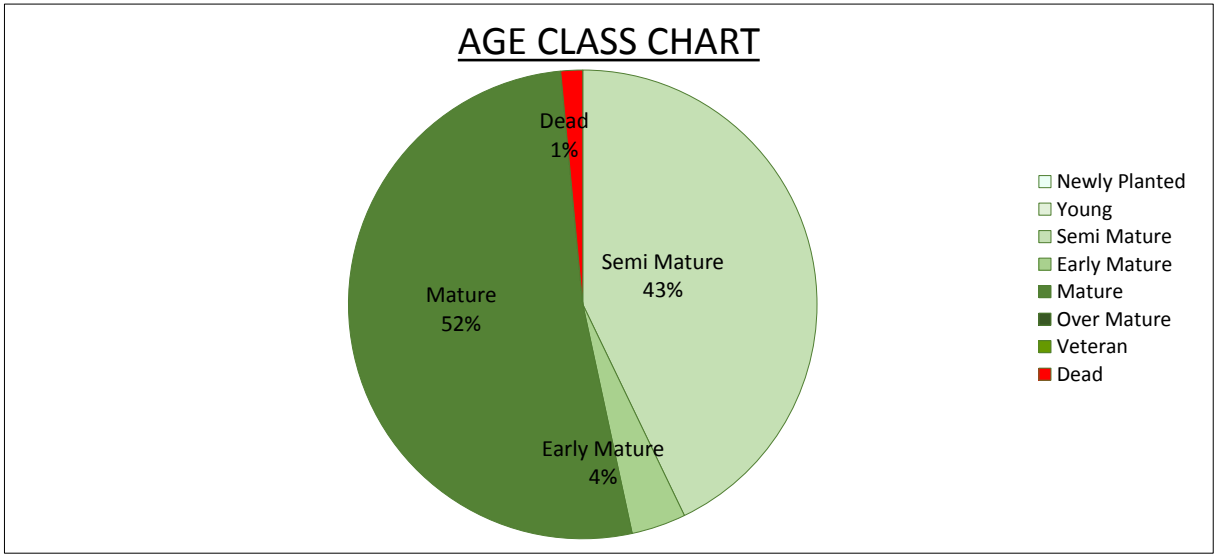
BS Category	Total
Category A	0
Category B	74
Category C	54
Category U	5
	133



Age Class	Total
Newly Planted	0
Young	0
Semi Mature	57
Early Mature	5
Mature	69
Over Mature	0
Veteran	0
Dead	2
	133



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LANDSCAPE ARCHITECTURE o ARBORICULTURE o ECOLOGY

Tree Survey Schedule

Site name: SLP Pipeline: Guildford Road, Lightwater
Client: Jacobs UK Ltd
Job Number: 19/172

Survey Date: 2 and 3 July 2019
Surveyor: Kevin Slezacek

Tree No.	Tree Species	Life Stage	Stem Ø (mm) at 1.5m	Height (crown height) (m)	Height of (FSB)	Crown Spread				Condition	Comments	Tree Management Recommendations	Est Remaining Contribution (Years)	BS Cat	Radii Single Stem (m)	RPA (m)
						N	E	S	W							
T1	Pinus sylvestris (Scots Pine)	SM	290	12(3)		3	4	3.5	3	Good	Minor dead wood.		20+	B2	3.5	38
T2	Pinus sylvestris (Scots Pine)	SM	300	18(9)		3	2	3	3	Good	Unable to fully inspect - ivy.		20+	B2	3.6	41
T3	Pinus sylvestris (Scots Pine)	SM	350	19(10)		3	3	3	2	Good	Unable to fully inspect - ivy. Grown as a pair with T2.		20+	B2	4.2	55
T4	Pinus sylvestris (Scots Pine)	SM	350	20(10)		3	2	4	2	Good	Minor dead wood.		20+	B2	4.2	55
T5	Pinus sylvestris (Scots Pine)	SM	280	20(12)		3	3	3	3	Good	Minor dead wood.		20+	B2	3.4	35
T6	Pinus sylvestris (Scots Pine)	SM	280	20(12)		3	3	3	3	Good	Minor dead wood.		20+	B2	3.4	35
T7	Pinus sylvestris (Scots Pine)	SM	320	17(8)		4	4	4	4	Good	Unable to fully inspect - fence. Stem diameter estimated. Branch pruning wounds.		20+	B2	3.8	46
T8	Pinus sylvestris (Scots Pine)	SM	360	20(9)		5	5	4	5	Good	Unable to fully inspect - fence. Stem diameter estimated.		20+	B2	4.3	59

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						N	E	S	W							
T9	Pinus sylvestris (Scots Pine)	EM	550	23(12)		6	6	4	6	Good	Unable to fully inspect - fence. Stem diameter estimated. Branch pruning wounds.		20+	B2	6.6	137
T10	Pinus sylvestris (Scots Pine)	D	500	18(9)		5	5	5	5	Dead	Unable to fully inspect - ivy. Unable to fully inspect - fence.		<10	U	6.0	113
G11	Betula pendula (Silver Birch),x Cupressocyparis leylandii (Leyland Cypress)	EM	250	17(0)		2	2	2	2	Fair	Unable to fully inspect - vegetation. Unable to fully inspect - fence.		10+	C2	3.0	28
T12	Pinus sylvestris (Scots Pine)	M	490	19(6)		3	3	2	3	Good	Minor dead wood.		20+	B2	5.9	109
T13	Betula pendula (Silver Birch)	M	410	18(4)		5	5	5	5	Poor	Major dead wood. Sparse crown.		10+	C1	4.9	76
T14	Pinus sylvestris (Scots Pine)	M	680	21(6)		5	5	5	5	Good	Minor dead wood.		20+	B2	8.2	209
T15	Pinus sylvestris (Scots Pine)	M	640	21(6)		4	6	6	6	Good	Minor dead wood.		20+	B2	7.7	185
T16	Pinus nigra ssp. laricio (Corsican Pine)	M	630	21(10)		6	6	8	6	Fair	Unable to fully inspect - vegetation. Minor dead wood. Sparse crown.		10+	C2	7.6	180

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						N	E	S	W							
T17	Cryptomeria japonica (Japanese Red Cedar)	SM	340	17(3)		2	2	2	2	Fair	Minor dead wood. Stem exudation.		10+	C2	4.1	52
T18	Cryptomeria japonica (Japanese Red Cedar)	SM	330	14(1)		3	3	3	3	Fair	Unable to fully inspect - vegetation. Minor dead wood.		10+	C2	4.0	49
T19	Betula pendula (Silver Birch)	EM	180	14(2)		3	3	3	3	Fair	Suppressed form.		10+	C2	2.2	15
G20	Quercus robur (Common Oak),Fagus sylvatica (Common Beech),Cryptomeria japonica (Japanese Red Cedar)	SM	260	15(3)		3	3	3	3	Good	Mixed boundary screening.		20+	B2	3.1	31
T21	Quercus robur (Common Oak)	SM	370	17(5)		3	5	7	5	Fair	Branch stubs. Large stem wound at base.		10+	C2	4.4	62
T22	Quercus robur (Common Oak)	SM	390	17(3)		7	7	4	4	Fair	Minor dead wood.		10+	C2	4.7	69
T23	Betula pendula (Silver Birch)	EM	265	15(5)		5	2	5	5	Fair	Minor dead wood.		10+	C2	3.2	32
T24	Pinus sylvestris (Scots Pine)	M	465	18(4)		3	4	5	5	Fair			20+	B2	5.6	98

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						N	E	S	W							
T25	Pinus sylvestris (Scots Pine)	M	520	19(5)		3	3	7	4	Fair	Minor dead wood.		20+	B2	6.2	122
T26	Quercus robur (Common Oak)	SM	290	14(5)		6	2	4	6	Fair	Situated on embankment with eroded root zone.		10+	C2	3.5	38
T27	Pinus sylvestris (Scots Pine)	SM	380	17(10)		5	5	5	5	Fair			10+	C2	4.6	65
T28	Pinus sylvestris (Scots Pine)	SM	380	15		5	5	5	5	Fair	Unable to fully inspect - vegetation. Minor dead wood.		10+	C2	4.6	65
T29	Quercus robur (Common Oak)	SM	320	12		5	5	5	5	Fair	Unable to fully inspect - vegetation.		10+	C2	3.8	46
T30	Pinus sylvestris (Scots Pine)	D	500	18		4	4	4	4	Dead	Unable to fully inspect - vegetation. Potential bat roost features.		<10	U	6.0	113
T31	Pinus sylvestris (Scots Pine)	SM	420	18(5)		7	3	3	7	Fair			10+	C2	5.0	80
T32	Pinus sylvestris (Scots Pine)	SM	380	18(4)		3	3	3	3	Fair			10+	C2	4.6	65

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						N	E	S	W							
T33	Pinus sylvestris (Scots Pine)	M	550	13(6)		7	4	7	4	Fair	Minor dead wood.		10+	C2	6.6	137
T34	Quercus robur (Common Oak)	SM	250	8(4)		4	4	4	4	Fair	Minor dead wood.		10+	C2	3.0	28
T35	Pinus sylvestris (Scots Pine)	M	640	16(6)		5	5	5	5	Fair			20+	B2	7.7	185
G36	Betula pendula (Silver Birch)	EM	566	14(3)		3	3	3	3	Fair	Not identified on topographical survey.		10+	C2	6.8	145
T37	Pinus nigra ssp. laricio (Corsican Pine)	M	660	20(7)		6	6	6	6	Fair	Minor dead wood. Sparse crown.		10+	C2	7.9	197
T38	Quercus robur (Common Oak)	SM	250	14		4	4	4	4	Fair			10+	C2	3.0	28
T39	Pinus sylvestris (Scots Pine)	M	720	20(5)		5	5	5	5	Good	Minor dead wood.		20+	B2	8.6	235
T40	Pinus sylvestris (Scots Pine)	SM	370	21		4	4	4	4	Fair	Minor dead wood.		10+	C2	4.4	62

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						N	E	S	W							
T41	Pinus sylvestris (Scots Pine)	SM	330	21		4	4	4	4	Fair	Minor dead wood.		10+	C2	4.0	49
T42	Pinus sylvestris (Scots Pine)	SM	470	22		5	4	4	4	Fair	Minor dead wood.		10+	C2	5.6	100
T43	Pinus sylvestris (Scots Pine)	SM	400	22		4	4	4	4	Fair	Minor dead wood.		10+	C2	4.8	72
T44	Pinus sylvestris (Scots Pine)	M	460	20		5	5	5	5	Good	Minor dead wood.		20+	B2	5.5	96
T45	Pinus sylvestris (Scots Pine)	M	660	21		8	8	8	8	Good	Minor dead wood. Hangers in crown.		20+	B2	7.9	197
T46	Pinus sylvestris (Scots Pine)	M	400	20(5)		5	5	5	5	Good	Unable to fully inspect - vegetation. Minor dead wood.		20+	B2	4.8	72
T47	Pinus sylvestris (Scots Pine)	M	350	20		4	4	4	1	Good	Unable to fully inspect - vegetation.		20+	B2	4.2	55
T48	Betula pendula (Silver Birch)	SM	290	18(6)		1	2	4	4	Good	Suppressed form.		10+	C1	3.5	38

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						N	E	S	W							
T49	Pinus sylvestris (Scots Pine)	M	390	20		5	5	5	5	Fair	Minor dead wood.		10+	C2	4.7	69
T50	Betula pendula (Silver Birch)	SM	300	16(4)		3.5	3.5	3.5	3.5	Fair			10+	C2	3.6	41
T51	Pinus sylvestris (Scots Pine)	M	500	16(7)		6	6	6	6	Good	Unable to fully inspect - fence.		20+	B2	6.0	113
T52	Pinus sylvestris (Scots Pine)	M	500	16(8)		3	2	5	3	Good	Unable to fully inspect - fence.		20+	B2	6.0	113
T53	Pinus sylvestris (Scots Pine)	M	480	16(8)		4	4	4	4	Fair	Unable to fully inspect - fence.		20+	B2	5.8	104
T54	Pinus sylvestris (Scots Pine)	M	500	18		6	6	6	6	Good	Unable to fully inspect - fence.		20+	B2	6.0	113
T55	Betula pendula (Silver Birch)	SM	230	9(1)		3	3	3	3	Fair			10+	C1	2.8	24
T56	Pinus sylvestris (Scots Pine)	M	450	22(6)		4	4	4	4	Good	Unable to fully inspect - fence. Branch pruning wounds.		20+	B2	5.4	92

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						N	E	S	W							
G57	Betula pendula (Silver Birch)	SM	400	16(1)		4	4	4	4	Fair	Unable to fully inspect - vegetation.		10+	C2	4.8	72
T58	Betula pendula (Silver Birch)	SM	290	16(2)		4	4	4	4	Good	Visible root damage.		20+	B2	3.5	38
T59	Pinus sylvestris (Scots Pine)	M	640	23(5)		5	5	5	5	Good			20+	B2	7.7	185
T60	Betula pendula (Silver Birch)	SM	331	14		5	5	5	5	Good			10+	C2	4.0	50
T61	Pinus sylvestris (Scots Pine)	M	490	20(8)		3	2	4	4	Good	Minor dead wood.		20+	B2	5.9	109
T62	Pinus sylvestris (Scots Pine)	M	430	18(6)		4	3	3	2	Fair	Minor dead wood. Sparse crown.		10+	C2	5.2	84
T63	Betula pendula (Silver Birch)	M	460	14(4)		5	5	5	5	Fair	Unable to fully inspect - vegetation.		10+	C2	5.5	96
T64	Quercus robur (Common Oak)	SM	280	12(5)		5	3	2	3	Fair			10+	C2	3.4	35

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						N	E	S	W							
T65	Pinus sylvestris (Scots Pine)	M	480	22(6)		4	4	4	4	Good	Unable to fully inspect - fence.		20+	B2	5.8	104
T66	Betula pendula (Silver Birch)	SM	350	16(3)		4	4	4	4	Fair	Unable to fully inspect - vegetation.		10+	C2	4.2	55
T67	Pinus sylvestris (Scots Pine)	M	620	22(10)		7	7	7	7	Good			20+	B2	7.4	174
T68	Pinus sylvestris (Scots Pine)	M	540	18(6)		7	5	6	6	Good	Minor dead wood.		20+	B2	6.5	132
T69	Pinus sylvestris (Scots Pine)	M	470	19(7)		4	4	4	4	Good			20+	B2	5.6	100
G70	Betula pendula (Silver Birch),Quercus robur (Common Oak)	SM	400	15(2)		5	5	5	5	Fair			10+	C2	4.8	72
T71	Betula pendula (Silver Birch)	M	320	17(2)		6	6	6	6	Fair			10+	C2	3.8	46
T72	Fagus sylvatica (Common Beech)	M	560	24(9)		8	8	8	8	Good	Branch pruning wounds. Form suggests crown reduction.		20+	B2	6.7	142

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						N	E	S	W							
T73	Fagus sylvatica (Common Beech)	M	570	25(10)		8	8	8	8	Good	Branch pruning wounds. Historic crown reduction.		20+	B2	6.8	147
T74	Pinus sylvestris (Scots Pine)	M	700	20(8)		7	7	7	7	Good	Unable to fully inspect - fence. Minor dead wood.		20+	B2	8.4	222
T75	Castanea sativa (Sweet Chestnut)	SM	310	15(2)		5	5	5	5	Good			20+	B2	3.7	43
T76	Pinus sylvestris (Scots Pine)	SM	430	18(10)		5	5	5	5	Good			20+	B2	5.2	84
T77	Pinus sylvestris (Scots Pine)	SM	340	17(10)		3	3	3	3	Fair	Sparse crown.		10+	C2	4.1	52
T78	Pinus sylvestris (Scots Pine)	M	480	20(11)		6	6	6	6	Good	Major dead wood. Branch pruning wounds.		20+	B2	5.8	104
T79	Pinus sylvestris (Scots Pine)	M	565	17(5)		5	5	5	5	Fair	Minor dead wood. Multi-stemmed from base. Sparse crown.		10+	C2	6.8	144
T80	Pinus sylvestris (Scots Pine)	M	490	23(15)		5	5	5	5	Good	Minor dead wood.		20+	B2	5.9	109

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						N	E	S	W							
T81	Fagus sylvatica (Common Beech)	SM	344	16(7)		7	7	7	7	Fair	Tight weak fork between stems with included bark. Wire embedded in stem.		10+	C2	4.1	54
T82	Fagus sylvatica (Common Beech)	SM	310	16(7)		7	7	7	7	Good			20+	B2	3.7	43
T83	Pinus sylvestris (Scots Pine)	SM	360	20(9)		4	4	4	4	Fair	Unable to fully inspect - vegetation. Minor dead wood. Sparse crown.		10+	C2	4.3	59
T84	Pinus sylvestris (Scots Pine)	SM	320	20(9)		4	4	4	4	Fair	Unable to fully inspect - vegetation. Minor dead wood. Sparse crown.		10+	C2	3.8	46
T85	Fagus sylvatica (Common Beech)	M	630	22(6)		8	8	8	8	Good	Stem bifurcates at 1.4m Included bark. Wire in stem.		20+	B2	7.6	180
T86	Pinus sylvestris (Scots Pine)	SM	500	23(10)		5	5	5	5	Good	Unable to fully inspect - fence.		20+	B2	6.0	113
T87	Pinus sylvestris (Scots Pine)	SM	400	18(8)		5	5	5	5	Good	Minor dead wood.		20+	B2	4.8	72
T88	Pinus sylvestris (Scots Pine)	M	520	22(10)		6	6	6	6	Good	Unable to fully inspect - fence.		20+	B2	6.2	122

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Company Secretary: Louise Blake BSc PGCE
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Tree No.	Tree Species	Life Stage	Stem Ø (mm) at 1.5m	Height (crown height) (m)	Height of (FSB)	Crown Spread				Condition	Comments	Tree Management Recommendations	Est Remaining Contribution (Years)	BS Cat	Radii Single Stem (m)	RPA (m)
						N	E	S	W							
T89	Pinus sylvestris (Scots Pine)	M	450	20(12)		3	3	4	4	Good	Unable to fully inspect - fence.		20+	B2	5.4	92
T90	Pinus sylvestris (Scots Pine)	SM	410	22(12)		6	6	6	6	Good			20+	B2	4.9	76
T91	Pinus sylvestris (Scots Pine)	M	550	21(15)		5	5	5	5	Good	Unable to fully inspect - fence. Branch pruning wounds.		20+	B2	6.6	137
T92	Quercus robur (Common Oak)	SM	350	18(2)		5	5	5	5	Fair	Unable to fully inspect - fence. Minor dead wood. Sparse crown.		10+	C2	4.2	55
T93	Betula pendula (Silver Birch)	SM	260	18(3)		4	4	4	4	Good	Unable to fully inspect - vegetation.		20+	B2	3.1	31
T94	Pinus sylvestris (Scots Pine)	M	600	18(10)		5	5	6	5	Good	Unable to fully inspect - fence. Minor dead wood.		20+	B2	7.2	163
T95	Pinus sylvestris (Scots Pine)	SM	460	21(12)		4	4	4	4	Good	Unable to fully inspect - fence. Minor dead wood.		20+	B2	5.5	96
T96	Quercus robur (Common Oak)	SM	480	16(3)		4	7	3	3	Good	Unable to fully inspect - fence. Suppressed form.		10+	C2	5.8	104

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Tree No.	Tree Species	Life Stage	Stem Ø (mm) at 1.5m	Height (crown height) (m)	Height of (FSB)	Crown Spread				Condition	Comments	Tree Management Recommendations	Est Remaining Contribution (Years)	BS Cat	Radii Single Stem (m)	RPA (m)
						N	E	S	W							
T97	Pinus sylvestris (Scots Pine)	M	950	24(6)		5	5	8	8	Good	Major dead wood. Stem wounds. Stem bifurcates at 1.5m with included bark.		20+	B2	11.4	408
T98	Quercus robur (Common Oak)	SM	340	17(3)		5	5	5	5	Fair			10+	C2	4.1	52
T99	Quercus robur (Common Oak)	SM	270	10		3	2	4	4	Poor	Unable to fully inspect - fence. In terminal decline. Bird box on stem.		<10	U	3.2	33
T100	Pinus sylvestris (Scots Pine)	M	550	26(12)		8	8	8	8	Good			20+	B2	6.6	137
T101	Pinus sylvestris (Scots Pine)	M	800	26(8)		8	8	8	8	Good	Unable to fully inspect - vegetation.		20+	B2	9.6	290
T102	Pinus sylvestris (Scots Pine)	SM	420	26(10)		5	5	5	5	Good	Minor dead wood.		20+	B2	5.0	80
T103	Quercus robur (Common Oak)	M	540	24(10)		7	7	7	7	Good	Unable to fully inspect - ivy.		20+	B2	6.5	132
T104	Quercus robur (Common Oak)	SM	290	20(5)		5	5	5	5	Good			20+	B2	3.5	38

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						N	E	S	W							
T105	Quercus robur (Common Oak)	M	700	24(8)		9	5	9	9	Good	Unable to fully inspect - fence.		20+	B2	8.4	222
T106	Pinus sylvestris (Scots Pine)	M	600	18		4	4	4	4	Poor	Unable to fully inspect - fence. In terminal decline. Extensive crown dieback.		<10	U	7.2	163
T107	Quercus robur (Common Oak)	SM	360	18(8)		3	3	5	2	Fair			10+	C2	4.3	59
T108	Quercus robur (Common Oak)	SM	390	18(4)		6	6	6	6	Fair			10+	C2	4.7	69
T109	Quercus robur (Common Oak)	M	590	22(3)		6	7	7	8	Good			20+	B2	7.1	158
T110	Betula pendula (Silver Birch)	M	320	18(4)		5	5	5	5	Good			20+	B2	3.8	46
T111	Quercus robur (Common Oak)	M	763	16(5)		7	7	7	7	Fair	Unable to fully inspect - vegetation. Multi-stemmed from base. Branch pruning wounds. Structurally poor. Fused limbs.		10+	C2	9.2	264
T112	Pinus sylvestris (Scots Pine)	SM	485	24(12)		6	6	6	6	Good	Minor dead wood.		20+	B2	5.8	106

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Tree No.	Tree Species	Life Stage	Stem Ø (mm) at 1.5m	Height (crown height) (m)	Height of (FSB)	Crown Spread				Condition	Comments	Tree Management Recommendations	Est Remaining Contribution (Years)	BS Cat	Radii Single Stem (m)	RPA (m)
						N	E	S	W							
T113	Pinus sylvestris (Scots Pine)	M	510	23(8)		7	7	5	5	Fair	Minor dead wood.		20+	B2	6.1	118
T114	Quercus robur (Common Oak)	M	750	18(9)		9	9	9	9	Good	Unable to fully inspect - vegetation. Stem bifurcates at 3m.		20+	B2	9.0	255
T115	Quercus robur (Common Oak)	M	620	22(7)		10	10	10	10	Good			20+	B2	7.4	174
T116	Quercus robur (Common Oak)	M	650	20		6	6	6	6	Fair	Unable to fully inspect - ivy. Stem diameter estimated. Sparse crown.		10+	C2	7.8	191
T117	Pinus sylvestris (Scots Pine)	SM	350	24(6)		4	4	4	4	Fair			10+	C2	4.2	55
T118	Pinus sylvestris (Scots Pine)	M	430	24(4)		5	5	5	5	Fair	Unable to fully inspect - ivy. Minor dead wood.		10+	C2	5.2	84
T119	Pinus sylvestris (Scots Pine)	M	450	21		4	5	3	3	Fair	Stem diameter estimated. Potential bat roost features. Large stem wound and cavity.		10+	C2	5.4	92
T120	Pinus sylvestris (Scots Pine)	M	520	22(7)		4	4	4	4	Good			20+	B2	6.2	122

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Tree No.	Tree Species	Life Stage	Stem Ø (mm) at 1.5m	Height (crown height) (m)	Height of (FSB)	Crown Spread				Condition	Comments	Tree Management Recommendations	Est Remaining Contribution (Years)	BS Cat	Radii Single Stem (m)	RPA (m)
						N	E	S	W							
T121	Pinus sylvestris (Scots Pine)	M	600	24(13)		8	8	8	8	Good	Unable to fully inspect - fence. Stem diameter estimated. Minor dead wood. Branch pruning wounds.		20+	B2	7.2	163
T122	Pinus sylvestris (Scots Pine)	M	590	20(10)		5	5	5	5	Fair	Minor dead wood.		10+	C2	7.1	158
T123	Quercus robur (Common Oak)	SM	390	24(8)		7	7	7	7	Good			20+	B2	4.7	69
T124	Pinus sylvestris (Scots Pine)	M	670	22(11)		8	8	8	8	Good	Minor dead wood.		20+	B2	8.0	203
T125	Quercus robur (Common Oak)	M	580	22(3)		10	10	10	10	Good	Unable to fully inspect - fence. Stem diameter estimated.		20+	B2	7.0	152
T126	Pinus sylvestris (Scots Pine)	M	560	22(8)		7	7	7	7	Good	Minor dead wood.		20+	B2	6.7	142
T127	Pinus sylvestris (Scots Pine)	M	500	20(8)		3.5	3.5	3.5	3.5	Fair	Unable to fully inspect - fence.		10+	C2	6.0	113
T128	Pseudotsuga menziesii (Douglas Fir)	M	600	26(8)		8	8	8	8	Good	Unable to fully inspect - fence.		20+	B2	7.2	163

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						N	E	S	W							
T129	Pinus sylvestris (Scots Pine)	M	570	20(11)		4	4	4	4	Good			20+	B2	6.8	147
T130	Quercus robur (Common Oak)	M	600	24(5)		10	10	10	10	Good	Unable to fully inspect - vegetation. Stem diameter estimated.		20+	B2	7.2	163
T131	Pinus sylvestris (Scots Pine)	M	470	21(12)		3	3	3	3	Poor	Major dead wood. Soil compaction. Sparse crown.		<10	U	5.6	100
T132	Pinus sylvestris (Scots Pine)	M	500	23(8)		6	6	6	6	Good	Unable to fully inspect - vegetation. Stem diameter estimated.		20+	B2	6.0	113
T133	Pinus sylvestris (Scots Pine)	M	530	20(8)		7	7	7	7	Fair	Minor dead wood. Soil compaction. Sparse crown.		10+	C2	6.4	127

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Appendix 4: Signed Written Statement between Affinity Water and the Applicant

SLP Project
1180 Eskdale Road
Winnersh
Wokingham
RG41 5TU
[redacted]
info@slpproject.co.uk

Southampton to London Pipeline Project

18 December 2019

Written statement between Affinity Water and the Applicant clarifying the position regarding the existing 8" water main at Turf Hill, Lightwater

The Applicant is aware of the Affinity Water owned 8" PVC-U water main at Turf Hill and this asset, along with Affinity Water's other assets, form part of the ongoing Protective Provisions discussions between Affinity Water and The Applicant. The 8" water main is located to the rear of Colville Gardens and Heronscourt on the Turf Hill side of the residential boundaries. Affinity Water have confirmed the water main is subject to a Deed of Grant for an easement (Title Number SY659920) with the Secretary of Defence and North Surrey Water Company which is now Affinity Water. The Water pipe easement has a width of 5m, which is 2.5m either side of the centreline of the water pipe.

The Applicant and Affinity Water are in discussions regarding safe working and future operational arrangements in respect of two pipelines and areas with the potential to overlap the respective easements. The Applicant shall provide Affinity Water with detailed design data which will include plans and design calculations, and a method statement for review prior to Construction that will include provisions for protecting the water main during construction.

The Applicant is continuing to engage with Affinity Water to agree Protective Provisions for the protection of all their assets and structures.

Signed,

[redacted]

J Anstee de Mas
Southampton to London Pipeline (SLP) Project
Website: www.slpproject.co.uk

[redacted]

Name PATRICK CAMPBELL
Title HEAD OF INFRASTRUCTURE STRATEGY
Affinity Water Ltd

Appendix 5: The correspondence from Surrey Wildlife Trust confirming that Surrey Heath Borough Council manage the Turf Hill unit of the SPA and SSSI

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: [EXTERNAL] RE: SLP - Environmental Investment Programme
Date: 04 December 2019 11:28:08
Attachments: image001.png

Hi Steve – that is correct (its Surrey Heath BC).

Best wishes,
mike

Mike Waite MCIEEM
Living Landscapes Manager (Strategic)
Surrey Wildlife Trust
School Lane I Pirbright I Surrey I GU24 0JN
[redacted]

State-of-Nature-Footer (2)

From: Newman, Steve [redacted]
Sent: 04 December 2019 07:54
To: Mike Waite
Subject: SLP - Environmental Investment Programme

Mike

I hope you are well.

I'm conscious that we haven't had the opportunity to discuss our Environmental Investment Programme for some time and we will need to find time in the New Year but in the meantime I had a quick question due to some confusion at our end.

When we met with Ben/George (apologies it was some time ago) on site at Colony Bog I believe he advised that the SWT was not responsible for the management of the Turf Hill unit of the SSSI and this was managed by Surrey Heath council. This is why we didn't proposed any EIP activities in that area to SWT.

Could you confirm that this is in fact the case?

That would be really useful but if the area is your management we can add that to or conversations.

Thanks

Steve

Steve Newman MSc, C.ENV, CIWEM | Jacobs | Divisional Director – Environment, Maritime & Resilience| 07930602807 |
steve.newman@jacobs.com | www.jacobs.com

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Appendix 6: The correspondence with Surrey Heath's Greenspaces Officer on 1 April 2019

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: [EXTERNAL] RE: SLP Project - Environmental Investment Programme
Date: 01 April 2019 09:54:52

Hi David

Thanks for sending this through. Interesting, the slight change of route, I'm quite happy about that.

It will probably be just me, but I look forward to seeing you at 10 on Friday.

Kind Regards

Gordon

From: Jones, David [mailto:[redacted]]
Sent: 01 April 2019 09:14
To: Gordon Voller; Sharpe, Sarah
Cc: [redacted]; Boyden, Adam; Newman, Steve
Subject: RE: SLP Project - Environmental Investment Programme

Hi Gordon, Sarah

10am, Fri 5th April sounds good to me.

Gordon, I understand that there is a meeting between the SLP Project team and the Surrey Heath planning officers today to discuss the final route that was publicly announced last week. Are you attending that meeting? If not, there is more information relating to the final route on the project's website (see the interactive mapper), here: https://www.slpproject.co.uk/.

In a nutshell, we've changed the route from that previously discussed when we met on site in the summer. It is now proposed to align the pipeline within the existing tracks along the perimeter of Turf Hill – the main reason for this is to avoid impacts to sand lizard and SSSI heathland habitat. I see this is a significant positive from an ecological perspective but I appreciate that there may be some concerns relating to trees and public access. I'll be able to provide further information about proposed good practice measures and construction methods on Friday. Hopefully I'll also be able to answer any other questions that you might have about the project.

Will it be just you attending or do you have colleagues coming too?

Looking forward to catching up.

Thanks

Dave

Dave Jones | Jacobs | Technical Director - Ecology | Environment, Maritime and Resilience | 0118

946 7058 direct | 07880 812 586 mobile | [redacted] | www.jacobs.com

---

From: Gordon Voller <[redacted]>
Sent: Friday, March 29, 2019 4:37 PM
To: Sharpe, Sarah <[redacted]>; Jones, David <[redacted]>
Cc: sipgill@gmail.com <[redacted]>
Subject: [EXTERNAL] RE: SLP Project - Environmental Investment Programme

Hi Sarah

Thanks for your email. How does a 10 a.m. meet-up sound? If not, we can go for a later time.

Just let me know.

Kind Regards

Gordon

From: Sharpe, Sarah [[redacted]]
Sent: 29 March 2019 15:07
To: Gordon Voller; Jones, David
Cc: [redacted]
Subject: RE: SLP Project - Environmental Investment Programme

Hi Gordon,

Just replying on Dave's behalf as he's on leave – I also work for Jacobs, but as part of the communications and engagement team.

Dave and I can both do Friday 5 April. If this still works, what time suits you?

Kind regards,

Sarah

From: Gordon Voller <[redacted]>
Sent: 27 March 2019 09:38
To: Jones, David <[redacted]>
Cc: Sharpe, Sarah <[redacted]>
Subject: [EXTERNAL] RE: SLP Project - Environmental Investment Programme

Hi David

Dates I would be able to do an on-site meeting are 1st April (am), 3rd April (pm), 5th April (pm). if none of those are suitable we can sort an alternative later date.

I'll wait to hear.

Kind regards

Gordon

Gordon Voller
Greenspace Officer (Countryside)
Surrey Heath Borough Council
Surrey Heath House
Knoll Road
Camberley
Surrey
GU15 3HD
Tel 01276 707100
Website www.surreyheath.gov.uk

Great Place • Great Community • Great Future

Register to vote EMAIL BANNER 30mmX140mm NEW

From: Jones, David [redacted]
Sent: 20 March 2019 09:38
To: Gordon Voller
Cc: Sharpe, Sarah; [redacted]
Subject: SLP Project - Environmental Investment Programme

Dear Gordon

I hope that all is well.

I am writing to invite you to a meeting to discuss the SLP project's Environmental Investment Programme. This is in the early stages of development and would arise if the pipeline receives consent and the installation works proceed. The Environmental Investment Programme is likely to contain activities/projects towards which Esso would volunteer to invest (in full or in part) to support biodiversity, recreation or environmental education in areas in the vicinity of the replacement pipeline route, including within the area managed by Surrey Heath Borough Council at Colony Bog and Bagshot Heath SSSI (Turf Hill).

Based on our previous meeting, I have identified the following potential opportunities that it would be helpful to discuss in more detail:

- selective scrub and tree removal;
- creation of bare earth scrapes and embankments; and
- invasive plant control.

The environmental investment programme and any activities agreed is a separate programme to the examination of the Southampton to London Pipeline Project development consent order, but is being considered by Esso as part of its corporate citizenship programme.

Do you have any availability during March or early April to discuss this? I'm more than happy to travel to site or to your office, if that suits you better.

Many thanks

Dave

Dave Jones | Jacobs | Technical Director - Ecology | Environment, Maritime and Resilience | 0118 946 7058 direct | 07880 812 586 mobile | [redacted] | www.jacobs.com

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Appendix 7: The notes from the site meeting with Surrey Heath's Greenspaces Officer on 5 April 2019

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: Surrey Heath BC: EIP meeting notes 5 April 2019
Date: 12 April 2019 11:09:16

All,

Please find below a summary of last week's meeting.

Regards,

Sarah

**

The following is a bullet list summary of the meeting with Gordon Voller, Surrey Heath BC's Greenspace Officer. The focus of the meeting was to introduce the Environmental Investment Programme but we also took the opportunity to update Gordon about the revised route through Turf Hill SSSI, which had been publicly announced the week before.

Mtg date: Fri 5th April.
Location: Turf Hill (a piece of Surrey Heath BC owned land within Colony Bog and Bagshot Heath SSSI).
Attendees: Sarah Sharpe, Dave Jones, Willie Fair, Gordon Voller.

- DJ confirmed final route selection and set out the project timeframes for submitting development consent and examination.
- SS informed GV that there had been comments from residents on social media who were unhappy with the route passing closer to their homes. GV stated that residents would likely contact him. DJ advised that GV direct residents to the SLP website so they can contact the project team directly.
- DJ gave an overview of potential plans to create an Environmental Investment Programme.
- During a walk of the area GV confirmed he was happy with the sub-option selected stating that it was preferable to the original proposal that passed through the middle of Turf Hill.
- DJ summarised some of the good practice measures that would be available during construction works at Turf Hill, including reduced width working and tree protection. DJ and WF made it clear that tree felling was likely. GV confirmed that he did not have significant concerns relating to tree impacts.
- GV/DJ discussed the existing Turf Hill management plan and activities involved. DJ clarified the EIP is ideally looking to support activities that are additional to the work already identified by the management plan, particularly activities in the area of the pipeline route and aligned to the project.
- GV explained that his budget from the council is limited. He also receives an annual DEFRA Higher Level Stewardship grant of approx. £4,000 a year. Most management activities are undertaken by contractors. Large scale activities such as tree felling cost approx. £400 a day. Activities such as scrub clearance/invasive weed spraying cost around £160 a day.
- Parts of the heathland have been mowed and there are opportunities to do this in other

spaces and/or bare earth scraping to encourage reptiles and invertebrates.

- There is a volunteer group active in the spring/summer who meet every Thursday and carry out smaller-scale activities. A local special-needs school also volunteers.
- The growth of pine trees in the heathland is a problem and tree felling and scrub clearing are required activities, and these fall into the current management plan but there could be scope to go further.
- The site is affected by invasive weeds, notably Gaultheria and Rhododendron. Natural England has advised GV that the site would not achieve favourable status until the Gaultheria issue is addressed. This activity is on the management plan.
- There is a separate budget within the council for footpath signage/community information boards therefore GV would prefer to use the EIP purely for environmental benefit in maintaining and improving the heathland habitat.
- GV said he would discuss potential EIP ideas with his team to identify potential activities not currently included on the site's management plan.

Sarah Sharpe | Jacobs | Stakeholder Engagement & Communications | [redacted] | [redacted] | www.jacobs.com

Appendix 8: Surrey Heath Borough Council's Turf Hill Park Management Plan 2015-2025

Leisure Services

PARKS AND COUNTRYSIDE

Turf Hill Park
West End

Management Plan
2015 – 2025

Table of Contents

TURF HILL
10 YEAR MANAGEMENT PLAN
2015 – 2025

INTRODUCTION

Site Name:	Turf Hill
Site Status:	Site of Special Scientific Interest (S.S.S.I.), first notified in 1975 then again in 1988 under the Wildlife and Countryside Act 1981. Thursley, Ash, Pirbright & Chobham Special Area Of Conservation (SAC) and Thames Basin Heaths Special Protection Area (SPA).
SSSI Name:	Colony Bog and Bagshot Heath S.S.S.I.
Grid Ref:	SU 935616
OS Maps Coverage:	Sheet 186
Area of Site:	24 ha (60 acres)
Ownership:	Surrey Heath Borough Council
Contacts:	Greenspace Team 01276 707166
Rights of Access:	Public Footpaths and a Bridleway cross the site (see below).

The site is now classified under the Countryside and Rights of Way (CRoW) Act 2000. This imposes a duty on 'public bodies' (including local authorities) in exercising their functions to take reasonable steps, consistent with the proper exercise of those functions, to further conservation and enhancement of the special features on a SSSI (see Appendix 2). This applies where the public body is exercising its statutory functions on a SSSI or on land outside the SSSI where those functions affect a SSSI. This Act also creates a new statutory right of access on foot to registered common land and other categories of open countryside. The new right of access will allow people to walk across defined access land, without being restricted to footpaths. There is a range of activities that will not be permitted e.g. camping, fire lighting etc. There may also be local/site-based restrictions to open access, which can be imposed where necessary for nature conservation, heritage, land management needs, fire prevention and public safety.

GENERAL DESCRIPTION

Site Description

Turf Hill is an important fragment of the once extensive area of heathland known as Bagshot Heath, the remaining parts of which are of considerable value for their ecological interest, as well as having amenity and recreational importance. Lowland heath has ecological value on a local, national and European scale. This has led to the development of a national Biodiversity Action Plan and, on the county scale, a Surrey Lowland Heathland Habitat Action Plan.

Turf Hill is situated within the Parish of West End and close to the village of Lightwater in North–West Surrey. The M3 motorway is close by and the site is bounded by Red Road, Guildford Road and Lightwater Road forming a triangle of land.

The topography of the site is gently undulating with a height range around 40 metres above sea level, the highest point being 61 metres.

A large percentage of the park is on the Bagshot Series of soils, but patches of gravel occur, all of which overlay London Clay. Within the Bagshot Series can be found the Camberley Sand Formation (formerly Barton Beds) and Windlesham Formation (formerly Bracklesham Beds).

There is an area of wet heath that lies over peaty substrate where drainage is impeded thereby benefiting moisture-dependant plants.

The site includes open dry heathland, woodland, scrub and the above-mentioned wet heath.

Prior to 1987 the site formed part of the Bisley and Pibright Ministry of Defence Training area.

Flora and fauna

Although the site has a limited range of habitats it supports a variety of plant and animal communities. However because each type of habitat is quite small it can only support limited numbers of individual species. This can result in the local loss of a species or suite of species if damage, such as fire occurs. The only way re-colonisation can take place is by migration from other local sites, which can take many years.

Compartment 1 Wet heathland with wooded blocks

The wet heathland occurs where water-drainage is impeded and the water table is close to the soil surface for a large percentage of the year. In these areas Cross-leaved heath (*Erica tetralix*) is a major component with Ling. Of special note are the sundews, with both Round-leaved (*Drosera rotundifolia*) and Oblong-leaved (*Drosera intermedia*) being found. Also present is Deer grass (*Trichophorum caespitosum*) and Cotton grass (*Eriophorum angustifolium*).

Compartments 2 – 6 Dry heathland with wooded blocks

Within these compartments most of the open heathland areas are dominated by Ling Heather (*Calluna vulgaris*) and to a lesser extent Bell heather (*Erica cinerea*) both being the most characteristic species of dry heathland within Surrey. These areas are well interspersed with Common Gorse (*Ulex europea*) and smaller patches of Dwarf Gorse (*Ulex minor*). In some areas Bracken (*Pteridium aquilinum*) and Purple Moor Grass (*Molinia caerulea*) have become a component of the vegetation cover. The compartments also have large woodland blocks within them. These are dominated by Scots Pine (Pinus sylvestris) although Silver Birch and Oak also occur. Where the canopy is closed little ground flora exists. However in the more lightly wooded areas mosses, lichens, grasses and heather can be found.

Scattered throughout the woodland and heathland are patches of *Gaultheria shallon* and *Rhododendron ponticum*, both being non-native shrubs that are highly invasive.

Compartment 2 differs from the other areas of dry heathland on site being linear in shape and regularly cut on a 4 year cycle since 1994. Situated beneath the high power cables that

cross the site this compartment was, prior to 1994, cut on an ad-hoc basis by National Grid in order to keep the power cables free of trees.
Although not an ideal cutting regime this helped to sustain the population of Silver Studded Blue (*Plebejus argus*) butterflies that require young heather, particularly *Erica's*, on which to breed.

Compartment 7–Woodland

This occupies a small area at the western end of the site. Scots Pine and Silver Birch dominate with some Oaks. The understorey is thick with tree saplings although there are also patches of Gorse. Also much in evidence is *Gaultheria shallon,* which is widespread throughout the compartment. Where enough light reaches the woodland floor a field layer of brambles, heather and grasses exists.

Scrub

There are patches of scrub, mainly Gorse (*Ulex europea*) and Birch (*Betula pendula*) which occur in areas of open heathland. This scrub is an important and integral part of the habitat matrix of the area providing shelter, nest sites and foraging for a wide range of animals.

Fauna

Turf Hill is attractive to a variety of species, but in particular birds and invertebrates. Specialist heathland birds occur including Dartford Warbler (*Sylvia undata*), Woodlark (*Lullula arborea*) and Stonechat (*Saxicola torquarta*), as well as other uncommon species like Stock Dove (*Columba oenas*), Green Woodpecker (*Picus viridis*), Tree Pipit (*Anthus trivialis*) and Sparrowhawk (*Accipiter nisus*). In winter, Crossbill's (*Loxia curvirostra*) Siskins (*Carduelis spinus*) and Common Redpoll (*Acanthus flammea*) can sometimes be seen foraging in the pine trees. Invertebrates found on the open heathland include Silver Studded Blue (*Plebejus argus*) and Grayling (*Hipparchia semele*) butterflies, Green Tiger beetle (*Cicindela campestris*) and the Large Red-Belted Clearwing (*Synathedon culiciformis*), whilst the woodland edges and clearings provides habitat for Wood ants (Formica rufa).
Reptiles are represented by Common Lizard (*Lacerta vivipara*), Adder (*Vipera berus*), Slow-worm (*Anguis Fragilis*) and a re-introduced population of Sand Lizard (*Lacerta agilis*).

Note: The compartment numbers on these descriptions corresponds to the site map (Appendix 1, Map 1).

Public use and Recreation

Car parking Provision

A small car park, with access off the Guildford Road has been created with Countryside Stewardship monies and caters for approximately 6 cars. Situated within the car park is an information board, which gives details of walks and events and planned management works on site thereby keeping the public informed.

Site Activities

The site is well served by public footpaths, bridleways and a network of other tracks. Local walkers, bird watchers, horse riders and dog walkers regularly use the area.

Fouling by dogs along the tracks is a problem although, at present, only a voluntary code for the removal of dog waste exists. A bin has been provided, adjacent to the car park for dog waste.

Horse riders are frequent visitors as the statutory bridleways link up with those on Brentmoor Heath and West End Common to the South, thereby giving the riders more scope to extend the length of their rides.

At Turf Hill, in addition to the statutory bridleways some permissive routes have been created in order to create a circular riding route around the site.

Also to further encourage the use of the site by local people Turf Hill is included within the West End Millennium Trails leaflet that promotes several walk routes around the West End area.

The use of the site for larger, organised events such as orienteering and cross-country runs would be considered on an individual basis. However the lack of car parking might restrict such activities. Also their potential for disturbance to wildlife would need to be carefully assessed.

Rights of way and other access are shown in Appendix 1, Map 2.

Third Party Rights

The following utilities have licences or rights over the site: - Gas, Water, Oil and Electric. Map 3 (Appendix 1) highlights the routes of the various pipes and cables across the site.

MANAGEMENT OBJECTIVES FOR TURF HILL

Turf hill is designated a S.S.S.I. for its conservation value. Therefore the management has to encompass the needs of nature conservation, in addition to recreation and landscape.

Nature Conservation

To protect, create and maintain a diverse community structure of all the natural habitat types, but taking particular account of the heathland habitat for which the site was designated an S.S.S.I.

Recreation and Amenity

To integrate both amenity value and nature conservation activities. The site will be managed for its amenity value and appropriate recreational pursuits whilst minimising the possible damaging effects such activities may have on the nature conservation interest and physical state of the site.

Landscape

To retain and enhance the distinct landscape quality which is an important part of the heritage of Surrey Heath district.

OPERATIONAL OBJECTIVES

Heathland

- Maintain and where desirable extend the areas of both wet and dry open heathland.
- Clearing of trees and scrub is an essential part of this management although it is important to leave a structure of copses and individual trees to add habitat diversity. Ideally the heathland areas should have a maximum of 15% tree cover. Where appropriate a tree belt between 10 and 30 metres wide will be retained around the perimeter of the site to shield it from nearby roads and housing.
- Bracken control will also be required to prevent large dense stands developing at the expense of the heathland flora.
- Develop a mosaic of varying age heather stands varying from 0 – 20+ years to maintain the greatest diversity of flora and fauna.
- Control non-native species such as Gaultheria and Rhododendron in all heathland blocks.
- Prevent non-native invasive species such as Gaultheria and Rhododendron spreading from adjoining compartments.
- Maintain and create bare ground to a maximum of 1% of the area of dry heath per year.
- In the wet heath create shallow scrapes and bog pools to encourage the colonisation of specialised plants and invertebrates such as dragonflies.
- Continue to cut and clear compartment 2 on a 4 year rotation for the benefit of Silver-studded blue butterflies and other invertebrates.

Scrub

- Maintain structural and age diversity and manage the habitat edges to prevent the spread into open heathland. In respect of Gorse blocks this will be achieved through an ad-hoc coppicing regime.
- Create rides and sheltered clearings within the scrub block areas.

Grassland on firebreaks

- Maintain open grassland by preventing succession to scrub. The cutting regime should operate on an annual basis along rides in order to maintain the grassland habitat.

Woodland

- Allow to develop to maturity, but grade edge at habitat interfaces.
- Thin the areas of woodland where a ground flora already exists in order to encourage the development of a heathy understorey.
- Manage the removal of non-native plant species and prevent their spread into heathland compartments.
- Create dead standing trees and deadwood piles. This is with due consideration to any fire hazard and public safety.
- In compartment 7 retain mature trees whilst removing 75% of the saplings and scrub in order to encourage the development of a heathy understorey.

Fire Breaks

- Maintain firebreaks at edges of heathland compartments.

Access and Recreation.

- Maintain existing network of public footpaths and bridleways together with permissive paths.

Interpretation

- Continue to provide interpretation concerning ongoing management, general conservation and recreational use of the site.
- Record and monitor species as time and resources allow.
- Encourage the involvement of the local community in planned practical conservation works.

MANAGEMENT DETAILS

Objective	Work Details
1. To maintain and enhance the open heathland	Remove trees and scrub from all compartments as required, including treatment using pesticides where appropriate.
	Carry out selective of mature pine trees in order to enlarge the existing areas of open heathland & create open glades in adjacent wooded areas where a good heathland understorey exists.
	Control and management of bracken by the application of pesticide. Monitor effect and reapply as necessary. A small number of bracken stands will be identified and retained for the purposes of habitat diversity and to benefit bracken-dependant invertebrates.
	Remove all Gaultheria & Rhododendron from heathland compartments. Treat stumps or spray re-growth with suitable pesticide.
	Increase age diversity in heather stands by cutting. Monitor effect of fires before commencing cut.
	Creation of bare ground across the site by scraping or turf cutting. These areas to be determined, but no more than 1% of the site per annum.
	Creation of shallow scrapes and bog pools in areas of wet heath.
	Rotovate the sand tracers in compartment 6 to encourage the sand lizards to breed.
2. Maintain a diverse age range of scrub and prevent further spread into surrounding heather.	Coppice larger gorse blocks on an ad-hoc. basis. Smaller areas of gorse to be managed in a more selective manner.
3. Grassland management along firebreaks to prevent succession to scrub.	Annual autumn cut.
4. Woodland management to maintain and enhance age and habitat structure.	Undertake tree thinning as required in all wooded areas over the 10-year period of the plan. Create heathland glades wherever a

Objective	Work Details
	good heather understorey exists leaving 15% tree cover. In compartment 7 removal of 75% of scrub whilst retaining all mature trees.
	Creation of dead wood through 'totempoling', woodpiles of cut material and leaving fallen wood *in situ*.
	Manage Gaultheria, Rhododendron and Bracken in all wooded areas with application of a suitable pesticide. Reapply as required
5. Access and Interpretation	Maintain all footpaths and bridleways in good order and inform public of intended works.
	Maintain and cut all path edges and firebreaks 2-3 times a year.
	Replacement of missing furniture as required.
	Provide up to date information regarding ongoing management, through on-site notices.
	Involve volunteers in active conservation wherever possible.
6. Biological Surveys	Survey flora and fauna as time, resources and expertise allows.

TEN YEAR MANAGEMENT PROGRAMME

Summary Table

Management	Year of Operation									
	1	2	3	4	5	6	7	8	9	10
Heathland										
Scrub/tree management	x	x	x	x	x	x	x	x	x	x
Bracken management – ongoing as required	x	x	x	x	x	x	x	x	x	x
Heather cutting in blocks (comp.2)	x	x	x	x	x	x	x	x	x	x
Cutting of meandering swathes through the heather (comps 1,3,4,6)	x	x	x	x	x	x	x	x	x	x
Management of bare ground	x	x	x	x	x	x	x	x	x	x
Scrape creation on wet heath		x		x		x		x		x
Major tree felling	x	x	x							
Gaultheria & Rhody management	x	x	x	x	x	x	x	x	x	x
Scrub										
Gorse coppicing	x	x	x	x	x	x	x	x	x	x
Grassland Firebreaks										
Annual cut	x	x	x	x	x	x	x	x	x	x
Maintain graded edge	x	x	x	x	x	x	x	x	x	x
Woodland										
General Management - Thinning, Bracken and Gaultheria control.	x	x	x	x	x	x	x	x	x	x
Compartment 7 scrub control	x			x			x			x
Interpretation	x	x	x	x	x	x	x	x	x	x
Access										
Maintenance of all tracks, roads, car parks, bridleways & firebreaks	x	x	x	x	x	x	x	x	x	x
Biological Surveys	x	x	x	x	x	x	x	x	x	x

SUMMARY

Turf Hill was originally purchased by Surrey Heath Borough Council from the Ministry of Defence (M.O.D) in 1987.

From 1994 onwards the site management became more formalised with a 10 year plan put in place.

With the aid of Countryside Stewardship funding many improvements have been made including enhanced access and the undertaking of larger scale conservation projects.

The habitat management has in particular focussed upon increasing the areas of open heathland. This has involved selective felling and thinning of semi-mature pine blocks by contractor. As a result there has been substantial regeneration of the heathland understorey in those areas.

Currently the site comprises approximately 40% open heathland and associated scrub, and 60% woodland. The objective over the following ten years of this management plan is to increase the open heath to 70% thus reducing the woodland to 30%. Felling of blocks of semi-mature pines in particular will be required in order to expand and enhance the ecologically important open heathland. This process is illustrated in maps 4 and 5, Appendix 1.

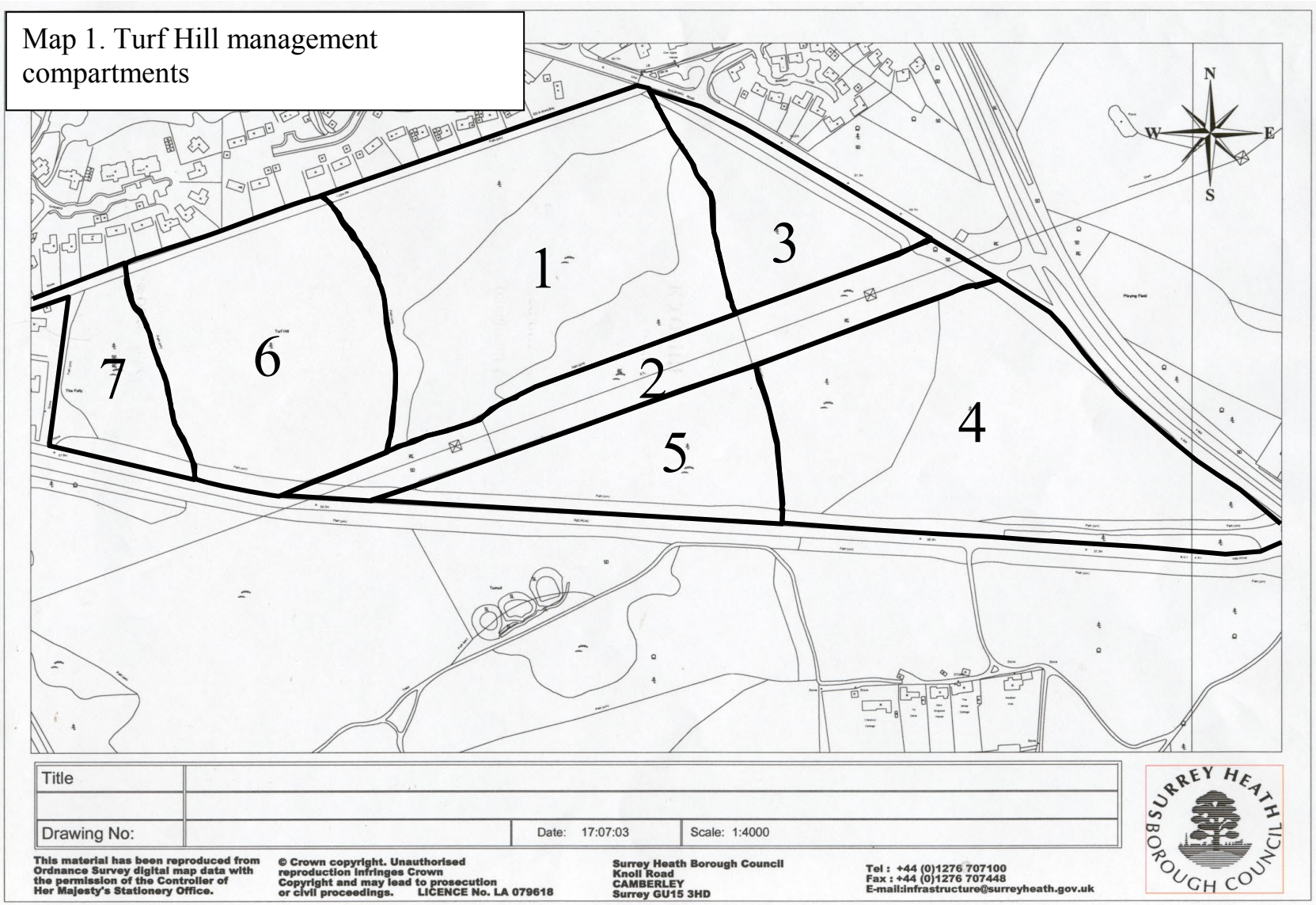
To date management of the heather canopy has only been carried across the open heathland compartments using a forage harvester. The aim has been to create and maintain a mosaic of differing ages and sizes of the heathland dwarf-shrub flora. In compartment 2, under the pylons some bare ground creation has taken place through scraping. Thus a whole range of conditions from bare ground through to mature heather can be found across these two compartments so providing suitable niches for a great variety of fauna and other flora.

Several years ago, in conjunction with the Herpetological Conservation Trust (H.C.T.) there was a reintroduction of Sand Lizard (*Lacerta agilis*) to the site. To enable breeding five sand tracers were created In order to maintain a viable breeding population annual works include the rotovating of these tracers and removal of any scrub around them.

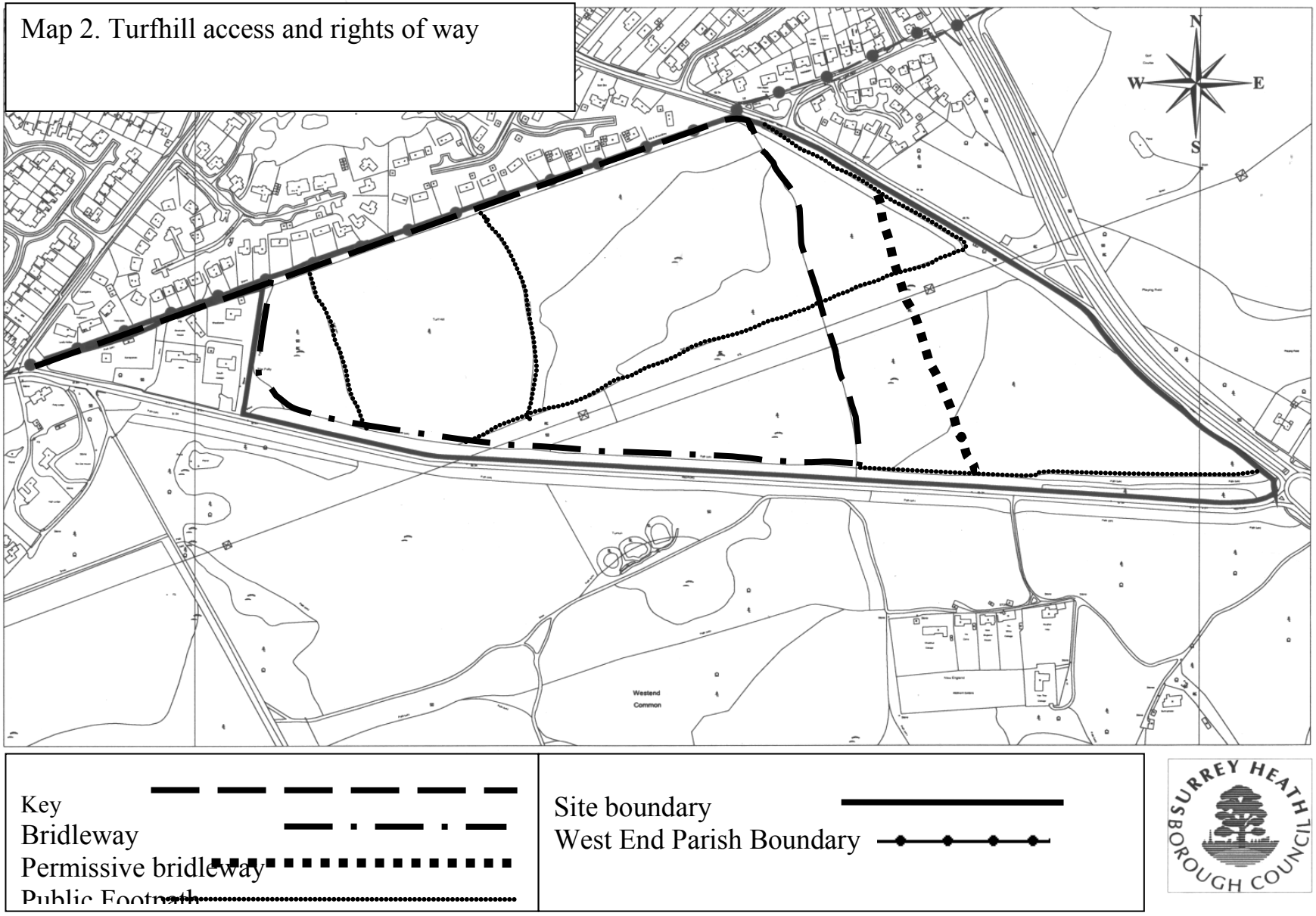
APPENDICES

APPENDIX 1. MAPS

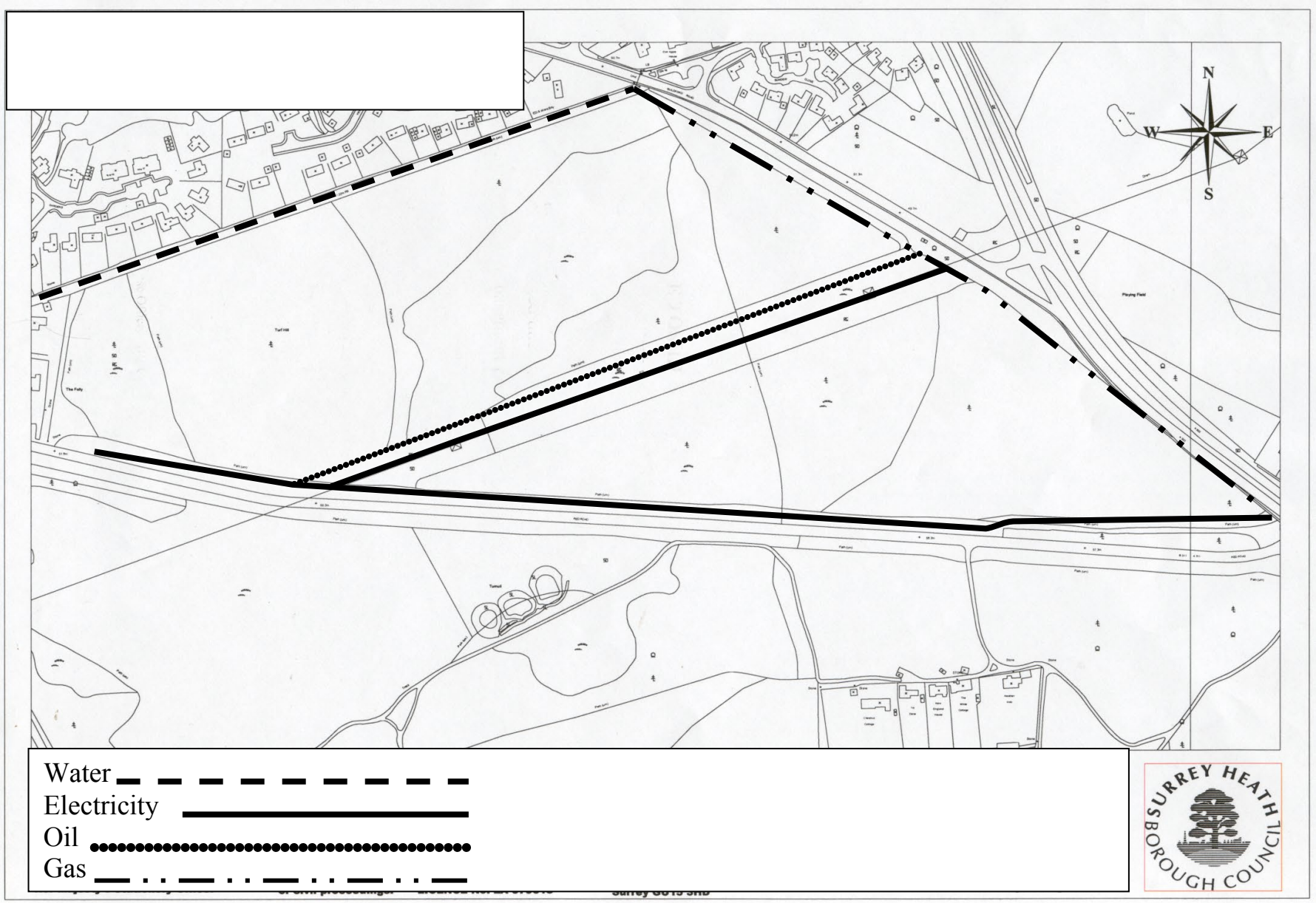
Map 1. Turf Hill management compartments



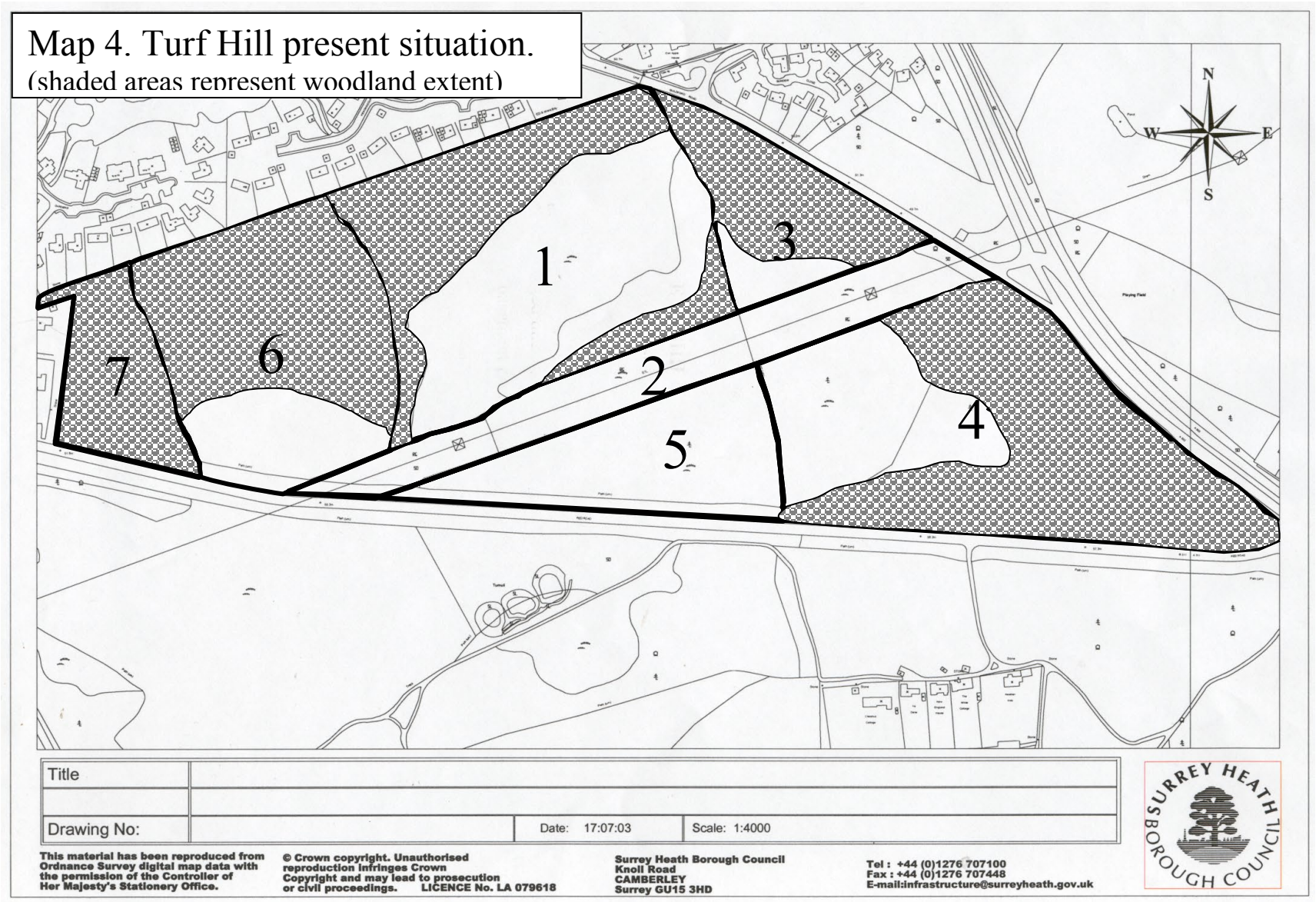
Map 2. Turf Hill access and rights of way



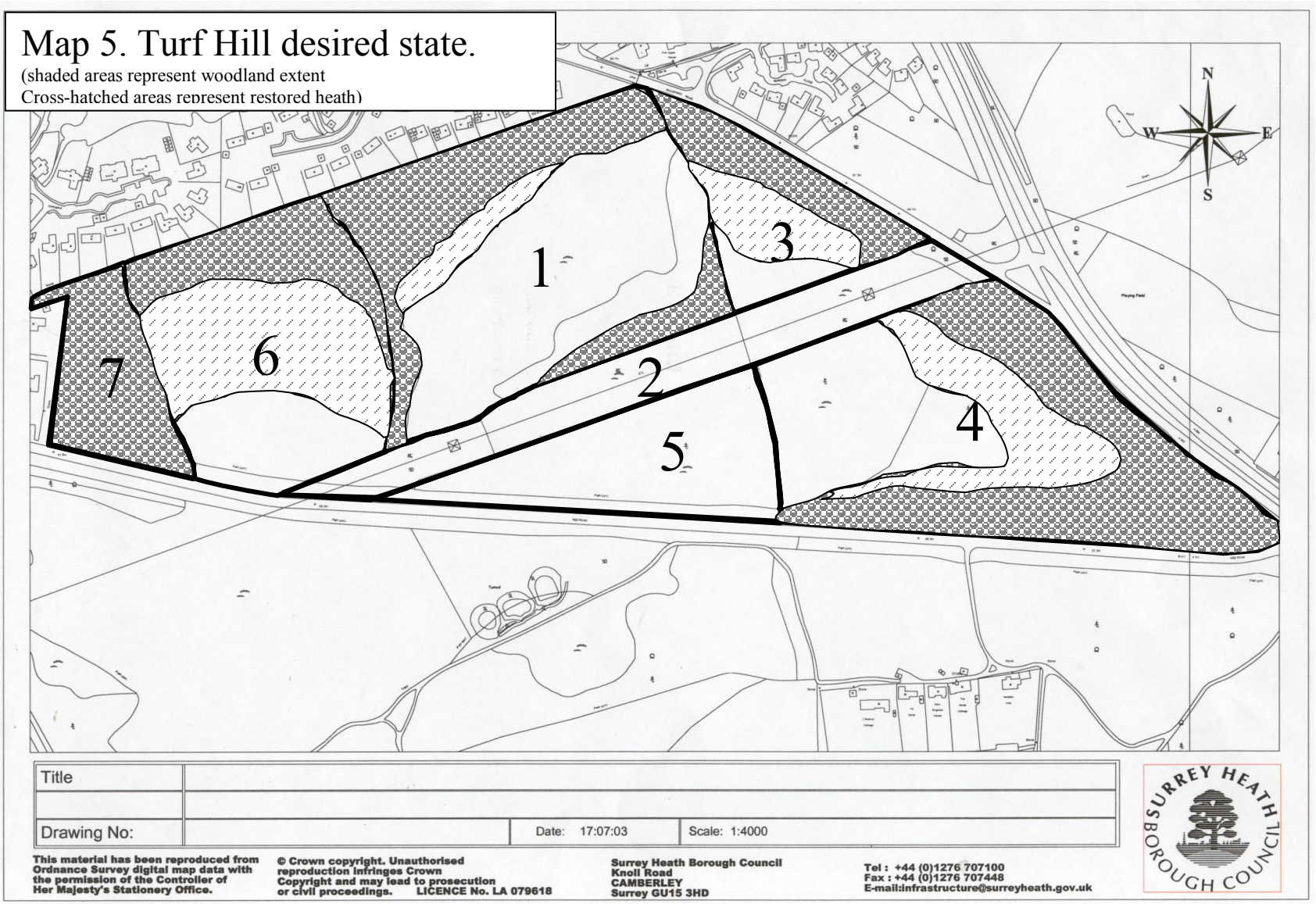
Map 3. Utilities within Turf Hill



Map 4. Turf Hill present situation.



Map 5. Turf Hill desired state



APPENDIX 2 Colony Bog and Bagshot Heath SSSI

Conservation objective for the European Interest on the SSSI

The conservation objectives for the European interest are:

- Subject to natural change, to maintain* in favourable condition, the Northern Atlantic wet heath with cross-leaved heath (*Erica tetralix*).
- Subject to natural change, to maintain* in favourable condition, the depressions on peat substrates.
- Subject to natural change, to maintain* in favourable condition, the dry heath.
- Subject to natural change, to maintain* in favourable condition, the habitats of the bird species of European importance +, with particular reference to lowland heathland.

The conservation objectives for the Thursley, Ash, Pirbright and Chobham Commons candidate Special Area of Conservation are, in accordance with para. C 10 of PPG 9, the reasons for which the cSAC was designated. The SSSI also forms part of the Thames Basin Heaths potential Special Protection Area (pSPA) for birds.

* Maintenance implies restoration if the feature is not currently in favourable condition.
+ Dartford Warbler, Nightjar and Woodlark.

APPENDIX 3 Turf Hill Sand Lizard Re-Introduction Project

Introduction

Turf Hill is the second Surrey Heath Borough Council owned heathland SSSI (after Lightwater Country Park) that can offer suitable conditions for the re-introduction of sand lizards (*Lacerta agilis*).
This site was until recently, covered in Scots Pine (*Pinus sylvestris*), but a felling programme under a council agreed management plan has resulted in the development of large scale dry and damp heathland. Since 1994 the management works of tree felling, scrub clearance and heather cutting has created a mosaic structure of height and age.

Suitability of Proposed Release Site

The most suitable release site lies on the south-west corner of Compartment 6. See Map 6.
This comprises a gentle South-facing slope covered by mature heather (*Calluna vulgaris).*
At present this area has invasive Birch (*Betula pendula*) and pine saplings, which if left unmanaged will take over. It also contains small blocks of Gorse (*Ulex europeaus*) which will need managing to ensure they stay compact in structure.
Fortunately the immediate area receives little public disturbance which might otherwise result in trampling and damage to the mature heather structure.
A site inspection has been made by the Herpetological Conservation Trust (H.C.T.) who believe the site, given the appropriate management would be a suitable location for the release of sand lizards.

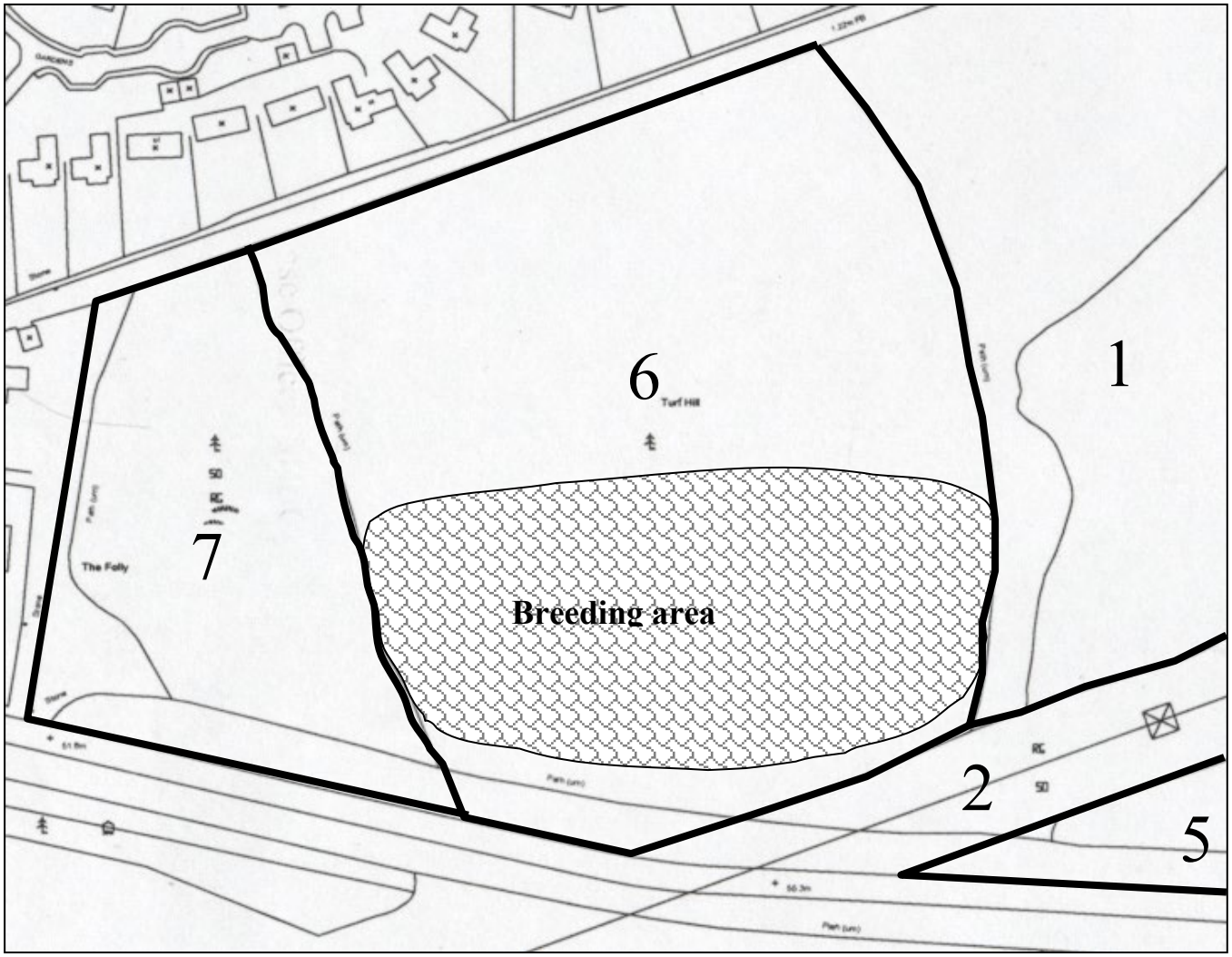
Management

In order to create a suitable release site for sand lizards the following works would need to be undertaken: -

- Removal of birch and pine saplings across the site.
- Management of the gorse blocks to prevent their spread.
- Removal of any non-native species such as Gaultheria (*G. shallon*) and Rhododendron (*R. ponticum*).
- Mechanical creation of sand tracers to produce loose, bare sand for egg incubation.
- Removal of a large percentage of mature trees and scrub from the areas adjacent to the release site in order to provide connectivity with other areas of open heathland across the whole site thus aiding sand lizard dispersal.

This management would take place with advice and under the guidance of the H.C.T. who would provide the donor animals.
To complement these specialist works the ongoing management to maintain a heathland mosaic of trees, scrub and heathers would continue across the whole site.

Map 6 Showing Sand Lizard release area



Appendix 9: Email Correspondence between Rushmoor and Surrey Wildlife Trust

From: Mike Waite <[redacted]>
Sent: Thursday, October 17, 2019 5:38 pm
To: Debbie Salmon
Cc: Sarah Jane Chimbwandira; [redacted]; Boyden, Adam; Cheryl Brunton; David Rumble
Subject: [EXTERNAL] RE: ExxonMobil pipeline replacement

Hi Debbie,

Firstly, could you please address my initial presumption of my previous email by explaining to me exactly how and on behalf of whom you are responding into this case. Forgive me, but Rushmoor (last time I checked) is part of Hampshire and not Surrey. Perhaps you are wrongly assuming I have some previous knowledge of your role in this.

Now. I have indeed looked at the relevant documents around the case (but actually not the HRA with much regard). In your appraisal of the impacts associated with the project (and there are many, I agree), you appear to be seeing these very much from a short-term (temporary) perspective. Concerning the SPA/SSSIs in Surrey, the route of the pipeline has been shifted to avoid/mitigate the potentially worst impacts at Colony Bog & Bagshot Heath (avoiding the highly sensitive Folly Bog), in direct response to our/NE's recommendations. Moving east, the second SPA/SSSI site is Chobham Common. We weighed-up the impacts arising from the two alternative routes here. Given that it was hardly worth taking on the community of Chobham in their opposition to the southern route anyway, we were of the opinion that the use of the corridor that essentially comprises the existing pipeline already, presents far more of an opportunity for beneficial long-term restoration of existing closed heathland within the SSSI (as net gains), than that offered by excavating a new route beyond the site. Dry heath is relatively recoverable; there are even opportunities to address cumulative surface eutrophication by burying the top-soil when back-filling. I had not contemplated any temporary impact that closure of SANGs might have on the SPA; however, one would hope that their follow-up restoration will include some of the useful priority habitat creation being generically pledged along the route by Jacobs/Esso.

I am afraid you are too late regarding the SoCG – this has already been signed-off by us and

returned to Jacobs (Esso's consultants). I have also been in consultation with our equivalent WT in Hants over this, and interestingly their main problem is around the Climate Emergency issue and the facilitation of air travel implied via this project (and not primarily nature conservation); again something I had not considered. You are correct, we manage the Surrey SPA/SSSI sites involved here, but we are not landowners. Rather, it is SCC at Chobham and the MoD at Brentmoor/Folly Bog. The stance of these parties therefore trumps ours in any event, as in fact would NE's with everyone's given its role as the legal regulators of the statutory designated sites.

I consider that I have also acted responsibly regarding the impacts to our Local Wildlife Sites (SNCI). I initially alerted Jacobs to the position and proximity of all these along the various route options and variants, and several route choices and proposed engineering solutions have been influenced accordingly. We have also flagged various opportunities for habitat creation in the restoration of the pipeline corridor, and all these suggestions have been met with positively. I am not in the business of mistrusting partners in the realisation of their negotiated promises, however.

So, in conclusion. Thank you for your concern over the risks to the biodiversity of our county arising from the pipeline project, but please rest assured that this is also our utmost concern, but we consider that we have acted adequately to this end.

With best wishes,
mike

Mike Waite MCIEEM
***Living Landscapes Manager* (*Strategic*)**
Surrey Wildlife Trust
School Lane**|**Pirbright**|**Surrey**|** GU24 0JN
[redacted]
[redacted]

From: Debbie Salmon [[redacted]]
Sent: 17 October 2019 15:56
To: Mike Waite
Cc: Cheryl Brunton; Mark Knight
Subject: Re: ExxonMobil pipeline replacement

Dear Mike
Thankyou for getting back to me.

I am very surprised you feel that net gains have been achieved in this case and wonder whether you have had the opportunity to study the application documents.

The HRA is very poor with open trenching occurring across the SPA and significant amounts of habitat being lost with no compensation whatsoever being provided and no significant impacts being raised. Our barrister and myself have looked at the information for the HRA and both feel that there is significant risk that the applicant may need to look at IROPI in this case. The inspector also has concerns especially in regards to NE not registering as an interested party. This impact is being raised by all the LAs in Surrey and I believe the concerns include damage to Chobham common which I believe SWT manage.

There is disruption of at least 5 SANGS intended to provide mitigation for the SPA and indications these could be disrupted in the summer months and could be disrupted at the same time. This could drive a number of current users back onto the SPA.

There are a significant number of SNCIs being impacted across Surry and Hampshire and possibly into London. No mitigation has been provided within our area and I know there are concerns in the Surrey districts also.

A significant amount of Tree cover and multiple Hedgerow of Importance under the hedgerows act are being impact with no augering or DD to protect their integrity.

You are mentioned as a organisation that will be signing a SOCG with the applicant. I would be very concerned that an ecological organisation would agree no impact on such a damaging project,as this would undermine all the parties who are trying to protect the international, national and local network and ensure no loss of tree cover

I would also caution you that if you are relying on verbal rather than legal agreement you study the docs to ensure your agreement are being honoured as no agreements with any LA have been incorporated within the DCO or the app documents.

Of course it is up to SWT how they respond to this application but I would be very happy to met to discuss erns further if this would be helpful
Regards

Debbie

From: Mike Waite [redacted]
Sent: 08 October 2019 15:32
To: Debbie Salmon [redacted]>
Cc: Cheryl Brunton [redacted]>; Mark Knight
[redacted]
Subject: ExxonMobil pipeline replacement

Dear Debbie,

It is my understanding that you are acting in a lead capacity for a joint consultation with affected LPAs on this scheme. As it is a DCO application, are you presently responding to the consultation on this? (application in process currently). Our LPAs are Surrey Heath, Spelthorne and Runnymede and I know that the last has been involved along the way to DCO as a significant land-owner. The SWT Planning Services team has not been consulted by either of these for ecological advice to date. This I imagine is because it falls beyond the 'normal' DM advisory service. SWT, as a eNGO and an affected land-owner/occupier, has been closely involved along the way to the DCO application and has responded into the various stage consultations by ExxonMobil. We are unlikely to respond to the DCO itself as all our preferences and asks towards achieving net gains have been met, and are being secured via other agreements/documents. It gets quite complicated and I don't profess to understand all of the synchronised legalities.

So we are not planning to offer any planning advice to Surrey Heath, Spelthorne or to Runnymede. With the last, I have kept up a liaison in order to complement/reinforce their negotiation to mitigate impacts on their sites, some being Local Wildlife Sites (SNCI in Surrey).

Hope this helps,
mike

Mike Waite MCIEEM
***Living Landscapes Manager* (*Strategic*)**
Surrey Wildlife Trust
School Lane**|**Pirbright**|**Surrey**|** GU24 0JN
[redacted]
[redacted]

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Appendix 10: Technical Note - Hedge HCX 130

Southampton to London Pipeline Project

Hedge - HCX 130 Technical Note

Revision No. 1.0

December 2019

Contents

1 Introduction

1.1 Context

1.1.1 This Technical Note has been prepared by Esso Petroleum Company, Limited (the Applicant) as part of the examination for development consent for the Southampton to London Pipeline project (the project).

1.1.2 Development consent is sought for the construction of a cross-country pipeline by the Applicant. This is to replace an existing pipeline that is approaching the end of its economic life. The replacement pipeline will run from Boorley Green in Hampshire to the Applicant's West London Terminal storage facility in the London Borough of Hounslow.

1.1.3 The project is a Nationally Significant Infrastructure Project (NSIP) within section 14(1)(g) of the Planning Act 2008 (as amended) ('the 2008 Act") for which development consent is required under section 31 of the 2008 Act. Development consent is required before the development can proceed.

1.1.4 An application for development consent for the SLP project was made by the Applicant to the Planning Inspectorate (PINS) on 14 May 2019. This application was accepted for examination by PINS on 11 June 2019.

1.2 Purpose of the Technical Note

1.2.1 During a site visit in April 2019, the South Downs National Park Authority (SDNPA) confirmed its objection to open cut methodology being used to install through a hedgerow to the east of Chawton Registered Park and Garden, which has a specific cultural association with Jane Austen. This hedgerow is identified in the application as HCX 130, works number WCX020.

1.2.2 This Technical Note has been produced in order to provide an outline methodology that the project could implement to retain the hedgerow, for the SDNPA to review.

2 HCX 130

2.1 Background

2.1.1 The Order Limits contained in the project's application for development consent are wholly outside of the Registered Park and Garden, (which is crossed by the existing pipeline).

2.1.2 During a site visit in April 2019, the South Downs National Park Authority (SDNPA) confirmed its objection to open cut methodology being used to install through a hedgerow to the east of Chawton Registered Park and Garden, which has a specific cultural association with Jane Austen. This hedgerow is identified in the application as HCX 130, works number WCX020.

2.1.3 The hedgerow that SDNPA is concerned about extends out eastwards from the Registered Park and Garden designation. The location identified for the hedgerow crossing lies outside of that designation.

2.1.4 The SDNPA requested that the project consider means to retain the part of this hedgerow within the Order Limits because it is a continuation of the culturally associated hedgerow.

2.2 Historic and Cultural Importance

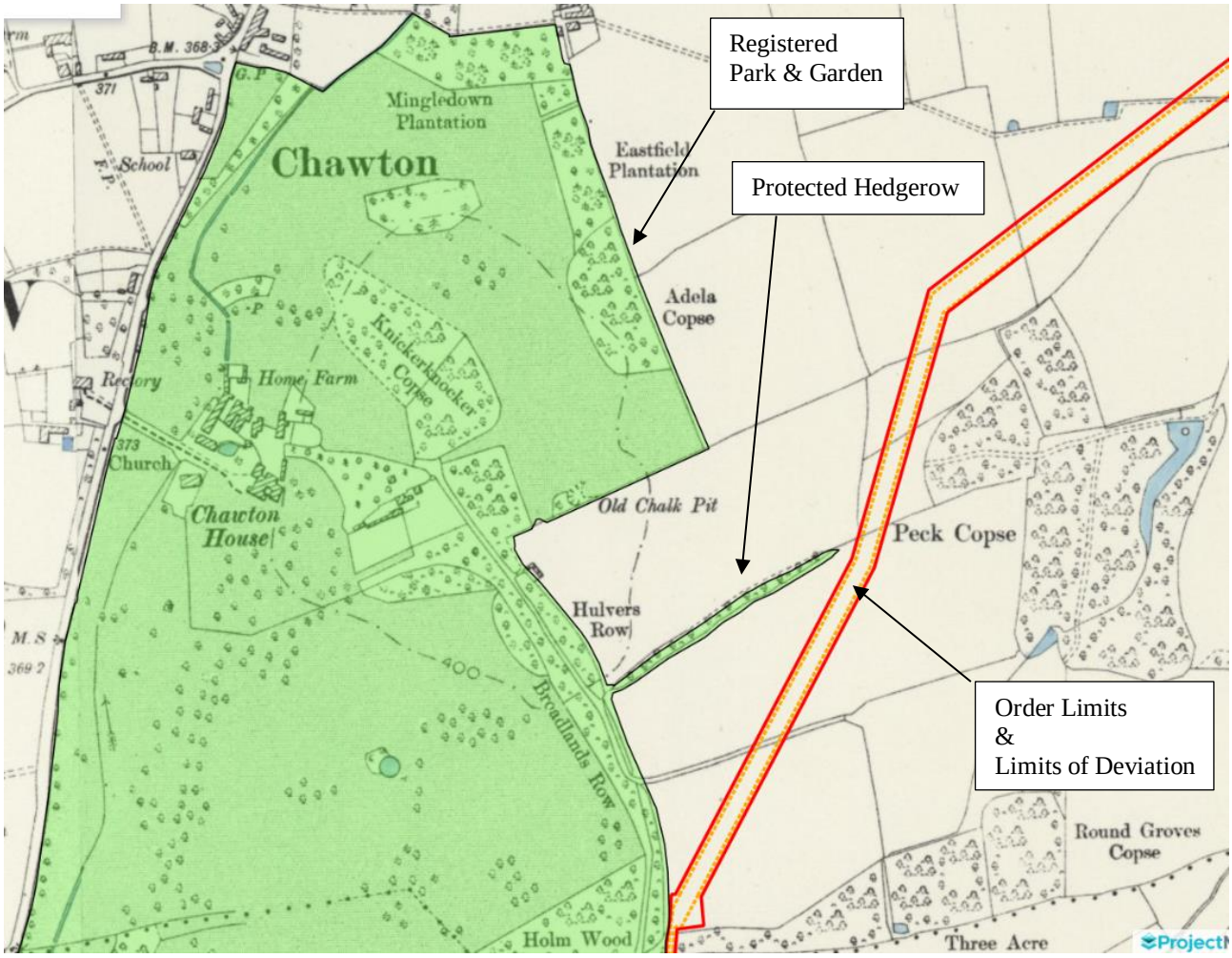
2.2.1 The project has identified that a hedgerow, known as Hedge – HCX 130 - located east of Chawton Park, would be impacted by the construction of the replacement pipeline. This hedge has been identified as important under the Hedgerow Regulations 1997.

2.2.2 Historic England reference the hedgerow within the description of Chawton House Registered Park and Garden*:*

2.2.3 *'The ancient coppice row which runs north-east from Broadlands Row supplied Jane Austen with the setting for the conversation between Captain Wentworth and Louisa Musgrove, `in the hedge-row behind [Anne], as if making their way along the rough wild sort of channel, down the centre' (Persuasion, Chapter 10).*

2.2.4 Figure 1 is the Ordnance Survey map from 1888, with the application Order Limits overlaid

Figure 1: 1888 Ordnance Survey Map showing Registered Park & Garden and Application Order Limits



3 DCO application proposals for crossing HCX 130

3.1.1 The section of hedge within the Order Limits is labelled as HCX 130 in Figure 2 and Figure 3 which show the winter and summer aerial photography respectively.

Figure 2: Winter Aerial Imagery showing section of hedgerow within Order Limits

Figure 3: Summer Aerial Imagery showing section of hedgerow within Order Limits

3.1.2 The area of hedgerow outside of the Registered Park and Garden is made up of native species including field maple, hazel, blackthorn hawthorn, elder, rose and spindle.

3.1.3 The DCO application proposes to remove 10m of the hedgerow within the Order Limits to allow space for pipeline installation. This includes a haul road, installing the pipeline using open cut methodology, and then reinstating the hedgerow with native species.

3.1.4 The application contains a number of commitments that both reduce the temporary installation impacts and, make sure that the works appropriately address the retention and protection of the surrounding hedgerows as set out in Table 1 below.

Table 1: Commitments

Commitment Reference	Measures Description	Where is it secured in the Draft DCO
O1	Commitment to only utilise a 10m width when crossing through boundaries between fields where these include hedgerows, trees or watercourses.	CoCP - Requirement 5
G87	Vegetation clearance, retention, protection and replanting/reinstatement drawings would be produced prior to the construction phase. The contractor(s) would implement these plans including agreed mitigation where practicable.	CoCP - Requirement 5, Hedgerows and trees - Requirement 8 and LEMP - Requirement 12
G88	Where possible, reinstatement of vegetation would generally be using the same or similar species to that removed (subject to restrictions for planting over and around pipeline easements).	CEMP - Requirement 6, Hedgerows and trees - Requirement 8 and LEMP - Requirement 12
G91	The contractor(s) would retain vegetation where practicable and in accordance with, as a minimum, the vegetation retention drawings.	CoCP - Requirement 5, Hedgerows and trees - Requirement 8 and LEMP - Requirement 12
G92	A three-year aftercare period would be established for all mitigation planting and reinstatement. [Note that at the draft DCO Issue Specific Hearing on 27 November 2019 the Applicant committed to extend this to a five year period]	CoCP - Requirement 5, Hedgerows and trees - Requirement 8 and LEMP - Requirement 12
G93	Hedgerows, fences and walls would be reinstated to a similar style and quality to those that were removed, with landowner agreement.	CoCP - Requirement 5 and Hedgerows and trees - Requirement 8

4 Options for Retaining the Hedge

4.1.1 In response to the concerns expressed by SDNPA, the project has reviewed historical maps and its position remains that the Registered Park and Garden boundary captures all of the culturally important coppiced hedgerow.

4.1.2 However, the project wishes to respond to the SDNPA's concerns, and recognises that the section of hedgerow to be crossed has a relationship to the setting of the culturally important hedgerow within Chawton Park Registered Park and Garden.

4.1.3 As such, the project has reviewed methods that could be used to retain the hedgerow and allow the pipeline to be installed beneath the hedge. These include the following:

- Option 1 - coppice the hedge down to 150mm above ground level and apply a layer of wood chip to protect and cushion stumps prior to, bridging the retained stumps with boarding and timber to form a haul road and then the pipe pushed under the hedge adjacent to this.
- Option 2 – lay the hedge by partially cutting through the stems (pleaching) and laying them over sideways, and use bog mats/suitable protection to bridge over the laid over hedge to form a haul road and then the pipe pushed under the hedge adjacent to this.

Option 1

4.1.4 Description of the installation and haul road methodology:

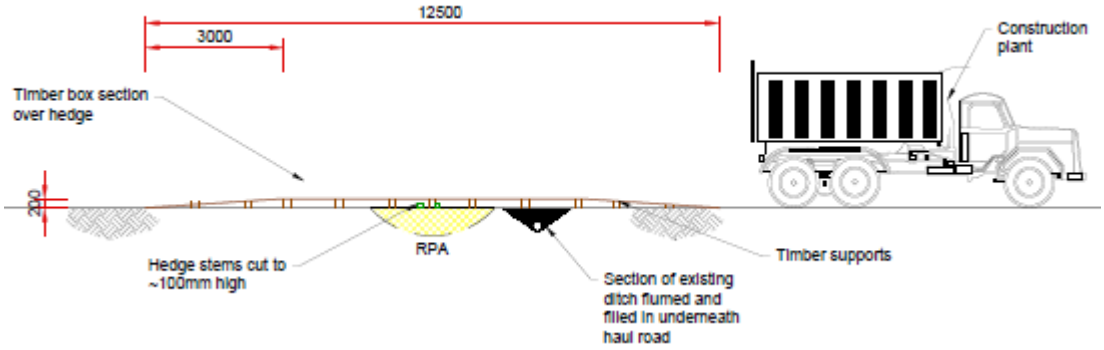
Preparation and haul road installation

1. Across a narrowed width of approximately 5m, the existing hedge will be coppiced down leaving stumps approximately 150mm above existing ground level.

2. A layer of wood chip 100-150mm deep will be applied around the stumps to provide a level of protection and to help retain moisture.

3. A horizontal framework of timber will be installed in between the hedge stumps as shown Figure 3 below.

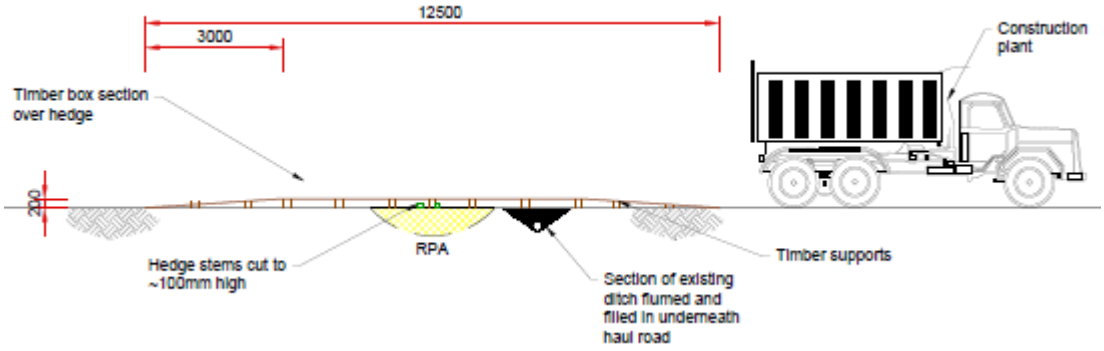
Figure 4: Indicative Section showing temporary timber and boarding to bridge over cut hedge stems



4. Boarding or bog matts will then be installed above the timber. The boarding will be supported by the timbers thereby ensuring that the hedge stumps are not directly trafficked on. Gaps will be left between each board to ensure the ingress of rainwater. This arrangement will be used to enable construction vehicles to cross from one side of the hedge to the other.

5. The Ecological Clerk of Works will ensure that the condition of the coppiced stumps is monitored and appropriate care given to ensure that they remain watered and in suitable condition for the duration that the haul road is in place.

Figure 5: Indicative Section showing temporary timber and boarding to bridge over cut hedge stems

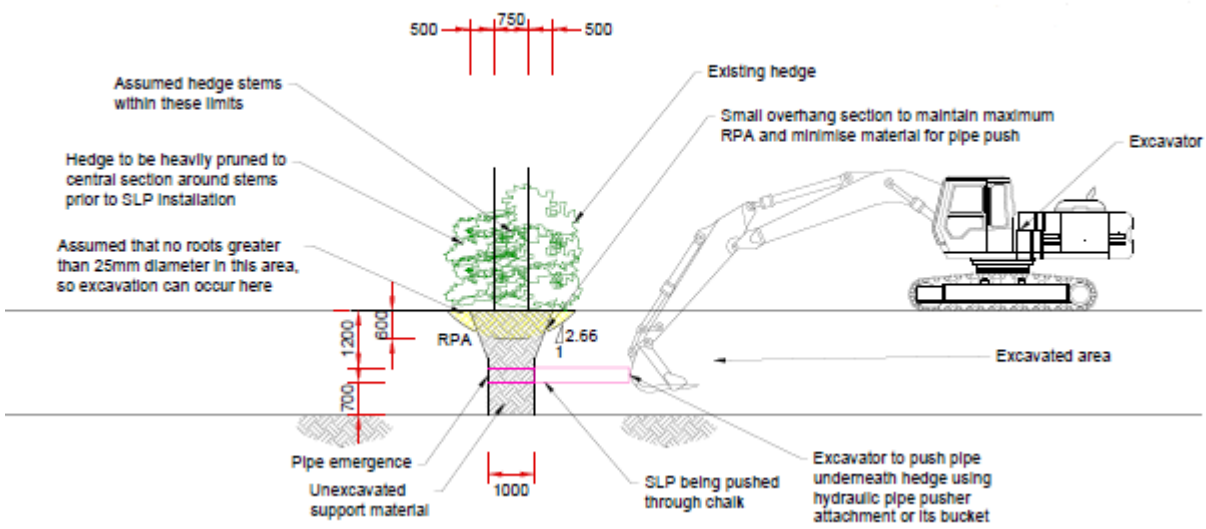


Pipeline installation

6. A trench will be excavated either side of the hedge stopping at a distance of around 0.5m from the hedge stem limits, as it is unlikely that any significant roots (>25mm) critical to the health of the hedge would be found in this area.

7. The excavator bucket will then be used to excavate under the hedge roots as shown in Figure below. This excavation will be done from either side of the hedge to leave circa 1m width of unexcavated material directly under the hedge.

Figure 6: Indicative Section showing installation SLP under hedge



8. A section of pipe will then be lowered into the trench and set to the right level to meet the minimum cover depth for the installed pipeline.

9. Using a hydraulic pipe push attachment on the excavator arm, a length of pipe would be pushed through the unexcavated material directly under the hedge using a hydraulic pipe pusher attachment on an excavator arm or using the bucket of an excavator as shown in Figure .

10. The pipe installed beneath the hedge will be welded to pipe lengths on either side, using the pipe reception trenches for access.

11. The trench under the hedge roots and pipe reception trenches will be filled with free draining gravel around the pipe, with excavated fill material on top to replicate existing drainage to encourage root growth.

Removal of haul road

12. Following completion of works in the area for which the haul road is required to be in operation, the timber bridging will be removed and the undamaged hedge stems left to regrow.

4.1.5 This method would allow the haul route to continue through the hedge without long term damage to the hedge occurring. By pushing the pipe beneath the hedge there would not be a ‘gap’ in the hedge. Regrowth would be uniform across the full width of the reduced hedgerow.

Option 2

4.1.6 Description of the installation and haul road methodology:

1. Across a narrowed width of approximately 5m, the existing hedge will be heavily pruned. The stems will then be professionally laid.

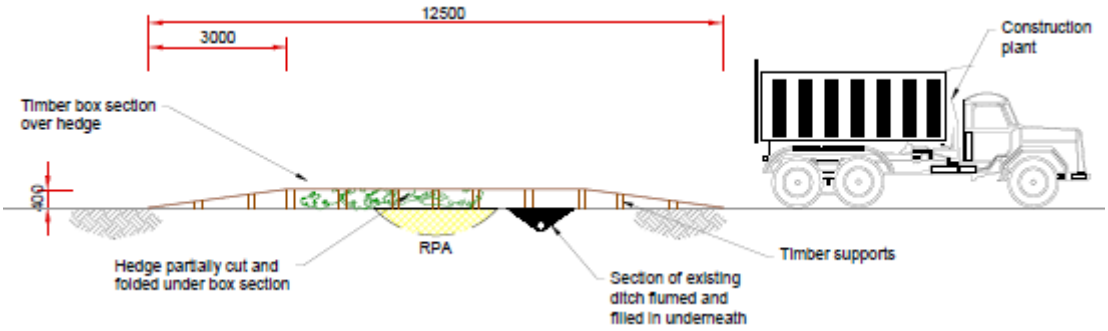
2. A layer of wood chip 100-150mm deep will be applied around the stems to provide a level of protection and to help retain moisture. A horizontal framework of timber will be installed in between the laid over hedge as shown in Figure 6.

3. Steps 3 – 9 from Option 1 above will be followed.

4. The bog mats or timber bridging will be removed and vertical posts installed in between the laid stems.

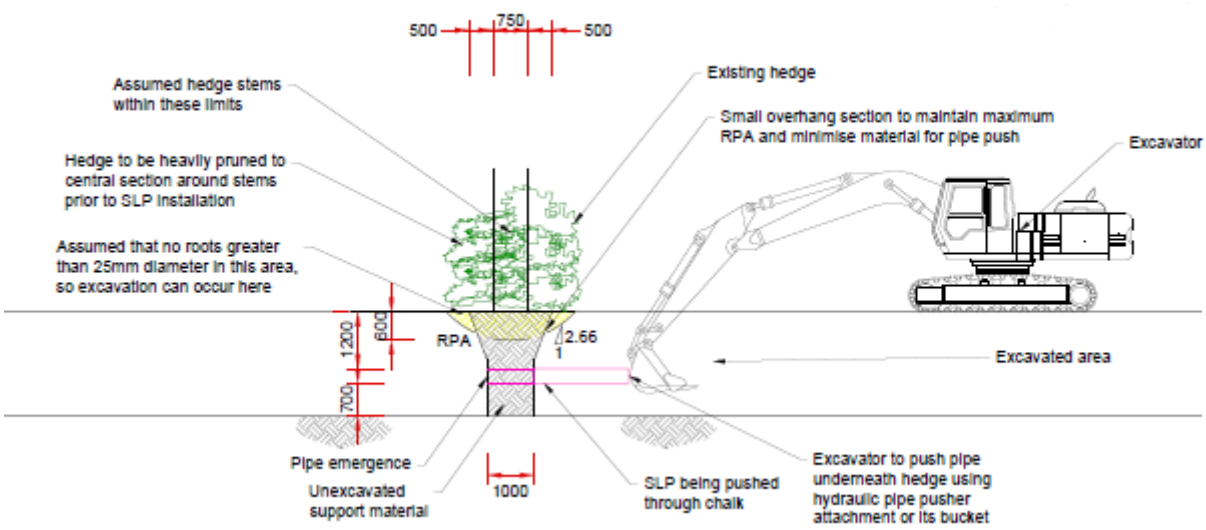
5. The laid stems will be lifted and woven around the vertical posts to provide a traditional laid hedge.

Figure 7: Indicative Section showing temporary timber and boarding to bridge over laid hedge stems



4.1.7 This method would allow the haul route to continue through the hedge without significant damage to the hedge occurring. By pushing the pipe beneath the hedge there would not be a ‘gap’ in the hedge. Regrowth would be uniform and occur quickly due to the hedge stems remaining partially intact throughout the process.

Figure 8: Indicative Section showing installation SLP under hedge



5 Conclusion

5.1.1 The project considers that the most beneficial option to be selected would be Option 2 – lay the hedge over sideways, then use bog mats/suitable protection to bridge over the laid over hedge, then push the pipe under the hedge adjacent to this.