Southampton to London Pipeline Project

Volume 6

Environmental Statement
Habitat Regulations Assessment (2 of 2)

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Appendix E. In-combination assessment

Table E1: Stage 1 in-combination assessment results

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
NSIP/Significant Developments considered						
Heathrow Expansion - Adding a northwest runway at Heathrow to increase air-traffic movement, in addition to supporting airfield, terminal and transport infrastructure, works to the M25, local roads and rivers. Located 1km to the north of the SLP project Order Limits.	South West London Waterbodies SPA and Ramsar Both sites are 3.2km from the Heathrow Expansion.	Application for development consent due in 2019/2020 (Scoping Report May 2018)	Yes (Planned commencement of development 2021)	Not to date	Despite temporal overlap between this development and the project during the construction phase, the Heathrow Expansion is unlikely to contribute to visual, dust or noise cumulative effects due to distance. As the project would not contribute to air quality impacts to these sites, impacts associated with traffic are screened out.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Southern Rail Link to Heathrow - Southern rail connection between Chertsey, Virginia Water and Staines with Heathrow Terminal 5. This scheme intersects with SLP project.	Three component sites of the South West London Waterbodies SPA	Operational likely between 2025-2027	No timescales published. There is a possibility that construction timescales would overlap with the SLP project.	Not to date	Possible contributions to disturbance to SPA birds from noise and visual stimuli should construction programs align. On the basis SLP project's contribution would be *de minimis* and that the rail link would run mainly in tunnel to reduce environmental impact, no LSE anticipated.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
River Thames Scheme - Flood relief channel from Datchet to Teddington Lock. Flood channels between 30 to 60m wide and 14 km long. This scheme intersects with SLP project Order Limits.	Thorpe Park No. 1 Gravel Pit SSSI component site of the South West London Waterbodies SPA	Application received 2018. Construction between 2020 and 2025	Yes (Planned commencement of development 2020-2021)	Not to date	Intersection with one SPA site to which no pathways for effect were identified due to distance from the Order Limits. In-combination effects unlikely.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Other Planning Applications within 1km of the Order Limits and a European site (or where connectivity was established)						
Eastleigh Borough Council F/15/76235 - Botley Trunk Sewer, Botley, Southampton. Construction of a 5km trunk sewer and associated works including new pumping station and pipe bridge. Between 0-500m from the SLP project Order Limits.	Solent and Southampton Water SPA/ Ramsar Dorest and Solent Coast pSPA Solent Maritime Ramsar and Solent and Southampton Water SAC	Planning permission on 20 July 2015		The project is conditioned to ensure no adverse impacts to the features of the European sites is may effect. For example, the works would be carried out in accordance with an approved method statement and the clearance and pruning of trees and vegetation would only be undertaken from 1st April to 30 September (Eastleigh Borough Council, 2015).	No in-combination effects are anticipated during the construction and operation of the scheme in view of the mitigation proposed by the applicant and on the basis effects to these sites from the SLP project are anticipated to be negligible.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
Application 12/0546: Hybrid planning application for major residential-led development of 1,200 new dwellings (114.32ha) - Princess Royal Barracks, Brunswick Road, Deepcut, Camberley, GU16 6RN. 125m from SLP project.	Colony Bog and Bagshot Heath SSSI component of Thames Basin Heaths SPA	Construction to start in 2018	Yes	NA	Located >1km from SPA so possibility of LSE from noise and visual disturbance contributions are dismissed, due to distance. Possible in-combination effects with the project due to disturbance caused by increased recreational activities. However, housing developments are mitigated through enforcement of the Thames Basin Heaths Special Protection Area Delivery Framework.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Application no: RU. 16/1053. Redevelopment of land to rear of existing office buildings to provide 174 residential units and associated access, car parking and landscape works (1.6ha) at land to the rear of Aviator Park, Station Road, Surrey.	None identified due to distance. Nearest European site is over 3km away.	Application made 30/06/2016	No	NA	No pathway for in-combination effects identified. Displacement of recreational activities is considered to be mitigated through enforcement of the Thames Basin Heaths Special Protection Area Delivery Framework.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Application RU.16/1748 Proposed works comprising: 1) Multi-faith Prayer Room; 2) Offices and ancillary accommodation for intensive therapy unit and coronary care unit (1.44 ha) and 3) Modify the Outpatients Block at St Peters Hospital, KT16 0PZ.	None identified. Nearest European site over 2.5km away.	Application made 18/12/2017	Yes	NA	No pathway for in-combination effects identified.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Application RU.17/1136. Proposed demolition of existing Runnymede Centre and construction of new secondary school and associated developments (total 1.9 ha) at Chertsey High School, KT15 2EP.	Thorpe Park No. 1 Gravel Pit SSSI component site of the South West London Waterbodies SPA Development location 2.2km from SPA boundary	Application made 18/07/2017	Yes	NA	Extremely limited potential for in-combination effects with respect to visual, dust, and noise due to distance to SPA and location of the development within a developed residential area with no SPA bird habitat.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Runnymede RU.18/1280 Construction of 158 residential dwellings, new access road to the south of Hanworth Lane, open space, landscaping and sustainable drainage systems. Within 100m of SLP project Order Limits.	Nearest site (South West London Waterbodies SPA) over 1.75km away and no pathways to effects identified	Currently under consideration	Potentially	Unknown	No In-combination effects anticipated during the construction and operation of the residential development due to the low ecological value of habitats in the area and weak contribution of SLP project to changes in the noise, visual and hydrology baseline within the SPA.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
Eastleigh Borough Council O/12/71514 Outline application with all matters reserved (except for access) for the demolition of golf driving range shelter and groundsman's equipment store and the development of 1,400 homes with access from Winchester Road and Maddoxford Lane. Includes upgrades to the Winchester Road/Woodhouse Lane Junction and approaches and Maypole Roundabout; Construction of Sunday's Hill Bypass and approaches, extension to existing hotel (including new conference and leisure facilities, 44 new bedrooms and car parking); Creation of new local centre (incorporating energy centre, pub, assisted living accommodation, retail and employment floorspace, including change of use of Braxells Farm House to employment); Primary school, multi-purpose community building, sports and open space facilities including play areas, allotments and Multi-Use Games Area; and Changing facilities, together with construction of roads, footpaths (including diversion of Footpath No. 2) and cycle ways, and pumping stations. Within 500m of the SLP project Order Limits.	None identified. Nearest SAC over 3km away and no pathways to effects identified.	Application made: 10/11/2016/ 13/10/2017	Potentially	NA	No pathways to effects identified.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Eastleigh Borough Council O/15/75953 Outline application for up to 680 residential units, mixed use comprising of retail and/or community/healthcare use, land for two-form entry primary school, formal and informal open space and sports pitches. New access off Winchester Road, associated on-site roads, infrastructure and	None identified. Nearest SAC over 3km away and no pathways to effects identified.	Received: 03/02/2015	Potentially	Unknown	No pathways to effects identified.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
footpaths/cycleways. Detailed matters for determination access (all other matters reserved – scale, appearance, landscaping and layout). Within 500m of the Order Limits.						
Eastleigh Borough Council O/16/79600 Outline Application for demolition of existing residential dwelling and associated farm buildings, development of up to 50 dwellings with access from Maddoxford Lane, site infrastructure, open space and associated landscaping. Located less than 50m from the Order limits	Potential hydrological connection to Solent and Southampton Water SPA, Solent Maritime SAC and Dorest and Solent pSPA	Within 5 years of 2016	Potentially	Unknown	No in-combination effects are anticipated during the construction and operation of the scheme due to the weak nature of the pathway to effects from the proposed project and on the basis effects to these sites from the SLP project are anticipated to be negligible.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Eastleigh Borough Council O/18/83634 Hybrid planning application for the proposed development of a residential and education led site with access off Woodhouse Lane. Outline: Up to 605 residential dwellings, a local centre, pedestrian and cycle links, a pedestrian Site of Interest for Nature Conservation crossing, drainage, public open space, landscaping, other supporting infrastructure and mitigation measures (including noise attenuation) associated with the development. Located less than 500m from the Order limits	None identified. Solent and Southampton Water SPA, Solent Maritime SAC and Dorest and Solent pSPA are located within 1.6km, but no hydrological connection is apparent and no pathways to effects have been identified.	Date received 17/07/2018	Potentially	Unknown	No in-combination effects anticipated during the construction and operation of this scheme due to the separation provided by the railway.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Eastleigh Borough Council O/18/83698 Erection of up to 375 dwellings, public open space, allotments, drainage, landscaping, other supporting infrastructure and mitigation measures associated with the development. Two new accesses onto Winchester Street, associated on-site roads, footpaths/cycleways and setting of a Public Right of Way (route number 3).	Solent and Southampton Water SPA, Solent Maritime SAC and Dorest and Solent pSPA are located within 1.6km, but no hydrological connection is apparent and no pathways to effects have been identified.	Submitted December 2018)	Potentially	Unknown	No in-combination effects anticipated during the construction and operation of this scheme due to the separation provided by the railway.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
Located less than 500m from the Order limits.						
Hampshire County Council CS/17/81226 Construction of a bypass for Botley, providing a connection from Station Hill (A334/A3051 junction) to Woodhouse Lane together with associated improvements/enabling works to Woodhouse Lane. Located less than 500m from the Order limits.	The application site lies within proximity to the Solent and Southampton Water SPA/ Ramsar, the Dorest and Solent pSPA and the Solent Maritime SAC	Application made 15 November 2017	Potentially	The application is accompanied by a Technical Note to inform a HRA. The assessment concludes that the development would not result in a likely significant effect on any international site.	No in-combination effects are anticipated during the construction and operation of this scheme due to the weak nature of the pathway to effects from the proposed project and on the basis effects to these sites from the SLP project are anticipated to be negligible.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Hampshire County Council CS/18/82664 Development of the site for a new two-form entry primary school, consisting of a two-storey building with single-storey kitchen/plantroom attached, inclusion of a grass sports pitch and hard courts as well as staff car parking. Located less than 500m from the Order limits.	Solent and Southampton Water SPA, Solent Maritime SAC and Dorest and Solent pSPA are located within 1.6km, but no hydrological connection is apparent and no pathways to effects have been identified.	Submitted December 2018)	Potentially	Unknown	No in-combination effects anticipated during the construction and operation of this scheme as both would have very localised impacts which do not overlap geographically. Separation also provided by the railway.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Hart District Council 16/00564/OUT Outline application for commercial B1, B2, B8 development comprising 10 industrial units at land on the East Side of, Beacon Hill Road, Ewshot, Farnham, Surrey. Intersects SLP	Scheme is located 500m from the Bourley and Long Valley SSSI component of the Thames Basin Heaths SPA.	Amended plans, Flood Risk Assessment and Design and Access Statement received 23 October 2017	Potentially	Application reviewed by Hart District Council's (HDC) Ecologist who does not consider that the proposed development would result in any direct impact on any designated sites of nature conservation value (Hart District Council, 2018). The application is subject to the submission of an ecological mitigation strategy and management plan to and agreed with HDC prior to any works being begun on site. It is stated that the strategy should be closely informed by the further survey work.	No in-combination effects are anticipated during the construction and operation of the scheme in view of the mitigation proposed by the applicant and low-potential for impacts to site features as determined by HDC. The impact of increased recreational activities is considered to be mitigated through enforcement of the Thames Basin Heaths Special Protection Area Delivery Framework	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Hart District Council 17/00471/OUT The proposed development would comprise the following: • Up to 1,500 residential dwellings (189 for the detailed component and up to 1,311 for the outline component);	Scheme is located 500m from Eelmoor Marsh SSSI component of the Thames Basin Heaths SPA.	Application submitted February 2017	Potentially	Unknown	No in-combination effects are anticipated during the construction and operation of the scheme on the basis effects to the Eelmoor Marsh SSSI from the SLP project are anticipated to be negligible in view of the nature of supporting habitat within the site relative to the location of the Order Limits.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
• Up to 1,460 m2 GEA commercial space (0 m2 Detailed, up to 1,460 m2 Outline); • Up to 1,194 m2 GEA community space (0 m2 Detailed, up to 1,194 m2 Outline); • A two-form entry (FE) primary school of up to 2,620 m2 GEA; • Integrated open space and greenways to link the development with surrounding woodland; and highways improvements Located less than 500m from the Order limits						
Hart District Council 18/00694/OUT Outline application for redevelopment of the site to provide a mixed-use retail and industrial park, comprising up to 4,246m2 of business floorspace (Class B1/B2/B8 and/or Trade Counter (Sui Generis)), up to 3,782m2 of retail floorspace (Class A1) and up to 186m2 of Class A1, A3 and/or A5 floorspace, including car parking and hard and soft landscaping. Intersects SLP	Scheme is located c.600m from the Bourley and Long Valley SSSI component of the Thames Basin Heaths SPA.	Application date 12 March 2018	Potentially	Unknown	No in-combination effects are anticipated during the construction and operation of this scheme and SLP as both would have very localised impacts.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Runnymede RU.13/0857 Hybrid planning application for the change of use from agriculture to publicly accessible open space (Sui Generis use), together with associated development, car park, footpaths and landscaping, including a detailed first phase of development comprising road access to an onsite car park with 12 spaces, an 800m hoggin path, dog proof fencing, gates, benches, signs and landscape planting, including trees and scrub and a wildflower grassland within a 5.1ha area	Scheme located within 1km of the Chobham Common SSSI component of Thursley, Ash, Pirbright and Chobham SAC	Application submitted August 2013	Potentially	Unknown	No LSE anticipated. No development within the SAC and no pathways to impacts on protected habitats. Application considered to have overall beneficial impact in terms of dispersal of recreational impacts.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Runnymede 17/1815: Hybrid application (full planning application unless otherwise stated) comprising: (A) Redevelopment of west site (including demolition of all existing buildings) to provide 212 no. one,	Thorpe Park No. 1 Gravel Pit component of the South West London Waterbodies SPA Proposal location	Application made 2017	Yes	NA	Predicted effects to this SAC from SLP are so small, in-combination effects from a development this distance from the proposed development are not feasible.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
two, three, four and five-bedroom houses and flats and 116 no. one and two-bedroom retirement houses at St Peter's Hospital, Chertsey, KT16 0PZ	2.6km away from SPA boundary.					
Runnymede Borough Council RU.17/0793 Development for up to 1,400 dwellings, a primary school, 3,210m2 of commercial space (restaurants, retail, public house), 930m2 of community space, publicly accessible open space, landscaping, ecological habitats, and access. SANG will be provided on site, which will link to Trumps Farm. Within 500m of SLP	Scheme located within 1km of the Chobham Common SSSI component of Thursley, Ash, Pirbright and Chobham SAC	Permission granted in 2014	Potentially	Unknown	No LSE anticipated during the construction and operation of this scheme due to the low and temporary impact of proposed Scheme and negligible nature of contributory impacts from SLP to the habitats of the SAC. Recreational impacts to the SAC are further countered by the provision of 930m2 of community space, publicly accessible open space.	Confident assessment of no LSE in combination. No Appropriate Assessment required
Rushmoor Borough Council 13/00187/OUT OUTLINE: Hybrid planning application comprising 1) Application for full planning permission for the development of two data centres and a gatehouse with associated highway works, vehicle access, infrastructure, plant, car and cycle parking and landscaping 2) Application for full planning permission to make minor external alterations to Building A50 and associated works to the access, car parking and landscaping and 3) Application for outline planning permission (with all matters reserved) for business, industrial, storage and distribution and data centre use. Within 500m of SLP	Scheme is located 500m from Eelmoor Marsh SSSI component of the Thames Basin Heaths SPA.	Application validated 15 Mar 2013. Permission granted	Potentially	Unknown	No in-combination effects are anticipated during the construction and operation of the scheme on the basis that potential effects to the Eelmoor Marsh SSSI (and thus the Thames Basin Heaths SPA) from the SLP project are anticipated to be negligible in view of the route's location outside the designated site and within the highway, the temporary and short duration of construction activity, and the nature of supporting habitat within the SSSI relative to the location of the Order Limits.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Rushmoor Borough Council 17/00515/FULPP Change of use of land to provide a Suitable Accessible Natural Greenspace (SANG) including: access; car parking; fencing; pathways; landscaping; earthworks; and all other ancillary and enabling works. Located between 100m and 500m of SLP.	None considered based on distance and that the proposal will have net positive impacts on European sites	NA	NA	NA	NA	Confident assessment of no LSE in combination. No Appropriate Assessment required

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
Surrey Heath 12/0546 Hybrid planning application for major residential-led development totalling 1,200 new dwellings. 125m from SLP	Within 1km of three component sites of the Thames Basin Heaths SPA	Shall commence within two years of 27 July 2016	Yes (persisting increasing in recreational pressure)	Unknown	No in-combination issues anticipated on the basis mitigation for the potential impact on the SPA the development accords with Policy NRM6 of the South East Plan 2009 and Policy CP4 of the Surrey Heath Core Strategy and Development Management Policies 2012.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Application ref: Spelthorne 17/00560/FUL: Redevelopment of the site to provide one building comprising nine apartments with associated infrastructure (total 0.16ha) at 55A Woodthorpe Road, Ashford, TW15 2RP.	Staines Moor component of the South West London Waterbodies SPA Order Limits and proposed development overlap - development located 900m from the Order Limits and 900m from the SPA site boundary.	Application made: 29/08/2017	Yes	Unknown	Extremely limited potential for in-combination effects with respect to visual, dust, and noise due to the location of the development within a developed residential area and the *de minimis* contribution to effects from the SLP Project.	Confident assessment of no LSE in combination.
Local plans:						
The Regional Spatial Strategy for the South East - 'the South East Plan' 2009. Sets out the scale, priorities and broad locations for future development across the region. Covers housing, retail and the environment and includes a Regional Transport Strategy.	Solent Maritime SAC, The Solent SPA/Ramsar, Thames Basin Heaths SPA	Sets out the long term spatial planning framework for the region for the period 2006-2026	Yes	HRA identified LSE to 15 European sites. Areas likely to be significantly affected by the South East Plan are: The Solent SPA/Ramsar, due to wastewater issues; The Solent and Southampton Water SPA/Ramsar, River Itchen SAC, and Solent Maritime SAC, due to water pollution; and 10 sites due to recreational disturbance.	No LSE due to changes in water quality, given the extremely limited potential for effects concerning water quality issues. With respect to recreational disturbance, the only site potentially affected by the project is the Thames Basin Heaths SPA. Given the limited potential for effects from the project and the enforcement of the Thames Basin Heaths Special Protection Area Delivery Framework that would be in place in relation to new development under the South East Plan, no LSE are anticipated in combination.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Policy NRM6 of the South East Plan specifies that new residential development within 5km of the Thames Basin Heaths SPA is required to demonstrate adequate mitigation to avoid adverse effects on site integrity.	The Thames Basin Heaths SPA	As above	Yes	NA	No pathways for effect identified. Policy likely to have environmental benefits and unlikely to contribute to LSE. Displacement of recreational activities is considered to be mitigated through enforcement of the Thames Basin Heaths Special Protection Area Delivery Framework.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Thames Basin Heaths SPA Delivery Framework. Sets out the agreed	The Thames Basin Heaths SPA	As above	Yes	NA	No pathways for effect identified. Policy likely to have environmental benefits and unlikely to contribute to LSE.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

Description and location of development	European site(s) considered for in-combination effects	Timescale for development	Within temporal scope?	HRA undertaken and relevant information/outcome	Consideration of source-receptor pathway	Assessment outcome and justification
Framework regarding the Thames Basin Heaths SPA.						
The Draft Bracknell Forest Local Plan will set the long term objectives, development strategy for the borough up to 2034.			Yes	Six European sites considered. No significant effects identified for four of these. Stage 2 assessment for two European sites - the Thames Basin Heaths SPA (air pollution, recreational activities) and Windsor Forest Great Park SAC (Air pollution).	Possible contributions to air quality impacts to SPA should construction programmes align. Given extremely limited and temporary contribution from the project, LSE not anticipated. No overlap of project ZOI with Windsor Forest Great Park SAC.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Elmbridge Borough Council Core Strategy 2011 - the principal planning document that sets out the vision, spatial strategy and core policies for future development in the Borough up to 2026.	South West London Waterbodies SPA/Ramsar, Thames Basin Heaths SPA and Thursley, Ash, Pirbright and Chobham SAC considered		Yes	Strategic Options could lead to changes in air and water quality and disturbance. Other than Thames Basin Heaths where mitigation will be necessary, it was concluded that new development within the Borough would not lead to significant detrimental effects on any European sites.	Possible contributions to impacts should construction programmes align. However, given extremely limited and temporary contribution from the project, LSE not anticipated. Displacement of recreational activities is considered to be mitigated through enforcement of the Thames Basin Heaths Special Protection Area Delivery Framework.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
The Hart Local Plan Strategy and Sites 2016-2032 sets out the overall vision, objectives and policies to guide future development in the District. Includes policies which set the framework for Hart's local plan, including housing figures.	Thames Basin Heaths SPA	2016-2032	Yes	There is one European site located partially within Hart District; the Thames Basin Heaths SPA. The Plan contains a framework of protection for the Thames Basin Heaths SPA to ensure no adverse effects.	No LSE due to protection policies for Thames Basin Heaths embedded within the plan and minimal contributions to effects from the SLP project.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Royal Borough of Windsor and Maidenhead Local Plan - guides development across the borough. To be replaced with The Borough local plan.	South West London Water Bodies SPA/Ramsar Thames Basin Heaths SPA Thursley, Ash, Pirbright and Chobham SAC	Unknown	Likely	HRA considered six sites, three with potential overlap for effects with the SLP project. Five sites were scoped out of the plan assessment due to distances and the lack of identifiable impact sources and pathways. Mitigation was required with respect to the Thames Basin Heaths SPA. Air pollution from industrial sites was identified as a potential issue.	No LSE anticipated due to protection policies for Thames Basin Heaths in the Thames Basin Heaths Special Protection Area Delivery Framework and on the basis that post mitigation, only minimal contributions to effects would be generated by both the SLP project and development in the borough.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Runnymede Borough Council's Local Plan 2035	Thames Basin Heaths SPA, Thursley, Ash, Pirbright and Chobham SAC, South West London Waterbodies SPA/Ramsar.	To 2035	Likely	HRA considered five sites, four with potential overlap for effects with the SLP project. Two sites taken to appropriate assessment: Thursley, Ash, Pirbright and Chobham SAC (air and water quality) and Thames Basin Heaths SPA (disturbance, air and water quality).	No LSE anticipated due to protection policies for Thames Basin Heaths in the Thames Basin Heaths Special Protection Area Delivery Framework and on the basis that post mitigation, only minimal contributions to effects would be generated by both the SLP project and the implementation of approaches.	Confident assessment of no LSE in combination. No Appropriate Assessment required.

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Draft Local Plan 2016-2032 | Surrey Heath.	Thames Basin Heaths SPA Thursley, Ash, Pirbright and Chobham SAC	2016-2032	Yes	Consideration of pathways to 10 European sites. Potential impact pathways linking the Plan to the Thames Basin Heaths SPA and Thursley, Ash, Pirbright and Chobham SAC identified with respect to recreational pressure, urbanisation and atmospheric pollution.	No LSE anticipated due to protection policies for Thames Basin Heaths set out in the Thames Basin Heaths Special Protection Area Delivery Framework and on the basis that post mitigation, only small and temporary contributions to effects associated with recreational pressure, urbanisation and atmospheric pollution would be generated by the SLP project.	Confident assessment of no LSE in combination. No Appropriate Assessment required.
Waverley Local Plan Submission: Local Plan 2002 - will direct new development in Waverley up to 2032.	Thames Basin Heaths SPA Thursley, Ash, Pirbright and Chobham SAC	Up to 2032	Yes	Assessment of pathways to 16 European sites, two with overlap with the ZOI of the project. Both sites taken to Appropriate Assessment (recreational pressure, atmospheric pollution and water quality).	No LSE anticipated due to protection policies for Thames Basin Heaths in the Thames Basin Heaths Special Protection Area Delivery Framework and on the basis that post mitigation, only small and temporary contributions to effects associated with recreational pressure, urbanisation and atmospheric pollution would be generated by the SLP project.	Confident assessment of no LSE in combination. No Appropriate Assessment required
Other plans or projects:						
Decommissioning of Esso's existing aviation fuel pipeline. Once the project is operational, the existing pipeline would be decommissioned. The pipe would typically be accessed at various intervals, flushed and grouted.	Sites intersected by both the existing pipeline and the Order Limits include three components sites of the Thames Basin Heaths SPA and two components of Thursley, Ash, Pirbright and Chobham SAC South West London Waterbodies SPA/Ramsar also considered due to proximity to the routes.	Unknown	There is no potential for temporal overlap as decommissioning of the existing pipeline would not commence until the new pipeline is operational. There is, however, potential for additive effects if decommissioning were to immediately follow the project.	Not to date	In the event pipeline decommissioning immediately followed construction of the new pipeline, this could extend the duration of works within protected sites. Potential in-combination issues would concern additive ground disturbance to SAC habitats only. Additive disturbance to SPA birds would not arise based on the conclusions of this HRA. It is anticipated that decommissioning would be in-situ and would not involve excavation and removal of the existing pipe. Instead, the existing pipe would be grouted by pumping liquid concrete into it. As such, it is anticipated that activities associated with decommissioning could be undertaken outside the SAC and SPA and so no LSE would arise.	Confident assessment of no LSE in combination. No Appropriate Assessment required

Appendix F. European sites habitat survey report

Appendix F. European Sites Habitat Survey Report

1.1 Overview of the Project

1.1.1 Esso Petroleum Company, Limited (Esso) is making an application for development consent to replace 90km of an existing 105km aviation fuel pipeline that runs from the Fawley Refinery near Southampton, to the Esso West London Terminal storage facility in Hounslow. The replacement pipeline is 97km (60 miles) long and is referred to as 'the project' within this report.

1.1.2 The purpose of this report is to provide results of habitat, vegetation and botanical surveys of the following European sites intersected by the Order Limits:

- Thames Basin Heaths Special Protection Area (SPA); and
- Thursley, Ash, Pirbirght and Chobham Special Area of Conservation (SAC).

1.1.3 This report has been produced to support the Habitats Regulations Assessment Report (stages 1 - 2) as part of the application for development consent under the Planning Act 2008, along with the project's Environmental Statement (ES).

1.2 Overview of the European sites

1.2.1 The Order Limits intersect two European sites:

- Thames Basin Heaths SPA; and
- Thursley, Ash, Pirbright and Chobham SAC.

1.2.2 The Thames Basin Heaths SPA comprises 13 component Sites of Special Scientific Interest (SSSIs), of which the following are intersected by the Order Limits, listed southwest to northeast along the route:

- Bourley and Long Valley SSSI;
- Colony Bog and Bagshot Heath SSSI; and
- Chobham Common SSSI.

1.2.3 The Thames Basin Heaths SPA was designated for supporting significant populations of the bird species Dartford warbler (*Sylvia undata*), nightjar (*Caprimulgus europaeus*) and woodlark (*Lullula arborea*).

1.2.4 The Thursley, Ash, Pirbright and Chobham SAC comprises four component SSSIs, of which the following are intersected by the Order Limits, listed southwest to northeast along the route:

- Colony Bog and Bagshot Heath SSSI; and
- Chobham Common SSSI.

1.2.5 The qualifying Annex I habitats of the SAC and component plant communities are summarised in Table 1.1. The component SSSIs are described in more detail in the following sections.

Table 1.1: Qualifying Features and Component Plant Communities of Thursley, Ash, Pirbright and Chobham SAC

Qualifying Habitat	Component Plant Communities (Natural England, 2016)
H4010 North Atlantic wet heaths with *Erica tetralix*	M16, M25
H4030 European dry heaths	H1, H2
H7150 Depressions on peat substrates of the *Rhynchosporion*	M1, M2, M6, M14, M21

1.3 Bourley and Long Valley SSSI

1.3.1 Bourley and Long Valley SSSI is a large site and supports a diverse mosaic of habitats, with grassland, heathland, mire, scrub and woodland, as well as a large area of coniferous plantation woodland (Natural England, 2018a). The following plant communities are notified features of the SSSI:

- H2 *Calluna vulgaris-Ulex minor* heath;
- M16 *Erica tetralix-Sphagnum compactum* wet heath;
- M21 *Narthecium ossifragum-Sphagnum papillosum* mire; and
- M25 *Molinia caerulea-Potentilla erecta* mire.

1.3.2 The site is also notified for assemblages of breeding birds and invertebrates.

1.3.3 The flora of the SSSI is rich, with species such as bristle bent (*Agrostis curtisii*) and dodder (*Cuscuta europaea*) associated with dry dwarf shrub heath, and bog mosses (*Sphagnum* species) and round-leaved sundew (*Drosera rotundifolia*) with mire and wet heath. The SSSI also supports marsh clubmoss (*Lycopodiella inundata*) and pale dog-violet (*Viola lactea*), which are nationally scarce and priority species.

1.4 Colony Bog and Bagshot Heath SSSI

1.4.1 The complex of valley mire, wet heath, dry dwarf shrub heath and other habitats within Colony Bog and Bagshot Heath SSSI form one of the finest surviving tracts of predominantly wet heathland in southeast England and the largest in the Thames basin (Natural England, 2018b). The following plant communities are notified features of the SSSI:

- H1 *Calluna vulgaris-Festuca ovina* heath;
- H2 *Calluna vulgaris-Ulex minor* heath;
- H3 *Ulex minor-Agrostis curtisii* heath;
- M14 *Schoenus nigricans-Narthecium ossifragum* mire;
- M16 *Erica tetralix-Sphagnum compactum* wet heath;
- M2 *Sphagnum cuspidatum/recurvum* bog pool community;

- M21 *Narthecium ossifragum-Sphagnum papillosum* mire;
- M23 *Juncus effusus/acutiflorus-Galium palustre* rush pasture;
- M24 *Molinia caerulea-Cirsium dissectum* fen meadow;
- M25 *Molinia caerulea-Potentilla erecta* mire;
- M6 *Carex echinata-Sphagnum recurvum/auriculatum* mire;
- W4 *Betula pubescens-Molinia caerulea* woodland; and
- W5 *Alnus glutinosa-Carex paniculata* woodland.

1.4.2 The site is also notified for assemblages of breeding birds and invertebrates.

1.4.3 Dry and wet heath habitats support a range of plants characteristic of these habitats, as well as the nationally scarce and priority species marsh clubmoss (*Lycopodiella inundata*) within wet heath. Dry and wet heath grade into valley mire in hollows and valley bottoms, supporting a diversity of wetland vascular plants and bryophytes, and many county rarities.

1.4.4 Units 4 and 6 of the SSSI are managed by the Surrey Wildlife Trust and form the Brentmoor Heath and Folly Bog Nature Reserve.

1.5 Chobham Common SSSI

1.5.1 Chobham Common SSSI is an extensive area of open land supporting dry and wet heath, valley mire, scrub and woodland, and forms one of the largest surviving heathlands in the Thames Basin (Natural England, 2018c).

1.5.2 The site is managed by Surrey Wildlife Trust.

1.5.3 The following plant communities are notified features of the SSSI:

- H2 *Calluna vulgaris-Ulex minor* heath;
- H3 *Ulex minor-Agrostis curtisii* heath;
- M16 *Erica tetralix-Sphagnum compactum* wet heath;
- M21 *Narthecium ossifragum-Sphagnum papillosum* mire;
- W4 *Betula pubescens-Molinia caerulea* woodland; and
- W5 *Alnus glutinosa-Carex paniculata* woodland.

1.5.4 The site is also notified for its assemblages of vascular plants, breeding birds and invertebrates.

1.5.5 The SSSI supports a rich variety of heathland plants and animals, including many which are nationally or locally rare or scarce. The dry dwarf shrub heath and acidic grassland complexes support heather (*Calluna vulgaris*), bell heather (*Erica cinerea*), dwarf gorse (*Ulex minor*) and bristle bent. Wet heath is dominated by cross-leaved heath (*Erica tetralix*) and purple moor-grass (*Molinia caerulea*). Valley mire supports sundews, bog asphodel (*Narthecium ossifragum*), common cotton

grass (*Eriophorum angustifolium*), bog pimpernel (*Anagallis tenella*) and heath spotted orchid (*Dactylorhiza maculata*). Several rare Surrey species also occur in valley mires, including hare's tail cotton grass (*Eriophorum vaginatum*), bogbean (*Menyanthes trifoliata*), royal fern (*Osmunda regalis*), marsh gentian (*Gentiana pneumonanthe*) and marsh clubmoss. Marsh gentian and marsh clubmoss are nationally scarce and priority species. Silver birch (*Betula pendula*) and Scots pine (*Pinus sylvestris*) have invaded large areas of dry dwarf shrub heath, and areas of more mature semi-natural woodland contain pedunculate oak (*Quercus robur*). There are several areas of standing water on Chobham Common which are of importance primarily for the rich invertebrate fauna they support.

2 Survey Methodology

2.1 Survey Scope

2.1.1 The three SSSI components of the two European sites were subject to field survey to record the habitats, vegetation and plants present. The survey methods are described below and are based on those described in the project's Scoping Report (Esso, 2018).

2.1.2 Survey boundaries were based on the Order Limits as defined at the time of the survey. The surveyed area described in this report includes areas that would not be impacted by the Order Limits. All areas potentially impacted by the Order Limits were covered by the survey.

2.2 Survey Boundaries

Bourley and Long Valley

2.2.1 The survey area comprised:

- areas of Units 1, 2 and 4 of the SSSI that could be directly impacted;
- wider areas of the SSSI that could be indirectly impacted, such as by changes to air quality or hydrology/hydrogeology; and
- undesignated areas of the Tweseldown Racecourse to the south.

2.2.2 A site plan is provided in Figure F1. The survey site was divided into four subsites.

Colony Bog and Bagshot Heath

2.2.3 The survey area comprised:

- part or all of units 4, 5, 6 and 9 of the SSSI that could be directly impacted;
- wider areas of the SSSI that could be indirectly impacted, such as by changes to air quality or hydrology/hydrogeology; and
- The Folly Site of Nature Conservation Importance (SNCI).

2.2.4 A site plan is provided in Figure F5. The survey site was divided into four subsites.

Chobham Common SSSI

2.2.5 The survey area comprised:

- parts of units 17, 19, 20, 21, 22 and 23 of the SSSI that could be directly impacted;
- wider areas of the SSSI that could be indirectly impacted, such as by changes to air quality or hydrology/hydrogeology; and
- an area of woodland within Monk's Walk North and West (including M3 Exchange Land) SNCI.

2.2.6 A site plan is provided in Figure F9.

2.3 Habitat and Vegetation Survey

2.3.1 The three sites were subject to detailed vegetation survey. The methodology of the National Vegetation Classification (NVC) (Rodwell, 2006) was followed. Homogenous stands of vegetation were mapped in detail, and assigned to units of the NVC.

2.3.2 Representative quadrat samples of the main vegetation types at each site were collected to aid assignment of homogenous stands to units of the NVC and to provide detailed records of vegetation composition and structure. The sampling method followed standard NVC methods (Rodwell, 2006).

2.3.3 For all stands of vegetation, notes were collected to identify the corresponding Phase 1 habitat (JNCC, 2010) and Annex I habitats. Annex I habitats were identified using the JNCC Annex I habitat descriptions (JNCC, 2014) and supplementary advice on the Conservation Objectives of the Thursley, Ash, Pirbright and Chobham SAC (Natural England, 2016).

2.3.4 Georeferenced and representative photographs of the habitats of each site were taken using an Olympus Tough® compact camera.

2.4 Botanical Survey

2.4.1 All sites were subject to detailed recording of botanical taxa, with multiple lists for heterogeneous sites. Vascular plants were the focus of surveys. Lower plants (i.e. algae, mosses, liverworts and lichens) were recorded incidentally or where these were found to form a significant component of the vegetation.

2.4.2 The abundance of taxa was scored using the DAFOR system, where:

- D = dominant taxon;
- A = abundant taxon;
- F = frequent taxon;
- O = occasional taxon; and
- R = rare taxon.

2.4.3 The qualifier 'local' was used to describe heterogeneity in plant distribution, e.g. 'LF' for 'locally frequent'.

2.4.4 The status of all taxa recorded was assessed as 'native', 'archaeophyte' or 'neophyte' based on professional judgement and Hill, *et al.* (2007) for bryophytes and Hill, *et al.* (2004) for vascular plants.

2.5 Nomenclature

2.5.1 Botanical nomenclature throughout this report follows the British Lichen Society taxon dictionary for lichens (British Lichen Society, 2018), Hill *et al.* (2008) for bryophytes and Stace (2010) for vascular plants.

2.6 Limitations

2.6.1 No limitations were encountered.

3 Results

3.1 Summary

3.1.1 Field survey was led by a Senior Ecologist from Jacobs on the following dates:

- Bourley and Long Valley SSSI: 25 to 29 June 2018
- Colony Bog and Bagshot Heath SSSI: 17 to 18 May and 9 to 13 July 2018
- Chobham Common SSSI: 30 July to 2 August 2018

3.1.2 Botanical lists for each site are provided in Annex B. Plans of Phase 1 habitats, Annex I habitats and vegetation are provided in Annex A. Representative photographs are provided in Annex C. The locations of photographs are shown on the vegetation plans for each site. Results from quadrat samples are provided in Annex E.

3.1.3 For brevity, only NVC codes for plant communities are used throughout the text of this report and on all figures. A list of the full names of the NVC units recorded is provided in Annnex D.

3.1.4 Areas of Annex I habitat and corresponding plant communities recorded within the Thursley, Ash, Pirbright and Chobham SAC are summarised in Table 3.1.

Table 3.1: Annex I Habitats Recorded at Thursley, Ash, Pirbright and Chobham SAC

Habitat	Plant Communities	Area (ha)	
		Survey Site	Order Limits
Qualifying habitats of the SAC			
H4010 North Atlantic wet heaths with *Erica tetralix*	M16, M25	23.47	1.13
H4030 European dry heaths	H1, H2, H3	46.74	7.61
H7150 Depressions on peat substrates of the *Rhynchosporion*	M1, M2, M6, M14, M16c, M21, M30	4.04	0.12
Other Annex I habitats			
H9190 Old acidophilous oak woods with *Quercus robur* on sandy plains	W10, W16	10.37	1.90

3.2 Bourley and Long Valley

3.2.1 Phase 1 habitat, Annex I habitat and vegetation plans are provided in Figure F2, Figure F3 and Figure F4, respectively. A total of 46 quadrats was recorded from the site, provided in Table E2 and Table E3, Annex E. The locations of quadrats are shown in Figure F4. The habitats and vegetation are described by subsite.

3.2.2 A total of 261 plant taxa was recorded during the survey: one lichen species, 35 bryophyte species and 220 vascular plant taxa, comprising 216 species and four hybrids. A site list is provided in Table B2.

Subsite 'North'

3.2.3 This subsite was wholly within unit 1 of Bourley and Long Valley SSSI, comprising habitat along a track southwest to northeast through the SSSI. A large hill dominated the northeast of the subsite, with higher ground to the west and northwest, forming a wide valley bottom in the centre of the subsite drained by the Gelvert Stream and an unnamed watercourse. The higher ground and periphery of the subsite were dominated by plantation forestry, and there were smaller stands of broadleaved semi-natural woodland. Open habitats were present in the valley bottom, with heathland habitats to the north and south of the track.

3.2.4 Habitats along the track comprised narrow parallel verges of short patchy grassland, ditches, and banks supporting grassland dominated by purple moor-grass or dense scrub of common gorse (*Ulex europaeus*) (Photograph BLV1). The ditches were dominated by sharp-flowered and soft-rushes (*Juncus acutiflorus* and *J. effusus*, respectively) with wetlands forbs such as greater bird's-foot-trefoil (*Lotus pedunculatus*) and marsh thistle (*Cirsium palustre*) abundant. The purple moor-grass grassland on the banks was similar to the vegetation of the wet heath habitats to the north and south of the track. The southern area of wet heath was dominated by coarse purple moor-grass, with frequent cross-leaved heath and heather and few associated species, referred to M25a. There were small richer areas of wet heath in ground hollows (Photograph BLV2; quadrats BVLN6 to BLVN8), and scrapes created as part of management and were regenerating to wet heath or formed seasonal ponds (Photograph BLV3). The former stands of wet heath vegetation were much more open than the surroundings, with lower cover by cross-leaved heath, heather and purple moor-grass, carpets of *Sphagnum compactum* and *S. denticulatum,* and a richer suite of vascular plant species, such as frequent common cottongrass, lousewort (*Pedicularis sylvatica*) and intermediate sundew (*Drosera intermedia*) and round-leaved sundew, referred to M16c. The edge of this area of wet heath was being colonised by common gorse scrub.

3.2.5 There were two stands of wet heath immediately to the north of the track, bisected by a north-south strip of grassland. The eastern area lay along the existing Esso pipeline. Both stands were dominated by coarse purple moor-grass, were species-poor and unmanaged, with the western area encircled with dense scrub. The western stand supported the dwarf shrubs bog myrtle (*Myrica gale*), creeping willow (*Salix repens*), cross-leaved heath and heather (Photograph BLV4; quadrats BLVN1 to BLVN5), and the eastern stand was very species-poor, overwhelmingly dominated by purple moor-grass (Photograph BLV6). The grassland between these areas of wet heath was also dominated by purple moor-grass but associated with abundant sweet-vernal grass, frequent sedges such as carnation sedge (*Carex panicea*) and abundant forbs such as tormentil, referred to M25b (Photograph BLV5). This was also the only location where heath spotted-orchid was recorded.

3.2.6 The open area further north was surveyed to investigate possible hydrological connectivity with the route. Here, the flat ground of the valley rose to the north, and along the slope was a well-marked zonation of vegetation indicative of groundwater seepage toward the base of the slope (Photograph BLV8). Dense common gorse scrub, bracken (*Pteridium aquilinum*), dry dwarf shrub heath and acid grassland were present on the higher ground, giving way to wet heath on the intermediate

slopes, and a small area of valley mire at the base of the slope and in the valley bottom. The valley mire had abundant *Sphagnum denticulatum*, sharp-flowered rush, small sedges such as common yellow-sedge (*Carex demissa*) and star sedge (*Carex echinata*), referred to M6d. Areas of flow accumulation at the base of the slope were marked out by mats of bog pondweed (*Potamogeton polygonifolius*) and bog asphodel (*Narthecium ossifragum*), referred to M29, and there were dense stands of bog pondweed and many-stalked spike-rush (*Eleocharis multicaulis*) around inundated areas, referred to M30.

3.2.7 To the south of this mire vegetation was a stand of wet woodland dominated by downy birch (*Betula pubescens*), bounded to the east by the watercourse and to the west by Scots pine plantation. The wettest part of the woodland marked the transition to open valley mire vegetation, and had a ground flora with abundant *Sphagnum,* referred to W4c (Photograph BLV7). The drier downy birch woodland to the south had a ground flora dominated by purple moor-grass. This woodland vegetation was similar to wet woodland along the existing Esso pipeline to the northeast, but the canopy there was better developed, with older trees and frequent alder (*Alnus glutinosa*), and there was a richer ground flora. Along the existing Esso pipeline, there was a wetter central area of woodland along the Gelvert Stream, referred to W4b (Photograph BLV9). The mixed woodland to the northwest of this area was not surveyed.

3.2.8 Wet woodland ended abruptly at the base of the hill that comprised the northeastern part of the subsite. The hill supported forestry plantation of Scots pine, with an impoverished ground flora dominated by purple moor-grass, with frequent bracken and heather. The wide forestry ride northeast along the existing Esso pipeline supported grassland dominated by purple moor-grass, referred to M25b. The grassland at the northeast end of the ride was heavily disturbed (Photograph BLV10). The other track through the woodland to the south was too shaded to support grassland or other open habitats.

Subsite 'South'

3.2.9 This subsite was within unit 2 of Bourley and Long Valley SSSI, south of Aldershot Road and the previous subsite. This subsite supported a large, single open area, with peripheral forestry and semi-natural woodland. Along the western edge of the open area was a broad southwest to northeast strip of grassland maintained as an easement for the existing Esso pipeline and other utilities, and used as a foot route between Tweseldown to the south and Aldershot Road to the north. There was a fence along the eastern side of the easement, bounding an area of heathland managed by the Hampshire and Isle of Wight Wildlife Trust and grazed by cattle.

3.2.10 The vegetation of the subsite was zoned along an elevation gradient, likely responding to surface water accumulation and contact with groundwater at lower elevations. High ground was present to the south, southwest and west (Aunt's Pond Hill), with land falling away gradually to the north, northeast and east. A small, steep conical hill dominated the southeast of the open area, and the easement along the west descended a steeper gradient toward the road. At the bottom of the slope of the easement, immediately south of the road, was a spring within woodland, the source of a small stream flowing east and then north, and there were several drains

in the low-lying area in the north and northeast. The Gelvert Stream was not within the surveyed area.

3.2.11 The vegetation of the easement was dominated by purple moor-grass (Photograph BLV11; quadrats BLVS1 to BLVS6, and BLVS10), with small patches of open acid grassland where ground had been disturbed along foot routes (quadrats BLVS7 to BLVS9, and BLVS11), and narrow strips of heathland under the fence where there was protection from disturbance. The whole stand of purple moor-grass-dominated vegetation was referred to M25b, but there was a shift in species from southwest to northeast, with species indicative of damper conditions becoming prevalent in the northeastern half. There, sharp-flowered rush was abundant, with other wetland species such as creeping willow, greater bird's-foot-trefoil and velvet bent (*Agrostis canina*) present. On higher ground, heather became locally abundant but there were few associated species except in disturbed areas.

3.2.12 Within the managed area of heathland, acid grassland and dry dwarf shrub heath vegetation occupied the higher ground (Photographs BLV12 and BLV13). Dry dwarf shrub heath was best-developed around the small hill in the southeast, with abundant heather, purple moor-grass and wavy hair-grass (*Deschampsia flexuosa*), and scattered dwarf gorse (*Ulex minor*), referred to H2c (vegetation not sampled). Some areas had the appearance of degraded heath, supporting acid grassland dominated by grasses such as common bent, matt-grass (*Nardus stricta*), purple moor-grass, sheep's fescue (*Festuca ovina*) and wavy hair-grass; heathers were frequent but were not dominant, mostly small plants in the pioneer growth stage (quadrats BLVS22 to BLVS31). This condition was likely a result of grazing or other disturbance. There were dense stands of bracken within these habitats, and gorse was frequent as scattered plants and dense stands of scrub.

3.2.13 On the low-lying ground to the north and northeast was valley mire, wet heath and wet woodland vegetation. Valley mire vegetation was very restricted, lying within a long ground hollow within wet heath in the north of the subsite (Photograph BLV14). This vegetation was dominated by a carpet of *Sphagnum* mosses, a mix of *S. denticulatum, S. palustre* and the hummock-forming *S. papillosum.* There were few associated vascular plants, with constant bog asphodel, common cottongrass and cross-leaved heath, purple moor-grass at low cover, and round-leaved sundew on surfaces of *Sphagnum*. The main body of this vegetation was referred to M21 (quadrats BLVS12 to BLVS16), with small wet hollows referred to M2.

3.2.14 The vegetation of the surrounding wet heath was patterned according to management. Most of the low-lying area was referred to M16a, comprising well-grazed open heath vegetation with constant cross-leaved heath, deergrass (*Trichophorum germanicum*), heather and purple moor-grass, with constant *Sphagnum compactum* forming dense patches and constant *Hypnum jutlandicum* forming sprawling mats under the dwarf shrubs (Photograph BLV15; quadrats BLVS17 to BLVS21). Small disturbed areas within the wet heath supported sundews and liverworts, referred to M16c. Ranker, less grazed stands of wet heath dominated by dense tussocks of purple moor-grass with low cover by subshrubs were referred to M25a. There were also several scrapes created by management activities, which were either beginning to be colonised or had been colonised by rushes and/or plants

of damp open wet ground such as common yellow sedge, many-stalked spike-rush and star sedge.

3.2.15 Woodland within the subsite was dominated by Scots pine plantation. Where the trees had been thinned the ground flora were dominated by dense stands of purple moor-grass, in drier areas with mature heather but with no other frequent associates (Photograph BLV11). Along the southern boundary of the subsite was a stand of dry woodland dominated by mature pedunculate oak, an understorey of dense holly (*Ilex aquilifolium*) and a sparse ground flora. Wet woodland occupied a small area near the Aldershot Road, dominated by downy birch, with a low canopy of grey willow (*Salix cinerea*) along the watercourse flowing through this area. The ground flora of the swampy ground along the watercourse comprised vegetation dominated by soft-rush and purple moor-grass, with forbs such as marsh bedstraw (*Galium palustre*) and marsh thistle, referred to W4b, becoming very open and sparse in a wetter area of slacker flow, referred to W1. The drier ground to the north was dominated by purple moor-grass, referred to W4a.

Subsite 'Tweseldown North'

3.2.16 This subsite included part of unit 4 of Bourley and Long Valley SSSI, but mostly comprised undesignated areas of the Tweseldown Racecourse. The surveyed area of unit 4 comprised acid and amenity grassland heavily disturbed by horse riding, with much exposed sandy bare ground (Photograph BLV17). The acid grassland, largely referred to U1b, was species-poor, dominated by common bent (*Agrostis capillaris*), with heath grass (*Danthonia decumbens*), sheep's fescue (*Festuca ovina*) and, constant but at low cover, purple moor-grass, and few forbs such as cat's-ear (*Hypochaeris radicata*) and sheep's sorrel (*Rumex acetosella*) (Photograph BLV18; quadrats BLVTN1 to BLVTN7). Other acid grassland species such as bell heather, heather and mat-grass were scattered or restricted in distribution, with a concentration along the less disturbed northern edge of the unit by a planted hedge. The remainder of the subsite was dominated by amenity grassland.

Subsite 'Tweseldown South'

3.2.17 This subsite comprised a large area of amenity grassland used by the Tweseldown Racecourse (Photograph BLV19). Scattered through this habitat in disturbed sandy areas were acid grassland species such as bird's-foot (*Ornithopus perpusillus*), corn spurrey (*Spergula arvensis*), sheep's sorrel and sand spurrey (*Spergularia rubra*), but the grassland was dominated by perennial rye-grass (*Lolium perenne*) and other grasses of heavily mown grassland.

3.2.18 Along the southwest boundary was a strip of woodland dominated by mature pedunculate oak with a small number of ancient woodland species, such as bluebell (*Hyacinthoides non-scripta*) and creeping soft-grass (*Holcus mollis*). To the south of the boundary of the sub-site, was a large stand of dense bracken.

3.3 Colony Bog and Bagshot Heath

3.3.1 Plans of Phase 1 habitats, Annex I habitats and vegetation are provided in Figure F6, Figure F7 and Figure F8, respectively. A total of 51 quadrats was recorded from the site, provided in Table E4, Table E5 and Table E6, Annex E. The locations of quadrats are shown in Figure F8. The habitats and vegetation are described by subsite below.

3.3.2 A total of 283 plant taxa was recorded during the survey: two lichen species, 30 bryophyte species and 251 vascular plant taxa, comprising 245 species and three hybrids. A site list is provided in Table B3.

Subsite 1

3.3.3 This subsite comprised parts of units 4 and 9 of Colony Bog and Bagshot Heath SSSI, lying on the high ground of Chobham Ridges to the west and north of the MoD danger area fence. There were footpaths and an MoD access track through the subsite, parallel to the fence.

3.3.4 The subsite consisted of a long narrow strip of mostly wooded habitat, with small stands of acid and neutral grassland (Photograph CB1). The woodland habitats were predominantly of planted Scots pine with a species-poor ground flora. In better-illuminated areas of woodland, as along tracks, the ground flora comprised species-poor purple moor-grass-dominated grassland. There were narrow strips of semi-natural woodland along the western boundary of the subsite, dominated by pedunculate oak, with a larger stand of pedunculate oak and silver birch-dominated woodland along the north. In some areas, unmown edges of woodland had developed small patches of dry dwarf shrub heath dominated by heather.

3.3.5 The grassland habitats were maintained by mowing of MoD access routes. In the west-east part of the subsite, acid grassland was confined to the parched, sandy verges of the MoD track (Photograph CB2), with the larger stands dominated by bristle bent, referred to U5. A broad and more species-rich area of acid grassland was present in the southwest of the subsite (Photograph CB3), with abundant sweet vernal-grass (*Anthoxanthum odoratum*) and wavy hair-grass, frequent common bent and purple moor-grass, patches of low-growing heather and bilberry (*Vaccinium myrtillus*), and a range of forbs such as frequent cat's-ear (*Hypochaeris radicata*), hawkweeds (*Hieracium* sp.) and ribwort plantain (*Plantago lanceolata*). Neutral grassland habitats were more marginal, predominantly in disturbed areas.

Subsite 2

3.3.6 This subsite comprised a large tract of heathland occupying the high ground to the north and west of Folly Bog, within unit 4 of Colony Bog and Bagshot Heath SSSI (Photograph CB4). The subsite included the continuation of the MoD access track through the site, along the top of the steep slope above Folly Bog. The heathland comprised a large area of dry dwarf shrub heath, stands of dense bracken and scrub, and small areas of acid grassland. The dry dwarf shrub heath was dominated by heather with frequent to abundant dwarf gorse, across most of the subsite associated with constant bell heather and bracken, with the moss *Hypnum*

jutlandicum growing in mats beneath the subshrubs (quadrats CB19 to CB23). Such vegetation was referred to H2a. On the lower parts of the slope below the track, there was more humid heath vegetation, transitional between the dry dwarf shrub heath above and the wet heath and valley mire of Folly Bog below, referred to H2c. There, purple moor-grass was abundant and cross-leaved heath frequent. Generally, the heath vegetation was species-poor due to dominance by subshrubs, but the flora were richer in areas that had been mown or scraped as part of management, with frequent dodder (Photograph CB5). One scraped area had abundant bristle bent, referred to H3. There was similar dry dwarf shrub heath vegetation along the steep bank to the north of the track, as well as many small pioneer species such as common centaury (*Centaurium erythraea*) and yellow-wort (*Blackstonia perfoliata*), and others such as heath spotted-orchid. In disturbed areas among the heath were small species-poor patches of acid grassland, dominated by purple moor-grass and bristle bent.

3.3.7 Along the southern side of the track were stands of dense common gorse and bracken, with bramble (*Rubus fruticosus* agg.) forming a tangled understorey, referred to W23 and W25, respectively (Photograph CB6). In the eastern half of the subsite, dense bracken dominated from the edge of the woodland and scrub along Red Road south to near the bottom of the slope above Folly Bog. The presence of tree stumps and deadwood indicated that much of this area had been under coniferous woodland in the recent past.

3.3.8 Woodland occupied the periphery of the subsite, mostly Scots pine plantation. There was a small area of semi-natural woodland in the northeastern corner of the subsite, around the watercourse draining Folly Bog. This was dominated by young silver birch trees, with a species-poor ground flora of dense purple moor-grass and bracken, referred to W4a (Photograph CB7). The woodland around the Folly to the southeast, dominated by pedunculate oak, was not accessed.

Subsite 'Folly Bog'

3.3.9 Folly Bog was a large area of predominantly valley mire occupying the low ground in the eastern half of unit 4 of Colony Bog and Bagshot Heath SSSI (Photograph CB8). Hydrologically, the valley mire system extended southwest into the unsurveyed MoD danger area, with water flowing into the subsite from this area through a system of collects and small streams before dissipating within the mire. In the northern half of the subsite there was a straight drain flowing to the northeast. The eastern boundary of Folly Bog comprised the MoD track, raised above the mire surface, with the drain culverted beneath it. There were three grazing exclosures within the subsite, established by Surrey Wildlife Trust to monitor the effects of grazing (Groome and Shaw, 2015).

3.3.10 The vegetation of Folly Bog was complex, the patterning of plant communities varying from fine-scaled mosaics to larger more uniform stands. This complexity of vegetation indicated responses to a multiplicity of interacting physical factors, including: grazing and other disturbance; substrate (mineral soil versus peat, and peat depth); microtopgraphy of the mire surface (such as hummocks and pools) and of the landform; historic drainage; flows and levels of surface and groundwater; and local variations in water chemistry.

3.3.11 The edges of Folly Bog showed a transition from dry and wet heath to valley mire (Photograph CB9). This transition was gradual to the south and west, but with increased topographic gradient this zoning was telescoped, with an abrupt transition at the base of the steep slope along the northwestern edge. The wet heath around the valley mire varied from coarse species-poor stands dominated by cross-leaved heath, heather and purple moor-grass, to richer open stands in disturbed areas. Such open stands of wet heath were present in the southwest (Photograph CB10) and along the track adjacent to the MoD fence. There, common cottongrass, deergrass, lousewort and *Sphagnum compactum* were frequent, with carnation sedge, sundews and white beak-sedge (*Rhynchospora alba*) abundant in damper areas. Stands with the latter species were referred to M16c.

3.3.12 Within the mire, there were the following broad trends:

- rank species-poor vegetation dominated by bog myrtle and purple moor-grass;
- stands of black bog-rush (*Schoenus nigricans*);
- short open vegetation in pools and along runnels; and
- valley mire vegetation with a consolidated surface of *Sphagnum*, comprising the main body of the mire.

3.3.13 The former kind of vegetation, referred to M25a or the *ad hoc* unit '*Myrica gale*-dominated vegetation', was present within the grazing exclosures, along the northern edge (Photograph CB11), along the drain in the northern half of the site, and on a narrow area of slightly elevated ground extending south to north across the middle of the valley mire. The ground along the drain was also slightly elevated, perhaps on spoil originating from its excavation. The condition of the vegetation around the drain could have been due to lack of management as this area appeared ungrazed, but artificial drainage could in addition cause fluctuations in water levels that might have favoured the development of dense tussocks of purple moor-grass and exclusion of *Sphagnum.*

3.3.14 Vegetation of dense black bog-rush was present in a large swath across the west and north of the valley mire, a smaller long stand to the southeast, and other scattered stands. Purple moor-grass was co-dominant and there was an open cover of the subshrubs bog myrtle, cross-leaved heath and heather. There were hummocks of *Sphagnum papillosum* in some areas, but smaller plants were mostly those able to grow on the sides of tussocks or hummocks, such as sundews (quadrats CB35, CB44, CB50 and CB52). There was some evidence of regeneration, with younger tussocks of black bog-rush scattered within the adjacent valley mire in places, but otherwise this vegetation was very sharply defined (Photograph CB12). These stands were referred to M14, but they lacked some of the main constituents of this plant community, with basicolous mosses such as *Campylium stellatum* and *Sphagnum inundatum* very rare. These stands likely picked out routes where flows of water through the peat body accumulate, the vegetation responding to increased aeration and concentration of base cations. In some instances, this vegetation may also have marked the location of former drains.

3.3.15 The third component of the valley mire was spatially the most complex, forming small stands and finely-patterned mosaics along runnels and in depressions in the

mire surface. The most species-rich stands were around the collects in the southwest, where there was a sparsely vegetated zone on the unconsolidated saturated peat around the runnels (Photograph CB13), characterised by abundant bog asphodel, bog pondweed, common cottongrass, many-stalked spikerush, marsh horsetail (*Equisetum palustre*), sundews and white beak-sedge, with small islands formed of hummocks of *Sphagnum papillosum* and wet mats of *S. denticulatum* and *S. cuspidatum* (quadrats CB46, CB47 and CB49). Similar vegetation occupied pools in the mire surface (quadrat CB41). These stands were referred to M2a.

3.3.16 The main body of valley mire vegetation was characterised by a surface of consolidated bog mosses. While all stands were referred to M21, this comprised quite heterogeneous vegetation intermediate between the wet heath and pool vegetation described above (quadrats CB30 to CB34, CB36 to CB40, CB42, CB43, CB45, CB48, CB51 and CB55). Throughout were constant carnation sedge, bog asphodel, common cottongrass, cross-leaved heath, heather, purple moor-grass, round-leaved sundew and sharp-flowered rush, and frequent bog myrtle, early marsh-orchid (*Dactylorhiza incarnata* subsp. *pulchella*) and tormentil. Bog myrtle, cross-leaved heath and purple moor-grass dominated in under-grazed or drier areas to the exclusion of smaller species such as bog asphodel. The vegetation was richer where the cover of such bulky species was reduced, supporting species such as bog pimpernell (*Anagallis tenella*) and meadow thistle (*Cirsium dissectum*). The underlying surface of bog mosses was dominated by *Sphagnum papillosum* and *S. palustre*, often forming large firm hummocks, with *S. denticulatum* and *S. subnitens* frequently forming softer carpets around the vascular plants (Photograph CB14). Wetter parts of the mire surface supported an abundance of white beak-sedge, referred to M21a.

Subsite 'Brentmoor Heath'

3.3.17 This subsite comprised part of unit 6 of Colony Bog and Bagshot Heath SSSI, known as Brentmoor Heath. The majority of Brentmoor Heath lay on higher ground outside of the subsite to the south. The very parched sandy substrate to the south supported dry dwarf shrub heath vegetation dominated by heather with few other associates, referred to H1a. The surveyed area largely comprised the lower-lying ground along the MoD access track, supporting wet heath, referred to M16a (Photograph CB15).

3.3.18 The wet heath appeared to be under a rotational management, with several stages of development present. The most well-developed and richest stand was to the north of the track, dominated by cross-leaved heath and purple moor-grass, with constant deergrass, heather and *Sphagnum tenellum* (quadrats CB12 to CB14). Lichens were also locally abundant, with *Cladonia arbuscula* and *C. portentosa*. There was a pond in this area, the peat-stained water sparsely vegetated with bog pondweed (Photograph CB16). To the southeast of the track was a very uniform species-poor stand, likely seeded or scraped as part of management, dominated by cross-leaved heath and heather with mats of *Hypnum jutlandicum* (Photograph CB17; quadrat CB18). To the south of the track was a large species-poor stand dominated by mature cross-leaved heath and large tussocks of purple moor-grass, with scattered scrub of silver birch and Scots pine (quadrats CB15 to CB17).

3.3.19 The constant disturbance along the track had maintained open conditions supporting a range of less competitive wet heath species not present in the adjacent, closed vegetation. These included abundant round- and intermediate-leaved sundews and the liverwort *Solenostoma gracillimum* in the damp ruts, and abundant heath rush and lousewort.

Subsite 'Turf Hill'

3.3.20 This subsite comprised unit 5 of Colony Bog and Bagshot Heath SSSI, known as Turf Hill. Most of the unit comprised Scots pine plantation, with dry dwarf shrub heath along and to the south of the wayleave of the overhead powerlines across the unit, a small area of wet heath on low-lying ground at the eastern end and a larger area in a shallow valley to the north oriented southwest to northeast. There were extensive stands of scrub dominated by common gorse along footpaths (Photograph CB18) and scattered through dry dwarf shrub heath.

3.3.21 The mown dry dwarf shrub heath along the wayleave was similar floristically to the unmanaged vegetation to the south, dominated by heather with frequent bell heather, and abundant *Hypnum jutlandicum*, and frequent *Dicranum scoparium*, referred to H1a (quadrats CB4, CB5, CB7, CB8 and CB11). A small stand of mown dry dwarf shrub heath at the western end of the wayleave had abundant purple moor-grass, referred to H2c, though dwarf gorse was rare within this subsite (quadrat CB10). Lichens of the genus *Cladonia* were also abundant in the mown areas, e.g. *C. portentosa,* and saplings of Scots pine were abundant throughout (Photograph CB19).

3.3.22 Wet heath was generally species-poor and unmanaged, dominated by cross-leaved heath and purple moor-grass, referred to M16a (Photographs CB20, CB21; quadrats CB1, CB2 and CB9). There was a richer, mown stand of wet heath at the eastern end of the wayleave, with abundant deergrass, heath-rush, round-leaved sundew and white beak-sedge, referred to M16c (Photograph 22; quadrat CB3).

3.4 Chobham Common

3.4.1 Plans of Phase 1 habitats, Annex I habitat and vegetation are provided in Figure F10, Figure F11 and Figure F12, respectively. A total of 59 quadrats was recorded from the site, provided in Table E7, Table E8 and Table E9. The locations of quadrats are shown in Figure F12.

3.4.2 A total of 170 plant taxa was recorded during the survey: two lichen species, 25 bryophyte species and 141 vascular plant taxa, comprising 137 species and one hybrid. A site list is provided in Table B4.

3.4.3 Although the surveyed area was large, its vegetation was uniform and limited in diversity, dominated by large stands of dry dwarf shrub heath (Photograph C1). Wet heath occurred in a series of valleys, with the associated zoning of vegetation between the high and low ground forming a pattern repeated across each valley. Stands of semi-natural woodland were present at the east and western extremities of the survey site, and around the scrapyard, with smaller younger stands scattered elsewhere. There were also large peripheral stands of Scots pine plantation, with

smaller stands within the survey site. Scrub dominated by common gorse was frequent across the survey site, concentrated along tracks or footpaths. The track across the survey site comprised bare sandy or gravelly substrate with narrow flanking strips of acid grassland or shortly mown dry dwarf shrub heath (Photograph C2 and C6).

3.4.4 Dry dwarf shrub heath was dominated by heather, with different communities of associates relating to successional stage and management, and likely also to substrate. The most species-poor stands occupied sandy ground at higher elevations, referred to H1 (Photograph C3; quadrats C12, C16, C38 and C41). The poorest stands were where the heather was mature or degenerate, referred to the species-poor sub-community H1e. Vascular plant associates were very few, in some areas with abundant common gorse and Scots pine or silver birch saplings, and there was an understorey to the heather dominated by the moss *Hypnum jutlandicum*.

3.4.5 More extensive were stands of dry dwarf shrub heath dominated by heather with constant cross-leaved heath and purple moor-grass at varying abundances. Dwarf gorse was occasional to rare, most frequent along footpaths and other disturbed areas. This kind of heath vegetation predominated across the survey site, absent only from the lower-lying valley bottoms, where it gave way to wet heath, and the driest areas, supporting H1. Within many stands, management had created a complex pattern of regenerating heath, with abundant cross-leaved heath or strips dominated by pure stands of purple moor-grass, the latter referred to the *ad hoc* unit '*Molinia*-dominated vegetation'. Similar monocultures of purple moor-grass were found in areas cleared of trees, such as the large area at the western end of the survey site. Most stands of dry dwarf shrub heath characterised by mixtures of cross-leaved heath, heather and purple moor-grass were referred to H2c (Photograph C4; quadrats C10, C11, C20, C21, C24, C28 to C30, C44 to C46, C55 to C57), but bristle bent was abundant in some stands of dry dwarf shrub heath, such as those to the east of the scrapyard and in small mown stands along the track. Such stands were referred to H3a (Photograph C5; quadrats C13, C15, C19, C22, C23, C42, C43). Bristle bent was also abundant to dominant in acid grassland and shortly mown heath along the mown edges of the track (Photographs C5 and C6; quadrats C8 and C9).

3.4.6 Wet heath was present in a series of interconnected valleys draining toward the lower-lying ground to the southeast. The track crossed three of these valleys on raised embankments, with ponds formed on the upstream (northwest) side. A small shallow valley in the centre of the survey site converged northeast to southwest onto one of the larger valleys, and there was a large area of low-lying ground supporting wet heath toward the eastern end of the survey site, to the south of the track. The western and eastern valleys were long, extending northwest beyond the survey site, while the central valley had a shallow trough-like topography with the head to the northwest of the track and open to the southeast.

3.4.7 The valley bottoms of most of the valleys were species-poor, dominated by large tussocks of purple moor-grass with scattered cross-leaved heath and heather, referred to M25a (Photographs C8 and C9; quadrats C2 and C7). The pattern of dominance switched on the sides of the valleys, with cross-leaved heath attaining

co-dominance, with constant deergrass and patches of *Sphagnum*, referred to M16a (Photograph C10; quadrats C6, C32 to C37, C39 and C53). In the zone above the latter vegetation, there was a switch to dry dwarf shrub heath dominated by heather, described above (quadrats C2 and C38 to C41 illustrate a transect of the zonation across the eastern-most valley).

3.4.8 The richest stand of wet heath was present in the central valley, northwest of the track (Photograph C11). The short, open vegetation supported abundant deergrass with constant *Sphagnum tenellum* and patches of *S. compactum* (quadrats C33 to C37). A zone of wet heath vegetation at the edge of the pond within this valley had a more open cover with bulbous rush (*Juncus bulbosus*), many-stalked spikerush and white beak-sedge, referred to M16c (Photograph C14; quadrats C31 and C50). Small stands of similar vegetation were present elsewhere in disturbed areas of wet heath.

3.4.9 The western valley differed from the general trend. Upstream of the embankment of the track was very rank vegetation dominated by tussocks of purple moor-grass and dense stands of sharp-flowered and soft rushes, with constant common cottongrass, frequent common sedge (*Carex nigra*) and star sedge, and loose wet carpets of *Sphagnum*, mostly *S. fallax* (Photograph C12; quadrats C3 to C5). Referred to M6c and M6d according to the relative dominance of rush species, this vegetation had likely formed by storage of surface water against the track embankment. There were several ponds in and around this area, vegetated with bog pondweed and bulbous rush, and marginal stands of rushes, common cottongrass and patches of *S. cuspidatum, S. denticulatum* or *S. fallax* (Photographs C13). Similar vegetation occupied ponded areas elsewhere (Photograph C15; quadrats C1, C47 to C49). Downstream was a second dam and standing water, with marginal vegetation dominated by dense soft rush.

3.4.10 Semi-natural woodland within the survey site was largely secondary, dominated by self-seeded Scots pine and silver birch. Better developed stands of woodland were present in the western part of the survey site around the scrapyard and along the western boundary, and at the eastern end of the survey site. To the east of the scrapyard was mature woodland dominated by pedunculate oak and silver birch, a shrub layer of climbing honeysuckle (*Lonicera periclymenum*), and an understorey dominated by low-growing bramble and stands of bracken, referred to W10a (quadrat C26). Similar woodland was present along the western boundary, but this was not surveyed. To the south of the scrapyard was a narrow-wooded valley, the bottom of which supported damper woodland, dominated by downy birch with a ground layer dominated by purple moor-grass, with abundant bramble and Yorkshire fog (*Holcus lanatus*), referred to W4a (quadrat C27). A younger stand of silver birch-dominated woodland with a poorer ground flora was present to the west, also referred to W4a (quadrat C25).

3.4.11 At the eastern end of the survey site was a small stand of wet woodland along a shallow valley, dominated by alder and downy birch and its hybrid with silver birch (*Betula x aurata*). To the north of the track the understorey was sparsely vegetated, with remote sedge (*Carex remota*), soft rush, tall herbs such as yellow iris (*Iris pseudacorus*) and bryophytes such as *Aneura pinguis* among the bare damp ground

(quadrat C18). To the south of the track there had been recent tree clearance of this wet woodland.

3.4.12 To the northeast was a stand of dry woodland dominated by sweet chestnut (*Castanea sativa*) with occasional beech, Scots pine, silver birch and Turkey oak (*Quercus cerris*), referred to W16a (quadrat C17). There was a thick litter layer with little ground flora, but there were extensive patches of bryophytes such as *Leucobryum glaucum* on the bases of trees and on banks.

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Annex A – Figures

N

Pyestock Hill/Pondtail Heath SINC

Velmead Road Heath SINC

Eelmoor Marsh SSSI

Bourley and Long Valley SSSI - Unit 1

Farnborough Airfield SINC

Basingstoke Canal SSSI

Bourley and Long Valley SSSI - Unit 2

Bourley and Long Valley SSSI - Unit 4

Bourley and Long Valley SSSI - Unit 4

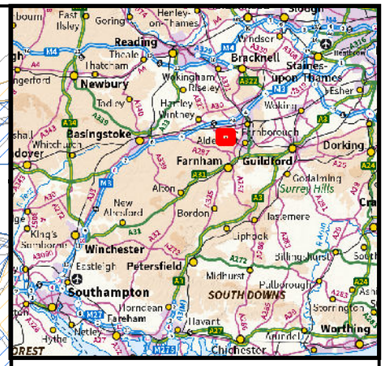
Soanes Copse/Wood Copse SINC

Wakefords Copse, Crondall SINC

Greendane Copse SINC

Beacon Hill/Parkhurst Hill SINC

Meadow Near Soanes Copse SINC



Legend

- Order Limits
- Construction compound
- Trenchless crossing
- SSSI
- SINC/SNCI

0 95 190 380 Metres

Sheet displays part of Section D

Rev	Rev. Date	Purpose of revision	Orig/Dwn	Checkd	Rev'd	Apprv'd
0	8/04/2019	For Issue	JH	TC	LG	SH

Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

Esso | Southampton to London Pipeline Project

Drawing title

HRA REPORT
SITE PLAN OF
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SSSI
APFP Reg. (2009) 5(2)(l)

Drawing Status	For Issue	
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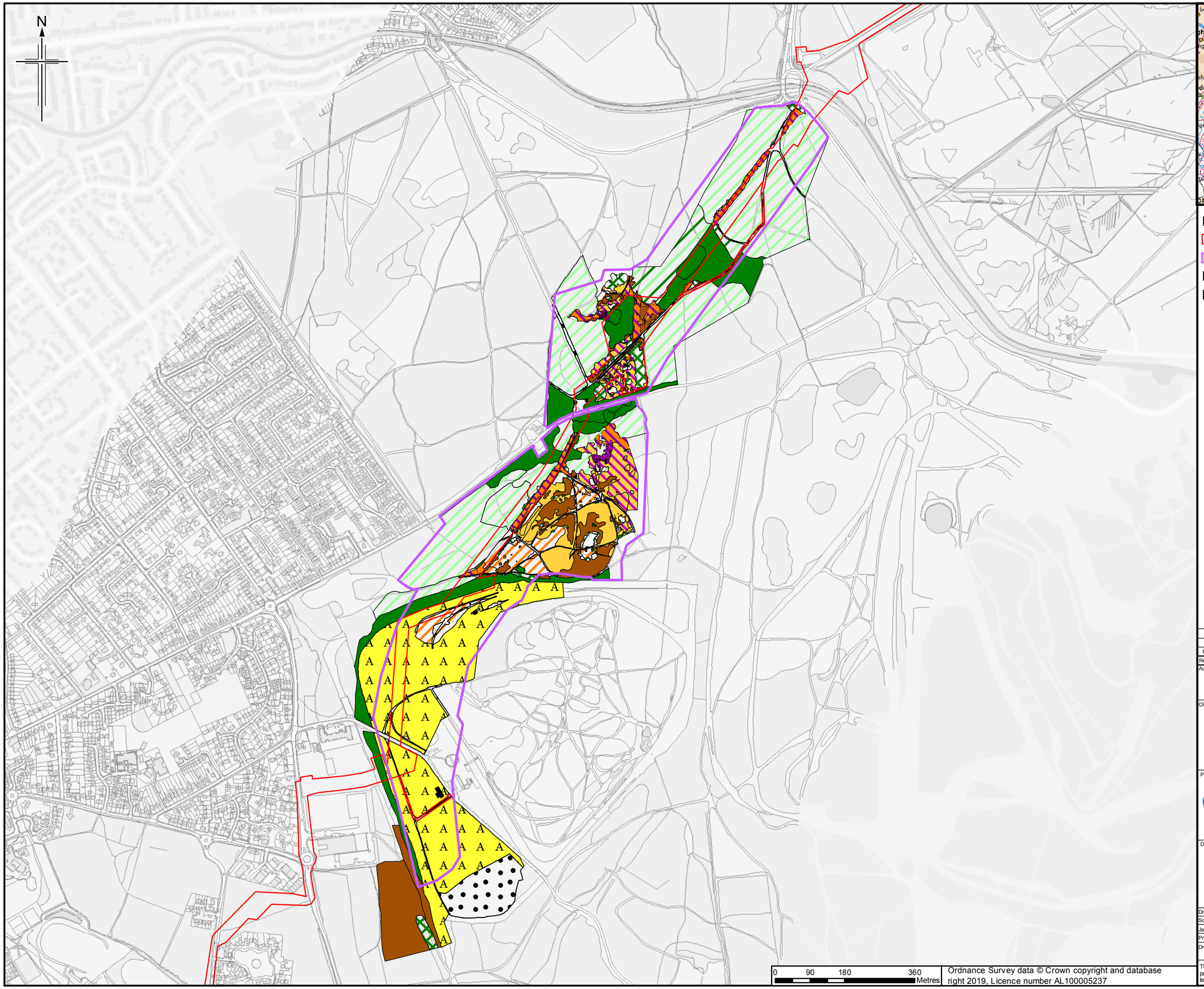
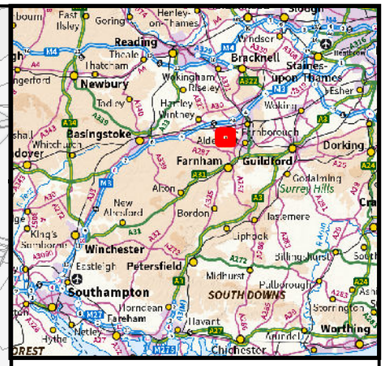
Drawing number	Figure F1 Sheet 1 of 1	Rev 0





Legend

Order Limits

Survey site boundary

For Phase 1 Legend please see sheet 2

Sheet displays part of Section D

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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HRA REPORT
PHASE 1 HABITAT PLAN OF
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Jacobs No.	**B2325300**	
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Drawing number	Figure F2 Sheet 1 of 2	Rev 0

Legend

- A2.2 Coniferous woodland - plantation
- A3.1 Mixed woodland - semi-natural
- A3.2 Mixed woodland - plantation
- A3.3 Mixed parkland/scattered trees
- A2.2 Scrub - scattered
- F2.1 Marginal and inundation - marginal vegetation
- G1.1 Standing water - eutrophic
- G1.2 Standing water - mesotrophic
- G1.4 Standing water - dystrophic
- G2.1 Running water - eutrophic
- G2.2 Running water - mesotrophic
- G2.3 Running water - oligotrophic
- G2.4 Running water - dystrophic
- J1.4 Introduced shrub
- J2.1.1 Intact hedge - native species-rich
- J2.1.2 Intact hedge - species-poor
- J2.2.1 Defunct hedge - native species-rich
- J2.2.2 Defunct hedge - species-poor
- J2.3.1 Hedge with trees - native species-rich
- J2.3.2 Hedge with trees - species-poor
- J2.4 Fence
- J2.6 Dry ditch
- A1.1.1 Broadleaved woodland - semi-natural
- A1.1.2 Broadleaved woodland - plantation
- A1.2.2 Coniferous woodland - plantation
- A1.3.2 Mixed woodland - plantation
- A2.1 Scrub - dense/continuous
- A3.1 Broadleaved Parkland/scattered trees
- B1.1 Acid grassland - unimproved
- B1.2 Acid grassland - semi-improved
- B2.1 Neutral grassland - unimproved
- B2.2 Neutral grassland - semi-improved
- B3.1 Calcareous grassland - unimproved
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B6 Poor semi-improved grassland
- C1.1 Bracken - continuous
- C1.2 Bracken - scattered
- C3.1 Other tall herb and fern - ruderal
- C3.2 Other tall herb and fern - non ruderal
- D1.1 Dry dwarf shrub heath - acid
- D2 Wet dwarf shrub heath
- E3.1 Fen - valley mire
- F1 Swamp
- F2.2 Marginal and inundation - inundation vegetation
- G1.1 Standing water - eutrophic
- G1.2 Standing water - mesotrophic
- G1.3 Standing water - oligotrophic
- G1.4 Standing water - dystrophic
- G2.1 Running water - eutrophic
- G2.2 Running water - mesotrophic
- G2.4 Running water - dystrophic
- J1.1 Cultivated/disturbed land - arable
- J1.2 Cultivated/disturbed land - amenity grassland
- J1.3 Cultivated/disturbed land - ephemeral/short perennial
- J1.4 Introduced shrub
- J3.6 Buildings
- J4 Bare ground

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
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Surrey,
KT22 8UX

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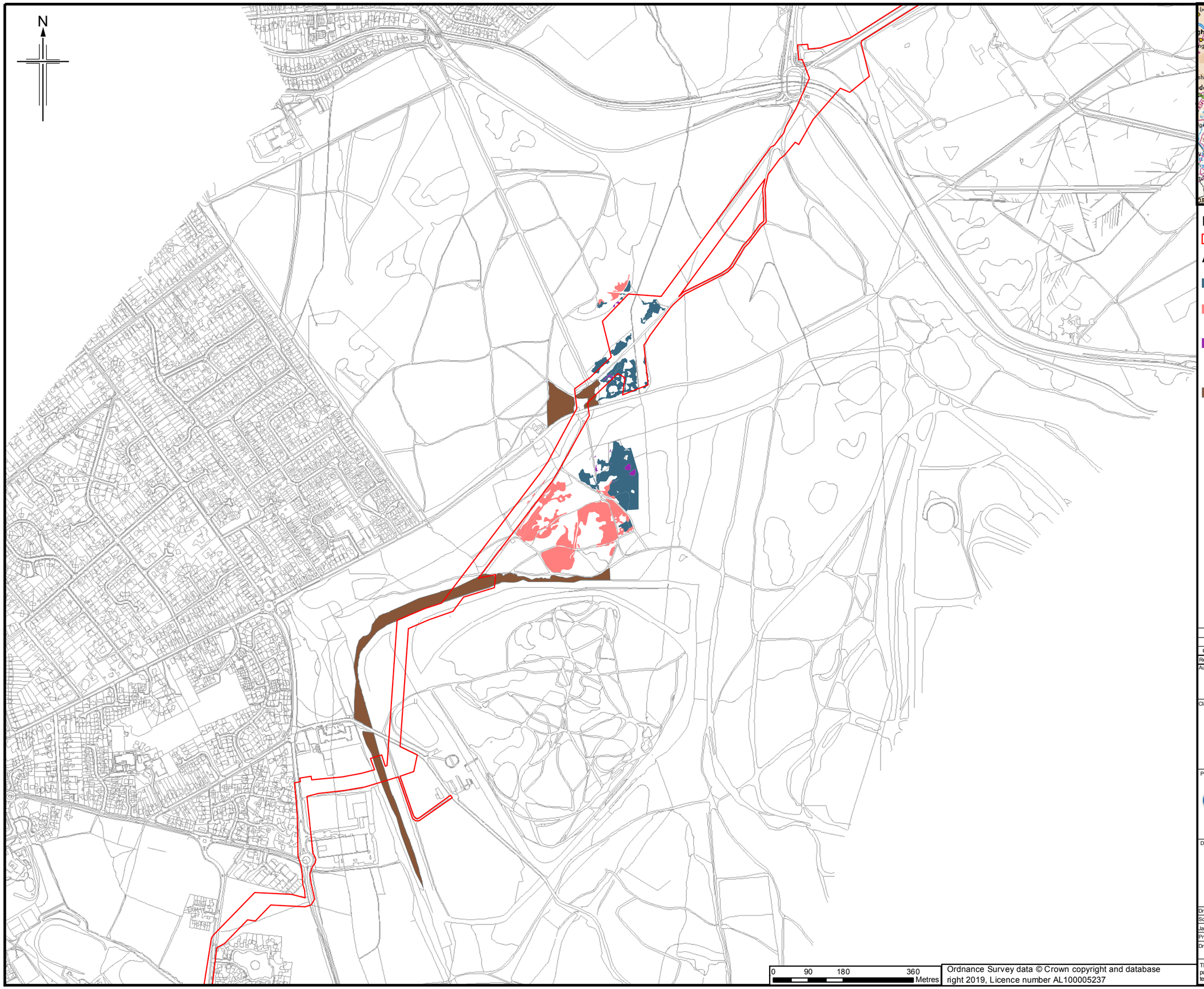
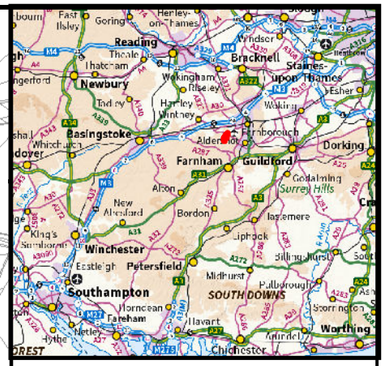
Rev	0





Legend

Order Limits

Annex I habitat

- H4010 Northern Atlantic wet heaths with *Erica tetralix*
- H4030 European dry heaths
- H7150 Depressions on peat substrates of the *Rhynchosporion*
- H9190 Old acidophilous oak woods with *Quercus robur* on sandy plains

Sheet displays part of Section D

Rev	Rev. Date	Purpose of revision	Orig/Dwn	Checkd	Rev'd	Apprv'd
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Author

JACOBS

1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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Drawing title

HRA REPORT
ANNEX I HABITAT PLAN OF
BOURLEY AND LONG VALLEY
SSSI
APFP Reg. (2009) 5(2)(l)

Drawing Status	**For Issue**	
Scale	**1:9,000 @ A3**	**DO NOT SCALE**
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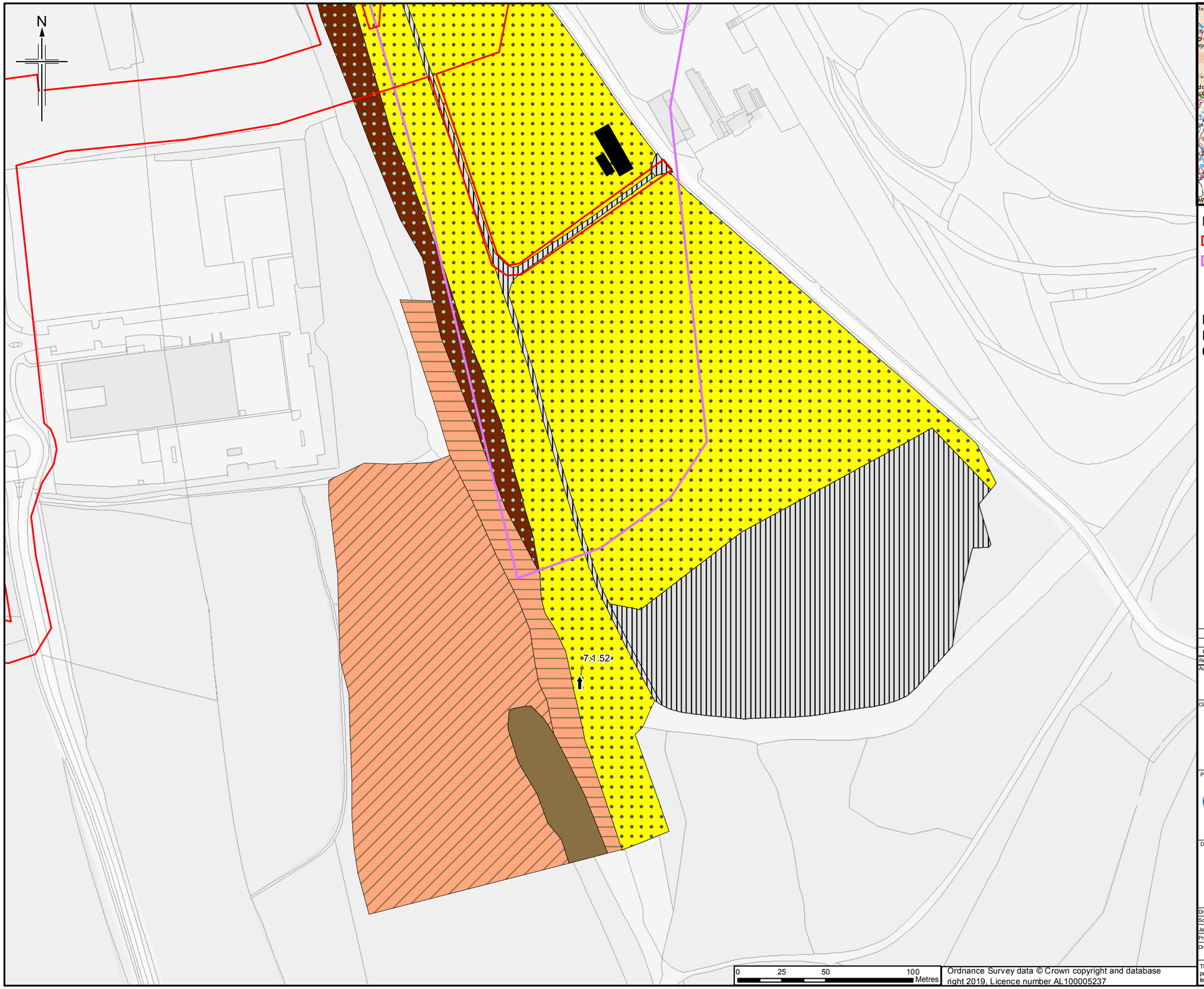
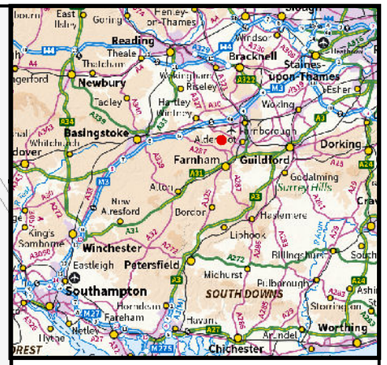
ProjectWise No.	**B2325300-JAC-000-ENV-DRG-001596**	
Drawing number	Figure F3 Sheet 1 of 1	Rev 0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 6.

Full NVC plant community names are provided in Annex G

Sheet displays part of Section D

Rev.	Rev. Date	Purpose of revision	Orig/Dwn	Check'd	Rev'd	Apprv'd
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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

Esso | Southampton to London Pipeline Project

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HRA REPORT
VEGETATION PLAN OF
BOURLEY AND LONG
VALLEY SSSI
APFP Reg. (2009) 5(2)(l)

Drawing Status	For Issue	
Scale	1:2,000 @ A3	DO NOT SCALE
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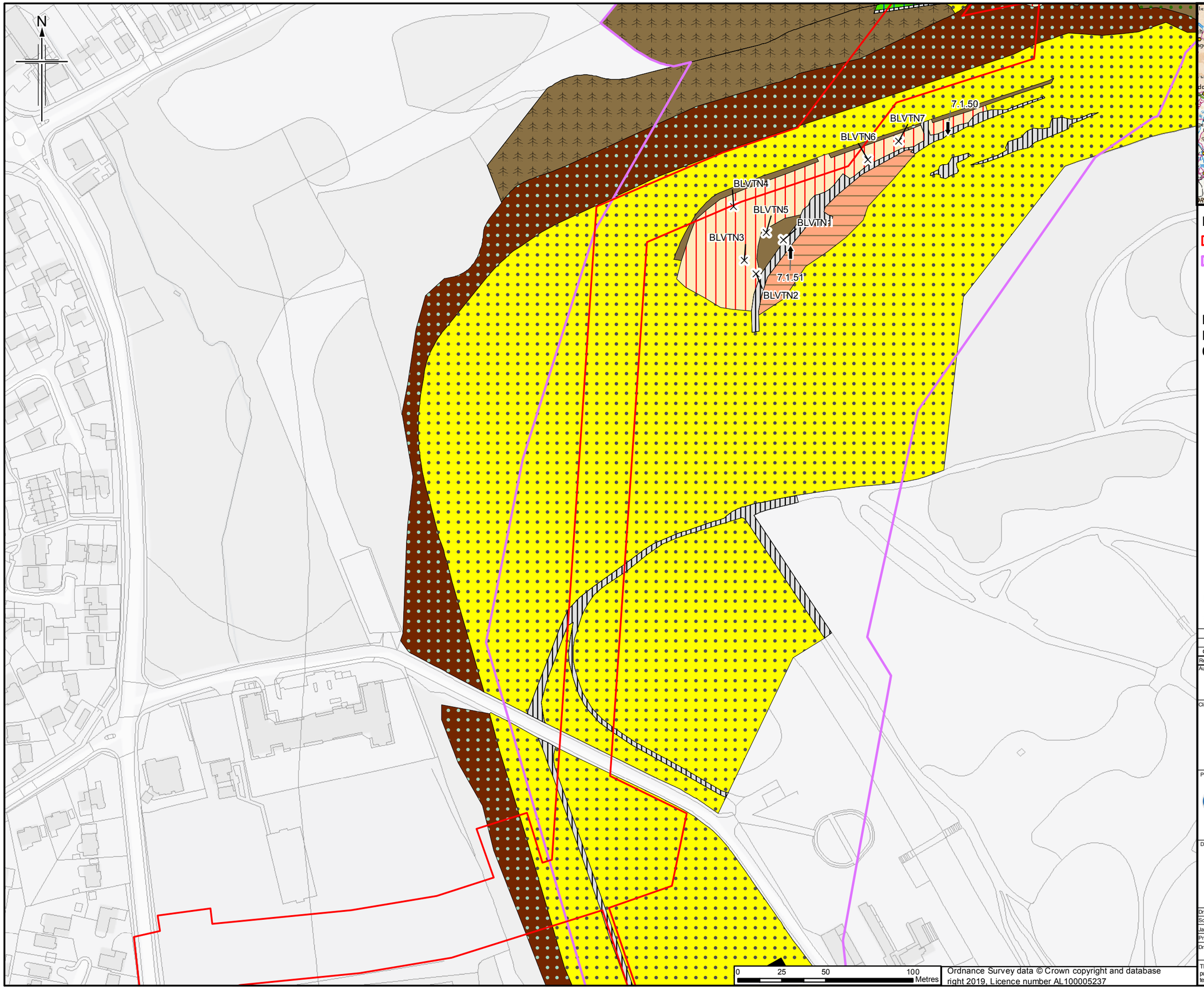
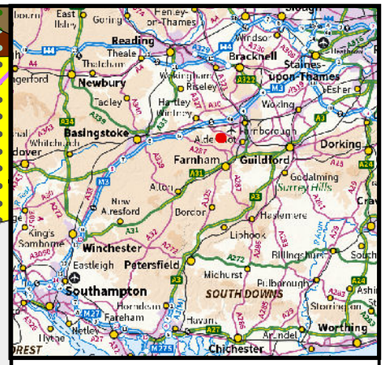
Drawing number	Figure F4 Sheet 1 of 6	Rev 0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 6.

Full NVC plant community names are provided in Annex G

Sheet displays part of Section D

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Author

JACOBS

1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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VEGETATION PLAN OF
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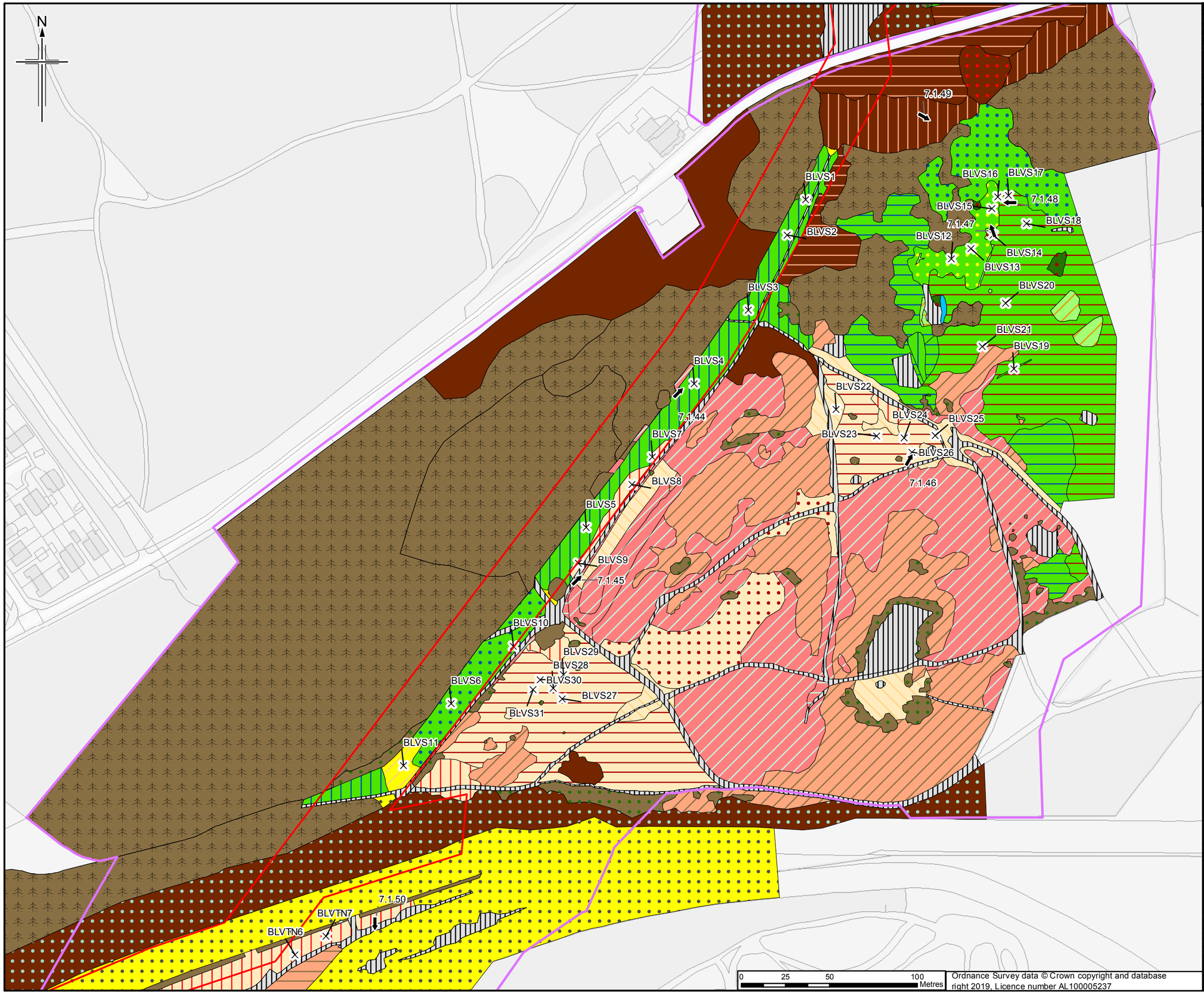
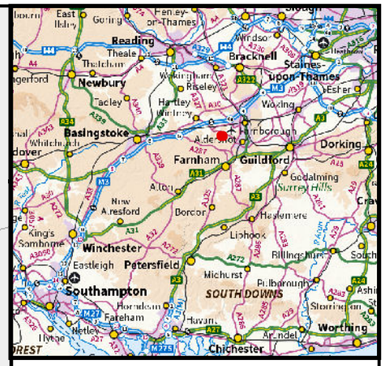
Drawing number	Figure F4 Sheet 2 of 6		Rev 0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 6.

Full NVC plant community names are provided in Annex G

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Author
JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client
Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project
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VEGETATION PLAN OF
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VALLEY SSSI
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Scale	1:2,000 @ A3	DO NOT SCALE
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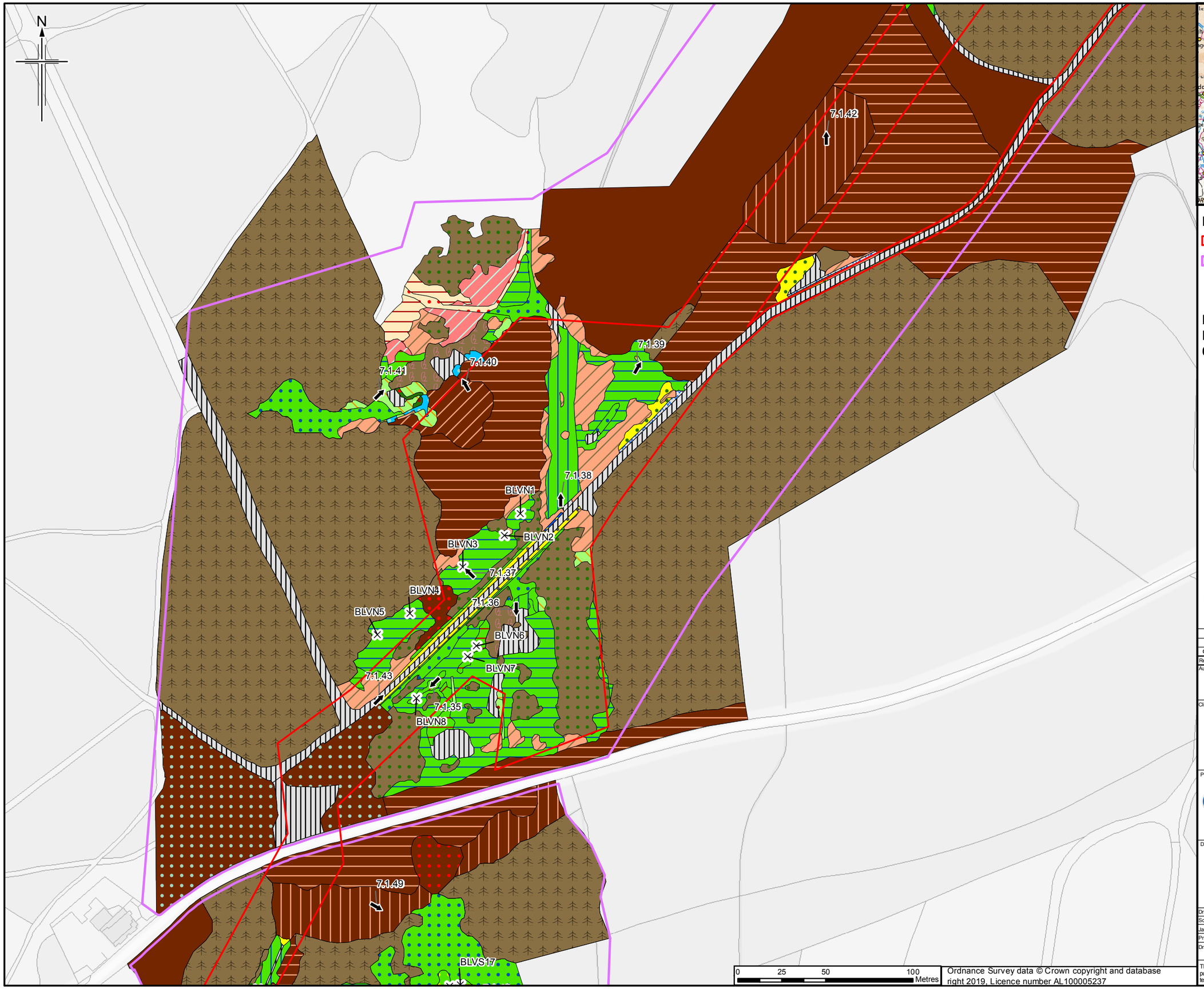
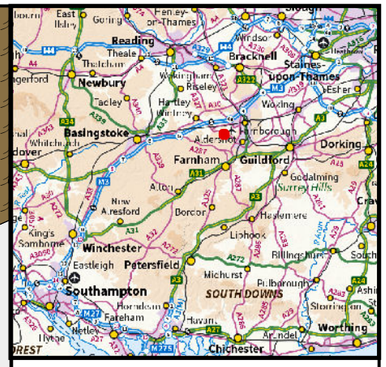
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001597	
Drawing number	Figure F4 Sheet 3 of 6	Rev 0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 6.

Full NVC plant community names are provided in Annex G

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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VEGETATION PLAN OF
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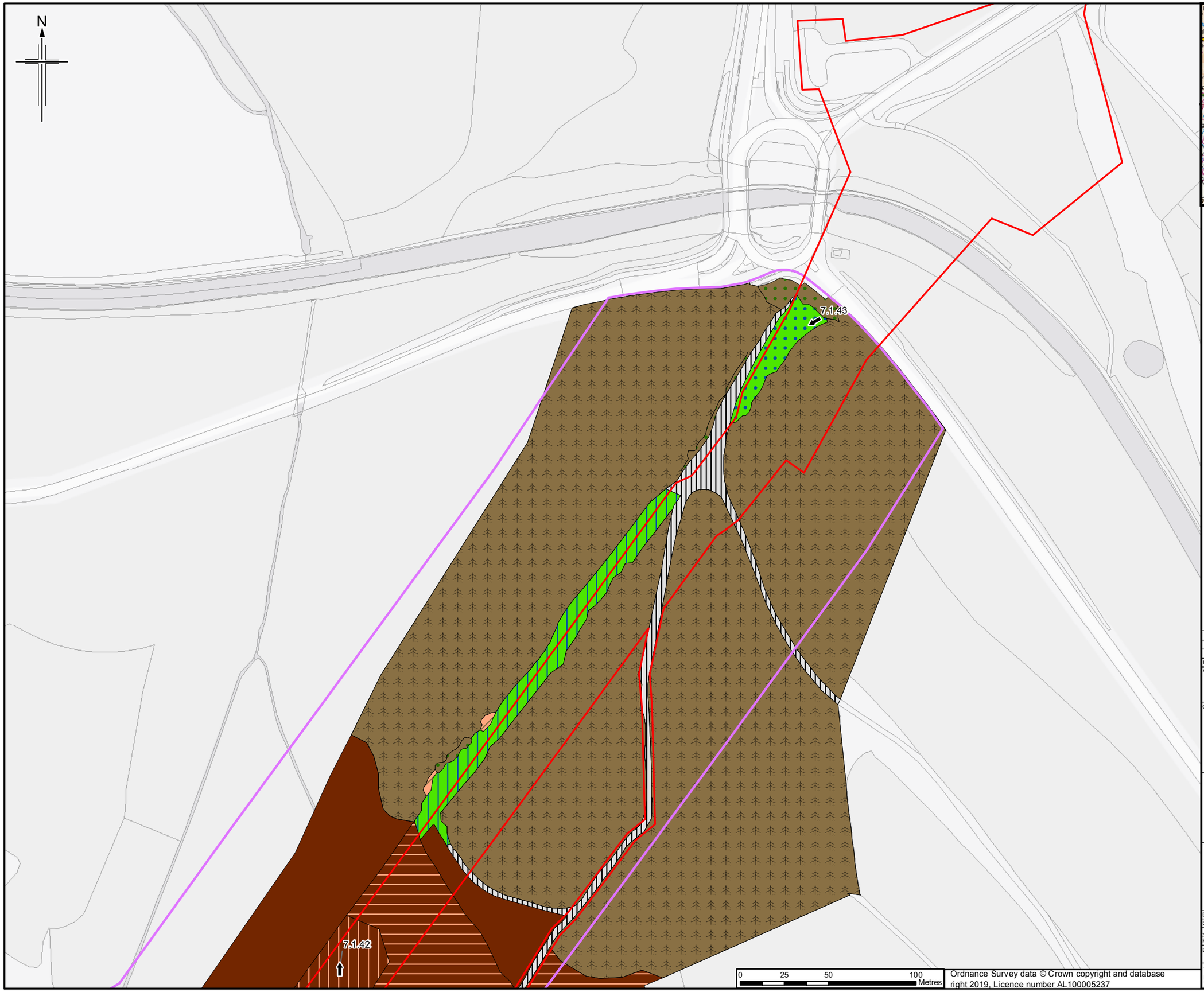
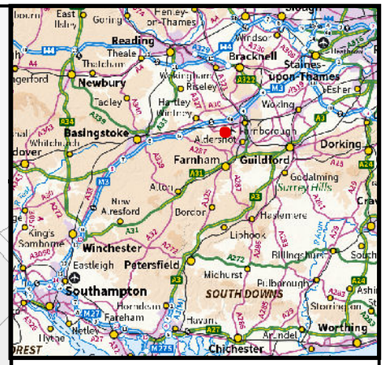
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001597	
Drawing number	Figure F4 Sheet 4 of 6	Rev 0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 6.

Full NVC plant community names are provided in Annex G

Sheet displays part of Section D

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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VEGETATION PLAN OF
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Drawing Status	For Issue	
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Jacobs No.	B2325300	
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001597	

Drawing number: Figure F4 Sheet 5 of 6 — Rev 0

Vegetation Plan Legend

- A16
- A24
- A9
- Bare peat
- Bare/disturbed ground
- Buildings
- Carex acuta swamp
- Conifer plantation
- Conium maculatum-dominated vegetation
- Dense scrub
- Ditch
- H1a
- H1e
- H2a
- H2c
- H3a
- Iris-dominated vegetation
- M1
- M14
- M16a
- M16c
- M2
- M21
- M21a
- M21b
- M23
- M23a
- M23b
- M25
- M25a
- M25b
- M27b
- M29
- M2a
- M3
- M30
- M6a
- M6c
- M6d
- MG1
- MG10
- MG10a
- MG10b
- MG11
- MG11a
- MG12
- MG13
- MG1a
- MG1b
- MG1c
- MG1e
- MG5
- MG5a
- MG5b
- MG5c
- MG6
- MG6a
- MG6b
- MG6c
- MG7
- MG7a
- MG7c
- MG7d
- MG7e
- MG9
- MG9a
- Molinia - dominated vegetation
- Myrica- dominated vegetation
- Not surveyed
- OV23b
- OV23c
- OV24a
- OV24b
- OV25
- OV27
- OV28
- OV35
- Oenanthe-dominated vegetation
- Open water
- Running water
- S12
- S19a
- S22a
- S23
- S28a
- S4a
- S5a
- S6
- S7
- S8a
- U1
- U1b
- U2
- U20
- U20a
- U20c
- U2a
- U3
- U5
- U5d
- W1
- W10
- W10a
- W16
- W16a
- W21
- W22
- W22b
- W23
- W24
- W25
- W4a
- W4b
- W4c
- W5
- W6
- W6a
- W6b
- W6d
- W6e
- W7a
- W7b
- W7c
- W8b
- W8d
- W8e
- W8f
- Woodland

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

Esso | Southampton to London Pipeline Project

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HRA REPORT
VEGETATION PLAN OF
BOURLEY AND LONG
VALLEY SSSI
APFP Reg. (2009) 5(2)(l)

Drawing Status	For Issue
Scale	DO NOT SCALE
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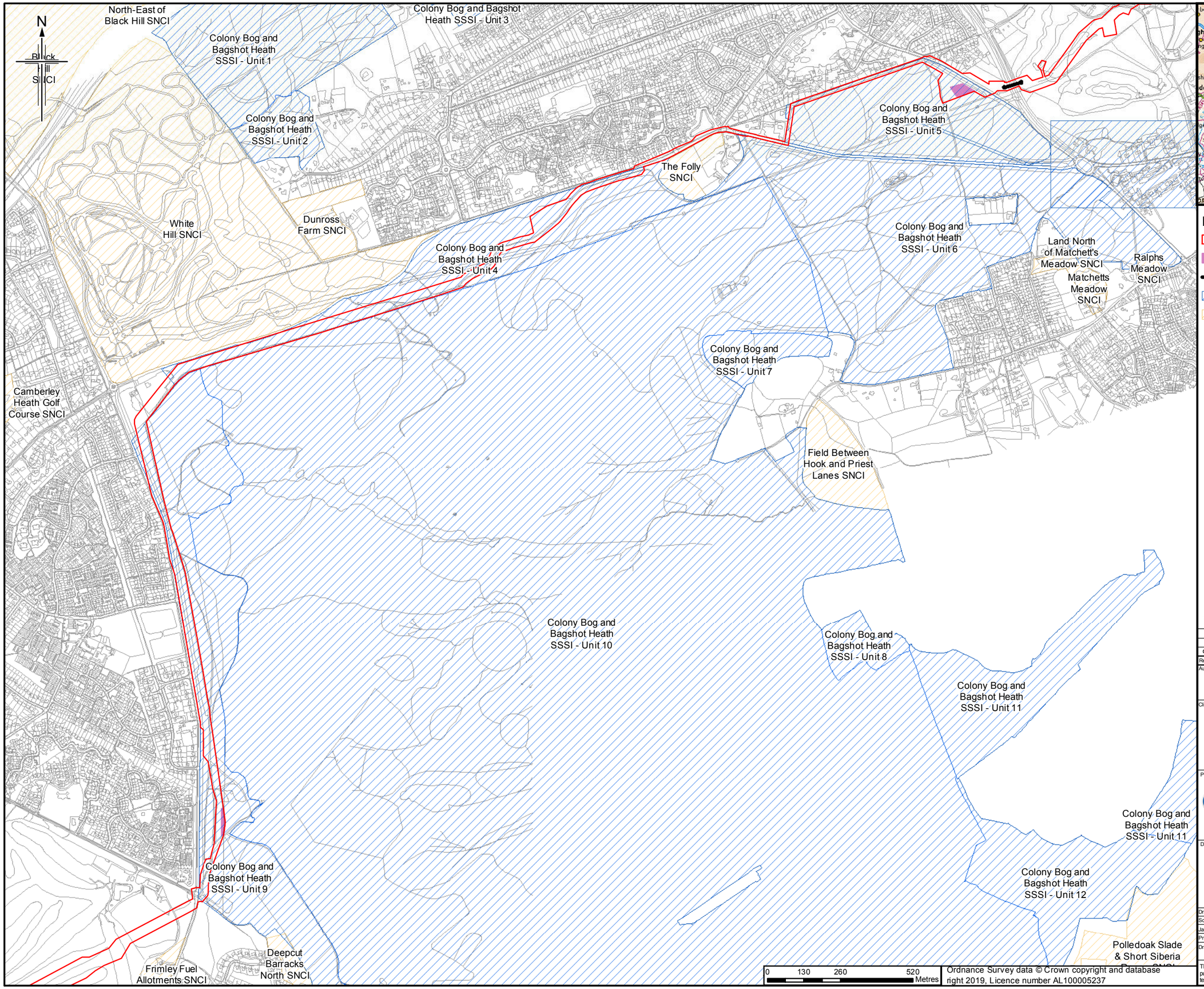
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001597
Drawing number	Figure F4 Sheet 6 of 6
Rev	0



Legend

- Order Limits
- Construction compound
- Trenchless crossing
- SSSI
- SINC/SNCI

Sheet displays parts of Section E and Section F

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Author
JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client
Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project
Southampton to London Pipeline Project

Drawing title
HRA REPORT
SITE PLAN OF
COLONY BOG AND BAGSHOT HEATH
SSSI
APFP Reg. (2009) 5(2)(l)

Drawing Status	For Issue	
Scale	1:12,500 @ A3	DO NOT SCALE
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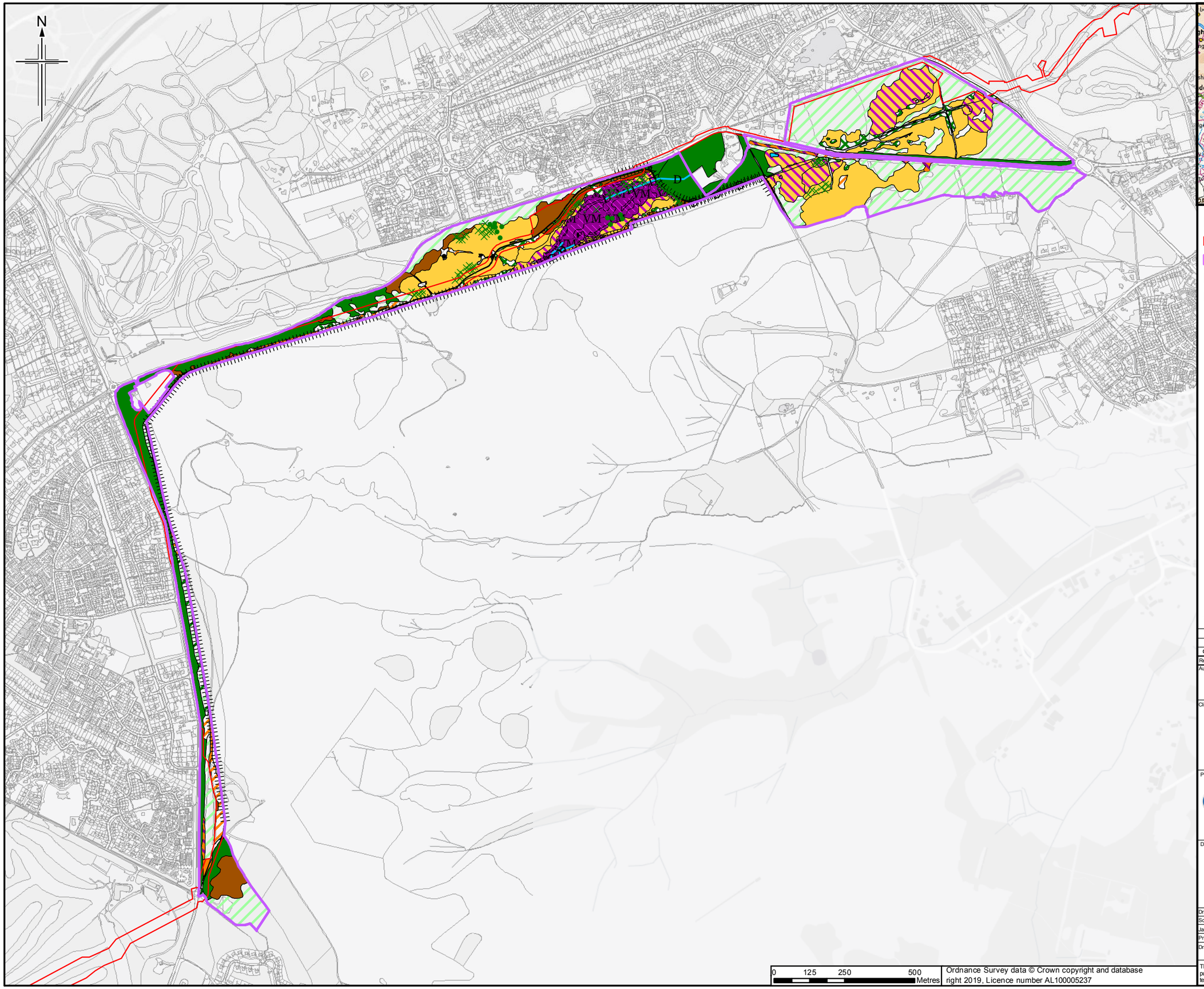
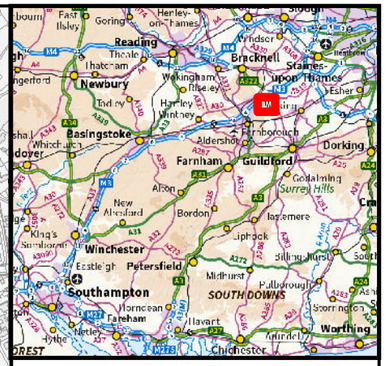
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001598	
Drawing number	Figure F5 Sheet 1 of 1	Rev 0





Legend

Order Limits

Survey site boundary

For Phase 1 Legend please see sheet 2

Sheet displays parts of Section E and Section F

Rev	Rev. Date	Purpose of revision	Orig/Dwn	Checkd	Rev'd	Apprv'd
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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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HRA REPORT
PHASE 1 HABITAT PLAN OF
COLONY BOG AND BAGSHOT HEATH
SSSI
APFP REG. (2009) 5(2)(l)

Drawing Status	**For Issue**	
Scale	**1:12,500 @ A3**	**DO NOT SCALE**
Jacobs No.	**B2325300**	
ProjectWise No.	**B2325300-JAC-000-ENV-DRG-001599**	

Drawing number: **Figure F6 Sheet 1 of 2** Rev: **0**

Legend

- A2.2 Coniferous woodland - plantation
- A3.1 Mixed woodland - semi-natural
- A3.2 Mixed woodland - plantation
- A3.3 Mixed parkland/scattered trees
- A2.2 Scrub - scattered
- F2.1 Marginal and inundation - marginal vegetation
- G1.1 Standing water - eutrophic
- G1.2 Standing water - mesotrophic
- G1.4 Standing water - dystrophic
- G2.1 Running water - eutrophic
- G2.2 Running water - mesotrophic
- G2.3 Running water - oligotrophic
- G2.4 Running water - dystrophic
- J1.4 Introduced shrub
- J2.1.1 Intact hedge - native species-rich
- J2.1.2 Intact hedge - species-poor
- J2.2.1 Defunct hedge - native species-rich
- J2.2.2 Defunct hedge - species-poor
- J2.3.1 Hedge with trees - native species-rich
- J2.3.2 Hedge with trees - species-poor
- J2.4 Fence
- J2.6 Dry ditch
- A1.1.1 Broadleaved woodland - semi-natural
- A1.1.2 Broadleaved woodland - plantation
- A1.2.2 Coniferous woodland - plantation
- A1.3.2 Mixed woodland - plantation
- A2.1 Scrub - dense/continuous
- A3.1 Broadleaved Parkland/scattered trees
- B1.1 Acid grassland - unimproved
- B1.2 Acid grassland - semi-improved
- B2.1 Neutral grassland - unimproved
- B2.2 Neutral grassland - semi-improved
- B3.1 Calcareous grassland - unimproved
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B6 Poor semi-improved grassland
- C1.1 Bracken - continuous
- C1.2 Bracken - scattered
- C3.1 Other tall herb and fern - ruderal
- C3.2 Other tall herb and fern - non ruderal
- D1.1 Dry dwarf shrub heath - acid
- D2 Wet dwarf shrub heath
- E3.1 Fen - valley mire
- F1 Swamp
- F2.2 Marginal and inundation - inundation vegetation
- G1.1 Standing water - eutrophic
- G1.2 Standing water - mesotrophic
- G1.3 Standing water - oligotrophic
- G1.4 Standing water - dystrophic
- G2.1 Running water - eutrophic
- G2.2 Running water - mesotrophic
- G2.4 Running water - dystrophic
- J1.1 Cultivated/disturbed land - arable
- J1.2 Cultivated/disturbed land - amenity grassland
- J1.3 Cultivated/disturbed land - ephemeral/short perennial
- J1.4 Introduced shrub
- J3.6 Buildings
- J4 Bare ground

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

Esso | Southampton to London Pipeline Project

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PHASE 1 HABITAT PLAN OF
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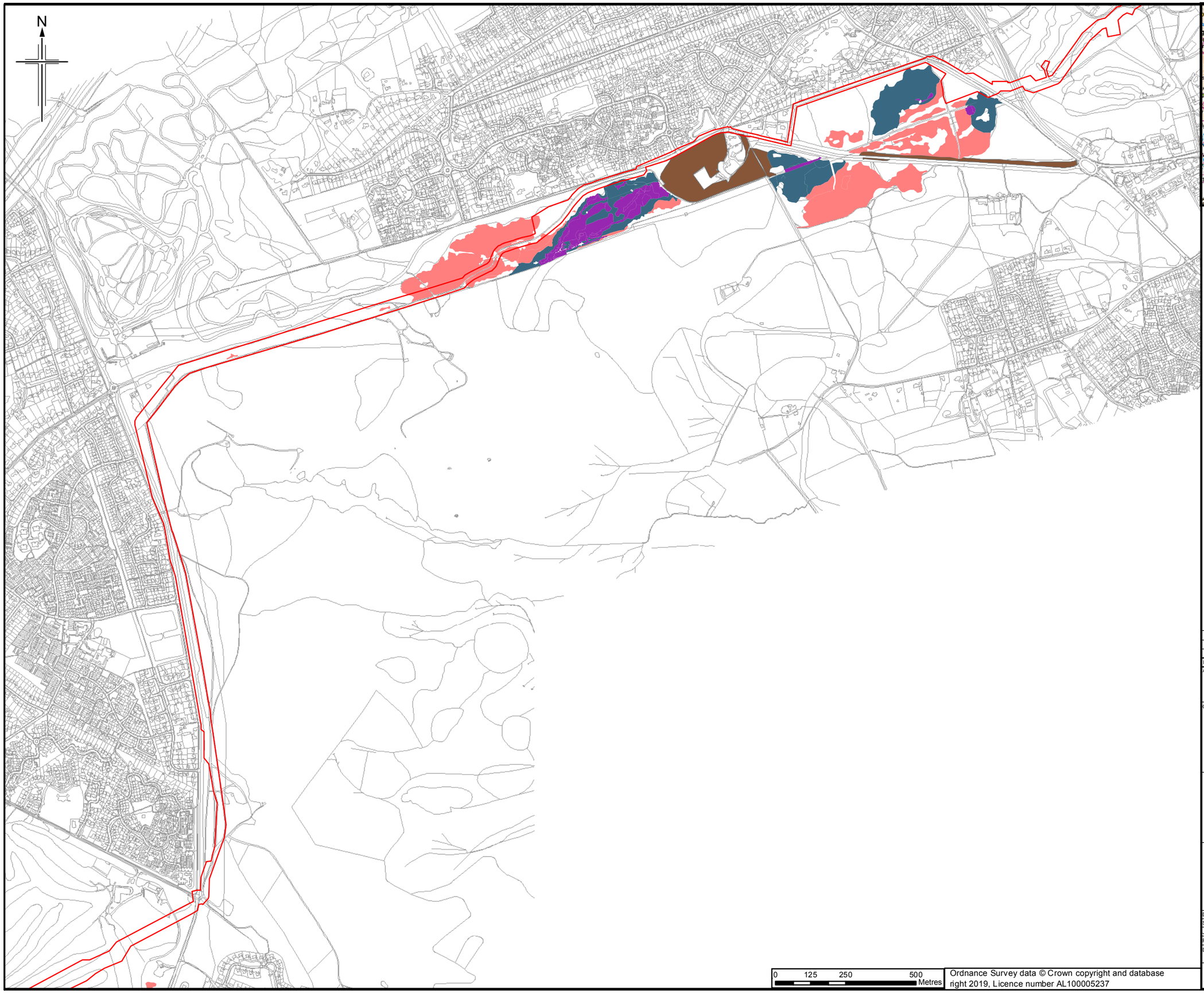
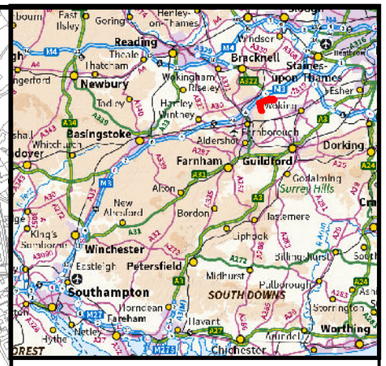
Drawing number	Figure F6 Sheet 2 of 2	Rev 0





Legend

Order Limits

Annex I habitat

- H4010 Northern Atlantic wet heaths with *Erica tetralix*
- H4030 European dry heaths
- H7150 Depressions on peat substrates of the *Rhynchosporion*
- H9190 Old acidophilous oak woods with *Quercus robur* on sandy plains

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Author

JACOBS

1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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HRA REPORT
ANNEX I HABITAT PLAN OF
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SSSI
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Drawing Status	**For Issue**	
Scale	**1:12,500 @ A3**	**DO NOT SCALE**
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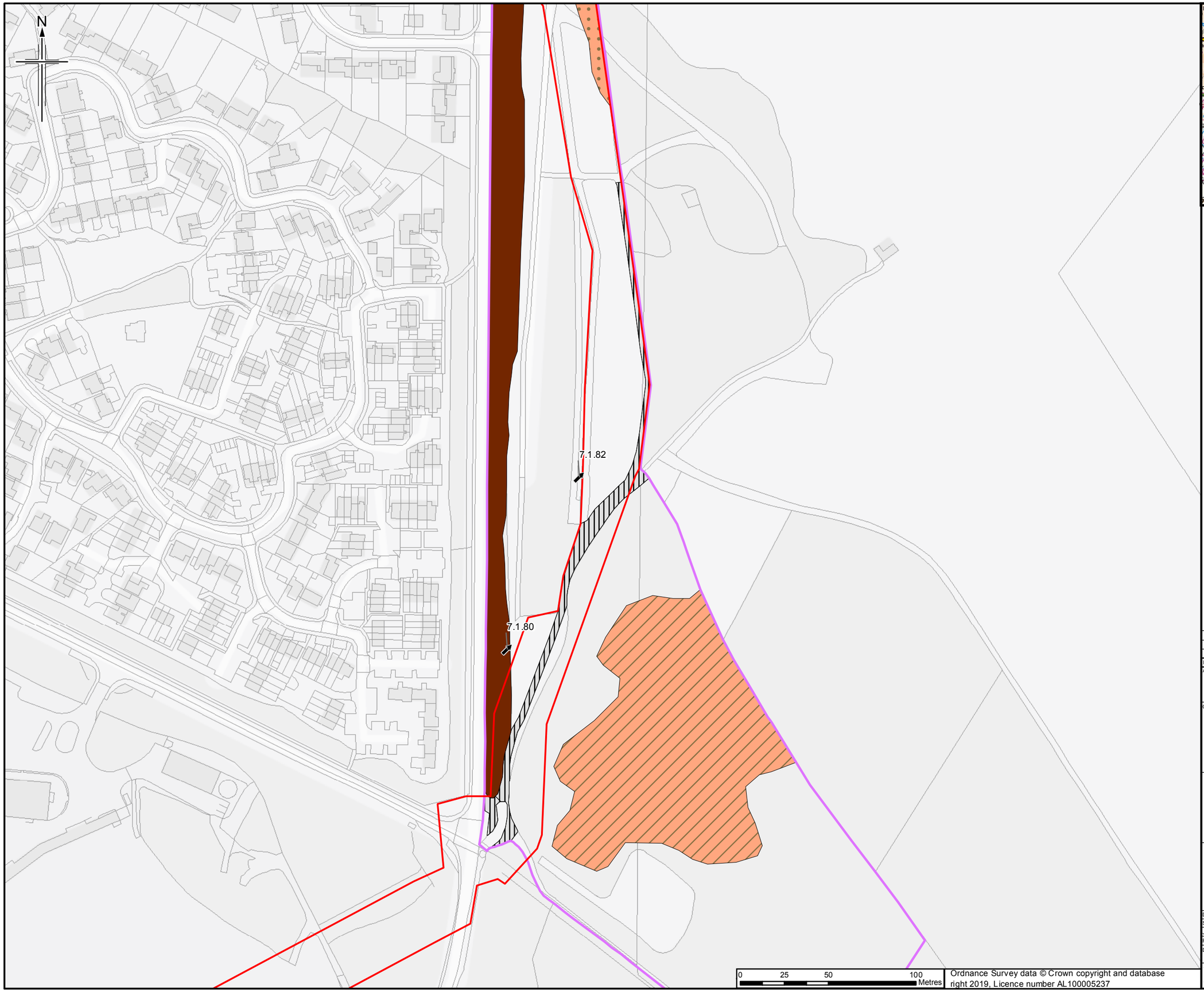
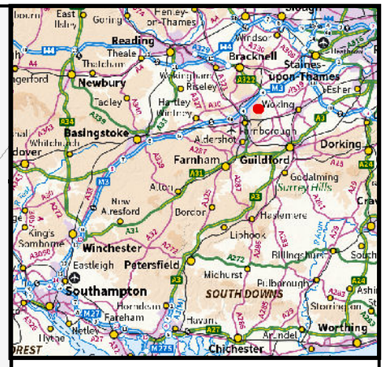
ProjectWise No.	**B2325300-JAC-000-ENV-DRG-001600**	
Drawing number	Figure F7 Sheet 1 of 1	Rev 0

0 125 250 500 Metres





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 11.

Full NVC plant community names are provided in Annex G

Sheet displays parts of Section E and Section F

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Author
JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client
Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project
Esso | Southampton to London Pipeline Project

Drawing title
HRA REPORT
VEGETATION PLAN OF
COLONY BOG AND BAGSHOT
HEATH SSSI
APFP Reg. (2009) 5(2)(l)

Drawing Status	For Issue	
Scale	1:2,000 @ A3	DO NOT SCALE
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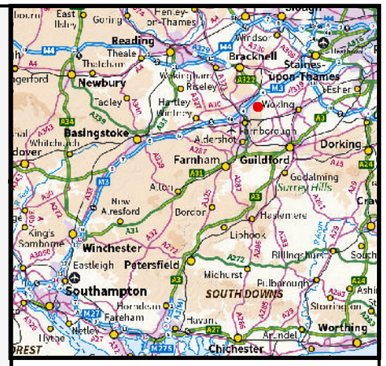
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601	
Drawing number	Figure F8 Sheet 1 of 11	Rev 0



Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 11.

Full NVC plant community names are provided in Annex G

Sheet displays part of Section F

Rev	Rev. Date	Purpose of revision	Orig/Dwn	Check'd	Rev'd	Apprv'd
0	9/04/2019	For Issue	JH	TC	LG	SH

Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

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ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601		
Drawing number	Figure F8 Sheet 2 of 11		Rev 0

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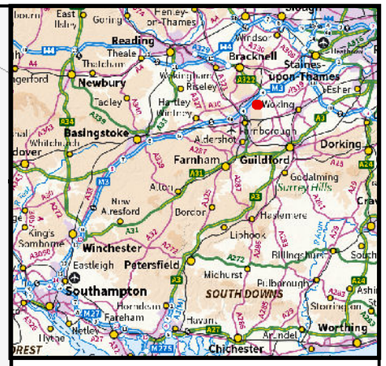

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JACOBS

1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

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ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601	
Drawing number	Figure F8 Sheet 3 of 11	Rev 0

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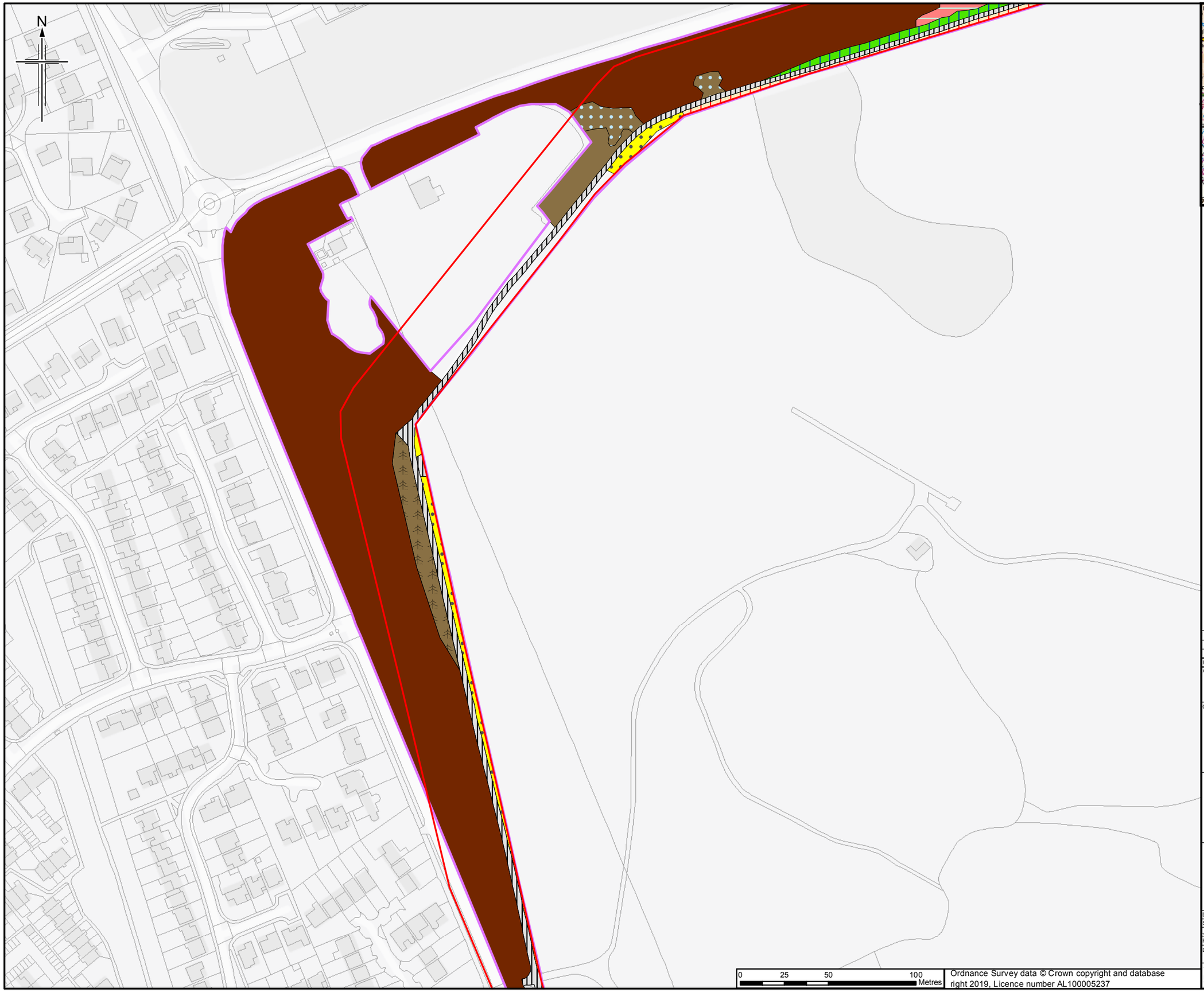

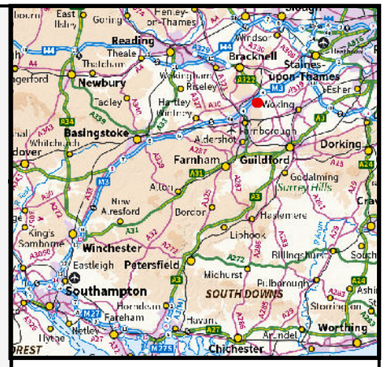

Legend

- Order Limits
- Survey site boundary
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For Vegetation Plan Legend please see sheet 11.

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
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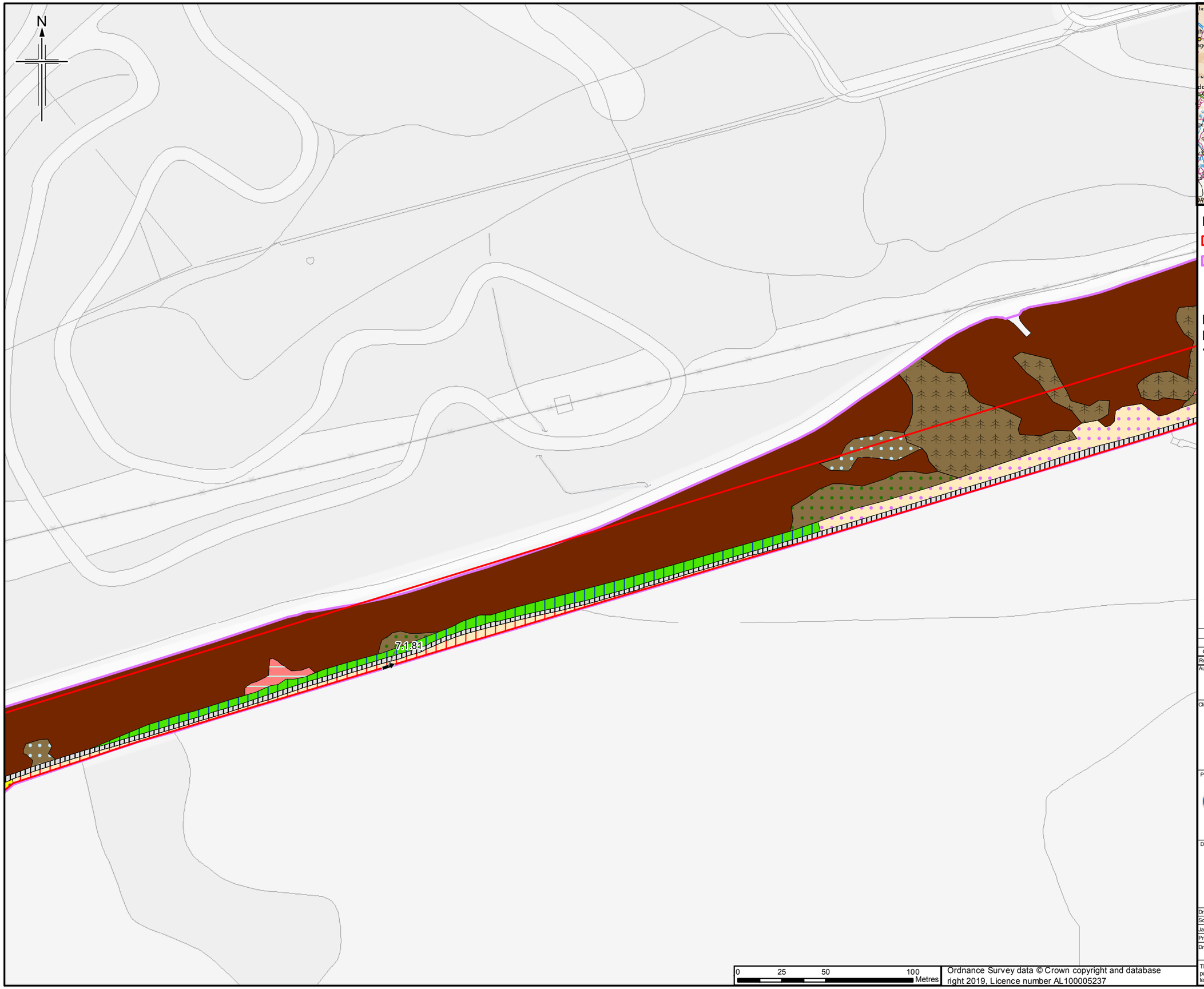
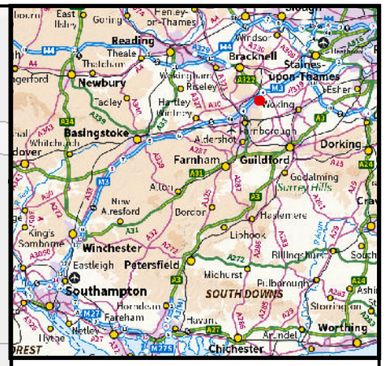
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601	

Drawing number: Figure F8 Sheet 4 of 11 — Rev 0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- Quadrat

For Vegetation Plan Legend please see sheet 11.

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
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Surrey,
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Project

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Scale	1:2,000 @ A3	DO NOT SCALE
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ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601	
Drawing number	Figure F8 Sheet 5 of 11	Rev 0

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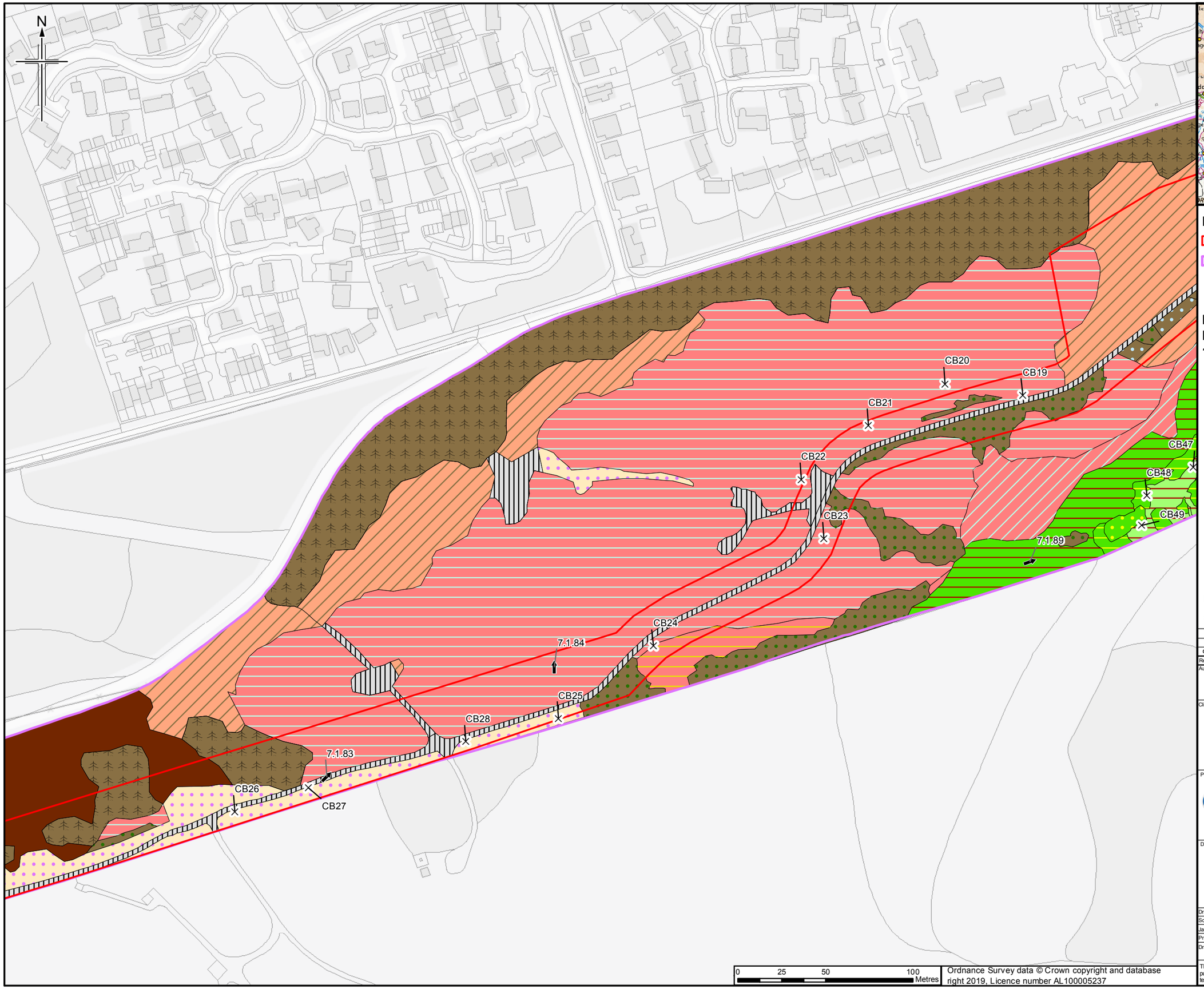

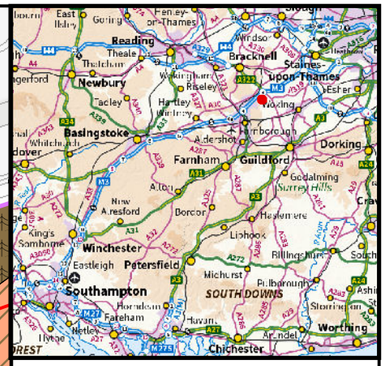

Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 11.

Full NVC plant community names are provided in Annex G

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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Scale	1:2,000 @ A3	DO NOT SCALE	
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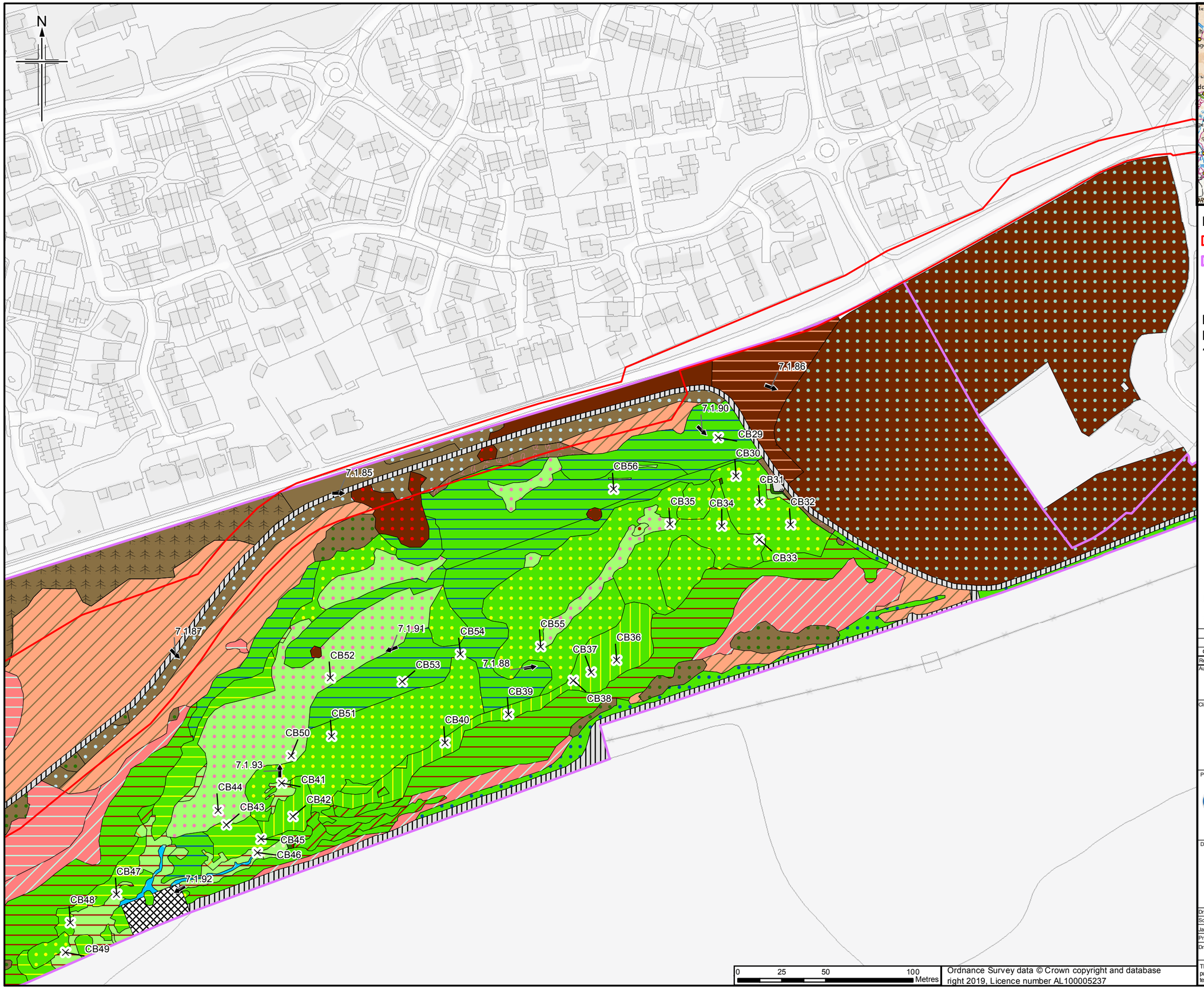
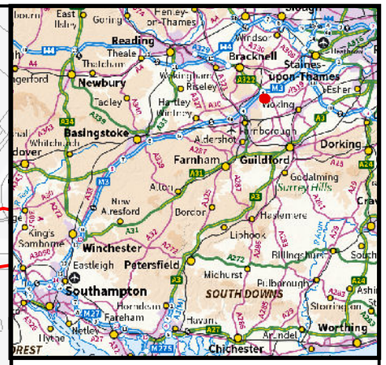
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601		
Drawing number	Figure F8 Sheet 6 of 11	Rev	0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 11.

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
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Leatherhead,
Surrey,
KT22 8UX

Project

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ProjectWise No.	**B2325300-JAC-000-ENV-DRG-001601**	
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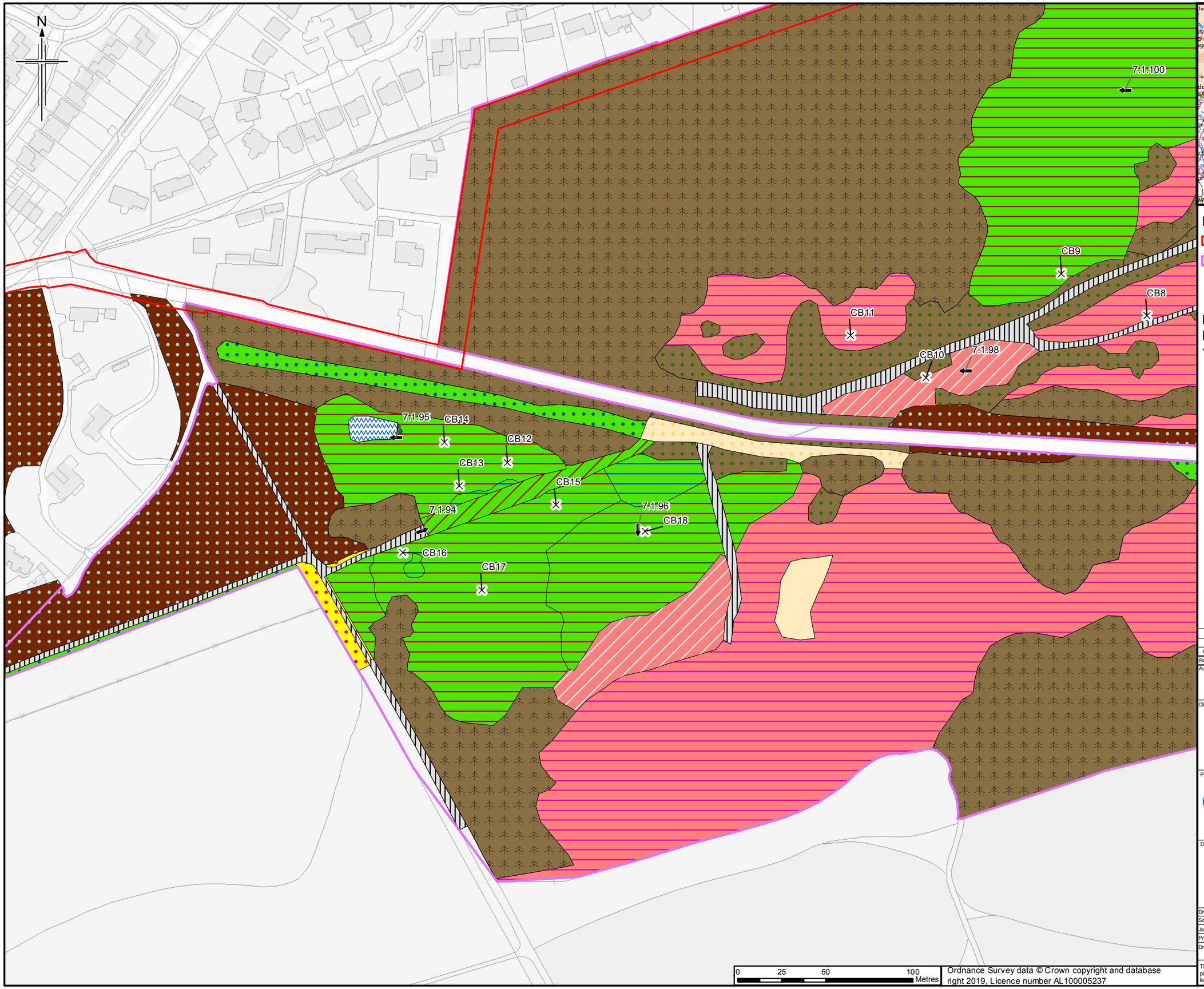

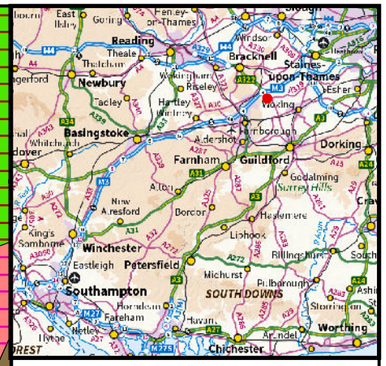

Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 11.

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
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Leatherhead,
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KT22 8UX

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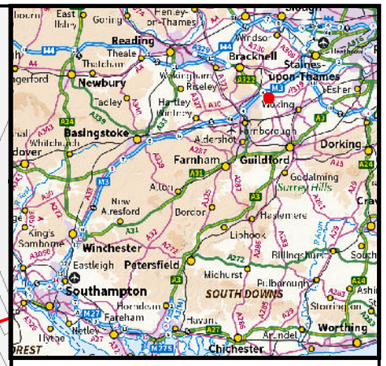
ProjectWise No.	**B2325300-JAC-000-ENV-DRG-001601**	
Drawing number	Figure F8 Sheet 8 of 11	Rev 0



Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- Quadrat

For Vegetation Plan Legend please see sheet 11.

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Author

JACOBS

1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

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Scale	1:2,000 @ A3	DO NOT SCALE
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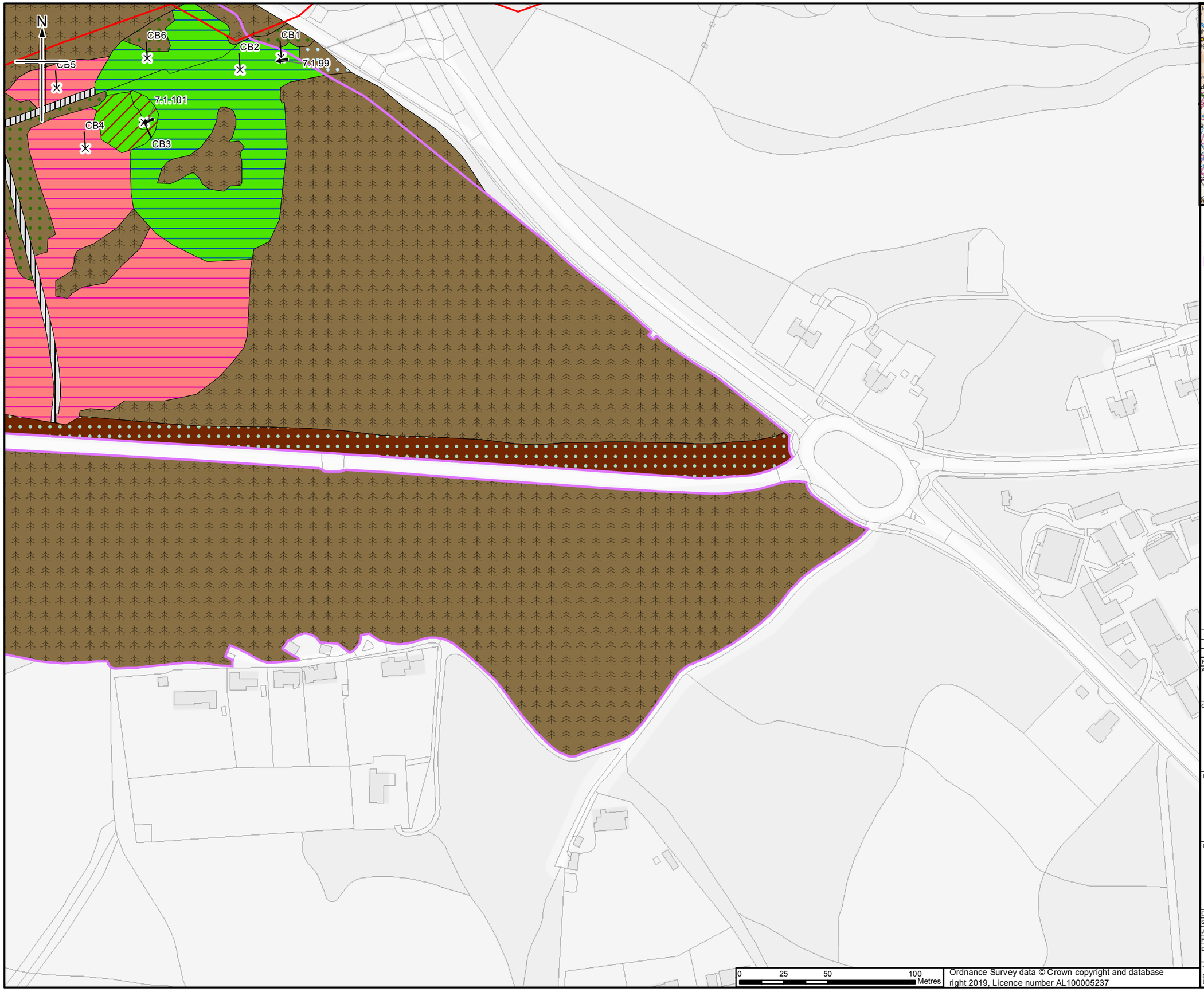
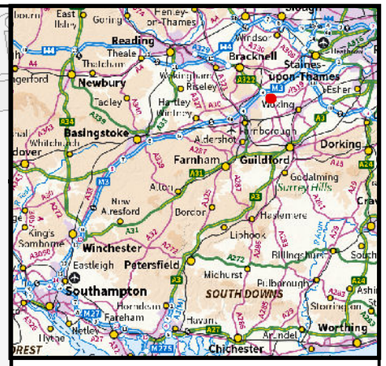
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601	
Drawing number	Figure F8 Sheet 9 of 11	Rev 0





Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 11.

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JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
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Drawing number	Figure F8 Sheet 10 of 11	Rev 0

Vegetation Plan Legend

- A16
- A24
- A9
- Bare peat
- Bare/disturbed ground
- Buildings
- Carex acuta swamp
- Conifer plantation
- Conium maculatum-dominated vegetation
- Dense scrub
- Ditch
- H1a
- H1e
- H2a
- H2c
- H3a
- Iris-dominated vegetation
- M1
- M14
- M16a
- M16c
- M2
- M21
- M21a
- M21b
- M23
- M23a
- M23b
- M25
- M25a
- M25b
- M27b
- M29
- M2a
- M3
- M30
- M6a
- M6c
- M6d
- MG1
- MG10
- MG10a
- MG10b
- MG11
- MG11a
- MG12
- MG13
- MG1a
- MG1b
- MG1c
- MG1e
- MG5
- MG5a
- MG5b
- MG5c
- MG6
- MG6a
- MG6b
- MG6c
- MG7
- MG7a
- MG7c
- MG7d
- MG7e
- MG9
- MG9a
- Molinia - dominated vegetation
- Myrica- dominated vegetation
- Not surveyed
- OV23b
- OV23c
- OV24a
- OV24b
- OV25
- OV27
- OV28
- OV35
- Oenanthe-dominated vegetation
- Open water
- Running water
- S12
- S19a
- S22a
- S23
- S28a
- S4a
- S5a
- S6
- S7
- S8a
- U1
- U1b
- U2
- U20
- U20a
- U20c
- U2a
- U3
- U5
- U5d
- W1
- W10
- W10a
- W16
- W16a
- W21
- W22
- W22b
- W23
- W24
- W25
- W4a
- W4b
- W4c
- W5
- W6
- W6a
- W6b
- W6d
- W6e
- W7a
- W7b
- W7c
- W8b
- W8d
- W8e
- W8f
- Woodland

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

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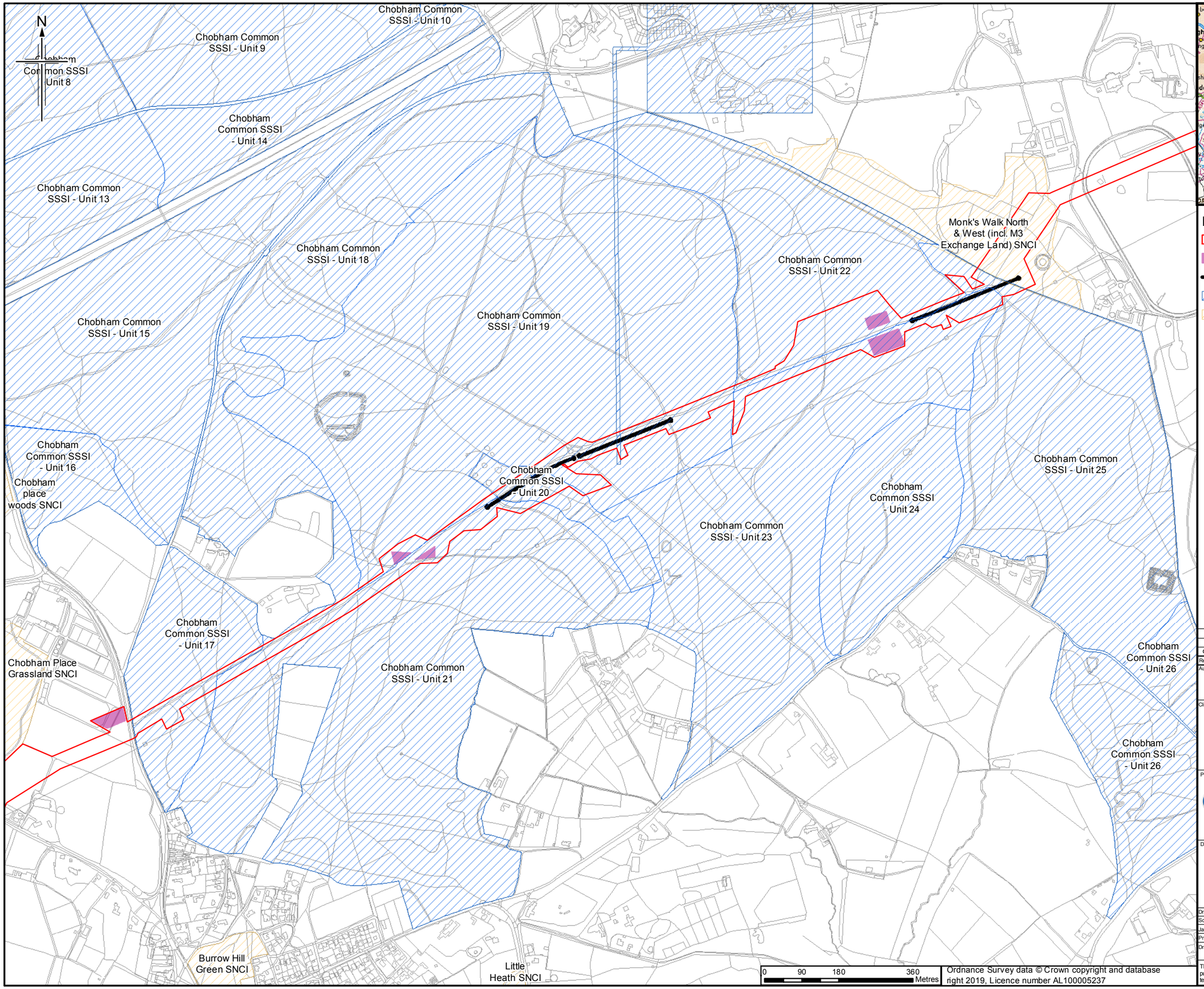
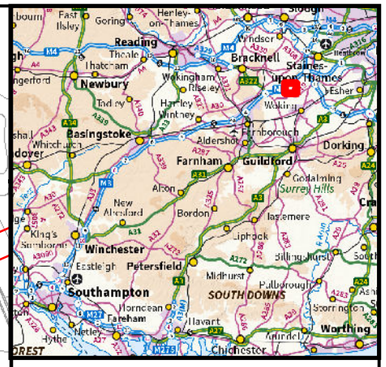
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001601
Drawing number	Figure F8 Sheet 11 of 11
Rev	0





Legend

- Order Limits
- Construction compound
- Trenchless crossing
- SSSI
- SINC/SNCI

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JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

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HRA REPORT
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SSSI
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Scale	1:8,500 @A3	DO NOT SCALE	
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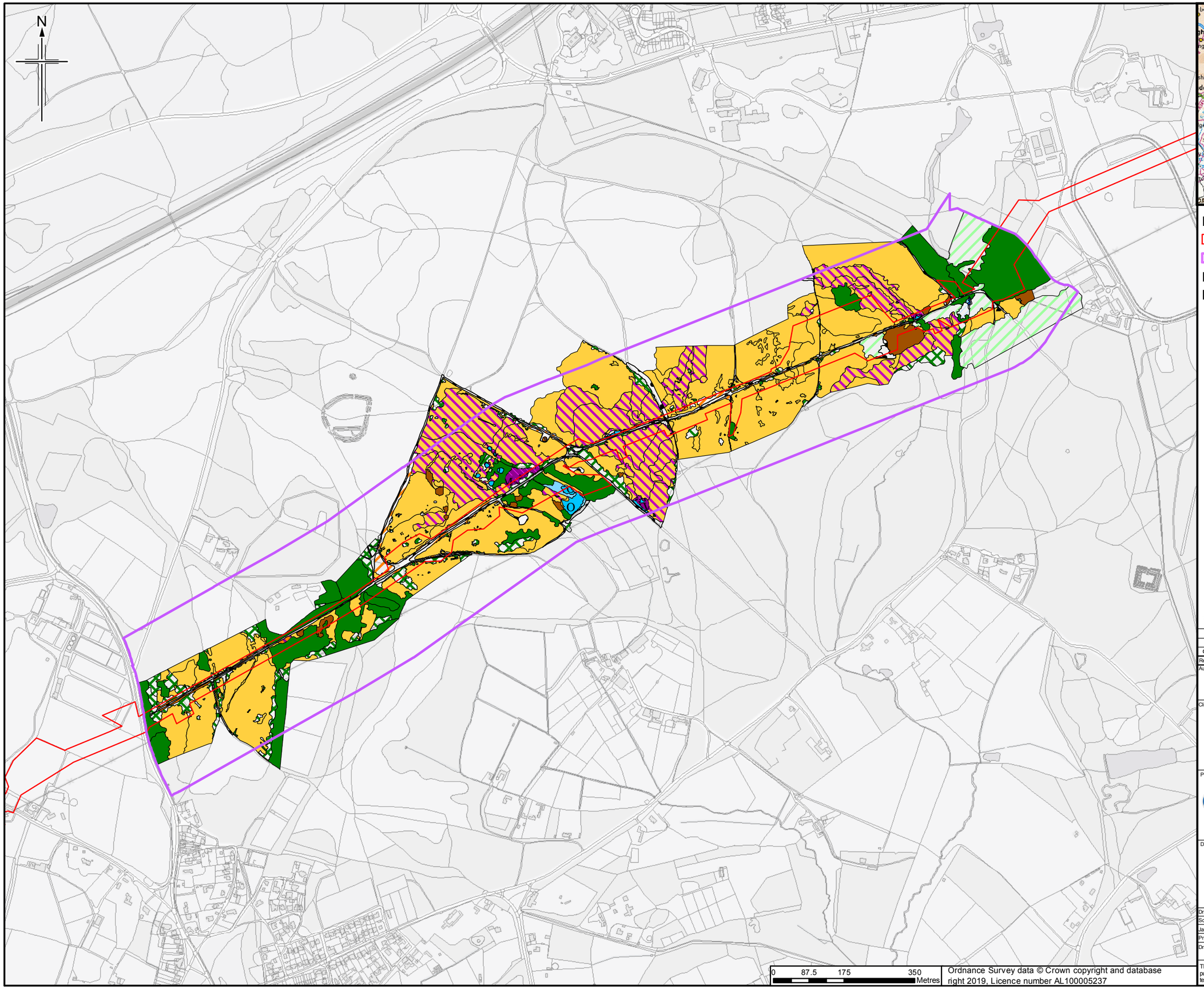
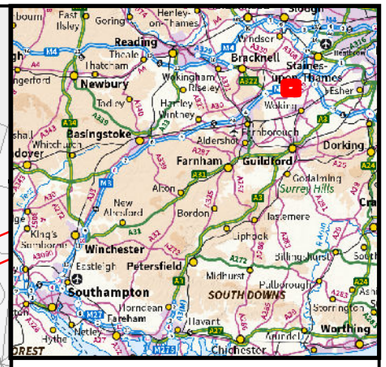
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001602		
Drawing number	Figure F9 Sheet 1 of 1		Rev 0





Legend

Order Limits

Survey site boundary

For Phase 1 Legend please see sheet 2

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JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

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HRA REPORT
PHASE 1 HABITAT PLAN OF CHOBHAM COMMON SSSI
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Scale	1:8,710 @ A3	DO NOT SCALE
Jacobs No.	B2325300	
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001603	
Drawing number	Figure F10 Sheet 1 of 2	Rev 0

Legend

- A2.2 Coniferous woodland - plantation
- A3.1 Mixed woodland - semi-natural
- A3.2 Mixed woodland - plantation
- A3.3 Mixed parkland/scattered trees
- A2.2 Scrub - scattered
- F2.1 Marginal and inundation - marginal vegetation
- G1.1 Standing water - eutrophic
- G1.2 Standing water - mesotrophic
- G1.4 Standing water - dystrophic
- G2.1 Running water - eutrophic
- G2.2 Running water - mesotrophic
- G2.3 Running water - oligotrophic
- G2.4 Running water - dystrophic
- J1.4 Introduced shrub
- J2.1.1 Intact hedge - native species-rich
- J2.1.2 Intact hedge - species-poor
- J2.2.1 Defunct hedge - native species-rich
- J2.2.2 Defunct hedge - species-poor
- J2.3.1 Hedge with trees - native species-rich
- J2.3.2 Hedge with trees - species-poor
- J2.4 Fence
- J2.6 Dry ditch
- A1.1.1 Broadleaved woodland - semi-natural
- A1.1.2 Broadleaved woodland - plantation
- A1.2.2 Coniferous woodland - plantation
- A1.3.2 Mixed woodland - plantation
- A2.1 Scrub - dense/continuous
- A3.1 Broadleaved Parkland/scattered trees
- B1.1 Acid grassland - unimproved
- B1.2 Acid grassland - semi-improved
- B2.1 Neutral grassland - unimproved
- B2.2 Neutral grassland - semi-improved
- B3.1 Calcareous grassland - unimproved
- B4 Improved grassland
- B5 Marsh/marshy grassland
- B6 Poor semi-improved grassland
- C1.1 Bracken - continuous
- C1.2 Bracken - scattered
- C3.1 Other tall herb and fern - ruderal
- C3.2 Other tall herb and fern - non ruderal
- D1.1 Dry dwarf shrub heath - acid
- D2 Wet dwarf shrub heath
- E3.1 Fen - valley mire
- F1 Swamp
- F2.2 Marginal and inundation - inundation vegetation
- G1.1 Standing water - eutrophic
- G1.2 Standing water - mesotrophic
- G1.3 Standing water - oligotrophic
- G1.4 Standing water - dystrophic
- G2.1 Running water - eutrophic
- G2.2 Running water - mesotrophic
- G2.4 Running water - dystrophic
- J1.1 Cultivated/disturbed land - arable
- J1.2 Cultivated/disturbed land - amenity grassland
- J1.3 Cultivated/disturbed land - ephemeral/short perennial
- J1.4 Introduced shrub
- J3.6 Buildings
- J4 Bare ground

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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HRA REPORT
PHASE 1 HABITAT PLAN OF
CHOBHAM COMMON
SSSI
APFP Reg. (2009) 5(2)(l)

Drawing Status	For Issue	
Scale	1:8,500 @ A3	DO NOT SCALE
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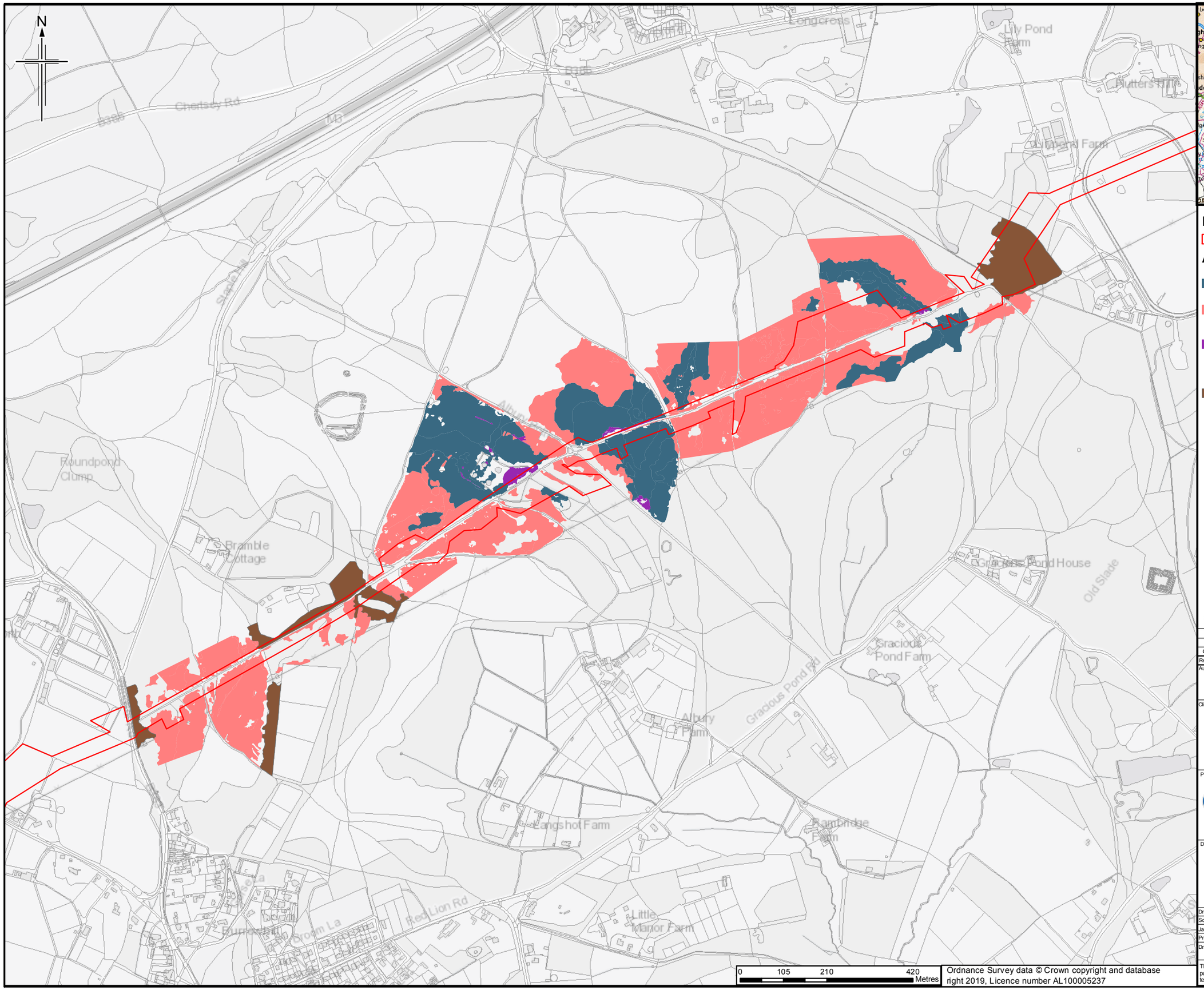
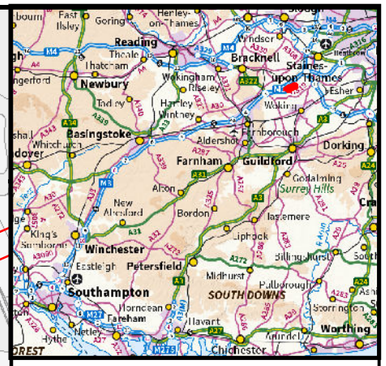
ProjectWise No.	B2325300-JAC-000-ENV-DRG-001603	
Drawing number	Figure F10 Sheet 2 of 2	Rev 0





Legend

- Order Limits

Annex I habitat

- H4010 Northern Atlantic wet heaths with *Erica tetralix*
- H4030 European dry heaths
- H7150 Depressions on peat substrates of the *Rhynchosporion*
- H9190 Old acidophilous oak woods with *Quercus robur* on sandy plains

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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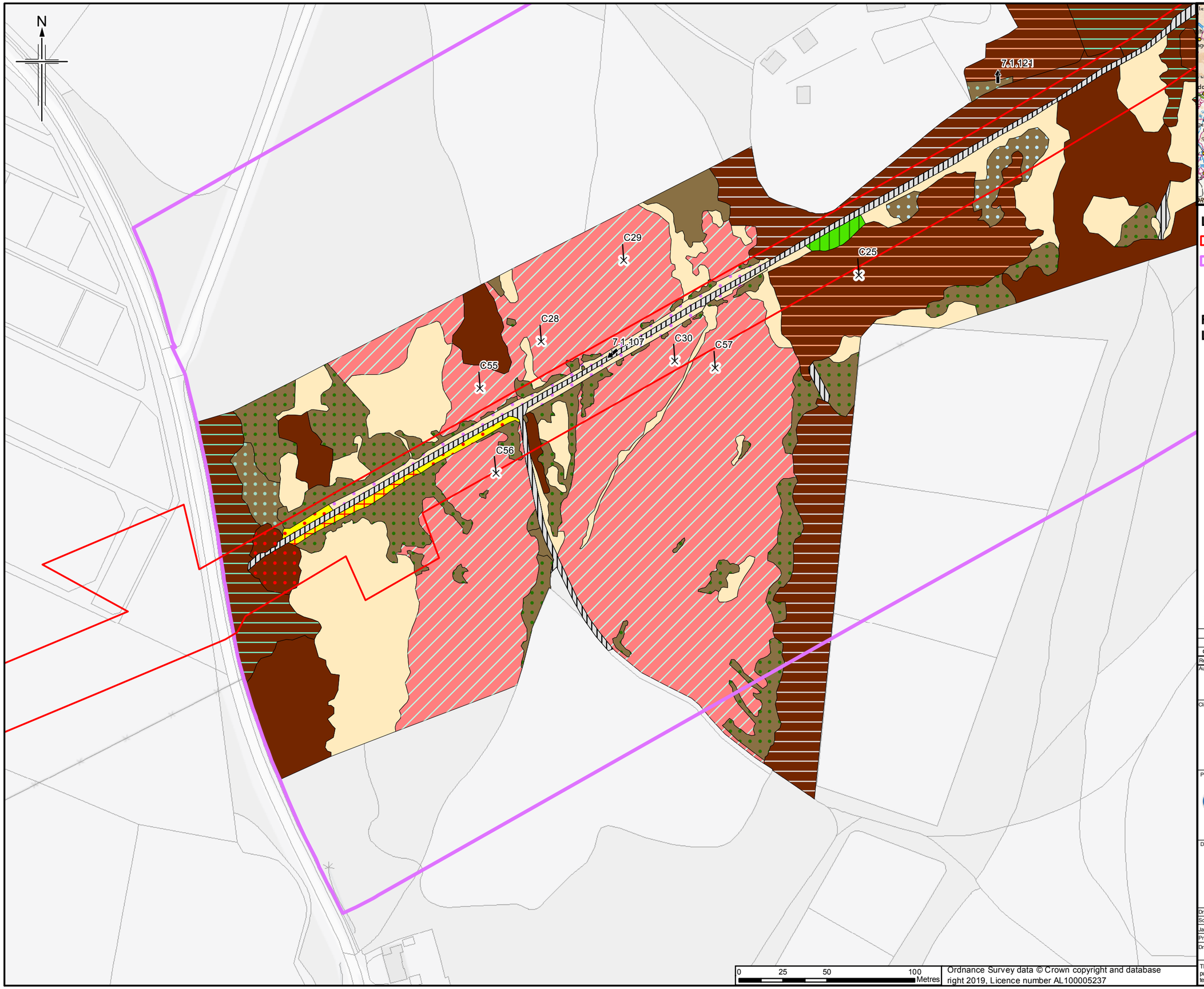

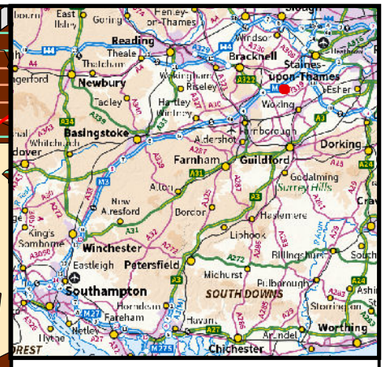

Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

For Vegetation Plan Legend please see sheet 6

Full NVC plant community names are provided in Annex G

Sheet displays part of Section F

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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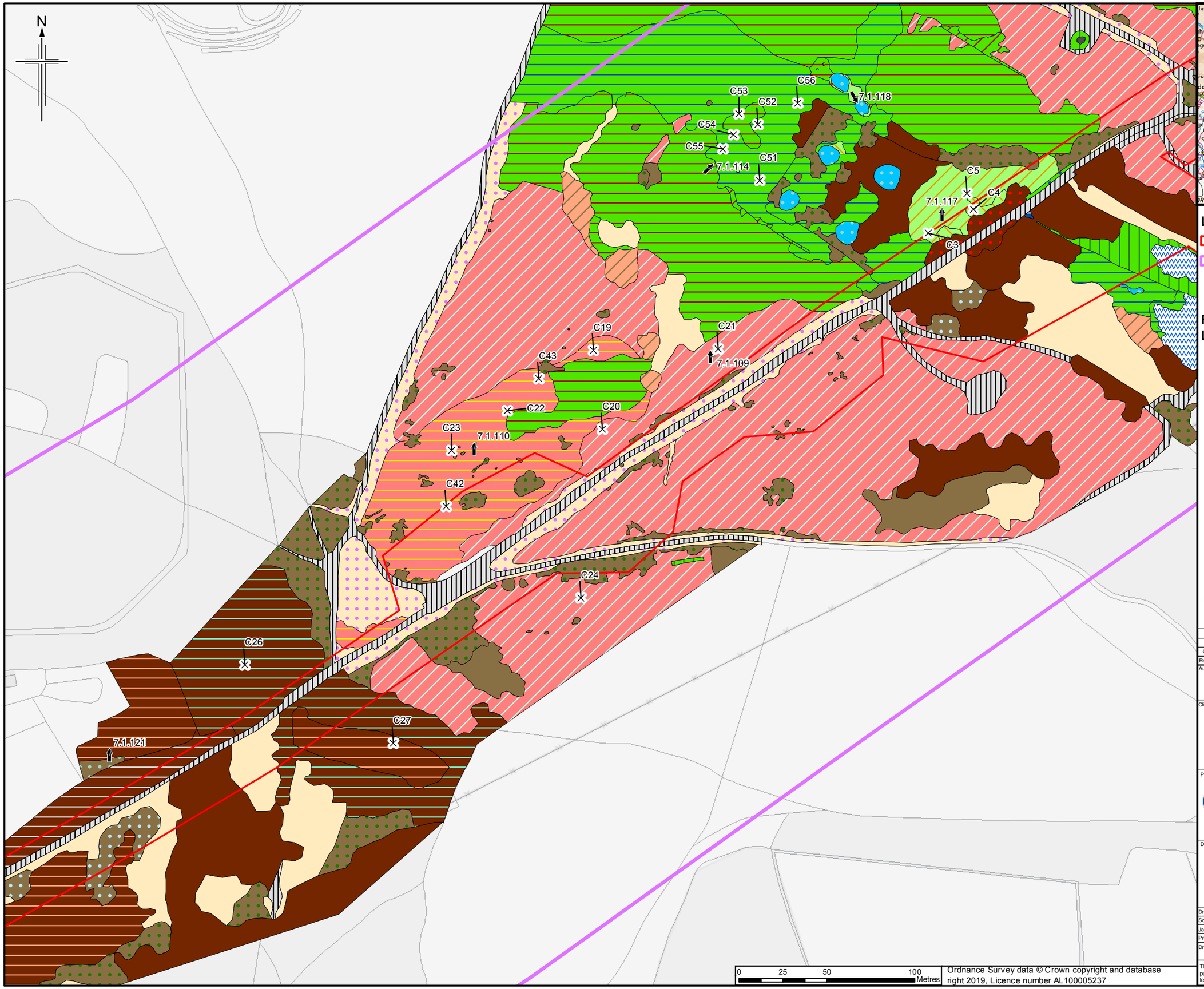

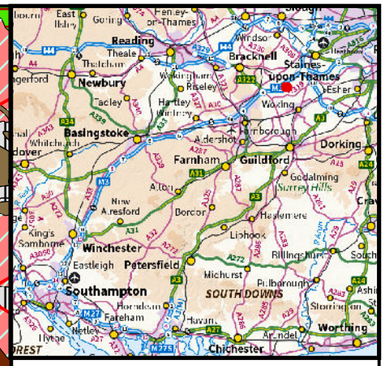

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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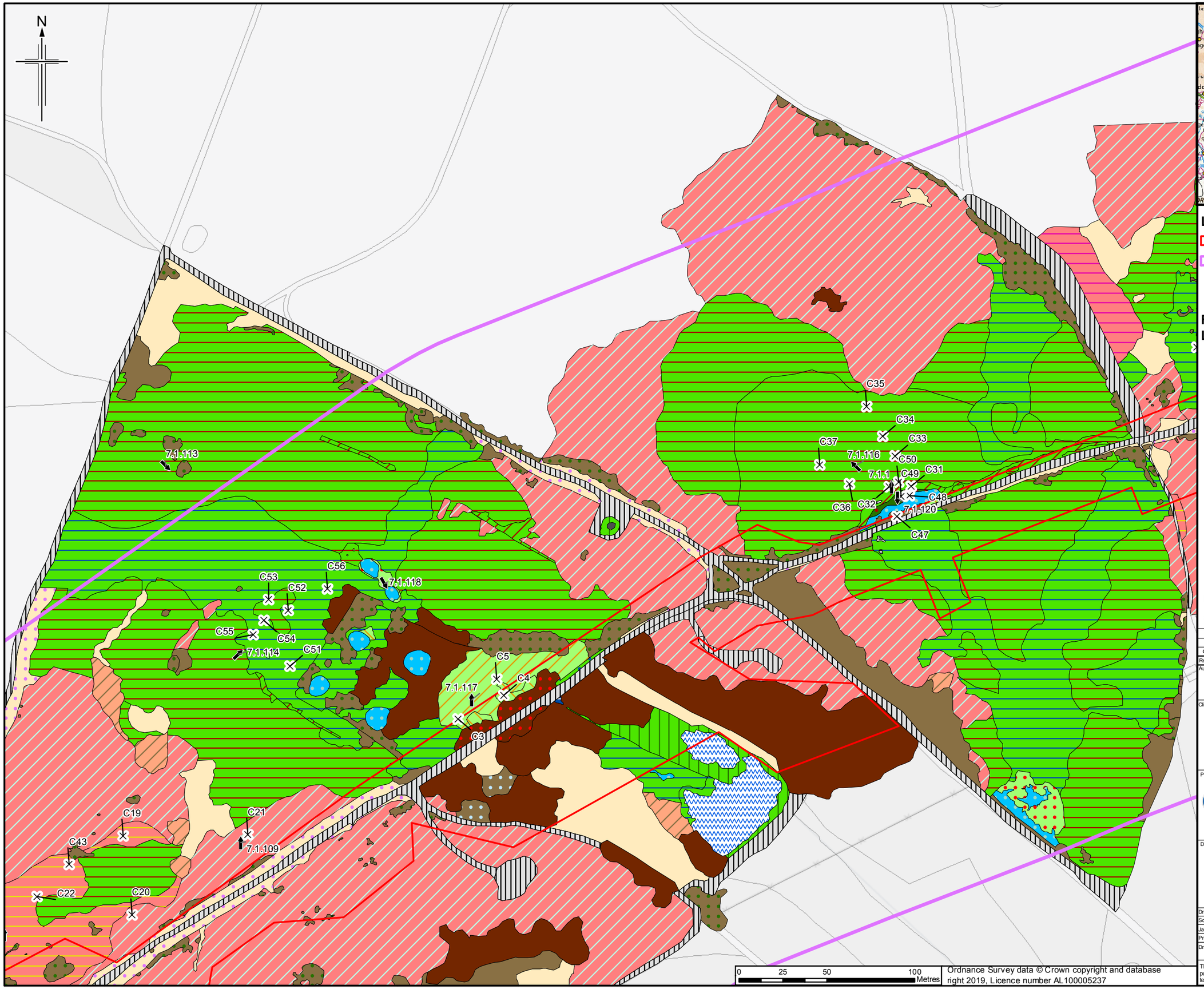

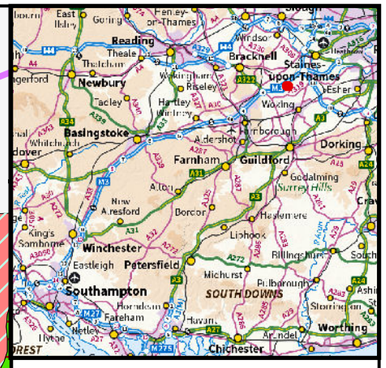

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax: +44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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C39
C40
C41
C16
7.1.108
C2
C15
7.1.111
7.1.106
C11
C13
C12
C14
C10
7.1.112
C8
C7
7.1.115
C6
C9
C44
C45
C46

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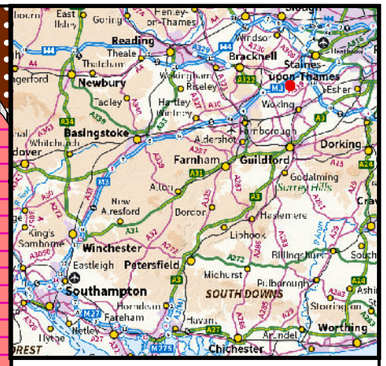

Legend

- Order Limits
- Survey site boundary
- Photograph and direction
- × Quadrat

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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

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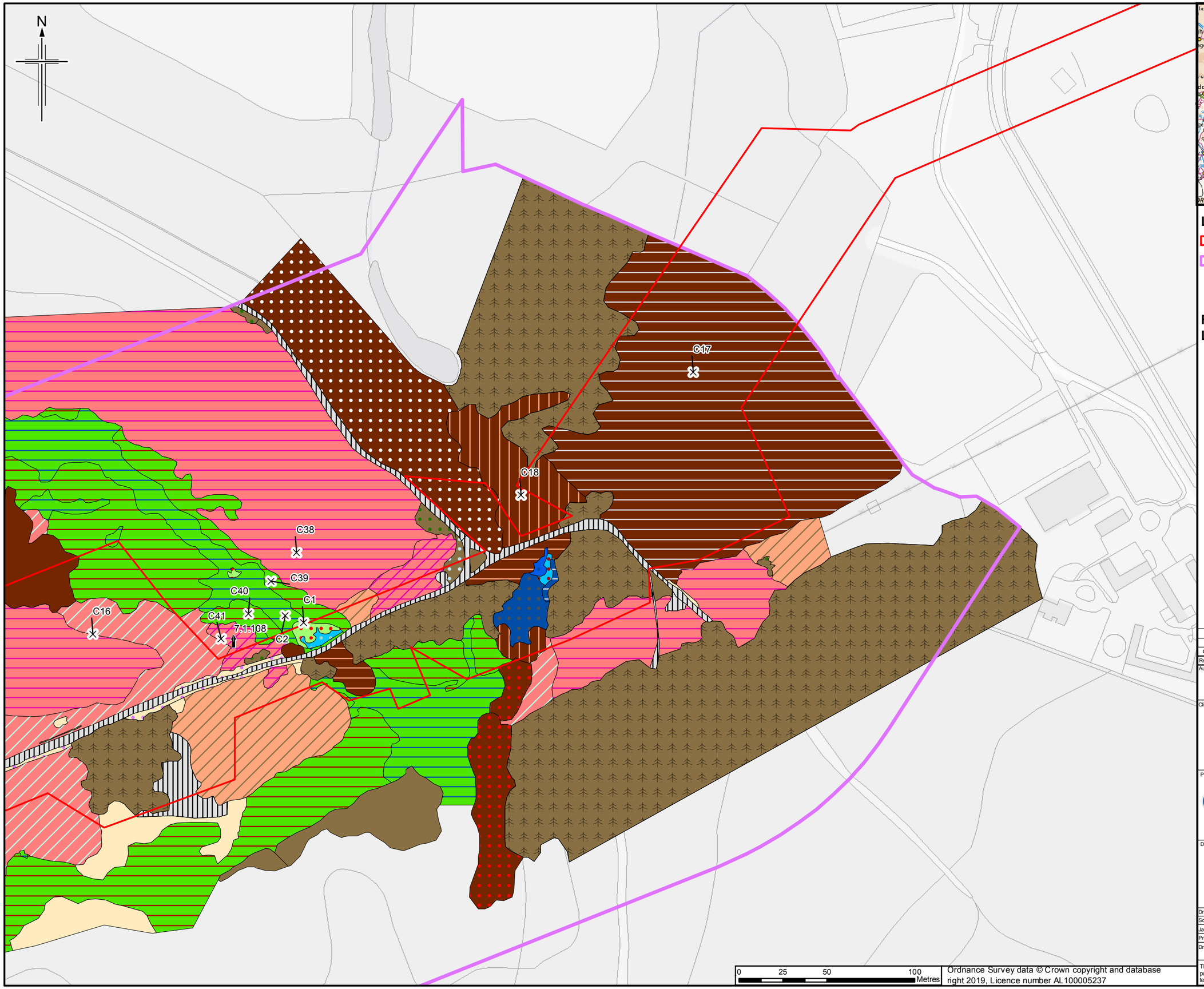
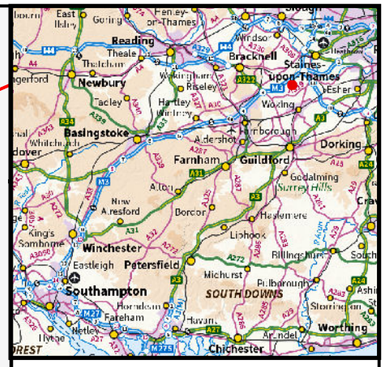
Drawing number	Figure F12 Sheet 4 of 6	Rev	0





Legend

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- Survey site boundary
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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
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Leatherhead,
Surrey,
KT22 8UX

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Drawing number	Figure F12 Sheet 5 of 6	Rev 0

Vegetation Plan Legend

- A16
- A24
- A9
- Bare peat
- Bare/disturbed ground
- Buildings
- Carex acuta swamp
- Conifer plantation
- Conium maculatum-dominated vegetation
- Dense scrub
- Ditch
- H1a
- H1e
- H2a
- H2c
- H3a
- Iris-dominated vegetation
- M1
- M14
- M16a
- M16c
- M2
- M21
- M21a
- M21b
- M23
- M23a
- M23b
- M25
- M25a
- M25b
- M27b
- M29
- M2a
- M3
- M30
- M6a
- M6c
- M6d
- MG1
- MG10
- MG10a
- MG10b
- MG11
- MG11a
- MG12
- MG13
- MG1a
- MG1b
- MG1c
- MG1e
- MG5
- MG5a
- MG5b
- MG5c
- MG6
- MG6a
- MG6b
- MG6c
- MG7
- MG7a
- MG7c
- MG7d
- MG7e
- MG9
- MG9a
- Molinia - dominated vegetation
- Myrica- dominated vegetation
- Not surveyed
- OV23b
- OV23c
- OV24a
- OV24b
- OV25
- OV27
- OV28
- OV35
- Oenanthe-dominated vegetation
- Open water
- Running water
- S12
- S19a
- S22a
- S23
- S28a
- S4a
- S5a
- S6
- S7
- S8a
- U1
- U1b
- U2
- U20
- U20a
- U20c
- U2a
- U3
- U5
- U5d
- W1
- W10
- W10a
- W16
- W16a
- W21
- W22
- W22b
- W23
- W24
- W25
- W4a
- W4b
- W4c
- W5
- W6
- W6a
- W6b
- W6d
- W6e
- W7a
- W7b
- W7c
- W8b
- W8d
- W8e
- W8f
- Woodland

Rev.	Rev. Date	Purpose of revision	Orig/Dwn	Checkd	Rev'd	Apprv'd
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Author

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

Project

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APFP Reg. (2009) 5(2)(l)

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Drawing number	Figure F12 Sheet 6 of 6
Rev	0

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Annex B – Site Lists

Table B1: Botanical Legal and Conservation Statuses Used in Site Lists.

Legal/Conservation Status and Reference	Abbreviation
Listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended)	Schedule 8
Priority species (species of principal importance) listed in accordance with Section 41 of the Natural Environment and Rural Communities Act 2006	S41
Nationally Rare (BSBI, 2013)	NR
Nationally Scarce (BSBI, 2013)	NS
Great Britain Critically Endangered (Cheffings, *et al.*, 2005)	GB CR
Great Britain Endangered (Cheffings, *et al.*, 2005)	GB EN
Great Britain Vulnerable (Cheffings, *et al.*, 2005)	GB VU
Great Britain Near Threatened (Cheffings, *et al.*, 2005)	GB NT
England Critically Endangered (Stroh, *et al.*, 2014)	Eng CR
England Endangered (Stroh, *et al.*, 2014)	Eng EN
England Vulnerable (Stroh, *et al.*, 2014)	Eng VU
England Near Threatened (Stroh, *et al.*, 2014)	Eng NT
Hampshire Rare (Rand and Mundell, 2011)	Hants Rare
Hampshire Scarce (Rand and Mundell, 2011)	Hants Scarce
South Hampshire (VC11) Rare (Rand and Mundell, 2011)	VC11 Rare
South Hampshire (VC11) Scarce (Rand and Mundell, 2011)	VC11 Scarce
North Hampshire (VC12) Rare (Rand and Mundell, 2011)	VC12 Rare
North Hampshire (VC12) Scarce (Rand and Mundell, 2011)	VC12 Scarce
Surrey (VC17) Rare (Surrey Botanical Society, 2018)	VC17 Rare
Surrey (VC17) Scarce (Surrey Botanical Society, 2018)	VC17 Scarce
Listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)	Schedule 9
Other invasive non-native plant species (NNSS, 2018)	INNS

Table B2: Summary of Plant Taxa Recorded from Bourley and Long Valley. See Table B1 for Legal/Conservation Statuses.

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Lichens							
Cladonia portentosa	-	-	-	R	R	-	-
Bryophytes							
Aulacomnium androgynum	-	Native	-	R	-	-	-
Aulacomnium palustre	-	Native	-	-	R	-	-
Brachythecium albicans	-	Native	-	-	-	R	-
Brachythecium rutabulum	-	Native	-	-	LF	-	-
Calliergonella cuspidata	-	Native	-	-	R	-	-
Campylopus introflexus	-	Neophyte	-	-	O	-	-
Campylopus pyriformis	-	Native	-	-	R	-	-
Cephalozia bicuspidata	-	Native	-	-	R	-	-
Cephalozia connivens	-	Native	-	-	R	-	-
Cephaloziella divaricata	-	Native	-	LA	-	-	-
Cratoneuron filicinum	-	Native	-	-	R	-	-
Dicranum scoparium	-	Native	-	R	O	-	-
Funaria hygrometrica	-	Native	-	-	LA	-	-
Hypnum jutlandicum	-	Native	-	LF	F	-	-
Leucobryum glaucum	-	Native	-	-	R	-	-
Lophocolea heterophylla	-	Native	-	-	R	-	-
Odontoschisma sphagni	-	Native	-	-	R	-	-
Pellia epiphylla	-	Native	-	-	R	-	-
Plagiothecium nemorale	-	Native	-	-	R	-	-
Pleurozium schreberi	-	Native	-	-	R	-	-

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Polytrichastrum formosum	-	Native	-	R	-	-	-
Polytrichum commune	-	Native	-	R	-	-	-
Polytrichum juniperinum	-	Native	-	-	R	-	-
Pseudoscleropodium purum	-	Native	-	-	O	R	-
Rhytidiadelphus squarrosus	-	Native	-	-	LF	-	-
Riccardia chamaedryfolia	-	Native	-	-	R	-	-
Sphagnum compactum	-	Native	-	LA	LA	-	-
Sphagnum denticulatum	-	Native	-	F-LA	-	-	-
Sphagnum fallax	-	Native	-	LF	LF	-	-
Sphagnum fimbriatum	-	Native	-	R	-	-	-
Sphagnum palustre	-	Native	-	-	LF	-	-
Sphagnum papillosum	-	Native	-	-	LF	-	-
Sphagnum subnitens	-	Native	-	-	LF	-	-
Sphagnum tenellum	-	Native	-	-	R	-	-
Thuidium tamariscinum	-	Native	-	R	-	-	-
Ferns and allies							
Athyrium filix-femina	Lady-fern	Native	-	LF	-	-	-
Blechnum spicant	Hard-fern	Native	AWI	O	R	-	-
Dryopteris affinis	Scaly male-fern	Native	AWI	R	-	-	-
Dryopteris carthusiana	Narrow buckler-fern	Native	AWI	R	-	-	-
Dryopteris dilatata	Broad buckler-fern	Native	-	-	LF	-	-
Dryopteris filix-mas	Male-fern	Native	-	-	R	-	-
Equisetum arvense	Field horsetail	Native	-	R	R	-	-
Pteridium aquilinum	Bracken	Native	-	LA	F-LD	LF	LD
Conifers							

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Pinus sylvestris	Scots pine	Neophyte	-	LD	O	R	-
Tsuga heterophylla	Western hemlock-spruce	Neophyte - Planted	-	-	-	R	-
Flowering plants							
Acer pseudoplatanus	Sycamore	Neophyte	-	-	-	R	R
Achillea millefolium	Yarrow	Native	-	-	-	O	O
Agrimonia procera	Fragrant agrimony	Native	-	R	R	-	-
Agrostis canina	Velvet bent	Native	-	F	LF	-	-
Agrostis capillaris	Common bent	Native	-	-	F	A	A
Agrostis curtisii	Bristle bent	Native	VC12 Scarce	R	-	-	-
Agrostis stolonifera	Creeping bent	Native	-	R	R	-	-
Aira caryophyllea	Silver hair-grass	Native	-	-	-	-	R
Aira praecox	Early hair-grass	Native	-	R	R	R	-
Alchemilla mollis	Garden lady's-mantle	Neophyte	-	R	-	-	-
Alisma plantago-aquatica	Water-plantain	Native	-	R	-	-	-
Alopecurus geniculatus	Marsh foxtail	Native	-	-	R	-	-
Anagallis arvensis subsp. *arvensis*	Scarlet pimpernel	Native	-	-	-	-	R
Anagallis tenella	Bog pimpernel	Native	-	-	LA	-	-
Anisantha sterilis	Barren brome	Archaeophyte	-	-	R	R	-
Anthoxanthum odoratum	Sweet vernal-grass	Native	-	O	F	O	O
Arrhenatherum elatius	False oat-grass	Native	-	R	-	-	R
Bellis perennis	Daisy	Native	-	-	-	R	-
Betula pendula	Silver birch	Native	-	-	O	R	LF
Betula pubescens	Downy birch	Native	-	-	F	-	-
Betula x aurata	-	Native	-	-	R	-	-
Brachypodium sylvaticum	False-brome	Native	-	R	-	-	-

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Bromus hordeaceus	Soft-brome	Native	-	-	-	R	R
Callitriche stagnalis	Common water-starwort	Native	-	R	R	-	-
Calluna vulgaris	Heather	Native	Eng NT	F	F	LF	-
Calystegia sepium	Hedge bindweed	Native	-	R	-	-	-
Carex acutiformis	Lesser pond-sedge	Native	-	R	-	-	-
Carex binervis	Green-ribbed sedge	Native	-	O	F	LF	-
Carex demissa	Common yellow-sedge	Native	-	LF	LF	-	-
Carex echinata	Star sedge	Native	Eng NT	LF	LF	-	-
Carex flacca	Glaucous sedge	Native	-	R	LA	-	-
Carex laevigata	Smooth-stalked sedge	Native	AWI	R	-	-	-
Carex leporina	Oval sedge	Native	-	-	O	-	-
Carex nigra	Common sedge	Native	-	R	R	-	-
Carex panicea	Carnation sedge	Native	-	R	LF	-	-
Carex pendula	Pendulous sedge	Native	AWI	-	R	-	-
Carex pilulifera	Pill sedge	Native	-	-	F	-	-
Carex pseudocyperus	Cyperus sedge	Native	-	R	R	-	-
Carex remota	Remote sedge	Native	AWI	LA	LF	-	-
Castanea sativa	Sweet chestnut	Archaeophyte	-	O	-	-	R
Centaurea nigra	Common knapweed	Native	-	R	LA	R	-
Centaurium pulchellum	Lesser centaury	Native	VC12 Scarce	-	-	R	-
Cerastium fontanum	Common mouse-ear	Native	-	-	R	R	R
Cerastium glomeratum	Sticky mouse-ear	Native	-	R	-	-	-
Chamerion angustifolium	Rosebay willowherb	Native	-	R	-	-	-
Chenopodium album	Fat-hen	Native	-	-	-	-	R
Cirsium arvense	Creeping thistle	Native	-	-	R	R	-

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Cirsium palustre	Marsh thistle	Native	-	R	LF	-	-
Cochlearia danica	Danish scurvygrass	Native	-	-	-	-	R
Corylus avellana	Hazel	Native	-	R	-	-	LF
Crataegus monogyna	Hawthorn	Native	-	-	R	-	-
Crepis capillaris	Smooth hawk's-beard	Native	-	R	-	R	O
Crocosmia x crocosmiiflora	Montbretia	Neophyte	Schedule 9	R	-	-	-
Cuscuta epithymum	Dodder	Native	Eng VU, GB VU	-	R	-	-
Cytisus scoparius	Broom	Native	-	R	R	R	R
Dactylis glomerata	Cock's-foot	Native	-	R	R	R	-
Dactylorhiza maculata	Heath spotted-orchid	Native	-	R	-	-	-
Danthonia decumbens	Heath-grass	Native	-	LF	F	LF	-
Deschampsia cespitosa	Tufted hair-grass	Native	-	LF	R	-	-
Deschampsia flexuosa	Wavy hair-grass	Native	-	-	-	LF	-
Digitalis purpurea	Foxglove	Native	-	R	-	-	-
Drosera intermedia	Oblong-leaved sundew	Native	Eng VU	LF	LA	-	-
Drosera rotundifolia	Round-leaved sundew	Native	Eng NT	LF	LA	-	-
Eleocharis multicaulis	Many-stalked spike-rush	Native	-	LA	LA	-	-
Eleocharis palustris	Common spike-rush	Native	-	R	-	-	-
Elytrigia repens	Common couch	Native	-	R	-	-	-
Epilobium ciliatum	American willowherb	Neophyte	-	R	-	-	-
Epilobium montanum	Broadleaved willowherb	Native	-	-	R	-	-
Epilobium parviflorum	Hoary willowherb	Native	-	-	R	-	-
Epipactis helleborine	Broadleaved helleborine	Native	AWI	R	R	-	-
Erica cinerea	Bell heather	Native	Eng NT	-	F	R	R
Erica tetralix	Cross-leaved heath	Native	Eng NT	LF	LF	-	-

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Eriophorum angustifolium	Common cottongrass	Native	Eng VU	LF	LA	-	-
Erodium cicutarium	Common stork's-bill	Native	-	-	-	-	R
Euphrasia confusa	-	Native	Eng VU, Hants Scarce, VC12 Rare	-	R	-	-
Fagus sylvatica	Beech	Native	-	R	-	-	-
Festuca ovina agg.	Sheep's-fescue	Native	-	R	-	LF	R
Festuca rubra	Red fescue	Native	-	R	R	-	R
Fragaria vesca	Wild strawberry	Native	Eng NT	R	-	-	-
Frangula alnus	Alder buckthorn	Native	AWI	LF	R	R	-
Galium palustre	Marsh-bedstraw	Native	-	R	LF	-	-
Galium saxatile	Heath bedstraw	Native	-	-	-	R	-
Geranium molle	Dove's-foot crane's-bill	Native	-	-	-	-	R
Geranium robertianum	Herb-robert	Native	-	R	-	-	-
Geum urbanum	Wood avens	Native	-	R	-	-	-
Glyceria fluitans	Floating sweet-grass	Native	-	LD	LA	-	-
Gnaphalium uliginosum	Marsh cudweed	Native	-	-	-	R	-
Hedera helix	Common ivy	Native	-	R	-	R	LA
Hieracium agg.	A hawkweed	-	-	-	R	R	-
Hirschfeldia incana	Hoary mustard	Neophyte	-	R	-	-	-
Holcus lanatus	Yorkshire-fog	Native	-	R	O	O	LF
Holcus mollis	Creeping soft-grass	Native	AWI	-	R	R	LA
Hyacinthoides non-scripta	Bluebell	Native	AWI, Schedule 8	-	-	-	R
Hypericum androsaemum	Tutsan	Native	AWI	R	-	-	-
Hypericum perforatum	Perforate St John's-wort	Native	-	R	R	-	R
Hypericum pulchrum	Slender St John's-wort	Native	AWI	O	O	-	-
Hypericum x desetangsii	Des Etangs' St John's-wort	Native	-	-	R	-	-

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Hypochaeris radicata	Cat's-ear	Native	-	-	F	F	O
Ilex aquifolium	Holly	Native	-	R	R	-	LA
Iris pseudacorus	Yellow iris	Native	-	R	-	-	-
Juncus acutiflorus	Sharp-flowered rush	Native	-	LA	LF	-	-
Juncus articulatus	Jointed rush	Native	-	-	R	-	-
Juncus bufonius	Toad rush	Native	-	R	R	R	R
Juncus bulbosus	Bulbous rush	Native	-	LA	LA	-	-
Juncus conglomeratus	Compact rush	Native	-	O	R	-	-
Juncus effusus	Soft-rush	Native	-	LF	-	-	R
Juncus effusus var. *effusus*	Soft rush	Native	-	-	O	-	-
Juncus effusus var. *subglomeratus*	Soft rush	Native	-	-	R	-	-
Juncus squarrosus	Heath rush	Native	-	-	O	R	-
Juncus tenuis	Slender rush	Neophyte	-	R	-	R	-
Lactuca serriola	Prickly lettuce	Archaeophyte	-	-	-	R	-
Lamium album	White dead-nettle	Archaeophyte	-	-	-	-	R
Lapsana communis	Nipplewort	Native	-	R	-	-	-
Lemna minor	Common duckweed	Native	-	-	LF	-	-
Leucanthemum vulgare	Oxeye daisy	Native	-	R	-	-	-
Linum catharticum	Fairy flax	Native	-	-	R	-	-
Lolium perenne	Perennial rye-grass	Native	-	LA	R	A	A
Lonicera periclymenum	Honeysuckle	Native	-	LF	LF	R	LF
Lotus corniculatus	Common bird's-foot-trefoil	Native	-	LF	LF	R	R
Lotus pedunculatus	Greater bird's-foot-trefoil	Native	-	O	O	-	-
Luzula campestris	Field wood-rush	Native	-	R	R	R	-
Luzula multiflora subsp. *congesta*	Heath wood-rush	Native	-	F	LF	-	-

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Lysimachia vulgaris	Yellow loosestrife	Native	-	O	R	-	-
Lythrum salicaria	Purple-loosestrife	Native	-	R	-	-	-
Matricaria chamomilla	Scented mayweed	Archaeophyte	-	R	-	-	-
Matricaria discoidea	Pineappleweed	Neophyte	-	-	-	R	O
Medicago lupulina	Black medick	Native	-	R	-	-	-
Melampyrum pratense	Common cow-wheat	Native	AWI, Eng NT	-	R	R	-
Mentha aquatica	Water mint	Native	-	-	R	-	-
Molinia caerulea	Purple moor-grass	Native	-	A	A	LF	-
Myrica gale	Bog-myrtle	Native	Eng NT, VC12 Scarce	LD	LA	-	-
Nardus stricta	Mat-grass	Native	Eng NT	-	F-LA	LF	-
Narthecium ossifragum	Bog asphodel	Native	-	R	LF	-	-
Odontites vernus	Red bartsia	Native	-	R	-	-	-
Ornithopus perpusillus	Bird's-foot	Native	-	-	-	R	R
Oxalis acetosella	Wood-sorrel	Native	AWI, Eng NT	R	-	-	-
Pedicularis sylvatica	Lousewort	Native	Eng VU	LF	F	-	-
Persicaria hydropiper	Water-pepper	Native	-	-	R	-	-
Persicaria maculosa	Redshank	Native	-	-	-	R	-
Phalaris arundinacea	Reed canary-grass	Native	-	R	-	-	-
Phleum pratense	Timothy	Native	-	R	-	-	-
Pilosella officinarum	Mouse-ear-hawkweed	Native	-	-	LA	R	LA
Plantago coronopus	Buck's-horn plantain	Native	-	-	R	R	F
Plantago lanceolata	Ribwort plantain	Native	-	R	LF	LF	R
Plantago major	Greater plantain	Native	-	-	R	-	O
Poa annua	Annual meadow-grass	Native	-	-	-	R	LF
Poa trivialis	Rough meadow-grass	Native	-	R	R	-	-

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Polygonum aviculare agg.	A knotgrass	Native	-	-	-	-	R
Polypogon viridis	Water bent	Neophyte	-	R	-	-	-
Populus tremula	Aspen	Native	AWI	R	R	-	-
Potamogeton polygonifolius	Bog pondweed	Native	-	LD	LA	-	-
Potentilla anglica	Trailing tormentil	Native	-	R	-	-	-
Potentilla anserina	Silverweed	Native	-	-	LF	-	-
Potentilla erecta	Tormentil	Native	Eng NT	F-LA	F-LA	-	-
Potentilla reptans	Creeping cinquefoil	Native	-	-	-	-	R
Potentilla x mixta	Hybrid cinquefoil	Native	VC12 Rare	LA	R	-	-
Prunella vulgaris	Selfheal	Native	-	R	R	-	O
Prunus laurocerasus	Cherry laurel	Neophyte	INNS	-	-	R	-
Prunus lusitanica	Portugal laurel	Neophyte	INNS	R	-	-	-
Pulicaria dysenterica	Common fleabane	Native	-	R	-	-	-
Pyrola minor	Common wintergreen	Native	Eng NT, Hants Rare, VC12 Scarce	R	R	-	-
Quercus cerris	Turkey oak	Neophyte	-	-	R	-	-
Quercus robur	Pedunculate oak	Native	-	LF	R	R	LD
Ranunculus acris	Meadow buttercup	Native	-	-	R	-	-
Ranunculus flammula	Lesser spearwort	Native	Eng VU	R	R	-	-
Ranunculus repens	Creeping buttercup	Native	-	-	R	-	O
Rhododendron ponticum	Rhododendron	Neophyte	Schedule 9	R	R	R	-
Rubus fruticosus agg.	Bramble	Native	-	R	O	R	R
Rumex acetosa	Common sorrel	Native	-	-	R	-	-
Rumex acetosella	Sheep's sorrel	Native	-	-	-	LF	O
Rumex crispus	Curled dock	Native	-	R	R	-	R
Rumex obtusifolius	Broadleaved dock	Native	-	-	R	-	R

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Rumex sanguineus	Wood dock	Native	-	R	-	-	-
Sagina apetala	Annual pearlwort	Native	-	R	R	-	R
Sagina filicaulis	Slender pearlwort	Native	-	-	R	-	-
Salix caprea	Goat willow	Native	-	R	-	-	-
Salix cinerea	Grey willow	Native	-	O	R	-	R
Salix repens	Creeping willow	Native	Eng NT	R	R	-	-
Scrophularia nodosa	Common figwort	Native	-	R	-	-	-
Scutellaria galericulata	Skullcap	Native	-	R	R	-	-
Senecio erucifolius	Hoary ragwort	Native	-	-	R	-	-
Senecio jacobaea	Common ragwort	Native	-	R	-	-	O
Solanum dulcamara	Bittersweet	Native	-	-	R	-	-
Sonchus asper	Prickly sow-thistle	Native	-	R	-	-	-
Sorbus aucuparia	Rowan	Native	-	-	R	R	LF
Spergula arvensis	Corn spurrey	Native	Eng VU, GB VU	-	-	-	R
Spergularia rubra	Sand spurrey	Native	-	-	-	R	R
Stellaria alsine	Bog stitchwort	Native	-	-	R	-	-
Stellaria graminea	Lesser stitchwort	Native	-	R	-	R	LF
Stellaria holostea	Greater stitchwort	Native	-	R	-	-	-
Taraxacum agg.	Dandelion	Native	-	R	R	-	R
Teucrium scorodonia	Wood sage	Native	-	R	-	LA	LF
Trichophorum germanicum	Deergrass	Native	VC12 Scarce	LF	LF	-	-
Trifolium arvense	Hare's-foot clover	Native	-	-	-	LF	-
Trifolium campestre	Hop trefoil	Native	-	-	R	-	-
Trifolium dubium	Lesser trefoil	Native	-	R	R	LA	O
Trifolium pratense	Red clover	Native	-	-	-	R	R

Scientific Name	Common Name	Status	Legal/Conservation Status	Subsite/DAFOR			
				SSSI North	SSSI South	Tweseldown North	Tweseldown South
Trifolium repens	White clover	Native	-	-	-	O	F
Typha latifolia	Bulrush	Native	-	R	-	-	-
Ulex europaeus	Gorse	Native	-	LD	F-LD	LF	R
Ulex minor	Dwarf gorse	Native	-	R	LF	-	-
Urtica dioica	Common nettle	Native	-	-	-	R	-
Vaccinium myrtillus	Bilberry	Native	AWI	R	-	-	-
Veronica beccabunga	Brooklime	Native	-	R	-	-	-
Veronica chamaedrys	Germander speedwell	Native	-	R	R	-	R
Veronica montana	Wood speedwell	Native	AWI	-	R	-	-
Veronica officinalis	Heath speedwell	Native	Eng NT	R	R	-	-
Veronica serpyllifolia	Thyme-leaved speedwell	Native	-	R	R	-	-
Viburnum opulus	Guelder-rose	Native	AWI	R	-	-	-
Viburnum tinus	Laurustinus	Neophyte - Planted	-	-	-	R	-
Vicia cracca	Tufted vetch	Native	-	R	-	-	-
Vicia sativa	Common vetch	Native	-	-	-	-	R
Vicia sepium	Bush vetch	Native	AWI	R	-	-	-
Viola riviniana	Common dog-violet	Native	-	R	-	-	-
Vulpia bromoides	Squirreltail fescue	Native	-	-	LA	LF	LA

Table B3: Summary of Plant Taxa Recorded from Colony Bog and Bagshot Heath. See Table B1 for Legal/Conservation Statuses.

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Lichens								
Cladonia arbuscula	-	Native	-	-	-	R	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Cladonia portentosa	-	Native	-	-	-	-	-	LA
Bryophytes								
Aneura pinguis	-	Native	-	-	-	-	F	-
Aulacomnium palustre	-	Native	-	-	-	-	O	-
Bryum pseudotriquetrum	-	Native	-	-	-	-	R	-
Calliergonella cuspidata	-	Native	-	O	-	-	O	-
Calypogeia fissa	-	Native	-	-	-	-	R	-
Calypogeia muelleriana	-	Native	-	-	-	-	O	-
Campylium stellatum	-	Native	-	-	-	-	R	-
Campylopus introflexus	-	Neophyte	-	-	R	-	R	-
Dicranum scoparium	-	Native	-	-	R	-	-	F
Fissidens adianthoides	-	Native	-	-	R	-	R	-
Hypnum cupressiforme	-	Native	-	LA	-	-	-	-
Hypnum jutlandicum	-	Native	-	-	F	-	-	A
Lophocolea semiteres	-	Neophyte	-	-	-	-	-	R
Lunularia cruciata	-	Native	-	-	-	-	R	-
Pleurozium schreberi	-	Native	-	-	-	-	-	LA
Polytrichastrum formosum	-	Native	-	-	R	-	-	-
Pseudoscleropodium purum	-	Native	-	F	-	-	-	-
Rhytidiadelphus squarrosus	-	Native	-	F	-	-	-	-
Riccardia multifida	-	Native	-	-	-	-	O	-
Solenostoma gracillimum	-	Native	-	-	-	LF	-	-
Sphagnum capillifolium	-	Native	-	-	-	-	R	-
Sphagnum compactum	-	Native	-	-	LA	R	LA	F
Sphagnum cuspidatum	-	Native	-	-	-	-	LA	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Sphagnum fallax	-	Native	-	-	-	-	F	-
Sphagnum inundatum	-	Native	-	-	-	-	LA	-
Sphagnum magellanicum	-	Native	-	-	-	-	R	-
Sphagnum palustre	-	Native	-	-	-	-	A	-
Sphagnum papillosum	-	Native	-	-	-	-	LA	-
Sphagnum subnitens	-	Native	-	-	-	-	F	-
Sphagnum tenellum	-	Native	-	-	R	LA	-	F-LA
Ferns and allies								
Dryopteris carthusiana	Narrow buckler-fern	Native	AWI	R	-	-	-	-
Dryopteris dilatata	Broad buckler-fern	Native	-	-	-	-	R	-
Dryopteris filix-mas	Male-fern	Native	-	R	R	-	-	-
Equisetum arvense	Field horsetail	Native	-	R	-	-	R	-
Equisetum palustre	Marsh horsetail	Native	-	-	-	-	LF	-
Osmunda regalis	Royal fern	Native	VC17 Scarce	-	-	-	R	-
Pteridium aquilinum	Bracken	Native	-	LD	LD	O	LF	LA
Conifers								
Abies grandis	Giant fir	Neophyte - Naturalised	-	R	-	-	-	-
Pinus sylvestris	Scots pine	Neophyte	-	LD	F-LD	LD	O	D
Taxus baccata	Yew	Native	-	R	-	-	-	-
Flowering plants								
Acer platanoides	Norway maple	Neophyte - Naturalised	-	R	-	-	-	-
Acer pseudoplatanus	Sycamore	Neophyte	-	R	R	-	-	-
Achillea millefolium	Yarrow	Native	-	O	R	-	-	-
Aegopodium podagraria	Ground-elder	Archaeophyte	-	-	-	R	-	-
Aesculus hippocastanum	Horse-chestnut	Neophyte - Naturalised	-	R	-	-	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Agrimonia eupatoria	Agrimony	Native	-	R	-	-	-	-
Agrostis capillaris	Common bent	Native	-	O	-	LF	-	O
Agrostis curtisii	Bristle bent	Native	VC17 Scarce	LD	A	R	LF	R
Agrostis stolonifera	Creeping bent	Native	-	R	-	R	-	-
Aira praecox	Early hair-grass	Native	-	LF	R	-	-	-
Ajuga reptans	Bugle	Native	-	R	-	-	R	-
Alchemilla mollis	Garden lady's-mantle	Neophyte - Naturalised	-	R	-	-	-	-
Alliaria petiolata	Garlic mustard	Native	-	R-LF	-	R	-	-
Alopecurus geniculatus	Marsh foxtail	Native	-	-	-	-	R	-
Amelanchier lamarckii	Juneberry	Neophyte - Naturalised	INNS	R	-	R	R	-
Anagallis tenella	Bog pimpernel	Native	VC17 Scarce	-	-	-	LF	-
Anisantha sterilis	Barren brome	Archaeophyte	-	LD	R	-	-	-
Anthoxanthum odoratum	Sweet vernal-grass	Native	-	A	LF	-	LA	O
Anthriscus sylvestris	Cow parsley	Native	-	R	-	-	-	-
Aquilegia vulgaris	Columbine	Neophyte - Naturalised	-	R	-	-	-	-
Arctium minus	Lesser burdock	Native	-	R	-	-	-	-
Arenaria serpyllifolia	-	Native	-	R	-	-	-	-
Arrhenatherum elatius	False oat-grass	Native	-	-	-	LA	-	-
Artemisia vulgaris	Mugwort	Archaeophyte	-	-	R	-	-	-
Arum italicum	Italian lords-and-ladies	Neophyte - Naturalised	-	R	-	-	-	-
Arum maculatum	Lords-and-ladies	Native	-	R	-	-	-	-
Bellis perennis	Daisy	Native	-	R	R	-	-	-
Betula pendula	Silver birch	Native	-	F-LD	F	LD	O	R
Betula pubescens	Downy birch	Native	-	-	-	-	-	R
Brachypodium sylvaticum	False-brome	Native	-	R	-	R	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Bromus hordeaceus	Soft-brome	Native	-	R	R	-	-	-
Buddleja davidii	Butterfly-bush	Neophyte - Naturalised	INNS	R	R	-	-	-
Calluna vulgaris	Heather	Native	Eng NT	F	D	A	F	D
Calystegia silvatica	Large bindweed	Neophyte	-	R	-	-	-	-
Carex binervis	Green-ribbed sedge	Native	-	R	-	R	LF	-
Carex demissa	Common yellow-sedge	Native	-	-	LA	-	-	-
Carex echinata	Star sedge	Native	Eng NT	-	-	-	R	-
Carex flacca	Glaucous sedge	Native	-	LF	-	-	-	-
Carex leporina	Oval sedge	Native	-	R	-	-	-	-
Carex muricata subsp. *pairae*	Small-fruited prickly-sedge	Native	-	R	-	-	-	-
Carex panicea	Carnation sedge	Native	-	-	LA	-	LA	-
Carex pendula	Pendulous sedge	Native	AWI	R	-	-	-	-
Carex pilulifera	Pill sedge	Native	-	LA	LF	-	-	-
Carex pulicaris	Flea sedge	Native	Eng NT, VC17 Rare	-	-	-	R	-
Carpinus betulus	Hornbeam	Neophyte - Naturalised	-	R	-	-	-	-
Castanea sativa	Sweet chestnut	Archaeophyte	-	F	-	-	-	-
Centaurea nigra	Common knapweed	Native	-	O	R	R	-	-
Centaurium erythraea	Common centaury	Native	-	R	R	-	-	-
Cerastium fontanum	Common mouse-ear	Native	-	O	R	-	R	-
Cerastium glomeratum	Sticky mouse-ear	Native	-	-	R	-	-	-
Cerastium semidecandrum	Little mouse-ear	Native	-	R	-	-	-	-
Chamerion angustifolium	Rosebay willowherb	Native	-	LF	R	-	-	-
Cirsium arvense	Creeping thistle	Native	-	-	-	R	-	-
Cirsium dissectum	Meadow thistle	Native	VC17 Scarce	-	-	-	LF	-
Cirsium palustre	Marsh thistle	Native	-	R	-	R	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Cirsium vulgare	Spear thistle	Native	-	R	-	-	-	-
Conyza canadensis	Canadian fleabane	Neophyte	-	-	R	-	-	-
Cornus sanguinea	Dogwood	Native	-	R	-	-	-	-
Cortaderia selloana	Pampas-grass	Neophyte - Naturalised	-	R	-	-	-	-
Cotoneaster franchetii	Franchet's cotoneaster	Neophyte - Naturalised	INNS	R	-	-	-	-
Cotoneaster horizontalis	Wall cotoneaster	Neophyte - Naturalised	Schedule 9	R	R	-	-	-
Cotoneaster salicifolius	Willow-leaved cotoneaster	Neophyte - Naturalised	INNS	R	-	-	-	-
Crataegus monogyna	Hawthorn	Native	-	R	-	R	-	-
Crepis capillaris	Smooth hawk's-beard	Native	-	R	-	-	-	-
Crepis vesicaria	Beaked hawk's-beard	Neophyte	-	R	R	-	-	-
Crocosmia x crocosmiiflora	Montbretia	Neophyte - Naturalised	Schedule 9	LA	-	-	-	-
Cuscuta epithymum	Dodder	Native	Eng VU, GB VU	-	R	-	-	O
Cytisus scoparius	Broom	Native	-	R	R	-	-	-
Dactylis glomerata	Cock's-foot	Native	-	F	O	R	-	-
Dactylorhiza incarnata subsp. *pulchella*	Early marsh-orchid	Native	-	-	-	-	O	-
Dactylorhiza maculata	Heath spotted-orchid	Native	VC17 Scarce	-	R	-	-	-
Daucus carota	Carrot	Native	-	R	-	-	-	-
Deschampsia cespitosa	Tufted hair-grass	Native	-	R	-	-	-	-
Deschampsia flexuosa	Wavy hair-grass	Native	-	LA	R	LF	-	O
Digitalis purpurea	Foxglove	Native	-	-	R	-	-	-
Drosera intermedia	Oblong-leaved sundew	Native	Eng VU, VC17 Scarce	-	-	LF	-	-
Drosera rotundifolia	Round-leaved sundew	Native	Eng NT	-	LF	-	F	R
Eleocharis multicaulis	Many-stalked spike-rush	Native	VC17 Scarce	-	-	R	R	-
Epilobium hirsutum	Great willowherb	Native	-	R	-	R	-	-
Epilobium montanum	Broadleaved willowherb	Native	-	LF	-	-	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Epipactis helleborine	Broadleaved helleborine	Native	AWI	R	-	R	-	-
Erica cinerea	Bell heather	Native	Eng NT	R	F	-	R	LF
Erica tetralix	Cross-leaved heath	Native	Eng NT	-	LF	A	F	LF
Eriophorum angustifolium	Common cottongrass	Native	Eng VU	-	LF	-	F-LD	LF
Fagus sylvatica	Beech	Native	-	-	-	R	-	-
Festuca ovina agg.	Sheep's-fescue	Native	-	LA	F	LF	-	O
Festuca rubra	Red fescue	Native	-	A	R	-	-	-
Fragaria vesca	Wild strawberry	Native	Eng NT	O	R	-	-	-
Frangula alnus	Alder buckthorn	Native	AWI	-	-	R	-	-
Galega officinalis	Goat's-rue	Neophyte - Naturalised	INNS	R	-	-	-	-
Galium aparine	Cleavers	Native	-	R	R	-	-	-
Gaultheria shallon	Shallon	Neophyte	Schedule 9	-	-	R	-	R
Geranium dissectum	Cut-leaved crane's-bill	Archaeophyte	-	R	-	-	-	-
Geranium pyrenaicum	Hedgerow crane's-bill	Neophyte	-	R	-	-	-	-
Geranium robertianum	Herb-robert	Native	-	R	R	-	-	-
Geum urbanum	Wood avens	Native	-	R	R	R	-	-
Glyceria fluitans	Floating sweet-grass	Native	-	R	-	-	-	-
Hedera helix	Common ivy	Native	-	R	-	R	-	-
Heracleum sphondylium	Hogweed	Native	-	R	-	-	-	-
Hieracium agg.	A hawkweed	Native	-	F	R	-	-	-
Hieracium sabaudum	A hawkweed	Native	-	-	-	-	-	LF
Hieracium trichocaulon	A hawkweed	Native	-	-	-	-	-	R
Hieracium umbellatum	A hawkweed	Native	-	-	-	R	-	R
Holcus lanatus	Yorkshire-fog	Native	-	F	O	LF	R	O
Holcus mollis	Creeping soft-grass	Native	AWI	-	-	R	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Hyacinthoides non-scripta	Bluebell	Native	AWI, Schedule 8	R	-	-	-	-
Hypericum androsaemum	Tutsan	Native	AWI	R	-	-	-	-
Hypericum maculatum	Imperforate St John's-wort	Native	-	O	-	-	R	-
Hypericum perforatum	Perforate St John's-wort	Native	-	F	R	-	R	-
Hypericum pulchrum	Slender St John's-wort	Native	AWI	-	R	-	-	-
Hypericum x desetangsii	Des Etangs' St John's-wort	Native	-	R	-	-	-	-
Hypochaeris radicata	Cat's-ear	Native	-	F	O	LF	R	O
Ilex aquifolium	Holly	Native	-	O	-	R	R	-
Juncus acutiflorus	Sharp-flowered rush	Native	-	R	R	-	O	R
Juncus bufonius	Toad rush	Native	-	R	-	-	-	-
Juncus bulbosus	Bulbous rush	Native	-	-	-	LF	LA	-
Juncus conglomeratus	Compact rush	Native	-	-	-	R	-	-
Juncus effusus	Soft-rush	Native	-	R	-	R	R	-
Juncus inflexus	Hard rush	Native	-	R	-	-	-	-
Juncus squarrosus	Heath rush	Native	-	R	LF	LA	LF	R
Juncus tenuis	Slender rush	Neophyte	-	R	R	R	R	-
Lamiastrum galeobdolon subsp. *argentatum*	Variegated yellow archangel	Neophyte - Naturalised	Schedule 9	LA	-	-	-	-
Lamium album	White dead-nettle	Archaeophyte	-	R	-	-	-	-
Lapsana communis	Nipplewort	Native	-	R	-	-	-	-
Lathyrus pratensis	Meadow vetchling	Native	-	R	-	-	-	-
Leontodon saxatilis	Lesser hawkbit	Native	-	O	R	-	R	-
Leucanthemum vulgare	Oxeye daisy	Native	-	R	R	-	-	-
Ligustrum vulgare	Wild privet	Native	-	-	R	-	-	-
Linaria purpurea	Purple toadflax	Neophyte	-	R	-	-	-	-
Linum catharticum	Fairy flax	Native	-	R	R	-	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Lolium perenne	Perennial rye-grass	Native	-	O	R	R	-	-
Lonicera periclymenum	Honeysuckle	Native	-	R	R	-	-	-
Lonicera tatarica	Tartarian honeysuckle	Neophyte - Naturalised	-	R	-	-	-	-
Lotus corniculatus	Common bird's-foot-trefoil	Native	-	F	R	-	R	-
Lotus pedunculatus	Greater bird's-foot-trefoil	Native	-	R	R	-	R	-
Luzula campestris	Field wood-rush	Native	-	F	LF	-	-	-
Luzula multiflora subsp. *congesta*	Heath wood-rush	Native	-	LF	LF	-	LF	O
Luzula multiflora subsp. *multiflora*	Heath wood-rush	Native	-	LF	O	-	-	-
Lysimachia nummularia	Creeping-jenny	Native	-	-	-	R	-	-
Lysimachia punctata	Dotted loosestrife	Neophyte	-	LA	-	-	-	-
Lythrum portula	Water-purslane	Native	-	-	-	-	R	-
Malus pumila	Apple	Neophyte - Naturalised	-	R	-	-	-	-
Matricaria discoidea	Pineappleweed	Neophyte	-	-	-	LF	-	-
Meconopsis cambrica	Welsh poppy	Neophyte - Naturalised	-	R	-	-	-	-
Medicago lupulina	Black medick	Native	-	R	R	R	-	-
Molinia caerulea	Purple moor-grass	Native	-	A	A	D	A	LD
Myosotis arvensis	Field forget-me-not	Archaeophyte	-	R	R	-	-	-
Myosotis discolor	Changing forget-me-not	Native	-	LF	R	-	-	-
Myosotis sylvatica	Wood forget-me-not	Native	-	R	-	-	-	-
Myrica gale	Bog-myrtle	Native	Eng NT, VC17 Rare	-	-	R	F-LA	-
Nardus stricta	Mat-grass	Native	Eng NT	R	R	LF	-	-
Narthecium ossifragum	Bog asphodel	Native	-	-	LF	-	A	-
Oenothera agg.	An evening primrose	Neophyte	-	-	R	-	-	-
Oenothera glazioviana	Large-flowered evening-primrose	Neophyte	-	-	-	R	-	-
Pastinaca sativa	Wild parsnip	Native	-	R	-	-	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Pedicularis sylvatica	Lousewort	Native	Eng VU, VC17 Scarce	-	LF	LF	F	-
Pentaglottis sempervirens	Green alkanet	Neophyte	-	LA	-	R	-	-
Pilosella aurantiaca	Fox-and-cubs	Neophyte	-	R	-	-	-	-
Pilosella officinarum	Mouse-ear-hawkweed	Native	-	F	LF	-	-	-
Plantago coronopus	Buck's-horn plantain	Native	-	LF	R	-	-	-
Plantago lanceolata	Ribwort plantain	Native	-	F	LF	R	R	-
Plantago major	Greater plantain	Native	-	-	R	LF	R	-
Poa annua	Annual meadow-grass	Native	-	R	-	-	R	-
Poa nemoralis	Wood meadow-grass	Native	AWI	R	-	-	-	-
Poa pratensis	Smooth meadow-grass	Native	-	O	R	-	-	-
Poa trivialis	Rough meadow-grass	Native	-	LA	-	R	-	-
Polygala serpyllifolia	Heath milkwort	Native	Eng NT	R	-	-	R	-
Polygala vulgaris	Common milkwort	Native	-	-	R	-	-	-
Polygonatum x hybridum	Garden Solomon's-seal	Neophyte - Naturalised	-	R	-	-	-	-
Populus tremula	Aspen	Native	AWI	O	O	R	R	-
Potamogeton polygonifolius	Bog pondweed	Native	-	-	-	R	LD	-
Potentilla erecta	Tormentil	Native	Eng NT	LF	LF	-	F	R
Potentilla reptans	Creeping cinquefoil	Native	-	R	R	LF	-	-
Potentilla sterilis	Barren strawberry	Native	AWI	R	-	-	-	-
Primula vulgaris	Primrose	Native	AWI	R	-	-	-	-
Prunella vulgaris	Selfheal	Native	-	-	R	-	R	-
Prunus avium	Wild cherry	Native	AWI	R	-	-	-	-
Prunus cerasifera var. *pissardii*	Cherry plum	Neophyte - Naturalised	-	R	R	-	-	-
Prunus laurocerasus	Cherry laurel	Neophyte - Naturalised	INNS	R	-	-	-	-
Pseudosasa japonica	Arrow bamboo	Neophyte - Naturalised	INNS	R	-	-	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Quercus cerris	Turkey oak	Neophyte - Naturalised	-	R	-	-	-	-
Quercus robur	Pedunculate oak	Native	-	O	R	R	R	O
Quercus rubra	Red oak	Neophyte	-	-	R	-	-	-
Ranunculus acris	Meadow buttercup	Native	-	R	-	-	-	-
Ranunculus bulbosus	Bulbous buttercup	Native	-	R	-	-	-	-
Ranunculus flammula	Lesser spearwort	Native	Eng VU	R	-	-	-	-
Ranunculus repens	Creeping buttercup	Native	-	R	-	R	R	-
Rhinanthus minor	Yellow-rattle	Native	-	R	-	-	-	-
Rhododendron ponticum	Rhododendron	Neophyte	Schedule 9	O	O	R	R	-
Rhynchospora alba	White beak-sedge	Native	Eng NT, VC17 Scarce	-	-	-	LA	LA
Rosa canina agg.	A dog rose	Native	-	R	-	-	-	-
Rosa rubiginosa	Sweet-briar	Native	-	-	R	-	-	-
Rubus fruticosus agg.	Bramble	Native	-	F	F	R	R	O
Rubus idaeus	Raspberry	Native	-	R	-	-	-	-
Rubus laciniatus	Cut-leaved bramble	Neophyte - Naturalised	-	R	-	-	-	-
Rumex acetosa	Common sorrel	Native	-	O	R	-	-	-
Rumex acetosella	Sheep's sorrel	Native	-	LF	R	-	-	R
Rumex crispus	Curled dock	Native	-	R	R	-	-	-
Rumex obtusifolius	Broadleaved dock	Native	-	R	-	-	-	R
Rumex sanguineus	Wood dock	Native	-	-	-	R	-	-
Sagina apetala	Annual pearlwort	Native	-	R	-	-	-	-
Salix caprea	Goat willow	Native	-	F	O	R	-	-
Salix cinerea	Grey willow	Native	-	F	O	R	O	-
Salix repens	Creeping willow	Native	Eng NT	-	-	R	-	-
Sambucus nigra	Elder	Native	-	R	-	-	-	-

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Schedonorus arundinaceus	Tall fescue	Native	-	R	-	-	-	-
Schedonorus giganteus	Giant fescue	Native	AWI	-	-	R	-	-
Schoenus nigricans	Black bog-rush	Native	VC17 Rare	-	-	-	LD	-
Scrophularia nodosa	Common figwort	Native	-	R	-	-	-	-
Senecio jacobaea	Common ragwort	Native	-	R	R	R	R	-
Senecio sylvaticus	Heath groundsel	Native	-	-	R	-	-	-
Sonchus asper	Prickly sow-thistle	Native	-	R	-	-	-	-
Sorbus aucuparia	Rowan	Native	-	O	O	R	R	R
Sorbus intermedia	Swedish whitebeam	Neophyte - Naturalised	-	R	-	-	-	-
Spiraea douglasii	Steeple-bush	Neophyte - Naturalised	INNS	LD	-	-	-	-
Stachys sylvatica	Hedge woundwort	Native	-	-	-	R	-	-
Stellaria graminea	Lesser stitchwort	Native	-	R	-	-	-	-
Stellaria holostea	Greater stitchwort	Native	-	R	-	-	-	-
Succisa pratensis	Devil's-bit scabious	Native	Eng NT	R	-	-	-	-
Symphoricarpos albus	Snowberry	Neophyte - Naturalised	INNS	R	-	-	-	-
Taraxacum agg.	Dandelion	Native	-	O	R	R	-	-
Tragopogon pratensis	Goat's-beard	Native	-	-	R	-	-	-
Trichophorum germanicum	Deergrass	Native	VC17 Scarce	-	LF	-	LF	LF
Trifolium arvense	Hare's-foot clover	Native	-	R	-	-	-	-
Trifolium campestre	Hop trefoil	Native	-	-	-	-	R	-
Trifolium dubium	Lesser trefoil	Native	-	O	-	-	-	-
Trifolium medium	Zigzag clover	Native	VC17 Scarce	-	-	-	R	-
Trifolium pratense	Red clover	Native	-	O	R	LF	R	-
Trifolium repens	White clover	Native	-	R	-	LF	-	-
Ulex europaeus	Gorse	Native	-	F-LD	F-LD	O	LF	LD

Scientific Name	Common Name	Status	Legal/Conservation status	Subsite/DAFOR				
				1	2	Brentmoor Heath	Folly Bog	Turf Hill
Ulex minor	Dwarf gorse	Native	-	LA	A	-	LF	R
Urtica dioica	Common nettle	Native	-	R-LF	-	R	-	-
Vaccinium myrtillus	Bilberry	Native	AWI	LA	R	-	-	-
Valerianella locusta	Common cornsalad	Native	-	-	R	-	-	-
Veronica chamaedrys	Germander speedwell	Native	-	F	LF	-	-	-
Veronica hederifolia	Ivy-leaved speedwell	Archaeophyte	-	R	-	-	-	-
Veronica officinalis	Heath speedwell	Native	Eng NT	O	O	-	R	-
Veronica serpyllifolia	Thyme-leaved speedwell	Native	-	O	R	-	R	-
Vicia cracca	Tufted vetch	Native	-	-	-	R	-	-
Vicia hirsuta	Hairy tare	Native	-	R	R	-	-	-
Vicia sativa subsp. *nigra*	Narrow-leaved vetch	Native	-	O	R	-	-	-
Vicia sativa subsp. *segetalis*	Common vetch	Archaeophyte	-	R	-	-	-	-
Viola riviniana	Common dog-violet	Native	-	R	-	-	R	-
Vulpia bromoides	Squirreltail fescue	Native	-	R	-	R	-	-

Table B4: Summary of Plant Taxa Recorded from Chobham Common. See Table B1 for Legal/Conservation Statuses.

Scientific Name	Common Name	Status	Legal/Conservation Status	DAFOR
Lichens				
Cladonia arbuscula	-	Native	-	R
Cladonia portentosa	-	Native	-	F
Bryophytes				
Aneura pinguis	-	Native	-	LA
Atrichum undulatum	-	Native	-	R
Brachythecium rutabulum	-	Native	-	R
Calliergonella cuspidata	-	Native	-	R
Cladopodiella fluitans	-	Native	-	R
Dicranella heteromalla	-	Native	-	R
Dicranum scoparium	-	Native	-	O
Eurhynchium striatum	-	Native	-	R
Funaria hygrometrica	-	Native	-	R
Hypnum cupressiforme	-	Native	-	R
Hypnum jutlandicum	-	Native	-	F-LA
Isothecium alopecuroides	-	Native	-	R
Kindbergia praelonga	-	Native	-	R
Leucobryum glaucum	-	Native	-	LF
Mnium hornum	-	Native	-	R
Polytrichastrum formosum	-	Native	-	R
Polytrichum commune	-	Native	-	R
Polytrichum juniperinum	-	Native	-	O
Pseudoscleropodium purum	-	Native	-	O
Sphagnum compactum	-	Native	-	LF
Sphagnum cuspidatum	-	Native	-	R
Sphagnum fallax	-	Native	-	R
Sphagnum palustre	-	Native	-	R
Sphagnum tenellum	-	Native	-	LF
Ferns and allies				
Athyrium filix-femina	Lady-fern	Native	-	R
Blechnum spicant	Hard-fern	Native	AWI	R
Dryopteris affinis subsp. *affinis*	Scaly male-fern	Native	-	R
Dryopteris carthusiana	Narrow buckler-fern	Native	AWI	R
Dryopteris dilatata	Broad buckler-fern	Native	-	R
Dryopteris *filix-mas*	Male-fern	Native	-	R
Equisetum arvense	Field horsetail	Native	-	R
Equisetum fluviatile	Water horsetail	Native	-	R
Pteridium aquilinum	Bracken	Native	-	LD
Conifers				
Pinus sylvestris	Scots pine	Neophyte	-	LD
Flowering plants				

Scientific Name	Common Name	Status	Legal/Conservation Status	DAFOR
Agrimonia eupatoria	Agrimony	Native	-	R
Agrostis canina	Velvet bent	Native	-	R
Agrostis capillaris	Common bent	Native	-	O
Agrostis curtisii	Bristle bent	Native	VC17 Scarce	F-LD
Agrostis stolonifera	Creeping bent	Native	-	R
Agrostis vinealis	Brown bent	Native	-	R
Aira praecox	Early hair-grass	Native	-	R
Alnus glutinosa	Alder	Native	-	LD
Alopecurus geniculatus	Marsh foxtail	Native	-	R
Anthoxanthum odoratum	Sweet vernal-grass	Native	-	O
Arrhenatherum elatius	False oat-grass	Native	-	R
Betula pendula	Silver birch	Native	-	F-LD
Betula pubescens	Downy birch	Native	-	LF
Betula x aurata	-	Native	-	R
Brachypodium sylvaticum	False-brome	Native	-	R
Calluna vulgaris	Heather	Native	Eng NT	D
Cardamine flexuosa	Wavy bitter-cress	Native	-	R
Cardamine pratensis	Cuckoo flower	Native	-	R
Carex binervis	Green-ribbed sedge	Native	-	O
Carex demissa	Common yellow-sedge	Native	-	R
Carex echinata	Star sedge	Native	Eng NT	R
Carex leporina	Oval sedge	Native	-	R
Carex nigra	Common sedge	Native	-	R
Carex panicea	Carnation sedge	Native	-	LF
Carex pendula	Pendulous sedge	Native	AWI	R
Carex pilulifera	Pill sedge	Native	-	O
Carex remota	Remote sedge	Native	AWI	LA
Centaurea nigra	Common knapweed	Native	-	R
Centaurium erythraea	Common centaury	Native	-	F
Centaurium pulchellum	Lesser centaury	Native	-	R
Cerastium fontanum	Common mouse-ear	Native	-	R
Circaea lutetiana	Enchanter's-nightshade	Native	-	R
Cirsium arvense	Creeping thistle	Native	-	R
Cirsium dissectum	Meadow thistle	Native	VC17 Scarce	R
Cirsium palustre	Marsh thistle	Native	-	R
Cirsium vulgare	Spear thistle	Native	-	R
Crataegus monogyna	Hawthorn	Native	-	R
Crocosmia x crocosmiiflora	Montbretia	Neophyte	Schedule 9	R
Cuscuta epithymum	Dodder	Native	Eng VU, GB VU	R
Cytisus scoparius	Broom	Native	-	R
Dactylis glomerata	Cock's-foot	Native	-	R
Danthonia decumbens	Heath-grass	Native	-	O
Deschampsia cespitosa	Tufted hair-grass	Native	-	R

Scientific Name	Common Name	Status	Legal/Conservation Status	DAFOR
Deschampsia flexuosa	Wavy hair-grass	Native	-	F
Digitalis purpurea	Foxglove	Native	-	R
Drosera intermedia	Oblong-leaved sundew	Native	Eng VU, VC17 Scarce	LF
Drosera rotundifolia	Round-leaved sundew	Native	Eng NT	LF
Eleocharis multicaulis	Many-stalked spike-rush	Native	VC17 Scarce	LA
Eleogiton fluitans	Floating club-rush	Native	VC17 Scarce	LA
Erica cinerea	Bell heather	Native	Eng NT	F
Erica tetralix	Cross-leaved heath	Native	Eng NT	F-LA
Eriophorum angustifolium	Common cottongrass	Native	Eng VU	LA
Festuca filiformis	Fine-leaved sheep's-fescue	Native	-	O
Festuca ovina agg.	Sheep's-fescue	Native	-	O
Filago minima	Small cudweed	Native	Eng NT	R
Filago vulgaris	Common cudweed	Native	Eng NT, GB NT	R
Frangula alnus	Alder buckthorn	Native	AWI	R
Galium album	White bedstraw	Native	-	R
Galium palustre	Marsh-bedstraw	Native	-	R
Galium verum	Lady's bedstraw	Native	-	R
Geranium robertianum	Herb-robert	Native	-	R
Geum urbanum	Wood avens	Native	-	R
Glyceria fluitans	Floating sweet-grass	Native	-	R
Gnaphalium uliginosum	Marsh cudweed	Native	-	R
Hedera helix	Common ivy	Native	-	R
Hieracium sabaudum	A hawkweed	Native	-	R
Hieracium umbellatum	A hawkweed	Native	-	R
Holcus lanatus	Yorkshire-fog	Native	-	R
Holcus mollis	Creeping soft-grass	Native	AWI	R
Hypericum perforatum	Perforate St John's-wort	Native	-	R
Hypochaeris radicata	Cat's-ear	Native	-	F
Ilex aquifolium	Holly	Native	-	LF
Iris pseudacorus	Yellow iris	Native	-	R
Juncus acutiflorus	Sharp-flowered rush	Native	-	R
Juncus articulatus	Jointed rush	Native	-	R
Juncus bulbosus	Bulbous rush	Native	-	LF
Juncus conglomeratus	Compact rush	Native	-	R
Juncus effusus	Soft-rush	Native	-	LD
Juncus squarrosus	Heath rush	Native	-	F
Juncus tenuis	Slender rush	Neophyte	-	R
Lemna minor	Common duckweed	Native	-	R
Lolium perenne	Perennial rye-grass	Native	-	R
Lonicera periclymenum	Honeysuckle	Native	-	R
Lotus corniculatus	Common bird's-foot-trefoil	Native	-	R
Lotus pedunculatus	Greater bird's-foot-trefoil	Native	-	R

Scientific Name	Common Name	Status	Legal/Conservation Status	DAFOR
Luzula multiflora subsp. *congesta*	Heath wood-rush	Native	-	LF
Lythrum portula	Water-purslane	Native	-	R
Molinia caerulea	Purple moor-grass	Native	-	A-LD
Narthecium ossifragum	Bog asphodel	Native	-	R
Origanum vulgare	Wild marjoram	Native	-	R
Persicaria hydropiper	Water-pepper	Native	-	R
Plantago coronopus	Buck's-horn plantain	Native	-	R
Plantago lanceolata	Ribwort plantain	Native	-	O
Plantago major	Greater plantain	Native	-	R
Poa annua	Annual meadow-grass	Native	-	R
Polygonum aviculare	Knotgrass	Native	-	R
Populus tremula	Aspen	Native	AWI	R
Potamogeton polygonifolius	Bog pondweed	Native	-	LA
Potentilla erecta	Tormentil	Native	Eng NT	R
Prunella vulgaris	Selfheal	Native	-	R
Prunus padus	Bird cherry	Native	-	R
Pyrola minor	Common wintergreen	Native	Eng NT, VC17 Scarce	R
Quercus cerris	Turkey oak	Neophyte	-	R
Quercus robur	Pedunculate oak	Native	-	LF
Ranunculus flammula	Lesser spearwort	Native	Eng VU	R
Rhododendron ponticum	Rhododendron	Neophyte	Schedule 9	R
Rhynchospora alba	White beak-sedge	Native	Eng NT, VC17 Scarce	LF
Ribes rubrum	Red currant	-	AWI	R
Rubus fruticosus agg.	Bramble	Native	-	O
Rubus ulmifolius	Elm-leaved bramble	Native	-	R
Rumex obtusifolius	Broadleaved dock	Native	-	R
Rumex sanguineus	Wood dock	Native	-	R
Sagina apetala	Annual pearlwort	Native	-	R
Sagina procumbens	Procumbent pearlwort	Native	-	R
Salix cinerea	Grey willow	Native	-	O
Scrophularia auriculata	Water figwort	Native	-	R
Scrophularia nodosa	Common figwort	Native	-	R
Scutellaria minor	Lesser skullcap	Native	-	R
Senecio jacobaea	Common ragwort	Native	-	R
Sorbus aucuparia	Rowan	Native	-	R
Taraxacum agg.	Dandelion	Native	-	R
Teucrium scorodonia	Wood sage	Native	-	R
Trichophorum germanicum	Deergrass	Native	VC17 Scarce	LA
Trifolium dubium	Lesser trefoil	Native	-	R
Trifolium pratense	Red clover	Native	-	R
Trifolium repens	White clover	Native	-	R
Tussilago farfara	Colt's-foot	Native	-	R
Typha latifolia	Bulrush	Native	-	R

Scientific Name	Common Name	Status	Legal/Conservation Status	DAFOR
Ulex europaeus	Gorse	Native	-	D
Ulex minor	Dwarf gorse	Native	-	LF
Urtica dioica	Common nettle	Native	-	R
Veronica chamaedrys	Germander speedwell	Native	-	R
Veronica serpyllifolia	Thyme-leaved speedwell	Native	-	R
Viola riviniana	Common dog-violet	Native	-	R
Vulpia bromoides	Squirreltail fescue	Native	-	R

Annex C – Site Photographs

Bourley and Long Valley

hotograph 7.1.34 : Track looking northeast and zonation of djacent habitats on verge, ditch and bank. Photograph location shown in Figure F4. 28/06/2018, standard lens.

Photograph 7.1.35: Richer wet heath in ground hollows to north of track, with abundant Sphagnum. Photograph location shown in Figure F4. 28/06/2018, standard lens.

Photograph 7.1.36: Coarse wet heath and scrape. Photograph location shown in Figure F4. 28/06/2018, standard lens.

Photograph 7.1.37: Species-poor wet heath to north of track. Photograph location shown in Figure F4. 22/06/2018, standard lens.

Photograph 7.1.38: Purple moor-grass grassland north of track, looking north. Photograph location shown in Figure F4. 22/06/2018, standard lens.

Photograph 7.1.39: Purple moor-grass-dominated wet heath, looking northeast into woodland along existing Esso pipeline route. Photograph location shown in Figure F4. 22/06/2018, standard lens.

Photograph 7.1.40: Wet woodland in valley bottom with abundant Sphagnum in ground flora. Photograph location shown in Figure F4. 28/06/2018, standard lens.

Photograph 7.1.41: Zonation of heathland habitats associated with seepage, looking northeast. Top-left to right: dry dwarf shrub heath, wet heath and valley mire. 28/06/2018, , standard lens.

Photograph 7.1.42: Wet woodland around where the existing Esso pipeline meets the Gelvert Stream. Photograph location shown in Figure F4. 28/06/2018, standard lens.

Photograph 7.1.43: Disturbed purple moor-grass-dominated grassland along forestry ride, looking southwest from northeastern end of survey site. Photograph location shown in Figure F4. 22/06/2018, standard lens.

Photograph 7.1.44: Easement (right) and thinned Scots pine plantation (left), looking northeast. Photograph location shown in Figure F4. 25/06/2018, standard lens.

Photograph 7.1.45: Heathland habitats to the east of the easement, looking north, the fencing visible on the left. Acid grassland in parched, disturbed area (left) and dry dwarf shrub heath vegetation on bank (right). Photograph location shown in Figure F4. 26/06/2018, standard lens.

Photograph 7.1.46: Patchy acid grassland with scattered scrub in managed area of heathland. Photograph location shown in Figure F4. 27/06/2018, standard lens.

Photograph 7.1.47: Valley mire vegetation in ground hollow, with yellow flowers of bog asphodel. Photograph location shown in Figure F4. 26/06/2018, standard lens.

Photograph 7.1.48: Grazed wet heath vegetation to east of valley mire. Photograph location shown in Figure F4. 26/06/2018, standard lens.

Photograph 7.1.49: Swampy wet woodland along watercourse to the south of Aldershot Road. Photograph location shown in Figure F4. 27/06/2018, standard lens.

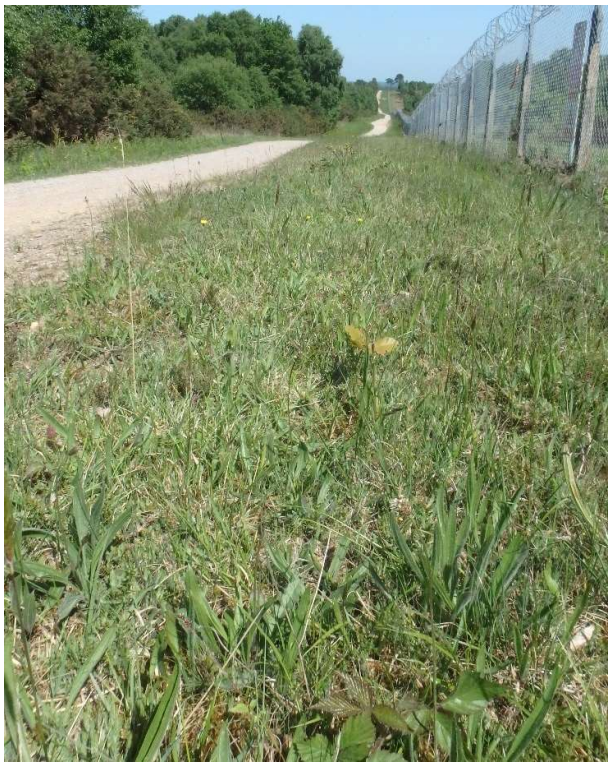
Photograph 7.1.50: Tweseldown Racecourse. Heavily disturbed acid grassland within Unit 4 of Bourley and Long Valley SSSI, looking south. Planted hedgerow to right. Photograph location shown in Figure F4. 29/06/2018, standard lens.

Photograph 7.1.51: Tweseldown Racecourse. Patchy species-poor acid grassland within Unit 4 of Bourley and Long Valley SSSI. Photograph location shown in Figure F4. 29/06/2018, standard lens.

Photograph 7.1.52: Tweseldown Racecourse, outside Bourley and Long Valley SSSI, looking north. Large area of amenity grassland (right) and dense bracken (left). Photograph location shown in Figure F4. 29/06/2018, standard lens.

Colony Bog and Bagshot Heath

Photograph 7.1.80: Southwestern end of Order Limits within SSSI, subsite 1, looking northeast. Open area of neutral grassland adjacent to plantation woodland, with purple moor-grass dominated grassland extending north along easement of existing pipeline (left). Photograph location shown in Figure F8. 17/05/2018, standard lens.



Photograph 7.1.81: Short acid grassland by track, looking east along MoD fence. Photograph location shown in Figure F8 17/05/2018, standard lens.

Photograph 7.1.82:: Broad area of acid grassland in southwestern part of Order Limits, looking northeast. Photograph location shown in Figure F8. 17/05/2018, standard lens.

Photograph 7.1.83:: View northeast over dry dwarf shrub heath of subsite 2, showing bank and MoD track. Photograph location shown in Figure F8. 17/05/2018, standard lens.

Photograph 7.1.84: Scraped/mown dry dwarf shrub heath vegetation. Photograph location shown in Figure F8. 17/05/2018, standard lens.

Photograph 7.1.85: Scrub along the MoD track in the northeastern part of subsite 2, looking east. Photograph location shown in Figure F8. 17/05/2018, standard lens.

Photograph 7.1.86: Young birch woodland in the northeast of the subsite 2, dominated by birch. Photograph location shown in Figure F8. 13/07/2018, standard lens.

Photograph 7.1.87: View southeast over Folly Bog from the MoD track, with bracken dominated slope in foreground. Areas of dense black bog-rush are visible as paler strips of vegetation. Photograph location shown in Figure F8. 17/05/2018, standard lens.

Photograph 7.1.88: Patterning of vegetation within the eastern half of Folly Bog, looking east. From right to left: wet heath, darker vegetation dominated by subshrubs; short, grazed valley mire, with fruiting heads of common cottongrass (white); coarser, taller valley mire dominated by bog myrtle; black bog-rush dominated vegetation, top-left, pal straw-coloured strip. Photograph location shown in Figure F8. 12/07/2018, standard lens.

Photograph 7.1.89 : Short open wet heath at the southwestern end of Folly Bog, looking east. Photograph location shown in Figure F8. 12/07/2018, standard lens.

Photograph 7.1.90: Rank species-poor wet heath and valley mire in the northeast of Folly Bog, looking southeast, dominated by tussocks of purple moor-grass and bog myrtle. Photograph location shown in Figure F8. 12/07/2018, standard lens.

Photograph 7.1.91: Sharply-defined boundary between black bog-rush-dominated vegetation (right) and the main vegetation of the valley mire (left). Photograph location shown in Figure F8. 12/07/2018, standard lens.

Photograph 7.1.92: Open vegetation around collects and runnels in the southwest of Folly Bog, with abundant white beak-sedge. Photograph location shown in Figure F8. 09/07/2018, standard lens.

Photograph 7.1.93: Large hummocks of Sphagnum papillosum (orange) supporting growths of vascular plants such as cross-leaved heath (pink), meadow thistle and round-leaved sundew. Photograph location shown in Figure F8. 11/07/2018, standard lens.

Photograph 7.1.94: MoD track through Brentmoor Heath, unit 6 of Colony Bog and Bagshot Heath SSSI, looking east. Areas of wet heath to north (left) and south (right) of track with short, disturbed wet heath vegetation dominated by purple moor-grass along track. Photograph location shown in Figure F8. 10/07/2018, standard lens.

Photograph 7.1.95: Pond within Brentmoor Heath, to the north of MoD track. Photograph location shown in Figure F8.

Photograph 7.1.96: Cross-leaved heath and heather dominated wet heath, Brentmoor Heath, to the south of the MoD track. Photograph location shown in Figure F8. 11/07/2018, standard lens.

Photograph 7.1.97: Strips of dense common gorse along footpath, Turf Hill. Photograph location shown in Figure F8. 09/07/2018, standard lens.

Photograph 7.1.98: Mown dry dwarf shrub heath of wayleave of overhead powerlines, with abundant saplings of Scots pine. Photograph location shown in Figure F8. 09/07/2018, standard lens.

Photograph 7.1.969: Rank wet heath dominated by purple moor-grass and cross-leaved heath, eastern end of Turf Hill. Photograph location shown in Figure F8. Photograph location shown in Figure F8. 09/07/2018, standard lens.

Photograph 7.1.100: Wet heath in the valley to north of powerlines, Turf Hill, looking west. Photograph location shown in Figure F8. 10/07/2018, standard lens.

Photograph 7.1.101: Mown wet heath, looking west from eastern end of wayleave of powerlines, with abundant deergrass. Photograph location shown in Figure F8. 10/07/2018, standard lens.

Chobham Common

Photograph 7.1.106: View over dry dwarf shrub heath, with scattered trees. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.107: Western end of track, looking southwest. Photograph location shown in Figure F12. 31/07/2018, standard lens.

Photograph 7.1.108: Species-poor mature heather-dominated dry dwarf shrub heath. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.109: Dry dwarf shrub heath with cross-leaved heath, dwarf gorse, heather and purple moor-grass. Photograph location shown in Figure F12. 30/07/2018, standard lens.

Photograph 7.1.110: Dry dwarf shrub heath with abundant bristle bent. Photograph location shown in Figure F12. 02/08/2018, standard lens.

Photograph 7.1.111: Shortly mown dry dwarf shrub heath with bristle bent along edge of track. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.112: Acid grassland dominated by bristle bent adjacent to the track. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.113: Rank wet heath in valley bottom dominated by purple moor-grass with scattered heather, scrub and trees. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.114: Rank wet heath in valley bottom dominated by purple moor-grass with patches of cottongrass in damper areas. Photograph location shown in Figure F12. 30/07/2018, standard lens.

Photograph 7.1.115: Wet heath vegetation dominated by cross-leaved heath. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.116:: Short open wet heath vegetation with abundant deergrass. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.117: Rank vegetation dominated by purple moor-grass and rushes, with abundant Sphagnum. Photograph location shown in Figure F12. 01/08/2018, standard lens.

Photograph 7.1.118: Pond within wet heath, dominated by bog pondweed and bulbous rush. Photograph location shown in Figure F12. 30/07/2018, standard lens.

Photograph 7.1.119: Open wet heath with abundant white beak-sedge at edge of ponded area. Photograph location shown in Figure F12. 31/07/2018, standard lens.

Photograph 7.1.120: Seasonal pond dominated by floating club-rush and many-stalked spikerush. Photograph location shown in Figure F12. 31/07/2018, standard lens.

Photograph 7.1.121: Young woodland dominated by birch with species-poor ground layer dominated by purple moor-grass. Photograph location shown in Figure F12. 02/08/2018, standard lens.

Annex D – NVC Units Recorded During the Survey

Table D1: List of NVC Units Recorded During Survey

NVC Code	Plant Community Name
A16	*Callitriche stagnalis* community
A24	*Juncus bulbosus* community
H1a	*Calluna vulgaris-Festuca ovina* heath, *Hypnum cupressiforme* sub-community
H1e	*Calluna vulgaris-Festuca ovina* heath, species-poor sub-community
H2a	*Calluna vulgaris-Ulex minor* heath, typical sub-community
H2c	*Calluna vulgaris-Ulex minor* heath, *Molinia caerulea* sub-community
H3a	*Ulex minor-Agrostis curtisii* heath, typical sub-community
M1	*Sphagnum auriculatum* bog pool community
M2a	*Sphagnum cuspidatum/recurvum* bog pool community, *Rhynchospora alba* sub-community
M3	*Eriophorum angustifolium* bog pool community
M2	*Sphagnum cuspidatum/recurvum* bog pool community
M6a	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Carex echinata* sub-community
M6c	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Juncus effusus* sub-community
M6d	*Carex echinata-Sphagnum recurvum/auriculatum* mire, *Juncus acutiflo*rus sub-community
M14	*Schoenus nigricans-Narthecium ossifragum* mire
M16a	*Erica tetralix-Sphagnum compactum* wet heath, typical sub-community
M16c	*Erica tetralix-Sphagnum compactum* wet heath, *Rhynchospora alba-Drosera intermedia* sub-community
M21	*Narthecium ossifragum-Sphagnum papillosum* valley mire
M21a	*Narthecium ossifragum-Sphagnum papillosum* valley mire, *Rhynchospora alba-Sphagnum auriculatum* sub-community
M21b	*Narthecium ossifragum-Sphagnum papillosum* valley mire, *Vaccinium oxycoccos-Sphagnum recurvum* sub-community
M23a	*Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus acutiflorus* sub-community
M23b	*Juncus effusus/acutiflorus-Galium palustre* rush-pasture, *Juncus effusus* sub-community
M25	*Molinia caerulea-Potentilla erecta* mire
M25a	*Molinia caerulea-Potentilla erecta mire*, *Erica tetralix* sub-community
M25b	*Molinia caerulea-Potentilla erecta* mire, *Anthoxanthum odoratum* sub-community
M29	*Hypericum elodes-Potamogeton polygonifolius* soakway
M30	Related vegetation of seasonally-inundated habitats
MG1	*Arrhenatherum elatius* grassland
MG1e	*Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community
MG5c	*Cynosurus cristatus-Centaurea* nigra grassland, *Danthonia decumbens* sub-community
MG7	*Lolium perenne* leys and related grasslands
MG9	*Holcus lanatus-Deschampsia cespitosa* grassland
MG11	*Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland
OV35	*Lythrum portula-Ranunculus flammula* community
S7	*Carex acutiformis* swamp
S12	*Typha latifolia* swamp

NVC Code	Plant Community Name
S22a	*Glyceria fluitans* water-margin vegetation, *Glyceria fluitans* sub-community
S23	Other water-margin vegetation
U1	*Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland
U1b	*Festuca ovina-Agrostis capillaris-Rumex acetosella* grassland, typical sub-community
U2	*Deschampsia flexuosa* grassland
U2a	*Deschampsia flexuosa* grassland, *Festuca ovina-Agrostis capillaris* sub-community
U3	*Agrostis curtisii* grassland
U5	*Nardus stricta-Galium saxatile* grassland
U5d	*Nardus stricta-Galium saxatile* grassland, *Calluna vulgaris-Danthonia decumbens* sub-community
U20	*Pteridium aquilinum-Galium saxatile* community
U20a	*Pteridium aquilinum-Galium saxatile* community, *Anthoxanthum odoratum* sub-community
U20c	*Pteridium aquilinum-Galium saxatile* community, species-poor sub-community
W1	*Salix cinerea-Galium palustre* woodland
W4a	*Betula pubescens-Molinia caerulea* woodland, *Dryopteris dilatata-Rubus fruticosus* sub-community
W4b	*Betula pubescens-Molinia caerulea* woodland, *Juncus effusus* sub-community
W4c	*Betula pubescens-Molinia caerulea* woodland, *Sphagnum* spp. sub-community
W10	*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland
W10a	*Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland, typical sub-community
W16	*Quercus* spp.-*Betula* spp.-*Deschampsia flexuosa* woodland
W16a	*Quercus* spp.-*Betula* spp.-*Deschampsia flexuosa* woodland, *Quercus robur* sub-community
W23	*Ulex europaeus-Rubus fruticosus* scrub
W24	*Rubus fruticosus-Holcus lanatus* underscrub
W25	*Pteridium aquilinum-Rubus fruticosus* underscrub

Annex E – Quadrat Results

Table E1: Quadrat Metadata

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Bourley and Long Valley	BLVTN1	SU8234952173	29/06/2018	2 x 2	U20a	5	65	-	Very parched patchy acid grassland
Bourley and Long Valley	BLVTN2	SU8233352154	29/06/2018	2 x 2	U1b	5	60	-	Very parched patchy acid grassland
Bourley and Long Valley	BLVTN3	SU8232652161	29/06/2018	2 x 2	U1b	2	75	-	Very parched patchy acid grassland
Bourley and Long Valley	BLVTN4	SU8232052192	29/06/2018	2 x 2	U1b	10	20	-	Very parched patchy acid grassland
Bourley and Long Valley	BLVTN5	SU8233952178	29/06/2018	2 x 2	U20a	10	35	-	Very parched patchy acid grassland
Bourley and Long Valley	BLVTN6	SU8239752219	29/06/2018	2 x 2	U1b	12	15	-	Very parched patchy acid grassland
Bourley and Long Valley	BLVTN7	SU8241452230	29/06/2018	2 x 2	U5d	10	0	-	Small area of Nardus grassland in undisturbed area
Bourley and Long Valley	BLVS1	SU8268752647	25/06/2018	2 x 2	M25b	45	35	-	Bottom of slope above spring, species-poor much litter
Bourley and Long Valley	BLVS2	SU8267652628	25/06/2018	2 x 2	M25b	40	10	-	-
Bourley and Long Valley	BLVS3	SU8265452585	25/06/2018	2 x 2	M25b	60	0	-	-
Bourley and Long Valley	BLVS4	SU8262352543	25/06/2018	2 x 2	M25b	50	-	-	-
Bourley and Long Valley	BLVS5	SU8256252461	25/06/2018	2 x 2	M25b	45	-	-	-
Bourley and Long Valley	BLVS6	SU8248552362	25/06/2018	2 x 2	M25b	30	40	-	Droughted area of *Molinia* grassland, disturbed toward top of hill, with several mesotrophic forbs
Bourley and Long Valley	BLVS7	SU8260052501	26/06/2018	2 x 2	U5d	40	-	-	Low open grassy acid grassland with bare patches, transitional to *Molinia*-dominated area,

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
									due to disturbance along edge of footpath. Heavily insolated and parched, much litter, and bare ground covered in bryophytes
Bourley and Long Valley	BLVS8	SU8258852486	26/06/2018	2 x 2	U5d	20	5	-	-
Bourley and Long Valley	BLVS9	SU8255852441	26/06/2018	2 x 2	U5d	20	55	-	-
Bourley and Long Valley	BLVS10	SU8252152394	26/06/2018	2 x 2	M25b	10	20	-	-
Bourley and Long Valley	BLVS11	SU8245852327	26/06/2018	2 x 2	MG5c	25	25	-	Acid grassland grading into mesic vegetation at path edge toward hill top
Bourley and Long Valley	BLVS12	SU8276952614	26/06/2018	2 x 2	M21	20	-	-	-
Bourley and Long Valley	BLVS13	SU8278052620	26/06/2018	2 x 2	M21	-	-	-	Hummocky mire in low-lying area. very shallow peat over saturated clay
Bourley and Long Valley	BLVS14	SU8279352628	26/06/2018	2 x 2	M21	15	-	-	Some bare wet peat. Very wet, quaking surface
Bourley and Long Valley	BLVS15	SU8279352642	26/06/2018	2 x 2	M21	8	35	-	-
Bourley and Long Valley	BLVS16	SU8279652649	26/06/2018	2 x 2	M21	40	-	-	Ranker area toward outfall, becomes drier and tussocky to north
Bourley and Long Valley	BLVS17	SU8280252650	26/06/2018	4 x 4	M16a	15	8	-	Grazed wet heath
Bourley and Long Valley	BLVS18	SU8281252634	26/06/2018	4 x 4	M16a	20	6	-	-
Bourley and Long Valley	BLVS19	SU8280552552	27/06/2018	4 x 4	M16c	20	6	-	Disturbed wet heath on slope between areas of M16a
Bourley and Long Valley	BLVS20	SU8280052589	27/06/2018	4 x 4	M16a	20	-	-	Hummocky wet at transition to M21, with rich *Sphagnum* carpet
Bourley and Long Valley	BLVS21	SU8278752564	27/06/2018	4 x 4	M16a	15	10	-	On slope above mire

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Bourley and Long Valley	BLVS22	SU8270452529	27/06/2018	2 x 2	U5d	15	6	-	-
Bourley and Long Valley	BLVS23	SU8272752513	27/06/2018	2 x 2	U2	10	25	-	Degraded and grazed, regenerating H2
Bourley and Long Valley	BLVS24	SU8274352512	27/06/2018	2 x 2	U2	15	15	-	More complete ericoid cover in places, in the pioneer, building and established growth phases, but still very low and patchy
Bourley and Long Valley	BLVS25	SU8276052514	27/06/2018	2 x 2	U2	42278	30	-	Better-structured heather cover
Bourley and Long Valley	BLVS26	SU8274752504	27/06/2018	2 x 2	U2	10	30	-	-
Bourley and Long Valley	BLVS27	SU8254852364	27/06/2018	2 x 2	U2a	2	3	-	Heavily-grazed acid grassland
Bourley and Long Valley	BLVS28	SU8254352371	27/06/2018	2 x 2	U2a	43376	10	-	-
Bourley and Long Valley	BLVS29	SU8254952378	27/06/2018	2 x 2	U2a	6	2	-	-
Bourley and Long Valley	BLVS30	SU8253652375	27/06/2018	2 x 2	U2a	20	2	-	Patchily-grazed area with ungrazed *Molinia* tussocks to 30cm
Bourley and Long Valley	BLVS31	SU8253252370	27/06/2018	2 x 2	U2a	30	15	-	-
Bourley and Long Valley	BLVN1	SU8283652919	28/06/2018	4 x 4	M25a	80	-	-	Unmanaged tall *Molinia*
Bourley and Long Valley	BLVN2	SU8282752906	28/06/2018	4 x 4	M25a	70	-	-	-
Bourley and Long Valley	BLVN3	SU8280352888	28/06/2018	4 x 4	M25a	50	-	-	-
Bourley and Long Valley	BLVN4	SU8277352862	28/06/2018	4 x 4	M25a	30	-	-	Grazed, developing into M16
Bourley and Long Valley	BLVN5	SU8275552850	28/06/2018	4 x 4	M25a	30	2	-	Grazed but quite rank and species poor

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Bourley and Long Valley	BLVN6	SU8281152843	28/06/2018	4 x 4	M16a	20-30	-	-	Wet heath in trough running through rank *Molinia* grassland
Bourley and Long Valley	BLVN7	SU8280652837	28/06/2018	4 x 4	M16a	20	2	-	Very open *Sphagnum* lawn with scattered hummocks of vascular plants
Bourley and Long Valley	BLVN8	SU8277752814	28/06/2018	4 x 4	M16c	11079	6	-	As before, very open with sphagnum lawn and hummocks of vascular plants. *Drosera* spp. in lower lying patches and bare ground suggesting
Colony Bog and Bagshot Heath	CB1	SU9378661631	02/08/2018	4 x 4	M25a	70	10	0	Rank *Molinia* at base of slope
Colony Bog and Bagshot Heath	CB2	SU9376361624	02/08/2018	4 x 4	M25a	50	1	55	Between CB1 and pylon
Colony Bog and Bagshot Heath	CB3	SU9370261593	02/08/2018	4 x 4	M16c	30	25	0	Mown wet heath under pylon wayleave, very open with abundant *Cladonia*.
Colony Bog and Bagshot Heath	CB4	SU9367561579	02/08/2018	4 x 4	H1a	20	10	0	Mown, short heather under wayleave
Colony Bog and Bagshot Heath	CB5	SU9365861614	02/08/2018	4 x 4	H1a	40	0	25	Mature and degenerate heather with dead Calluna
Colony Bog and Bagshot Heath	CB6	SU9371061631	02/08/2018	4 x 4	M25a	50	0	75	-
Colony Bog and Bagshot Heath	CB7	SU9356861546	02/08/2018	4 x 4	H1a	10	20	2	-
Colony Bog and Bagshot Heath	CB8	SU9345161500	02/08/2018	4 x 4	H1a	30	5	0	-
Colony Bog and Bagshot Heath	CB9	SU9340261524	02/08/2018	4 x 4	M16a	40	0	75	Rank *Molinia*-dominated area at top of valley
Colony Bog and Bagshot Heath	CB10	SU9332561465	02/08/2018	4 x 4	H2c	40	5	1	*Ulex minor* rare in wider stand, prevalence of *Molnia* indicating regenerating H2c
Colony Bog and Bagshot Heath	CB11	SU9328261489	02/08/2018	4 x 4	H1a	60	0	0	Over-mature leggy heather. Area being invaded by *Ulex europaeus*

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Colony Bog and Bagshot Heath	CB12	SU9308661416	02/08/2018	4 x 4	M16a	40	0	0	-
Colony Bog and Bagshot Heath	CB13	SU9305961403	02/08/2018	4 x 4	M16a	40	0	0	-
Colony Bog and Bagshot Heath	CB14	SU9305061428	02/08/2018	4 x 4	M16a	35	0	0	-
Colony Bog and Bagshot Heath	CB15	SU9311461392	02/08/2018	4 x 4	M16a	40	0	0	-
Colony Bog and Bagshot Heath	CB16	SU9302761365	02/08/2018	4 x 4	M16a	50	0	0	Coarse, rank *Molinia* sward
Colony Bog and Bagshot Heath	CB17	SU9307261343	02/08/2018	4 x 4	M16a	60	0	0	-
Colony Bog and Bagshot Heath	CB18	SU9316561377	02/08/2018	4 x 4	M16a	50	0	0	Mown and/or seeded area, dominated by *Erica tetralix*. Ericoid cover 100%
Colony Bog and Bagshot Heath	CB19	SU9212561135	02/08/2018	4 x 3	H2a	20	55	0	Open vegetation developed on steep bank north of the track
Colony Bog and Bagshot Heath	CB20	SU9208061142	02/08/2018	4 x 4	H2a	60	0	10	Mature heather
Colony Bog and Bagshot Heath	CB21	SU9203761118	02/08/2018	4 x 4	H2a	80	0	0	Edge of mown area
Colony Bog and Bagshot Heath	CB22	SU9199861087	02/08/2018	4 x 4	H2a	80	0	0	Mature bushy heather on slope above track
Colony Bog and Bagshot Heath	CB23	SU9201161054	02/08/2018	4 x 4	H2a	70	0	0	Mature, bushy heather
Colony Bog and Bagshot Heath	CB24	SU9191460992	02/08/2018	4 x 4	H3a	60	0	0	Edge of mown area, transitional to H3
Colony Bog and Bagshot Heath	CB25	SU9186060951	02/08/2018	2 x 2	U5	0	0	0	DATA MISSING
Colony Bog and Bagshot Heath	CB26	SU9167560898	02/08/2018	2 x 2	U3	0	0	0	DATA MISSING

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Colony Bog and Bagshot Heath	CB27	SU9171760912	02/08/2018	2 x 2	U3	0	0	0	DATA MISSING
Colony Bog and Bagshot Heath	CB28	SU9180760938	02/08/2018	2 x 2	U3	0	0	0	DATA MISSING
Colony Bog and Bagshot Heath	CB29	SU9256561355	12/07/2018	4 x 4	M25a	70	15	-	Very coarse, very tussocky wet heath between track and drain
Colony Bog and Bagshot Heath	CB30	SU9257561333	12/07/2018	4 X 4	M21	50	0	-	Quite dry, Myrica-dominated mire
Colony Bog and Bagshot Heath	CB31	SU9258961318	12/07/2018	4 X 4	M21	40	0	-	-
Colony Bog and Bagshot Heath	CB32	SU9260661305	12/07/2018	4 X 4	M21	45	0	-	-
Colony Bog and Bagshot Heath	CB33	SU9258861296	12/07/2018	4 X 4	M21	10	0	-	Very low and open compared with *Myrica* dominated area but similar floristically
Colony Bog and Bagshot Heath	CB34	SU9256761304	12/07/2018	4 X 4	M21	35	0	-	Dry, no hummock formation. Dense litter. Needs rewetting
Colony Bog and Bagshot Heath	CB35	SU9253861305	12/07/2018	4 X 4	M14	-	0	-	Active hummocks and pools
Colony Bog and Bagshot Heath	CB36	SU9250761228	12/07/2018	4 X 4	M21b	20	0	-	Mix of valley mire and wet heath species
Colony Bog and Bagshot Heath	CB37	SU9249261221	12/07/2018	4 X 4	M21b	40	0	-	-
Colony Bog and Bagshot Heath	CB38	SU9248261216	12/07/2018	4 X 4	M21b	30	0	-	-
Colony Bog and Bagshot Heath	CB39	SU9244561197	12/07/2018	4 X 4	M21b	40	0	-	-
Colony Bog and Bagshot Heath	CB40	SU9240961181	12/07/2018	4 X 4	M21b	30	0	-	-
Colony Bog and Bagshot Heath	CB41	SU9231661158	12/07/2018	2 X 2	M2a	20	20	-	-

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Colony Bog and Bagshot Heath	CB42	SU9232261139	12/07/2018	4 x 4	M21b	35	0	-	-
Colony Bog and Bagshot Heath	CB43	SU9228461134	13/07/2018	2 X 2	M21a	20	0	-	Edge of M14 and M21, rank with some *Schoenus* regeneration
Colony Bog and Bagshot Heath	CB44	SU9228061142	13/07/2018	2 X 2	M14	60	0	-	-
Colony Bog and Bagshot Heath	CB45	SU9230461126	13/07/2018	4 X 4	M21a	20	0	-	-
Colony Bog and Bagshot Heath	CB46	SU9230261118	13/07/2018	2 X 2	M2a	15	50	-	Edge of collect
Colony Bog and Bagshot Heath	CB47	SU9222261094	13/07/2018	2 x 2	M2a	15	70	-	Pool community around collects
Colony Bog and Bagshot Heath	CB48	SU9219561078	13/07/2018	2 X 2	M21a	30	4	-	-
Colony Bog and Bagshot Heath	CB49	SU9219361061	13/07/2018	2 X 2	M2a	30	50	-	Edge of collects by fencing
Colony Bog and Bagshot Heath	CB50	SU9232161173	13/07/2018	2 X 2	M14	40	0	-	-
Colony Bog and Bagshot Heath	CB51	SU9234461184	13/07/2018	4 x 4	M21	55	0	-	Very firm mire surface thoroughly colonised by *Molinia* and *Erica*, coarse but with carpet of *Sphagnum*
Colony Bog and Bagshot Heath	CB52	SU9234461218	13/07/2018	4 x 4	M14	50	0	-	-
Colony Bog and Bagshot Heath	CB53	SU9238561215	13/07/2018	4 x 4	M25a	80	0	-	Drier central area of mire
Colony Bog and Bagshot Heath	CB54	SU9241861231	13/07/2018	4 x 4	M25a	70	0	-	-
Colony Bog and Bagshot Heath	CB55	SU9246361236	13/07/2018	4 x 4	M21	50	0	-	-
Colony Bog and Bagshot Heath	CB56	SU9250561325	13/07/2018	4 x 4	M25a	60	0	-	-

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Chobham Common	C1	SU9882664551	31/07/2018	2 x 2	M1	60	20	-	Bog pool community at edge of ponded area
Chobham Common	C2	SU9881664555	31/07/2018	4 x 4	M25a	65	0	-	Very rank, *Molinia*-dominated valley bottom
Chobham Common	C3	SU9782464130	01/08/2018	2 x 2	M6c	75	15	-	Very very rank rushy vegetation by drain (upstream of). Ground saturated
Chobham Common	C4	SU9785064143	01/08/2018	2 x 2	M6d	65	0	-	-
Chobham Common	C5	SU9784664153	01/08/2018	2 x 2	M6c	-	150	0	-
Chobham Common	C6	SU9825764342	01/08/2018	2 x 2	M16a	45	0	-	Shallow valley
Chobham Common	C7	SU9824564342	01/08/2018	2 x 2	M25a	80	0	-	Valley bottom, rank *Molinia*
Chobham Common	C8	SU9835364353	01/08/2018	2 x 2	U3	40	40	-	Species-poor *Agrostis curtisii* grassland in mown strip by track
Chobham Common	C9	SU9831064329	01/08/2018	2 x 2	U3	50	25	-	-
Chobham Common	C10	SU9842664353	01/08/2018	4 x 4	H2c	50	2	-	Unmown area
Chobham Common	C11	SU9843964416	01/08/2018	4 x 4	H2c	40	0	-	-
Chobham Common	C12	SU9853664400	01/08/2018	4 x 4	H1a	70	0	-	Mature *Calluna* with dead stems
Chobham Common	C13	SU9852464397	01/08/2018	4 x 4	H3a	60	5	-	On slope, varied canopy structure
Chobham Common	C14	SU9853864363	01/08/2018	4 x 4	H2c	60	0	-	Mature *Calluna* on lower slope. *Erica tetralix* and Molinia appear
Chobham Common	C15	SU9861964459	01/08/2018	4 x 4	H3a	30	45	-	Agrostis heathland on bank of track
Chobham Common	C16	SU9870664545	02/08/2018	4 x 4	H1e	70	0	-	Species-poor mature *Calluna*
Chobham Common	C17	SU9904864694	02/08/2018	50 x 50	W16a	-	-	-	Castanea woodland on slope to east of track, very sparse shrub layer. Quadrat from SU9904864694 to SU9902864656 along track (50 paces) and 50 paces east into woodland. Shrub and ground layer recorded over whole 50m as very open
Chobham Common	C18	SU9895064624	02/08/2018	NA	W7c	-	-	-	Whole stand in valley bottom north of bridge
Chobham Common	C19	SU9763364063	30/07/2018	2 x 2	H3a	30	7	2	-
Chobham Common	C20	SU9763864018	30/07/2018	2 x 2	H2c	38	3	2	-

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Chobham Common	C21	SU9770464064	30/07/2018	2 x 2	H2c	40	2	2	-
Chobham Common	C22	SU9758464029	30/07/2018	2 x 2	H3a	28	3	7	-
Chobham Common	C23	SU9755264006	30/07/2018	2 x 2	H3a	35	3	3	-
Chobham Common	C24	SU9762663922	31/07/2018	2 x 2	H2c	58	0	30	-
Chobham Common	C25	SU9727863719	02/08/2018	50 x 50	W4a	-	-	-	Secondary birch woodland on slope above path
Chobham Common	C26	SU9743463884	02/08/2018	50 x 50	W10	-	-	-	Mature oak woodland up to enclosure boundary of car breaking yard
Chobham Common	C27	SU9751963839	02/08/2018	NA	W4a	-	-	-	Whole stand in bottom of small valley, with W10 on banks
Chobham Common	C28	SU9709763681	31/07/2018	2 x 2	H2c	30	3	7	-
Chobham Common	C29	SU9714463727	31/07/2018	2 x 2	H2c	34	0	30	-
Chobham Common	C30	SU9717363670	31/07/2018	2 x 2	H2c	28	63	2	Scraped area, with open bare ground but same species
Chobham Common	C31	SU9808264263	31/07/2018	2 x 2	M16c	7	63	0	-
Chobham Common	C32	SU9807064269	31/07/2018	2 x 2	M16c	6	63	0	-
Chobham Common	C33	SU9807364280	31/07/2018	2 x 2	M16a	22	0	18	-
Chobham Common	C34	SU9806664291	31/07/2018	2 x 2	M16a	25	0	30	-
Chobham Common	C35	SU9805764308	31/07/2018	2 x 2	M16a	31	0	63	-
Chobham Common	C36	SU9804764264	01/08/2018	2 x 2	M16a	20	18	7	-
Chobham Common	C37	SU9803064275	01/08/2018	2 x 2	M16a	22	3	7	-
Chobham Common	C38	SU9882264591	01/08/2018	2 x 2	H1e	58	0	3	Over-mature *Calluna* heath with abundant Hypnum jutlandicum
Chobham Common	C39	SU9880764575	01/08/2018	2 x 2	M16a	30	0	30	Valley mire vegetation dominated by Erica tetralix
Chobham Common	C40	SU9879464556	01/08/2018	2 x 2	M25a	23	0	2	-
Chobham Common	C41	SU9877964542	01/08/2018	2 x 2	H1e	35	18	3	-
Chobham Common	C42	SU9754963974	02/08/2018	4 x 4	H3a	40	7	2	Recently cleared area 4a on map

Site	Quadrat	Grid Reference	Date	Quadrat Dimensions	Type	Height (cm)	Bare Ground (%)	Litter (%)	Note
Chobham Common	C43	SU9760264047	02/08/2018	4 x 4	H3a	40	3	3	Lower but with *Agrostis curtisii/Ulex minor*
Chobham Common	C44	SU9836064332	01/08/2018	2 x 2	H2c	34	0	30	Over-mature heath vegetation. Species poor, with mown strips winding throughout with *Molinia* dominated vegetation and little heather (firebreaks/reptile management?)
Chobham Common	C45	SU9832964310	01/08/2018	2 x 2	H2c	20	7	63	-
Chobham Common	C46	SU9831764289	01/08/2018	2 x 2	H2c	22	18	7	-
Chobham Common	C47	SU9806664251	31/08/2018	2 x 2	M30	2	18	0	Pond/marginal quadrats with low growing vegetation and bare peat
Chobham Common	C48	SU9808164257	31/08/2018	2 x 2	M30	4	42	0	Pond/marginal quadrats with low growing vegetation and bare peat
Chobham Common	C49	SU9807664257	31/08/2018	2 x 2	M30	11	7	0	Boggy pond edge habitat, possibly same as/similar to above
Chobham Common	C50	SU9807564265	31/08/2018	2 x 2	M16c	13	18	0	Boggy pond edge habitat, possibly same as/similar to above
Chobham Common	C51	SU9772864160	01/08/2018	4 x 4	M1	36	0	30	Bog pool community
Chobham Common	C52	SU9772764192	01/08/2018	4 x 4	M25a	60	0	18	M25 mire around M1
Chobham Common	C53	SU9771664198	01/08/2018	4 x 4	M16a	50	0	30	-
Chobham Common	C54	SU9771364186	01/08/2018	4 x 4	M25a	30	2	7	-
Chobham Common	C55	SU9770764178	01/08/2018	4 x 4	M25a	34	0	30	Grades into M16
Chobham Common	C55	SU9706263654	02/08/2018	2 x 2	H2c	32	0	42	Old leggy heather dominated community with all 3 ericoids and *Hypnum jutlandicum*
Chobham Common	C56	SU9774964204	01/08/2018	4 x 4	M25a	42	3	63	-
Chobham Common	C56	SU9707163606	02/08/2018	2 x 2	H2c	46	0	42	0
Chobham Common	C57	SU9719663666	02/08/2018	2 x 2	H2c	42	3	42	Whole stand in bottom of small valley, with W10 on banks

Table E2: Quadrat Results from Bourley and Long Valley - Valley Mire, Wet Heath and Purple Moor-grass Vegetation

Taxon	M16a						M16c		M21					M25a					M25b						
	BLVN6	BLVN7	BLVS17	BLVS18	BLVS20	BLVS21	BLVN8	BLVS19	BLVS12	BLVS13	BLVS14	BLVS15	BLVS16	BLVN1	BLVN2	BLVN3	BLVN4	BLVN5	BLVS1	BLVS10	BLVS2	BLVS3	BLVS4	BLVS5	BLVS6
Agrostis canina	1	2	-	-	-	-	1	-	-	-	-	-	-	3	3	3	-	-	3	-	-	3	4	1	-
Agrostis capillaris	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	4	2	1	-	3	3
Anagallis tenella	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthoxanthum odoratum	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	3	-	3	3	1
Aulacomnium androgynum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Aulacomnium palustre	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Betula pendula	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Betula pubescens	1	-	1	1	-	1	-	-	-	-	-	-	-	1	1	-	1	1	-	-	4	-	4	1	4
Calluna vulgaris	5	5	7	8	6	8	7	6	-	1	-	-	-	-	-	-	7	4	-	4	-	-	-	-	-
Calypogeia muelleriana	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Campylopus introflexus	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex binervis	1	-	-	-	3	-	-	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1	-
Carex nigra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Carex panicea	3	-	-	2	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex pilulifera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	1	1	-
Centaurea nigra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Centaurium erythraea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Chamerion angustifolium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Cirsium palustre	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Cladonia portentosa	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Danthonia decumbens	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	1	-
Deschampsia cespitosa	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-

Taxon	M16a						M16c		M21					M25a					M25b						
	BLVN6	BLVN7	BLVS17	BLVS18	BLVS20	BLVS21	BLVN8	BLVS19	BLVS12	BLVS13	BLVS14	BLVS15	BLVS16	BLVN1	BLVN2	BLVN3	BLVN4	BLVN5	BLVS1	BLVS10	BLVS2	BLVS3	BLVS4	BLVS5	BLVS6
Deschampsia flexuosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Dicranum scoparium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Drosera intermedia	-	-	-	2	-	-	3	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drosera rotundifolia	-	-	-	3	-	-	3	3	-	3	3	4	3	-	-	-	-	-	-	-	-	-	-	-	-
Eleocharis multicaulis	-	-	-	-	-	-	-	-	6	7	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
Erica tetralix	5	5	8	7	5	6	6	5	2	4	2	4	-	-	-	2	3	3	-	-	-	-	-	-	-
Eriophorum angustifolium	3	2	3	3	7	-	-	-	1	4	7	8	5	-	-	-	-	-	-	-	-	-	-	-	-
Frangula alnus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Hieracium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Holcus lanatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2	2	3	-
Holcus mollis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
Hypericum pulchrum	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Hypericum x desetangsii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Hypnum cupressiforme	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Hypnum jutlandicum	4	3	8	6	5	4	3	6	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hypochaeris radicata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
Juncus acutiflorus	5	-	3	-	-	1	3	1	-	2	-	3	2	5	5	4	-	-	6	-	5	5	4	2	-
Juncus bulbosus	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Juncus conglomeratus	-	-	-	-	1	-	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Juncus squarrosus	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leucobryum glaucum	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lotus corniculatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
Lotus pedunculatus	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	1	3	2	1	-
Luzula campestris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-

Taxon	M16a						M16c		M21					M25a					M25b						
	BLVN6	BLVN7	BLVS17	BLVS18	BLVS20	BLVS21	BLVN8	BLVS19	BLVS12	BLVS13	BLVS14	BLVS15	BLVS16	BLVN1	BLVN2	BLVN3	BLVN4	BLVN5	BLVS1	BLVS10	BLVS2	BLVS3	BLVS4	BLVS5	BLVS6
Luzula multiflora subsp. *congesta*	2	1	-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	3	1	2
Lysimachia vulgaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Molinia caerulea	8	6	5	7	8	7	7	7	6	6	5	6	8	-	10	9	8	10	10	5	9	9	9	9	8
Myrica gale	-	1	1	-	-	-	-	-	-	-	-	-	-	-	6	4	-	-	-	-	-	-	-	-	-
Nardus stricta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Narthecium ossifragum	-	-	-	-	-	-	-	-	-	3	6	6	3	-	-	-	-	-	-	-	-	-	-	-	-
Odontoschisma sphagni	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedicularis sylvatica	1	2	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Pilosella officinarum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
Pinus sylvestris	1	1	3	3	1	2	1	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Plantago lanceolata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
Poa trivialis	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Populus tremula	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Potamogeton polygonifolius	-	-	-	-	-	-	-	-	-	-	2	-	6	-	-	-	-	-	-	-	-	-	-	-	-
Potentilla erecta	2	-	-	-	-	-	3	-	2	3	-	-	-	2	2	3	2	1	4	2	7	6	9	5	-
Pseudoscleropodium purum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	3	3	1
Pteridium aquilinum	-	-	-	-	-	2	-	1	-	-	-	-	-	2	-	1	1	1	-	-	-	-	-	-	-
Quercus robur	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Rhytidiadelphus squarrosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	7	-	-	1	-
Riccardia chamaedrys	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Rubus fruticosus agg.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Salix cinerea	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	2	1	-	-	4	2	1	1	1	-
Salix repens	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	5	-	-	-	-

Taxon	M16a						M16c		M21					M25a					M25b						
	BLVN6	BLVN7	BLVS17	BLVS18	BLVS20	BLVS21	BLVN8	BLVS19	BLVS12	BLVS13	BLVS14	BLVS15	BLVS16	BLVN1	BLVN2	BLVN3	BLVN4	BLVN5	BLVS1	BLVS10	BLVS2	BLVS3	BLVS4	BLVS5	BLVS6
Sorbus aucuparia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Sphagnum compactum	8	7	-	7	6	5	8	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum denticulatum	-	6	-	-	-	-	4	-	8	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum fallax	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum palustre	3	-	-	-	4	-	-	-	4	-	7	-	5	-	-	4	-	-	-	-	-	-	-	-	-
Sphagnum papillosum	-	-	-	-	-	-	-	-	6	9	-	8	6	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum tenellum	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stellaria graminea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Taraxacum agg.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Trichophorum germanicum	2	6	4	4	2	3	5	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Trifolium pratense	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Ulex europaeus	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-

Table E3: Quadrat Results from Bourley and Long Valley - Grassland Vegetation

Taxon	MG5c	U1b				U2				U2a					U5d					U20a	
	BLVS11	BLVTN2	BLVTN3	BLVTN4	BLVTN6	BLVS23	BLVS24	BLVS25	BLVS26	BLVS27	BLVS28	BLVS29	BLVS30	BLVS31	BLVS22	BLVS7	BLVS8	BLVS9	BLVTN7	BLVTN1	BLVTN5
Agrostis capillaris	5	8	6	8	4	3	2	4	3	5	4	4	4	4	5	1	3	3	3	8	8
Aira praecox	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthoxanthum odoratum	5	1	-	-	4	-	1	2	1	-	-	-	1	1	2	5	5	4	-	-	2
Betula pendula	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Betula pubescens	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
Betula x aurata	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Calluna vulgaris	-	-	-	-	-	2	6	7	6	3	1	1	1	1	2	5	5	2	4	-	-
Campylopus introflexus	-	-	-	-	-	4	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-
Campylopus pyriformis	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex binervis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Carex pilulifera	-	3	1	-	1	2	2	3	2	-	4	1	-	-	3	1	4	3	-	2	1
Centaurea nigra	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cerastium fontanum	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Cytisus scoparius	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dactylis glomerata	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Danthonia decumbens	4	-	-	1	4	-	1	3	3	3	-	-	-	-	4	3	4	4	3	-	-
Deschampsia flexuosa	-	-	-	-	-	5	3	5	4	3	5	6	7	5	-	1	-	-	-	-	-
Dicranum scoparium	-	-	-	-	-	1	3	3	1	4	3	3	3	3	-	-	-	1	-	-	-
Erica cinerea	1	-	-	-	4	4	3	3	1	-	4	1	-	-	-	-	-	1	-	-	-
Festuca ovina agg.	1	-	-	4	5	-	-	-	1	4	4	7	2	-	6	5	2	7	7	-	-
Festuca rubra	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Galium saxatile	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-

Taxon	MG5c	U1b				U2				U2a					U5d					U20a	
	BLVS11	BLVTN2	BLVTN3	BLVTN4	BLVTN6	BLVS23	BLVS24	BLVS25	BLVS26	BLVS27	BLVS28	BLVS29	BLVS30	BLVS31	BLVS22	BLVS7	BLVS8	BLVS9	BLVTN7	BLVTN1	BLVTN5
Holcus lanatus	-	2	-	-	1	-	1	-	-	-	1	-	2	-	-	-	-	-	-	-	-
Hypericum pulchrum	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Hypnum jutlandicum	-	-	-	-	-	-	2	1	2	4	-	4	4	3	3	-	-	-	-	-	-
Hypochaeris radicata	-	2	1	2	4	-	-	1	1	3	-	2	-	-	3	2	2	4	4	2	-
Juncus squarrosus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Lotus corniculatus	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	2	-	-	-
Luzula campestris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	-	-	-
Luzula multiflora	-	-	-	-	-	-	-	1	1	1	1	-	1	1	-	-	-	-	-	-	-
Luzula multiflora subsp. *congesta*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Molinia caerulea	4	2	1	-	5	6	8	4	7	4	4	5	6	7	6	5	4	5	5	2	4
Nardus stricta	1	-	-	-	-	-	-	4	-	-	-	-	-	-	4	4	4	2	4	-	-
Pedicularis sylvatica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Pilosella officinarum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Pinus sylvestris	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	1	-	1	-	-	-
Plantago lanceolata	3	-	-	-	4	-	-	-	-	-	-	-	-	-	-	1	2	1	2	-	-
Pleurozium schreberi	-	-	-	-	-	2	3	2	-	5	3	4	2	1	4	-	-	-	-	-	-
Polytrichum juniperinum	-	-	-	-	-	3	-	2	-	-	-	1	-	-	-	-	-	1	-	-	-
Potentilla erecta	4	-	-	-	-	-	3	-	2	-	-	-	1	1	1	3	2	2	-	-	-
Pseudoscleropodium purum	-	-	-	-	4	-	3	2	-	-	-	-	-	-	1	6	6	4	3	-	-
Pteridium aquilinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5
Quercus cerris	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Quercus robur	1	-	-	-	1	-	-	1	1	-	-	-	-	-	-	1	-	-	-	-	-
Rhytidiadelphus squarrosus	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	7	4	-	2	-	-
Rubus fruticosus agg.	-	1	1	-	1	-	1	-	-	1	-	1	-	1	1	-	1	-	-	-	-

Taxon	MG5c	U1b				U2				U2a					U5d					U20a	
	BLVS11	BLVTN2	BLVTN3	BLVTN4	BLVTN6	BLVS23	BLVS24	BLVS25	BLVS26	BLVS27	BLVS28	BLVS29	BLVS30	BLVS31	BLVS22	BLVS7	BLVS8	BLVS9	BLVTN7	BLVTN1	BLVTN5
Rumex acetosa	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rumex acetosella	-	2	3	3	1	-	-	-	-	-	-	-	3	1	-	-	-	1	-	2	3
Salix cinerea	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sorbus aucuparia	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Stellaria graminea	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trifolium dubium	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trifolium pratense	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trifolium repens	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ulex europaeus	1	-	-	1	1	1	-	5	1	1	1	1	-	1	-	-	1	-	1	1	-
Veronica officinalis	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-

Table E4: Quadrat Results from Colony Bog and Bagshot Heath - Dry Heath Vegetation

Taxon	H1a					H2a					H2c	H3a
	CB11	CB4	CB5	CB7	CB8	CB19	CB20	CB21	CB22	CB23	CB10	CB24
Agrostis capillaris	-	-	-	-	-	2	1	-	-	-	-	-
Agrostis curtisii	-	-	-	-	-	3	-	1	-	-	-	3
Betula pendula	1	-	-	-	-	2	1	1	-	1	-	-
Brachythecium rutabulum	-	-	-	-	-	-	-	-	-	1	-	-
Calliergonella cuspidata	-	-	-	-	-	1	-	-	-	-	-	-
Calluna vulgaris	10	8	8	7	9	4	7	8	9	9	5	10
Carex binervis	-	-	-	-	-	-	-	-	-	-	-	1
Cladonia chlorophaea	-	-	-	-	-	-	-	-	-	-	-	1
Cladonia furcata	-	1	-	-	-	-	-	-	-	-	-	-
Cladonia portentosa	-	5	-	4	2	-	-	-	-	1	3	-
Cuscuta epithymum	-	-	-	-	1	-	-	-	-	1	-	3
Dactylorhiza maculata	-	-	-	-	-	1	-	-	-	-	-	-
Deschampsia flexuosa	-	-	1	1	-	-	-	-	-	-	-	-
Dicranum scoparium	3	1	1	3	3	-	-	-	1	-	-	-
Erica cinerea	-	1	-	3	2	5	2	5	4	4	4	-
Hypnum jutlandicum	8	7	7	6	7	-	3	3	9	5	5	8
Luzula multiflora	-	-	-	-	-	1	-	-	-	-	-	-
Molinia caerulea	-	-	-	1	-	3	5	2	3	3	7	-
Pinus sylvestris	1	3	1	3	2	1	-	1	-	1	4	1
Pteridium aquilinum	-	-	-	-	-	-	3	5	3	3	-	-
Quercus robur	1	-	-	1	-	1	1	1	-	-	-	-
Rubus fruticosus agg.	-	-	-	1	-	-	-	-	-	-	-	-
Salix cinerea	-	-	-	-	-	1	-	-	-	-	-	-
Ulex europaeus	-	-	-	-	-	1	-	-	-	-	6	-
Ulex minor	-	-	-	-	-	4	6	7	4	5	-	-
Veronica officinalis	-	-	-	-	-	-	-	-	-	-	-	1

Table E5: Quadrat Results from Colony Bog and Bagshot Heath - Wet Heath and Purple Moor-grass Vegetation

Taxon	M16a								M16c						
	CB12	CB13	CB14	CB15	CB16	CB17	CB18	CB9	CB3	CB1	CB2	CB29	CB53	CB54	CB6
Agrostis stolonifera	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Betula pendula	-	-	-	-	-	1	-	-	-	1	4	1	-	-	1
Calluna vulgaris	4	4	5	3	7	3	7	4	5	4	2	4	4	5	5
Calypogeia fissa	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Cladonia furcata	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Cladonia portentosa	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Dicranum scoparium	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Drosera rotundifolia	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Erica tetralix	8	7	8	7	7	8	8	4	8	5	4	4	6	4	4
Eriophorum angustifolium	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Hypnum cupressiforme	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Hypnum jutlandicum	7	1	2	1	-	8	6	4	3	-	3	-	-	-	3
Juncus acutiflorus	-	-	-	-	-	-	-	-	-	-	-	-	4	3	-
Juncus articulatus	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Juncus squarrosus	-	-	-	-	1	-	-	-	3	-	-	-	-	-	-
Molinia caerulea	7	8	8	7	8	7	-	9	4	10	10	9	9	10	9
Myrica gale	-	-	-	-	-	-	-	-	-	-	-	6	8	8	-
Pinus sylvestris	1	1	1	1	1	1	1	1	1	1	1	-	-	-	-
Potentilla erecta	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Pteridium aquilinum	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Quercus robur	1	-	1	-	-	-	-	-	-	1	-	-	1	-	1
Rhynchospora alba	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Sphagnum palustre	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Sphagnum subnitens	-	-	-	-	-	-	-	-	-	-	-	-	4	3	-
Sphagnum tenellum	-	4	4	-	-	-	-	-	2	3	-	-	-	-	-
Trichophorum germanicum	-	4	3	-	-	1	-	-	4	-	-	-	-	-	-
Ulex europaeus	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-

Table E6: Quadrat Results from Colony Bog and Bagshot Heath - Valley Mire Vegetation

Taxon	M2a				M14				M21							M21a			M21b					
	CB41	CB46	CB47	CB49	CB35	CB44	CB50	CB52	CB30	CB31	CB32	CB33	CB34	CB51	CB55	CB43	CB45	CB48	CB36	CB37	CB38	CB39	CB40	CB42
Anagallis tenella	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aneura pinguis	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	2	1	-	-	1	-	-	-	-
Aulacomnium androgynum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	1	-
Betula pendula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Calluna vulgaris	-	-	-	-	3	1	1	4	-	-	4	4	5	2	1	2	-	1	4	5	5	6	-	-
Calypogeia arguta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Calypogeia muelleriana	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Carex demissa	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex echinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Carex panicea	-	5	-	3	-	-	-	-	4	4	4	3	-	-	-	1	5	3	3	1	4	4	4	-
Cephalozia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
Cirsium dissectum	4	6	-	-	1	-	-	-	-	-	-	-	-	-	-	6	4	-	-	-	-	-	-	-
Cladopodiella fluitans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Dactylorhiza incarnata subsp. *pulchella*	2	1	-	-	2	-	-	-	-	1	-	2	-	-	1	-	1	-	3	-	2	2	-	-
Drosera rotundifolia	3	3	-	2	3	1	1	1	3	3	-	3	-	2	1	3	3	3	3	-	2	-	2	3
Eleocharis multicaulis	-	7	5	3	4	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Equisetum fluviatile	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Equisetum palustre	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
Erica tetralix	4	3	1	2	7	5	6	6	3	5	6	4	6	7	3	6	5	4	4	5	5	6	5	5
Eriophorum angustifolium	-	4	3	3	4	2	4	3	6	5	4	5	3	3	4	4	3	5	6	5	6	4	6	8
Hypnum jutlandicum	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-
Juncus acutiflorus	-	1	1	-	3	-	3	-	5	-	4	3	2	-	3	-	-	2	3	4	3	3	2	-
Molinia caerulea	7	4	-	3	7	6	7	8	8	8	9	7	8	8	7	4	5	5	8	8	7	7	8	8

Taxon	M2a				M14				M21							M21a			M21b					
	CB41	CB46	CB47	CB49	CB35	CB44	CB50	CB52	CB30	CB31	CB32	CB33	CB34	CB51	CB55	CB43	CB45	CB48	CB36	CB37	CB38	CB39	CB40	CB42
Myrica gale	5	-	1	-	4	1	5	7	8	9	9	2	4	8	6	-	1	-	-	-	-	-	-	2
Narthecium ossifragum	8	2	1	4	4	2	4	2	2	1	-	8	6	3	3	5	5	3	-	-	-	-	2	7
Odontoschisma sphagni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Pedicularis sylvatica	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
Pinus sylvestris	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	1	1	1	-	-
Potamogeton polygonifolius	9	6	6	5	-	-	-	-	-	-	-	-	-	-	-	4	6	4	-	-	-	-	-	-
Potentilla erecta	-	-	-	1	-	-	-	-	-	-	-	2	-	-	-	3	-	3	3	3	3	3	3	2
Quercus robur	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	1	1	-
Rhynchospora alba	4	5	6	6	-	-	-	-	-	-	-	-	-	-	-	1	4	4	-	-	-	-	-	-
Riccardia chamaedryfolia	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	3	-	3	-	-	-	-	1	-
Salix cinerea	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Schoenus nigricans	-	-	-	-	5	10	6	5	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Sphagnum capillifolium	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum cuspidatum	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum denticulatum	-	3	-	1	2	-	-	-	3	3	2	3	-	-	-	-	-	-	5	6	3	-	3	-
Sphagnum fallax	-	-	-	-	2	3	-	-	-	2	-	-	-	-	-	-	-	-	4	4	-	-	3	-
Sphagnum palustre	-	-	-	-	-	-	1	-	5	5	5	4	5	-	4	-	4	5	-	4	3	3	2	4
Sphagnum papillosum	-	-	1	4	8	4	8	7	6	7	7	7	4	7	6	7	5	8	4	5	7	7	6	8
Sphagnum subnitens	-	-	-	-	4	-	1	1	3	-	4	4	-	2	5	4	5	4	-	-	-	4	-	-
Sphagnum tenellum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	4	2	-	-	-
Succisa pratensis	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	1	1
Trichophorum germanicum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	4	-	-	-
Ulex europaeus	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Ulex minor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	2	3	-

Table E7: Quadrat Results from Chobham Common - Dry Heath and Acid Grassland Vegetation

Taxon	H1a	H1e			H2c													H3a							U3	
	C12	C16	C38	C41	C10	C11	C14	C20	C21	C24	C28	C29	C30	C44	C45	C46	C57	C13	C15	C19	C22	C23	C42	C43	C8	C9
Agrostis curtisii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	6	5	1	1	-	2	5	7	9
Betula pendula	-	-	-	3	-	1	-	3	-	-	-	-	-	-	-	-	-	-	1	1	-	1	1	-	-	-
Calluna vulgaris	10	10	10	9	7	7	10	8	7	9	7	8	6	8	7	8	8	9	7	8	7	9	5	8	1	-
Campylopus introflexus	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	-
Carex binervis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Carex pilulifera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Cladonia portentosa	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-
Dicranum scoparium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Erica cinerea	-	-	-	-	-	-	-	-	-	4	-	4	4	-	-	-	-	2	1	-	-	-	-	1	-	-
Erica tetralix	-	-	-	-	8	8	2	4	4	3	7	7	-	6	3	4	6	-	-	1	7	4	5	2	-	-
Hypnum jutlandicum	10	9	7	8	5	3	8	-	-	8	7	8	-	-	-	-	-	6	4	-	-	-	-	-	-	-
Ilex aquifolium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Molinia caerulea	-	-	-	-	-	7	5	7	4	7	5	2	4	6	6	5	7	6	2	7	8	7	7	5	6	4
Pinus sylvestris	3	1	-	2	2	-	2	-	1	-	-	-	-	-	1	2	-	3	1	1	-	-	1	1	1	-
Polytrichum juniperinum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Quercus robur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Ulex europaeus	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
Ulex minor	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	4	-	5	2	6	5	-	-

Table E8: Quadrat Results from Chobham Common - Wet Heath, Purple Moor-grass and Valley Mire Vegetation

Taxon	M1		M16a								M16c			M25a							M30			M6c		M6d
	C1	C51	C6	C33	C34	C35	C36	C37	C39	C53	C31	C32	C50	C2	C40	C52	C54	C55	C56	C7	C47	C48	C49	C3	C5	C4
Betula pendula	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Betula pubescens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Calluna vulgaris	-	-	6	4	3	3	4	3	6	-	2	2	-	2	5	-	-	8	8	-	-	-	-	-	-	-
Calypogeia arguta	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Carex echinata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-
Carex nigra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
Carex panicea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2	-	-	-	-	-	-	-	-
Drosera intermedia	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eleocharis multicaulis	-	-	-	-	-	-	-	-	-	-	3	3	8	-	-	-	-	-	-	-	3	6	9	-	-	-
Eleogiton fluitans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	5	3	-	-	-
Erica cinerea	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
Erica tetralix	-	4	7	8	8	8	5	8	8	2	5	-	-	5	8	3	4	5	5	4	-	-	-	-	-	-
Eriophorum angustifolium	7	8	-	-	-	5	-	-	4	3	-	1	-	-	2	3	1	4	3	-	-	-	-	6	6	3
Hypnum jutlandicum	-	-	3	-	-	-	-	-	4	-	-	-	-	-	3	-	-	7	6	-	-	-	-	-	-	-
Juncus acutiflorus	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	8
Juncus bulbosus	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	5	6	-	-	-	-
Juncus conglomeratus	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	5	-	-	3	-	4	-	-	-	-	-
Juncus effusus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	8	4
Juncus squarrosus	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molinia caerulea	-	5	4	5	8	9	6	6	5	9	7	4	5	10	8	7	10	9	8	10	3	-	4	8	5	4
Narthecium ossifragum	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinus sylvestris	-	-	-	1	1	-	1	1	1	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Potamogeton polygonifolius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	4

Taxon	M1		M16a								M16c			M25a							M30			M6c		M6d
	C1	C51	C6	C33	C34	C35	C36	C37	C39	C53	C31	C32	C50	C2	C40	C52	C54	C55	C56	C7	C47	C48	C49	C3	C5	C4
Potentilla erecta	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3	2	-	1	-	-	-	-	-	-	-
Rhynchospora alba	-	-	-	-	-	-	-	-	-	-	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum compactum	-	-	-	-	-	-	-	3	-	-	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum cuspidatum	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum denticulatum	-	4	-	-	-	-	-	-	-	3	3	-	-	-	-	3	2	-	-	-	-	-	-	-	-	-
Sphagnum fallax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	10
Sphagnum palustre	-	-	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum sp.	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphagnum tenellum	-	-	-	8	1	-	4	4	-	-	-	-	-	-	3	-	-	4	3	-	-	-	-	-	-	-
Trichophorum germanicum	-	-	-	5	3	4	5	5	3	-	2	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-

Table E9: Quadrat Results from Chobham Common - Woodland Vegetation. C = Canopy Layer, S = Shrub Layer, G = Ground Layer.

Taxon	W4a						W7b			W10			W16a		
	C25			C27			C18			C26			C17		
	C	G	S	C	G	S	C	G	S	C	G	S	C	G	S
Agrostis capillaris	-	3	-	-	1	-	-	-	-	-	1	-	-	-	-
Agrostis vinealis	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Alnus glutinosa	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-
Aneura pinguis	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
Atrichum undulatum	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Betula pendula	9	-	-	1	-	-	-	-	-	8	-	-	1	-	-
Betula pubescens	1	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Betula x aurata	-	-	-	-	-	-	3	-	-	4	-	-	-	-	-
Blechnum spicant	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Brachythecium rutabulum	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-
Calliergonella cuspidata	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Calluna vulgaris	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Cardamine pratensis	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Carex pendula	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Carex remota	-	-	-	-	-	-	-	3	-	-	3	-	-	-	-
Castanea sativa	-	-	1	-	-	-	-	-	-	-	-	-	10	-	-
Circaea lutetiana	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Cirsium palustre	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Deschampsia flexuosa	-	3	-	-	-	-	-	-	-	-	2	-	-	-	-
Dicranella heteromalla	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
Dicranum scoparium	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Dryopteris affinis subsp. *affinis*	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-
Dryopteris dilatata	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-
Dryopteris filix-mas	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-
Erica tetralix	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Eurhynchium striatum	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Fagus sylvatica	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-
Galium palustre	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Hedera helix	-	-	-	-	2	3	-	-	-	-	-	-	-	-	-
Holcus lanatus	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-
Hypnum cupressiforme	-	3	-	-	1	-	-	1	-	-	-	-	-	3	-
Ilex aquifolium	-	-	2	-	1	-	-	-	-	-	-	3	-	-	1
Iris pseudacorus	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Isothecium alopecuroides	-	-	-	-	-	-	-	-	-	-	3	-	-	3	-
Juncus bulbosus	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
Juncus effusus	-	-	-	-	1	-	-	3	-	-	1	-	-	-	-
Kindbergia praelonga	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Leucobryum glaucum	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
Lonicera periclymenum	-	-	-	-	-	1	-	-	-	-	-	5	-	-	-

Taxon	W4a						W7b			W10			W16a		
	C25			C27			C18			C26			C17		
	C	G	S	C	G	S	C	G	S	C	G	S	C	G	S
Mnium hornum	-	-	-	-	-	-	-	1	-	-	3	-	-	-	-
Molinia caerulea	-	10	-	-	9	-	-	1	-	-	2	-	-	-	-
Pinus sylvestris	1	-	-	-	-	-	-	-	-	-	-	-	4	-	-
Polytrichastrum formosum	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
Populus tremula	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Prunus padus	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
Pteridium aquilinum	-	-	3	-	4	-	-	-	-	-	-	7	-	1	-
Quercus cerris	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Quercus robur	4	-	-	2	-	1	-	-	-	4	-	-	-	-	-
Rhododendron ponticum	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Ribes rubrum	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Rubus fruticosus agg.	-	-	3	-	7	-	-	-	-	-	-	7	-	-	-
Rumex sanguineus	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-
Salix cinerea	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Scrophularia nodosa	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Scutellaria minor	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
Sorbus aucuparia	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Teucrium scorodonia	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Ulex europaeus	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Urtica dioica	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Veronica serpyllifolia	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Appendix G. Conceptual Site Models

Appendix G. Conceptual Site Models for Groundwater Dependent Terrestrial Ecosystems

1.1 Approach

1.1.1 This Habitats Regulations Assessment (HRA) appendix presents three conceptual site models (CSM):

- Colony Bog and Bagshot Heath Site of Special Scientific Interest (SSSI) which is a component of Thames Basin Heaths SPA and Thursley, Ash, Pirbright and Chobham SAC;
- Folly Bog (SSSI Unit 4) component of Colony Bog and Bagshot Heath SSSI; and
- Chobham Common SSSI, also a component of Thames Basin Heaths SPA and Thursley, Ash, Pirbright and Chobham SAC.

1.1.2 It should be noted that although Folly Bog (SSSI Unit 4) is a component of Colony Bog and Bagshot Heath SSSI, a separate CSM has been prepared because Folly Bog is the main potential Groundwater Dependent Terrestrial Ecosystem (GWDTE) part of the Colony Bog and Bagshot Heath SSSI to be potentially impacted.

1.1.3 This appendix follows the UK Technical Advisory Group (UKTAG) on Water Framework Directive (WFD) guidance to identify, prioritise and assess the impacts of the project on GWDTE.

1.1.4 This appendix only discusses potential impacts on groundwater flow and quality supporting ecosystems.

Identification and Conceptual Hydro-ecological Functioning

1.1.5 The sites were identified as potential GWDTEs in the project's Scoping Report (Esso, 2018).

1.1.6 For each potential GWDTE, a site-specific topographic, geological, hydrogeological and hydrological context has been gathered using information available at the time of writing, including:

- Ordnance Survey (OS) mapping;
- Historical maps;
- Light Detection and Ranging (LiDAR) digital terrain model;
- Geological maps and borehole logs available at the BGS's GeoIndex website (British Geological Survey, 2018a);
- BGS groundwater flooding susceptibility mapping obtained by data request (BGS, 2017);
- BGS Karst features database obtained by data request;
- Environment Agency (EA) data obtained from their website at http://environment.data.gov.uk or via an information request;

- Land Information System mapping taken from http://www.landis.org.uk/; and
- Botany surveys undertaken as part of this project.

1.1.7 To complement the above desk-based assessment, a ground investigation (GI) was undertaken in 2018. The results available at the time of writing have been used where boreholes are located within a GWDTE site or in close proximity (i.e. about 50 – 100m).

1.1.8 An important factor in identifying GWDTE and determining their degree of groundwater dependency (low, moderate or high) rests on habitat and vegetation information. This information can be found in HRA Appendix F European Sites Habitat Report.

1.1.9 Following National Vegetation Classification (NVC) surveys which have been undertaken, the UKTAG on WFD guidance (UKTAG, 2009) has been used to determine an initial groundwater dependency rating (1 as High, 2 as Moderate, 3 as Low and non-GWDTE). The ratings provided for NVC communities in England and Wales, and the UK as a whole, were used for this project to generate the following categorisations:

- Not groundwater-dependent;
- Low groundwater dependency;
- Low to moderate groundwater dependency;
- Moderate groundwater dependency;
- High to moderate groundwater dependency; and
- High groundwater dependency.

1.1.10 This initial classification was tailored with the site-specific information described above to adjust the degree of groundwater dependency and develop site-specific CSM.

1.1.11 Where there may be areas with varying groundwater dependency, sites were divided into sub-sites to facilitate the assessment of the hydro-ecological functioning of the site.

1.1.12 Where deemed beneficial to the assessment, hydrogeological walkover surveys were undertaken to confirm the presence of groundwater features at potential GWDTE sites. Walkover surveys were undertaken in collaboration with ecological surveys of the sites to assist in identification of groundwater dependent vegetation.

1.1.13 In addition to the above, Chobham Common and Folly Bog were identified as requiring a hand soil coring survey to better understand ground conditions and sub-surface water flows and infiltration potential, as described below in more details.

Prioritisation

1.1.14 The prioritisation of sites is reflected in the determination of the value of each GWDTE. As per the guidance (UKTAG, 2004), the prioritisation/value attribution is a combination of nature conservation designation, and the degree of groundwater dependency determined as per the CSM.

1.1.15 The prioritisation/value attribution of the identified GWDTE sites and sub-sites is defined in Table 1.1. The criteria used to assess the magnitude of change are set out in Table 1.2. Impact significance was then determined taking both these assessments into account.

Table 1.1 Matrix for Defining Value of the GWDTE (based on UKTAG, 2004)

	International and National Statutory Designation (SSSI etc)	National Non-statutory Designation	No Designation
High groundwater dependency	High	Medium	Low
Moderate groundwater dependency	High	Medium	Low
Low groundwater dependency	Medium	Low	Negligible

Table 1.2 Impact Magnitude Criteria for GWDTE

Magnitude	Description
Large	**Adverse:** Changes to water table level or quality would result in a major or total change in, or loss of, a groundwater-dependent area, where the value of a site would be severely affected. **Beneficial:** Major increase in groundwater resource availability. Results in the achievement of Good Status for a GWDTE which is currently failing its WFD objectives.
Medium	**Adverse:** Changes to water table level or groundwater quality would result in partial change in or loss of a groundwater-dependent area, where the value of the site would be affected, but not to a major degree. **Beneficial:** Contributes, in combination with other effects, to the achievement of Good Status for a GWDTE which is currently failing its WFD objectives.
Small	**Adverse:** Changes to water table level or groundwater quality would result in minor change to groundwater-dependent areas, but where the value of the site would not be affected.
Negligible	Very slight change from groundwater baseline conditions, approximating to 'no change' conditions.

Assessment of Effects on GWDTE

1.1.16 The CSM was used to assess potential changes in groundwater flow and/or quality which could impact on the GWDTE as a result of the project.

1.1.17 It should be noted that the assessment of potential changes was made taking into account design measures such as:

- Pipeline design integrity measures to avoid potential impacts to sensitive environmental receptors:
  - The principles of inherent safe design have been incorporated into the design of the pipeline as per Esso design standards for fuel pipelines, relevant industry codes of practice and standards and the requirements of the Pipeline Safety Regulations 1996. (O8)
  - Inclusion of remotely operated valves to allow isolation of sections of the pipeline if required. (O9)

  - 24-hour remote monitoring of pipeline operation to detect leaks and enable remote shut down of the pipeline if required. (O10)

- Where required, water stops (or "stanks") would be installed at intervals through the pipe bedding and side fill (O7); this would reduce groundwater flow along the pipeline.
- The Contractor(s) would ensure that the time the trench is open in the vicinity of certain features, would only be as long as necessary for the installation of the pipeline. The required dewatering of the trench would be undertaken only as the pipe is being laid and not in advance of when required (G132).
- There are a number of alternative methodologies for installing the pipeline where open cut would not be an option, such as crossing a railway or trunk road. The replacement pipeline would be buried underground for its entire length. The minimum depth from the top of the pipe to the ground surface would be typically 1.5m in open cut sections, and deeper for trenchless crossings. This is reflected in Esso's engineering designs. A slightly shallower depth may conceivably be necessary in exceptional circumstances but all indications are that this would not be required. The pipeline would also be buried deeper, typically up to 4m from top of pipe to ground surface, to account for other existing infrastructure such as utility pipes, cables, sewers and the crossing of the existing pipeline. Of relevance to the GWDTEs discussed here, one localised area is expected to require a deeper trench within Colony Bog and Bagshot Heath SSSI, and potential impacts are described in Section 1.2.

1.1.18 In addition to the embedded measures, there would be a range of construction good practice measures set out in the Register of Environmental Actions and Commitments (REAC) that would be implemented through DCO requirements such as the Code of Construction Practice (CoCP). The REAC is included in ES Chapter 16 Environmental Management and Mitigation. A Construction Environmental Management Plan (CEMP) would be produced in line with the Outline CEMP. It would explain how the activities of sub-contractors comply with its requirements and include subsidiary plans such as the management of waste and soils (G1). The CoCP and Outline CEMP are submitted with the application as ES Appendices 16.1 and 16.2.

1.1.19 Other good practice measures would include:

- The CEMP would include proactive actions and measures to control pollution risks. This could be either directly from the construction works or due to external factors such as extreme weather. Measures would include appropriate storage and handling of fuels and other substances hazardous to the environment. (G8)
- Fuels, oils and chemicals would be stored responsibly, away from sensitive water receptors. They would be stored >15m from watercourses, ponds and GWDTE. (G142)
- Specific areas in the vicinity of GWDTEs would be identified where increased frequency of stanks would be required to safeguard sensitive habitats which depend on groundwater. (G199)
- For open cut watercourse crossings and installation of vehicle crossing points, mitigation measures would include to:

- only use a 10m working width for open cut crossings of a main or ordinary watercourse whilst still ensuring safe working;
- install a pollution boom downstream of the works;
- use and maintain temporary lagoons, tanks, bunds, silt fences or silt screens as required;
- have spill kits and straw bales readily available at all crossing points for downstream emergency use in the event of a pollution incident;
- place all static plant such as pumps in appropriately sized spill trays;
- prevent re-fuelling of any plant or vehicle within 15m of a watercourse;
- inspect all plant prior to work adjacent to watercourses for leaks of fuel or hydraulic fluids; and
- reinstate the riparian vegetation and natural bed of the watercourse using the material removed when appropriate on completion of the works and compact as necessary. If additional material is required, appropriately sized material of similar composition would be used. (G122)

- Plant and vehicles would conform to relevant applicable standards, would be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. (G22)

1.1.20 The conceptual site models for the GWDTE have been constructed based on the information available at the time of writing, such as BGS records, ground investigation data and groundwater strikes, site visits and hand coring. Extrapolation has been made where needed and further data would allow further refinement. However, the information available at the time of writing is considered robust enough to allow groundwater dependency characterisation of the different sites to be determined and predict potential effects as a result of the project.

1.1.21 Reliance has been made on third party data, and these are assumed to be accurate.

1.1.22 NVC surveys have not been undertaken in Ministry of Defence (MoD) land away from the Order Limits due to access limitations.

1.2 Colony Bog and Bagshot Heath SSSI

Topography and Hydrological Catchment

1.2.1 The Colony Bog and Bagshot Heath SSSI is divided into a number of units, with the Order Limits crossing the following: Chobham Ridges (Unit 9) in the west, Folly Bog (Unit 4) towards the northern central part of the SSSI and Turf Hill (Unit 5) in the east. Most of the Colony Bog and Bagshot Heath SSSI site comprises the Colony Bog unit (Unit 10) although the Order Limits do not cross it. The other units of the SSSI are to the south and distant from the Order Limits.

1.2.2 The Colony Bog and Bagshot Heath SSSI site shows a large variation in the ground elevation, falling from 120m above ordnance datum (AOD) in the west, to 50mAOD in the east of the site. There are three east-west trending parallel valleys, with some subordinate smaller valleys, within the site.

1.2.3 The western boundary of the SSSI (Chobham Ridges) forms the edge of the hydrological catchment, being coincident with a major topographic divide. Surface water flows exit the SSSI towards the east, forming the headwaters of Trulley Brook and the Bourne.

1.2.4 The Order Limits follow the western and northern boundaries of the site. This places them at the higher points in the site.

1.2.5 At the site, dry and wet heath grade into valley mire in hollows and valley bottoms, supporting a diversity of wetland vascular plants and bryophytes, and many county rarities.

1.2.6 The only area of valley mire near to the route is Folly Bog (SSSI Unit 4). This is located on the northern boundary of the SSSI. Ground elevations fall to between 55 and 60mAOD in this area, and the Order Limits are closer to the likely groundwater level and Folly Bog is therefore the main potential GWDTE part of the SSSI to be potentially impacted. As previously indicated, Folly Bog has been considered separately from the rest of the Colony Bog and Bagshot Heath SSSI site and is presented in Section 1.4.

Geology

1.2.7 The published soil map indicates the presence of the following soils:

- Wickham 3 - Slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils and similar more permeable soils with slight waterlogging. Some deep coarse loamy soils affected by groundwater. Landslips with irregular terrain locally.
- Holidays Hill - Naturally very acid sandy over clayey and loamy over clayey soils locally with humose or peaty surface horizons, slowly permeable subsoils and slight seasonal waterlogging. Some very acid well drained sandy soils, and some deep sandy soils, affected by groundwater with humose surface horizons.
- Adventurers' 2 - Deep peat soils over variable subsoils, usually sandy sometimes gravelly. Sandy soils with a peaty or humose surface horizon. Complex soil patterns locally. Flat land. Groundwater levels controlled by ditches and pumps. Risk of wind erosion.
- Swanwick - Deep permeable coarse loamy and sandy soils some with peaty surface horizons affected by groundwater. Groundwater affects the principal soils causing extended and often severe waterlogging for long periods in winter.

1.2.8 BGS mapping covers the Colony Bog and Bagshot Heath SSSI site at the 1:50,000 scale (British Geological Survey, 2018b, c) whilst the northern part of the Colony Bog and Bagshot Heath SSSI site is also covered by 1:10,000 scale mapping (British Geological Survey, 2018d). The BGS geological mapping records River Terrace Deposits on the higher ground in the west and northwest of the site. Head deposits are recorded in the upper reaches of the parallel valleys, with alluvium lower down the valleys, mostly where streams are also recorded. One area of peat is recorded inside the site, associated with Hagthorn Bog in Unit 10.

1.2.9 River Terrace Deposits comprise gravel with subordinate sands.

1.2.10 Alluvium typically comprises heterogeneous deposits of clay, silt, sand and gravel in varying proportions.

1.2.11 Head deposits comprise gravel, sand and clay depending on upslope source and distance from the source. They are usually poorly sorted and poorly stratified.

1.2.12 Soil assemblages are recorded as being thick and peaty, suggesting that there may be smaller patches of peat in other parts of the site, as well as very organic-rich soils.

1.2.13 In the western third of the SSSI, the superficial deposits are recorded to be underlain by bedrock of the Camberley Sand Formation, changing to the Windlesham Formation in the centre at Folly Bog before moving back into the Camberley Sand Formation in the east (the Turf Hill area of the site).

1.2.14 The publicly available BGS borehole logs are all located around the edges of the SSSI due to the presence of historic unexploded ordnance risk in the middle of the site. This makes it difficult to verify the accuracy of the mapping over the centre of the site (Unit 10). The available logs are presented in Table 1.3.

Table 1.3 Borehole Records in Proximity to Colony Bog and Bagshot Heath SSSI (British Geological Survey, 2018a)

BGS Borehole Ref	Top (m)	Base (mbgl)	Description	Groundwater Strike (mbgl)
SU95NW11	0.00	6.00	River Terrace Deposits (Ninth Terrace) – 'Clayey' gravel	2.00
	6.00	9.00	Barton Beds – 'Very clayey' sand	
SU96SW34	0.00	1.80	River Terrace Deposits (Tenth Terrace) – 'Very clayey' gravel	Not struck
	1.80	4.80	Barton Beds – 'Very clayey' sand	
SU96SW99	0.00	1.91	Clayey coarse sand with small amount of gravel	Not struck
	1.91	4.57	Fine to medium sand	
SU96SW98	0.00	0.15	Topsoil	Not struck
	0.15	1.22	Brown and grey mottled silty fine sand	
	1.22	1.52	Reddish brown silty fine sand	
SU96SW91	0.00	0.38	Brown sandy topsoil	Not struck
	0.38	0.53	Black sandy peaty clay	
	0.53	1.22	Dark brown fine sand with small amount of gravel	
	1.22	1.52	Light brown silty fine sand	
SU96SW92	0.00	0.30	Black peaty topsoil	Not struck
	0.30	3.05	Reddish brown silty medium sand with fine to medium gravel	
SU96SW35	0.00	3.20	Downwash Gravel – 'Clayey' sandy gravel. Topmost 1.0m with peaty soil.	Not struck
	3.20	6.20	Barton Beds 'Clayey' sand	

1.2.15 The BGS boreholes have verified the presence of River Terrace Deposits around the edges of the SSSI, as well as some minor Head deposits. They also indicate that there

may be organic rich soils within the SSSI. The deeper boreholes have also confirmed the bedrock deposits comprising silty and clayey sand deposits.

1.2.16 No additional boreholes from the 2018 GI are available in the vicinity of the SSSI.

Groundwater

1.2.17 Available OS mapping shows a large number of springs, issues and collects across the site, focused in the bases of the valleys in the Colony Bog sub-unit. Closer to the Order Limits, no springs are shown.

1.2.18 Based on the BGS groundwater flooding susceptibility map (BGS, 2017), there is only limited potential for groundwater flooding to occur across the entirety of the SSSI. Two very small areas in the east in the Turf Hill sub-unit show that there is potential for groundwater flooding at the surface and of below-ground structures associated with slightly lower ground.

1.2.19 Borehole logs do not generally record any water along the Order Limits. However, these boreholes are all relatively shallow and located on the higher ground around the edges of the SSSI, where groundwater would be anticipated to be deeper. In the east, in the Turf Hill sub-unit, groundwater is likely to be shallower as identified by two small areas where there is susceptibility to groundwater flooding of below-ground structures or at the surface; and by the BGS borehole log data (BGS, 2018a) which show recorded groundwater levels at just over 2m below ground level.

1.2.20 No hydrogeological walkover in the centre of SSSI has been undertaken to confirm the presence of identified groundwater features such as springs as all these features are distant from the Order Limits and on inaccessible land.

Habitats and Vegetation

1.2.21 Due to the distance between the Order Limits and the centre of the SSSI, which is inaccessible MoD land, only habitats around the edge of the site immediately adjacent to the Order Limits have been surveyed. A detailed description of the habitats and vegetation is provided in Appendix F of the HRA.

1.2.22 The habitat survey mostly showed woodland plantation, with thin strips of grassland. The majority of the grassland was dry grassland, although there was one small strip of wet grassland (M25b) mapped. However, this area was observed not to be wet at the time of the survey and this vegetation can be found in many situations, even on quite dry sandy soils.

1.2.23 In the eastern area (Turf Hill sub-unit) the vegetation is described mainly as non-groundwater dependent (coniferous woodland) although two areas of potential GWDTE vegetation were recorded adjacent to the Order Limits (M16a and M25a NVC classification).

1.2.24 The site was designated a SSSI on the basis of the wet and dry heaths grading into valley mires in topographic lows (Natural England, 2018). The western boundary of the site in particular is noted as being an area of dry heath. Wet heath and valley mire have the potential to be groundwater dependent, although this information on its own

is insufficient to confirm groundwater dependency. According to the UKTAG guidance, several of the notified plant communities cited by Natural England (2018) for the whole SSSI would have groundwater dependency as follows:

- M2 *Sphagnum cuspidatum/recurvum* bog pool community (Moderate to Low groundwater dependency);
- M6 *Carex echinata-Sphagnum recurvum/auriculatum* mire (High to Moderate groundwater dependency);
- M14 *Schoenus nigricans-Narthecium ossifragum* valley mire (High groundwater dependency);
- M16 *Erica tetralix-Sphagnum compactum* wet heath (High to Moderate groundwater dependency);
- M21 *Narthecium ossifragum-Sphagnum papillosum* valley mire (High to Moderate groundwater dependency);
- M23 *Juncus effusus/acutiflorus-Galium palustre* rush pasture (High to Moderate groundwater dependency);
- M24 *Molinia caerulea-Cirsium dissectum* fen meadow (High groundwater dependency);
- M25 *Molinia caerulea-Potentilla erecta* mire (Moderate to Low groundwater dependency);
- W4 *Betula pubescens-Molinia caerulea* woodland (High to Moderate groundwater dependency); and
- W5 *Alnus glutinosa-Carex paniculata* woodland (High to Moderate groundwater dependency).

1.2.25 There is also priority habitat mapping which shows areas of lowland fen within the site, for example, the location of valley mire (MAGIC, 2018).

1.2.26 Table 1.4 shows the UKTAG groundwater dependency guidance rating for the NVC mapped on Colony Bog and Bagshot Heath SSSI site.

Table 1.4 UKTAG Derived Groundwater Dependency for Vegetation Encountered at Colony Bog and Bagshot Heath SSSI

NVC/Habitat	UKTAG Groundwater Dependency
Conifer Plantation	Not groundwater dependent
Dense Scrub	Not groundwater dependent
Molinia-dominated vegetation	Low to moderate groundwater dependency
Myrica-dominated vegetation	Low to moderate groundwater dependency
Woodland	Not groundwater dependent
A24	Not groundwater dependent
H1	Not groundwater dependent
H2	Not groundwater dependent
H3	Low to moderate groundwater dependency
M2	Low to moderate groundwater dependency

NVC/Habitat	UKTAG Groundwater Dependency
M3	Low to moderate groundwater dependency
M6	Moderate to high groundwater dependency
M14	High groundwater dependency
M16	Moderate to high groundwater dependency
M21	Moderate to high groundwater dependency
M25	Moderate to high groundwater dependency
M30	Moderate groundwater dependency
MG1	Not groundwater dependent
MG7	Not groundwater dependent
U1	Not groundwater dependent
U3	Not groundwater dependent
U5	Not groundwater dependent
U20	Not groundwater dependent
W1	Moderate groundwater dependency
W4	Moderate to high groundwater dependency
W10	Not groundwater dependent
W23	Not groundwater dependent
W25	Not groundwater dependent

CSM

1.2.27 Due to topographical changes and associated transition from the Camberley Sand Formation to the Windlesham Formation from west to east, springs and areas of seepage are present in the west of the SSSI. These are formed where groundwater emerges along the boundary of the more permeable Camberley Sand Formation and the less permeable Windlesham Formation. The recharge catchment for these springs comprises the topographically elevated areas to the west and north. Peaty deposits have built up in the areas around the seepages, particularly where the discharges correspond to areas of the Head deposits.

1.2.28 The parts of the SSSI where habitats and vegetation have been surveyed as part of this assessment, are generally rated as having low or no groundwater dependence according to UKTAG guidance. With a thick unsaturated zone identified beneath the Chobham Ridges and to the west of the Folly Bog Unit, no groundwater dependency is expected along most of the Order Limits. Using the matrix in Table 1.1, this gives a medium value for this part of the SSSI.

1.2.29 In the eastern area (Turf Hill Unit) the two areas of groundwater-dependent vegetation are in areas where the ground is slightly lower and groundwater would be closer to the ground surface. The vegetation classified by UKTAG guidance in the Turf Hill sub-unit is considered to be of moderate groundwater dependency. This is due to the nature of the superficial deposits which are of moderate permeability, and also the identified groundwater level data. Using the matrix in Table 1.1, this gives a high value for this sub-site of the SSSI.

1.2.30 No habitat survey has been undertaken in the central area of the SSSI due to restricted site access, Therefore, the UKTAG guidance cannot be applied. However, with the

presence of many springs and seepages, the notified plant species (many of which are likely to have high groundwater dependency) as well as peaty type deposits, there is considered to be a high groundwater dependency in the middle of the site (Colony Bog sub-unit). Using the matrix in Table 1.1, this gives a high value for this sub-site of the SSSI.

1.2.31 Figure G1 shows two conceptualised cross-sections of the GWDTE, running approximately from northwest to southeast and west to east across the Chobham Ridges and Colony Bog Unit 10, and a third running approximately northwest to southeast across the Turf Hill unit.

Effect Assessment

1.2.32 Due to the differences in groundwater dependence across the SSSI, it has been divided into three sub-sites (excluding Folly Bog) for the effect assessment:

- 'West and North Order Limits', comprising the Order Limits and the land immediately adjacent to the west and north (Chobham Ridges and to the west of Folly Bog units);
- 'Turf Hill' comprising the Order Limits and the land immediately adjacent in the east; and
- 'Centre of Site', comprising the land south and down gradient of the Order Limits (principally the Colony Bog Unit 10).

1.2.33 During construction, the trench required to install the pipeline running along the western and northwestern boundaries is expected to be located above the water table. In one localised area, the trench is expected to be deeper (up to 4m deep) which is expected still to be above the groundwater table given the thick unsaturated zone on the ridges. Therefore, it is unlikely that dewatering would be required during installation. The pipeline is expected to have no direct or indirect effect on the groundwater flow supporting the GWDTE during construction or operation phases in the "Centre of Site" and "West and North Order Limits" sub-site.

1.2.34 For Turf Hill (further to the east), where BGS logs show groundwater to be around 2m deep, it is possible that if the trench was excavated at times of high groundwater levels, groundwater could be encountered. However, the Order Limits themselves do not pass through the areas of groundwater-dependent vegetation. Based on the anticipated groundwater flow direction, parts of the Order Limits along the northern boundary of the sub-site and all of the other area would be up hydraulic gradient of the areas of groundwater dependent vegetation. As a result, effects during construction and operation are expected to be negligible on groundwater flow.

1.2.35 The bulk of Colony Bog and Bagshot Heath (Colony Bog sub-unit), and areas likely supporting GWDTE (Centre of Site) are located down hydraulic gradient from the Order Limits. In the unlikely event of spillage or leak, during either the construction or the operation phase, diesel (during construction) or aviation fuel (during operation) may percolate through the unsaturated zone to the water table and flow towards the issues and springs in the site. Whilst there would be some attenuation in the unsaturated zone and along the flow path, this may still result in an impact on the water quality within the site. For Turf Hill, the proximity of the groundwater-dependent vegetation areas and the relatively shallow unsaturated zone would mean that there may be reduced

attenuation if a pollution incident were to occur. The embedded design measures would reduce the risks to water quality during installation. In addition to the embedded mitigation, a range of construction good practice measures set out in the REAC and secured by DCO requirements such as the CoCP. Pipeline integrity measures have been embedded into the design (including corrosion protection and remotely operated valves), and as such the effect on groundwater quality is considered to be negligible during operation.

Table 1.5 Summary of Effects on Colony Bog and Bagshot Heath GWDTE

Sub-site	Groundwater Dependency	Value	Effect	Timing	Magnitude of Effect
West and North Order Limits	Low	Medium	Trench dewatering	Construction	None
			Flow interception	Operation	None
			Contamination from spillage	Construction	Small adverse
			Contamination from leak	Operation	Negligible
Turf Hill	Moderate	High	Trench dewatering	Construction	Negligible
			Flow interception	Operation	Negligible
			Contamination from spillage	Construction	Small adverse
			Contamination from leakage	Operation	Negligible
Centre of Site	High	High	Trench dewatering	Construction	None
			Flow interception	Operation	None
			Contamination from spillage	Construction	Small adverse
			Contamination from leak	Operation	Negligible

1.3 Folly Bog

Topography and Hydrological Catchment

1.3.1 Folly Bog is a unit within the Colony Bog and Bagshot Heath SSSI (Unit 4). The wider SSSI is discussed in Section 1.2. This assessment therefore only considers the Folly Bog area of the SSSI. Folly Bog is defined as a mire (Natural England, 2018).

1.3.2 Whilst not having a clearly defined boundary, the area considered as the Folly Bog site for this assessment comprises the area of flat, wet ground to the south of the Order Limits, adjacent to the point where the Order Limits move into Red Road and centred at NGR 492510, 161339. Whilst the land is owned by the MoD, much of Folly Bog is publicly accessible. However, a MoD security fence runs through the site in an east-west direction and the area to the south of the fence is not accessible. An MoD perimeter access track runs along the site's northern and eastern boundary. A drainage outlet flows under the perimeter track in the east, via two pipes, each approximately 30cm in diameter.

1.3.3 Folly Bog is relatively level, with ground levels falling very gently to the east from around 62mAOD to 54mAOD at the drainage outlet for the site. To the immediate north

of the wetland, the ground levels rise steeply to the SSSI's perimeter track. For much of the length, the perimeter track in which the pipeline may be installed is around 10m higher than the rest of Folly Bog. However, towards the eastern end of the Order Limits through the SSSI (before the Order Limits move into Red Road) the level of the track is observed to be close (within 1m) to the level of the wetland.

1.3.4 To the west of Folly Bog, the land rises steeply with the elevation of the SSSI being over 120mAOD on its western boundary at Chobham Ridges. This provides a surface water catchment boundary for the site. However, no surface water features are mapped as flowing into Folly Bog from this direction. OS mapping shows collects to the north of the MoD security fence with a watercourse running from this through Folly Bog and discharging on the site's eastern boundary via two pipes which run under the perimeter track. Historical OS maps (old-maps, 2018) show this watercourse rises from a spring on the land to the south of the security fence. On-site observations and historical OS maps would suggest that the watercourse has been artificially modified by being straightened.

1.3.5 On-site observations, including consideration of the vegetation type, would indicate that there is a very shallow watershed within Folly Bog running broadly east-west to the south of the marked drain across Folly Bog. The watershed is reflected in the vegetation with the flow routes picked out by the M14 vegetation.

1.3.6 Within the wider SSSI, the system is characterised by a spring line which originates from the junction of the Camberley Sands Formation and lower permeability Windlesham Formation. The springs form a series of drains and streams which flow in a generally west to east direction.

Geology

1.3.7 The published soil map indicates the presence of the following soils in the vicinity of Folly Bog:

- Wickham 3 - Slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils and similar more permeable soils with slight waterlogging. Some deep coarse loamy soils affected by groundwater. Landslips with irregular terrain locally.
- Holidays Hill - Naturally very acid sandy over clayey and loamy over clayey soils locally with humose or peaty surface horizons, slowly permeable subsoils and slight seasonal waterlogging. Some very acid well drained sandy soils, and some deep sandy soils, affected by groundwater with humose surface horizons.
- Adventurers' 2 - Deep peat soils over variable subsoils, usually sandy sometimes gravelly. Sandy soils with a peaty or humose surface horizon. Complex soil patterns locally. Flat land. Groundwater levels controlled by ditches and pumps. Risk of wind erosion.

1.3.8 Folly Bog is covered by the BGS 1:10,000 mapping (BGS, 2018d) and two geological logs for shallow boreholes are available for the site on the BGS website (BGS, 2018a). Within Folly Bog itself, alluvium (sand, silt and clay) and sand and gravel or diamicton Head deposits are present (BGS, 2018a). The alluvium is shown to be present

associated with the drainage ditch that passes through the site. No peat deposits are shown on the geology map for Folly Bog.

1.3.9 The BGS 1:10,000 bedrock geology map shows Camberley Sand Formation is present to the western end of Folly Bog with the Windlesham Formation in the eastern part of the site (BGS, 2018a). The Camberley Sand is described as a fairly uniform sequence of homogeneous, yellow-brown, silty fine-grained sand, or sandy silt, with some ironstone concretions and masses of white sandstone. The Windlesham Formation is described as clay, silt and sand and is generally of low permeability.

1.3.10 Given the low number of borehole logs in the vicinity of Folly Bog and that the Order Limits pass close to the wetland, hand coring was undertaken to understand the depth to groundwater and variation in the permeability of superficial deposits which may play a role in groundwater flow patterns. The hand coring survey was undertaken on 9 October 2018 in the vicinity of the Order Limits and assessed the shallow deposits in three areas along transects from the Order Limits into Folly Bog. This included a transect into the site from the point where the perimeter track is close to the level of the site (Figure G2).

1.3.11 The deposits recorded in the BGS logs and soil cores generally agree with the information shown on the BGS 1:10,000 map, generally showing a clayey sand with occasional flint gravel. However, peat deposits were encountered at a small number of locations, at the BGS borehole SU96SW94 and in soil cores FB2, FB3, FB4 and FB8. At the locations where peat was recorded, the thickest peat deposit was identified in FB3 at around 62cm. At this location, the peat was underlain by a blue clayey sand.

1.3.12 Figure G2 shows the location of both BGS boreholes and hand coring points. Table 1.6 and Annex A record the superficial geology encountered at these points.

Table 1.6 BGS Borehole Logs in proximity to the Folly Bog site (British Geological Survey, 2018a)

BGS Borehole Ref	Top (cm)	Base (cm)	Description	Groundwater Strike
SU96SW93	0	30	Topsoil	Dry
	30	106	Dark brown clayey fine to medium sand	
	106	152	Mottled grey and brown fine to medium sand	
SU96SW94	0	61	Black peaty topsoil	137cm
	61	152	Medium to coarse gravel with green medium sand	

Groundwater

1.3.13 An initial hydrogeological site walkover was undertaken on 9 July 2018. The summer conditions had been exceptionally dry although water was present and flowing in the drain that discharges at Folly Bog's eastern boundary. The Folly Bog site was also wet, although it was apparent that the water level was relatively low. At the time of the soil coring (9 October 2018), preceding conditions had remained dry and the levels were lower than in July, although water was still noted to be flowing out of the site in the drain to the east. This flow during a dry period indicates the reliance of the discharge on groundwater.

1.3.14 There were no observed surface water streams flowing into Folly Bog from the wider surface water catchment and no springs or seepages were observed to be flowing from the bank along the west and north of Folly Bog. However, this bank was heavily vegetated and could have hidden small discharges. Access to land to the south of the MoD security fence was not possible. Although current maps do not show flow into this area of the site (Ordnance Survey, 2016), flow from this area is shown on historical maps (old-maps, 2018) as being derived from a spring.

1.3.15 Although the 1:50,000 OS map (Ordnance Survey, 2016) shows a defined channel flowing from the area of collects (and historically marked spring to the south of the security fence), on site it was observed that this is represented more by a series of small ditches and an area where groundwater collects on both sides of the MoD security fence (i.e. on the inaccessible MoD land and the publicly accessible land).

1.3.16 The Order Limits, in the vicinity of Folly Bog, pass through an area with limited potential for groundwater flooding to occur according to the BGS Groundwater Flooding Susceptibility map (Figure G2). However, the eastern end of the Folly Bog mire is shown to be in an area where there is potential for groundwater flooding to occur at the surface. The area susceptible to groundwater flooding correlates with topographical contours and the localised low topographical area.

1.3.17 The hand coring frequently recorded dry soils, even in holes situated at the base of the slope of the perimeter track including along the transect of FB11 to FB14 (although due to gravel content halting progress, these holes did not always reach great depth). Along the transect from FB7 to FB10, it was noted that the soils were starting to get wetter away from the Order Limits and into the Folly Bog mire itself. Soil coring locations FB1 to FB6 are located within or near the area identified as having potential for groundwater flooding at the surface and all of these holes did record groundwater either as standing water in the hole or as wet soils. This comprised FB1, FB5 and FB6 which were situated just to the south of the perimeter track, where standing water was recorded at a depth of around 100cm in FB6.

Habitats and Vegetation

1.3.18 A detailed description of the habitats and vegetation is provided in Appendix F to the HRA report. Within the Order Limits, dry dwarf shrub heath is the dominant habitat, which is not groundwater dependent. However, towards the eastern end of the Order Limits, prior to moving into Red Road, the habitat is wet dwarf shrub heath. The main area of Folly Bog to the south was found to support wet dwarf shrub heath and valley mire habitats.

1.3.19 Based on the UKTAG guidance, for vegetation within the Order Limits, stands of the plant community M25a *Molinia caerulea-Potentilla erecta* mire, *Erica tetralix* sub-community are classed as having moderate to low dependency (UKTAG, 2009). Within the main area of Folly Bog to the south, outside of the Order Limits, the vegetation is classed as being of high to low to moderate groundwater dependency, with valley mire habitats likely to be highly groundwater dependent. Highly groundwater-dependent plant communities include M14 *Schoenus nigricans-Narthecium ossifragum* mire and M21 *Narthecium ossifragum-Sphagnum papillosum* valley mire.

1.3.20 In the area south of the Order Limits at the point where the Order Limits move into Red Road, the vegetation appears to be strongly controlled by drainage. The vegetation is dominated by large tussocks of purple moor-grass with only patchy cover by bog mosses (*Sphagnum*). This contrasts with the areas of valley mire to the south and west of the main drain and indicates a widely fluctuating water table. This is likely to be the result of drainage in this area with the main drain and smaller drains that are now largely vegetated, controlling the water levels.

1.3.21 No GWDTE is present along the track in the most northern end and northwest part of Folly Bog. Therefore, these areas are excluded from the effect assessment.

1.3.22 Table 1.7 shows the UKTAG groundwater dependency guidance rating for the NVC mapped on site.

Table 1.7 UKTAG Derived Groundwater Dependency for Vegetation Encountered at Colony Bog

NVC/Habitat	UKTAG Groundwater Dependency
Conifer Plantation	Not groundwater dependent
Dense Scrub	Not groundwater dependent
Myrica-dominated vegetation	Low to moderate groundwater dependency
Woodland	Not groundwater dependent
A24	Not groundwater dependent
H2	Not groundwater dependent
H3	Low to moderate groundwater dependency
M2	Low to moderate groundwater dependency
M3	Low to moderate groundwater dependency
M6	Moderate to high groundwater dependency
M14	High groundwater dependency
M16	Moderate to high groundwater dependency
M21	Moderate to high groundwater dependency
M25	Moderate to high groundwater dependency
M30	Moderate groundwater dependency
U3	Not groundwater dependent
U5	Not groundwater dependent
U20	Not groundwater dependent
W1	Moderate groundwater dependency
W4	Moderate to high groundwater dependency
W23	Not groundwater dependent
W25	Not groundwater dependent

CSM

1.3.23 Topography appears to be the key factor controlling the depth to groundwater. The topography cuts below the regional groundwater table and the low permeability Windlesham Formation and Head deposits impede drainage. Water drains from the site in an easterly direction via a watercourse that appears to have been modified.

1.3.24 The review of geological and hydrogeological available information confirms a significant degree of groundwater contribution to sustaining the mapped GWDTE habitats within Folly Bog. A shallow watershed observed on site may also reflect the inputs of groundwater in Folly Bog with groundwater input to the northern surface water catchment draining off the higher ground to the north of Folly Bog. However, the major input would appear to be in the south where groundwater flows into Folly Bog from the area shown as collects and the spring shown on historical maps to the south of the MoD security fence. The drain discharging from Folly Bog was observed to be flowing following a sustained dry period which indicates that there is a significant discharge of groundwater into the site.

1.3.25 At Folly Bog, in the vicinity of the Order Limits the vegetation falling under UKTAG classification overlaps with the area identified by the BGS groundwater flooding susceptibility mapping as being susceptible to groundwater flooding at the surface. However, along the rest of the Order Limits, where the flood susceptibility map shows there is limited potential for groundwater flooding, it is considered that due to the elevation the groundwater is deep and would not provide a flooding risk. This is confirmed by the vegetation survey which does not show any groundwater dependent vegetation in this area.

1.3.26 Hand coring surveys in the vicinity of the Order Limits identified groundwater only at the low point prior to moving into Red Road. At the time of the walkover and soil coring surveys, no groundwater features (springs, seepages) were identified within the Order Limits. The area to the south appeared to be groundwater fed, as despite the dry weather, outflow was observed on both occasions Folly Bog was visited. The groundwater input relates to the topographical low point where the groundwater table meets the ground surface at the site. As such, it is likely that at wetter times of the year, groundwater levels would rise and a greater area of the site would have water at the surface. Outflow during these times would be greater although it is understood that water levels in the site can be controlled by a sluice (Natural England, 2018).

1.3.27 On this basis, it is considered that groundwater is a major control on the vegetation at the site and the UKTAG NVC classifications for each vegetation type are appropriate for this site.

1.3.28 Figure G3 represents three conceptualised sections, one running west to east broadly parallel to the Order Limits (Section A-A) and the other two perpendicular to the Order Limits (Section B-B and C-C). The CSM locates the presence of vegetation with potential for groundwater dependency in the topographical low where the ground intercepts the regional groundwater table.

Effect Assessment

1.3.29 In the vicinity of Folly Bog, the Order Limits only pass through one area of vegetation identified as being groundwater dependent, at the point where the Order Limits are at a similar elevation to the Folly Bog mire itself. The vegetation here is classed as having moderate to low groundwater dependency.

1.3.30 At this location, during construction the trench required for installation of the pipeline may require dewatering as the groundwater elevation is likely to be within 1.5m of the ground surface. A wide impact is unlikely. A local, temporary effect is expected during

construction. However, compared to the rest of Folly Bog, the vegetation at this location appears to be affected already due to artificial drainage ditches. Given the short time that any effects from dewatering would occur, it is likely that groundwater-dependent vegetation, if temporarily impacted, would quickly recover.

1.3.31 During the operational phase of the project, the good practice measure O7 will place stanks through the pipe bedding and side fill, and G199 will identify specific areas where increased frequency of stanks would be required to safeguard sensitive habitats which depend on groundwater.

1.3.32 Where the Order Limits and Folly Bog are at a similar elevation, the installed pipe is likely to be installed below the groundwater table. In the unlikely event of spillage or leak, during either the construction or the operation phase, diesel (during construction) or aviation fuel (during operation) may percolate to groundwater with little or no attenuation in the absence of an unsaturated zone. This could then impact on water quality within Folly Bog itself and the water that discharges from the wetland via the drainage system. Pipeline integrity measures have been embedded into the design (including corrosion protection and remotely operated valves). In addition to the embedded mitigation, construction good practice measures set out in the REAC would be implemented through DCO requirements such as the CoCP, that would protect water quality during installation.. As such the effect on groundwater quality is considered to be negligible during operation.

Table 1.8 Summary of Potential Effects on Folly Bog GWDTE

Sub-site	Groundwater Dependency	Value	Effect	Timing	Magnitude of Change
Majority of Folly Bog mire	High	High	Trench dewatering	Construction	Negligible
			Flow interception	Operation	Negligible
			Contamination from spillage	Construction	Small adverse
			Contamination from leak	Operation	Negligible
North eastern area (prior to where the Order Limits move into Red Road)	Moderate	High	Trench dewatering	Construction	Medium adverse
			Flow interception	Operation	Small adverse
			Contamination from spillage	Construction	Small adverse
			Contamination from leak	Operation	Negligible

1.3.33 To mitigate the potential impacts identified in Table 1.8 in the north eastern area, dewatering would be limited in areas in the vicinity of GWDTEs where abstraction/drainage of shallow groundwater may lead to a fall in groundwater levels or adversely affect surface water quality (W11). This would reduce residual effects to small.

1.4 Chobham Common

Topography and Hydrological Catchment

1.4.1 The topography of the Chobham Common site and around the site is not particularly steep, ranging from 70mAOD in the northwest to 30mAOD in the southeast.

1.4.2 The hydrological recharge catchment sits within Chobham Common itself, with the top of the catchment located along the northwest boundary. Chobham Common is therefore fed very locally by surface water runoff.

1.4.3 The Order Limits run through the centre of the site in a southwest to northeast direction, following an existing track. Along the Order Limits the topography is relatively flat, ranging from 37mAOD to 49mAOD.

Geology

1.4.4 The published soil map indicates the presence of Holidays Hill soils throughout the site, which are described as naturally very acid sandy over clayey and loamy over clayey soils locally with humose or peaty surface horizons, slowly permeable subsoils and slight seasonal waterlogging. They are wet at the surface for long periods in winter and thin humose or peaty surface horizons develop under heathland.

1.4.5 In localised topographical low areas (i.e. localised valleys), the BGS Superficial 1:10,000 map indicates the presence of peat deposits (British Geological Survey, 2018e). A review of readily available BGS borehole logs mostly recorded the presence of sandy clay and clayey sand deposits, however no BGS boreholes were located in the localised topographical low areas.

1.4.6 To understand the variation in properties of the superficial deposits which may play a role in groundwater flow patterns, a hand coring survey was undertaken on 18 and 19 September 2018. In contradiction of BGS mapping, the hand coring survey indicated an absence of peat in the areas surveyed. The combination of hand coring and BGS borehole logs record the dominant and constant presence of medium to fine clayey sand to medium to fine sandy clay.

1.4.7 Figure G4 shows the location of both BGS boreholes and hand coring data points. Tables 1.9 and Annex B records the superficial geology encountered.

Table 1.9 BGS Borehole Logs in Proximity to Chobham Common (British Geological Survey, 2018a)

BGS Borehole Ref	Top (cm)	Base (cm)	Description	Groundwater Strike
SU96SE16	0	15	Black peaty topsoil	-
	15	150	Greyish brown fine sand	-
SU96SE17	0	45	Dark brown sandy topsoil	-
	45	150	Mottled grey and brown fine sand	-
SU96SE18	0	60	Black sandy topsoil with gravel	-
	60	150	Mottled grey and brown silty fine sand	-
SU96SE20	0	15	Peaty topsoil	-

BGS Borehole Ref	Top (cm)	Base (cm)	Description	Groundwater Strike
	15	55	Green fine to medium sand	-
	55	77	Light brown silty clay with pockets of green silt	-
	77	150	Dark green clayey medium sand	-
SU96SE44	0	45	Dark brown sandy topsoil	Water added during boring
	45	122	Mottled brown and grey clayey fine sand	Water added during boring
	122	610	Medium dense to dense light brown sand	Water added during boring
SU69SE43	0	60	Brown sandy topsoil	Groundwater at ground level
	60	610	Medium dense light brown fine sand	
SU96SE47	0	35	Dark brown clayey topsoil	-
	35	72	Soft mottled brown and grey clay	Groundwater at 60cm
	72	180	Firm dark green fine sandy clay with traces of fine gravel	
	180	610	Dense dark grey fine sand, clayey in parts	
SU96SE46	0	23	Dark brown sandy topsoil	-
	23	165	Loose to medium dense dark green clayey fine sand	-
	165	200	Stiff dark green silty clay	-
	200	610	Medium dense to dense mottled grey and brown fine sand	Groundwater at 600cm
SU96SE40	0	60	Dark brown sandy topsoil	-
	60	245	Brown fine sand	-
SU96SE41	0	60	Dark brown sandy peaty topsoil	-
	60	90	Mottled grey and brown sandy silt	Groundwater at 90cm
	90	245	Light brown fine to medium sand	
SU96SE42	0	30	Dark brown sandy topsoil	-
	30	610	Medium dense to dense brownish grey fine to medium sand	Groundwater at 60cm
SU96SE111	0	50	Loose brown with some grey sand	-
	50	80	Loose medium dark brown sand	-
	80	400	Green clay	-
	400	860	Orange brown clayey sand	Groundwater at 400-600cm
	860	1030	Sand with clay lenses	
SU96SE110	0	30	Dark brown silty sand	-
	30	150	Medium dense brownish grey silty gravelly sand	-
	150	280	Medium dense grey brown sand with clay bands	-
	280	400	Medium dense brown silty sand	-

BGS Borehole Ref	Top (cm)	Base (cm)	Description	Groundwater Strike
SU96SE108	0	110	Greyish brown sandy clay	-
	110	1150	Loose yellow brown silty sand	Water at 625cm
SU96SE39	0	45	Brown sandy topsoil with gravel	-
	45	75	Mottled green and brown sandy silt with medium rounded gravel	-
	75	315	Light grey clayey silt	-
	315	480	Light brown sand	-
SU96SE113	0	50	Dark brown silty sand	-
	50	700	Grey sand	-
SU96SE114	0	150	Silty sand	-

1.4.8 Bedrock beneath the Order Limits at depth comprises the Bagshot Formation and the Windlesham Formation (BGS, 2018a).

Evidence of Groundwater

1.4.9 A hydrogeological site walkover was undertaken on 30 and 31 July 2018. The summer conditions had been exceptionally dry and this was clearly reflected in the extreme dryness of the site. There was no evidence of springs or seepages, permanent or seasonal.

1.4.10 A large proportion of Chobham Common falls within an area susceptible to groundwater flooding according to the BGS Groundwater Flooding Susceptibility geospatial data, as shown on Figure G4. Chobham Common is located in the low ranges of a wider hydrogeological catchment which recharges from further northwest. Despite the exceptionally dry conditions, the hand coring frequently recorded damp to wet horizons at depths shallower than 1m, and met groundwater at 1.52m and 0.85m respectively at C15 and C21. Several of the BGS boreholes (SU96SE47, SU96SE46, SU96SE41, SU96SE42, SU96SE111 and SU96SE108) also recorded shallow groundwater strikes which correlate with areas identified as susceptible to groundwater flooding by BGS in the west and centre part of Chobham Common.

1.4.11 The areas susceptible to groundwater flooding correlate with topographical contours outlining localised low and/or flat topographical areas. The groundwater table appears to generate shallow groundwater conditions along specific topographical areas in a widespread fashion rather than through distinctive spring lines. This could be explained by the relatively homogeneous nature of the superficial deposits.

1.4.12 The existing track running southwest to northeast forms a flow barrier to surface and sub-surface flow, occasioning ponding zones immediately north of the track during wet periods. The existing track is equipped in places by a two-level plastic culvert system preventing ponding water from overtopping the track and allowing over-flow towards the south.

1.4.13 Artificial ponds appear to have been created to enhance vegetation in parts of Chobham Common as information gathered during both the walkover and the hand coring exercise (location C24) suggest these ponds are not sustained by groundwater.

1.4.14 Surface and sub-surface flows are expected to be relatively flashy, i.e. responsive to rainfall. The nature of the superficial deposits does not have the ability to retain much water during prolonged periods of drought, but the flow of shallow groundwater will be slower (i.e. moderately flashy) and will last longer than the surface runoff and surface ponding. There is no consistent clay horizon at shallow depth encountered by either the BGS borehole logs or the hand coring which could create perched groundwater conditions. Groundwater feeding the site is expected to originate from the local and wider hydrogeological catchment extending to the northwest. Based on the nature of superficial deposits, moderate seasonal groundwater level fluctuations are expected.

Habitats and Vegetation

1.4.15 A detailed description of the habitats and vegetation of the site is provided in Appendix F of the HRA report. The vegetation is largely uniform across the site, dominated by large stands of dry dwarf shrub heath, which is not a wetland habitat. Wet heath occurs in lower and/or flatter localised topographical areas, referable to M16 *Erica tetralix-Sphagnum compactum* wet heath.

1.4.16 Based on the UKTAG guidance, vegetation of high to moderate-to-low groundwater dependency has been recorded mostly in the central to west central part of the Order Limits, but also in part of the northeastern area of the Order Limits. Some areas of no groundwater dependency are also present.

1.4.17 Table 1.10 shows the UKTAG guidance rating for the NVC mapped on site.

Table 1.10 UKTAG Derived Groundwater Dependency for Vegetation Encountered at Chobham Common

NVC/Habitat	UKTAG Groundwater Dependency
A16	Not groundwater dependent
A24	Not groundwater dependent
H1	Not groundwater dependent
H2	Not groundwater dependent
H3	Low to moderate groundwater dependency
M1	Low to moderate groundwater dependency
M6	High groundwater dependency
M16	Moderate to high groundwater dependency
M23	Moderate to high groundwater dependency
M25	Low to moderate groundwater dependency
M30	Moderate groundwater dependency
MG1	Not groundwater dependent
S12	Low groundwater dependency
S22	Low groundwater dependency
S23	Low groundwater dependency
U20	Not groundwater dependent
W1	Low groundwater dependency
W4	Moderate to high groundwater dependency
W16	Not groundwater dependent
W23	Not groundwater dependent

NVC/Habitat	UKTAG Groundwater Dependency
W24	Not groundwater dependent
W25	Not groundwater dependent

CSM

1.4.18 At the scale of the Chobham Common site, topography appears to be the key factor controlling depth to groundwater, with superficial deposits of generally homogeneous nature. However, locally, the minor variations in superficial deposits and soils will influence groundwater pathways.

1.4.19 The review of geological and hydrogeological available information confirms a degree of groundwater contribution to sustaining the mapped UKTAG-based GWDTE vegetation.

1.4.20 At Chobham Common, the plant communities with a higher dependence on groundwater according to the UKTAG classification overlap reasonably well with the BGS groundwater flood susceptibility areas, except in the southwestern part of the Order Limits. Hand coring surveys have confirmed that the southwestern part is much drier and has a much-reduced groundwater contribution. For this reason, W4 *Betula pubescens-Molinia caerulea* woodland is downgraded to low groundwater dependency.

1.4.21 Adjustments to the UKTAG groundwater dependency ratings were also needed locally in relation to the existing track. Based on observations from the site walkover, where the track is raised on embankments as it crosses valley bottoms, it appears to act as a barrier to surface and sub-surface flow, thereby artificially enhancing locally the wetness of soils immediately upgradient, i.e. to the northwest. This is particularly marked in the centre part of the site, where there are stands of M6 *Carex echinata-Sphagnum recurvum/auriculatum* mire. The groundwater dependency of this plant community has therefore been revised to moderate at this location.

1.4.22 In the centre and the northeast part of the Order Limits, the vegetation classified by UKTAG guidance as high to moderate groundwater dependency are considered to be of moderate groundwater dependency at Chobham Common, on the basis that the system is moderately flashy; the nature of the superficial deposits being of moderate permeability; and groundwater levels fluctuating moderately, seasonally.

1.4.23 However, the downgrading of the centre and northeast of the Order Limits and M6 community does not alter the value of these habitats which remain high as per Table 1.10.

1.4.24 Figure G5 represents two conceptualised sections, one running along the main access track southwest to northeast (Section A-A) and the other perpendicular to the track (Section B-B). Both surface and groundwater flow from northwest to southeast. The CSM locates the presence of groundwater-dependent vegetation typically in areas of flatter topography and/or local valleys, allowing groundwater to seep closer to the surface and support the vegetation growth. This is particularly visible along Section B-B which is in the same direction as groundwater and surface water flow. Section A-A magnifies topographical changes with groundwater-dependent vegetation located in

low topographical areas correlating with valleys or in flatter areas. The adjusted groundwater dependency classification is displayed along Section A-A.

Effect Assessment

1.4.25 Trenchless horizontal directional drilling installation methods are proposed in the centre and the northeast part of the Order Limits where the main areas of GWDTEs are present, as shown in Figure G5. Except at the launch and reception end of the trenchless crossing where shallow excavations equivalent to the depth of a trench would be required, the directional drilling would dive under the main areas of GWDTE with no dewatering effect. Therefore, no change to groundwater flow supporting the main areas of GWDTE is expected.

1.4.26 Elsewhere, the pipeline is proposed to be installed by open cut using the existing track and up to a total 20m working width to the south of the track.

1.4.27 Along the open cut sections and the launch and reception of directional drilling trenchless crossings in Chobham Common, as potentially disturbing construction works within the Thames Basin Heaths SPA would be undertaken between 1 October and 31 January unless otherwise agreed with Natural England (G38), the conditions are expected to be wet. Dewatering would therefore be required. Near to areas requiring dewatering, it has been determined that GWDTE are either absent or of low groundwater dependency, therefore classified as of medium sensitivity. The CSM has highlighted that the surface and sub-surface water flows are already altered by the existing track, so whether the pipeline is installed within the track or immediately downgradient of it, only a localised effect of dewatering is expected. Given the anticipated localised effect of dewatering, the magnitude of change resulting from dewatering during construction would be small at the scale of Chobham Common.

1.4.28 During operations, the presence of the pipeline, sheltered within the track or immediately downgradient of it, is expected to have a negligible localised effect on shallow groundwater flow as a negligible extension of effects already created by the track.

1.4.29 The Order Limits run through the middle of Chobham Common, and the pipeline is expected to be mainly below the water table. In the unlikely event of spillage or leak during either the construction or operational phases, diesel (during construction) or aviation fuel (during operation) may percolate to groundwater with very little or no attenuation in the absence of an unsaturated zone. This could then impact water quality within Chobham Common itself and adjacent GWDTEs. Good practice measures set out in the REAC would be implemented through DCO requirements such as the CoCP that would reduce the risk of diesel spillages during construction. Pipeline integrity measures have been embedded into the design (including corrosion protection and remotely operated valves). Therefore, the risks related to spillages and leakages to Chobham Common are considered to be negligible.

Table 1.11 Summary of Effects Across Chobham Common GWDTE

Sub-site	Groundwater Dependency	Designation	Value	Effect	Timing	Magnitude of Change
	Moderate	SSSI, SPA	High	Dewatering	Construction	None

Sub-site	Groundwater Dependency	Designation	Value	Effect	Timing	Magnitude of Change
Trenchless crossings - Central and northeastern part of the Order Limits				Flow interception	Operation	Negligible
				Contamination from spillage	Construction	Small adverse
				Contamination from leak	Operation	Negligible
Trenched section – Order Limits excluding central and northeastern parts	None to low	SSSI, SPA	Medium	Trench dewatering	Construction	Small adverse at the scale of the full site
				Flow interception	Operation	Negligible
				Contamination from spillage	Construction	Small adverse
				Contamination from leak	Operation	Negligible

1.5 Conclusion

1.5.1 No potential impact of significance is expected on the identified GWDTEs with the exception of potential temporary disturbance of groundwater flow supporting the northeastern area of Folly Bog within Colony Bog and Bagshot Heath SSSI, a component of Thames Basin Heaths SPA. To mitigate these potential impacts, dewatering would be limited in areas in the vicinity of GWDTEs where abstraction/drainage of shallow groundwater may lead to a fall in groundwater levels or adversely affect surface water quality (W11). This would reduce residual effects to small.

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Annex A. Hand Coring Results from Folly Bog

Hand Coring ref	Top (cm)	Base (cm)	Description	Field Notes
FB1	0	45	Dark brown, speckled light grey, clayey sand with many roots and rootlets.	Dry
	45	55	White, fine sand. Diffuse boundary.	Dry
	55	80	Orange, medium to fine sand. Becomes clayey with depth. Distinct boundary.	Damp
	80	87	Dark brown clay with partially decomposed woody matter. Distinct boundary.	Damp
	87	140	Bluish, greenish grey clayey fine sand. Increasing clay content with depth. Becomes greyish blue.	Wet. Saturated at 130cm. Potentially standing water.
FB2	0	10	Dark brown sandy silt becoming peat. Many roots of various sizes. Distinct boundary.	Dry
	10	33	Orangish brown silty fine sand with abundant roots. Gradual boundary.	Moist
	33	90	Greyish brown fine to medium clayey sand. Becomes sandy clay. Becomes mottled black. Some woody fragments. Distinct boundary.	Damp, becoming wet
	90	125	Greyish green very clayey sand. Becomes bluish green, very sandy clay.	Wet
FB3	0	10	Reddish brown silty sandy clay with abundant roots. Gradual boundary.	Dry
	10	72	Peat. Dark brownish black clay with abundant roots and woody debris, partially decomposed. Distinct boundary.	Wet
	72	100	Blue fine to medium clayey sand.	Wet
FB4	0	30	Topsoil over fibrous peat.	Becomes wet
	30	95	Bluish grey clayey fine to medium sand with some woody debris. At 85cm becomes slightly gravelly with gravel of flint. Becoming gravellier with depth.	Water standing at 24cm
FB5	0	18	Loose, dark brown speckled pale grey very sandy silt with many roots and some woody material.	Dry
	18	45	Pale brownish grey fine to medium sand. Distinct boundary.	Dry
	45	60	Dark brown stiff clayey fine sand. Brittle. Gradual boundary.	
	60	95	Pale brownish grey fine to medium sand. Distinct boundary.	Moist
	95	110	Dark reddish brown clay (peaty). Many medium to coarse partially decomposed organic woody fragments. Indistinct boundary.	Damp
	110	140	Greenish grey clayey medium sand. Becomes very clayey. Few faint brown mottles. Occasional woody debris. Becomes greyish brown, mottled grey.	Very damp, becoming wet
	140	145	Bluish green very sandy clay.	Wet

Hand Coring ref	Top (cm)	Base (cm)	Description	Field Notes
FB6	0	20	Dark brown speckled pale grey slightly silty clayey sand. Abundant roots	Dry
	20	90	Pale yellowish brown, fine to medium sand. Becoming yellowish brown, then greyish brown. Diffuse boundary.	Damp
	90	130	Brownish grey, very sandy clay. Contains orange woody fragments.	Very damp, becoming wet
	130	133	Greenish blue, clayey sand.	Wet. Standing water at 100cm
FB7	0	12	Brown, silty clayey sand with many roots.	Dry
	12	40	Purplish grey, fine sand with occasional coarse gravel of flint. Abrupt boundary.	Dry
	40	60	Brownish orange fine sand with frequent fine to coarse gravel of flint.	Dry
FB8	0	18	Black, speckled orange, silty clay with abundant roots and organic woody debris (peaty). Abrupt boundary.	Dry
	18	42	Pale yellowish grey mottled orange fine to medium sand with many fine to medium gravel of flint. Abrupt boundary.	Slightly damp
	42	50	Orange, very sandy soft clay. Abrupt boundary.	Damp
	50	125	Greyish blue stiff sandy clay with occasional medium gravel of flint. Becomes clayey sand. Gravel band with woody debris at 105cm.	Damp
FB9	0	10	Brown silty clay with abundant roots. Abrupt boundary.	Dry
	10	15	Purplish grey slightly clayey fine sand. Abrupt boundary.	Dry
	15	50	Orange mottled grey fine to medium sand with frequent fine to coarse gavel of flint.	Dry
FB10	0	15	Black, soft silty clay with abundant roots and organic debris.	Very damp
	15	94	Blue, very sandy soft to stiff clay with occasional gravel. Becomes very gravelly at 60cm. Gravel is fine to medium flint. Few woody debris.	Damp
FB11	0	15	Brown, fine sandy silty clay with frequent fine gravel. Many roots. Gradual boundary.	Dry
	15	60	Greyish purplish brown, loose fine sandy silt with rare fine gravel. Sharp boundary.	Dry
	60	85	Orange mottled greenish white clayey fine sand. Becomes with frequent fine to medium gravel of flint.	Dry
FB12	0	10	Brown sandy silt with few roots. Gradual boundary.	Dry
	10	55	Loose, soft pale purplish white very fine sand. Few rootlets. Becomes mottled black at 40cm. Diffuse boundary.	Dry
	55	110	Dark brown with few faint pale grey mottles, fine sand. Becomes dark brown mottled pale yellowish grey with many distinct mottles. Becomes mottled orange. Becomes orange with a few faint greenish grey mottles.	Dry

Hand Coring ref	Top (cm)	Base (cm)	Description	Field Notes
			Few fine to medium gravel of flint at 90cm. Becomes white mottled orange.	
FB13	0	7	Purplish brown slightly sandy silt with infrequent fine gravel and many roots. Abrupt boundary.	Dry
	7	15	Brownish orange, clayey fine sand. Diffuse boundary	Dry
	15	45	Greenish brown with a few faint orange mottles, clayey fine to medium sand with many fine to coarse gravel of flint.	Dry
FB14	0	20	Greyish purplish brown silty fine sand with frequent roots. Diffuse boundary.	Dry
	20	47	Orange mottled pale yellowish grey dense fine sand with occasional; gravel of flint. Becomes greenish grey, mottled orange.	Dry

Annex B. Hand Coring Results from Chobham Common

Hand Coring Ref	Top (cm)	Base (cm)	Description	Field Notes
C1	0	8	Dark brown with some light grey mottles clayey sand. Clear boundary. Few stones. Many fine roots.	Dry
	8	38	Dark brown slightly sandy silty clay. No mottles. Some fine to medium roots.	Damp
	38	50	Light brownish grey fine sand. Becomes clayey with depth.	Damp
	50	90	Bluish greenish grey very sandy clay. Few faint reddish born mottles and dark purplish brown.	Damp becoming wet
C2	0	4	Brown litter layer.	Dry
	4	35	Pale brownish grey speck led white. Loose medium to fine sand. Few stones. Few medium to fine roots. Diffuse boundary.	Dry
	35	55	Orangish yellow medium to fine sand. Diffuse boundary.	Dry
	55	65	Orange mottled pale grey sand with orange mottles.	Becoming damp
	65	90	Pale grey medium sand becoming clayey with depth; turning into bluish grey fine sandy clay at the base. Some relict vegetation fragments.	Damp
C3	0	35	Dark brown to black silty clay with lots of vegetation. Abrupt boundary.	Slightly damp
	35	45	White slightly clayey fine sand. Abrupt boundary.	Slightly damp
	45	95	Pale grey clayey fine sand with orange mottles, becoming more clayey with depth. Abrupt boundary.	Slight increase of moisture with depth
	95	100	Blue slightly sandy clay.	Moist to wet
C4	0	20	Dark brown slightly silty clay. Some vegetation remains. Many roots.	Dry
	20	25	Brown sandy clay.	Slightly damp
	25	80	Orange clayey fine sand with distinct grey mottles becoming bluish grey mottles with depth.	Damp
	80	100	Blueish greenish grey clayey fine sand, with clay content increasing with depth.	Damp to wet (increasing with depth)
C5	0	30	Pale greyish brown medium to fine sand. Slightly speckled. Few roots.	Dry
	30	40	Orange mottled grey medium to fine sand.	Dry
	40	73	Pale greenish grey medium to fine sand becoming brownish orange with depth. Few flint gravels.	Dry
	73	75	Bright orange medium to fine sand with fine gravel.	Dry

Hand Coring Ref	Top (cm)	Base (cm)	Description	Field Notes
C6	0	36	Pale greyish brown fine sand becoming with occasional gravel of flint.	Dry becoming slightly moist
	36	36	Refusal. Potential gravel.	
C7	0	25	Pale greyish brown fine sand Few roots.	Dry
	25	65	Orange mottled grey slightly clayey fine sand Diffuse boundary.	Dry
	65	105	Yellowish grey soft slightly silty fine to very fine sand. Becomes clayey with depth. Becomes brownish yellow and then brownish orange with depth.	Slightly moist
	105	115	White clayey fine to very fine sand. Few distinctive orange mottles.	Slightly moist
C8	0	18	Pale brown speckled grey fine sand. Some flint gravels.	Very dry
	18	18	Refusal. Potential gravel.	Dry
C9	0	20	Pale brown speckled grey fine sand Some flint gravels.	Very dry
	20	20	Refusal. Potential gravel.	Dry
C10	0	25	Dark brown soft sandy silty clay with organic matter. Gradual boundary.	Dry
	25	60	Greyish orangish brown fine sand with orange mottles. Some gravels of flint.	Dry
	60	105	Pale yellowish brown with grey mottles slightly clayey fine sand with some gravels of flint. Become medium to fine sand with depth.	Slightly moist; damp at the base
C11	0	20	Pale brown speckled grey fine sand. Some flint gravels.	Very dry
	20	20	Refusal. Potential gravel.	Dry
C12	0	10	Orange fine sand.	Dry
	10	25	Orange bluish grey, purple mottled clayey fine to medium sand.	Slightly damp
	25	55	Dark brown speckled pale brown slightly clayey fine sand. Becomes darker with depth. Contains some organic material.	Damp
	55	75	Bluish grey clayey sand becomes very sandy clay with depth. Few faint orange mottles.	Damp
	75	75	Refusal on hard ground or large gravel/cobble.	
C13	0	30	Brown fine to medium becoming pale with depth Diffuse boundary.	Dry
	30	60	Greenish grey slightly clayey fine to medium sand, becoming orangish brown mottled with depth.	Dry
	60	85	Stiff dark green sandy clay with orange mottles.	Dry
C14	0	10	Light brown fine to medium sand.	Dry
	10	15	Orange fine sand.	Dry

Hand Coring Ref	Top (cm)	Base (cm)	Description	Field Notes
	15	55	Greenish grey speckled light brown fine sand.	Dry
	55	65	Pale yellowish green fine sand with frequent gravels of flint.	Dry
	65	65	Refusal – possible gravel.	Dry
C15	0	32	Dark brown slightly clayey fine sand becoming paler with depth. Gradual boundary.	Dry
	32	55	Pale brownish white medium to fine sand with orange mottles. Gradual boundary.	Dry
	55	62	Orange very sandy clay. Sharp boundary.	Slightly damp
	62	95	Greenish grey sand. Gradual boundary.	Damp
	95	160	Greenish grey sandy clay, becoming slightly more clayey with depth and wetter.	Water at 152
C16	0	25	Dark brown fine sand with rootlets.	Dry
	25	50	Pale brown fine sand. Gradual boundary.	Dry
	50	105	Orange clayey sand with few gravels of flint and with few faint grey mottles with depth. Abrupt boundary.	Damp
	105	157	Grey clayey sand with some vegetation relicts.	Wetter with depth
C17	0	20	Pale brown fine sand. Many gravels of flint.	Dry
	20	20	Refusal. Gravels.	Dry
C18	0	30	Pale greyish brown fine sand.	Dry
	30	80	Pale grey mottled orange slightly clayey fine sand. Becomes white mottled and brownish orange with depth.	Dry
C19	0	10	Brownish grey fine sand.	Dry
	10	35	Brown with few faint orange mottles slightly clayey fine sand with some gravels of flint.	Dry
C20	0	18	Pale greyish brown speckled grey medium to fine sand.	Dry
	18	60	Pale reddish brown speckled grey medium to fine sand, becoming yellowish greyish brown with depth. Diffuse boundary.	Dry
	60	80	Orange mottled grey with sandy clay. Diffuse boundary.	Damp
	80	105	Blueish grey sandy clay.	Moist
C21	0	25	Black organic rich sand with many roots.	
	25	35	Pale brown sand.	Moist
	35	110	Grey sandy clay becoming greenish grey slightly clayey sand with depth.	Wet with water at 85cm
C22	0	45	Brown speckled grey fine sand with roots.	Dry
	45	105	Grey mottled orange, speckled black very sandy clay – becoming pale grey mottled orange at 60cm and then pale greenish grey mottled orange at 65cm.	Dry

Hand Coring Ref	Top (cm)	Base (cm)	Description	Field Notes
C23	0	7	Reddish brown litter layer.	Dry
	7	30	Dark grey mottled pale grey clayey medium to fine sand with some gravel of flint.	Dry
	30	50	Greenish brownish grey mottled orange slightly clayey fine sand.	Slightly damp
	50	70	Greenish grey mottled orange sandy clay becoming brownish green mottled orange with depth.	Slightly damp
	70	105	Orange mottled grey slightly sandy silty stiff clay.	Slightly damp
	105	110	Blueish grey sandy clay.	Damp
C24	0	20	Brown speckled grey slightly clayey fine sand with many roots.	Dry
	20	35	Greyish brown fine sand with gravel of flint. Diffuse boundary.	Dry
	35	55	Dark brown fine sand with gravel of flint, gaining yellow mottles from 45cm.	Dry
	55	110	Orange sandy clay with few faint grey mottles. Mottles become more abundant and prominent with depth. Becomes very sandy from 95cm.	Slightly moist Water level in the ground does not seem to correlate with water level in the adjacent artificial pond

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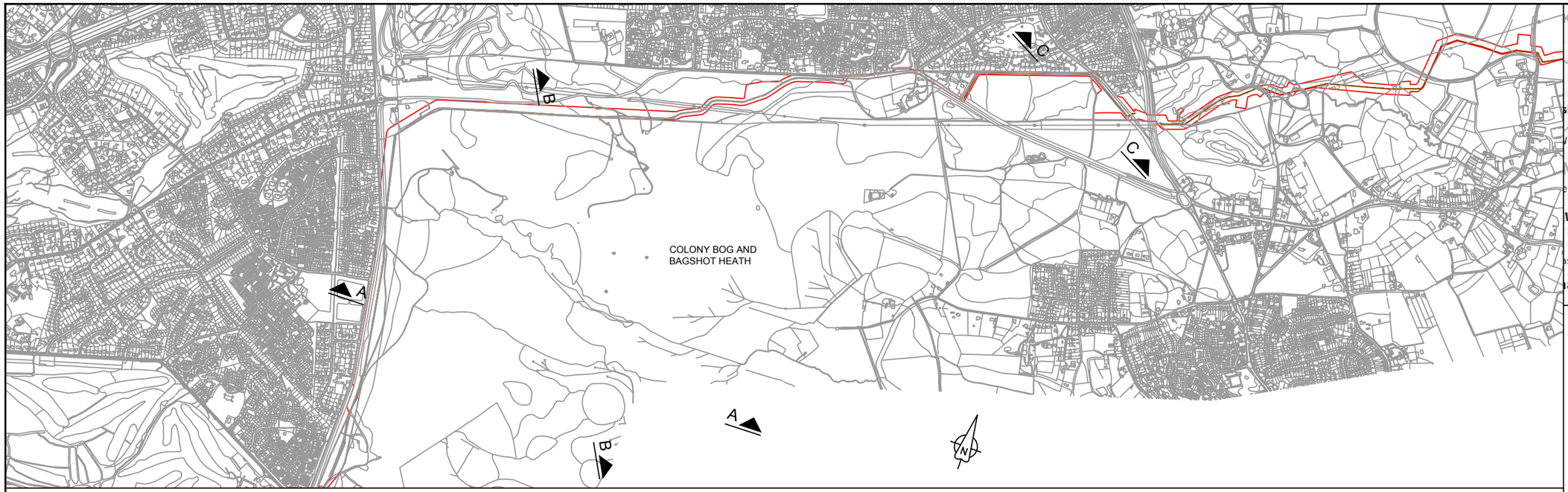

COLONY BOG & BAGSHOT HEATH LOCATION PLAN

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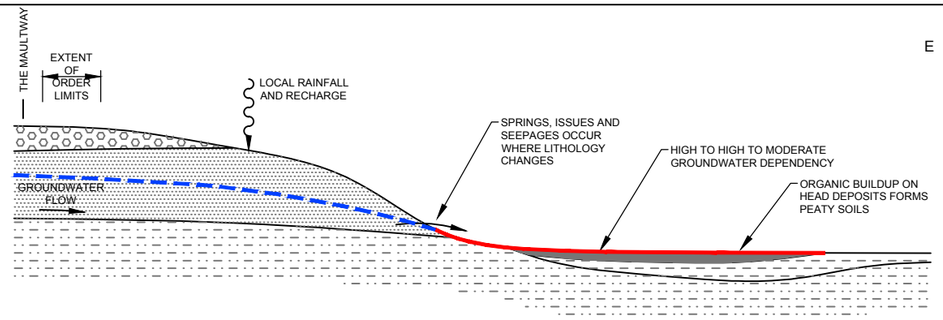

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TYPICAL SECTION A-A

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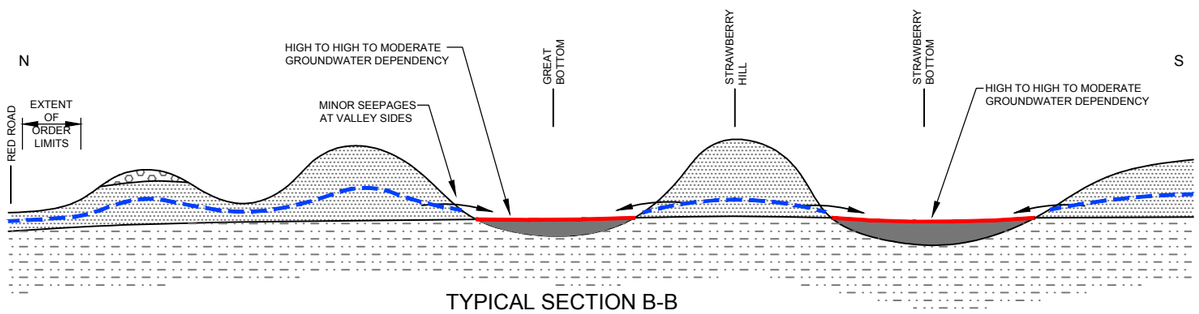

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TYPICAL SECTION B-B

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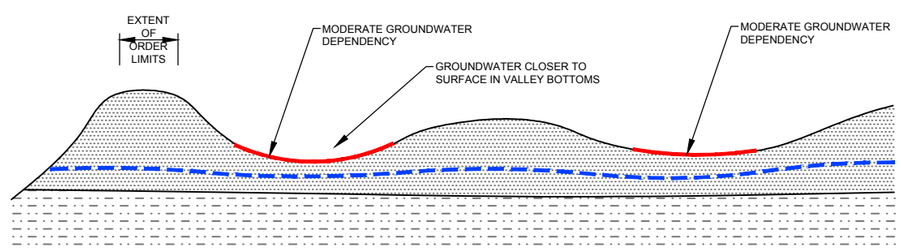

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TYPICAL SECTION C-C

Scale NTS

KEY PLAN

LEGEND

- VARIOUS HABITATS WITH DEGREES OF GROUNDWATER DEPENDENCY
- GROUNDWATER FLOWS SUPPORTING THE VEGETATION FROM WIDER HYDROGEOLOGICAL CATCHMENT
- PEAT OR PEAT-LIKE DEPOSITS
- SANDY SILTY CLAY - HEAD DEPOSITS
- SAND AND GRAVEL - RIVER TERRACE DEPOSITS
- SAND - CAMBERLEY SAND FORMATION
- SANDY CLAY - WINDLESHAM FORMATION
- EXTRAPOLATED GROUNDWATER LEVEL
- ORDER LIMITS
- CROSS SECTION ALIGNMENT

0 100 200 300 400 500 600 700 800 900 1000 m

SCALE 1 : 20000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P01.1	30/01/19	DESIGN FREEZE DCO	PM	MB	VSM	SH

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1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU
Tel:+44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client: Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey.
KT22 8UX

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COLONY BOG & BAGSHOT HEATH CSM FIGURE G1

Drawing status: Initial Status or WIP

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Client no.		

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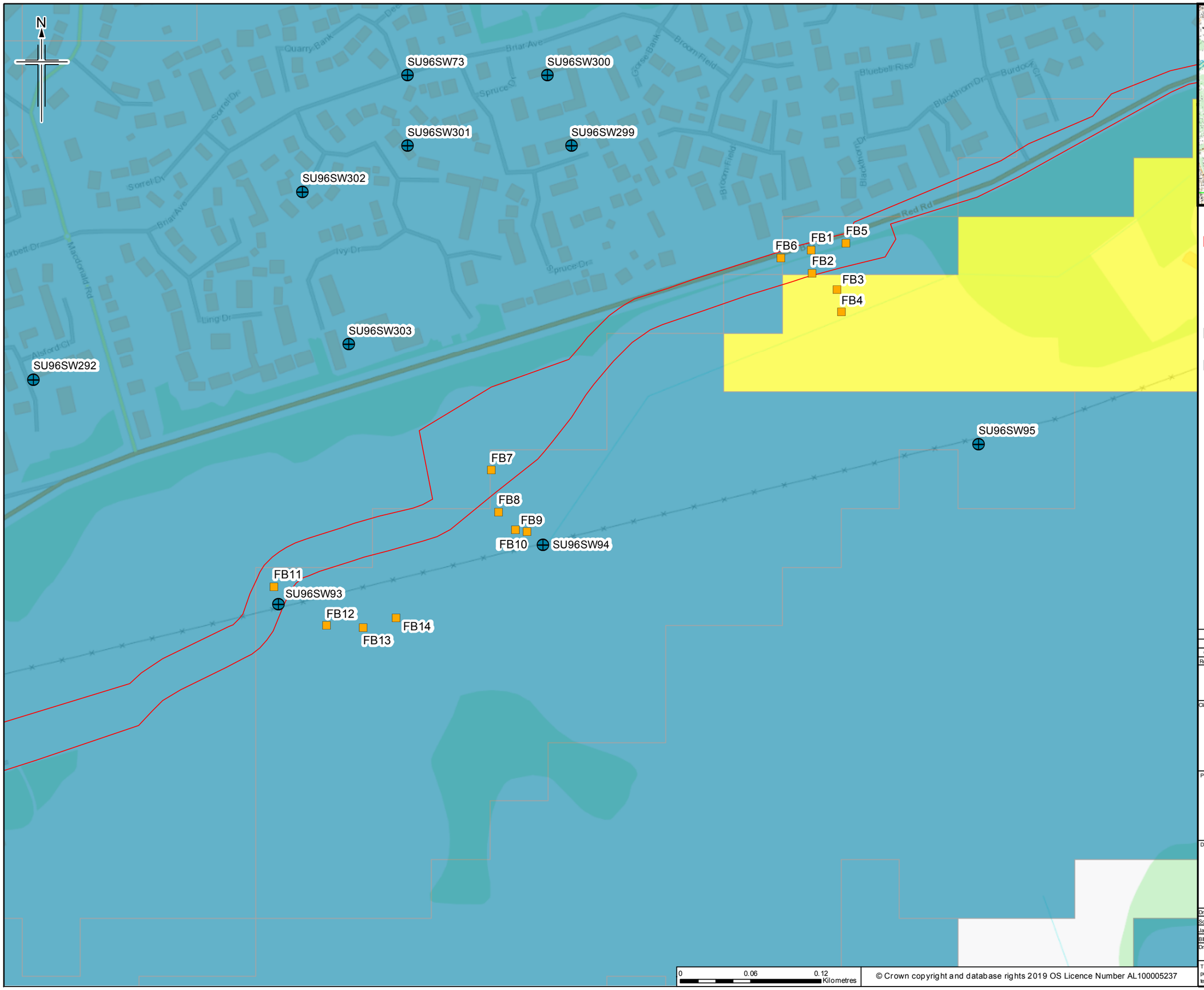

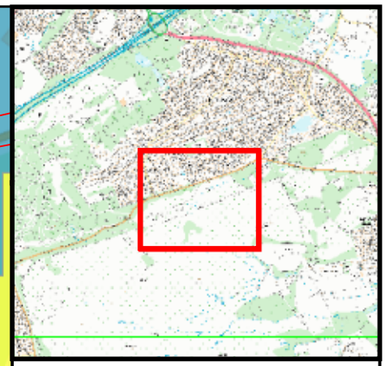

Legend

- Order Limits
- Soil coring
- BGS boreholes

Groundwater Flooding Susceptibility

- Limited potential for groundwater flooding to occur
- Potential for groundwater flooding to occur at surface

Rev.	Rev. Date	Purpose of revision	Orig'Dwn	Checkd	Rev'd	Apprv'd
0	13/03/2019	Initial Draft	LW	MB	VSM	SH

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1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44 (0) 118 946 7000 Fax: +44(0)118 946 7001
www.jacobs.com

Client

Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

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HRA REPORT
GEOLOGICAL AND GROUNDWATER BASELINE INFORMATION
- FOLLY BOG
APFP Reg. (2009) 5(2)(l)

Drawing Status	Draft
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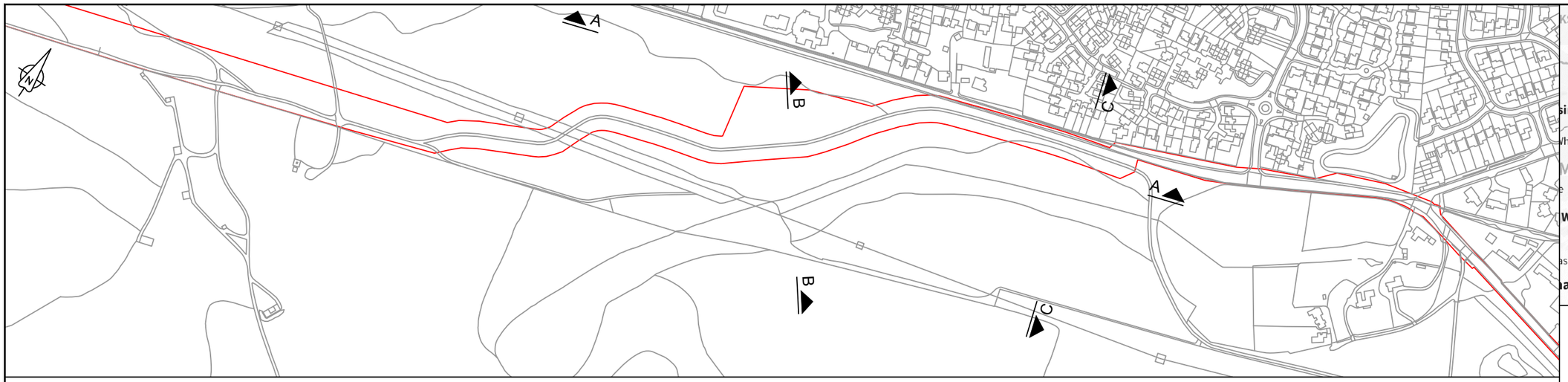
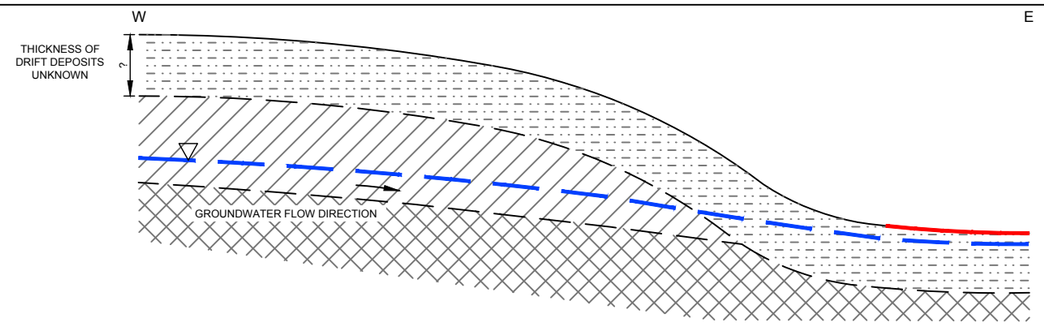
Drawing number	Figure G2 Sheet 1 of 1
Rev	0



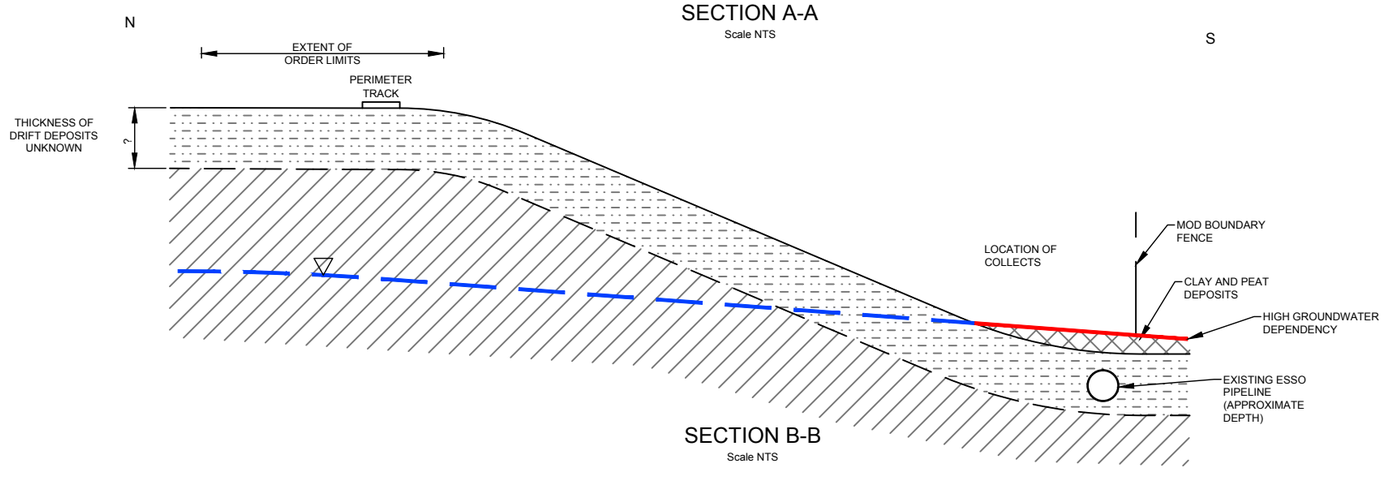
FOLLY BOG LOCATION PLAN

Scale 1:5000



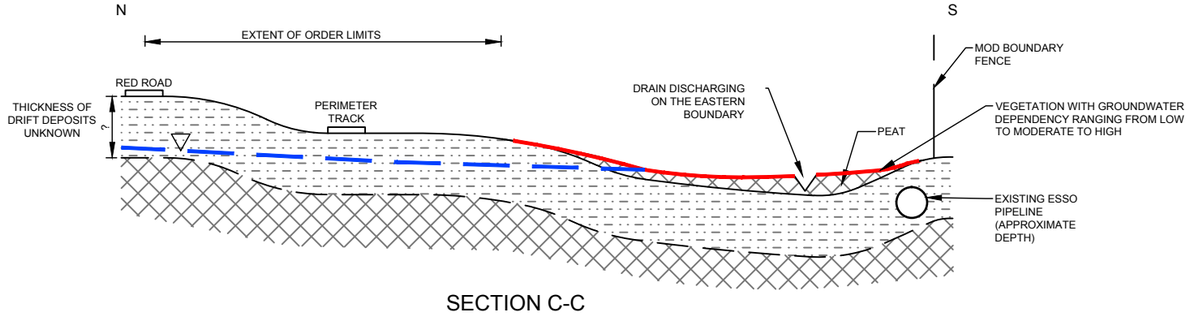
SECTION A-A

Scale NTS



SECTION B-B

Scale NTS



SECTION C-C

Scale NTS

KEY PLAN

LEGEND

- HABITATS WITH DEGREES OF GROUNDWATER DEPENDENCY
- GROUNDWATER FLOWS SUPPORTING THE VEGETATION FROM WIDER HYDROGEOLOGICAL CATCHMENT
- DRIFT LAYER: MEDIUM TO FINE CLAYEY SAND TO MEDIUM TO FINE SANDY CLAY. REASONABLY HOMOGENEOUS. POTENTIALLY >10m THICK
- BEDROCK DOMINANTLY OF SILTY SAND (CAMBERLEY SAND FORMATION)
- BEDROCK DOMINANTLY OF CLAYEY, SILTY SAND (WINDLESHAM FORMATION)
- EXTRAPOLATED GROUNDWATER LEVEL
- ORDER LIMITS
- CROSS SECTION ALIGNMENT

0 50 100 150 200 250 m

SCALE 1 : 5000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P01.1	30/01/19	DESIGN FREEZE DCO	PM	MB	VSM	SH

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1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU
Tel:+44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client: Esso Petroleum Company, Limited, Ermyn House, Ermyn Way, Leatherhead, Surrey, KT22 8UX

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Drawing title: FOLLY BOG CSM FIGURE G3

Drawing status: Initial Status or WIP

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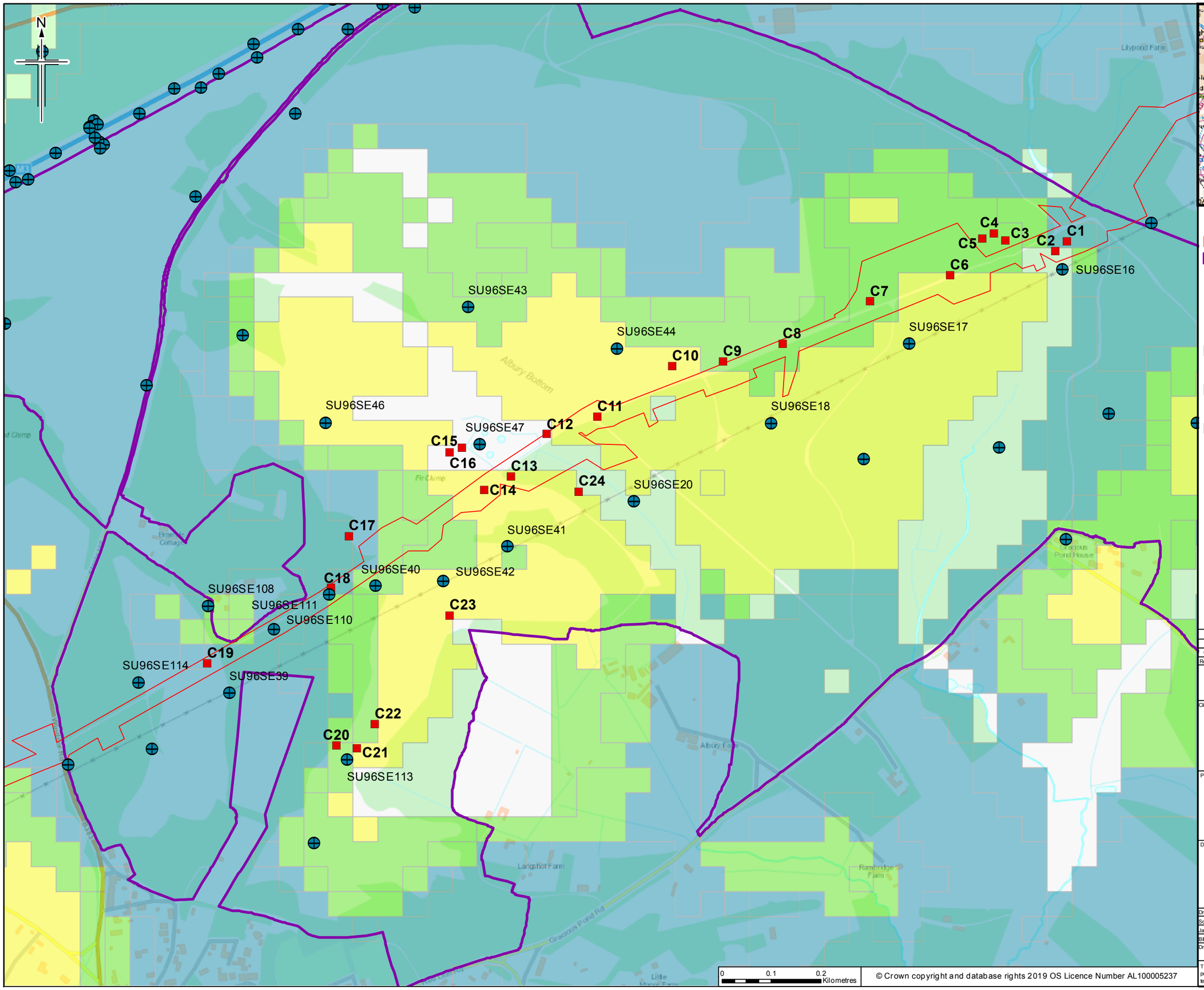

Legend

- Order Limits
- Potential GWDTE site
- Hand coring
- BGS boreholes

Groundwater Flooding Susceptibility

- Limited potential for groundwater flooding to occur
- Potential for groundwater flooding of property situated below ground level
- Potential for groundwater flooding to occur at surface

Rev.	Rev. Date	Purpose of revision	Orig/Dwn	Checkd	Rev'd	Apprv'd
0	4/04/2019	Initial Draft	LM	VSM	MB	SH

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1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU, UK.
Tel: +44 (0) 118 946 7000 Fax: +44(0) 118 946 7001
www.jacobs.com

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Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey,
KT22 8UX

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GEOLOGICAL AND WATER BASELINE INFORMATION
- CHOBHAM COMMON
APFP Reg. (2009) 5(2)(I)

Drawing Status

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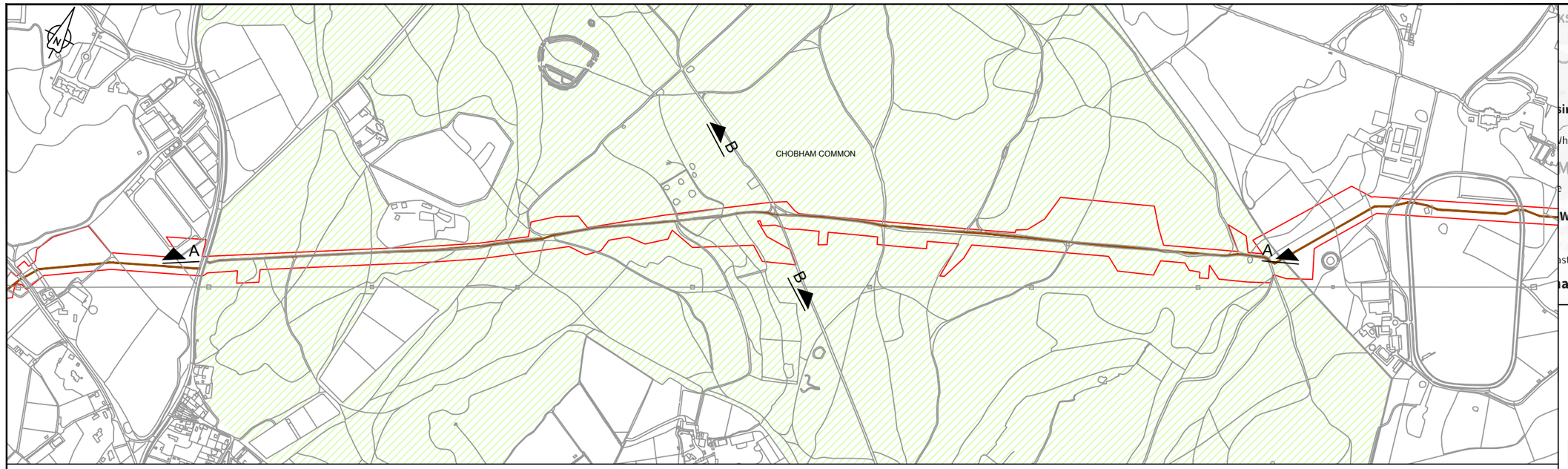

CHOBHAM COMMON LOCATION PLAN

Scale 1:10000

KEY PLAN

LEGEND

- VARIOUS HABITATS WITH DEGREES OF GROUNDWATER DEPENDENCY
- FLOWS
- DRIFT LAYER: MEDIUM TO FINE CLAYEY SAND TO MEDIUM TO FINE SANDY CLAY. REASONABLY HOMOGENEOUS. POTENTIALLY >10m THICK
- BEDROCK
- EXTRAPOLATED GROUNDWATER LEVEL
- TRENCHLESS PORTIONS
- ORDER LIMITS
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- CROSS SECTION ALIGNMENT

0 100 200 300 400 500 m

SCALE 1 : 10000

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P01.1	04/02/19	DESIGN FREEZE DCO	PM	MB	VSM	SH

JACOBS
1180 Eskdale Road, Winnersh, Wokingham, RG41 5TU
Tel:+44(0)118 946 7000 Fax:+44(0)118 946 7001
www.jacobs.com

Client: Esso Petroleum Company, Limited
Ermyn House,
Ermyn Way,
Leatherhead,
Surrey.
KT22 8UX

Project: Esso — Southampton to London Pipeline Project

Drawing title

CHOBHAM COMMON
CSM
FIGURE G5

Drawing status: Fit for Internal Review and Comment

Scale	AS SHOWN	DO NOT SCALE
Jacobs No.	B2325300	Rev P01.1
Client no.		

Drawing number: B2325300-JAC-000-ENV-DRG-001607

DRAFT

NW SE

HYDROLOGICAL CATCHMENT LOCAL RECHARGE

SITE BOUNDARY

LOCALIZED LOW AND FLAT AREAS GENERATE CONDITIONS FOR SHALLOW GROUNDWATER IN VICINITY OF THE ORDER LIMITS

MAIN ACCESS TRACK

GROUNDWATER CATCHMENT WIDER THAN HYDROLOGICAL CATCHMENT

SITE BOUNDARY

TYPICAL SECTION B-B
CROSS SECTION PERPENDICULAR TO THE MAIN ACCESS TRACK

Scale NTS

SW NE

SITE BOUNDARY

LOCALISED RAINFALL AND RUN-OFF RECHARGE

LOW GROUNDWATER DEPENDENCY

MODERATE OR LOW GROUNDWATER DEPENDENCY

LOCALISED RAINFALL AND RUN-OFF RECHARGE

MODERATE OR LOW GROUNDWATER DEPENDENCY

MODERATE OR LOW GROUNDWATER DEPENDENCY

SITE BOUNDARY

?

TYPICAL SECTION A-A
LONG SECTION ALONG THE MAIN ACCESS TRACK

Scale NTS

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