

Invitation to Quote

Invitation to Quote (ITQ) on behalf of UK Research and Innovation

Subject: Submarine Navigation Pack

Sourcing Reference Number: RE18431



UK Shared Business Services Ltd (UK SBS)
www.uksbs.co.uk

Registered in England and Wales as a limited company. Company Number 6330639.
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Section 1 – About UK Shared Business Services

Putting the business into shared services

UK Shared Business Services Ltd (UK SBS) brings a commercial attitude to the public sector; helping our Contracting Authorities improve efficiency, generate savings and modernise.

It is our vision to become the leading service provider for the Contracting Authorities of shared business services in the UK public sector, continuously reducing cost and improving quality of business services for Government and the public sector.

Our broad range of expert services is shared by our Contracting Authorities. This allows Contracting Authorities the freedom to focus resources on core activities; innovating and transforming their own organisations.

Core services include Procurement, Finance, Grants Admissions, Human Resources, Payroll, ISS, and Property Asset Management all underpinned by our Service Delivery and Contact Centre teams.

UK SBS is a people rather than task focused business. It's what makes us different to the traditional transactional shared services centre. What is more, being a not-for-profit organisation owned by the Department for Business, Energy & Industrial Strategy (BEIS), UK SBS' goals are aligned with the public sector and delivering best value for the UK taxpayer.

UK Shared Business Services Ltd changed its name from RCUK Shared Services Centre Ltd in March 2013.

Our Customers

Growing from a foundation of supporting the Research Councils, 2012/13 saw Business, Energy and Industrial Strategy (BEIS) transition their procurement to UK SBS and Crown Commercial Services (CCS – previously Government Procurement Service) agree a Memorandum of Understanding with UK SBS to deliver two major procurement categories (construction and research) across Government.

UK SBS currently manages £700m expenditure for its Contracting Authorities.

Our Contracting Authorities who have access to our services and Contracts are detailed [here](#).

Section 2 – About the Contracting Authority

UK Research and Innovation

Operating across the whole of the UK and with a combined budget of more than £6 billion, UK Research and Innovation represents the largest reform of the research and innovation funding landscape in the last 50 years.

As an independent non-departmental public body UK Research and Innovation brings together the seven Research Councils (AHRC, BBSRC, EPSRC, ESRC, MRC, NERC, STFC) plus Innovate UK and a new organisation, Research England.

UK Research and Innovation ensures the UK maintains its world-leading position in research and innovation. This is done by creating the best environment for research and innovation to flourish.

Section 3 - Working with the Contracting Authority.

In this section you will find details of your Procurement contact point and the timescales relating to this opportunity.

Section 3 – Contact details		
3.1	Contracting Authority Name and address	UK Research and Innovation Polaris House N Star Ave Swindon SN2 1FL
3.2	Buyer name	James Mills
3.3	Buyer contact details	Research.tenders@uiksbs.co.uk
3.4	Maximum value of the Opportunity	£150,000 including VAT
3.5	Process for the submission of clarifications and Bids	All correspondence shall be submitted within the Emptoris e-sourcing tool. Guidance Notes to support the use of Emptoris is available here. Please note submission of a Bid to any email address including the Buyer <u>will</u> result in the Bid <u>not</u> being considered.

Section 3 - Timescales		
3.6	Date of Issue of Contract Advert and location of original Advert	Friday 16 th November 2018 Contracts Finder
3.7	Latest date/time ITQ clarification questions shall be received through Emptoris messaging system	Monday 26 th November 2018 14:00
3.8	Latest date/time ITQ clarification answers should be sent to all Bidders by the Buyer through Emptoris	Wednesday 28 th November 2018 14:00
3.9	Latest date/time ITQ Bid shall be submitted through Emptoris	Friday 30 th November 2018 14:00
3.11	Anticipated Award date	Friday 7 th December 2018
3.12	Anticipated Contract Start date	Wednesday 12 th December 2018
3.13	Bid Validity Period	60 Days

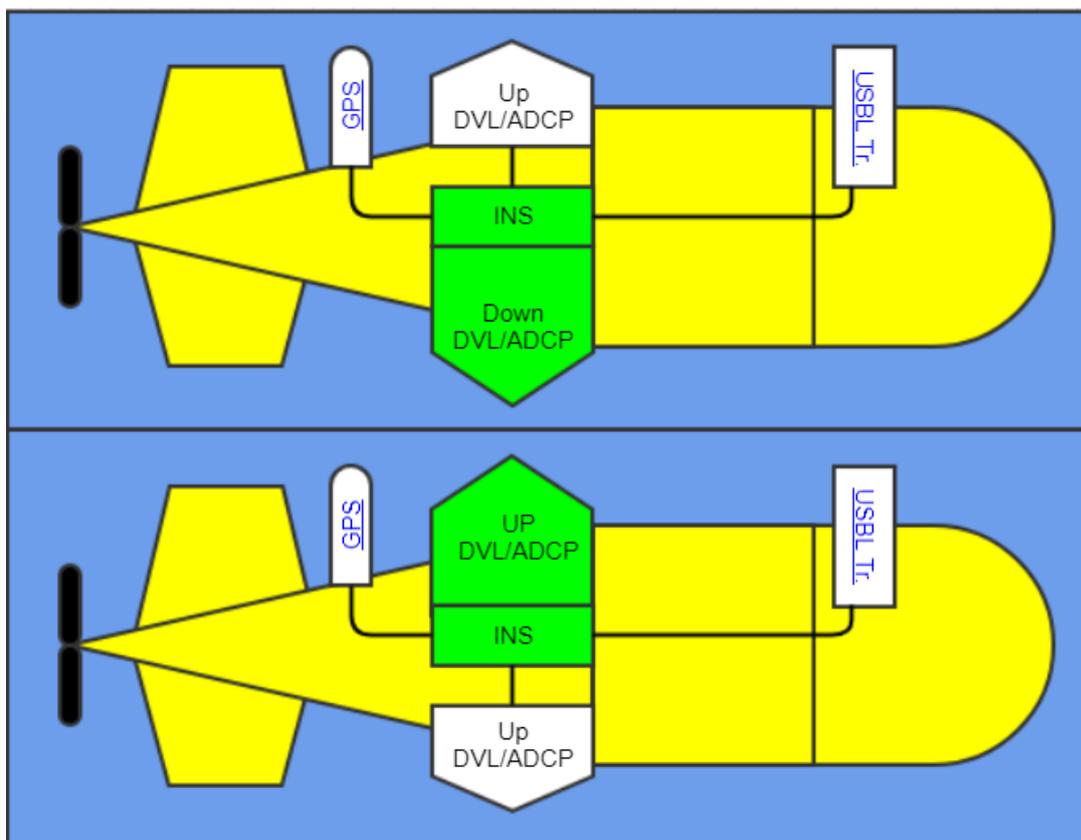
Section 4 – Specification

Submarine Navigation Pack Tender

This tender is to provide the navigation package for the NOCs new under ice submarine known as Autosub 2000 under ice (A2KUI). As with all the Autosub vehicles, navigation on surface will be by GPS and while submerged by dead-reckoning. Dead-reckoning requires, as a minimum, accurate heading and velocity information. A2KUI requires an advanced dead-reckoning system with the ability to use multiple sensors to aid the submarines position. The minimum navigation inputs A2KUI needs to combine are:

- 2 or more ADCP/DVLs (one up one down)
- Inertial navigation (Gyros)
- Depth Sensors
- USBL & LBL inputs
- GPS inputs

This tender is to provide the backbone of the A2KUI navigation system by providing a single unit, which contains a Gyro, Single DVL/ADCP, Pressure Sensors & the ability to plug other navigation sensors in.



Key Features & Capabilities

Basic Requirement:

The navigation system for the under ice submarine must comprise of an Inertial Navigation System coupled to a pressure sensor and Doppler Velocity Log (DVL) in a single pressure vessel. The DVL must be capable of both working orientated downwards with bottom lock and upwards with top lock (on ice).

The Navigation system will be capable of taking inputs from additional sources such as a secondary DVL/ADCP or USBL updates to help correct the position estimate for the submarine.

The system will use all collected data to output position estimates for the submarine. It will thus output with a time stamp:

- Horizontal Position / Depth / upAttitude or downAltitude
- Horizontal Velocity
- Angular Position / Velocity

General Requirements

Installation	The supplier must deliver an installation manual.
Software	The supplier must deliver post processing tools to recreate a posteriori best estimate of track.
Training	The supplier must provide a training course for a minimum of 3 people in how to use the equipment.
Service Maintenance and Support (including whole life support)	<p>The supplier must provide a service and maintenance manual detailing any service regime needed to keep the equipment operating for >10 years.</p> <p>The supplier must provide contact details for support queries.</p> <p>The supplier must recommend suitable re-calibration periods for the pressure sensor.</p>
User and Service Manuals	The supplier must supply a digital copy of the manuals and integration guides.

Service Spare Parts	<p>The supplier must provide a spare cable tails for each connector on the unit.</p> <p>The supplier must provide a 5m waterproof test lead so the equipment can be tested on its own in the water or on a bench away from the final submarine design.</p>
Relevant Standards	The equipment must have been tested to an appropriate EMC & vibration standard for subsea use. Supplier to send certificates of conformance detailing this.
Warranty	The equipment must come with minimum of a 1 year warranty.
Delivery location and date	<p>The equipment is to be delivered to the: National Oceanography Centre, European Way, Southampton, SO14 3ZH</p> <p>No later than the 22nd March 2019.</p>
OEM	If the vendor is not the Original Equipment Manufacturer (OEM) the vendor MUST provide, in writing a recently dated (i.e., within the past year) and signed letter from the OEM recognizing them as the fully authorized and qualified vendor of the products and accessories
Export Controls	The navigation system must not fall under ITAR restrictions which restrict worldwide operation of the AUV.
Dual Use Export Code	The supplier shall inform us upon delivery of the equipment's' dual use Export code as defined in the "UK Strategic Export Control Lists"
Software, Electronic & Electrical Requirements	
Power Requirements	The unit must be capable of operating utilizing one of the standard voltages provided by the vehicle 24V or 48V.

	<p>The unit must draw less than 40W maximum power draw.</p> <p>The system must have an on board battery capable of dealing with short (10-20s) power drop outs.</p>
Time Sync	The Navigation system should be capable of being time synced to the rest of the submarine via NTP or PTP protocols
Communication	The navigation system will be connected to the AUV control computer Ethernet. Either 4-wire or 8-wire Ethernet are both acceptable.
Mechanical Requirements	
Housing	A single combined INS & DVL & Pressure sensor unit is required with a maximum size of 500 x 300 x 300 mm (H x W x L).
Weight	The combined unit must weigh less than 30Kg in air and 20kg in water. Reduced weight is desirable.
Depth Rating	The navigation system will be housed in a suitable pressure vessel(s) designed for operation at a nominal diving depth of 6000m.
Temperature	The navigation system shall be capable of operating in water temperatures from -5°C to 50 °C. And storage Temperatures between - 25°C to 55°C; with air at up to 100% humidity.
Corrosion	<p>The navigation system must be manufactured from materials suitable for long term (6 month) immersion in water (e.g. Titanium, Super duplex steel or Plastic).</p> <p>Lifetime of the Navigation System should be in excess of 10 years</p>
Pressure Sensors	The system must come with an integrated pressure sensor with an accuracy of 0.01% full scale or better.
Navigation Performance	

Navigation performance	For DVL aided positioning the navigation system must have a navigation error of $\leq 0.05\%$ of distance travelled. Enhanced performance would be desirable.
Heading Accuracy	The system must have a heading accuracy (secant latitude) performance of 0.05 degrees or better at below 85 degrees latitude.
Pitch Roll Accuracy	The system must have a roll and pitch accuracy of 0.01 degrees or better
INS output	The system must be able to output standard NMEA position estimates at 100Hz or greater
DVL/ADCP output	The DVL system must be able to output standard NMEA position estimates at 25Hz or greater
DVL/ADCP range	The DVL for must provide bottom or top lock at ranges >160m.
ADCP data	The DVL/ADCP must be able to provide current profiling functionality. If it is unable to do so a free of charge update must be provided by 2020 to enable this functionality.
DVL/ADCP Triggering	The DVL must be able to be triggered preferably using an Ethernet message or setting a schedule. If necessary, a 5V trigger line is acceptable.
Integration	
USBL & LBL Support	The system must accept USBL & LBL position updates via Sonardyne 6G USBL/LBL equipment mounted to the all NERC Vessels. The updates must be used correct the submarines position estimate.
DVL Temperature correction for speed of sound	It would be preferred for the DVL to have an on board temperature sensor to help correct for speed of sound changes
DVL Sound Velocity	It would be preferred for the DVL to either be able to measure the speed of sound in the water column or be able to receive a sound velocity message. Both would use the data to provide more accurate positioning data.
GNSS	The system will accept and use GNSS position updates while operating on the surface and use

	them to correct the submarines position estimate.
Additional Sensors – DVL/ADCP	The system must have the capability to take INS inputs from a second ADCP/DVL system and use them to correct the submarines position estimate.
Additional Sensors - Other	The system must have the capability to take INS inputs from other sources and use them to correct the submarines position estimate.

Section 5 – Evaluation model

The evaluation model below shall be used for this ITQ, which will be determined to two decimal places.

Where a question is 'for information only' it will not be scored.

The evaluation team may comprise staff from UK SBS and the Contracting Authority and any specific external stakeholders the Contracting Authority deems required. After evaluation the scores will be finalised by performing a calculation to identify (at question level) the mean average of all evaluators (Example – a question is scored by three evaluators and judged as scoring 5, 5 and 6. These scores will be added together and divided by the number of evaluators to produce the final score of 5.33 ($5+5+6 = 16 \div 3 = 5.33$))

Pass / fail criteria		
Questionnaire	Q No.	Question subject
Commercial	SEL1.1	Legal name and address
Commercial	SEL1.2	Employment breaches/ Equality
Commercial	SEL3.11	Modern Slavery Act 2015
Commercial	FOI1.1	Freedom of Information Exemptions
Commercial	AW1.1	Form of Bid
Commercial	AW1.3	Certificate of Bona Fide Bid
Commercial	AW3.1	Validation check
Commercial	AW4.1	Contract Terms Part 1
Commercial	AW4.2	Contract Terms Part 2
Quality	AW6.1	Compliance to the Specification
Quality	AW6.2	Variable Bids
Price	PROJ1.8	Maximum Budget

Scoring criteria			
Evaluation Justification Statement			
In consideration of this particular requirement the Contracting Authority has decided to evaluate Potential Providers by adopting the weightings/scoring mechanism detailed within this ITQ. The Contracting Authority considers these weightings to be in line with existing best practice for a requirement of this type.			
Questionnaire	Q No.	Question subject	Maximum Marks
Price	AW5.2	Price	40%
Quality	PROJ1.1	Dry Mass	6%
Quality	PROJ1.2	Wet Mass	12%
Quality	PROJ1.3	Navigation Error	18%
Quality	PROJ1.4	DVL Trigger	12%
Quality	PROJ1.5	DVL Temperature	6%
Quality	PROJ1.6	DVL Sound Velocity	6%

Evaluation of criteria

Non-Price elements

Each question will be judged on a score from 0 to 100, which shall be subjected to a multiplier to reflect the percentage of the evaluation criteria allocated to that question.

Where an evaluation criterion is worth 20% then the 0-100 score achieved will be multiplied by 20%.

Example if a Bidder scores 60 from the available 100 points this will equate to 12% by using the following calculation:

$$\text{Score} = \{\text{weighting percentage}\} \times \{\text{bidder's score}\} = 20\% \times 60 = 12$$

The same logic will be applied to groups of questions which equate to a single evaluation criterion.

The 0-100 score shall be based on (unless otherwise stated within the question):

0	The Question is not answered or the response is completely unacceptable.
10	Extremely poor response – they have completely missed the point of the question.
20	Very poor response and not wholly acceptable. Requires major revision to the response to make it acceptable. Only partially answers the requirement, with major deficiencies and little relevant detail proposed.
40	Poor response only partially satisfying the selection question requirements with deficiencies apparent. Some useful evidence provided but response falls well short of expectations. Low probability of being a capable supplier.
60	Response is acceptable but remains basic and could have been expanded upon. Response is sufficient but does not inspire.
80	Good response which describes their capabilities in detail which provides high levels of assurance consistent with a quality provider. The response includes a full description of techniques and measurements currently employed.
100	Response is exceptional and clearly demonstrates they are capable of meeting the requirement. No significant weaknesses noted. The response is compelling in its description of techniques and measurements currently employed, providing full assurance consistent with a quality provider.

All questions will be scored based on the above mechanism. Please be aware that the final score returned may be different as there may be multiple evaluators and their individual scores will be averaged (mean) to determine your final score.

Example

Evaluator 1 scored your bid as 60

Evaluator 2 scored your bid as 60

Evaluator 3 scored your bid as 40

Evaluator 4 scored your bid as 40

Your final score will $(60+60+40+40) \div 4 = 50$

Price elements will be judged on the following criteria.

The lowest price for a response which meets the pass criteria shall score 100.

All other bids shall be scored on a pro rata basis in relation to the lowest price. The score is then subject to a multiplier to reflect the percentage value of the price criterion.

For example - Bid 1 £100,000 scores 100.

Bid 2 £120,000 differential of £20,000 or 20% remove 20% from price scores 80

Bid 3 £150,000 differential £50,000 remove 50% from price scores 50.

Bid 4 £175,000 differential £75,000 remove 75% from price scores 25.

Bid 5 £200,000 differential £100,000 remove 100% from price scores 0.

Bid 6 £300,000 differential £200,000 remove 100% from price scores 0.

Where the scoring criterion is worth 50% then the 0-100 score achieved will be multiplied by 50.

In the example if a supplier scores 80 from the available 100 points this will equate to 40% by using the following calculation: $\text{Score/Total Points} \times 50$ ($80/100 \times 50 = 40$)

The lowest score possible is 0 even if the price submitted is more than 100% greater than the lowest price.

Section 6 – Evaluation questionnaire

Bidders should note that the evaluation questionnaire is located within the **e-sourcing questionnaire**.

Guidance on completion of the questionnaire is available at
<http://www.uksbs.co.uk/services/procure/Pages/supplier.aspx>

PLEASE NOTE THE QUESTIONS ARE NOT NUMBERED SEQUENTIALLY

Section 7 – General Information

What makes a good bid – some simple do's 😊

DO:

- 7.1 Do comply with Procurement document instructions. Failure to do so may lead to disqualification.
- 7.2 Do provide the Bid on time, and in the required format. Remember that the date/time given for a response is the last date that it can be accepted; we are legally bound to disqualify late submissions. Responses received after the date indicated in the ITQ shall not be considered by the Contracting Authority, unless the Bidder can justify that the reason for the delay, is solely attributable to the Contracting Authority
- 7.3 Do ensure you have read all the training materials to utilise e-sourcing tool prior to responding to this Bid. If you send your Bid by email or post it will be rejected.
- 7.4 Do use Microsoft Word, PowerPoint Excel 97-03 or compatible formats, or PDF unless agreed in writing by the Buyer. If you use another file format without our written permission we may reject your Bid.
- 7.5 Do ensure you utilise the Emptoris messaging system to raise any clarifications to our ITQ. You should note that we will release the answer to the question to all Bidders and where we suspect the question contains confidential information we may modify the content of the question to protect the anonymity of the Bidder or their proposed solution
- 7.6 Do answer the question, it is not enough simply to cross-reference to a 'policy', web page or another part of your Bid, the evaluation team have limited time to assess bids and if they can't find the answer, they can't score it.
- 7.7 Do consider who the Contracting Authority is and what they want – a generic answer does not necessarily meet every Contracting Authority's needs.
- 7.8 Do reference your documents correctly, specifically where supporting documentation is requested e.g. referencing the question/s they apply to.
- 7.9 Do provide clear, concise and ideally generic contact details; telephone numbers, e-mails and fax details.
- 7.10 Do complete all questions in the questionnaire or we may reject your Bid.
- 7.11 Do ensure that the Response and any documents accompanying it are in the English Language, the Contracting Authority reserve the right to disqualify any full or part responses that are not in English.
- 7.12 Do check and recheck your Bid before dispatch.

What makes a good bid – some simple do not's

DO NOT

- 7.13 Do not cut and paste from a previous document and forget to change the previous details such as the previous buyer's name.
- 7.14 Do not attach 'glossy' brochures that have not been requested, they will not be read unless we have asked for them. Only send what has been requested and only send supplementary information if we have offered the opportunity so to do.
- 7.15 Do not share the Procurement documents, they are confidential and should not be shared with anyone without the Buyers written permission.
- 7.16 Do not seek to influence the procurement process by requesting meetings or contacting UK SBS or the Contracting Authority to discuss your Bid. If your Bid requires clarification the Buyer will contact you. All information secured outside of formal Buyer communications shall have no Legal standing or worth and should not be relied upon.
- 7.17 Do not contact any UK SBS staff or the Contracting Authority staff without the Buyers written permission or we may reject your Bid.
- 7.18 Do not collude to fix or adjust the price or withdraw your Bid with another Party as we will reject your Bid.
- 7.19 Do not offer UK SBS or the Contracting Authority staff any inducement or we will reject your Bid.
- 7.20 Do not seek changes to the Bid after responses have been submitted and the deadline for Bids to be submitted has passed.
- 7.21 Do not cross reference answers to external websites or other parts of your Bid, the cross references and website links will not be considered.
- 7.22 Do not exceed word counts, the additional words will not be considered.
- 7.23 Do not make your Bid conditional on acceptance of your own Terms of Contract, as your Bid will be rejected.
- 7.24 Do not unless explicitly requested by the Contracting Authority either in the procurement documents or via a formal clarification from the Contracting Authority send your response by any way other than via e-sourcing tool. Responses received by any other method than requested will not be considered for the opportunity.

Some additional guidance notes

- 7.25 All enquiries with respect to access to the e-sourcing tool and problems with functionality within the tool must be submitted to Crown Commercial Service (previously Government Procurement Service), Telephone 0345 010 3503.
- 7.26 Bidders will be specifically advised where attachments are permissible to support a question response within the e-sourcing tool. Where they are not permissible any attachments submitted will not be considered as part of the evaluation process.
- 7.27 Question numbering is not sequential and all questions which require submission are included in the Section 6 Evaluation Questionnaire.
- 7.28 Any Contract offered may not guarantee any volume of work or any exclusivity of supply.
- 7.29 We do not guarantee to award any Contract as a result of this procurement
- 7.30 All documents issued or received in relation to this procurement shall be the property of the Contracting Authority. / UKSBS.
- 7.31 We can amend any part of the procurement documents at any time prior to the latest date / time Bids shall be submitted through Emptoris.
- 7.32 If you are a Consortium you must provide details of the Consortiums structure.
- 7.33 Bidders will be expected to comply with the Freedom of Information Act 2000 or your Bid will be rejected.
- 7.34 Bidders should note the Government's transparency agenda requires your Bid and any Contract entered into to be published on a designated, publicly searchable web site. By submitting a response to this ITQ Bidders are agreeing that their Bid and Contract may be made public
- 7.35 Your bid will be valid for 60 days or your Bid will be rejected.
- 7.36 Bidders may only amend the contract terms during the clarification period only, only if you can demonstrate there is a legal or statutory reason why you cannot accept them. If you request changes to the Contract terms without such grounds and the Contracting Authority fail to accept your legal or statutory reason is reasonably justified we may reject your Bid.
- 7.37 We will let you know the outcome of your Bid evaluation and where requested will provide a written debrief of the relative strengths and weaknesses of your Bid.
- 7.38 If you fail mandatory pass / fail criteria we will reject your Bid.
- 7.39 Bidders are required to use IE8, IE9, Chrome or Firefox in order to access the functionality of the Emptoris e-sourcing tool.
- 7.40 Bidders should note that if they are successful with their proposal the Contracting Authority reserves the right to ask additional compliancy checks prior to the award of any Contract. In the event of a Bidder failing to meet one of the compliancy checks

the Contracting Authority may decline to proceed with the award of the Contract to the successful Bidder.

- 7.41 All timescales are set using a 24 hour clock and are based on British Summer Time or Greenwich Mean Time, depending on which applies at the point when Date and Time Bids shall be submitted through Emptoris.
- 7.42 All Central Government Departments and 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 Contracting Authority may disclose within Government any of the Bidders documentation/information (including any that the Bidder considers to be confidential and/or commercially sensitive such as specific bid information) submitted by the Bidder to the Contracting Authority during this Procurement. The information will not be disclosed outside Government. Bidders taking part in this ITQ consent to these terms as part of the competition process.

- 7.43 The Government introduced its new Government Security Classifications (GSC) classification scheme on the 2nd April 2014 to replace the current Government Protective Marking System (GPMS). A key aspect of this is the reduction in the number of security classifications used. All Bidders are encouraged to make themselves aware of the changes and identify any potential impacts in their Bid, as the protective marking and applicable protection of any material passed to, or generated by, you during the procurement process or pursuant to any Contract awarded to you as a result of this tender process will be subject to the new GSC. The link below to the Gov.uk website provides information on the new GSC:

<https://www.gov.uk/government/publications/government-security-classifications>

The Contracting Authority reserves the right to amend any security related term or condition of the draft contract accompanying this ITQ to reflect any changes introduced by the GSC. In particular where this ITQ is accompanied by any instructions on safeguarding classified information (e.g. a Security Aspects Letter) as a result of any changes stemming from the new GSC, whether in respect of the applicable protective marking scheme, specific protective markings given, the aspects to which any protective marking applies or otherwise. This may relate to the instructions on safeguarding classified information (e.g. a Security Aspects Letter) as they apply to the procurement as they apply to the procurement process and/or any contracts awarded to you as a result of the procurement process.

USEFUL INFORMATION LINKS

- [Emptoris Training Guide](#)
- [Emptoris e-sourcing tool](#)
- [Contracts Finder](#)
- [Equalities Act introduction](#)
- [Bribery Act introduction](#)
- [Freedom of information Act](#)