Statement of Requirement for Provision of Engineering Services and Scheduled Sustainment for the Solid State Phased Array Radar at RAF Fylingdales

Ref **Requirement**

A General Requirements

A.1 Scope of Requirement

A.1.a The following Statement of Requirement (SoR) pertains to the provision of Engineering Services and Scheduled Sustainment of the Army Navy Fixed Position Sensor (ANFPS)-132 Radar System situated at RAF Fylingdales (also known as Ballistic Missile Early Warning System (BMEWS) Site III).

A.1.b The Contractor will be required to ensure provision of a range of maintenance activities, of varying complexity over a multi-year programme.

A.1.c Wherever possible, the provisioned activities should be scheduled/carried out such as to minimise non-availability of the Radar System.

A.1.d The Contractor will have to work closely with other critical contractors; e.g. The current Operation and Maintenance (O&M) Contractor, Serco, to ensure timely completion of work that maximises system availability.

A.1.e The Contractor will possess sufficient expertise in a wide range of engineering disciplines and fields, or demonstrate a proven record in successfully utilising/managing appropriately-qualified subcontractors.

A.1.f The ANFPS-132 Radar System must remain available for operation whenever possible. Periods of anticipated non-availability to facilitate this SoR may change at short notice. The Contractor is to show flexibility and understanding that dates given may be subject to change.

A.2 Definitions

A.2.a In addition to the definitions detailed in the Terms and Conditions of the Contract the following definitions shall also apply. Where the definitions below contrast to those detailed in the Terms and Conditions of the Contract then the definitions within the Terms and Conditions of the Contract shall take precedence.

Definition	Interpretation
Contractor's Personal Use	Any use of MOD furnished property, facilities or equipment intended for the primary benefit of the Contractor or the Contractor's Personnel which is contrary to the MOD's interests is considered personal use.
Contractor's Personnel	Any employees, including sub-contractors or other agents working on behalf of the Contractor, shall be deemed the Contractor's Personnel.
Designated Officer	The Designated Officer is the MOD representative responsible for the Requirement and is as defined at Box 2 of DEFFORM 111 of this Contract.

A.3 Abbreviations and Acronyms

A.3.a In addition to the abbreviations and acronyms detailed in the Terms and Conditions of the Contract the following abbreviations and acronyms will be used.

Abbreviation or Acronym	Interpretation
ACB	Air Circuit Break
AHU	Air Handling Unit
ANFPS-132	Army Navy Fixed Position Sensor
AP[a]	Air Publication
AP[b]	Authorised Person
AQAP	Allied Quality Assurance Publication
Blg	Building
BMEWS	Ballistic Missile Early Warning System
BMS	Building Management System
BPSS	Baseline Personnel Security Standard
BS	British Standard
BSRIA	Building Services Research and Information Association
CIBSE	Chartered Institute of Building Services Engineers
CIDA	Co-ordinated Installation Design Authority
CIS	Communication and Information System
CLSA	Combined Logistics Service Agreement
CW	Chilled Water
DEFCON	Defence Condition
DEFFORM	Defence Form
DEFSTAN	Defence Standard
DG	Diesel Generator
DIO	Defence Infrastructure Organisation
DO	Designated Officer
DoD	(United States) Department of Defense
DSC	Digital Systems Controller
ECR	Engineering Change Request
EMI	ElectroMagnetic Interference
EMP	ElectroMagnetic Pulse
Flt	Flight
FY	Financial Year
GQA	Government Quality Assurance
HEMP	High-altitude ElectroMagnetic Pulse
HV	High Voltage
HVAC	Heating, Ventilation and Air Conditioning
ID	Identification

IET	Institution of Engineering and Technology
ISO	International Organization for Standardization
JSP	Joint Service Publication
LS0H	Low Smoke Zero Halogen
LV	Low Voltage
MDP	Ministry of Defence Police
MG	Motor Generator
MIL-STN	(United States) Military Standard
MOD	Ministry of Defence
MoU	Memorandum of Understanding
NATO	North Atlantic Treaty Organisation
O&M	Operation & Maintenance
OC	Officer Commanding
OEM	Original Equipment Manufacturer
PAF	Purge Air Fan
PLC	Programmable Logic Controller
PME	Prime Mission Equipment
PMT	Project Management Team
QMS	Quality Management System
RAF	Royal Air Force
RAFP	Royal Air Force Police
RF	Radio Frequency
RM	Risk Manager
RPM	Revolutions Per Minute
SAF	Supply Air Fan
SC	Security Check
SCIDA	Site Co-ordinated Installation Design Authority
SDIP	SECAN Doctrine and Information Publication
SoR	Statement of Requirement
SP	Skilled Person
SPE	Survivable Power Equipment
SQuaRE	Software Product Quality Requirements and Evaluation
SSPAR	Solid State Phased Array Radar
SSyO	Station Security Officer
Stn Cdr	Station Commander
UK	United Kingdom of Great Britain and Northern Ireland
UPS	Uninterruptable Power System
US	United States of America
VN	Visit Notification

VR	Visitor's Reception
VSD	Variable Speed Drive

A.4 References

A.4.a In addition to the references detailed in the Terms and Conditions of the Contract the following references shall also apply as well as any subsequent revisions and amendments to the references. This list does not absolve the Contractor from conforming to any other relevant publications.

Reference	Version	Source
AP[a] 600 – RAF CIS Policy	3rd Ed	Official-sensitive: to be made available to bidders
AQAPs as listed in Para A.11	-	http://nso.nato.int/nso/
BS 7671 (IET Regulations)	17th Ed	http://electrical.theiet.org/wiring-regulations/ (Fee Payable)
Data Protection Act 1998	1998 c. 29	http://www.legislation.gov.uk/ukpga/1998/29/contents
Defence Standards (DEFSTANs) as listed in Para A.11	-	Official-sensitive: to be made available to bidders
Electricity at Work Regulations	1989	http://www.legislation.gov.uk/uksi/1989/635/contents/made
Government Security Classifications	*1.0*	https://www.gov.uk/government/publications/government-security-classifications
ISO 25051 (SQuaRE) as listed in Para A.11	2014	
JSP 375 – MOD Health and Safety Policy	1.0	https://www.gov.uk/government/collections/jsp-375-health-and-safety-handbook
JSP 440 – Defense Manual of Security	-	Official-Sensitive: To be made available to bidders
JSP 604 – Installation of CIS	5.0	https://www.gov.uk/government/publications/joint-service-publication-jsp-604-network-rules
MIL-STD-188-125 (DoD)	-	DoD Military Standard: to be made available to bidders
SDIP 29/2 (Facility Design Criteria and Installation of Equipment for Classified Information Processing	-	Official-sensitive: to be made available to bidders
The Building Regulations	2010	http://www.legislation.gov.uk/uksi/2010/2214/contents/made

A.5 Processes and Related Tasks

A.5.a Operation of the ANFPS-132 Radar is governed by an intergovernmental MoU between the United States and United Kingdom. In keeping with the requirements of the CLSA governing use of the Radar System, the United States is responsible for provision and maintenance of the main radar systems. The United Kingdom (via the O&M Contractor and the Contractor to this SoR) is responsible for the provision and maintenance of supporting facilities of the Radar System.

A.5.b As a result of the CLSA, Engineering Services and Works may be instigated by the United States or its authorised agencies on-site which may impact the (future) planned activities of the Contractor of this SoR. The Authority will make every effort to advise the Contractor of potential issues regarding non-UK managed projects and activities, but cannot guarantee no disruption will occur to any prospective Scheduled Sustainment Programme.

A.5.c Routine operation, as well as preventative and reactive maintenance of the ANFPS-132 Radar System is conducted by the O&M Contractor (currently Serco). The majority of deliverables required by this SoR will impact or influence those routine operations.

A.5.d The MOD has deemed RAF Fylingdales (Building 351 – SSPAR) to be a CIDA controlled area. Any contractor that initiates change to any CIS device(s) or its environment is to ensure CIDA installation standards and configuration control requirements are mandated and used for the associated work, in accordance with JSP 604. Note environment includes but is not limited to: cabling, location, power sources, heat dissipation, etc. All such changes are to be coordinated via the Site CIDA (SCIDA) representative via the ECR process.

A.5.e RAF Fylingdales is a security sensitive site and is governed by JSP 440 *The Defence Manual of Security.* Compliance with the document is mandatory for all parties and persons working on and off the station when working on the Project. Security compliance includes the safe storage of documentation and includes safe correspondence of Project related matters. JSP 440 will be made available for scrutiny by bidding contractors.

A.5.f No service penetrations or other works, of any kind, are permitted to the SSPAR external structure without prior clearance from Site.

A.5.g The mains power generated on site is at a frequency of 60Hz and all equipment supplied and installed must be capable of operating from a 4160V, 60Hz, 3 phase electrical supply or a 240v, 60Hz single phase electrical supply.

A.5.h Physical access to equipment or systems to be worked on and freedom to work may be restricted by dividing walls, plant machinery and other physical impediments. Access to the SSPAR is limited to transit doors for personnel and a single loading bay access point. Transport of bulky or out-sized items above ground floor via cargo lift only (maximum weight 2500kg).

A.5.i Space within the location of the existing building is restricted. Replacement equipment must be capable of being positioned and installed via the existing loading bay and internal access routes. Sections of internal walls may be temporarily removed and reinstated providing this does not interfere with other operational equipment and installations. Structural alterations to facilitate delivery and installation of replacement equipment, designed by the Contractor, must be approved by DIO.

A.5.j The internal configuration of the SSPAR is divided into two distinct areas: Area A and Area B. The latter is known as the Operational Area, or *Hardened Area*. Infrastructure works undertaken in Area B require special precautions and considerations due to the presence of reinforced walls, blast-resistant doors and gas seals. While Area A consists of an all-steel shell, Area B is constructed from concrete and all necessary Earthing connections must be made via dedicated Earth Bars.

A.5.k Asbestos may be present in small quantities as part of pipework connections and sections, and any works on those systems should take suitable precautions.

A.6 Site

A.6.a The Site for the delivery of all services is RAF Fylingdales. RAF Fylingdales is sited in the middle of the North Yorkshire Moors, approximately midway between Pickering and Whitby on the A169.

A.7 Security

A.7.a All personnel working in the SSPAR (Blg 351) are to be cleared to SC as a minimum. Proof of clearances held (SC or US equivalent) must be provided prior to the visit. If individuals are not cleared to SC they must be escorted at all times within the SSPAR by a permanent member of staff from RAF Fylingdales who holds a minimum of SC clearance. As a minimum, all Contractor personnel (including subcontractors and specialist suppliers) should hold SC clearance. Where this is not possible or the timescales resultant creates unacceptable delay, agreement for Site to act as hosts to non-cleared personnel must be explicitly agreed in individual circumstances. Site capability to provide escorts cannot be presumed.

A.7.b Personnel working on the support area of RAF Fylingdales (e.g. outside of Blg 351) are to be cleared locally to BPSS by the RAF Fylingdales Vetting Clerk. If an individual is not cleared to BPSS and they require access to RAF Fylingdales, they must be escorted at all times by a Contractor who is BPSS cleared. Where this is not possible the individual will not be allowed access.

A.7.c All information related to or generated by this Contract is to be treated in the appropriate manner in accordance with Government Security Classifications. The classification of the material to be handled shall not exceed OFFICIAL-SENSITIVE in nature.

A.7.d Before any work commences a full list of individuals working on site is to be provided to RAF Police, using the Visit Notification (VN) form. A link to the completed VN form should be sent to the FYL-RAFPVNAuthorisationCell@Mod.uk email at least 48 hrs before the arrival of the contractor. If a member of the Contractor's Personnel is not a British or US national, they will be refused entry unless a strong business case is submitted to SSyO for that individual to be granted access. The Stn Cdr through the SSyO reserves the right to refuse access to RAF Fylingdales to any individual at any time.

A.7.e Portable electronic devices are banned from the SSPAR and should one be required for work purposes, permission must be sought from the RAF Police in the first instance.

A.7.f Any person who is not entering the SSPAR (working outside Bldg 351) and who wishes to bring onto RAF Fylingdales any form of portable electronic device, whether it is able to record and store data electronically or not; must first seek approval of the RAF Police. This does not include mobile phones.

A.7.g Anyone found to be in breach of SoR items A.7.e and A.7.f will be removed from site immediately and denied any further access. The incident may be investigated further by the Ministry of Defence Police (MDP) or RAF Police (RAFP).

A.7.i All personal data processed under this Contract is to be treated in accordance with the Data Protection Act 1998.

A.8 Site Access

A.8.a Escorting of subcontractors will remain the responsibility of the Contractor.

A.8.b In order to gain access to RAF Fylingdales, all of the Contractor's Personnel must be in possession of a UK driver license or passport. The Contractor's Personnel are to report initially to the A169 gate where the gate guard will check their details against the daily access list. Once confirmed they are expected, they will be permitted access to the Main Guardroom.

A.8.c Upon arrival at the Main Guardroom, they are to park and enter the Visitor's Reception (VR) where they will be issued a temporary ID card and temporary vehicle pass.

A.8.d The vehicle pass is to be displayed on the dashboard of the vehicle at all times whilst the vehicle is on station. The temporary ID card is to be worn by the Contractor's Personnel and is to be clearly visible at all times whilst within the confines of RAF Fylingdales.

A.8.e Every time upon leaving RAF Fylingdales, the temporary ID card and vehicle pass must be handed back to the Main Guardroom staff.

A.9 Safety and Environmental Provisions

A.9.a When on site the Contractor is to comply with all MOD Safety, Health and Environmental Protection regulations and policy.

A.9.b The Contractor is to be familiar and remain in full compliance with all RF/Radiation (non-ionising) hazards and necessary precautions.

A.9.c As described elsewhere, Asbestos may be present in pipework connections and legacy areas. The Contractor is to be familiar with detection, safe handling and disposal of asbestos.

A.10 Hours of Operation and Times of Delivery

A.10.a All services to the Site shall be delivered between the hours of 07:00 - 17:00 on weekdays with exception of recognised UK Bank Holidays and Public Holidays. All deliveries must be coordinated and controlled prior to arrival due to secure status of Site. Normal working hours (Mon-Fri) apply, however due to operational requirements extended working hours (evenings, early mornings, weekends) may be necessary to ensure timely completion of works.

A.11 Quality Assurance

A.11.a In addition to the Quality Assurance articles detailed in the Terms and Conditions of the Contract the following Quality Assurance articles shall also apply as well as any subsequent revisions and amendments to the references.

1. AQAP 2310 Edition A Version 1 NATO QMS in accordance with DEFCON 627
2. AQAP 2105 Edition 2 in accordance with DEFCON 602A 12/06 NATO Requirements for Deliverable Quality Plans
3. DEFSTAN 05-061 Part 1 Issue 6 Quality Assurance Procedural Requirements (Managing Concessions)
4. DEFSTAN 05-061 Part 4 Issue 3 Quality Assurance Procedural Requirements (Contractor Working Parties)
5. AQAP 2009 Edition 3 (Guidance on the application and interpretation of AQAPs)
6. AQAP 2070 Edition B Version 3 (GQA performance)
7. ISO 25051: 2008 Software Engineering (SQuaRE)

A.12 Contract Monitoring

A.12.a For the purposes of contract monitoring, representatives of the Contractor will routinely report to the Designated Officer on the performance of the Contract.

A.12.b The successful Contractor is responsible for the performance of the Contract, including any sub-contractors or other agents working on behalf of the Contractor. The Contractor is to deal with any issues relating to any sub-contractors or other agents working on behalf of the Contractor. It should be noted that sub-contractors or other agents, working on behalf of the Contractor, may be required to attend contract monitoring meetings or to contribute to appropriate reports.

A.12.c If any sub-contractors or other agents working on behalf of the Contractor are found unsuitable, for whatever reason, the Contractor is to engage with the relevant sub-contractors or other agents to broker a resolution.

A.13 Personnel Qualification Requirements and Training

A.13.a Various activities in the SSPAR require formal permits issued by Authorised Persons (APs). The administrators of these permits are noted below:

1. Work on electrical equipment (Serco).
2. Work in (designated) confined spaces (Serco).
3. Work at height (Regional Prime Contractor).
4. All “hot” work (Defence Fire Risk Management Organisation).
5. Work on pressurised equipment (Serco).

A.13.b Receipt of these permits is dependent on satisfying the criteria of a Skilled Person (SP) in accordance with JSP 375. The following evidence is required:

1. A formal statement of that person’s competence in the required field of work, issued by their employer.
2. A method statement covering the proposed work.
3. A risk assessment for the work.

A.13.c Working on PME is forbidden without permission from OC Plans Flt, via the O&M Contractor.

A.13.d The Contractor’s Personnel must be suitably trained and qualified in dealing with Asbestos. All applicable regulations governing the working with, safe handling, removal and (if necessary) disposal of Asbestos apply.

A.13.e The Contractor is responsible for the sourcing of the appropriate training for the Contractor’s Personnel.

A.13.f The Contractor is responsible for all costs for training of the Contractor’s Personnel in order to meet their obligations under the Contract.

A.14 Certification and Accreditation

A.14.a Contractor and associated parties must be familiar with the following technical documentation:

1. Applicable British/European Standards.
2. British Standards Codes of Practice
3. CIBSE Guides/Codes
4. BSRIA Publications

In addition, all electronic system wiring and cables (including internal cabling and mains power cabling) must be LS0H compliant as detailed in A.4.

Ref	Requirement	Additional Information	Quantity	Standard of Performance
B	**Deliverable Requirements**			
B.1	Multi-year maintenance-based sustainment programme, focused on facilities elements including major equipment replacement, refurbishment; related ancillaries/connections and associated engineering works.	Provide (planning, execution and management) of multiple distinct packages of work (technical specifications contained in Annex A).	18 separate maintenance activities to be carried out between 2017/18 and 2019/20.	Maintenance works to be carried out in full compliance with listed JSPs, applicable British Standard, Statutory Requirements and relevant Building/Material Regulations. Operability of the ANFPS-132 Radar is not to be compromised through programme, unless coordinated and cleared with Site. Where stated, replacement components are to meet minimum Engineered Life Expectancy under manufacturer's normal working conditions. Future availability of spares and requisite specialist knowledge to be considered when provisioning replacement components.

Ref	Requirement	Additional Information	Quantity	Standard of Performance
B.1.a	*Works to be conducted in FY 2018/19*			
B.1.a.1	Servicing of MG Set Rotor Starter 1	Responsible for the spooling up of MG Sets to sufficient RPM to allow for operations.	1 x MG Set (No.1 MG Set)	Technical parameters detailed in Annex A Maintenance which takes MG Set 1 offline must be coordinated with Site to ensure MG Sets 2 and 3 are available for operation.
B.1.a.2	Servicing of MG Set Rotor Starters 3	Responsible for the spooling up of MG Sets to sufficient RPM to allow for operations.	1 x MG Set (No.3 MG Set)	Technical parameters detailed in Annex A Maintenance which takes MG Set 3 offline must be coordinated with Site to ensure MG Sets 1 and 2 are available for operations.
B.1.a.3	Replacement of DSC UPS	Responsible for maintaining power to BMS which controls input to louvers and dampers within HVAC system.	6 (5 x DSC, 1 x SPE)	UPS Performance to meet or exceed technical parameters detailed at Annex A Work on UPS does not require DSC system to be offline (bypass available).
B.1.a.4	Replacement of HV EMP Filters	Responsible for preventing EMI external to the SSPAR penetrating HEMP shield via conductive elements such as electrical cabling.	2 x 3-Phase Banks (1 Bank per Feeder)	EMP filters must meet the requirements as laid down in MIL-STD-188-125 (US DoD) EMP filters to meet or exceed technical parameters detailed at Annex A. Replacement of EMP Filters will require disconnection of 4160v Power Plant Feeder(s) and necessitate coordination with Site.

Ref	Requirement	Additional Information	Quantity	Standard of Performance
B.1.a.5	Replacement of Fire Alarm Panels	Main Fire Alarm panel and connected sub-panels	5 plus Main Control Panel	Fire Alarm Panel specifications should meet or exceed technical parameters detailed in Annex A.
B.1.a.6	Replacement of LV Switchgear	Responsible for static and dynamic (re)routing of electrical power to building subsystems Replacement of ACBs only. ACBs located in four Package Substations. Method of replacement must be sustainable in terms of procuring replacement parts and/or expertise for future scheduled/corrective maintenance.	30 x LV ACBs (Area A Anti-icing Substation, Area A Facility Substation)	Switchgear must meet the requirements as laid down in the Electricity at Work Regulations (1989). Switchgear specifications to meet or exceed technical parameters detailed at Annex A. Works which affect routing and redundancy of LV switching system must be coordinated with Site. Method of replacement must be sustainable in terms of procuring replacement parts and/or expertise for future scheduled/corrective maintenance.
B.1.b	*Works to be conducted in FY 2019/20*			
B.1.b.1	Replacement of BMS Field Equipment	Responsible for monitoring temperature and pressure of internal building environment via sensors; controlling environment via actuating louvers and fans.	Entire System	Work should include evaluation of current BMS including sensors, actuators and air-control elements (louvers, fans, etc) for condition and likelihood of degradation beyond functionality by 2020. Components requiring replacement within SoR window to be renewed. System component specifications should meet or exceed technical parameters detailed in Annex A.

Ref	Requirement	Additional Information	Quantity	Standard of Performance
B.1.b.2	Replacement of SPE Cooling Water Medium	Responsible for maintaining internal components of SPE within specified thermal tolerances. Contributes to corrosion control through additives.	1 per SPE (x3)	Each SPE will require draining, flushing and refilling. Life-expired fluid to be contained and disposed of in accordance with environmental regulations. Certificate of disposal required. 2 x SPEs to be available at all times. Fluid specifications to meet or exceed technical parameters detailed in Annex A.
B.1.b.3	Replacement of LV Switchgear	Responsible for static and dynamic (re)routing of electrical power to building subsystems Replacement of ACBs only. ACBs located in four Package Substations.	30 x LV ACBs + 1 spare (Area B LV Substation, Area A Transmitter Substation)	Switchgear must meet the requirements as laid down in the Electricity at Work Regulations (1989). Switchgear specifications to meet or exceed technical parameters detailed at Annex A. Works which affect routing and redundancy of LV switching system must be coordinated with Site. Method of replacement must be sustainable in terms of procuring replacement parts and/or expertise for future scheduled/corrective maintenance.

Ref	Requirement	Additional Information	Quantity	Standard of Performance
B.1.b.4	Replacement of Area “B” Air Compressors	Responsible for providing force required to manipulate louvers and dampers within HVAC system. Provides force to enact HVAC emergency fire lockdown and smoke purging operations.	2	1 available at all times. Compressor performance to meet or exceed technical specifications detailed at Annex A.

B.2.a	Processing and removal of redundant equipment/systems.		All maintenance works	Isolation, dismantlement and removal of existing equipment and associated control/interface systems.
B.2.b	Prepare detailed designs of the equipment replacements which meet the technical parameters set by the Authority in Annex A.	Where design work is not undertaken, documentation (including blueprints and technical specifications) of replacement equipment to be provided to the satisfaction of Site/Authority.	All maintenance works	Manufacture, factory test (if required), deliver to site, position, install, test and commission replacement equipment and associated starter/control panels including control and indication interfaces to the existing Building Management System (BMS)
B.2.c	Maintain proper operation of Building Management System.		All relevant maintenance works	Integrate additional required input/output points into the existing Building Management System.
B.2.d	Ensure all requisite HVAC requirements for new systems/equipment or major changes are met.		All relevant maintenance works	Modify existing HVAC ducting/interface/wiring to suit new equipment arrangement.
B.2.e	Provide electrical power.			Relocate, extend and/or modify existing electrical supplies to connect to new equipment.
B.2.f	The scope of all works will include associated pipework, switchgear, controls, electrics and indicators.		All maintenance works	Relocate, extend and/or modify existing electrical supplies to connect to new equipment.
B.2.g	Rationalise/re-use structural loading points.		All relevant maintenance works	Existing mounting points/bases are to be used where possible but may be extended or modified where space allows.
B.2.h	Provide related consumables, items or components required to achieve initial system/subsystem operation.	Where future (regular) provision of additional elements such as filters or cleaning fluids are required, these recurring costs should be notified to the Authority.	All relevant maintenance works	Additional equipment or subsystems required as a consequence of replacement, such as filters, shall form part of the works.

B.2.i	Maintain radar support system(s) within established availability and redundancy parameters.		All maintenance works	Provision as a minimum of sufficient forced air cooling throughout the building, sufficient heat dissipation capacity and all other necessary services to allow operation of the radar across a maximum range of ambient temperatures/conditions and electrical safeguards/switching capability in accordance with system specifications, tolerances and MOD regulations. Where this is not possible, agreement must be obtained from Site.
B.2.j	All building work.		All maintenance works	All associated builders' work and design including structural alterations, plinth alterations, service chases (snags) and holes.
B.2.k	Removal of defunct/legacy systems and related equipment.		All maintenance works	Be responsible for the removal from site and disposal of all equipment replaced, including waste and debris resulting from equipment replacement.
B.3	Interface with Authority Project Management System to the satisfaction of Site and in compliance with established practices and requirements.		Overall Sustainment SoR	The project is to be managed in accordance with the aims of the UK Government Best Management Practice as defined in the Best Management Practice portfolio: Version 1, October 2010. Available from the Cabinet Office.
B.3.a	Integrate and cooperate with Project Management Functions as required by Site/Authority.	Sustainment works are to be managed throughout the Contract by the Authority's delegated project management function on-station, and overall SSPAR system maintainer. The entire management structure of the Project, including the Authority's representation is termed the Project Management Team (PMT).	Overall Sustainment SoR	Contribute and meet the needs/requirements of the PMT, answering inquiries as presented by either the O&M Contractor (as duly delegated by the Authority) or relevant members of the PMT.

B.3.b	The Contractor, Sub-Contractors and Specialist Suppliers will be required to report to the PMT regularly.	Provide staff numbers working in the SSPAR and on the Station, their location, work item and events; the Contractor will also be expected to maintain a day diary of his staff, Sub-Contract Staff and Specialist Suppliers, present on site and their location.	Daily	Satisfactory attendance of all requisite meetings.
		Notify and inform on work progress.	Weekly	
		Attend the Project meetings.	Monthly	
		Written reports relating to progress and incidents as directed by the PMT.	As-required	
B.3.c	Contractor will be responsible for providing sufficient information to ensure timely development of the Project Plan.	Information will include programme, equipment delivery (dates), testing methodologies, certification (e.g. electrical) and other data as may be required.	As-required	Satisfactory provision of all necessary documentation, accreditation, explanation and certification.
B.3.d	Provide sufficient information to allow planning, execution of contingencies and evaluation of Project Risks.	Contribute such information as is required to allow for development of Project Risk Register, and make RM aware of any significant changes to existing risks during works.	Monthly and as-required	Information will include programme equipment delivery (dates), testing methodologies and potential counter indications, certification (e.g. electrical) and other data as may be required.

Annex A
Technical Parameters for Scheduled Sustainment Works

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC		MATERIAL SPEC		ENVIRONMENTAL	CONFORMITY (REGULATIONS)[1]	SPECIAL INSTRUCTIONS
		OUTPUT PRESSURE	CONNECTION DIMENSIONS	MATERIAL TYPE	SURFACE FINISH			
Area B Compressors	415VAC 3 Phase at 60Hz	10 Bar 22 CFM	N/A	N/A	IP55[2]-rated Motor	N/A	JSP375 – H&S JSP 604 – CIS Installations	All contractor/subcontractor personnel to be SC-Cleared Existing Compressor type installed in Area A not requiring replacement is CompAir Unit. Consideration should be given to replace Area A Compressor Requirement with similar equipment to optimise maintenance/servicing efficiencies.

[1] Defence Regulations such as JSPs (Joint Service Publications) may not be publically available/open source.
[2] Ingress Protection standard “5” for resistance to Solids (dust), “5” for Water (jets).

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC[3]	MATERIAL SPEC[3]	ENVIRONMENTAL	CONFORMITY (REGULATIONS)	SPECIAL INSTRUCTIONS[4]
MG Set Rotor Starter 1	4160v System Voltage 3 Phase at 60Hz	N/A	N/A	N/A	JSP375 – H&S JSP 604 – CIS Installations	All contractor/subcontractor personnel to be SC-Cleared Spares are available to allow rotors requiring refurbishment to be swapped out, minimising individual MG Set unavailability. Use of OEM recommended.
MG Set Rotor Starter 3	4160v System Voltage 3 Phase at 60Hz	N/A	N/A			

[3] In Accordance With Original Equipment Manufacturer's tolerances, material specifications and engineering instructions.
[4] The Rotor Starters are unique to their respective MG Sets and are not based on a widely-available current commercial design, requiring OEM-level. knowledge and skills to refurbish/replace. MG Set Rotor Starter 2 was serviced by OEM.

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC	MATERIAL SPEC	ENVIRONMENTAL	CONFORMITY (REGULATIONS)	SPECIAL INSTRUCTIONS
DSC UPS	240v System Voltage 60Hz	N/A	N/A	Disposal Certificates for replaced batteries required	JSP375 – H&S JSP 604 – CIS Installations	All contractor/subcontractor personnel to be SC-Cleared

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC	MATERIAL SPEC	ENVIRONMENTAL	CONFORMITY (REGULATIONS)[5]	SPECIAL INSTRUCTIONS[6]
HV EMP Filters (Feeder 1)	4160v System Voltage 3 Phase at 60Hz 2000A Full Load Current	N/A	N/A	N/A	JSP375 – H&S JSP 604 – CIS Installations MIL-STD-188-125	All contractor/subcontractor personnel to be SC-Cleared
HV EMP Filters (Feeder 2)	4160v System Voltage 3 Phase at 60Hz 2000A Full Load Current	N/A	N/A			

[5] MIL-STD-188-125 is a US Military Standard for HEMP and related EMP protective devices. The MoD is bound to meet these requirements.
[6] Testing, repair and replacement of EMP protective devices throughout the SSPAR is typically carried out by US contractor JAXON.

EQUIPMENT[7]	ELECTRICAL SPEC	MECHANICAL SPEC	MATERIAL SPEC	ENVIRONMENTAL	CONFORMITY (REGULATIONS)	SPECIAL INSTRUCTIONS
Area B LV Switchroom ACBs (x14 Total) GEC ACB type Class M80 Incoming Devices (x2) GEC ACB Class M80 Bus Couplers (x1) GEC ACB Class M80 Outgoers (x3) GEC ACB Class M80 Outgoers (x7 + 1 spare)	 415VAC 3 Phase at 60Hz 3500A 415VAC 3 Phase at 60Hz 3500A 415VAC 3 Phase at 60Hz 1250A 415VAC 3 Phase at 60Hz 800A	N/A	N/A	N/A	JSP375 – H&S JSP 604 – CIS Installations Electricity at Work Regulations (1989)	All contractor/subcontractor personnel to be SC-Cleared
Transmitter Substation ACBs: (x17 Total) GEC ACB type Class M80 Incoming Devices (x3) GEC ACB Class M80 Bus Couplers (x2) GEC ACB Class M80 Outgoers (x12)	 480VAC 3 Phase at 60Hz 3500A 480VAC 3 Phase at 60Hz 3500A 480VAC 3 Phase at 60Hz 800A	N/A	N/A			

[7] Technical Parameters presented above for entirety of LV Switchgear replacement Requirement (61 x ACBs). Schedule for replacement to follow Para B.1.h and B.1.s.

EQUIPMENT[7]	ELECTRICAL SPEC	MECHANICAL SPEC	MATERIAL SPEC	ENVIRONMENTAL	CONFORMITY (REGULATIONS)	SPECIAL INSTRUCTIONS
Anti-Icing Substation ACBs (x11 Total) GEC ACB type Class M80 Incomers (x2) GEC ACB Class M80 Bus Couplers (x1) GEC ACB Class M80 Outgoers (x8)	480VAC 3 Phase at 60Hz 3500A 480VAC 3 Phase at 60Hz 3000A 480VAC 3 Phase at 60Hz 800A	N/A	N/A	N/A	JSP375 – H&S JSP 604 – CIS Installations Electricity at Work Regulations (1989)	All contractor/subcontractor personnel to be SC-Cleared
Facility Substation ACBs (x19 Total) GEC ACB Class M80 Incomers (x3) GEC ACB Class M80 Bus Couplers (x2) GEC ACB Class M80 Outgoers (x11) GEC ACB Class M80 Outgoers (x3)	415VAC 3 Phase at 60Hz 2500A 415VAC 3 Phase at 60Hz 2500A 415VAC 3 Phase at 60Hz 800A 415VAC 3 Phase at 60Hz 1250A	N/A	N/A			

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC	MATERIAL SPEC	ENVIRONMENTAL	CONFORMITY (REGULATIONS)[8]	SPECIAL INSTRUCTIONS[9]
Fire Alarm Sounders	24v DC	N/A	N/A	N/A	JSP375 – H&S JSP 604 – CIS Installations Crown Fire Standards	All contractor/subcontractor personnel to be SC-Cleared

[8] Crown Fire Standards will be made available.
[9] Current Fire Alarm system used bells to provide audible warnings. Fire regulations prevent any system from being composed of bells and sounders. Fitting of sounders will therefore require expediting during installation.

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC TOTAL CAPACITY[10]	MATERIAL SPEC[11] CHEMICAL TYPE	 CHEMICAL RATIO	ENVIRONMENTAL	CONFORMITY (REGULATIONS)	SPECIAL INSTRUCTIONS[12]
SPE Cooling Medium	N/A	3500L	Ethylene Glycol Biocide Nitrite	4000L 5L 50L	Zero spillage; entry of chemicals into water course is not permitted Certificate of disposal required	JSP375 – H&S COSHH[13]/Material Data to be provided	All contractor/subcontractor personnel to be SC-Cleared

[10] Quantity given per Engine.
[11] All quantities given in Litres.
[12] Requirement includes replacement and disposal of existing fluid.
[13] Control of Substances Hazardous to Health.

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC	MATERIAL SPEC	ENVIRONMENTAL	CONFORMITY (REGULATIONS)	SPECIAL INSTRUCTIONS
BMS Field Equipment (sensors and actuators)	Various	Various	N/A	N/A	JSP375 – H&S JSP 604 – CIS Installations	All contractor/subcontractor personnel to be SC-Cleared Use of OEM recommended[14].

[14] Replacement peripheral equipment for BMS must meet that system's tolerances and specifications. BMS maintained and serviced by third-party contractor, JCI.

EQUIPMENT	ELECTRICAL SPEC	MECHANICAL SPEC	MATERIAL SPEC	ENVIRONMENTAL	CONFORMITY (REGULATIONS)	SPECIAL INSTRUCTIONS
Fire Alarm Panels	240VAC Single Phase at 60Hz 24v DC for individual devices	N/A	N/A	N/A	JSP375 – H&S JSP 604 – CIS Installations Crown Fire Standards BS5839[15]	Use of OEM is recommended[16]. All contractor/subcontractor personnel to be SC-Cleared

[15] British Standard 5839: Fire Detection and Fire Alarm Systems for Buildings – Part 1.
[16] Current station-wide Fire Alarm System is Chubb-installed, configured and maintained. Replacement of Fire Alarm Panels by Chubb would maintain coherence and commonality between all components and subsystems of overall Fire Alarm System.