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## Request for Quotation

### **Analysis of Soil Samples for Natural England's Long Term Monitoring Network 2025 - 2026**

# Request for Quotation

## Analysis of Soil Samples for Natural England's Long Term Monitoring Network 2025 - 2026

You are invited to submit a quotation for the requirement described in the specification, Section 2.

Your response should be returned to the following email addresses:

Email: [matthew.j.shepherd@naturalengland.org.uk](mailto:matthew.j.shepherd@naturalengland.org.uk); [victoria.sloan@naturalengland.org.uk](mailto:victoria.sloan@naturalengland.org.uk)

Date: Friday 22<sup>nd</sup> August 2025

Time: 5pm

Ensure you state the reference '**LTMNSOILS25-26**' and '**Final Submission**' in the subject field to make it clear that it is your response.

### Contact Details and Timeline

Matthew Shepherd and Victoria Sloan will be your contacts for any questions linked to the content of the quote pack or the process. Please submit any questions by email and note that, unless commercially sensitive, both the question and the response will be shared on the Contracts Finder website / circulated to all tenderers.

Action	Date
Date of issue of RFQ	04/08/2025
Deadline for clarifications questions	16/08/2025 at 17:00
Deadline for receipt of Quotation	22/08/2025 at 17:00
Intended date of Contract Award	01/09/2025
Intended Contract Start Date	08/09/2025
Intended Delivery Date / Contract Duration	06/03/2026

### Glossary and Background to Natural England

Unless the context otherwise requires the following words and expressions used within this Request for Quotation shall have the following meanings (to be interpreted in the singular or plural as the context requires):

"Authority"	Means Natural England acting as part of the Department for Environment, Food and Rural Affairs
"RFQ"	Means this Request for Quotation and all related documents published by the Authority and made available to suppliers
"Contract"	Means the contract to be entered into by the Authority and the successful supplier.

The Authority is Natural England. The Authority's priorities are to secure a healthy natural environment; a sustainable, low-carbon economy; a thriving farming sector and a sustainable, healthy and secure food supply. Further information about the Authority can be found at: [Defra – Natural England](#).

## **Conditions applying to the RFQ**

You should examine your response to the RFQ and related documents ensuring it is complete and in accordance with the stated instructions prior to submission.

Your quotation must contain sufficient information to enable the Authority to evaluate it fairly and effectively. You should ensure that you have prepared your quotation fully and accurately and that prices quoted are arithmetically correct for the units stated.

The supplier by submitting a quotation is deemed to accept the terms and conditions in the RFQ Confirmation of this is required in Annex 2. Failure to comply with the instructions set out in the RTQ may result in the supplier's exclusion from this quotation process.

## **Acceptance of Quotations**

By issuing this RFQ the Authority does not bind itself to accept any quotation and reserves the right not to award a contract to any supplier who submits a quotation.

## **Costs**

The Authority will not reimburse you for any costs and expenses which you incur preparing and submitting your quotation, even if the Authority amends or terminates the procurement process.

## **Self-Declaration and Mandatory Requirements**

The RFQ includes a self-declaration response (Annex 1) which covers basic information about the supplier, as well as any grounds for exclusion. If you do not comply with them, your quotation will not be evaluated.

Any mandatory requirements will be set out in Section 2, Specification of Requirements and, if you do not comply with them, your quotation will not be evaluated.

## **Clarifications**

Any request for clarification regarding the RFQ and supporting documentation must be submitted via email no later than the deadline for clarifications set out in the Timetable. The Authority shall be under no obligation to respond to queries raised after the clarification deadline. The Authority will respond to all reasonable clarifications as soon as possible but cannot guarantee a minimum response time. The Authority will publish all clarifications and its responses to all suppliers via email unless deemed commercially sensitive.

If a supplier believes that a request for clarification is commercially sensitive, it should clearly state this when submitting the clarification request. However, if the Authority considers either that:

- the clarification and response are not commercially sensitive; and
- all suppliers may benefit from its disclosure,

then the Authority will notify the supplier (via email), and the supplier will have an opportunity to withdraw the request for clarification by sending a further message requesting the withdrawal of the clarification request. If not withdrawn by the supplier within 2 working days of the Authority's notification, the Authority may publish the clarification request and its response and the Authority shall not be liable to the supplier for any consequences of such publication.

The Authority reserves the right to seek clarification of any aspect of a quotation and/or provide additional information during the evaluation phase to carry out a fair evaluation. Where the Authority seeks clarification on any aspect of the quotation, the supplier must respond within the timeframe requested by the Authority.

## **Amendments**

The Authority may amend the RFQ at any time prior to the deadline for receipt. If it amends the RFQ the Authority will notify you via email, and may extend the deadline for receipt in order to give you a reasonable time in which to take the amendment into account.

Suppliers may modify their quotation prior to the deadline for Responses. No Responses may be modified after the deadline for Responses.

Suppliers may withdraw their quotations at any time by submitting a notice via the email to the named contact.

## **Conditions of Contract**

The Authority's

- Standard Good and Services Terms & Conditions,

which can be located [here](#).

and will be applicable to any contract awarded as a result of this quotation process. The Authority will not accept any changes to these terms and conditions proposed by a supplier.

Suppliers should note that the quotation provided by the successful bidder will form part of the Contract.

## **Prices**

Prices must be submitted in £ sterling, exclusive of VAT.

It is anticipated that this contract will be awarded to end no later than 06/03/2026. Prices will remain fixed for the duration of the contract award period. We may at our sole discretion extend

this contract to include related or further work. Any extension shall be agreed in advance of any work commencing and may be subject to further competition.

## **Disclosure**

All Central Government Departments, their Executive Agencies and Non Departmental Public Bodies are subject to control and reporting within Government. In particular, they report to the Cabinet Office and HM Treasury for all expenditure. Further the Cabinet Office has a cross-Government role delivering overall Government policy on public procurement, including ensuring value for money and related aspects of good procurement practice. For these purposes, the Authority may disclose within Government any details contained in your quotation. The information will not be disclosed outside Government during the procurement.

In addition, the Authority is subject to the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, which provide a public right of access to information held by public bodies. In accordance with these two statutes, the Authority may be required to disclose information contained in your quotation to any person who submits a request for information pursuant to those statutes.

Further to the Government's transparency agenda, all UK Government organisations must advertise on Find a Tender Service (FTS) in accordance with the following publication thresholds:

- Central Contracting Authority's: £12,000
- Sub Central Contracting Authority's and NHS Trusts: £30,000

For the purpose of this RFQ the Authority is classified as a Central Contracting Authority with a publication threshold of £12,000 inclusive of VAT.

If this opportunity is advertised via FTS, we are obliged to publish details of the awarded contract.

A copy of the contract must also be published with confidential information redacted.

By submitting a Response, you consent to these terms as part of the procurement.

## **Disclaimers**

Whilst the information in this RFQ and any supporting information referred to herein or provided to you by the Authority have been prepared in good faith the Authority does not warrant that this information is comprehensive or that it has been independently verified.

The Authority does not:

- make any representation or warranty (express or implied) as to the accuracy, reasonableness or completeness of the RFQ;
- accept any liability for the information contained in the RFQ or for the fairness, accuracy or completeness of that information; or

- accept any liability for any loss or damage (other than in respect of fraudulent misrepresentation or any other liability which cannot lawfully be excluded) arising as a result of reliance on such information or any subsequent communication.

Any supplier considering entering into contractual relationships with the Authority following receipt of the RFQ should make its own investigations and independent assessment of the Authority and its requirements for the goods and/or services and should seek its own professional financial and legal advice.

## **Information Security requirements**

The Government Security Classification Policy (GSCP) sets out the administrative system used by HM Government (HMG) to protect information and data assets appropriately against prevalent threats through the use of 'classification tiers'. HMG uses three classification tiers; OFFICIAL, SECRET and TOP SECRET. Each tier provides a set of recommended baseline behaviours and a set of protective controls, which are proportionate to the threat profile for that tier AND the potential impact of a compromise, accidental loss or incorrect disclosure of information held within that tier.

Tenderers and suppliers must ensure that appropriate protective security controls are in place to comply with the GSCP and manage the information shared and received as part of this tender exercise.

A full suite of guidance documents is available on GOV.UK, with specific guidance for tenderers and suppliers set out in [Guidance 1.6 - Contractors and Contracting Authorities.docx \(publishing.service.gov.uk\)](https://www.gov.uk/guidance/guidance-1-6-contractors-and-contracting-authorities).

## **Use of Artificial Intelligence**

The Authority expects suppliers to declare where they have used AI software in the creation of Tender responses or intend to use AI software in the performance of the contract. How any AI software was, or will be, used should be to be declared within the technical submission part of the tender. We may require you to answer specific question/s on this topic, particularly where the Authority expects that usage is highly likely or clearly relates to the contract requirements.

Suppliers must follow any guidelines or regulations related to AI use and declarations as indicated in the [PPN 2/24 Improving Transparency of AI use in Procurement](#).

Any information, instructions, or data provided by the Authority to suppliers as part of this tender, the requirements, or contract should not be directly inserted into Generative AI software (such as Gemini, ChatGPT, or CoPilot) without prior permission, unless this information is clearly published in the public domain.

Use of any Authority confidential tender information for training AI software is prohibited. it is advised that Defra's data or instructions, or anything marked as confidential should not be directly inserted into AIs. For example, putting Authority's instruction email into Gemini, ChatGPT, or CoPilot is not recommended.

If you intend to use AI to provide goods or services to the Authority, then you are required to complete a declaration which is simply answering the question stated within the 'Information to be returned'. The answer to this question will not be used in scoring your quote.

## **Protection of Personal Data**

In order to comply with the General Data Protection Regulations 2018 the supplier must agree to the following:

You must only process any personal data in strict accordance with instructions from the Authority.

- You must ensure that all the personal data that we disclose to you or you collect on our behalf under this agreement are kept confidential.
- You must take reasonable steps to ensure the reliability of employees who have access to personal data.
- Only employees who may be required to assist in meeting the obligations under this agreement may have access to the personal data.
- Any disclosure of personal data must be made in confidence and extend only so far as that which is specifically necessary for the purposes of this agreement.
- You must ensure that there are appropriate security measures in place to safeguard against any unauthorised access or unlawful processing or accidental loss, destruction or damage or disclosure of the personal data.
- On termination of this agreement, for whatever reason, the personal data must be returned to us promptly and safely, together with all copies in your possession or control.

## **General Data Protection Regulations 2018**

For the purposes of the Regulations the Authority is the data processor.

The personal information that we have asked you provide on individuals (data subjects) that will be working for you on this contract will be used in compiling the tender list and in assessing your offer. If you are unsuccessful the information will be held and destroyed within two years of the award of contracts. If you are awarded a contract it will be retained for the duration of the contract and destroyed within seven years of the contract's expiry.

We may monitor the performance of the individuals during the execution of the contract, and the results of our monitoring, together with the information that you have provided, will be used in determining what work is allocated under the contract, and in any renewal of the contract or in the award of future contracts of a similar nature. The information will not be disclosed to anyone outside the Authority without the consent of the data subject, unless the Authority is required by law to make such disclosures.

## **Equality, Diversity & Inclusion (EDI)**

The Client is striving to create a diverse and inclusive working environment where every individual has equality of opportunity to progress and to apply their unique insights to making the UK a great place for living. The Service Provider is expected to respect this commitment in all dealings with Natural England staff and service users.

Suppliers are expected to;

- support Defra group to achieve its Public Sector Equality Duty as defined by the Equality Act 2010, and to support delivery of [Defra group's Equality & Diversity Strategy](#).
- meet the standards set out in the [Government's Supplier Code of Conduct](#)
- work with Defra group to ensure equality, diversity and inclusion impacts are addressed (positive and negative) in the goods, services and works we procure, barriers are removed and opportunities realised.

## **Sustainable Procurement**

Addressing global sustainability impacts and realising additional community benefits within commercial activity is core to Defra group's approach, working with its supply chain is key to achieving sustainable outcomes. In addition to supporting Defra group to meet its outcomes we look to understand and reduce negative sustainability impacts associated with our commercial activity and realise benefits.

The Client encourages its suppliers to share these values, work to address negative impacts and realise opportunities, measure performance and success.

Suppliers are expected to have an understanding of the Sustainable Development Goals, the interconnections between them and the relevance to the Goods, Services and works procured on the Client's behalf.

## **Conflicts of Interest**

The concept of a conflict of interest includes but is not limited to any situation where an Involved Person or Relevant Body has directly or indirectly, a financial, economic or other personal interest which might be perceived to compromise their impartiality and independence in the context of the procurement procedure and/or affect the integrity of the contract award.

We expect suppliers to mitigate appropriately against any real or perceived conflict of interest through their work with government. A supplier with a position of influence gained through a contract should not use that position to unfairly disadvantage any other supplier or reduce the potential for future competition

Where the supplier is aware of any circumstances giving rise to a conflict of interest or has any indication that a conflict of interest exists or may arise you should inform the Authority of this as soon as possible (whether before or after they have submitted a quotation). Tenderers should remain alert to the possibility of conflicts of interest arising at all stages of the procurement and should update the Authority if any new circumstances or information arises, or there are any changes to information already provided to the Authority. Failure to do so, and/or to properly manage any conflicts of interest may result in a quotation being rejected.

Provided that it has been carried out in an open, fair and transparent manner, routine pre-market engagement carried out by the Authority should not represent a conflict of interest for the supplier.



## Section 2: Specification of requirements

### *Long Term Monitoring Network – Soil Samples Analysis*

#### Background to the specific work area relevant to this contract

The Long-term Monitoring Network (LTMN) comprises 37 sites, mainly National Nature Reserves, in England, where a wide range of environmental parameters are being monitored with the aim of detecting long-term changes in biodiversity and ecosystem function associated with climate change, pollution and land management. A suite of soil parameters are included in this monitoring to enable interpretation of above and below-ground environmental changes and to indicate long-term changes in soil characteristics, functions and biodiversity.

This document provides a specification to undertake processing and laboratory analysis of soils samples collected from five sites to be sampled in autumn 2025.

#### Requirements

This contract requires analysis of soil samples which will be collected from five sites around England during Autumn 2025. Fieldwork to collect the samples is planned to take place between 15<sup>th</sup> September – 15<sup>th</sup> October 2025. Within each site, soil sampling and field assessments will be undertaken in five sampling plots.

Sites and habitats to be surveyed and sampled are listed in Table 1 below.

**Table 1** Sites and habitats to be sampled for soil analysis in 2025.

Site No.	Site (and abbreviated name)	Broad habitat to be sampled	Dates proposed for sampling
23	Saltfleetby-Theddlethorpe (SAL)	Supralittoral sediment	6 <sup>th</sup> – 9 <sup>th</sup> October 2025
30	North Walney (WAL)	Littoral sediment	15 <sup>th</sup> – 17 <sup>th</sup> September 2025
35	Cross Fell (CRF)	Montane	19 <sup>th</sup> – 22 <sup>nd</sup> September 2025
36	Woodwalton Fen (WDW)	Fen, marsh and swamp	2 <sup>nd</sup> – 5 <sup>th</sup> October 2025
37	Braunton Burrows (BBR)	Supralittoral sediment	28 <sup>th</sup> – 30 <sup>th</sup> September 2025
<i>Should sampling issues occur at any of the above sites, any outstanding sampling will be completed 11<sup>th</sup> – 15<sup>th</sup> October 2025.</i>			

Soil samples will be collected from five 20m by 20m sampling plots at each site, with these five representing examples of similar vegetation and soil types. Thus, samples will be collected from a total of twenty-five sampling plots.

In each sampling plot, four 2m by 2m subplots have been selected randomly, from which the following series of soil cores and samples will be collected.

**Core A** = Four PVC-C plastic tubes 51mm internal diameter and 150mm long, wrapped in clingfilm and containing intact soil from 15-30 cm below the soil surface. All four soil samples from a single 20m by 20m plot are placed in a single bag and are to be bulked for analysis.

**Core B** = Four PVC-C plastic tubes 40mm internal diameter and 80mm long, wrapped in clingfilm, capped with gauze, and containing intact soil from 0-8cm below the soil surface. All four soil samples from a single 20m by 20m plot are placed in a single bag and are to be bulked for analysis.

**Core C** = Four PVC-C plastic tubes 51mm internal diameter and 150mm long, wrapped in clingfilm and containing intact soil from 0-15 cm below the soil surface. All four soil samples from a single 20m by 20m plot are placed in a single bag and are to be bulked for analysis.

**Core D** = a bag of approximately 500g wet weight of soil collected from 0-15cm below the soil surface, bulked from 12 locations into a single bag.

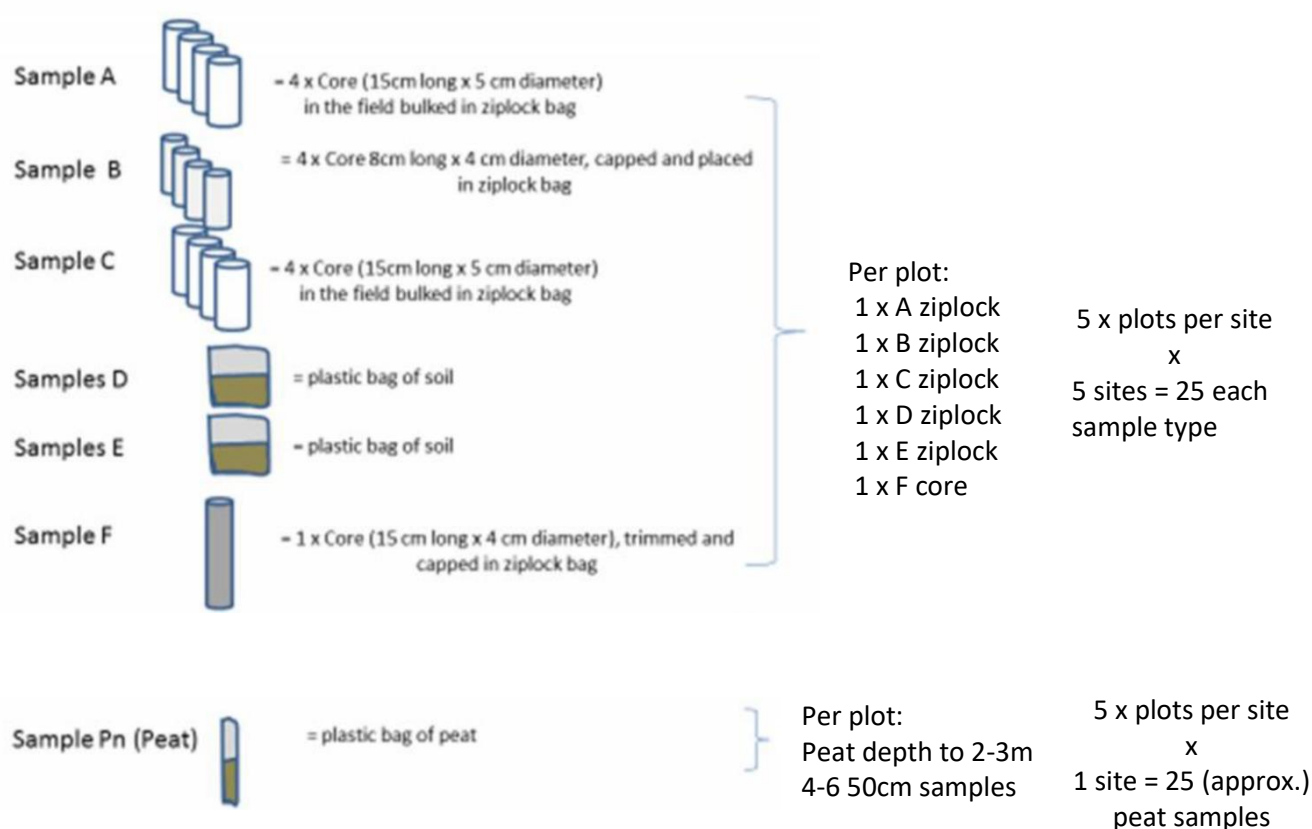
**Core E** = a bag of approximately 500g wet weight of soil collected from 0-15cm below the soil surface, bulked from 12 locations into a single bag.

**Core F** = a single core 40mm in diameter and 150mm long wrapped in clingfilm and containing intact soil from 0-15 cm below the soil surface.

**Core P** = at Woodwalton Fen, where the soil can be entirely organic (peaty) in texture up to depths 2 - 3m, a Russian peat corer will be used to extract sequential peat samples down the profile in one subplot only in each sampling plot, with each core extracted representing 50cm depth of peat, until the entire depth of the peat deposit has been sampled as far as feasible. The last core extracted may represent only a partial core (with mineral material removed from the base), and the length of the peat core sample occupied by peaty material will be measured and noted. Each peat core will be placed in separate labelled bags marked sequentially P1 (for surface peat), P2, P3, P4 etc. Please note, the number of peat samples that the sites will yield has been estimated on the basis of the baseline peat depth data available, but exact numbers of samples will not be known until the survey is complete. For the purposes of planning, for 2025 it has been estimated that:

- Woodwalton Fen will generate approximately 25 samples

**From this fieldwork there will therefore be a total of approximately 175 bags of soil samples from the main sampling, comprising: 25 A core samples, 25 B core samples, 25 C core samples, 25 D samples, 25 E samples, 25 F cores and 25 P core samples. The samples to be collected are shown the schematic diagram in Figure 1.**



**Fig 1.** Schematic showing the numbers and types of samples to be collected and analysed during LTMN soils fieldwork Autumn 2025.

## Labelling of soil samples

All samples will be supplied in bags labelled using the following system

Site number X Plot number X [Subplot Number X] Sample Type Letter and number

Note that only cores F and P will be labelled at the subplot level, with the remainder being bulked from 4 subplots in a single bag for analysis.

Thus a bag of 4 A cores (15-30 cm) from of sampling plot 3 at Woodwalton Fen will carry the label

36 X 5 X A

And an F core from Subplot 42 in Sampling plot 10 at Cross Fell will carry the label

35 X 10 X 42 X F

All sample bags will also be labelled with the **date**, **abbreviated site name** and the **initials** of the surveyor, this information should be transferred to a spreadsheet and used to link analysis results to field data.

Field information relating to the samples taken (such as notes of any missing or short samples) will be supplied to the contractor, to enable them to carry out, interpret and report on the soil analysis required.

### ***Sample storage and transport***

- Soil samples will be delivered chilled to the contractor in insulated boxes containing frozen freeze blocks.
- On receipt of the soil samples they must be placed immediately into cold storage at 4°C.
- The contractor must discuss arrangements for receiving the samples with field contractors to ensure that that laboratory staff know that they are arriving and can act to store and preserve them appropriately on arrival.
- Samples should be stored for a minimum of time before analysis to limit post-sampling changes to soil communities, properties or functions. This is of particular importance for samples B, D, E and F.
- The following processed samples should be returned to Natural England for storage and possible further analysis (assume postage to Exeter; addresses will be provided):
  - Extracted mesofauna samples in 90% alcohol from sample B
  - Extracted nematode samples in suitable preservative from sample D
  - Air dried, sieved soils representing A and C samples.

If possible, fresh material from D or E samples should also be archived in a freezer at least –20°C.

### ***Soil Sample Analysis***

#### **Analysis of Physico-chemical attributes**

The following analyses should be applied to the following soil samples as collected above. In all cases analyses should as closely as possible conform to those used by the James Hutton Institute for previous monitoring analysis. The JHI method codes for each analysis are provided in brackets below and referred to [here](#):

If the contractor is able to suggest an improved method of analysis, which would allow valid comparison with previous analyses, this must be discussed and agreed with the Natural England project manager before implementing.

#### **Core A and Core C – 15cm by 5cm diameter – bulked samples from 0-15 and 15-30cm 50 analyses in total (2 depths x 5 sites x 5 sampling plots)**

For each set of bulked samples, entire sample collected should each be assessed using, where possible, UKAS approved method for:

- % gravimetric water content following drying at 30°C and after further drying at 105°C
- % stone weight and volume (volume of mineral particles >2mm diameter)
- dry bulk density g cm<sup>-3</sup>
- fine earth bulk density (dry bulk density of non-stone material)

to give five measurements per site for A cores and five measurements per site for C cores. For each sample, and for each core, aliquots of sieved soil should be measured out and analysed for the following parameters using UKAS approved methods:

- pH in water and in CaCl<sub>2</sub> (Method DM006)
- % dry weight loss on ignition at 375°C<sup>1</sup> (Method DM007)
- % dry weight total C and total N (Dumas combustion on air-dried and milled sample, dried at 105°C)
- Cation Exchange Capacity and exchangeable cations, comprising Mg, Ca, Na, Mn, K, Fe, Al (Ammonium acetate extraction at pH7, and analysis of cations using ICP-OES) and exchangeable acidity (barium acetate extraction, at pH 7, and titration with barium hydroxide) expressed as milliequivalents per 100g dry soil.
- For mineral soil samples only, particle size distribution: gravimetric % sand, silt and clay, using both BSTC and international definitions for silt and sand (laser diffraction)

**C Cores only – 15cm by 5cm diameter – bulked samples from 0-15 cm  
25 analyses in total (5 sites x 5 sampling plots)**

- Olsen P: (see below) expressed in mg kg<sup>-1</sup> extractable P per unit dry soil.

**Cores Pn – <=50cm length cores taken down peat profile to full depth of peat.  
~25 analyses in total from Woodwalton Fen**

The 50 cm peat samples of known volume must be weighed wet, dried at 105°C, and reweighed to estimate bulk density following, where possible, a UKAS approved procedure. Dried cores will be subsampled by cutting lengthways and ground in a hammer mill or other suitable machine before being analysed for soil organic matter content by loss on ignition at 375°C<sup>1</sup>.

All analyses should be subject to adequate QC procedures, and documentation on the methods used should be made available to Natural England on request.

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<sup>1</sup> or optimum temperature for complete combustion of organic matter, while avoiding liberation of carbonate C.

## **Analysis of soil biological parameters and functions**

The following analyses and procedures should be undertaken for cores B, D and E.

### **Sample B – four 8cm by 8cm diameter cores for soil arthropods by Tullgren extraction 25 extractions in total (5 sites X 5 sampling plots)**

This sample should be stored at 4°C pending processing, for as little time as possible. Cores B should have their fine gauze carefully removed (to avoid loss of specimens), each bulked set of cores carefully ejected to avoid core damage (**ideally by cutting through the core pipes while still wrapped**), and mounted in a single Tullgren funnel with their original surface facing downward, or lying on their sides. When placing cores into the Tullgren funnel “basket” the basket should be placed over a suitable sized container, to catch material and organisms falling through the mesh. The basket should be moved to another clean container, and the contents of the original container emptied onto the surface of the cores. This should be repeated as necessary until no material falls through the mesh. The basket should then be moved carefully onto the Tullgren funnel.

Each funnel should be gently heated using a low-wattage incandescent bulb, for an appropriate extraction period (until the soil is no longer losing water – usually at least 5 days) while collecting soil fauna emerging from the base of the funnel in ethanol, following the protocols followed by Emmett et al 2008. Samples should be collected and stored in at least 90% ethanol to enable later genetic/metagenetic analysis and morphological identification of the specimens. This contract does not extend to the counting or identification of animals extracted. Extracts should be carefully packed in protective material and sent to Natural England for identification or further processing, using a suitable courier or transport process.

### **Sample E – 8-12 bulked trowel samples 25 analyses in total (5 sites X 5 sampling plots)**

This sample must be stored at 4°C pending analysis, and will be homogenized, and sub-sampled before analysis using UKAS-approved methods where possible, for

- Soil microbial PFLAs (S.O.P. CP001; see Zogg et al, 1997; Frostegård et al, 1996, as adapted by Black et al, 2008; 2011). These would be extracted from an appropriate amount of homogenised soil (50-500g depending on organic matter content, Method SEP0000) and analysed by GC-FID or other suitable method (Method CM001) to indicate both total biomass PLFAs, and identification of a range of taxon-specific and unidentified PLFAs (see Appendix 1) following the methods used in the Black et al (2011). Data for individual PLFA species should be reported as  $\mu\text{g g}^{-1}$ ,  $\text{nmol g}^{-1}$  and % total mol.
- A further subsample will be subject to microbial DNA analysis by terminal restriction fragment length polymorphism (tRFLP) on ITS, 16S and archaea genes, following the protocol described in Black (2008; 2011). The data will be reported on by relative abundance of all resulting fragment lengths. An internal size standard should be used which will allow for the reasonable calibration of size fragments between 30 and 550 base pairs. **The resulting data should be harmonised with previous data reported from the LMTN (supplied as necessary) to enable comparison between years.**

## **Sample D – 8-12 bulked trowel samples**

### **25 extractions/analyses in total (5 sites X 5 sampling plots)**

The bulked sample should be subject to a modified Baermann extraction (following the protocols previously used by the James Hutton Institute). This is similar to the method established by Black *et al* (2008, 2011), for the SQID programme, which is based on a modified version of Brown and Boag (1988) for collection of soil nematodes, but uses 200g of soil, instead of 100g. Nematode extracts should be archived using a suitable method. **Previous LTMN monitoring has archived samples in formalin glycol, following the method outlined in Donn *et al.* (2008, 2012). However, this has proven to be a poor preservative, may damage DNA precluding future genetic analysis, and is carcinogenic. For these reasons we would welcome preservation approaches that represent good preservation, opportunities for DNA analysis and improved health and safety.**

## **Sample F – Indicator of N mineralisation**

### **25 analyses in total (5 sites X 5 sampling plots)**

Core F should be analysed for N mineralisation following the method described by Emmett *et al.* (2008) which removes soluble N from an intact core by washing through with artificial rainwater, before incubating, and analysis for all KCl-extractable N. This does not produce true N mineralisation rates, but may provide a comparative index of N mineralisation.

The intact core should be removed from its plastic case. The core should be lain on its side on a rack and brought to field capacity and flushed through with “artificial rain” (“UK rain minus N”, Emmett *et al.* 2008) equivalent in volume to 4 times the pore volume of the core to remove remaining mineral N (as described in Emmett *et al.* 2008).

The core should then be subjected to standard suction to standardise soil water tension before N mineralisation. Soil cores should then be incubated for 28 days at 10 degrees C and extracted with 1M KCl as described in Emmett *et al.* (2008) and soil ammonium-N and nitrate-N analysed and reported in terms of total ammonium-nitrogen and total nitrate-nitrogen mineralised per mass of soil.

## ***Sample archiving***

Sieved (<2mm), dried (30°C) samples from cores A and C (or hammer milled material if peaty) from all sites analysed under this contract should be supplied in labelled bags/containers to Natural England for storage and possible future analysis. The contractor should discuss options for archiving frozen samples of fresh material from the D and/or E samples with the Natural England project manager.

The samples would be contained in labelled plastic bags, and we recognise that these samples will be of various sizes depending on the water content and density of the original sample.

## ***Data analysis and reporting***

Raw data should be provided to Natural England, and be processed where this is required to provide biologically meaningful results (e.g. profiling of PLFAs against soil organism groups, processing of tRFLP data to make it compatible with previous years' data). Data should be provided in Excel spreadsheets format and should include metadata to enable all analyses to be duplicated exactly.

- Content of clay, silt, sand, water, organic matter, carbon, nitrogen should be expressed in % weight values.
- Cations and CEC should be expressed as millequivalents 100g<sup>-1</sup> dry soil
- Olsen P should be expressed in mg extractable P kg<sup>-1</sup> dry soil.
- Dry bulk density and stone free dry bulk density should be expressed in g cm<sup>-3</sup>
- pH should be expressed in standard units
- Ammonium and Nitrate mineralisation should be expressed in mg N kg<sup>-1</sup> dry soil day<sup>-1</sup>.
- PLFAs should be reported in ug g<sup>-1</sup>, nmol g<sup>-1</sup> and % total mol
- tRFLP should be reported in fragment lengths in base pairs, as described above, and standardised in such a way as to be integrated with results from previous years to enable valid comparison between sites (data from previous years will be provided as necessary), and between sampling periods for those sites with repeated samples.

All results should be supplied to Natural England in the form of Excel spreadsheets. Advice will be given on the format, units or analysis required. Time required to for both sample analysis and data collation should be identified and costed as part of the tender.

There is no requirement for producing a final report, or to conduct any statistical analysis of the data saving that required for identifying PLFAs, tRFs or for calculating the units above.

Details of the analytical protocols used in the analyses described above are to be supplied to NE to enable us to describe the protocols accurately in future publications and specifications.

## References

- Black, H.I.J. Ritz, K. Campbell, C.D. Harris, J.A. Wood, C. Chamberlain, P.M. Parekh, N. Towers, W. and Scott, A. (2008). SQID: Prioritising biological indicators of soil quality for deployment in a national-scale soil monitoring scheme. Summary report. NERC/Centre for Ecology & Hydrology, 22pp. (CEH Project Number: C03061, Defra Project No. SP0529)
- Black HIJ, K Ritz, JA Harris, CM Cameron, CD Campbell, PM Chamberlain, R Creamer, M Pawlett, C Wood, BK Singh. (2011). Scoping Biological Indicators of Soil Quality Phase II. Defra Final Contract Report SP0534.
- Donn, S., Griffiths, B.S., Neilson, R. & Daniell, T.J. (2008) DNA extraction from soil nematodes for multi-sample community studies. *Applied Soil Ecology*, 38, 20–26.
- Donn, S., Neilson, R., Griffiths, B. S., and Daniell, T. J. (2012). A novel molecular approach for rapid assessment of soil nematode assemblages – variation, validation and potential applications. *Methods in Ecology and Evolution*, 2, 12-23.  
[http://home.dbio.uevora.pt/~hadao/FCT\\_Proj/Donn%20et%20al%202012.pdf](http://home.dbio.uevora.pt/~hadao/FCT_Proj/Donn%20et%20al%202012.pdf)
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- Merrington G. (2006) The development and use of soil quality indicators for assessing the role of soil in environmental interactions. Science Report SC030265, Environment Agency.
- Gregory P. Zogg, G.P., Zak, D. R., Ringelberg, D.B., White, D. C., MacDonald, N. W, Pregitzer K. S. (1997). Compositional and Functional Shifts in Microbial Communities Due to Soil Warming. *Soil Science Society of America Journal*, 61:475-481



Frostegård, Å., Tunlid, A., Bååth E. (1996). Changes in microbial community structure during long-term incubation in two soils experimentally contaminated with metals. Soil Biology and Biochemistry, 28, 55–63

## Sustainability

Natural England protects and improves the environment and is committed to reducing the sustainability impacts of its activities directly and through its supply chains. We expect the Contractor to share this commitment and adopt a sound, proactive sustainable approach in keeping with the 25 yr environmental plan/our commitments compliant with all applicable legislation. This includes understanding and reducing direct and indirect sustainability impacts and realising opportunities, including but not restricted to; resilience to climate change, reducing greenhouse gas emissions, water use and quality, biosecurity, resource efficiency and waste, reducing the risk of pollution, biodiversity, modern slavery and equality, diversity & inclusion, negative community impacts.

As a delivery partner, the successful contractor is expected to pursue sustainability in their operations, thereby ensuring the Contracting Authority is not contracting with a supplier whose operational outputs run contrary to the Contracting Authority's objectives. The successful contractor will need to approach the project with a focus on the entire life cycle of the project

## Prices

Prices must be submitted in £ sterling, inclusive of VAT.

## Quotation Submission and Evaluation

We will award this contract in line with the most advantageous tender (MAT) as set out in the following award criteria:

- Commercial – 50%
- Technical – 50%

Assessment against the technical criterion will be based on scores for tenders received, weighted in accordance to the importance of the following criteria, as indicated in the table below:

Criteria	Weighting	To include:
<b>Proposed delivery methods</b>	45	To include: <ul style="list-style-type: none"><li>• A clear explanation of how the samples will be received, stored and processed, including a timetable to show when the analyses will take place.</li></ul>

		<ul style="list-style-type: none"> <li>• A brief, clear explanation of the equipment that will be used and its capacity to process samples.</li> <li>• A brief referenced description of the methods that will be used to analyse the samples, and indication of compatibility with methods used previously.</li> <li>• A clear indication of quality control standards to be applied to ensure robust data is generated.</li> <li>• Identification of any critical issues relating to the proposed methods to be used, with suggestions for overcome these.</li> </ul>
<b>Delivery Capability</b>	25	<p>To include:</p> <ul style="list-style-type: none"> <li>• A description of the project's management, showing who will have responsibility for different elements of the project.</li> <li>• A risk assessment identifying potential threats (such as problems with equipment, staffing, access to facilities) to the delivery of the analysis, and mitigation strategies to overcome these.</li> <li>• A general description of the analytical facilities available to deliver the project</li> <li>• Any relevant accreditation that attests to your capability to deliver the analyses required.</li> <li>• A description of how you will manage any risks to health and safety.</li> </ul>
<b>Expertise</b>	20	<p>To include:</p> <ul style="list-style-type: none"> <li>• Brief descriptions of how the training, qualifications and experience of key staff members will enable them to deliver the project.</li> <li>• C.V.s of all key staff members.</li> </ul>
<b>Sustainability</b>	10	<p>To include:</p> <ul style="list-style-type: none"> <li>• A description of how environmental impacts relating to the project will be minimised including reference to protocols for safe disposal of reagents, sustainable reuse or disposal of waste materials, and any</li> </ul>

		other actions you will take to minimize environmental impact of the project.
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The scoring of submissions will be follow the rationale outlined in the table below:

Score	Justification
For a score of hundred (100):	Excellent - Response is completely relevant and excellent overall. The response is comprehensive, unambiguous and demonstrates a thorough understanding of the requirement and provides details of how the requirement will be met in full.
For a score of seventy (70):	Good - Response is relevant and good. The response demonstrates a good understanding and provides details on how the requirements will be fulfilled.
For a score of fifty (50):	Acceptable - Response is relevant and acceptable. The response provides sufficient evidence to fulfil basic requirements.
For a score of twenty (20):	Poor - Response is partially relevant and/or poor. The response addresses some elements of the requirements but contains insufficient / limited detail or explanation to demonstrate how the requirement will be fulfilled.
For a score of zero (0):	Unacceptable - Nil or inadequate response. Fails to demonstrate an ability to meet the requirement.

Separate submissions for each technical question should be provided and will be evaluated in isolation. Tenderers should provide answers that meet the criteria of each technical question.

### Information to be returned

Please note, the following information requested must be provided. Incomplete tender submissions may be discounted.

Please complete and return the following information:

- completed Commercial Response template
- separate response submission for each technical question (in accordance with the response instructions)
- complete AI question "Do you use Artificial Intelligence (AI) or machine learning tools, including large language models within your quote submission or service delivery processes?" - response which will not be scored, is to be returned within technical response
- completed Mandatory Requirements (Annex 1)
- completed Acceptance of Terms and Conditions (Annex 2)

### Award

Once the evaluation of the Response(s) is complete suppliers will be notified of the outcome via email.

## Outputs and Contract Management

This contract shall be managed on behalf of the Authority by Matthew Shepherd and Victoria Sloan.

It is expected that the contractor or contractors will liaise with Natural England by e-mail, and in telephone/webinar meetings to:

- Agree and finalise the project timetable
- Agree any minor amendments to the range of analyses to be undertaken.
- Coordinate the transport and delivery of samples
- Provide updates on the progress of sample analysis and discuss sample storage.
- Share experiences on the processing and analysis of the samples and provide any recommendations to improve it.

All progress meetings required will be held during the course of the contract by teleconference/webinar/videoconference.

The **Nominated Officers** for this project are:

Dr Matthew J Shepherd  
Senior Environmental Specialist – Soil Biodiversity  
Natural England, Sterling House, Dix's Field, Exeter, EX1 1QA  
Tel: 07866 680786  
E-mail [matthew.j.shepherd@naturalengland.org.uk](mailto:matthew.j.shepherd@naturalengland.org.uk)

Dr Victoria Sloan  
Higher Officer, Evidence – Long Term Monitoring Network  
Natural England, Horizon House, Deanery Road, Bristol BS1 5AH  
Tel: 07385 968538  
E-mail: [victoria.sloan@naturalengland.org.uk](mailto:victoria.sloan@naturalengland.org.uk)

This contract is to run until 6<sup>th</sup> March 2026.

**Table 2** Milestone dates. The following project milestones are envisaged, but will be subject to final agreement between the successful contractors and Natural England.

Milestone	Date	Payment Associated
Project initiation teleconference - project plan agreed	w/c 8 <sup>th</sup> September 2025	
All Tullgren and Baermann extracts completed	29 <sup>th</sup> October 2025	
Mineralisable N assay completed	14 <sup>th</sup> November 2025	
All soil physico-chemical measurements completed and data supplied in draft	9 <sup>th</sup> February 2026	Payment of 60% of contract value (if split invoices selected)

All PLFA and tRFLP data complete	20 <sup>th</sup> February 2026	
All data supplied and samples supplied to Natural England and final project meeting completed	6 <sup>th</sup> March 2026	
Final invoice submitted	6 <sup>th</sup> March 2026	Payment of 40% of the contract value / the full value, depending on option selected.

The Authority will raise purchase orders to cover the cost of the services and will issue to the awarded supplier following contract award.

The Authority's preference is for all invoices to be sent electronically, quoting a valid Purchase Order number.

Suppliers may choose to split the invoice and receive payment following the completion of all physico-chemical analysis by 9<sup>th</sup> February 2026 (as outlined above) or send a single invoice at the end of the contract, on or before 6<sup>th</sup> March 2026.

# Appendix 1

## ***PLFA moieties and combined totals to be reported***

<b><i>Variable name</i></b>	<b><i>Description</i></b>
PLFAtot	Total PLFA community
PLFAbac	Bacterial community
PLFAfun	Fungal community
PLFAact	Actinobacteria
FB ratio	fungus:bacteria ratio
Gpos	Gram positive bacteria
Gneg	Gram negative bacteria
pn ratio	Gram positive: Gram negative ratio
12:0	Unclassified
13:0	Unclassified
14:0i	Unclassified
14:0	Unclassified
14:1 $\omega$ 9c	Unclassified
14:1 $\omega$ 9t	Unclassified
15:0i	Bacterial, Gram positive
15:0ai	Bacterial, Gram positive
15:0	Bacterial
16:0br	Unclassified
16:1i	Unclassified
16:1 $\omega$ 11c	Unclassified
16:0i	Bacterial, Gram positive
16:1 $\omega$ 11t	Unclassified
16:1 $\omega$ 7c	Bacterial, Gram negative
16:1 $\omega$ 7t	Bacterial, Gram negative
16:1 $\omega$ 5c	Bacterial, Gram negative
16:0	Unclassified
17:0br	Unclassified
C16:0(10Me)	Bacterial, Gram positive, Actinobacteria
17:0i	Bacterial, Gram positive
17:0ai	Bacterial, Gram positive
16:0(12 Me)	Unclassified
17:1 $\omega$ 8c	Unclassified
17:0cy	Bacterial, Gram negative
17:1 $\omega$ 7	Unclassified
17:0	Bacterial
17:0(12Me)	Unclassified

17:0(10Me)	Bacterial, Gram positive, Actinobacteria
18:3ω6,8,13	Unclassified
18:2ω8,12	Unclassified
18:2ω6,9	Fungi
18:1ω9	Unclassified
18:1ω7	Bacterial, Gram negative
18:1ω13/18:1ω10 or 11	Unclassified
18:0	Unclassified
19:1ω6	Unclassified
18:0(10Me)	Bacterial, Gram positive, Actinobacteria
19:1ω8	Unclassified
19:0cy	Bacterial, Gram negative
20:4ω6,9,12,15	Unclassified
20:5ω3	Unclassified
20:4ω2,6,10,14/20:4ω3,6,9,12	Unclassified
20:1ω9	Unclassified
20:1	Unclassified
20:0	Unclassified

# Annex 1 Mandatory Requirements

## Part 1 Potential Supplier Information

Please answer the following self-declaration questions in full and include this Annex in your quotation response.

### Part 1.1 Potential Supplier Information:

1.1(a)	Full name of the potential supplier submitting the information	
1.1(b)	Registered office address (if applicable)	
1.1(c)	Company registration number (if applicable)	
1.1(d)	Charity registration number (if applicable)	
1.1(e)	Head office DUNS number (if applicable)	
1.1(f)	Registered VAT number	
1.1(g)	Are you a Small, Medium or Micro Enterprise (SME)?	(Yes / No)

Note: See EU definition of SME [https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition\\_en](https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en)

### Part 1.2 Contact details and declaration

By submitting a quotation to this RFQ I declare that to the best of my knowledge the answers submitted and information contained in this document are correct and accurate.

I declare that, upon request and without delay you will provide the certificates or documentary evidence referred to in this document.

I understand that the information will be used in the selection process to assess my organisation's suitability to be invited to participate further in this procurement.



I understand that the authority may reject this submission in its entirety if there is a failure to answer all the relevant questions fully, or if false/misleading information or content is provided in any section.

I am aware of the consequences of serious misrepresentation.

1.2(a)	Contact name	
1.2(b)	Name of organisation	
1.2(c)	Role in organisation	
1.2(d)	Phone number	
1.2(e)	E-mail address	
1.2(f)	Postal address	
1.2(g)	Signature (electronic is acceptable)	
1.2(h)	Date	

## Part 2 Exclusion Grounds

### Part 2.1 Grounds for mandatory exclusion, including being on the Government Debarment List.

2.1(a)	Please indicate if, within the past five years you, your organisation or any other person who has powers of representation, decision or control in the organisation been convicted anywhere in the world of any of the offences within the summary below.	
	Participation in a criminal organisation.	(Yes / No)  If yes please provide details at 2.1 (b)
	Corruption.	((Yes / No)

		If yes please provide details at 2.1 (b)
	Fraud.	(Yes / No)  If yes please provide details at 2.1 (b)
	Terrorist offences or offences linked to terrorist activities	(Yes / No)  If yes please provide details at 2.1 (b)
	Money laundering or terrorist financing	(Yes / No)  If yes please provide details at 2.1 (b)
	Child labour and other forms of trafficking in human beings	(Yes / No)  If yes please provide details at 2.1 (b)
2.1(b)	<p>If you have answered yes to question 2.1(a), please provide further details.</p> <p>Date of conviction, specify which of the grounds listed the conviction was for, and the reasons for conviction.</p> <p>Identity of who has been convicted</p> <p>If the relevant documentation is available electronically please provide the web address, issuing authority, precise reference of the documents.</p>	
2.1 (c)	If you have answered Yes to any of the points above have measures been taken to demonstrate the reliability of the organisation despite	(Yes / No)

	the existence of a relevant ground for exclusion? (i.e. Self-Cleaning)	
2.1(d)	Has it been established, for your organisation by a judicial or administrative decision having final and binding effect in accordance with the legal provisions of any part of the United Kingdom or the legal provisions of the country in which the organisation is established (if outside the UK), that the organisation is in breach of obligations related to the payment of tax or social security contributions?	(Yes / No)
2.1(e)	If you have answered yes to question 2.3(a), please provide further details. Please also confirm you have paid or have entered into a binding arrangement with a view to paying, the outstanding sum including where applicable any accrued interest and/or fines.	

## Part 2.2 Grounds for discretionary exclusion

2.2(a)	<p>The detailed grounds for discretionary exclusion of an organisation are set out on this <a href="#">webpage</a>, which should be referred to before completing these questions.</p> <p>Please indicate if, within the past three years, anywhere in the world any of the following situations have applied to you, your organisation or any other person who has powers of representation, decision or control in the organisation</p>	
2.2(b)	Breach of environmental obligations?	<p>(Yes / No)</p> <p>If yes please provide details at 2.2 (f)</p>

2.2(c)	Breach of social obligations?	(Yes / No)  If yes please provide details at 2.2 (f)
2.2(d)	Breach of labour law obligations?	(Yes / No)  If yes please provide details at 2.2 (f)
2.2(e)	Shown significant or persistent deficiencies in the performance of a substantive requirement under a prior public contract, a prior contract with a contracting entity, or a prior concession contract, which led to early termination of that prior contract, damages or other comparable sanctions?	(Yes / No)  If yes please provide details at 2.2 (f)
2.2 (f)	If you have answered Yes to any of the above, explain what measures been taken to demonstrate the reliability of the organisation despite the existence of a relevant ground for exclusion? (Self Cleaning)	

## Annex 2 Acceptance of Terms and Conditions

I/We accept in full the terms and conditions appended to this Request for Quote document.

Company \_\_\_\_\_

Signature \_\_\_\_\_

Print Name \_\_\_\_\_

Position \_\_\_\_\_

Date \_\_\_\_\_