FRAMEWORK SCHEDULE 4: LETTER OF APPOINTMENT AND TERMS

Part 1: Letter of Appointment

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www.gov.uk/defra

Our ref: SCF0327

Date: 03/03/2022

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IFM Engage
The Old Schools
Trinity Lane
Cambridge
CB2 1TN

Dear Sirs/Madams,

Letter of Appointment

This letter of Appointment is issued in accordance with the provisions of the Framework Agreement between BEIS and the Supplier dated 1st of February, 2020.

Capitalised terms and expressions used in this letter have the same meanings as in the Terms unless the context otherwise requires.

Execution of this letter of appointment is carried out in accordance with EU Directive 99/93 (Community framework for electronic signatures) and the Electronic Communications Act 2000.

Contract Number:	[redacted]
From:	Department for Environment, Food and Rural Affairs ("Customer")
To:	IfM Engage Ltd

Effective Date:	07/03/2022
Expiry Date:	End date of Initial Period 07/09/2022 End date of Maximum Extension Period [5 months – 31 March 2023] Minimum written notice to Supplier in respect of extension: 1 month

Services required:	Set out in Section 2 (Services offered) and refined by: The Customer's Project Specification attached at Framework Annex A and the Supplier's Proposal attached at Annex B

Key Individuals:	[redacted]
[Guarantor(s)]	[ ]

Call Off Contract Charges (including any applicable discount(s), but excluding VAT):	**£87,350**
Insurance Requirements	As specified in the Call off T&Cs (attached in Part 2)
Customer billing address for invoicing:	[redacted]

Alternative and/or additional provisions:	[ ]

FORMATION OF CALL OFF CONTRACT

BY SIGNING AND RETURNING THIS LETTER OF APPOINTMENT (which may be done by electronic means) the Supplier agrees to enter a Contract with the Customer to provide the Services in accordance with the terms of this letter and the Terms.

The Parties hereby acknowledge and agree that they have read this letter and the Terms.

The Parties hereby acknowledge and agree that this Contract shall be formed when the Customer acknowledges (which may be done by electronic means) the receipt of the signed copy of this letter from the Supplier within two (2) Working Days from such receipt.

[redacted]

[redacted]

Annex D: Order Form

This should include;
Annex A – Customer Project Specification
Annex B – Supplier Proposal
Part 2 – The Terms as set out in this Framework Schedule 4 (Letter of Appointment and Terms) shall apply to this Contract.

FROM

Customer	THE SECRETARY OF STATE FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS of Nobel House, 17 Smith Square, London, SW1P 3JR (the "Authority")
Service Address	Supplier's premises
Invoice Address	[redacted]
Contact Ref:	[redacted]
Order Number	To be quoted on all correspondence relating to this Order: To follow once contract is accepted.
Order Date	03/03/2022

TO

Supplier:	IfM Engage
For the attention of: **E-mail** **Telephone number**	[redacted]
Address	IFM Engage The Old Schools Trinity Lane Cambridge CB2 1TN

1. SERVICES REQUIREMENTS

(1.1) Services and Deliverables Required:

Objectives:

1. Consider the economic, social and sustainability benefits and limitations, and real-world scalability of models of industrial horticulture (including but not limited the sectors outlined above) considering and comparing current and future methods for generation of power and/or heat required for their effective operation.

2. Assess the commercial investment viability and long-term viability, including barriers opportunities and enablers for each model with a commentary on the potential role for Government.

Deliverables:

- A report that provides a commentary comparing the different models of industrial horticulture, including both those currently established in the UK and those that could be feasibly and practically be established over the next 5-to-10-year period.

(1.2) Commencement Date:

07/03/2022

(1.3) Price Payable by Customer

£87,350

(1.4) Completion Date:

07/09/2022 (6 months after start)

2 ADDITIONAL REQUIREMENTS

(2.1) Supplemental Requirements in addition to Call-Off Terms and Conditions:

(2.2) Variations to Call-Off Terms and Conditions

3. PERFORMANCE OF THE SERVICES AND DELIVERABLES

(3.1) Key Personnel of the Supplier to be involved in the Services and deliverables:

[redacted].

(3.2) Performance Standards

(3.3) Location(s) at which the Services are to be provided:

The Supplier's premises

(3.4) Quality Standards

As outlined in the Specification

(3.5) Contract Monitoring Arrangements

4. CONFIDENTIAL INFORMATION

(4.1) The following information shall be deemed Commercially Sensitive Information or Confidential Information:-

Any information which has been designated as confidential by the Customer in writing or that ought to be considered as confidential (however it is conveyed or on whatever media it is stored) whether commercial, financial, technical or otherwise including (without limitation) information belonging to or in respect of the Customer which relates to policy development or existing/future subsidy/investment mechanisms, research, development, trade secrets, formulae, processes, designs, specifications, the Customer data, internal management, information technology and infrastructure and requirements, price lists and lists of, and information about, customers and employees, all materials and information belonging to third

parties in respect of which the-Disclosing Party owes obligations of confidence; information the disclosure of which would, or would be likely to, prejudice the commercial interests of any person, intellectual property rights or know-how of the Customer and all personal data within the meaning of relevant data protection legislation/regulation

Any information collected from stakeholders, for which the details are not already in the public domain and companies are identifiable or which is provided to the supplier in confidence.

(4.2) Duration that the information shall be deemed Commercially Sensitive Information or Confidential Information

Indefinitely, unless otherwise agreed in writing.

BY SIGNING AND RETURNING THIS ORDER FORM THE PROVIDER AGREES to enter a legally binding contract with the Customer to provide the Service specified in this Order Form together with, where completed and applicable, the mini-competition order (additional requirements) set out in section 2 of this Order Form. Incorporating the rights and obligations in the Terms and Conditions set out in the Framework Agreement entered into by the Provider and BEIS and any subsequent signed variations to the terms and conditions.

For and on behalf of the Supplier-

Name and Title	[redacted]
[redacted]	[redacted]
Date	11/03/2022

For and on behalf of the Customer-

Name and Title	[redacted]
Signature	[redacted]
Date	16/03/2022

Foresight study to compare the relative gains, costs, feasibility and scalability of current and future 'industrial horticulture' models

Summary:

This project specification seeks foresight research to provide context to help inform future policy related to controlled environment horticulture. This will help us understand the opportunities and potential afforded by low carbon, protected edible and ornamental growing operations.

As part of Defra's current work to explore opportunities for, and barriers to, sustainable growth of the horticulture sector in England, the outcomes will provide data to support the commercial case for a potential expansion of these types of growing operations.

The study will culminate in a report that will compare the relative gains and costs of different models of industrial energy supply to controlled environment growing operations.

This includes energy supply to large, low carbon, high-tech glasshouse operations and vertical farms in which crops are produced in closed vertical structures typically using LED lighting to increase production per square metre. Together these are referred to below as 'industrial horticulture'.

Introduction

Provision of energy and heat in industrial horticulture

Energy and heat provision for industrial horticulture in the UK is a rapidly developing area, with many innovative solutions arising including use of waste heat from other systems, reuse of otherwise 'waste' products, and innovative upgrading of existing systems and infrastructure with novel and emerging tech. Major sources of heat and power to be considered include but are not limited to:

Combined Heat and Power (CHP)

CHP is an efficient process that captures and utilises the heat that is used in power generation. CHP can reduce energy costs whilst reducing carbon emissions and CHP generators may export power not used on site. For growers there is an additional benefit that a by-product of CHP generators is CO_2 which can then be pumped into the controlled protected environment to enhance plant growth.

CHP Schemes can encompass a range of different generation technologies and can be fuelled by fossil fuels or renewables e.g. biomass. However, a common fuel source for CHP on horticulture sites is natural gas.

A 2020 BEIS call for evidence on the future of CHP[i] explains that over recent years detailed results of a 2014 analysis found that natural gas CHP would deliver carbon savings throughout the 2020s. However, over a longer period an increasing proportion of low carbon generation would be displaced so that natural gas CHP would increase carbon emissions from 2032. The analysis suggests that that natural gas CHP plant deployed up until 2023 will deliver net carbon savings over their lifetime (typically between 10-20 years), but those deployed later would not. The call for evidence explains that the significant increase in the rate at which the electricity generation mix has been decarbonised since 2014 means that the tipping point at which additional natural gas CHP capacity would increase carbon emissions is likely to be earlier.

In order to achieve Net Zero and our future carbon budgets, the fuel used by additional CHP capacity will need to move away from a reliance on fossil fuels.

BEIS has recently launched a second call for evidence[ii], with a closing date of 20 December 2021 and anticipate a consultation on proposals for CHP in 2022.

Renewables

Some UK industrial horticulture operations may use renewable biomass fuel or biogas to operate their CHPs. Other growers may use wood biomass burners to generate heat. Some may use anaerobic digesters to produce electricity and heat. Another potential source of energy is solar.

Utilising waste heat from industrial processes

An example of the utilisation of waste heat from industrial processes for growing plants is the Oasthouse Ventures[iii] developments in Norfolk and Suffolk of 70 acres of high-tech greenhouses. Heat is extracted from water treatment works and transferred in a closed loop system to ground source heat pumps located at the greenhouses, injecting the previously wasted heat into the greenhouse. This provides 90% of the heat the greenhouses require.

Electricity for the heat pumps is provided by the grid and CHP units which provide further waste heat and CO2 for the greenhouses.

The £120m investment is from major UK pension funds, managed by Greencoat Capital[iv].

Aims, objectives and deliverables

The outcomes of this study will help to inform policy approaches to support a potential expansion of low carbon, protected edible and ornamental growing operations. These are typically high tech, controlled growing environments which are highly productive per unit area. These growing operations require sources of energy, heat, water and CO_2 for efficient plant growth. There are different models already in operation in the UK for supplying these essential inputs (see Introduction above) and a key economic and sustainability consideration is their type and source of energy supply.

The commentary must be placed in the context of industrial horticulture and reflect what is realistic, practical and works for horticulture as well as for energy suppliers. Findings should be presented in a way that is accessible for and relevant to policy makers.

Work package

Objectives:

1. Consider the economic, social and sustainability benefits and limitations, and real-world scalability of models of industrial horticulture (including but not limited the sectors outlined above) considering and comparing current and future methods for generation of power and/or heat required for their effective operation.

2. Assess the commercial investment viability and long-term viability, including barriers opportunities and enablers for each model with a commentary on the potential role for Government.

Deliverables:

- A report that provides a commentary comparing the different models of industrial horticulture (see Scope below) including both those currently established in the UK and those that could be feasibly and practically be established over the next 5-to-10-year period.

The commentary will include relevant facts and figures, comparing each model (including in comparison to less high-tech horticultural approaches), covering:

1. Benefits

- suitability for large scale horticulture growing operations
- potential productivity (yield per production cost) of each model
- economic/social benefits of each model (for example creation of skilled jobs)
- relative sustainability/environmental benefits of each model, including the contribution towards carbon emissions
- wider sustainability gains/resource efficiencies (for example water efficiency)

2. Scalability: potential for expansion / retrofitting

The feasibility, barriers and limitations, considered in the context of the opportunities and barriers facing the horticulture industry, of expanding each model in the UK by:

i). building more
ii). retrofitting existing models
iii). introducing blended models

to include:

- typical capital and running costs
- relative commercial viability from a private investment perspective (including barriers to and facilitators for commercial investment)
- potential role for Government (funding, incentives or other support which would be needed to support an expansion)
- long-term viability – can the model be successful in the longer term without government support, and in a range of socioeconomic and environmental futures?
- any wider social costs
- other dependent factors or limitations

The report should include an assessment of the viability of models that use industrial waste heat as well as other heat and energy sources (see Scope below). There needs to be a good alignment between the use of energy by the primary energy user (the industrial facility) and the industrial horticulture partner. Consideration must also be given to back-up supplies and the overall impact on sustainability should the industrial process break down, enter planned outages or become permanently closed.

Evidence should be provided on alternatives that could be used to run CHPs such as hydrogen or ammonia, and to assess whether these would help to decrease carbon emissions before 2032 (see Introduction above for the relevance of this date). The assessment should review whether existing CHPs could be retrofitted with these or renewable technologies, and whether there are barriers to uptake of the technologies if they deliver significant savings.

The project should briefly look at the role of on-site storage for energy from CHP and renewables, and whether this offers significant benefits to the industrial horticulture that would balance increasing energy costs versus exporting excess electricity to the grid.

Methods

We expect suppliers to design the approach and specify the methods using the most appropriate techniques to achieve our specified aims, objectives and outputs.

The supplier should use existing published research where this is available for data to support analyses and may approach horticulture stakeholders if this is helpful.
If stakeholders are engaged, they can be told that the work being undertaken is commissioned by Defra as part of its work to explore growth opportunities for the sector. It should not be indicated at this stage that an expansion of controlled environment growing operations could be a potential future outcome.

Expertise required

Experience and expertise in the economics and sustainability attributes of industrial energy supply is required. Suppliers are expected to either have detailed knowledge of industrial horticulture in house or to work with an appropriate consortium partner.

Bidders will also need:

- Strong project management skills to ensure that deliverables are produced to time and quality.
- Be able to synthesise existing literature and clearly summarise and describe key findings systematically.

- The ability to critically analyse evidence and identify and explain the underlying limitations/drawbacks.
- Strong drafting and reporting writing skills, including the ability to communicate complex technical information to a mixed audience.

Scope

Geographic

The geographic scope of the work will be the UK. Defra is exploring opportunities for and barriers to growth in England as agriculture is a devolved policy area.

Models

The models considered should include those that are used internationally and could be applicable to the UK, as well as those that it would be commercially and operationally feasible and practical to establish over the next 5-to-10 years.

Models in scope of this analysis are likely to include, but may not be limited to operations that generate power and/or heat through:

- natural gas fired Combined Heat and Power (CHP)
- renewable fuel CHP
- biomass
- biogas
- anaerobic digestion
- hydrogen
- ammonia
- solar

Other relevant sustainable approaches and technologies should also be considered, including, for example:

- the use of heat pumps, and
- the capture and utilisation of waste heat from other industrial processes

Payment methods

Payments will be apportioned to scheduled milestone reports; funds to be receipted upon QA of associated milestone report, in keeping with standard approach for Defra-funded R&D.

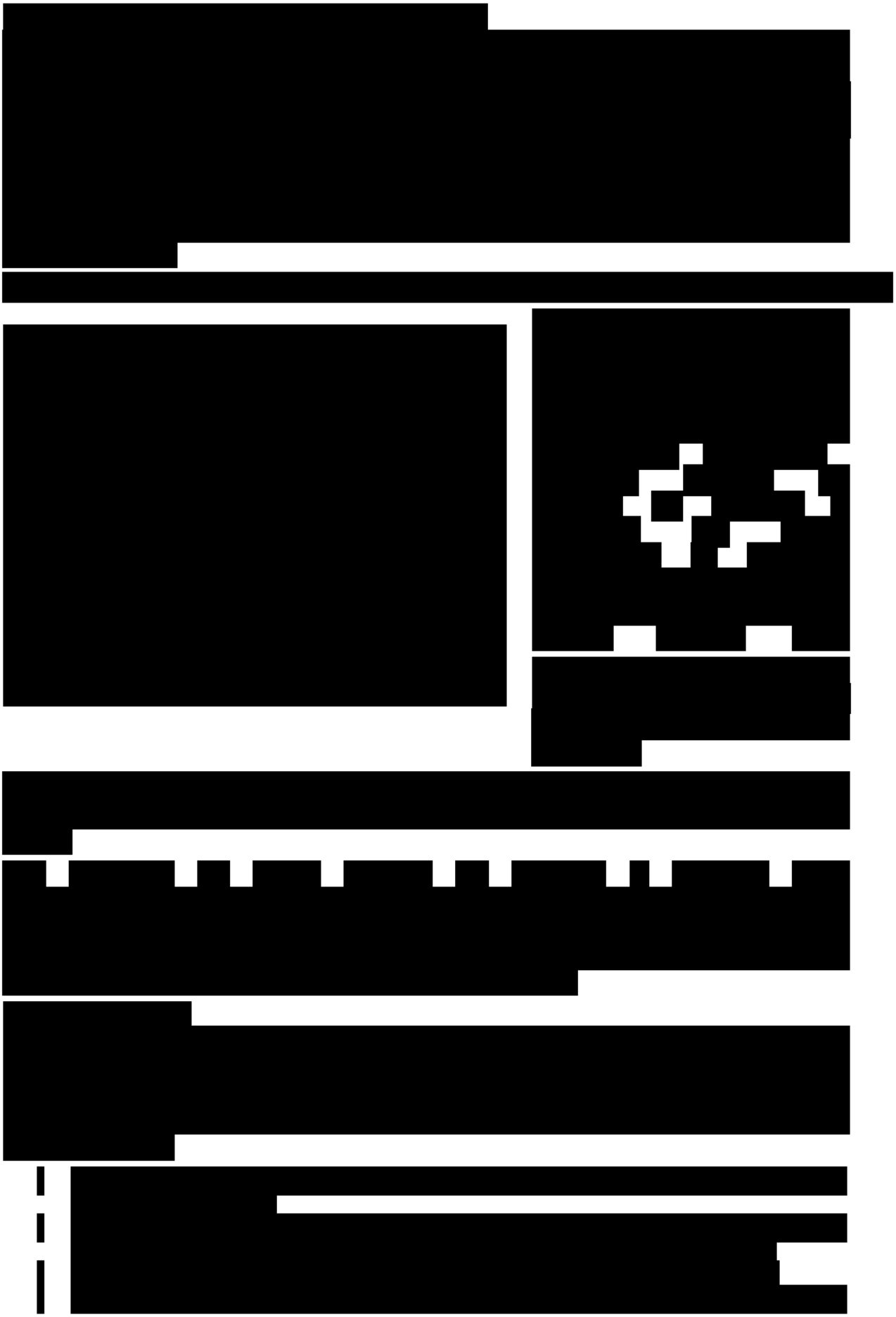
Contact

[redacted]

ANNEX B
Supplier Proposal

[redacted]

[redacted]

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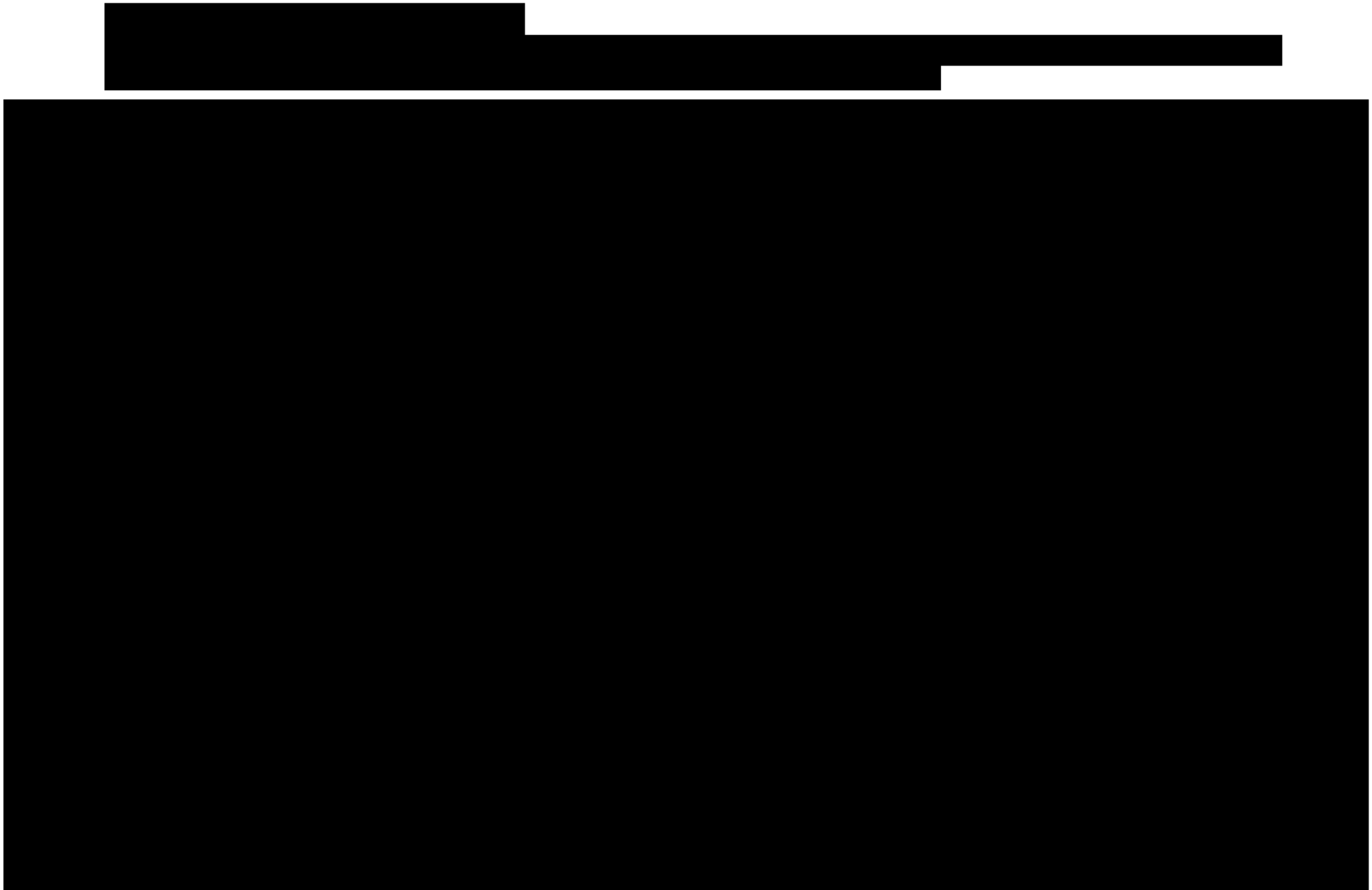

Pricing

The fees for undertaking the work described in E1 – Technical Approach will be £87,350. [redacted]

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