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The Christie Proposed Northern Pathology Development - Bill of Quantities (including Preamble)

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Issue and Revision Record

Project The Christie Proposed Northern Pathology Development
Document Bill of Quantities (including Preamble)
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P01	04/06/2025	L. Brooks	C Yu Li	A Simpson	First Issue

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M M MOTT MACDONALD	Project	The Christie Proposed Northern Pathology Development		Number of sheets	
	Subject	Preamble to Bill of Quantities		1	of 1
	Originated by	L. Brooks	Date	04/06/2025	
	Checked by	C Yu Li	Date	04/06/2025	
Reference	Calculation				
	Preamble to the Bill of Quantities Doc Ref: NTHPAT-MMD-XX-ZZ-BQ-C-000001 The Preamble to the Bill of Quantities shall be the standard Preamble to the UK Specification for Ground Investigation, Third Edition, as published by ICE Publishing in 2022, subject to the following additional and amended clauses.				
Ref. / Clause	Additional & Amended Clauses				
1/ (All sections)	In all of the BoQ sections, quantities are provided for pre-measurable items. Where the quantity of an item is dependent on the Contractors proposed programme and /or method of working, this is marked by an [X] in the quantity column. These quantities shall be inserted by the Tenderer. Rates shall then be applied to all pre-measured quantities and all quantities provided by the Tenderer.				
2/ (All sections)	If any items required by the Contractor for the safe and efficient execution of the Investigation Works are not identified in the Bill of Quantities provided, the Tenderer shall insert these items as an additional item and provide the full price for the inclusion of such items in the Tender Total.				
3/ (All sections)	Notes are included at the foot of each BoQ section. These are deemed to be part of the BoQ and are relevant to the measurement of the quantities to which they refer.				
4/	Tenderers shall record any notes or assumptions made in the preparation of their Tender either in the space provided below or in a separate document.				
Notes & Assumptions The following assumptions have been made: 1) 2) 3)					

SECTION A

Number	Item description	Unit	Quantity	Rate	Amount £
A	General items, provisional utilities and additional items				
A1	Establish on site offices, stores and amenities for the Contractor	sum			0.00
A2	Maintenance of offices, stores and amenities for the Contractor	week			0.00
A3	Establish the compound area and amenities prior to mobilising and starting site works, and remove these on completion of site works. Rate to include erection and dismantling of any hoarding, fencing and signage around the compound area	sum			0.00
A4	Establish on site all machines, equipment and utilities for a Green category site				0.00
A5	Establish on site, and remove from site, one cable percussion boring machine and ancillary plant and equipment	nr			0.00
A6	Establish on site, and remove from site, one dynamic sampling machine and ancillary plant and equipment	nr			0.00
A7	Establish on site, and remove from site, one rotary drilling machine and ancillary plant and equipment	nr			0.00
A8	Establish on site, and remove from site, one sonic drilling machine and ancillary plant and equipment	nr			0.00
A9	Establish on site, and remove from site, one dual-purpose rotary drilling and dynamic sampling machine and ancillary plant and equipment	nr	1		0.00
A10	Establish on site, and remove from site, one cone penetration test(CPT) machine and ancillary plant and equipment	nr			0.00
A11	Establish on site, and remove from site, one excavator for machine-dug trial pits and ancillary plant and equipment	nr			0.00
A12	Establish specialist ancillary plant or machinery	sum			0.00
A13	Establish geophysical surveying plant and equipment	sum			0.00
A14	Weekly maintenance of specialist plant or machinery on site	week			0.00
A15	Establish on site Security Industry Authority (SIA) or similar approved Contractor for site security	sum			0.00
A16	Maintain site security	week	X		#VALUE!
A17	Provide and maintain on site all PPE and equipment for a Yellow category site	week	X		#VALUE!
A18	Provide and maintain on site all PPE and equipment for a Red category site	week			0.00
A19	Decontamination of machinery and equipment during and at the end of intrusive investigation for a Yellow or Red category site	sum	X		#VALUE!
	Appropriate storage, transport and off-site disposal of contaminated samples, flush, arisings and any PPE equipment, excluding laboratory testing	provisional sum			0.00
A20	Provide project management, supervision and execution personnel				
A20.1	Project Manager	p.day			0.00
A20.2	Site planner/ programmer	p.day			0.00
A20.3	Site agent (specify grade required)	p.day			0.00
A20.4	Site Health and Safety Coordinator	p.day			0.00
A20.5	Technical Lead (specify grade required)	p.day			0.00
A20.6	Data Coordinator	p.day			0.00
A20.7	Logging and/or Sampling Supervisor (specify grade required)	p.day	X		#VALUE!
A20.8	Technical Drilling Supervisor (specify grade required)	p.day			0.00
A20.9	Drilling Supervisor (Level 3 Vocational Qualification)	p.day			0.00
A20.10	Site Logger (specify grade required)	p.day	X		#VALUE!
A20.11	Geoenvironmental specialist (specify grade required)	p.day			0.00
A20.12	Other specialists (e.g. unexploded ordnance/contaminated waste/environmental specialist, traffic safety control officer or geophysicist)	p.day			0.00
A21	Establish the location and elevation of the ground at each exploratory hole	nr	3		0.00
A22	Preparation of health and safety documentation, including risk assessments	sum	1		0.00
A23	Facilities for the Investigation Supervisor	sum			0.00
A24	Vehicle(s) for the Investigation Supervisor	v.wk			0.00
A25	Fuel for the vehicle for the Investigation Supervisor	provisional sum			0.00
A26	Investigation Supervisor's telecommunication charges	provisional sum			0.00
A27	Deliver selected cores and samples to the specified address	provisional sum			0.00
A28	Special testing and sampling required by Investigation Supervisor	provisional sum			0.00
A29	Traffic safety and management	provisional sum	X		#VALUE!
	Reporting				
A30	Digital copy of the draft Desk Study Report	sum			0.00
A31	Digital copy of the final Desk Study Report	sum			0.00
A32	Digital copy of the PAS 128 utilities survey report	sum	1		0.00
A33	Digital copy of a Pre-condition Survey Report	sum	1		0.00
A34	Digital copy of a Post-condition Survey Report	sum	1		0.00
A35	Digital copy of the draft Ground Investigation Report (or specified part thereof)	sum	1		0.00
A36	Digital copy of the interim Ground Investigation Report (or specified part thereof)	sum			0.00
A37	Digital copy of a final Ground Investigation Report (or specified part thereof)	sum	1		0.00
A38	Digital copy of the draft Geotechnical Design Report (or specified part thereof)	sum			0.00
A39	Digital copy of the interim Geotechnical Design Report (or specified part thereof)	sum			0.00
A40	Digital copy of a final Geotechnical Design Report (or specified part thereof)	sum			0.00
A41	Digital copy of the interim Monitoring Report	sum			0.00
A42	Digital copy of a final Monitoring Report	sum	1		0.00
A43	Interim issue of digital data in AGS Data Format	nr	1		0.00
A44	Digital copy of photographs – soil/rock core	nr	20		0.00
A45	Digital copy of photographs – trial pits/trenches	nr	20		0.00
A46	Provision of collateral warranty to third parties	nr			0.00
A47	Provision of a letter of reliance or assignment to third parties	nr			0.00
	Temporary works and other matters				
A48	Carry out Principal Contractor's role under CDM 2015	sum	1		0.00
A49	Obtain statutory utility plans in advance of fieldwork	sum	1		0.00
A50	Undertake PAS 128 survey	sum	1		0.00
A51	Attendance at pre-start meetings	nr	1		0.00
A52	Standing time associated with site induction	sum	1		0.00
A53	Preparation of sloping/uneven ground, including clearance of vegetation to create suitable access for plant to exploratory location	day			0.00
A54	Undertaking any temporary works or temporary works design (e.g. scaffolding erection or excavation shoring)	nr			0.00
A55	Construction and removal of bunded wash-down area to control and contain contaminated material/ground or wash water	nr			0.00
A56	Clearance of vegetation, including tree felling, to create suitable access for plant to exploratory location	day	X		#VALUE!
A57	Removal and reinstatement of obstacle to facilitate access for plant to exploratory location	nr			0.00
A58	Mobilisation and demobilisation of materials for laying temporary road to facilitate access for plant to exploratory location (e.g. ground protection, bog mats or track matting) – state size	lin.m			0.00
A59	Maintain ground protection/temporary access track (e.g. bog mats or track matting)	lin.m/wk			0.00
A60	Re-site ground protection/temporary trackway	lin.m			0.00
A61	Construction and reinstatement of temporary level working area at each exploratory hole location on sloping ground in advance of carrying out exploratory hole	nr			0.00
A62	Installation and removal of temporary 'goal posts' required under HSE GS6 for site plant crossing under overhead power lines	nr			0.00
A63	Construction and removal of temporary bridging of water course	nr			0.00
A64	Construction and removal of temporary working platform at each exploratory hole location for mine shaft investigation	nr			0.00
A65	Erect and dismantle fencing to segregate exploratory working area/access/egress route from third parties	nr	X		#VALUE!
A66	Reinstatement using cold bituminous material surfacing	m3			0.00
A67	Reinstatement using hot bituminous material surfacing	m3			0.00
A68	Reinstatement of grassed areas	m2			0.00
A69	Reinstatement of concrete areas	m2	2		0.00
A70	Reinstatement of paved areas	m2			0.00
A71	Reinstatement of masonry or brickwork	m2			0.00
A72	Reinstatement of gravel or rubble (hard standing) areas	m2			0.00
A73	Reinstatement of arable land (excluding the crop) areas	m2			0.00
A74	Contract specific additional bill items				
A75	Vacuum extraction team + equipment to remove fumes inside building during ground investigation works		X		#VALUE!
A76	Provide ground investigation factual report, pdf copy.	sum	1		0.00
A77	Provision of welfare vehicle	sum	X		#VALUE!
A78	Servicing welfare vehicle	wk	X		#VALUE!
Total Bill A carried to Summary					#VALUE!

Number	Item description	Unit	Quantity	Rate	Amount £
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Notes

A1-3, A23 & A4 Are to be provided by the principal contractor

A4-A12

It is recognised that when working on potentially contaminated or contaminated land the site can be zoned with respect to the British Drilling Association (BDA) categorisation (e.g. a Yellow category site can have Red category zones within it). Therefore, Items A4 to A12 may need to be subdivided, or contract-specific additional items provided to take account of additional requirements

A19

Item A19 does not include for laboratory testing to determine the nature of the contaminated arisings. The required testing should be covered by relevant rates under Bill L. It is recommended that a provisional sum is always included under Item A19 and that rates under Bill L are obtained in order to cover for unforeseen contamination not revealed by the Desk Study.

A20

Subject to the following notes, Item A20 enables full identification of professional staff, which the Contractor is required to provide.

A20

Items under Item A20 are intended for detailing the requirements for the provision of Contractor's personnel in accordance with Specification Clauses 4.4.2, 4.4.3 and 4.4.5. Items should be included for different activity roles and where other specialists are required. An estimate of the appropriate number of person-days should be entered under Quantity against each item. It may be necessary to add additional items in order to adequately describe the categories of other specialists (e.g. traffic safety officer or archaeologist) and the grade of person required. Any items listed shall be chargeable only when present on site.

A20

Personnel fulfilling the roles identified under Item A20 must be competent and be able to demonstrate they have the skills, knowledge and experience to be able to safely fulfil their role appropriately.

Where the provision of personnel for work in accordance with Specification Clauses 4.4.2, 4.4.3 and 4.4.5 cannot be adequately specified at tender by the Designer, a minimum requirement should be specified and the Contractor should complete the appropriate items in the bill relevant to the site roles and number of personnel required.

The provision of technical support and other specialists to assist the Investigation Supervisor should be itemised under Bill M of the Bill of Quantities.

A29

Item A29 may be revised to 'sum' if the traffic safety and management requirements are simple and can be fully defined in Schedule S1.8.11. In many cases, it will be appropriate to add additional contract-specific items to cover for the provision and maintenance of the measures. In any event, Schedule S1.8.11 should provide the maximum possible detail of the required traffic management measures.

A66-A73

Items A66 to A73 may not be able to be priced or fully assessed until the works in those areas are complete. For large or more complex works it may be necessary to complete a more detailed contract-specific schedule, which can be priced separately.

A35-A40

In connection with Items A35 to A40, Schedules S1.24.9 and S1.24.10 should specify the required parts of the Ground Investigation Report and Geotechnical Design Report, respectively.

SECTION B

Number	Item description	Unit	Quantity	Rate	Amount	£
B	Cable Percussion Boring					
B1	Move cable percussion boring machine, equipment and crew to the site of each borehole and set up	nr				0.00
B2	Extra over Item B1 for setting up on a slope of gradient greater than 20% and less than 36%	nr				0.00
B3	Break out surface obstruction, where present, at borehole	h				0.00
B4	Advance borehole between existing ground level and 10 m depth	m				0.00
B5	As Item B4 but between 10 and 20 m depth	m				0.00
B6	As Item B4 but between 20 and 30 m depth	m				0.00
B7	As Item B4 but between 30 and 40 m depth	m				0.00
B8	As Item B4 but between 40 and 50 m depth	m				0.00
B9	Extra over Items B4 to B8, inclusive, for working at diameters >200 mm	m				0.00
B10	Advance borehole through hard material or obstruction	h				0.00
B11	Provide aquifer protection measures at a single aquiclude-aquifer boundary or cross-contamination control measures at a single soil boundary in a borehole	nr				0.00
B12	Insert temporary casing in advance of rotary/sonic continuation	m				0.00
B13	Standing time for cable percussion boring machine, equipment and crew	h				0.00
B14	Provision of cable percussion boring machine, equipment and crew as directed by the Investigation Supervisor	day				0.00
B15	Provision of modular/low headroom cable percussion boring machine, equipment and crew as directed by the Investigation Supervisor	day				0.00
	Backfill cable percussion boreholes					
B16	Move grout plant, tremie pipe and pump to the site of each exploratory hole and set up	nr				0.00
B17	Backfill borehole with arisings	lin.m				0.00
B18	Backfill borehole with bentonite pellets	lin.m				0.00
B19	Backfill borehole with pre-mixed cement/bentonite pellets	lin.m				0.00
B20	Backfill borehole with cement/bentonite grout (tremie)	lin.m				0.00
B21	Extra over Items B18 to B20 for borehole diameters in excess of 200mm	lin.m				0.00
B22	Return to the site of each borehole and set up where borehole requires topping up	nr				0.00
	Dynamic sampling					
B23	Move small tracked/wheeled dynamic sampling machine and equipment to the site of each dynamic sampling hole and set up	nr				0.00
B24	Extra over Item B23 for setting up on a slope of gradient greater than 20% and less than 36%	nr				0.00
B25	Advance dynamic sample hole between existing ground level and 5m depth	m				0.00
B26	As Item B25 but between 5 and 10 m depth	m				0.00
B27	As Item B25 but between 10 and 15 m depth	m				0.00
B28	Standing time for dynamic sampling equipment and crew	h				0.00
B29	Extra over Items B25 to B27, B30 and B31 for use of semi-rigid liner	m				0.00
B30	Provision of dynamic sampling machine (Terrier style rig), equipment and crew for sampling as directed by the Investigation Supervisor; maximum depth 15 m	day				0.00
B31	Provision of modular dynamic sampling machine, equipment and crew as directed by the Investigation Supervisor	day				0.00
	Backfill dynamic sampling holes					
B32	Move grout plant, tremie pipe and pump to the site of each exploratory hole and set up	nr				0.00
B33	Backfill borehole with arisings	lin.m				0.00
B34	Backfill borehole with bentonite pellets	lin.m				0.00
B35	Backfill borehole with pre-mixed cement/bentonite pellets	lin.m				0.00
B36	Backfill borehole with cement/bentonite grout (tremie)	lin.m				0.00
B37	Extra over Items B34 to B36 for borehole diameters in excess of 200mm	lin.m				0.00
B38	Return to the site of each borehole and set up where borehole requires topping up	nr				0.00
B39	Contract specific additional bill items					
			Total Bill B carried to Summary			

Process

B1, B16-B23 For certain sites it is optional to introduce an extra over rate to Item B1, as Item B1.1, for moving a cable percussion boring machine and equipment over distances exceeding, say 500 m, to give more flexibility to the Investigation Supervisor's direction of field operations. A similar approach can be taken for Items B16 and B23. Alternatively, additional contract-specific items can be provided.

B2 and B24	Items B2 and B24 allow for creating a level working area on sloping ground to facilitate the safe setting up and operating of plant. Any requirement for scaffolding, importing materials to create a ramp and working platform, and craning or lifting shall be charged against items listed in contract-specific additional bill items.
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B23, B30, B31 If dynamic probing is to be carried out at the site of a dynamic sampling hole this should be stated in Schedule S1.9 and detailed in Schedule 2. Item B23 should allow for setting up the machine for both dynamic sampling and dynamic probing, and Items F3 to F5 should be used to measure only the metreage of actual probing carried out in addition to any dynamic sampling which has been specified. If this activity is charged for on a time (day rate) basis, Item B30 or B31 rates should allow for the dynamic probing activity as well as the dynamic sampling activity.

If two or more dynamic sampling machines are required, this should be stated in Schedule S1.9. The requirement for window or liner (windowless) sampling should also be indicated in Schedule S1.9.

B29-B31 If dynamic sampling machines are used to carry out conventional sampling or testing (e.g. SPTs or UT100/U100 samples), and not charged for on a time basis, quantities should be allowed for under the relevant items in Bills E and F. When dynamic sampling is required to be charged for under Item B30 or B31, the rate should allow for all sampling and testing, excluding the cost for dynamic sampling liner tubes, which will be charged for under Item B29.

B23-B30 Items B23 to B30 should be limited to small tracked or wheeled dynamic sampling machines (e.g. Premier, Terrier, Dart, Geotool or similar). Where window or liner (windowless) sampling is to be undertaken by a rotary drilling machine within a rotary borehole, allowance should be made for measurement against either Items C9 and C10 or, alternatively, Item C11

SECTION C

Number	Item description	Unit	Quantity	Rate	Amount £
C	Rotary drilling				
C1	Move rotary drilling machine and equipment to the site of each borehole and set up.	nr			0.00
C2	Extra over Item C1 or C9 for setting up on a slope of gradient greater than 20% and less than 36%.	nr			0.00
C3	Extra over Item C1 for setting up drilling plant for inclined borehole	nr			0.00
C4	Extra over Item C1 for setting up for clean water/air/air mist	nr			0.00
C5	Break out surface obstructions where present at borehole	h			0.00
C6	Provide aquifer-protection measures at a single aquiclude-aquifer boundary in a borehole	nr	1		0.00
C7	Standing time for rotary drilling machine, equipment and crew	h	1		0.00
C8	Provision of rotary drilling machine, equipment and crew for sampling as directed by the Investigation Supervisor	day			0.00
C9	Move dual-purpose rotary drilling and dynamic sampling machine and equipment to the site of each borehole and set up	nr	1		0.00
C10	Advance rotary borehole using dynamic sampling equipment	m	5		0.00
C11	Provision of dual-purpose rotary drilling and dynamic sampling machine, equipment and crew for sampling as directed by the Investigation Supervisor	day	2		0.00
	Rotary drilling without cores				
C12	Rotary drill at the specified diameter, from which cores are not required, between existing ground level and 10 m depth	m			0.00
C13	As Item C12 but between 10 and 20 m depth	m			0.00
C14	As Item C12 but between 20 and 30 m depth	m			0.00
C15	As Item C12 but between 30 and 40 m depth	m			0.00
C16	As Item C12 but between 40 and 50m depth	m			0.00
C17	As Item C12 but between 50 and 60 m depth	mm			0.00
C18	As Item C12 but between 60 and 70 m depth	m			0.00
C19	As Item C12 but between 70 and 80 m depth	m			0.00
C20	As Item C12 but between 80 and 90 m depth	m			0.00
C21	As Item C12 but between 90 and 100 m depth	m			0.00
C22	Extra over Items C12 to C21 for inclined drillhole	m			0.00
C23	Extra over Items C12 to C21 for mist/water/polymer/mud flush	m			0.00
C24	Extra over Items C12 to C21 for casing off materials to maintain borehole stability	m			0.00
	Rotary drilling to obtain cores				
C25	Rotary drill to obtain cores of the specified diameter between existing ground level and 10 m depth	m	5		0.00
C26	As Item C25 but between 10 and 20 m depth	m	8		0.00
C27	As Item C25 but between 20 and 30 m depth	m			0.00
C28	As Item C25 but between 30 and 40 m depth	m			0.00
C29	As Item C25 but between 40 and 50 m depth	m			0.00
C30	As Item C25 but between 50 and 60 m depth	m			0.00
C31	As Item C25 but between 60 and 70 m depth	m			0.00
C32	As Item C25 but between 70 and 80 m depth	m			0.00
C33	As Item C25 but between 80 and 90 m depth	m			0.00
C34	As Item C25 but between 90 and 100 m depth	m			0.00
C35	Extra over Items C25 to C34 for use of semi-rigid core liner	m	13		0.00
C36	Extra over Items C25 to C34 for coring inclined rotary drillhole	m			0.00
C37	Extra over Items C25 to C34 for clean water/air/air mist	m			0.00
C38	Extra over Items C25 to C34 for casing off unstable materials to maintain borehole stability	m			0.00
C39	Extra over Items C25 to C34 for coring with wireline techniques	m			0.00
C40	Extra over Items C25 to C34 for recording drilling parameters as specified	nr			0.00
C41	Core box to be retained by the Client	nr			0.00
	Backfill rotary drilled boreholes				
C42	Move grout plant, tremie pipe and pump to the site of each exploratory hole and set up	nr			0.00
C43	Backfill borehole with arisings	lin.m	13		0.00
C44	Backfill borehole with bentonite pellets	lin.m			0.00
C45	Backfill borehole with pre-mixed cement/bentonite pellets	lin.m			0.00
C46	Backfill borehole with cement/bentonite grout (tremie)	lin.m			0.00
C47	Extra over Items C44 to C46 for borehole diameters in excess of 200 mm	lin.m			0.00
C48	Return to the site of each borehole and set up where borehole requires topping up	nr			0.00
	Sonic drilling				
C49	Move sonic drilling machine, equipment and crew to the site of each borehole and set up	nr			0.00
C50	Extra over Item C49 for setting up on a slope of gradient greater than 20% and less than 36%	nr			0.00
C51	Extra over Item C49 for setting up sonic drilling machine for inclined drillhole	nr			0.00
C52	Break out surface obstructions where present at borehole	h			0.00
C53	Provide aquifer-protection measures at a single aquiclude-aquifer boundary in a borehole	nr			0.00
C54	Provision of sonic drilling machine, equipment and crew for sampling as directed by the Investigation Supervisor	day			0.00
C55	Standing time for sonic drilling machine, equipment and crew	h			0.00
	Sonic drilling without cores				
C56	Sonic drill at the specified diameter, from which cores are not required, between existing ground level and 10 m depth	m			0.00
C57	As Item C56 but between 10 and 20 m depth	m			0.00
C58	As Item C56 but between 20 and 30 m depth	m			0.00
C59	As Item C56 but between 30 and 40 m depth	m			0.00
C60	As Item C56 but between 40 and 50 m depth	m			0.00
C61	As Item C56 but between 50 and 60 m depth	m			0.00
C62	As Item C56 but between 60 and 70 m depth	m			0.00
C63	As Item C56 but between 70 and 80 m depth	m			0.00
C64	As Item C56 but between 80 and 90 m depth	m			0.00
C65	As Item C56 but between 90 and 100 m depth	m			0.00
C66	Extra over Items C56 to C65 for inclined sonic borehole	m			0.00
	Sonic drilling to obtain cores				
C67	Sonic drill at the specified diameter, from which cores are required, between existing ground level and 10 m depth	m			0.00
C68	As Item C67 but between 10 and 20 m depth	m			0.00
C69	As Item C67 but between 20 and 30 m depth	m			0.00
C70	As Item C67 but between 30 and 40 m depth	m			0.00
C71	As Item C67 but between 40 and 50 m depth	m			0.00
C72	As Item C67 but between 50 and 60 m depth	m			0.00
C73	As Item C67 but between 60 and 70 m depth	m			0.00
C74	As Item C67 but between 70 and 80 m depth	m			0.00
C75	As Item C67 but between 80 and 90 m depth	m			0.00
C76	As Item C67 but between 90 and 100 m depth	m			0.00
C77	Extra over Items C67 to C76 for inclined sonic borehole	m			0.00
C78	Extra over Items C67 to C76 for use of semi-rigid core liner	m			0.00
	Backfill sonic drilled boreholes				
C79	Move grout plant, tremie pipe and pump to the site of each exploratory hole and set up	nr			0.00
C80	Backfill borehole with arisings	lin.m			0.00
C81	Backfill borehole with bentonite pellets	lin.m			0.00
C82	Backfill borehole with pre-mixed cement/bentonite pellets	lin.m			0.00
C83	Backfill borehole with cement/bentonite grout (tremie)	lin.m			0.00
C84	Extra over Items C81 to C83 for borehole diameters in excess of 200 mm	lin.m			0.00
C85	Return to the site of each borehole and set up where borehole requires topping up	nr			0.00

	Notes
C1	For certain sites it is optional to introduce additional extra over item rates for moving a rotary drilling machine and equipment, dual-purpose rotary drilling machine and equipment, or sonic drilling machine and equipment over distances exceeding, say, 500 m (e.g. Item C1.1). This should give more flexibility to the Investigation Supervisor's direction of field operations. Alternatively, additional contract-specific items can be provided.
C1, C9, C11	If dynamic sampling and rotary drilling is required within a borehole, Item C9 should be used, not Item C1, together with the relevant additional items within this bill. Alternatively, Item C11 can be used. Hole and core diameters will be defined in the Schedules. If more than one hole or core diameter is required, the Bill of Quantities must identify this with appropriate contract-specific items repeated as required for each hole or core size.
C35, C78	The separate bill items for the semi-rigid core liner, Items C35 and C78, should always have quantities corresponding to the lengths of rotary or sonic drilling to obtain cores, unless the Investigation Supervisor wishes to restrict the drilling method used.
C12-C24, C56-C66	Items C12 to C24 should allow for the use of the specified method of drilling without cores (open holing) or using an alternative method agreed with the Investigation Supervisor. These methods could include rotary percussive drilling, using a down the hole hammer or even coring with immediate disposal of the cores. If sonic drilling is the method specified, Items C56 to C66 should be used.
C24, C38	Casing off 'unstable material', referred to in Items C24 and C38, allows for casing off soil, fractured, broken and/or weathered rock, and cavities/voids associated with mine workings or erosional features. Measurement of the casing used in this connection shall be from ground level to depths such that the casing is not required to maintain borehole stability.
C2, C50, C87	Items C2, C50 and C87 allow for the creation of a level working area on sloping ground to facilitate the safe setting up and operation of plant. Any requirement for scaffolding, importing materials to create a ramp and working platform, and craning or lifting shall be charged against items listed in contract-specific additional bill items.

SECTION D

Number	Item description	Unit	Quantity	Rate	Amount £
D	Pitting and trenching				
	Inspection pits				
	Cable percussion boring/dynamic sampling				
D1	Excavate inspection pit by hand to 1.2 m depth	nr			0.00
D2	Extra over Item D1 for breaking out surface obstructions	h			0.00
	Rotary/sonic drilling				
D3	Excavate inspection pit by hand to 1.2 m depth	nr	1		0.00
D4	Extra over Item D3 for breaking out surface obstructions	h	0.5		0.00
	Cone penetration testing				
D5	Excavate inspection pit by hand to 1.2 m depth	nr			0.00
D6	Extra over Item D5 for breaking out surface obstructions	h			0.00
	Concrete coring				
D7	Concrete core through hard materials in advance of borehole (minimum 250 mm diameter, maximum 300 mm diameter)	day	x		#VALUE!
	Machine-dug trial pits and trenches				
D8	Move excavation plant and equipment to the site of each trial pit or trench of not greater than 4.5 m depth	nr			0.00
D9	Extra over Item D8 for setting up on a slope of gradient greater than 20% and less than 36%	nr			0.00
D10	Excavate standard trial pit between existing ground level and 4.5 m depth	m			0.00
D11	Extra over Item D10 for deep logging trial pit between 4.5 and 6 m depth	m			0.00
D12	Excavate trial trench between existing ground level and 4.5 m depth	m3			0.00
D13	As Item D12 but between 4.5 and 6 m depth	m3			0.00
D14	Mobilisation of hydraulic breaker	sum			0.00
D15	Extra over Items D10 to D13, inclusive, for the provision of a hydraulic breaker for breaking out hard material or surface obstructions	h			0.00
D16	Standing time for excavation plant, equipment and crew for machine-dug trial pit or trench (Type 1 trial pits)	h			0.00
	Daily provision of pitting or trenching crew and equipment				
D17	Provision of excavation plant equipment and crew for machine-dug trial pits or trenches as directed by the Investigation Supervisor; maximum depth 4.5 m	day			0.00
D18	As Item D17 but 6 m depth	day			0.00
D19	Provision of vacuum excavation plant, equipment and crew	day			0.00
D20	Provision of equipment and crew for hand-dug trial pits or trenches as directed by the Investigation Supervisor; maximum depth 1.2 m	day	1		0.00
D21	Extra over Items D17, D18, D19 and D20 for the provision of a hydraulic breaker for breaking out hard material or surface obstructions	day			0.00
	General				
D22	Bring pump to the position of each pit or trench	nr			0.00
D23	Pump water from pit or trench	h			0.00
D24	Extra over Item D23 for temporary storage, treatment and disposal of potentially contaminated or contaminated water	provisional sum			0.00
D25	Leave open trial pit or trench	day			0.00
D26	Backfill trial pit with excavated material	nr	2		0.00
D27	Backfill trial pit with imported material	m3			0.00
D28	Backfill trial trench with excavated material	nr			0.00
D29	Backfill trial trench with imported material	m3			0.00
D30	Provision of temporary works design	sum			0.00
D31	Provide shoring, propping or other excavation support and all necessary safety equipment, PPE and emergency procedures to allow safe working where personnel entry is required	day			0.00
D32	Provide safety equipment to allow the safe working of personnel at height	day			0.00
	Contract specific additional bill items				
D33	Excavate trial pit by hand to 1.2 m depth	nr	2		0.00
D34	Extra over Item D33 for breaking out surface obstructions	hr	1		0.00
			Total Bill D carried to Summary		#VALUE!

Notes

- D1, D3, D5 Where exploratory holes are located within 10m of a known service, hand-excavated pits for the purposes of the avoidance of underground services, structures or assets should be undertaken after a PAS 128 survey and in advance of exploratory hole operations. In all other locations an inspection pit may be undertaken without a PAS128 survey. Inspection pits are normally excavated to a minimum depth of 1.2 mbgl. Where underground services, structures or assets are known or suspected to be present below a depth of 1.2 mbgl, the exploratory hole location should be relocated, or steps taken to excavate, using appropriate safe digging techniques, additional trial pits to depths required to positively identify and prove the position of buried utilities.
- D9, D11, D28 Trial pits and their reinstatement shall be measured on a 'number' basis as the size and volumes will depend on the Contractor's proposed methodology.
- D9 Pits and trenches exceeding 4.5 m in depth require the mobilisation of more significant plant, and an extra over item is included for moving to the site of each pit or trench. An additional contract-specific item in Bill A may also be considered appropriate for mobilisation to site.

SECTION E

Number	Item description	Unit	Quantity	Rate	Amount £
E	Sampling during formation of exploratory hole				
E1	Small disturbed sample	nr	9		0.00
E2	Bulk disturbed sample	nr	8		0.00
E3	Large bulk disturbed sample	nr			0.00
E4	Open-tube U100 sample – by cable percussion or dynamic sampling	nr	3		0.00
E5	Open-tube U100 sample – by rotary/sonic methods	nr			0.00
E6	Open-tube UT100 sample – by cable percussion	nr			0.00
E7	Open-tube UT100 sample – by rotary methods	nr			0.00
E8	Static push/piston sample	nr			0.00
E9	Groundwater sample	nr	1		0.00
E10	Cut, prepare and protect core subsample	nr			0.00
E11	Block sample (including provision for taking, containing and protecting block sample)	nr			0.00
	Continuous or semi-continuous sampling				
E12	Move continuous or semi-continuous sampling machine and equipment to the site of each exploratory hole and set up	nr			0.00
E13	Extra over Item E12 for setting up on a slope of gradient greater than 20% and not exceeding 36%	nr			0.00
E14	Break out surface obstruction where present at exploratory hole	h			0.00
E15	Advance sampler between existing ground level and 10 m depth	m			0.00
E16	As Item E15 but between 10 and 20 m depth	m			0.00
	Sampling for potentially aggressive ground/groundwater (BRE SD1)				
E17	Provision of containers and collection of soil samples for contamination or aggressive ground for concrete Suite A (Greenfield site – pyrite absent)	nr			0.00
E18	Provision of containers and collection of groundwater samples for contamination for aggressive groundwater for concrete Suite A (Greenfield site – pyrite absent)	nr			0.00
E19	Provision of containers and collection of soil samples for contamination or aggressive ground for concrete Suite B (Greenfield site – pyrite present)	nr			0.00
E20	Provision of containers and collection of groundwater samples for contamination for aggressive groundwater for concrete Suite B (Greenfield site – pyrite present)	nr			0.00
E21	Provision of containers and collection of soil samples for contamination or aggressive ground for concrete Suite C (Brownfield site – pyrite absent, including dependent options)	nr			0.00
E22	Provision of containers and collection of groundwater samples for contamination for aggressive groundwater for concrete Suite C (Brownfield site – pyrite absent, including dependent options)	nr			0.00
E23	Provision of containers and collection of soil samples for contamination or aggressive ground for concrete Suite D (Brownfield site – pyrite present, including dependent options)	nr	3		0.00
E24	Provision of containers and collection of groundwater samples for contamination for aggressive groundwater for concrete Suite D (Brownfield site – pyrite present, including dependent options)	nr	1		0.00
	Sampling for geoenvironmental contamination assessment				
E25	Provision of containers and collection of soil samples for contamination Suite E (Soil samples)	nr	10		0.00
E26	Provision of containers and collection of water/groundwater samples for contamination Suite F (Water samples)	nr			0.00
E27	Provision of containers and collection of samples for contamination Suite G (Perfluoroalkyl and polyfluoroalkyl substances (PFAS) samples)	nr			0.00
E28	Provision of containers and collection of gas samples for contamination Suite H (Permanent gases)	nr			0.00
E29	Provision of containers and collection of vapour samples for contamination Suite I (Vapour samples)	nr			0.00
	Sampling for waste acceptance criteria (WAC) testing				
E30	Provision of containers and collection of samples for WAC Suite J (Inert waste landfill)	nr	1		0.00
E31	Provision of containers and collection of samples for WAC Suite K (Stable, non-reactive hazardous waste in non-hazardous waste landfill)	nr			0.00
E32	Provision of containers and collection of samples for WAC Suite L (Hazardous waste landfill)	nr			0.00
	Contract specific additional bill items				
E33	Provision of containers and collection of soil samples for contamination Site-specific or Leachate suite as per the specification requirements.	nr	8		0.00
				Total Bill E carried to Summary	0

Notes

- E6 Use of static pushed or thin-walled samplers is recommended where the sample is to be used for laboratory strength and/or compressibility testing. The UT100 can be considered, but the driving mechanism and the number of blows to retrieve the sample should be taken into account.
- E8 Item E8 refers to either static push samples or piston samples. Where these are both required on a project, additional sub-items or contract-specific items should be added.
- E10 Item E10 relates to subsamples obtained from core runs recovered by rotary or sonic methods.
- E1-E9, E11 The rates for Items E1 to E9 and E11 should include for the containers. Items E4 to E7 should include for a small disturbed sample.

SECTION F

Number	Item description	Unit	Quantity	Rate	Amount £
F	Probing and cone penetration testing				
	Dynamic probing				
F1	Bring dynamic probe equipment to the site of each test location	nr			0.00
F2	Extra over Item F1 for setting up on a slope of gradient greater than 20% and less than 36%	nr			0.00
F3	Carry out dynamic probe test from existing ground level to 5 m depth	m			0.00
F4	As Item F3 but between 5 and 10 m depth	m			0.00
F5	As Item F3 but between 10 and 15 m depth	m			0.00
F6	Standing time for dynamic probe test equipment and crew	h			0.00
F7	Provision of dynamic probing equipment and crew for probing as directed by the Investigation Supervisor; maximum depth 15 m	day			0.00
	Cone penetration testing				
F8	Bring cone penetration test (CPT) machine, equipment and crew to the site of each test location	nr			0.00
F9	Extra over Item F8 for setting up on a slope of gradient greater than 20% and less than 36%	nr			0.00
F10	Carry out cone penetration test (CPT), measuring both cone and sleeve resistance from existing ground level to 10 m depth	m			0.00
F11	As Item F10 but between 10 and 20 m depth	m			0.00
F12	As Item F10 but between 20 and 30 m depth	m			0.00
F13	As Item F10 but between 30 and 40 m depth	m			0.00
F14	Extra over Items F10 to F13 for use of piezocone	m			0.00
F15	Extra over Items F10 to F13 for interpretation of cone/piezocone penetration test (CPT/CPTU) data	m			0.00
F16	Carry out dissipation test up to 1-h duration	nr			0.00
F17	Extra over Item F16 for test duration exceeding 1 h	h			0.00
F18	Standing time for static cone penetration test (CPT) equipment and crew	h			0.00
F19	Extra over Items F10 to F13 for use of seismic cone	m			0.00
F20	Carry out seismic cone test	nr			0.00
F21	Extra over Item F20 for interpretation of seismic cone data	nr			0.00
F22	Standing time for seismic cone test equipment and crew	h			0.00
F23	Provision of static cone penetration testing machine, equipment and crew for measuring both cone and sleeve resistance from existing ground level to refusal or as directed by the Investigation Supervisor (rate shall include for interpretation and presentation of data)	day			0.00
F24	Extra over Item F23 for use of a piezocone to provide measurements of pore water pressure	day			0.00
F25	Extra over Item F23 for use of a triaxial magnetometer cone/natural gamma cone/seismic cone/hydraulic profiling tool/membrane interface probe/laser induced fluorescence/electrical conductivity cone	day			0.00
F26	Contract-specific additional bill items				
			Total Bill F carried to Summary		0.00

Notes

F10-F14, F The rates for CPT Items F10 to F14, F16, F17, F19 and F20 shall allow for provision of daily records and presentation of the results on agreed report forms/exploratory hole logs in accordance with BS EN ISO 22476-1:2012 and Schedule S1.16.4.

Number	Item description	Unit	Quantity	Rate	Amount £
G	Geophysical surveys				
	Land-based mapping geophysical techniques				
G1	Collect and process conductivity survey data	lin.m			0.00
G2	Collect and process magnetic survey data	lin.m			0.00
G3	Collect and process electromagnetic survey data	lin.m			0.00
G4	Collect and process micro-gravity survey data	lin.m			0.00
G5	Interpretation of land-based mapping data	sum			0.00
G6	Standing time for land-based mapping geophysical survey crew and equipment	h			0.00
	Land-based profiling geophysical techniques				
G7	Collect and process electrical resistivity tomography data	lin.m			0.00
G8	Collect and process seismic refraction (P wave) data	lin.m			0.00
G9	Collect and process seismic refraction (S wave) data	lin.m			0.00
G10	Collect and process seismic reflection (P wave) data	lin.m			0.00
G11	Collect and process seismic reflection (S wave) data	lin.m			0.00
G12	Collect and process ground penetrating radar data	lin.m			0.00
G13	Interpretation of land-based profiling geophysical data	sum			0.00
G14	Standing time for land-based profiling geophysical survey crew and equipment	h			0.00
	Land-based in situ geophysical techniques				
G15	Collect and process electrical resistivity sounding (four-pin Wenner) data	nr			0.00
G16	Collect and process MASW (1-D) profile	nr			0.00
G17	Collect and process CSW (1-D) profile	nr			0.00
G18	Standing time for land-based field geophysical survey crew and equipment	h			0.00
	Land-based borehole seismic geophysical techniques				
G19	Move downhole seismic equipment to the site of each borehole and set up	nr			0.00
G20	Move cross-hole seismic equipment to the site of each set of borehole and set up	nr			0.00
G21	Move cross-hole seismic tomography (P-wave) equipment to the site of each set of boreholes and set up	nr			0.00
G22	Collect and process downhole seismic data	m			0.00
G23	Collect and process cross-hole seismic data	m			0.00
G24	Collect and process cross-hole seismic tomography (P-wave) data	m			0.00
G25	Standing time for land-based borehole seismic geophysical survey crew and equipment	h			0.00
	Land-based borehole wireline geophysical techniques				
G26	Move hydrogeological investigation suite of wireline geophysical logging tools to the site of each borehole and set up (Caliper, natural gamma, resistivity, fluid temperature and conductivity, and impeller flowmeter)	nr			0.00
G27	Move basic geotechnical investigation suite of wireline geophysical logging tools to the site of each borehole and set up (Caliper, natural gamma acoustic/optical televiever)	nr			0.00
G28	Move intermediate geotechnical investigation suite of wireline geophysical logging tools to the site of each borehole and set up (Caliper, natural gamma acoustic/optical televiever formation density and PS logger)	nr			0.00
G29	Move advanced geotechnical investigation suite of wireline geophysical logging tools to the site of each borehole and set up (Caliper, natural gamma acoustic/optical televiever, formation density, PS logger, conductivity, resistivity, temperature and porosity)	nr			0.00
G30	Move cavity laser scanning wireline logging tools to the site of each borehole and set up	nr			0.00
G31	Move cavity sonar scanning wireline logging tools to the site of each borehole and set up	nr			0.00
G32	Collect and process hydrogeological investigation suite survey data	m			0.00
G33	Collect and process basic geotechnical investigation suite survey data	m			0.00
G34	Collect and process intermediate geotechnical investigation suite survey data	m			0.00
G35	Collect and process advanced geotechnical investigation suite survey data	m			0.00
G36	Collect and process cavity laser scanning wireline logging data	sum			0.00
G37	Collect and process cavity sonar scanning wireline logging data	sum			0.00
G38	Standing time for land-based borehole wireline geophysical survey crew and equipment	h			0.00
	Overwater				
G39	Collect and process echo sounding, side-scan sonar, magnetic, conductivity, seismic reflection, seismic refraction, resistivity imaging or ground-probing radar data	day			0.00
G40	Contract specific additional bill items				
			Total Bill G carried to Summary		0.00

G7 to
G11 Tenderers shall state the inter-sensor spacings for each technique proposed.
G8 to
G11 Geophysical techniques to be determined following Geophysical trail, it is not anticipated that both seismic refraction and seismic reflection will be required.

SECTION H

Number	Item description	Unit	Quantity	Rate	Amount £
H	Field testing				
H1	Standard penetration test in borehole between ground level and 10 m depth	nr	4		0.00
H2	As Item H1 but between 10 and 20 m depth	nr			0.00
H3	As Item H1 but between 20 and 30 m depth	nr			0.00
H4	As Item H1 but between 30 and 40 m depth	nr			0.00
H5	As Item H1 but between 40 and 50 m depth	nr			0.00
H6	Standard penetration test in rotary drillhole between ground level and 10 m depth	nr			0.00
H7	As Item H6 but between 10 and 20 m depth	nr			0.00
H8	As Item H6 but between 20 and 30 m depth	nr			0.00
H9	As Item H6 but between 30 and 40 m depth	nr			0.00
H10	As Item H6 but between 40 and 50 m depth	nr			0.00
H11	Standard penetration test in sonic drillhole between ground level and 10 m depth	nr			0.00
H12	As Item H11 but between 10 and 20 m depth	nr			0.00
H13	As Item H11 but between 20 and 30 m depth	nr			0.00
H14	As Item H11 but between 30 and 40 m depth	nr			0.00
H15	As Item H11 but between 40 and 50 m depth	nr			0.00
	Field density testing				
H16	Small pouring cylinder method	nr			0.00
H17	Large pouring cylinder method	nr			0.00
H18	Water replacement method	nr			0.00
H19	Core cutter method	nr			0.00
H20	Nuclear method	day			0.00
	Pavement and strength field tests				
H21	California bearing ratio (CBR) test	nr			0.00
H22	Plate loading test	nr			0.00
H23	Lightweight deflectometer test	nr			0.00
H24	Falling weight deflectometer test	nr			0.00
H25	Vane shear strength test in borehole	nr			0.00
H26	Borehole/penetration vane test	nr			0.00
H27	Hand penetrometer test (set of 3 readings)	nr			0.00
H28	Hand vane test (set of 3 readings)	nr			0.00
	Geophysical field tests				
H29	Electrical resistivity of soil	nr			0.00
H30	Thermal resistivity of soil	nr			0.00
H31	Redox potential	nr			0.00
	Permeability testing				
H32	Set up and dismantle variable head permeability test in cable percussion borehole	nr			0.00
H33	Set up and dismantle constant head permeability test in cable percussion borehole	nr			0.00
H34	Carry out permeability test in cable percussion borehole	h			0.00
H35	Set up and dismantle variable head permeability test in observation well/open standpipe piezometer	nr			0.00
H36	Set up and dismantle constant head permeability test in observation well/open standpipe piezometer	nr			0.00
H37	Carry out permeability test in observation well/open standpipe piezometer	h			0.00
H38	Set up and dismantle variable head permeability test in rotary/sonic borehole	nr			0.00
H39	Set up and dismantle constant head permeability test in rotary/sonic borehole	nr			0.00
H40	Carry out permeability test in rotary/sonic borehole	h			0.00
H41	Set up and dismantle single packer permeability test	nr			0.00
H42	Set up and dismantle double packer permeability test	nr			0.00
H43	Carry out single packer permeability test	h			0.00
H44	Carry out double packer permeability test	h			0.00
	Pumping tests				
H45	Move and set up pumping test plant and equipment to site of each exploratory hole	nr			0.00
H46	Carry out background monitoring	day			0.00
H47	Carry out equipment test in test well	nr			0.00
H48	Carry out variable rate step test in test well up to 1 day	nr			0.00
H49	Carry out constant rate test in test well up to 1 day	nr			0.00
H50	Extra over Item H49 for additional days pumping	day			0.00
H51	Carry out recovery monitoring	day			0.00
H52	Standing time for pumping test plant, equipment and crew	h			0.00
	Self-boring pressuremeter				
H53	Move and set up self-boring pressuremeter and exploratory hole forming equipment to site of each exploratory hole	nr			0.00
H54	Extra over Item H53 for setting up on a slope of gradient greater than 20% and less than 36%	nr			0.00
H55	Advance exploratory hole to pressuremeter test location between ground level and 10 m depth	m			0.00
H56	As Item H55 but between 10 and 20 m depth	m			0.00
H57	As Item H55 but between 20 and 30 m depth	m			0.00
H58	Advance exploratory hole through hard material or obstruction	h			0.00
H59	Self-bore to form test pocket between ground level and 10 m depth	m			0.00
H60	As Item H59 but between 10 and 20 m depth	m			0.00
H61	As Item H59 but between 20 and 30 m depth	m			0.00
H62	Carry out pressuremeter test, provision of data and report, test duration not exceeding 1.5 h	nr			0.00
H63	Extra over Item H62 for test duration in excess of 1.5 h	h			0.00
H64	Carry out additional calibrations as instructed by the Investigation Supervisor	sum			0.00
H65	Displacement transducers	nr			0.00
H66	Pore pressure transducers	nr			0.00
H67	Total pressure transducers	nr			0.00
H68	Membrane stiffness	nr			0.00
H69	Carry out membrane compression calibrations as instructed by the Investigation Supervisor	nr			0.00
H70	Backfill exploratory hole for pressuremeter with cement/bentonite grout	m			0.00

Notes

Number	Item description	Unit	Quantity	Rate	Amount £
I	Instrumentation				
	Observation wells and piezometers				
I1	Backfill exploratory hole with cement/bentonite grout below observation well or piezometer	m			0.00
I2	Provide and install 19 mm i.d. observation well	m			0.00
I3	Provide and install 19 mm i.d. open standpipe piezometer	m			0.00
I4	Extra over Item I3 to provide a porous filter tip	nr			0.00
I5	Provide and install 25 mm i.d. observation well	m			0.00
I6	Provide and install 25 mm i.d. open standpipe piezometer	m			0.00
I7	Extra over Item I6 to provide porous filter tip	nr			0.00
I8	Provide and install 50 mm i.d. observation well	m			0.00
I9	Provide and install 75 mm i.d. observation well	m			0.00
I10	Provide and install electric piezometer cable	m			0.00
I11	Provide and install electric piezometer tip (e.g. vibrating wire)	m			0.00
I12	Provide and install single-channel datalogger	nr			0.00
I13	Provide and install hydraulic piezometer	m			0.00
I14	Provide and install hydraulic piezometer tip	nr			0.00
I15	Provide terminal box for hydraulic piezometer	nr			0.00
I16	Provide and install pneumatic piezometer	m			0.00
I17	Provide and install terminal box for pneumatic piezometer	nr			0.00
I18	Provide gas tap for ground gas observation well	nr			0.00
I19	Provide and install protective cover (flush)	nr	1		0.00
I20	Provide and install protective cover (raised)	nr			0.00
I21	Extra over Item I20 for heavy-duty cover in highways	nr			0.00
	Observation well and open standpipe piezometer development				
I22	Supply equipment and personnel to carry out development by surging	nr			0.00
I23	Develop observation well or open standpipe piezometer by surging	h			0.00
I24	As Item I23 but by airlift pumping	nr			0.00
I25	As Item I23 but by airlift pumping	h			0.00
I26	As Item I23 but by over pumping	nr			0.00
I27	As Item I23 but by over pumping	h			0.00
I28	As Item I23 but by jetting	nr			0.00
I29	As Item I23 but by jetting	h			0.00
I30	Containment, transport and disposal of development water	m3			0.00
I31	Extra over Item I30 for containment, transport and disposal of contaminated development water	m3			0.00
	Inclinometers				
I32	Supply and install inclinometer guide tubing in exploratory hole (not including hole formation)	m			0.00
I33	Hire of inclinometer probe and read-out unit	day			0.00
I34	Provide and install protective cover for inclinometer installation (flush)	nr			0.00
I35	Provide and install protective cover for inclinometer installation (raised)	nr			0.00
	Extensometers				
I36	Provide and install access extensometer guide tubing	m			0.00
I37	Provide and install magnetic targets (i.e. spider magnet)	nr			0.00
I38	Provide and install datum magnet	nr			0.00
	Fencing and protection				
I39	Supply and erect protective fencing around observation well, piezometer or other installation	nr			0.00
I40	Supply and erect 1.5 m high marker post	nr			0.00
I41	Contract specific additional bill items				
I42	Provide and install 50 mm i.d. open standpipe piezometer	m	7		0.00
			Total Bill I carried to Summary		0.00

I12 Covers and terminal boxes will vary depending on the instrument specified, and where larger covers are required to accommodate specialist instrumentation or dataloggers additional contract-specific items should be provided. Item I12 allows for the provision of a single-channel datalogger. Where additional channels are required, items for additional channels or multi-channel dataloggers should be added as contract-specific additional items.

Sets of readings for instruments following initial installation during fieldwork and during return visits to site should be charged against the relevant items in Bill J.

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Number	Item description	Unit	Quantity	Rate	Amount £
J	Installation monitoring and sampling				
	During fieldwork period				
J1	Reading of water level in observation well or standpipe piezometer or VW piezometer (to include download of data collected since previous visit)	nr			0.00
J2	Ground gas measurement in observation well	nr			0.00
J3	Extra over Item J2 for obtaining a ground gas sample	nr			0.00
J4	Ground vapour measurement in observation well	nr			0.00
J5	Extra over Item J4 for obtaining a vapour sample	nr			0.00
J6	Set of inclinometer readings (as defined in Specification Clause 11.7 or Schedule S1.18.8) per installation and report results	nr			0.00
J7	Water sample from observation well or standpipe piezometer, including purging or low-flow purging up to 1.0 h	nr			0.00
J8	Extra over Item J7 for purging or low-flow purging in excess of 1.0 h	h			0.00
J9	Reading of free product level in observation well using an interface probe	nr			0.00
J10	Obtain surface water body sample	nr			0.00
J11	Containment, transport and disposal of purged water	nr			0.00
J12	Containment, transport and disposal of contaminated purged water	provisional sum			0.00
	Post-fieldwork period				
J13	Return visit to site following completion of fieldwork to take readings from installations (to include ALL installations)	nr	6		0.00
J14	Extra over Item J13 for reading of water level in observation well or piezometer during return visit	nr	6		0.00
J15	Extra over Item J13 for ground gas measurement in observation well during return visit	nr	4		0.00
J16	Extra over Item J13 for ground vapour measurement in observation well during return visit	nr			0.00
J17	Extra over Item J13 for reading of free product level in observation well using an interface probe during return visit to site	nr			0.00
J18	Extra over Item J13 for set of inclinometer readings (as defined in Specification Clause 11.7 or Schedule S1.18.8) per installation during return visit and report results	nr			0.00
J19	Extra over Item J13 for ground gas sample	nr			0.00
J20	Extra over Item J13 for vapour sample	nr			0.00
J21	Extra over Item J13 for water sample from observation well or standpipe piezometer during return visit to site, including purging or low-flow purging up to 1.0 h	nr	1		0.00
J22	Extra over Item J13 for purging or low-flow purging in excess of 1.0 h	h			0.00
J23	Obtain surface water body sample during return visit	nr			0.00
J24	Containment, transport and disposal of purged water	nr			0.00
J25	Containment, transport and disposal of contaminated purged water	provisional sum			0.00
J26	Determination of dissolved oxygen, conductivity, pH and temperature of surface water body during fieldwork period	nr			0.00
J27	Determination of dissolved oxygen, conductivity, pH and temperature of surface water body during return visit to site	nr			0.00
J28	Provide and install water level logger in installation for monitoring	nr	1		0.00
J29	Provide and install barometric logger in installation for monitoring	nr			0.00
J30	Extra over Items J28 and J29 for obtaining readings	nr			0.00
J31	Contract specific additional bill items				
			Total Bill J carried to Summary		0

J12, J25 The rate for disposal of contaminated waters should be charged under Items J12 or J25, as appropriate. Associated geoenvironmental testing necessary to enable the safe disposal of the purged water should be charged and included per number under Bill L.

SECTION K

Number	Item description	Unit	Quantity	Rate	Amount £
K	Geotechnical laboratory testing				
	Classification				
K1	Water content	nr	8		0.00
K2	Liquid limit (four-point method), plastic limit and plasticity index	nr	8		0.00
K3	Liquid limit (one-point method), plastic limit and plasticity index	nr			0.00
K4	Non-plastic sample determination after preparation	nr			0.00
K5	Methylene blue test	nr			0.00
K6	Volumetric shrinkage	nr			0.00
K7	Linear shrinkage	nr			0.00
K8	Density by linear measurement	nr	3		0.00
K9	Density by immersion in water or water displacement	nr			0.00
K10	Particle density by small or large pycnometer, or gas jar	nr			0.00
K11	Particle size distribution by sieving	nr	5		0.00
K12	Sedimentation by pipette	nr	5		0.00
K13	Sedimentation by hydrometer	nr			0.00
	Chemical and electrochemical				
K14	Organic matter content	nr			0.00
K15	Mass loss on ignition	nr			0.00
K16	Sulfate content of acid extract from soil	nr			0.00
K17	Sulfate content of water extract from soil	nr			0.00
K18	Sulfate content of groundwater	nr			0.00
K19	Carbonate content by rapid titration	nr			0.00
K20	Carbonate content by gravimetric method	nr			0.00
K21	Water-soluble chloride content	nr			0.00
K22	Acid-soluble chloride content	nr			0.00
K23	Total sulfur content	nr			0.00
K24	Total dissolved solids	nr			0.00
K25	pH value	nr			0.00
K26	Electrical resistivity	nr			0.00
K27	Thermal resistivity	nr			0.00
K28	Extra over Items K26 and K27 for specimen remoulding or recompaction	nr			0.00
K29	Redox potential	nr			0.00
	Compaction-related	nr			
K30	Dry density/water content relationship using 2.5 kg rammer	nr	1		0.00
K31	Dry density/water content relationship using 4.5 kg rammer	nr			0.00
K32	Dry density/water content relationship using vibrating rammer	nr			0.00
K33	Extra over Items K30, K31 and K32 for use of a California bearing ratio (CBR) mould	nr			0.00
K34	Maximum and minimum dry density for granular soils	nr			0.00
K35	Moisture condition value at natural water content	nr			0.00
K36	Moisture condition value/water content relationship	nr			0.00
K37	Chalk crushing value	nr			0.00
K38	California bearing ratio (CBR) on recompacted disturbed sample	nr			0.00
K39	Extra over Item K38 for soaking	day			0.00
	Consolidation				
K40	One-dimensional consolidation, test period not exceeding 7 days	nr	1		0.00
K41	Extra over Item K40 for test period exceeding 7 days	day			0.00
K42	Measurements of swelling pressure, test period not exceeding 2 days	nr			0.00
K43	Measurement of swelling, test period not exceeding 2 days	nr			0.00
K44	Measurement of settlement on saturation, test period not exceeding 1 day	nr			0.00
K45	Extra over Items K42 to K44 for test period exceeding 1 or 2 days	day			0.00
K46	Consolidation of a specimen up to 100 mm diameter in a hydraulic cell, test period 4 days	nr			0.00
K47	As Item K46 but using a 150 mm diameter specimen	nr			0.00
K48	As Item K46 but using a 250 mm diameter specimen	nr			0.00
K49	Extra over Items K46 to K48 for test period exceeding 4 days	day			0.00
K50	Extra over Items K46 to K48 for specimen remoulding or recompaction	nr			0.00
K51	Consolidation in a triaxial cell, test period 4 days	nr			0.00
K52	Extra over Item K51 for test periods exceeding 4 days	day			0.00
K53	Extra over Items K51 for specimen remoulding or recompaction, or specimen diameter reduction	nr			0.00
	Permeability				
K54	Permeability of soil in a rigid or flexible wall permeameter by the constant head or falling head method, test duration not exceeding 4 days	nr			0.00
K55	Extra over Item K54 for test period exceeding 4 days	day			0.00
K56	Permeability of soil in an oedometer ring permeameter, test duration not exceeding 1 day per loading or unloading stage	day			0.00
K57	Extra over Items K56 for test period exceeding 1 day per stage	day			0.00
K58	Permeability of a smaller than 100 mm diameter specimen in a hydraulic cell, test period 4 days	nr			0.00
K59	As Item K58 but using a 100 mm diameter specimen	nr			0.00
K60	As Item K58 but using a 150 mm diameter specimen	nr			0.00
K61	As Item K58 but using a 250 mm diameter specimen	nr			0.00
K62	Extra over Items K58 to K61 for measuring permeability in the horizontal direction	nr			0.00
K63	Extra over Items K58 to K61 for test period exceeding 4 days	day			0.00
K64	Extra over Items K58 to K61 for specimen remoulding, or reconstitution, or recompaction	nr			0.00
K65	Permeability in a triaxial cell, test period 4 days	nr			0.00
K66	Extra over Item K65 for test period exceeding 4 days	day			0.00
K67	Extra over Item K65 for specimen remoulding or reconstitution, or recompaction, or specimen diameter reduction	nr			0.00
	Durability				
K68	Dispersibility by the pinhole method	nr			0.00
K69	Dispersibility by the crumb method	nr			0.00
K70	Dispersibility by the dispersion method	nr			0.00
K71	Frost heave of soil	nr			0.00
	Shear strength (total stress)				
K72	Undrained shear strength by the laboratory vane method (set of 3)	nr			0.00
K73	Undrained shear strength by hand/torsion vane (set of 3)	nr			0.00
K74	Undrained shear strength by hand penetrometer (set of 3)	nr			0.00
K75	Undrained shear strength by the fall cone method	nr			0.00
K76	Extra over Items K72 to K75 for specimen remoulding or recompaction	nr			0.00
K77	Consolidated drained shear strength by direct shear of a set of three specimens in a small shear box (up to 25 mm in height), test duration not exceeding 1 day per specimen	nr			0.00
K78	Extra over Item K77 for test duration exceeding 1 day per specimen	sp.day			0.00
K79	Residual shear strength by direct shear of a set of 3 specimens in a small shear box (up to 25 mm in height), test duration not exceeding 4 days per specimen	nr			0.00
K80	Extra over Item K79 for test duration exceeding 4 days per specimen	sp.day			0.00
K81	Extra over Items K79 and K80 for specimen remoulding or recompaction	nr			0.00

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Number	Item description	Unit	Quantity	Rate	Amount £
Notes					
All	Items for laboratory testing on soil and rock are listed to correspond with the appropriate BS EN ISO/IEC 17982:2020, BS 1377, BS EN 933, BS EN 1097, BS EN 1367 and International Society for Rock Mechanics (ISRM) suggested methods or American Society for Testing and Materials (ASTM) international standard test methods.				
K5	For the purposes of preparation, the following types of soil specimens are considered: disturbed, undisturbed, recompacted, remoulded and reconstituted. To determine the strength properties of clay, silt and organic soil, undisturbed samples should be used. Alternatively, for certain soils (e.g. coarse silt or sand) or special purposes, tests can be carried out on reconstituted or remoulded specimens. Item K5 may be scheduled to assess fine-grained soil (i.e. BS EN 16907-2:2018).				
K94- K108	The deformation of soil specimens in Items K94 to K107 can be measured with on-specimen transducers placed horizontally and axially to measure the radial and axial strain, respectively. Somewhat similarly, three pairs of bender elements (Item K108) can be placed on the soil specimen horizontally and axially to measure the shear wave velocity in three orientations. Measurements of shear wave velocity can be scheduled after specimen saturation or consolidation, or both.				
K127- K153	In Items K127 to K153, tests such as the magnesium sulfate test and resistance to fragmentation or wear may require crushing to obtain the appropriate fraction, typically between 10 mm and 14 mm.				
K40, K93, K107, K126, K153	Items K40, K93, K107, K126 and K153 cover the cost of preparation of specimens that prove unsuitable for testing after preparation owing to sample deficiencies (e.g. not readily identified interval voids or fractures in intact samples, or excessive amount of gravel in bulk samples). See Clause 15.1.				
Where significant quantities of geotechnical testing of contaminated ground samples are also anticipated, consideration may be given to the inclusion of an additional bill that repeats the relevant geotechnical tests to enable the Contractor to better identify any additional costs involved.					
K16- K23	Items K16 to K23 are combined by many testing laboratories due to the potential aggressivity of the ground and groundwater, but the same chemical tests are listed individually in Bill K to permit separate selection of required tests. Test suites in respect of the potential aggressivity of ground and groundwater are provided in Bill L, as these are more often completed by the geoenvironmental laboratories.				

SECTION L

Number	Item description	Unit	Quantity	Rate	Amount £
L	Geoenvironmental laboratory testing				
	Ground/groundwater aggressivity				
L1	Suite A (Greenfield site – pyrite absent)	nr			0.00
L2	Suite B (Greenfield site – pyrite present)	nr			0.00
L3	Suite C (Brownfield site – pyrite absent, including dependent options)	nr			0.00
L4	Suite D (Brownfield site – pyrite present, including dependent options)	nr	2		0.00
	Geoenvironmental laboratory testing				
L5	Suite E (Soil samples)	nr			0.00
L6	Suite F (Water samples)	nr			0.00
L7	Suite G (Perfluoroalkyl and polyfluoroalkyl substances (PFAS) samples)	nr			0.00
L8	Suite H (Permanent gases)	nr			0.00
L9	Suite I (Vapour samples)	nr			0.00
	Waste acceptance criteria (WAC) testing				
L10	Suite J (Inert waste landfill)	nr	2		0.00
L11	Suite K (Stable, non-reactive hazardous waste in non-hazardous waste landfill)	nr			0.00
L12	Suite L (Hazardous waste landfill)	nr			0.00
L13	Contract specific additional bill items				
L14	Mott MacDonald Comprehensive Soil Suite (Specification Appendix B)	nr	8		0.00
L15	Mott MacDonald Comprehensive Soil Leachate Suite (Specification Appendix B)	nr	4		0.00
L16	Mott MacDonald Groundwater Suite (Specification Appendix B)	nr	1		0.00
L17	Mott MacDonald WAC Suite (Specification Appendix B)	nr	Rate only.		#VALUE!
	Total Bill L carried to Summary				#VALUE!

Notes

L1-L4 It is unlikely to be possible to accurately determine the quantities of optional determinands specified in the BRE SD1 suites for the assessment of potentially aggressive ground and groundwater. Therefore, the rates for Items L1 to L4 should include for all optional determinands, as listed in the guidance.

L5, L6 The tests included in each of Test Suites E and F, under Items L5 and L6, respectively, should be reviewed and, if necessary, amended in light of the results of the site-specific Desk Study. When other determinands are required to be included, these can be added as extra over sub-items to the typical suites where only a small number of additional determinands are required, or, alternatively, added as contract-specific determinand items or suites.

SECTION M

Number	Item description	Unit	Quantity	Rate	Amount £
M	Ground practitioners				
M1	(a) Registered ground engineering technician/technician	h			0.00
M2	(b) Graduate geotechnical practitioner/graduate geoenvironmental practitioner	h	x		#VALUE!
M3	(c) Registered ground engineering practitioner/experienced geotechnical practitioner/experienced geoenvironmental practitioner	h			0.00
M4	(d) Registered ground engineering professional	h			0.00
M5	(e) Registered ground engineering specialist	h			0.00
M6	(f) Registered ground engineering adviser	h			0.00
M7	(g) Chartered practitioner	h			0.00
M8	(h) Registered Specialist in Land Condition (SiLC)	h			0.00
M9	(i) Registered risk assessor (RSoBRA or ASoBRA)	h			0.00
M10	Level 3 Drilling Supervisor	h			0.00
	Expenses				
M11	Expenses incurred by staff on site visits or who are resident by agreement with the Investigation Supervisor	day	x		#VALUE!
M12	Rate per mile* from Contractor's premises, and return	mile	x		#VALUE!
M13	All other expenses incurred in conjunction with a site visit where a return journey is made on the same day	visit	x		#VALUE!
M14	All other expenses incurred in connection with visit where an overnight stay is necessary	overnight	x		#VALUE!
M15	Contract specific additional bill items				
			Total Bill M carried to Summary		#VALUE!

Notes

Rates should be entered for the various grades of resources listed. These resources will provide technical support to the Investigation Supervisor in accordance with Clause 4.4.7 and Schedule S1.8.4. When this is unknown at the time of tender, 'Rate only' should be used.

The technical support may comprise advice or assistance during the investigation and/or the preparation of the Ground Investigation Report and/or the Geotechnical Design Report, all in accordance with Specification Clauses 17.3.3 and 17.3.4. Where such support is required, it will either be detailed in Schedule S1.24.9 or S1.24.10 or may be instructed by the Investigation Supervisor.

The resources identified in Bill M exclude resource for the project management, supervision, technical direction and execution required from the Contractor under the Conditions of Contract and the requirements of Specification Clauses 4.4.2, 4.4.3 and 4.4.6 and Schedule S1.8.3, which should be included in the relevant items within Bill A of the Bill of Quantities (see Clause 1 of the Preamble to the Bill of Quantities).

The disciplines and/or grades of ground practitioners and other personnel required to assist or advise the Investigation Supervisor should be determined by the Designer or Investigation Supervisor on a site-specific basis. The list may be subdivided or repeated for the main services required, where due consideration is to be given to the separate costs of the advisory services or report preparation.

SECTION N

Number	Item description	Unit	Quantity	Rate	Amount £
N	Long-term storage of samples				
	Geotechnical samples				
N1	Small disturbed sample	nr	x		#VALUE!
N2	Bulk disturbed sample	nr	x		#VALUE!
N3	Groundwater/surface water sample	nr	x		#VALUE!
N4	Open-tube sample (thick-wall sampler) (e.g. U100)	nr			0.00
N5	Open-tube sample (thin-wall sampler) (e.g. UT100)	nr	x		#VALUE!
N6	Dynamic sampling liner sample	nr			0.00
N7	Rotary drilling core box with core	nr	x		#VALUE!
N8	Rotary drilling core subsample	nr	x		#VALUE!
N9	Block sample	nr			0.00
N10	Mostap sample	nr			0.00
N11	Continuous push/piston sample	nr			0.00
	Geoenvironmental samples				
N12	Soil sample in plastic tubs	nr	x		#VALUE!
N13	Soil sample in glass containers	nr	x		#VALUE!
N14	Groundwater/surface water sample	nr	x		#VALUE!
N15	Gas sample	nr			0.00
N16	Vapour sample	nr			0.00
N17	Contract specific additional bill items				
			Total Bill N carried to Summary		#VALUE!

Notes

AllLong term storage shall mean storage of samples for a period of one year after the submission and acceptance of of the final Factual Investigation report.

Tender Summary

Section	Title	£
A.	General items, amenities and additional items	#VALUE!
B.	Cable Percussion boring and Dynamic Sampling	£0.00
C.	Rotary drilling	£0.00
D.	Pitting and trenching	#VALUE!
E.	Sampling and monitoring during intrusive investigation	£0.00
F.	Dynamic probing and cone penetration testing	£0.00
G.	Geophysical surveys	£0.00
H.	Field Testing	£0.00
I.	Instrumentation	£0.00
J.	Installation monitoring and sampling	£0.00
K.	Geotechnical laboratory testing	#VALUE!
L.	Geoenvironmental laboratory testing	#VALUE!
M.	Technical support from ground practitioners and other personnel	#VALUE!
N.	Long-term storage of samples	#VALUE!
Total Tender		#VALUE!