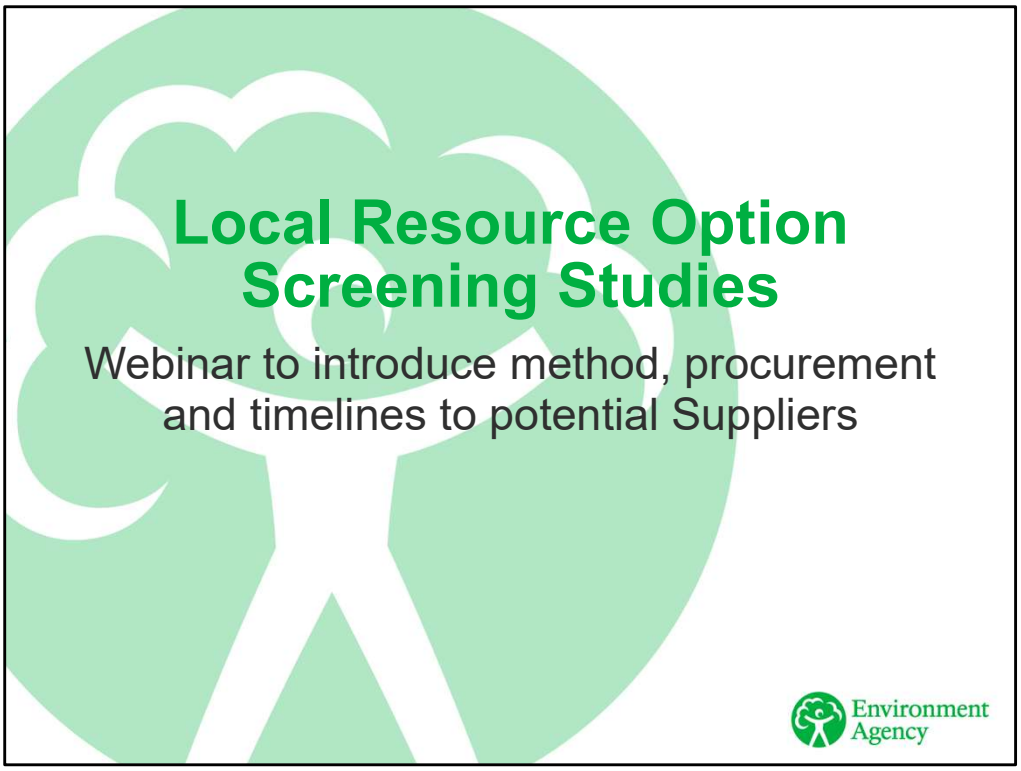
Local Resource Option Screening Studies

Webinar to introduce method, procurement and timelines to potential Suppliers



Ground rules

- Please turn off you microphone and video whilst the presentation is ongoing
- We will go through questions at the end, please add them to the Q&A section in Teams
- We'll share the slides after the recording so that you can read the detail
- By remaining on this call, you are agreeing to the session being recorded and circulated amongst invitees

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Agenda

- Introduction to team - Stephen
- Programme context - Stephen
- Introduction to LROs - Stephen
- Detailed methodology - Mima
- Procurement process - Gina
- Timelines - Gina
- Any questions?

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Introduce why we are here!
Exciting opportunity to help farmers in improving water resources

Introduction – Water Resources and Agriculture

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Senior Advisor

Mima Boardman
Project Manager

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Project Manager

Stephen Smith
Project Manager

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Project Manager

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Talk through roles.

Programme context

- Government aims to increase food security
  - Local water resources studies
  - Improve resilience
- At the "Farm to Fork Food Summit" held in May 2023, the Prime Minister's announcements included commitments to:
  - *support farmer-led groups to identify local water resource schemes, building on the success of projects like Felixstowe Hydrocycle. These have since been referred to as Local Resource Options (LROs).*
- Funding streams:

  - Defra

  - DLUHC - as of Tuesday this week becomes MHCLG (Ministry of Housing, Communities & Local Government)

Department for Environment Food & Rural Affairs

Department for Levelling Up, Housing & Communities

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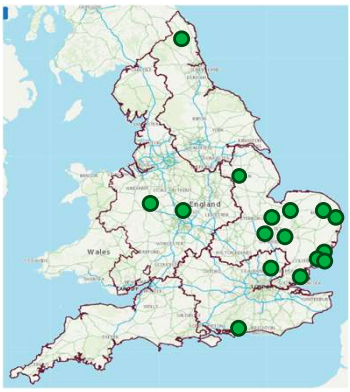
Programme context

- Methodology developed last financial year
- Pilot study to test the method with 2 farms near the Thet
- Open applications for groups of farms closed on 16th June
- 16 applications: distributed across 4 of the 5 Regional Groups
- The following slides will provide you with an understanding of the tasks, methodology, input data and levels of resourcing required



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What is a Local Resource Option?

"A water resources solution that improves resilience or supply of water for a small group of farmers in their area. Owned, operated and/or controlled by those farmers."

What types of LROs are there?

- Farm storage reservoirs (new, resizing and/or change to multi-season operation)
- Water rights trading
- Water efficiency tools
- Water sharing (e.g. the Lincoln Water Transfer)
- Demand management and leakage reduction

- Abstraction and storage of high flow water (floodwater)
- Improved connectivity between existing sources
- Treated effluent/wastewater reuse
- Land drainage water use (e.g. the Felixstowe Hydrocycle)
- Managed aquifer recharge
- Rainwater harvesting

Or any combination of the above!

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I'll now hand over to Mima to talk through what a screening study is and how they work in this context

What is a Screening Study?

A desktop study which examines the possible options by applying different criteria to find the best solutions for the farming group location and activities

Input
- Hydrogeological data
- Hydrometric data
- Agricultural demand
- Catchment review
- Current supply
- Future look
- Climate change
- Potential solutions
- Farmers' views

Process
- Eliminate non-starters
- Assess remaining list of options wrt to Location
- Screen
- Rank

Output
- Top options
- Cost estimate
- Yield estimate
- Reliability assessment
- Pathway for implementation
- Barrier identification

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Thanks Stephen. I'm going to take you through the methodology and expectations that we have for the projects.

Firstly, what is a screening study. In this context it is a process to identify potential options for improving water resilience for a group of farms.

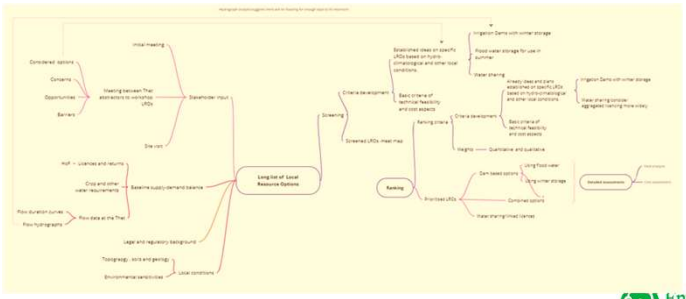
It is a desktop exercise which takes input relevant to the farm's location, identifies potential solutions, then uses a screening process to drop out any infeasible solutions, then a ranking process to identify top Options based on agreed criteria.

For this project the final output will include a deep dive into the top options, looking at costing, yield and reliability as well as identifying pathways and barriers to implementation.

I'll now briefly talk about how the methodology was developed by JBA consulting whilst running a pilot project, we'll be providing this method to you as part of the quotation process.

How was the method created?

- Pilot Project in the Thet
- East Anglian – chalk stream
- 2 arable farms, with spray irrigation growing root veg and barley
- Currently using a mix of surface and groundwater for direct spray irrigation
- Expect sustainability reductions to their licences
- JBA brainstormed how to answer the question, creating the screening and ranking process…



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JBA started with a pilot project near Thetford, in East Anglia, this is an area with high water scarcity due to the free draining soils and low annual rainfall, there is high dependence on groundwater abstraction which in turn puts pressure on the chalk streams.

The project had two arable farms who use direct abstraction in the summer to spray irrigate root veg, potatoes and barley, they have a mix of surface and groundwater licences currently, which they expect to see reduced due to sustainability reductions in the coming years.

We gave JBA a scope to define a screening and ranking methodology, which would help the farms determine suitable local resource options and determine which would be most appropriate for them to develop. They brainstormed the process which is in this mind map – its not legible but you'll be able to zoom in when we share the slides.

This process involved a few iterations and loops along the way but the output was the spreadsheet that I'll talk you through next, plus two top solutions

How was the method created?

- Top Solutions
  1. Farm Storage Reservoir – winter abstraction
  2. Water sharing agreements
- Now undertaking detailed assessment
  - Available flood volumes and frequency
  - Headroom assessment to investigate sharing
  - Optimising reservoir size based on predicted available 'flood' water

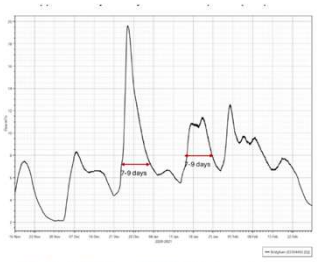
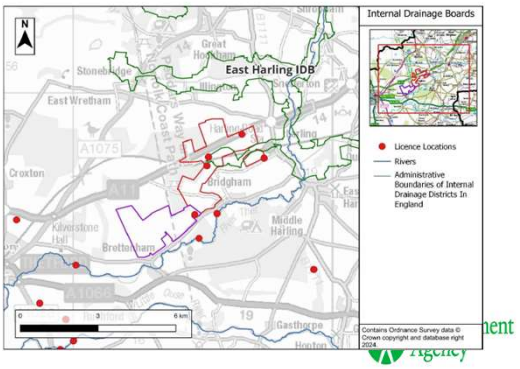


Figure 3-1: Thet at Bridgham 2020-2021 flood event hydrograph



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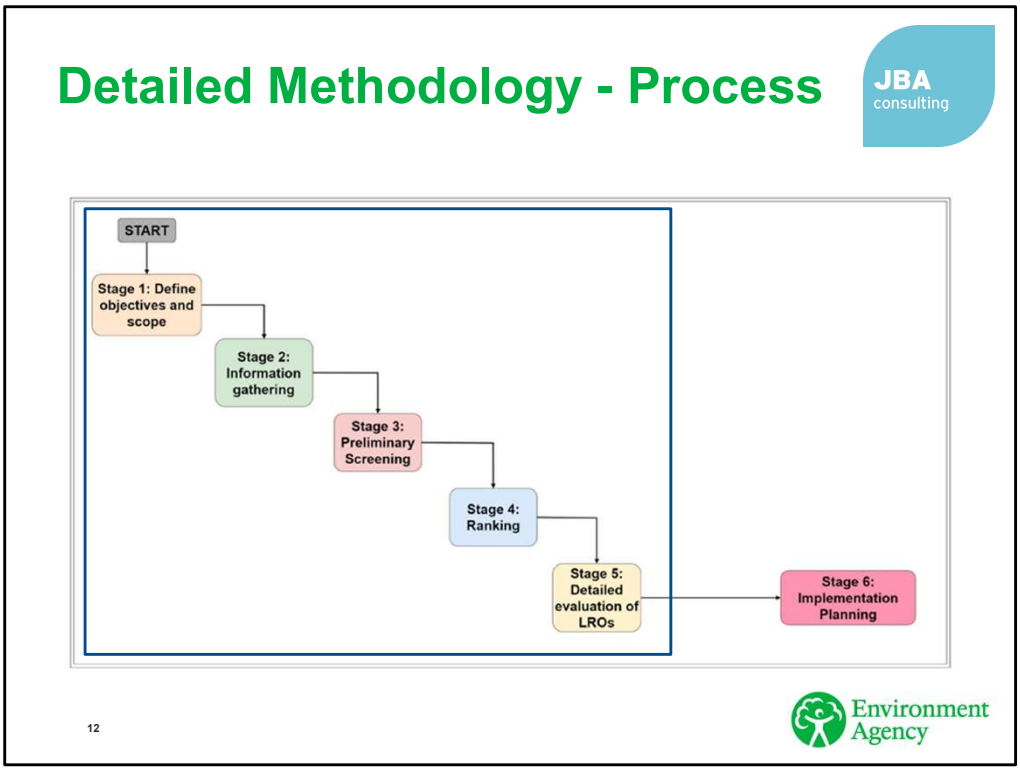
These were a farm storage reservoir taking winter high flows, which would be shared between the farms, and an extension to their current water sharing agreement.

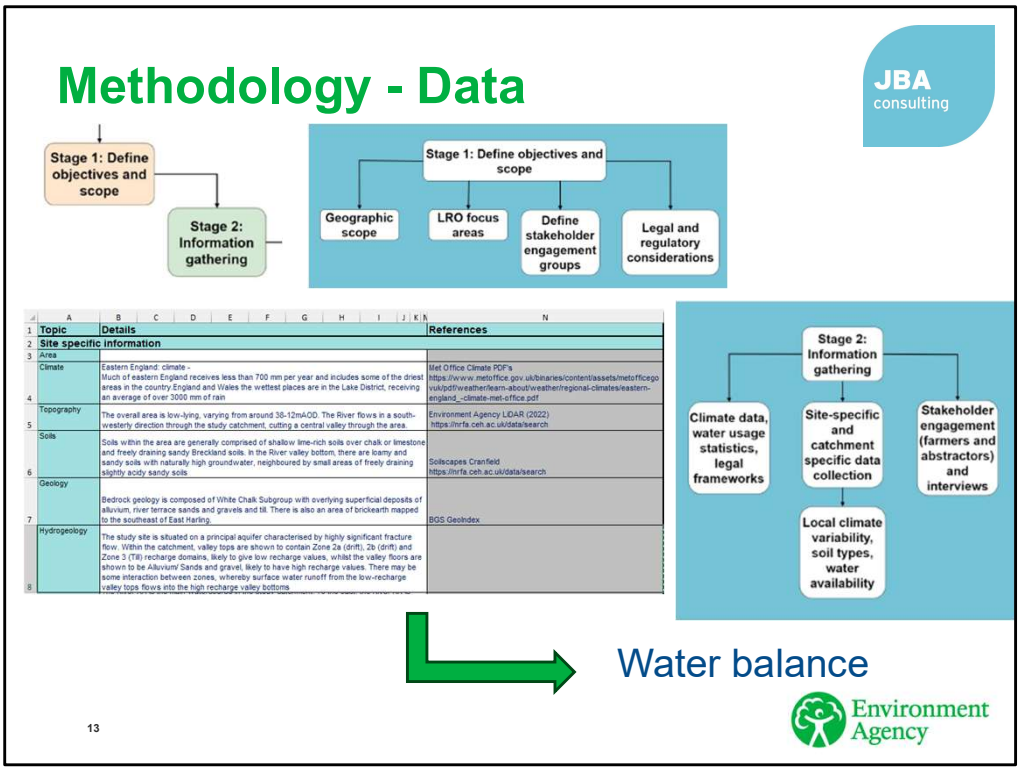
JBA are now running the second half of the project to investigate these options in more detail including assessing the potential available flow to calculate reliability of winter high flows, and looking at what the optimum size is for a reservoir considering price, deployable output and available water.

I'm now going to talk through the method step by step.



The flow chart here shows the key stages of the development of an LRO screening project. Stages 1-5 are part of this scope, stage 6 would be commissioned by the farms themselves when they are ready to progress.
When we provide the methodology to you, you will receive an excel tool covering stages 1 to 4 and an explanatory document which explains further detail and provides references for the technical evaluations.

I will now go in to further detail and show extracts from the tool.
Note that you wont be able to read all the snips on screen they are for illustration, we'll share the full method with you at RFQ stage.

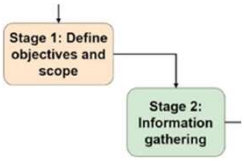


The first steps are to collate data both from available sources for example for rivers from NRFA (national river flow archive) or hydrology data explorer, information on triple S Is and habitats from Defra Magic, or BGS geology viewer for soil and bedrock information. Abstraction licencing strategy for the area for information on current licencing.
And … from the farmers involved in the study. This will include how they use water currently, what their demand and supply sources are. There is some guidance in the supplied methodology on how and where to collect and collate this data, and the Screening tool has a worksheet to guide you through recording key points.

At this stage a site visit is recommended to get to know the farmers, talk with them about their aims, expectations, targets for what they want to achieve for production; get a feel for the area, and understand how the farms could work together.
This is also an opportunity to carry out a farm audit and collect data on crop rotation, irrigation methods, livestock demands for each farm.

Which then feeds into creating a Water Balance which should cover the current status and a future projection based on input from the farms, and climate change assessment. What is the size of the problem.

Methodology - Stakeholders



1. Farms involved in the study

Data licence

2. Environment Agency
3. Natural England

4. Regional Planning Group
5. Water for Food Group (NFU, UKIA, AHDB, …)

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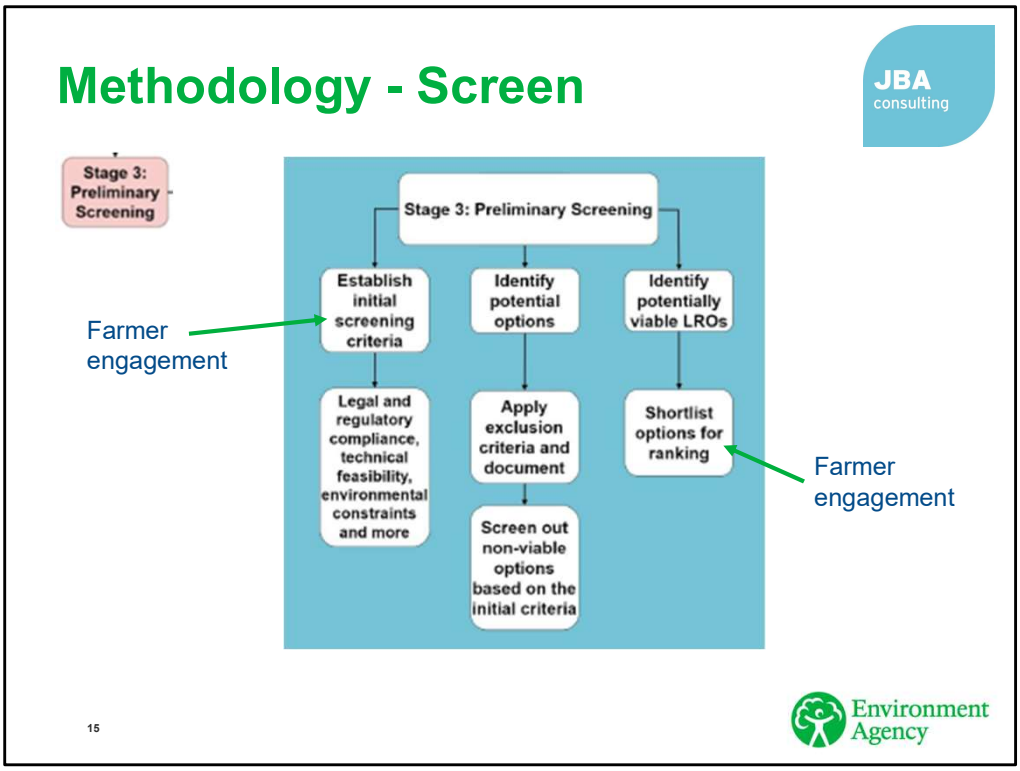
I have just mentioned data from farmers as being a key part of the data collated, we also expect you to liaise with a few other groups, firstly us, the Environment Agency.

We'll be sharing with you, data on the current abstractions, information that we have about potential changes in the area, for example potential sustainability reductions, as well as support for policy on the more unusual options.

We'll be sharing this with you with data licences as some of the data will be subject to GDPR regulations. For example, we'll be providing you with contact details for the farms in question as well as data relating to their abstractions. Including items which are not publicly available – namely their recent returns.
You will need to be prepared for handling and storing this sort of data, and we'll ask you in the quotation process to explain how you do this.

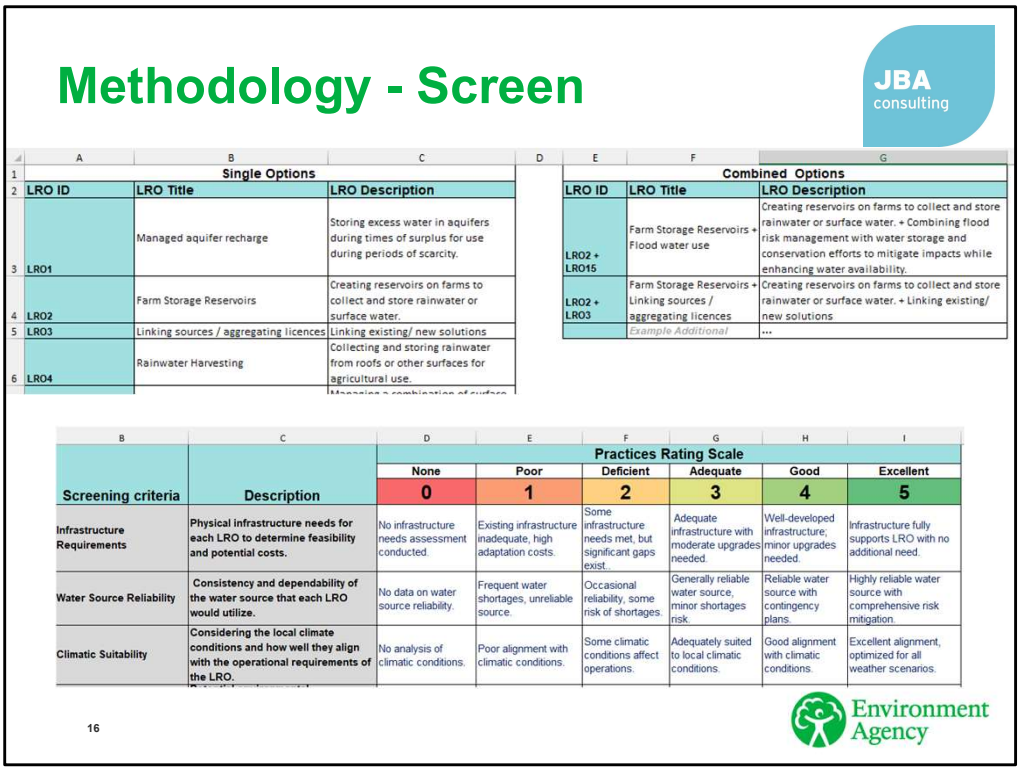
The lastly with Regional Planning Group leads, and members of the Water for Food Group, for both of these we will provide contact details and an introduction, they are involved in this programme in order to make sure that we don't miss any potential opportunities that are local to the farms. An example would be upcoming dewatering work for a quarry, or changes to waste water treatment plant discharges.



So now you've gathered your data, the next step is Screening.

Firstly, defining the screening criteria – what is important to the farm group, e.g. reliability, ease of install, planning restrictions.

Then you identify options, this gives an opportunity to think outside the reservoir box and consider more novel approaches to improving resilience via changing either the supply or demand side of the scales.
For example a managed aquifer recharge scheme. We don't generally expect you to propose a complete change of a farming system e.g. from open cropping to livestock unless the farms give that steer to you during the investigation process.



Methodology - Screen

JBA consulting

	A	B	C	D	E	F	G
1		Single Options				Combined Options	
2	LRO ID	LRO Title	LRO Description		LRO ID	LRO Title	LRO Description
3	LRO1	Managed aquifer recharge	Storing excess water in aquifers during times of surplus for use during periods of scarcity.		LRO2 + LRO15	Farm Storage Reservoirs + Flood water use	Creating reservoirs on farms to collect and store rainwater or surface water. + Combining flood risk management with water storage and conservation efforts to mitigate impacts while enhancing water availability.
4	LRO2	Farm Storage Reservoirs	Creating reservoirs on farms to collect and store rainwater or surface water.		LRO2 + LRO3	Farm Storage Reservoirs + Linking sources / aggregating licences	Creating reservoirs on farms to collect and store rainwater or surface water. + Linking existing/ new solutions
5	LRO3	Linking sources / aggregating licences	Linking existing/ new solutions			*Example Additional*	...
6	LRO4	Rainwater Harvesting	Collecting and storing rainwater from roofs or other surfaces for agricultural use.				

B	C	D	E	F	G	H	I
		Practices Rating Scale					
		None	Poor	Deficient	Adequate	Good	Excellent
Screening criteria	Description	0	1	2	3	4	5
Infrastructure Requirements	Physical infrastructure needs for each LRO to determine feasibility and potential costs.	No infrastructure needs assessment conducted.	Existing infrastructure inadequate, high adaptation costs.	Some infrastructure needs met, but significant gaps exist.	Adequate infrastructure with moderate upgrades needed.	Well-developed infrastructure; minor upgrades needed.	Infrastructure fully supports LRO with no additional need.
Water Source Reliability	Consistency and dependability of the water source that each LRO would utilize.	No data on water source reliability.	Frequent water shortages, unreliable source.	Occasional reliability, some risk of shortages.	Generally reliable water source, minor shortages risk.	Reliable water source with contingency plans.	Highly reliable water source with comprehensive risk mitigation.
Climatic Suitability	Considering the local climate conditions and how well they align with the operational requirements of the LRO.	No analysis of climatic conditions.	Poor alignment with climatic conditions.	Some climatic conditions affect operations.	Adequately suited to local climatic conditions.	Good alignment with climatic conditions.	Excellent alignment, optimized for all weather scenarios.

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I'll now show you how this works within the tool.

The first tab is the list of LROs, this is also prepopulated with 17 LRO possibilities and combined options and space for you to detail specifics about the scheme under consideration. This is really useful to fill out for reference as you work through the screening and ranking. These are then pulled through into the next tabs, and it is set up so that you can add/remove without breaking the functionality.

The next tab is the LRO screening criteria, this is a generic list which can be added to and adjusted to suit discussions with your farm groups.
There are also description to help with the scoring of the screening criteria, these can also be overwritten or adjusted to suit the scale of your project.

The screening criteria and scoring should be discussed with your farm group, and give them the opportunity to add anything critical to them or any LRO variations that they can think of.

We then move to the screening worksheet...

Methodology - Screen

LRO ID	LRO name	Total	SC1 Infrastructure Requirements	SC2 Water Source Reliability	SC3 Climatic Suitability	SC4 Environmental Impact	SC5 Water Rights	SC6 Permits and Licenses
LRO1	Managed aquifer recharge	41	1	2	3	4	2	2
LRO2	Farm Storage Reservoirs	49	1	5	3	4	2	4
LRO3	Linking sources / aggregating licences	57	3	4	4	3	3	3
LRO4	Rainwater Harvesting	57	3	3	3	3	4	4
LRO5	Conjunctive Use Schemes	53	3	3	3	4	3	4
LRO6	Micro-Irrigation Systems	57	2	3	3	4	3	4
LRO7	Soil Moisture Monitoring	63	2	4	4	5	4	4
LRO8	Water-Efficient Technologies	65	4	4	4	5	4	4
LRO9	Water Rights Trading	63	3	4	4	5	4	5
LRO10	Water Sharing Agreements	63	3	3	3	5	4	5

No detailed calculations required. This is a compare/ contrast exercise to remove infeasible options.

Based on your and the farm groups experience

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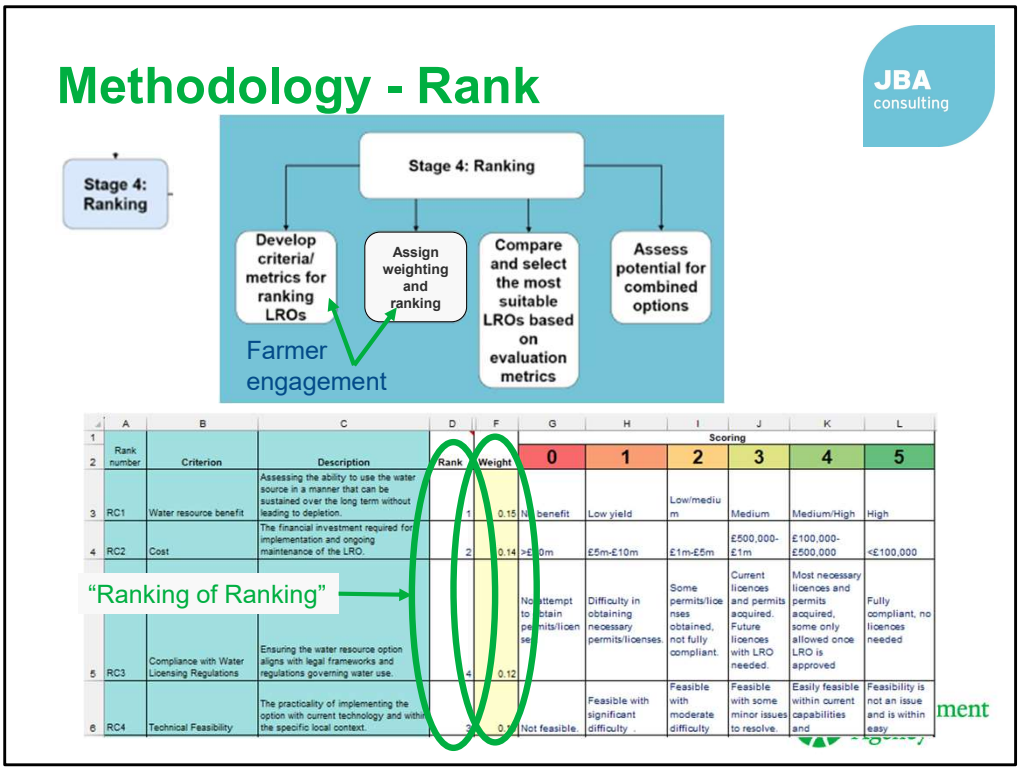
This spreadsheet brings together the 2 lists, to form a matrix. Here you use drop downs to select the scores.

The sheet is set up with a mirrored matrix below the screening in which you can write notes and record decisions on why a particular criteria has been selected.

The ratings from the screening should be presented and confirmed with your farm group, they may have strong views on their drivers (scale of investment / prospective yield) or constraints in their local area (planning) that cause items to score more lowly or highly.

At this stage we do not expect any detailed calculations to be undertaken, the scale is quite coarse, and the aim is to drop out any infeasible suggestions.

Once the screening stage is agreed we move forwards to Ranking, in our Pilot study we found that very few of the options were removed!

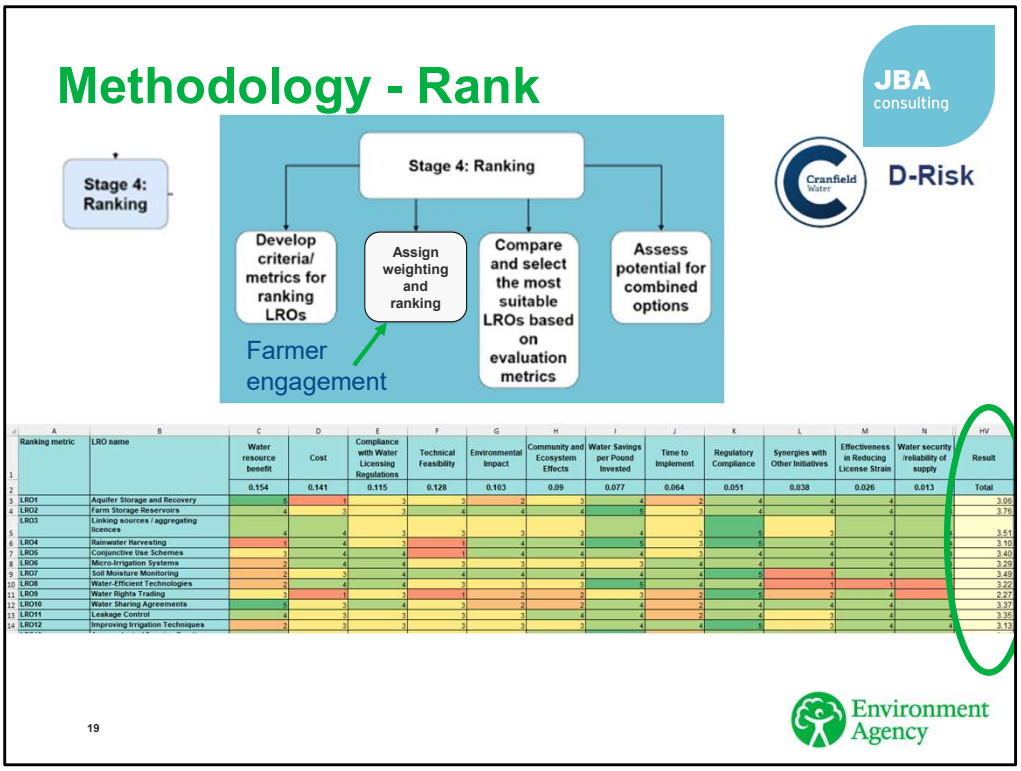


As before a list of potential criteria for ranking the options taken forwards is included in the tool with potential scoring metrics, this can be added to easily.

However here these is one major difference, each criteria shall be given an importance ranking, which then converts to a weighting.

Within the methodology there are several ways described to do this, a rank sum approach is pre-programmed into the tool.
In the pilot study JBA found that water resources benefit should be more heavily weighted than a simple ranking would decide.

The 'ranking of the ranking criteria' should be agreed with the farm group, each will have different priorities and even within the group there may be differences.



As before with the screening there is then a tab on the Screening spreadsheet tool to record the ranking and justification for values.

At this stage we expect some more detailed thoughts in order to select the ranking values. This could be high level costing, yield assessments, investigations into potential for sharing or trading of water. Tools such as Cranfield's D-Risk could be used to assess impact of resource on crop yield. This stage should be more in depth.

Again, there is a section in the spreadsheet to record corresponding decisions.

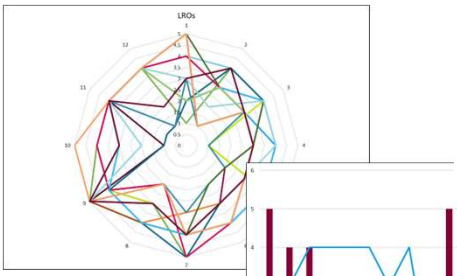
Because of the weighting you then get a Result value from the spreadsheet which is used to identify the top options.

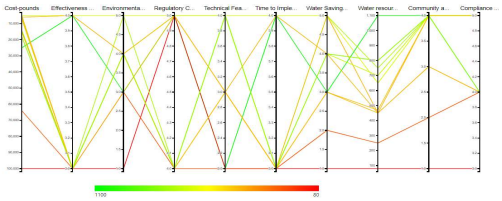
The final ranking should be agreed with the farm group.

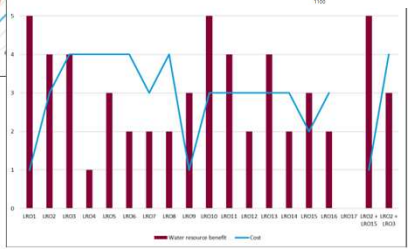
Methodology - Rank

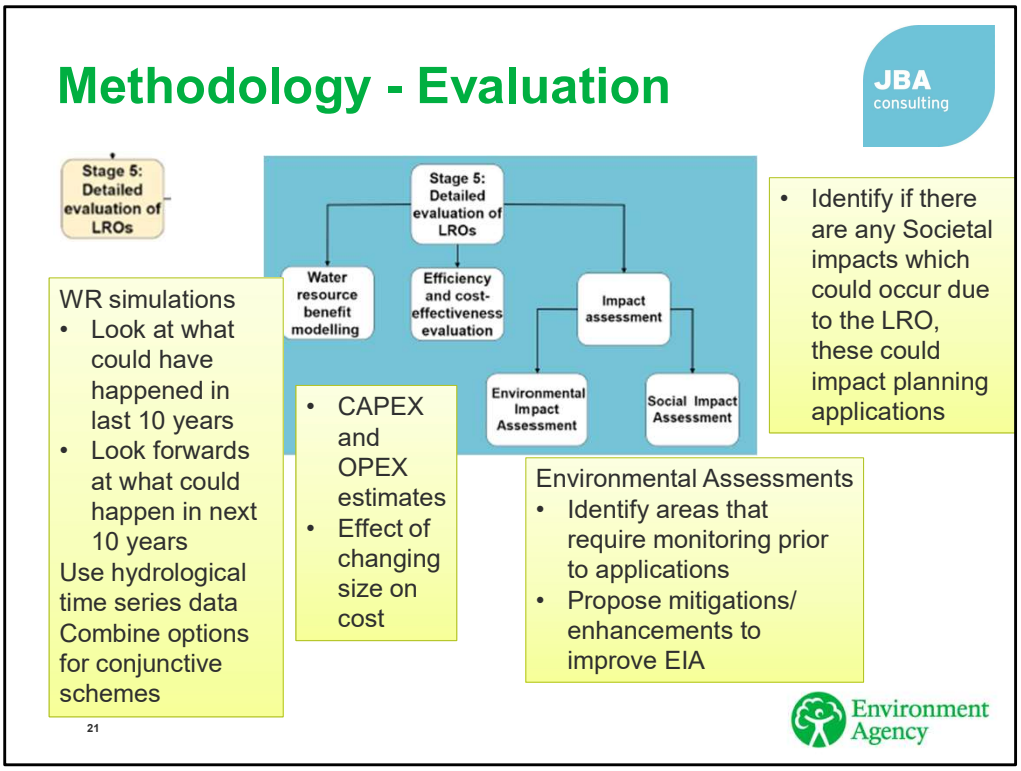
Stage 4: Ranking

You can present the results in different ways to help spot reasons for high/low scores









Once the top 3 have been decided, this can include combinations of options as well for example – farm storage reservoir linking licences and for multi-farm use.

The next step is to dive into these options, undertaking costing, yield estimation and qualifying how they will improve resilience across the farm group.
Purpose of this section is to inform the farm group about what they would need to do to get the LRO off the page.

For water resource benefit modelling we are expecting either a software based system, e.g. Aquator, or spreadsheet to simulate 10 past years and 10 future years of the farm system with the LRO in place. This will help the farmers by showing the context of what the system would have looked like in the recent dry year of 2018 and drought year of 2022. And then demonstrating the future considering potential sustainability reductions of current licences and changing climate.

Next is a costing, CAPEX and OPEX, with potentially different sized options. Not expecting a complex costing to be undertaken, so not detail including inflation or depreciation but a farm ready costing that allows comparisons non between options.

Lastly looking for items that could delay or stop development, either environmentally or socially. So a consideration of what would be needed for an Environmental Impact Assessment or Habitats Regulation Assessment, would there be any requirements to monitor the area for endangered species which could require surveys at different time points throughout the year, thereby holding up planning applications down the line.

Although you've only got one slide on this section, it will form a large chunk of the in-house workload of the project, but is to be led by yourselves as the consultants to use your tools to delve into the Solutions.
In the RFQ we'll ask you to write about your approach to this section of the work. There is some guidance in the JBA supporting documentation which we'll share with you with the RFQ.

Reporting and Review

- All this work shall be summarized into a study report
- This will be reviewed by the farm group, EA project team, other EA teams and our partners (Water for Food Group, Regional Groups)
- Consolidated comments will be provided for incorporation into the final report

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This leads me on to reporting….. We have a draft template in the methodology, but the key point here is to present the conclusions and story of how you've got there. You will also be asked to provide the completed screening spreadsheet.

Your output will be reviewed by the farms, EA and our partners in the regional groups and Water for Food Group, we'll then give you consolidated comments back for the final report.
We expect only one revision of the report as we'll have plenty of contact points during the project to keep in touch so there shouldn't be any surprises for any stakeholders!

Which leads me on to project management…

Project Management

- Kick-off meeting with EA
- Kick-off meeting / Site visit with farms
- Bi-weekly virtual meetings with your EA project manager
- Close out meeting / presentation

- Overall projects are expected to take circa 3 months

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What happens afterwards?

Farms

- Will be under no obligation to develop any of the identified schemes
- Current licences will not be affected by your involvement in a study
- Can use the study to start moving towards a more water secure future

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- We'll use the collated output over all the studies to help inform Defra policy and Regional Planning

Consultants

- Farms may wish to take projects forwards into development
- No restrictions on you bidding for this work

Where could this go in the future …. outside of agriculture specific projects

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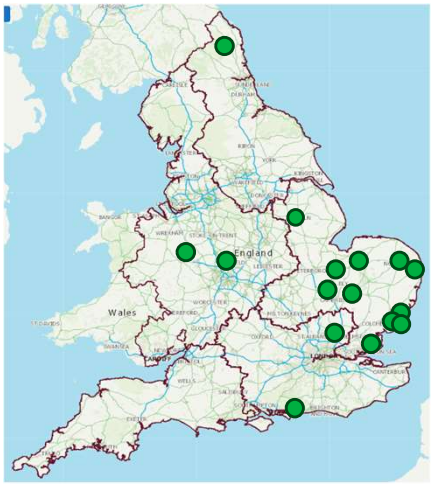
… and I'm now going to pass to Gina to talk about the projects we'll be letting and the procurement process.

Who are the applicants?

- Groups of farms
  - 2 ~ 20 members
- Spread across England
- Range of types of agriculture
  - Crops / Veg / Soft fruit / livestock
- Range of current water sources
  - Groundwater
  - Land drainage (via IDB)
  - Surface
  - Rainwater
  - PWS



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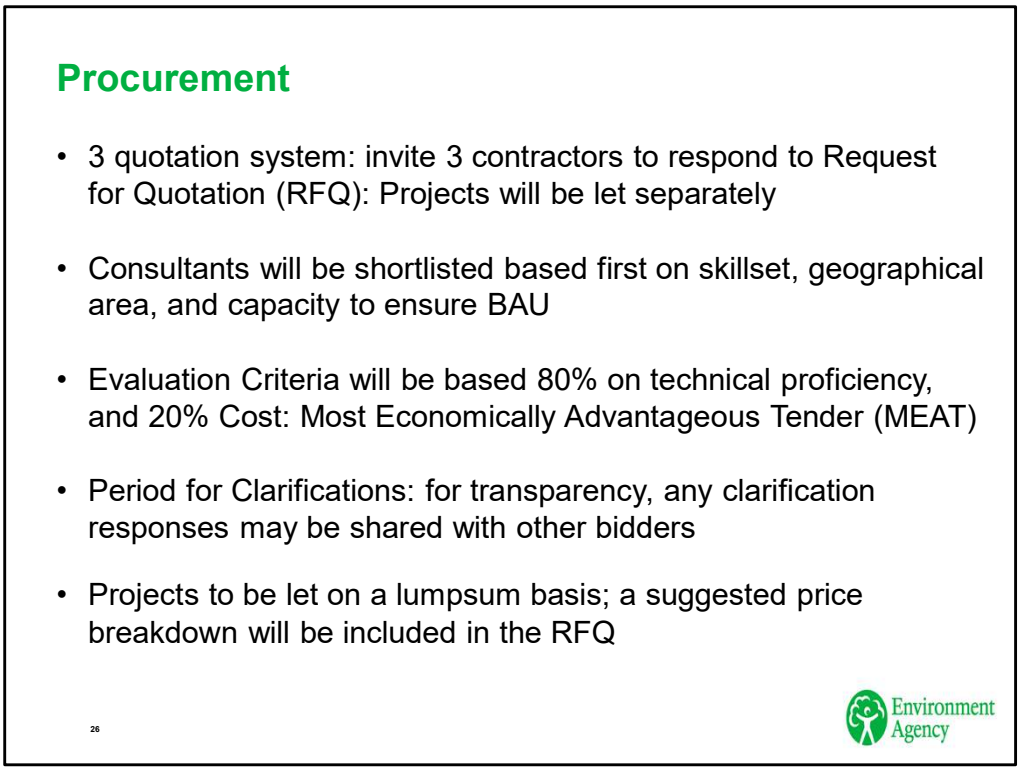
Who are the applicants?

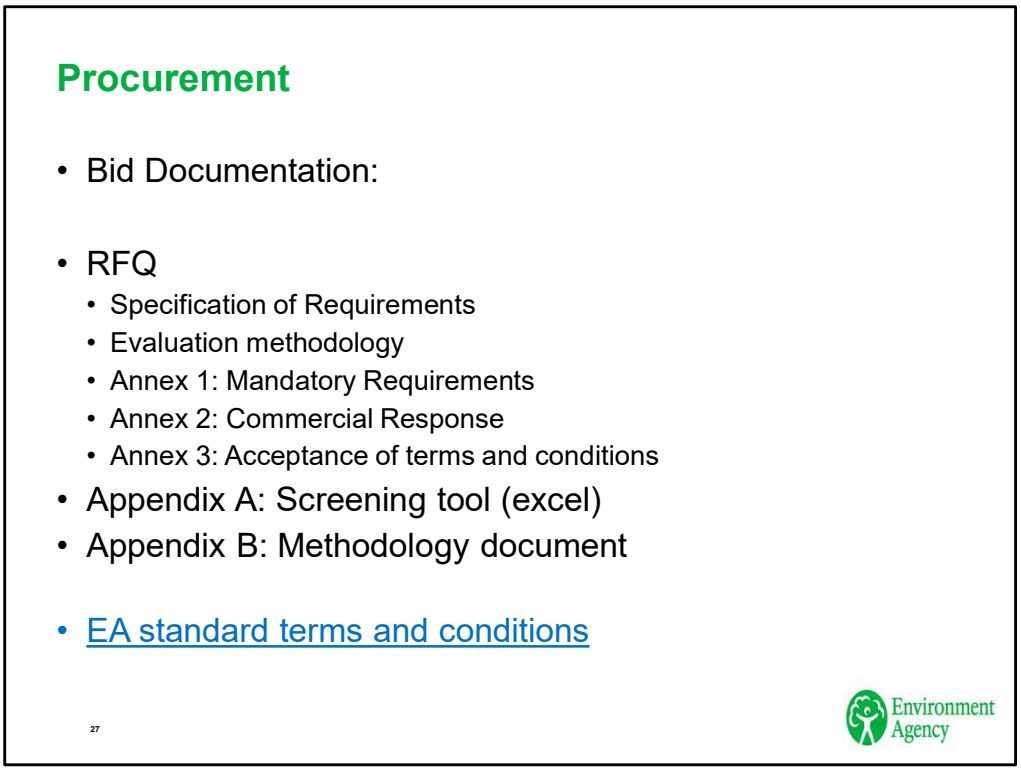
- 16 Groups of farms from all over England that can contain anywhere from 2 to 20 farms, these groups are represented by the green circles on the map you can see.
- they cover a diverse range of agricultural practices including crops, vegetables, soft fruit and livestock
- In the application each of the applicants were asked to record their current water sources, and as you can see this covers a wide range of practices including groundwater, land drainage, surface water, rainwater harvesting and public water supply



Procurement:

- We will be using a three-quotation system where we will invite three contractors to respond to our Request for Quotation, each of the projects will be let individually with invitations sent to three separate consultants, I just want to inform you that no one consultant will be invited to respond to all 16 of the projects
- Consultants will be shortlisted for this process based on skillset, the geographical area that you are able to cover, and your capacity, to ensure that projects will remain on schedule and delivered on time regardless of any changes within the organisation
- In terms of the evaluation process we will be splitting this 80/20, 80% of the weighting will be given to your technical ability to deliver the projects, and 20% in according to the overall cost. We will be awarding the contract based on the MEAT principle, to ensure it is given to the most economically advantageous tender.
- There will be a period of time designated for clarification questions, in order to maintain transparency during this period any questions and responses may be circulated amongst all responding organisations.
- Projects will be let on a lump sum basis, please provide a suggested price

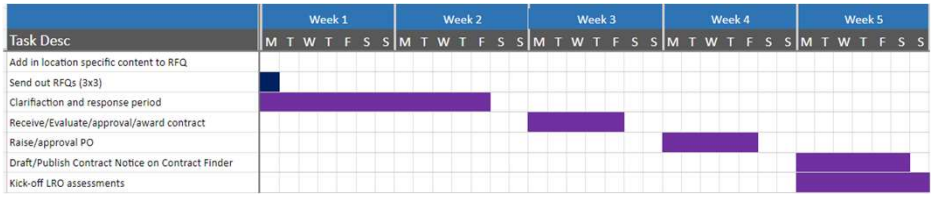
breakdown of activities within the commercial response section of the RFQ



Procurement:

- When sending our invitation we will include the following documentation
- The Request for quotation, this is the overarching document which contains information about the projects, such as: The specification of requirement, greater detail on the evaluation methodology, the commercial response for the suggested price breakdown, and a signature page for the Acceptance of our terms and conditions
- In addition to this we will also send necessary supporting documents which includes the screening methodology tool in an excel format, that Mima talked us through earlier, and the Methodology Document to accompany this
- At the bottom of the page, you can also see a link to the standard terms and conditions used by the Environment Agency for you to view once these slides have been circulated

Procurement



- 16 separate projects
- **3 Rounds**: Summer, Autumn and Winter

Project Group	Start date (approx.)	End Date (approx.)	Value Range (approx.)
Round 1	August	November	£20-£30k
Round 2	September	December	£20-£30k
Round 3	October	January	£20-£30k

- All Projects must be completed by **January 2025**
- Scope of work and delivery expectations remain the same for each round of projects

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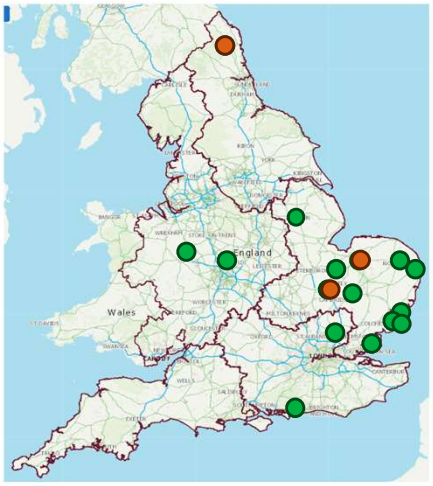
Procurement:

- At the top here you can see an example of the timeline that we expect to use for the initial set up of these projects, this includes the period of clarification that I mentioned earlier, along with approximate times needed for evaluation and to set up a purchase order for the successful organisation.
- There are 16 separate projects that need to be delivered, and we expect these to be let over the course of three rounds. Please see the table for an approximate guideline for these letting periods as well as the timings for when we expect the proceeding two rounds of projects to begin
- The value range for these contracts are between £20 to £30 thousand pounds, however we understand that this may vary depending on the requirements for each specific farming group.
- Each project is expected to take three months from beginning to completion, and all of the 16 projects must be finished by the end of January 2025
- The scope of work and delivery expectations will remain the same for each round of projects, and again no one consultant will be invited to respond for all 16 projects.

What happens next?

First Round of Projects



1. To express your interest in being considered for this work please email the geographic region(s) that you work in and any additional information about yourselves.

2. By **17:00 on Thursday 18th July**.

3. For those who fit the geographic requirements as well as the technical requirements, we will contact you with an RFQ by the 26th July for the first round.

wrnationalframework@environment-agency.gov.uk

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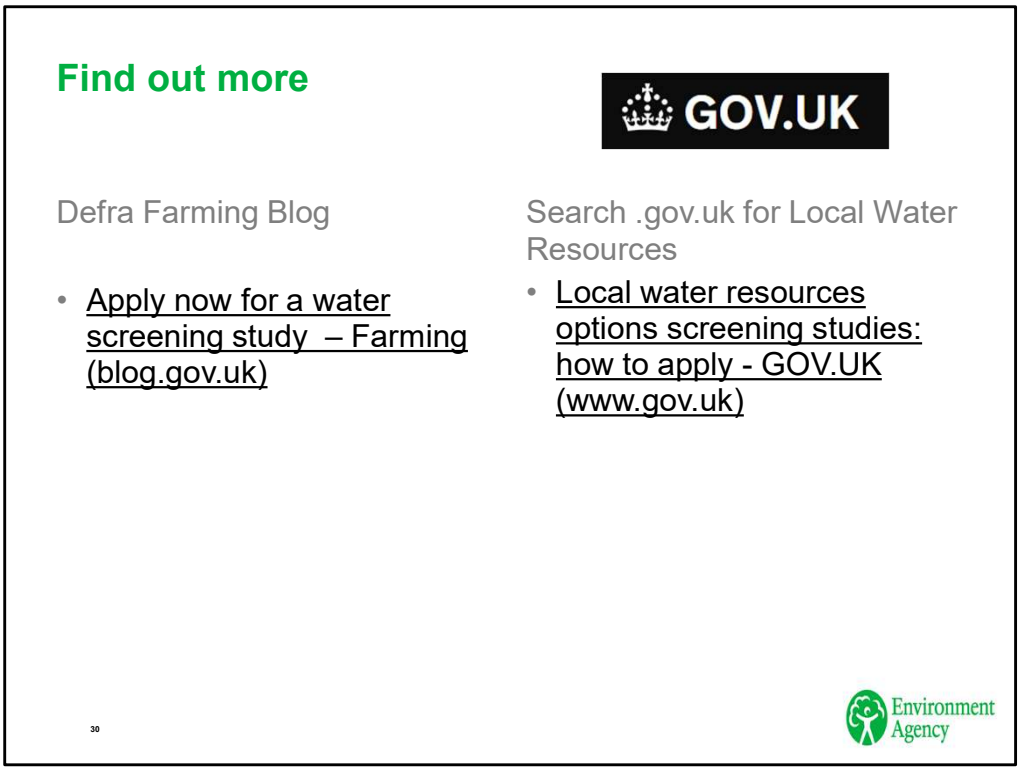
What Happens Next?

- We are beginning the process of shortlisting consultants for the first round of projects, these projects are represented as red circles on the map.
- To express you interest in being considered for any of the scopes throughout the three rounds of projects, please email us the geographic region or regions that you work in, this will enable us to identify which projects would be within your remit and therefore which round of projects you could be invited to respond to.
- Please feel free to attach in your email any additional information about yourselves that you believe would be able to support our decision-making process such as CV's or case studies.
- Please email us expressing your interest by 5pm on the Thursday the 18th of July
- For those of you who fit the geographic requirements for the first round of projects shown here on the screen, as well as the technical requirements, we will contact you with a Request for Quotation and the discussed accompanying documents on the 26th of July.



Once these slides are circulated, please use these links to learn more about the application process we used for the LRO screening studies on our website and our blog


Thank you
and
Any Questions?
WRNationalFramework@environment-agency.gov.uk
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