Defence
Infrastructure
Organisation

DEFENCE INFRASTRUCTURE ORGANISATION (DIO) & BRITISH DEFENCE SINGAPORE SUPPORT UNIT (BDSSU)

BOOKLET 3

SPECIFICATION

FOR THE

SENOKO OFD SECURITY UPGRADE PROJECT

INVITATION TO TENDER (ITT NO): DIOCB1/226

AT

SENOKO OIL FUEL DEPOT (OFD)

References

A. The Health & Safety at Work Act 1974 (HASWA).
B. Construction (Design & Management) Regulations 2015 (CDM 2015).
C. The Latest Edition of the UK Building Regulations.
D. The Latest Applicable JSPs.
E. The Latest Applicable Defence Works Functional Standards Publications.
F. Department of Transport Specifications for Highway Works.
G. Department of Transport Traffic Signs Regulations.
H. Electricity at Works Regulations 1989.
I. The Electricity Safety, Quality and Continuity Regulations 2002.
J. The Latest Edition of BS 7671: Requirements for Electrical Installations.

1. The contractor is to produce a full set of design drawings with accompanying design calculations for this project, Senoko OFD Security Upgrade Project. All design drawings will require Authority acceptance and approval before works commences on site.

Contractors Design

2. The Contractor is to advise the PM of all design consultants/sub-contractors who will be employed on this project and the areas of their design responsibility. Any works undertaken without prior issue of full information for the necessary approvals will be entirely at the Contractor's own risk.

3. The Contractor shall not commence any work in accordance with any Design Document until the PM has agreed the relevant Design Document. The Contractor shall keep one copy of each Design Document on the Site, to which the PM or his representatives may have access at all reasonable times.

Design Responsibilities

4. **Contractor's Design Responsibilities.** The Contractor is responsible for the design of all elements of the Perimeter Fence and IDS Installation. All designs are to be submitted to the Authority for concurrence and authorisation. The Authority's conceptual drawings submitted in the ITT documentation are to be used as a **reference guide only**.

5. The Contractor shall ensure all designs are in accordance with, and includes the applicable requirements as contained within References A to J and all other design documents specified within this Performance Specification. NOTE that these references are provided as guidance and minimum requirement only; the responsibility remains with the Contractor to ensure that all design and construction works comply with the latest methods, requirements and guides, and generally accepted practice as relates to the works, geography, climate, environment and Theatre operations. Where there are conflicts between the contractors design drawings and Performance Specification the Performance Specification will take precedence in all cases. Any queries should always be addressed to the Authority in the first instance. The references and specified British Standards (BS) / EuroNorms (EN) within this Performance Specification are to be used, as a minimum standard, throughout the Works.

6. **UK Building Regulations.** All works shall comply with the latest UK Building Regulations where possible. Should any variation be required, approval from the Authority shall be obtained in writing prior to the commencement of any works.

7. **Health and Safety.** All works shall be carried out in accordance with the Health & Safety at Work Act 1974 (HASWA). The Contractor shall submit a pre-construction H&S file to the Authority[1] for approval, including all risk assessments, method statements, hazardous material procedures, etc. to comply fully with Construction (Design & Management) Regulations 2015 (CDM 2015).

[1] The SOEFM is the Authority for this project/contract.

8. Upon project completion the H&S file shall be presented to the Authority 10 days before the Board of Officers is convened and in compliance with CDM 2015.

9. **Construction Drawings.** All works shall be constructed in accordance with the final construction drawings and where a conflict in design is found, authorisation shall be obtained in writing prior to any changes in design. No construction shall commence prior to obtaining written approval of the final construction drawings by the Authority, as well as all relevant Authorities including the Theatre Fire Officer.

10. **Design Life.** The design life of all new civil and structural components and assemblies to first major overhaul, repair or replacement shall be a minimum of 10 years. The Contractor shall supply and install all components, elements and systems/structures to satisfy this requirement, and provide documentary evidence as per CDM 2015 and any additional Contractual requirements that may apply.

11. **Existing Services.** The Contractor is responsible for ensuring all services on or adjacent to the site that will be affected by the works are identified, located and appropriate action taken to prevent damage before work commences. The Contractor shall ensure that any existing services and concrete slabs are reinstated to a condition at least similar to existing, with the minimum of disruption to existing facilities and services during construction. All works that could possibly influence existing services may only commence with written approval – this includes but is not limited to a Permit to Dig. The Authority must be informed immediately if any unknown services are discovered that will have an impact on the works.

12. The Contractor shall ensure that any existing services and affecting works – including all connections and services tied into – are of an acceptable standard to ensure the required performance over the life of the facility. Should it be found that one or more of the services (including but not limited to existing water, sewerage, drainage and electrical reticulation) is not considered acceptable to the project requirements, the Contractor shall inform the Authority and obtain written approval/instruction prior to taking any actions to rectify or make good the pertinent unacceptable situation.

Scope of the Overall Project

13. **General.** This Performance Specification (PS) outlines the requirements for the Senoko Oil Fuel Depot (OFD) Security Upgrade Project.

14. **The Authority.** The Project Manager (PM) has overall Authority on this project. For the purpose of this Performance Specification, the PM is any person from within the Authority acting on behalf of the PM, the Senior Operations and Estate Facilities Manager (SOEFM) in most cases.

15. **Use of the Site.** The Site shall not be used for any purpose other than undertaking the specified works. The Contractor shall erect the site and storage compound in a location agreed with the Authority for no longer than is required to complete the Works. No storage of materials, parking of vehicles, temporary accommodation or any other use of areas beyond the boundaries shall be permitted. Under no circumstances shall it be permissible for the Contractor to cause an obstruction to normal pedestrian or vehicular movements within the vicinity of the site. The sites and site compounds are to be suitably fenced off.

16. **Restrictions to the Works.** The Works are to be undertaken without interfering with everyday running of the Authority's operations within the area. The demarcation of the Site boundary is to be obvious and clearly marked to restrict access to the Site whilst the Works are being undertaken.

Background – Perimeter Fence Upgrade

17. The proposed works for the task was identified by a Key Point Security Survey on Senoko OFD conducted by the New Zealand Defence Force. The key security works recommended in the

report were assessed to enhance the overall security posture at Senoko OFD. Additional observations and recommendations were detailed under the vulnerable points and more broadly under physical security aspects, such as the perimeter fence should be upgraded. The current fence is not to the required standard for a critical facility, is in a state of disrepair, and shows evidence of repeat previous intrusions in at least two locations.

18. The existing perimeter fence is made out hurricane (also known as diamond wire) fencing topped with three rows of barbed wire on 30-degree angle outwards. Sections of the fence are critically damaged, and the barbed wire is rusted and insufficiently installed, which highlights the vulnerability of the fence.

Proposed Works – Perimeter Fence Upgrade

19. The proposed requirement is to design, supply and install a Perimeter Fence and is critical that the hurricane wire fence is replaced with weld mesh fencing to the following specifications as per the BS 1722-10:

a. Fence construction wire weld mesh.

b. Fence height minimum of 2400 mm.

c. Concrete footing with minimum of 300 mm weld mesh encased.

d. A single outrigger 400 mm in length at 45-degree angle with three lines of barbed razor wire.

Background – Intruder Detection System (IDS)

20. The following observations were identified by the New Zealand Defence Force during the Key Point Security Survey of Senoko OFD:

a. Senoko OFD guard hut does not have IDS. The hut is manned at all times, making such measures redundant.

b. The DIO site office does not have an IDS. Though it should be noted that they hold no classified information, some information within that office would be deemed sensitive by New Zealand standards.

c. Recommendation is for a commercial IDS to be installed in the site office and linked into the guard hut and IAPF command centre.

Proposed Works – Intruder Detection System (IDS)

21. The proposed requirement is to design, supply and install a suitable perimeter Intruder Detection System as follows:

a. Design, supply and install a fibre-optic Intrusion Detection Systems for outdoor perimeter fencing which transmits a laser beam along the fibre optical cable attached to the fence, and the return signals are automatically monitored and analyses for disturbance. The return signal is to identify and eliminate environment nuisance alarm.

b. Design, supply and install sensors that can be mounted on the fence to detect climbing or cutting or buried along the fence to detect digging.

c. Design, supply and install a software application that provides comprehensive and intelligent monitoring and control when deployed with sensors. The software is to be a key part of the integrated perimeter security solution with the lowest nuisance alarm rate and highest probability of detection.

Background – Vehicle Entrance Barrier Upgrade

22. The proposed works for the task was identified by a Key Point Security Survey on Senoko OFD conducted by the New Zealand Defence Force. The key security works recommended in the report were assessed to enhance the overall security posture at Senoko OFD.

23. The following observations were identified in the report:

a. Access to Senoko OFD is controlled by a single point of entry. A manually operated open hinged two-door main gate that opens both inwards and outwards. There is no pedestrian gate. Vehicles then move into a vehicle holding bay once the gate is opened by an IAPF officer. Once the vehicle occupants are granted access, a manually controlled swing arm is opened to allow access to the facility. This puts significant strain on the officers, as they must conduct multiple tasks, often alone, reducing their ability to react to security threats as they arise. Often officers working the gate may encounter multiple vehicles entering the multiple vehicles exiting at the same time. Checking a visitor in requires the guard to leave the gate to issue a pass, leaving the gate and swing arm unobserved. The two cameras on the back wall of the guard hut are supposed to cover the back door and provide situational awareness for the officers in the hut. These cameras are poorly aimed and provide little to no observation to the back door, rendering them useless.

Proposed Works – Vehicle Entrance Barrier Upgrade

24. The proposed requirement is to design, supply and install a two new automated K4 motorised steel sliding gate and a new pedestrian turnstile as follows:

a. **K4 Motorised steel sliding gates**. The existing manual drop arm barrier is to be removed and replaced with a K4 motorised steel sliding gate. Additionally, the existing main front gate is to be replaced with a K4 motorised steel sliding gate. The gates can be fitted in the same location as the existing gates with control system linked to the guard hut and also be controllable from a remote on a scrambled frequency.

b. **Pedestrian turnstile** - A pedestrian turnstile is required to control pedestrian access and is required to be fitted between the guard hut building and the main gate, with a fence extending from the gate and connecting to the perimeter fence. This is to stop pedestrians from bypassing it. The turnstile should be remotely controlled from the guard hut via remote device, allowing the security force to let pedestrians through after they have completed the sign in process. To prevent pedestrians unauthorised access around the guard hut, a fence and gate should extend from the guard hut to the front gate. This should be locked at all times.

Background – Perimeter CCTV System Installation

25. The proposed works for the task was identified by a Key Point Security Survey on Senoko OFD conducted by the New Zealand Defence Force. The key security works recommended in the report were assessed to enhance the overall security posture at Senoko OFD. At present, there are no surveillance cameras observing the perimeter fence.

26. The following observations were identified in the report:

a. Surveillance cameras are present at the guard hut, inside and on the back wall of the pump house. The cameras on the pump house, are only observable from the pump house monitor. IAPF officers were not aware that it worked or where it can be viewed. Currently the monitor in the guard hut can be seen from the customer side of the counter.

b. The two cameras on the back wall of the guard hut are supposed to cover the back door and provide situational awareness for the officers in the hut. These cameras are poorly aimed and provide little to no observation to the back door, rendering them useless.

c. No cameras at the Senoko OFD are linked to the IAPF Operations Room.

d. There is only one monitor in the guard hut.

Proposed Works – Perimeter CCTV System Installation

27. The proposed requirement is to design, supply and install a suitable perimeter CCTV system as follows:

a. Design, supply and install suitable number of Ingress Protected (IP) 67 Outdoor bullet Network Cameras with vertical pole mount to enhance monitoring capabilities including line crossing detection, intrusion detection, unattended baggage detection and object removal detection.

b. Design, supply and install suitable number of Network Infra-Red (IR) Speed Dome with Pan, Tilt, Zoom (PTZ), IP66 capability and vertical Pole Mounting Bracket with Junction Box to enhance monitoring capabilities including line crossing detection, intrusion detection and region entrance/exiting.

c. Network Video Recorder (NVR) hard disk with Power over Ethernet (POE) switch with suitable number of channel options for number of camera units and capacity of recording up to 60 days (2 months) footage. The recording and footage should only be visible to IAPF and BDSSU staff. There is no requirement for the contractor to be able to view and record from a remote location.

d. Design, supply and install a Video Management Surveillance (VMS) that can be integrated with all cameras and capable of functions such as live view and playback.

e. Design, supply and install an AC incoming supply Tower Uninterrupted Power Supply (UPS) for NVR with 30 min battery runtime in the event of a power failure.

f. Monitor display for NVR included wall mount bracket (if required) and Desktop Computer including accessories and cables.

g. Link the existing pump house camera to guard hut and the IAPF Operations Room in the Sembawang Naval Installation.

Technical Training

28. The contractor is to provide technical training to the operators of the CCTV System and Intruder Detection System. This is to include initial system set up, log in procedures, system viewing, viewing, system monitoring, recording and fault finding as a minimum.

Use of Design Codes and Specifications

29. All designs must conform to the most current editions of British Standards (BS) or EuroNorms (EN). Other Design Codes may, on occasion, be used provided that they meet the minimum requirements and the Contractor shall submit proof of equivalency to the Authority for approval of use. The Authority can be approached for clarification of the relevant BS if required. On no account is the contractor to use any design information other than that stated or approved by the Authority.

30. All Contractors will be required to certify their designs for conformity to the specification and to the relevant BS/EN. Only appropriately qualified and experienced engineers are to certify designs. The Authority reserves the right to request copies of all calculations and drawings for analysis prior to the commencement of any construction on site. The contractor will provide copies of all calculations and ‘As Built Drawings’ for the Health and Safety File.

31. The contractor is to ensure that the specified output of their design expressly meets the parameters outlined within this Performance Specification.

Management of the Works

32. **The Site**. The site is detailed on DIO/SIN/01/SITEPLAN/001-A. The site is situated within Senoko OFD. DIO(S) is to be approached for confirmation of when the site is to be clear of obstructions.

33. **Personnel.** The contractor is fully responsible for ensuring all personnel within the workforce are authorised to gain access to and work within UK Bases, British Defence Singapore Support Unit (BDSSU) Estate. The contractor is solely responsible for the submission and approval of passes and the Authority will not grant extensions to performance periods based on delays obtaining passes for access to the Base. The Contractor shall be responsible for the transportation of Contractor Personnel at all times both to and from the site. Contractor management staff shall ensure that all employees and sub-contract employees' visas and passports shall remain current during the life of the contract. At no time shall contractor management staff permit personnel currently issued a pass to hold visa or passports that expire during the performance period.

34. **Liaison with the Authority.** The Contractor shall designate one person from within his organisation who will be responsible for liaising with the PM or his representative (SO) on a day to day basis and as the need arises. The person so designated shall be responsible for communicating with the Authority regarding notification of intended work and explaining the effect that the works will or may have on the operation or systems within the building. The Liaison Officer will be responsible for responding to the Authority's enquiries and dealing with any issues or complaints. It is a requirement that the Contractor's Liaison Officer makes daily contact with the Authority such that an active rather than a responsive attitude to liaison is maintained. The Contractor's Liaison Officer is a key person in achieving the successful execution of this Contract.

35. **Supervision.** The Contractor shall accept responsibility for design, co-ordination, supervision and administration of the Works, including all subcontracts. They shall arrange and monitor a programme with each subcontractor, supplier, local Employer and any statutory undertaker, and obtain and supply information as necessary for co-ordination of the work. In addition to constant management and supervision of the Works provided by the Liaison Officer, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory progress and quality.

36. **Co-ordination of Engineering Services.** The site organisation staff must include one or more persons with appropriate knowledge and experience of mechanical and electrical engineering services to ensure compatibility between engineering services, one with another and each in relation to the Works generally.

37. **Approvals.** Where products or work are specified to be approved or the PM instructs or requires that they are to be approved, the same must be supplied and executed to comply with all requirements.

38. **Photographs.** No photographs shall be taken of the site without the express Authority of the PM.

39. **Programme of Works.** Prior to the commencement of the works, the Contractor shall liaise with the Authority, in order to produce a detailed programme of works. This programme shall be agreed and approved and shall form the baseline programme for the project. Any deviations from the agreed programme shall be communicated to the Authority, with programme updates being produced if required and approved by the Superintending Officer. The programme must be daily resolution and show when stores equipment and plant deliveries will occur.

40. **Programme Status.** The Contractor shall also show on this programme each state of both design and construction of the various elements of the works so as to illustrate the latest dates by

which instructions requiring changes can be accommodated in each part of the Works without effecting the completion thereof. Thereafter, the Contractor shall amend and revise the programme as required by the Conditions of Contract and as required by the PM. The submission of a programme will not relieve the Contractor of his responsibility to apply in writing for instructions, drawings etc. in accordance with the Conditions of Contract.

41. **Commissioning Period.** One month before the start of any commissioning period the Contractor shall submit a Works Commissioning Plan, setting out his commissioning proposals including the preparation of handover documentation.

42. **Commencement of Work.** Inform the PM at least five days before the proposed date for commencement of work on site.

43. **Monitoring.** Record progress on a copy of the programme kept on site. If any circumstances arise, this may affect the progress of the works, put forward proposals or take other action as appropriate to minimise any delay and to recover any lost time. A daily site diary in an appropriate format is to be kept by the contractor. The site diary is to include details of personnel and plant/equipment on site and is also to include delays and their reasons, visitors to site and works progress. Variation orders and both written and verbal site instructions are also to be included. This is to form the basis of the Weekly Progress Report that is to be submitted to the Authority weekly. A proposed format for the Weekly Progress Report can be obtained from the Authority.

44. **Site Meetings.** The PM, or his representative, will hold regular site meetings to review progress and other matters arising from the administration of the Contract. It will be the Contractors responsibility to ensure the availability of accommodation and attend all such meetings.

45. **Contractors Site Meetings.** The Contractor is to hold meetings with appropriate subcontractors and suppliers shortly before site meetings with the Authority to facilitate accurate reporting of progress.

46. **Notice of Completion.** The Contractor is to provide the PM at least seven days notice of the anticipated dates of Practical Completion of the whole or parts of the Works.

47. **Quality Standards/Control.** The contractor will provide evidence to the PM of his quality standards and controls, and will produce a plan detailing QC activities in order for the PM to plan for witnessing of critical activities.

a. General Quality of Products. All products shall conform to the following subparagraphs:

(1) Products to be new unless otherwise specified by the Authority.

(2) For products specified to a BS or EN obtain certificates of compliance from manufacturers when requested.

(3) Where a choice of manufacturer or source is allowed for any particular product, the whole quantity required must be of the same type, manufacture and/or source unless otherwise approved. Produce written evidence of sources of supply when requested by PM.

(4) Ensure that the whole quantity of each product required to complete the work is of consistent kind, size, quality and overall appearance.

(5) Where consistency of appearance is desirable ensure consistency of supply from the same source. Do not use different colour batches where they can be seen together.

(6) If products are prone to deterioration or have a limited shelf life, order in suitable quantities to a programme and use in appropriate sequence. Do not use if there are any signs of deterioration, setting or other unsatisfactory condition.

b. Proprietary Products. All products shall conform to the following subparagraphs.

(1) Handle, store, prepare and use or fix each product in accordance with its manufacturer's current printed or written recommendations/instructions. Inform PM if these recommendations/instructions conflict with any other specified requirement. Submit copies to PM when requested.

(2) The tender will be deemed to be based on the products specified and recommendations on their use given in the manufacturer's literature current at the date of tender.

(3) Obtain confirmation from manufacturers that the products specified and recommendations on their use have not been changed since that time. Where such change has occurred inform PM and do not place orders for or use the affected products without further instructions.

c. **Checking Compliance of Products.** The Contractor shall check all delivery tickets, labels, identification marks and where appropriate the products themselves to ensure that all products comply with the project documents. In particular, check that the products comply with the following sub-paragraphs.

(1) The sources, types, qualities, finishes and colours are correct, and match any approved samples.

(2) All accessories and fixings that should be supplied with the products have been supplied.

(3) Sizes are correct. Where tolerances are critical, measure a sufficient quantity to ensure compliance.

(4) The delivered quantities are correct, to ensure that shortages do not cause delays in the work.

(5) The products are clean, undamaged and otherwise in good condition.

(6) Any products with a limited shelf life are not out of date.

d. **Protection of Products.** All products shall be protected to ensure that they remain in the condition they are required to be in. In particular the contractor is to ensure that products are to be prevented from overstressing, kept clean, protected from the elements and kept in original wrappings until required for the project.

48. **Prohibited Products.** The Contractor shall not employ on or incorporate in the Works any of the following products and shall impose a like obligation upon all Sub-Contractors.

a. Asbestos materials as described in the Asbestos Prohibitions Regulations 1985 and the Asbestos Products (Safety) Regulations 1985.

b. Lead or any products containing lead for use in connection with drinking water.

c. Materials that are generally composed of mineral fibres either manmade or naturally occurring which have a diameter of 3 microns or less and a length of 200 microns or less or which contain any fibres not scaled or otherwise stabilised to ensure that fibre migration is prevented.

d. Other products or substances generally known to be deleterious to health and safety at the time of use or to the durability of the property in the particular circumstances in which they are being used.

e. Air conditioning refrigerants R12 & R22 (all refrigerants used must be Montreal Protocol compliant).

49. **Setting Out.** The Authority will establish a local control point. A detailed setting out drawing will be issued to the Contractor. The Contractor is responsible for all setting out and shall check out the dimensions of the site against those shown on the drawings, and record the results on a copy of the drawings. The Contractor shall inform the PM when overall setting out is complete and before commencing construction.

50. **Record Drawings.** The Contractor shall record details of all grid lines, setting out stations, bench-marks and profiles on the site setting out drawing. Retain on site throughout the contract and hand to PM on Completion.

51. **Service Runs.** The Contractor shall make adequate provision for services, including unobstructed routes and fixings. Wherever possible ducts, chases and holes are to be formed during construction rather than cut.

52. **Mechanical and Electrical Services.** Mechanical and Electrical Services must have final tests and commissioning carried out by the Contractor so that they are in full working order at Practical Completion.

53. **Access.** The Contractor shall provide at all reasonable times, access to the Works. The Contractor shall supply the PM or his representative with copies of any documentation and drawings, which may reasonably be required for the purposes of monitoring the work performed under this or any sub-contract. The PM is to be provided with three copies of all construction drawings prior to the commencement of the works. These drawings are to be updated as necessary by the Contractor during the works.

54. **Defects in Existing Construction/Services.** This shall be reported to the PM without delay. Obtain instructions before proceeding with work which may be covered up or otherwise hinder access to the defective construction, or be rendered abortive by the carrying out of remedial work. This is particular relevant in relation to the expansion of the existing service runs.

55. **Timing of Tests and Inspections.** The Contractor is to agree dates and times of tests and inspections with PM five days in advance, to enable the PM and other affected parties to be present. On the previous working day to each such test or inspection the Contractor is to confirm to the PM that the work or sample in question will be ready or, if not ready, agree a new date and time.

56. **Test Certificates.** The Contractor is to submit a copy of each certificate to PM as soon as practicable and keep copies of all certificates on site. Copies should be included in the Health and Safety File on handover of the works.

57. **Proposals for Rectification of Defective Work/Products.** As soon as possible after any part(s) of the work or any products are known to be not in accordance with the Contract, or appear that they may not be in accordance, the Contractor is to submit proposals to the PM for opening up, inspection, testing, making good, or removal and re-execution. Such proposals may be unacceptable to the PM and he may issue contrary instructions.

58. **Quality Control.** The Contractor is to establish and maintain procedures to ensure that the works, including the work of all Subcontractors, comply with specified requirements. This is to include all testing of materials that are to be incorporated into the project (e.g. concrete). The Contractor is to maintain full records, keep copies on site for inspection by the PM, and submit copies of particular parts of the records on request. The records must include the following:

a. Identification of the element, item, batch or lot including location in the works.

b. The nature and dates of inspections by the Contractor or PM, tests and approvals.

c. The nature and extent of any non-conforming work found.

d. Details of any corrective action.

59. **Work at or after completion.** The Contractor is required to undertake the following works prior to handover.

a. Make good all damage consequent upon the work.

b. Remove all temporary markings, coverings and protective wrappings unless otherwise instructed.

c. Clean the works thoroughly inside and out including all accessible ducts and voids; remove all splashes, deposits, efflorescence, rubbish and surplus materials consequent upon the execution of the work.

d. Cleaning materials and methods to be as recommended by manufacturers of products being cleaned, and to be such that there is no damage or disfigurement to other materials.

e. Obtain COSHH dated data sheets for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.

f. Touch up minor faults in newly painted/repainted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.

g. Adjust, ease and lubricate moving parts as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.

60. **Security at Completion.** The Contractor is to leave the Works secure with all accesses locked. Account for and adequately label all keys and hand over to PM with itemised schedule, retaining duplicate schedule signed by PM as a receipt.

61. **Making Good Defects.** The Contractor is to make arrangements with the PM and give reasonable notice of the precise dates for access to the various parts of the Works for purposes of making good defects. The PM is to be informed by the Contractor when remedial works to the various parts of the Works are completed and ready for approval.

Documents to Be Provided By Contractors

62. **Design Information.** The Contractor is to submit all design information to the Authority prior to commencement of the construction phase. The PM will examine design documentation and shall be entitled to reject a design as unsatisfactory where it is not in accordance with the specification, statutory regulations, or if it would be unfit for purpose. One copy of all construction drawings is to be provided by the Contractor to the PM prior to commencing Works. Amended or updated drawings are to be provided as necessary. The minimum design information to be provided by the Contractor shall include the following:

a. Design calculations for all works.

b. General layout plans for the site and the structure.

c. Detailed structural design, drawings.

d. Foundation plan shall (as a minimum) indicate: all footing locations and dimensions, screeds and / or ground slabs or plinths, as applicable.

e. Services layouts and calculations.

f. Detailed electrical, mechanical drawings and calculations.

g. Manufacturer product details, including safety data sheets.

h. Project Programme, to be regularly updated or upon request by the Authority and provided electronically on Microsoft Project 2003, or equivalent.

i. Health and Safety File to include all calculations and 'As Built Drawings'.

63. All drawings shall be prepared to best practice and should include all relevant data required to construct the facilities in question. Design drawings shall be submitted for approval as a group, using consistent sheet sizes. All drawings within the submittal for approval shall have identical title blocks and shall include a consistent numbering schedule, indicating amendments where applicable.

64. **The signed and approved drawings shall be used as the construction drawings on site for all work purposes and to satisfy the requirements as specified by CDM 2015.**

65. **Construction and 'As Built' Drawings.** During the contract period and as directed by the Authority, the Contractor / Sub-Contractor shall use the signed and approved construction drawings indicating his intentions to comply with specified work and service installations. Any construction drawing on site must be approved by the Authority prior to commencement of any works, with any amendments required during the works clearly and timely communicated to the Authority for agreement and approval. 'As Built' drawings shall be submitted 28 days after completion of the works as directed by the Authority.

66. **Site Diary.** The Contractor shall keep an up to date, daily, site diary. This document is to be used to record all decisions made on the site both verbal and written. The document is also to be used to record visits to site and note anything, which has a direct effect on the project in terms of cost and extensions to time, or any other occurrence that affects the project programme. All changes must have been agreed and authorised by the Authority. The site diary shall list in writing all issued variation orders and site instructions, including amended drawings, and verbal decisions made on site. All verbal decisions must be recorded in writing no less than 24hrs after they have been made and entered in the site diary. The Contractor shall on request make the site diary available for the Authority to inspect. This document will be used as the audit trail in light of any disputes, concerning the project.

General Conditions

67. **Preparatory Works.** All local services are to be identified and adequate precautions taken to protect such services from damage for the duration of the works, or alternatively to relocate or disconnect with alternate provision, as per design and site requirements. The Authority shall be informed immediately if any unknown services are discovered that will have an impact on the works. All existing buildings and other facilities if any shall be identified, and precautions taken to mitigate the effects of works on going operations and facilities. This includes but is not limited to dust, noise, security, H&S, maintaining unobstructed access, establishment of clearly demarcated works and storage areas.

68. The Contractor shall verify with the Authority which site features are to be removed and protected during construction works. All setting out shall be completed by the Contractor, as well as any and all ongoing monitoring of works to ensure accuracy, plumb and level.

69. **Signage.** The Contractor shall supply and erect all applicable and appropriate signage to the site. This shall include as a minimum all H&S signage, directions and location of site office and emergency contact details of the Contractor's representative on site. Temporary warning signs and careful demarcation of works areas must be undertaken with care to ensure compliance with any and all requirements.

70. **Workmanship.** The Contractor shall be responsible for ensuring that all work-related activities shall be carried out in a neat and workmanlike manner, in accordance with accepted good practice. The Contractor shall pay full attention to quality control and adherence to the specifications. Particular care shall be taken in respect to Health and Safety matters, which shall include the provision of any relevant temporary warning signs and safety barriers. All working areas are to be kept clean and tidy on a daily basis. All redundant materials must be cleared to the requirements laid down in the Authorities Environmental Regulations.

71. **Site Manager.** At all times the Contractor shall have a Site Manager present on site that has the capability of reading, writing, speaking and receiving instructions in the English Language, including being able to understand and interpret technical drawings and specifications. This Site Manager must be able to explain the work operations to persons performing the work in a language that those performing the work are capable of understanding. The PM shall have the right to determine, whether the proposed representative has sufficient technical and linguistic capabilities.

72. **Dust Protection.** Where work is carried out in an occupied building/area containing personnel or equipment, or adjacent to sensitive areas/facilities (airfields, hospitals, etc.) the Contractor shall ensure that all necessary dust control measures are taken to protect the same. This may include the following, but not limited to: Mechanical protection to equipment and personnel, suppression of dust on roads.

73. **Visit to Site.** The Contractor shall acquaint himself completely with the exact conditions relating to access and site environment, along with the layout, conditions and positions of existing services, the full extent of the works required, and the supply and conditions affecting labour, carriage, carting, unloading, storage, tools, scaffolding, etc., as well as any security and access constraints.

74. **Existing Record Drawings.** The Contractor will upon request, be supplied with copies of all available and relevant existing record drawings. The Contractor during tender stages shall fully acquaint himself with the nature and extent of all existing services within the area of the contract works.

75. **Permits to Work and Authorisations.** The contractor shall comply with the Client's permit to work system and the JSP 375, Volume 3, (details of which are obtainable from the Authority SO), including the provision of method statements, risk assessments, switching/isolating safety programmes, permit to dig, etc.

76. The responsibility remains with the Contractor to obtain all necessary authorisations including but not limited to a permit to dig, security and access to the camp and site, fencing/screens to isolate runways, taxiways, and other existing facilities from the works, etc. required to commence and complete the works.

77. The Contractor shall at all times ensure that full coordination, cooperation and liaising with the Superintending Officer of the Client and Authorities is achieved and maintained.

78. **Rejection of Work.** The Authority reserves the right to reject or condemn any area of the works that he considers to be below an acceptable standard and the Contractor shall replace or repair the said works within 7 days of being notified in writing of the rejection by means of a Non-Conformance Report.

79. **Operations and Maintenance Documentation.** Upon completion of the works the Contractor shall forward all manufacturers' details relating to equipment/materials used to the Authority for inclusion into the O&M Manual/H&S File. Refer also to CDM 2015, this documentation less 'As Built Drawings' is to be made available at the Pre-Board of Officers not less than 10 days before the due project handover date. A full list of snagging items shall be produced and presented to the Authority with a rectification programme at this very same board.

80. **Regulations.** It is the Contractors duty to be fully conversant with all local/MOD regulations and requirements in respect of fire, safety, security and occupational health, etc. These are to be fully complied with throughout the contract period.

81. **Inspection, Testing and Commissioning.** The installations shall be tested and inspected in accordance with but not limited to the current CIBSE Codes, BS7671:2018– Requirements for Electrical Installations, IEE Wiring Regulations 18th Edition and City and Guilds (C&G) 2391-52 – Inspection and Testing where appropriate, etc. Advance notice of tests shall be given (minimum of 7 days prior to notification). Test and inspection certificates are to be approved by the Authority, preferred document templates will be provided by the Authority on request. Test certificates shall serve as a record that the item referred to has been shown under test to meet the requirements of the specifications and of British Standards as applicable and shall be dated, numbered and clearly referenced to the item tested by means of serial, chassis or other manufactures reference number permanently marked in a conspicuous position. On completion, all original test and inspection certificates are to be provided to the Authority and included in the H&S file CDM 2015. All test instruments shall be provided by the Contractor. The calibration certificates for the testing of the equipment are to be available on request to be shown to the Authority for scrutiny. The Contractor shall ensure all calibrations are in date. The Authority reserves the right to have an independent electrician available during the test and inspection phase. Any defects of workmanship, materials or non-compliance with the specifications or other irregularities which become apparent during the tests shall be rectified by the Contractor, at his own expense, until the whole work is free from defects and in full working order to the complete satisfaction of the Superintending Officer.

82. All materials used for construction of permanent works shall have suppliers' specifications and/or testing certificates available. Where materials are used as part of a whole or in conjunction with other materials, and in any case where site testing is required by best practice, verification of quality and specifications should be allowed for the parts / items / products (suppliers' specification) as well as the whole (site testing).

83. **Defects Liability Period.** A defects liability period of 12 months shall apply for the works. The Contractor will be responsible for making good at his own expense defects in the works for a 12 month period from handover.

Transportation and Tracking of Equipment

84. It is expected that the Contractor will not require a forward resources area other than the site. Should one be required a location within an existing base area shall be made available, as agreed by the PM. Packaging shall be to a good standard capable of withstanding transportation and handling loads. The Contractor shall be solely responsible for storage and movement of all equipment to site. The Contractor shall remain at all times responsible for the security of equipment including prevention of theft.

Construction Preliminaries

85. **Location Plan.** The location of the proposed works is within Senoko OFD.

86. **Existing Ground Conditions**. The Contractor is responsible for confirming the existing ground conditions, which are to be taken into account whilst designing and compiling the Pre-Construction Health and Safety Plan (PCHSP).

87. **Obstructions.** As the proposed works are to be carried out in the existing compound and surrounding areas, there are obstructions in the form of fences and ISO containers, the contractor is to review the site before commencing works.

88. **Provision of Information.** Unless otherwise specified the following is to be provided:

a. Three copies of all information, including valid certification, in respect to work, goods and materials proposed by the Contractor, shall be supplied to the Authority. Where the original document is written in a language other than English, it shall be accompanied by an English translation.

b. Information and certificates shall be supplied at least two weeks prior to the use of the work, goods or materials in the Works.

c. Three copies of detailed working and fabrication drawings and calculations shall be submitted to the Authority for reference purposes. Such submittal shall in no way relieve the Contractor of his responsibilities for the work under the contract.

89. **Health and Safety Restrictions, Precautions and Monitoring.** The Contractor shall implement the requirements described in the Health and Safety at Work Act 1974 (HASAW) to protect members of the public and persons visiting the site from risks arising from the use of equipment, materials or substances defined therein.

90. **Control of Noise and Vibration.** The Contractor shall comply with the recommendations for practical measures to reduce noise set out in BS 5228: Parts 1, 2 and 4.

Preliminary Groundworks

91. **Drainage.** The contractor is responsible for all drainage design concerned with the particular site referenced in this Performance Specification.

92. **Existing Ground Levels.** The Contractor shall identify all existing site levels required prior to any construction works.

93. **Ground Water Level.** The ground water level has not been established but it is not expected to impact on any of the works. It is the Contractors responsibility to take into account the ground water levels when submitting technical and commercial proposals.

94. **Excavations.** All excavations must be carried out in a safe manner and all excavations must be cordoned off and be clearly marked.

95. **Survey and Setting Out.** The Contractor will be responsible for all setting out and levelling during construction. The Contractor shall keep updated schedules and drawings of all bench marks used in setting out of the site; these must be made available to the Authority when required. A minimum of 2 survey control stations are to be constructed, one visible from the site at a distance of 50m and the other 200m away from the first but in line of site.

96. **Buried Services.** Prior to carrying out any excavation work the Contractor must:

a. Obtain a Permit to Dig (Statement of Known Services) and all drawings relating to existing services that may interfere with the proposed works. A copy of the Permit to Dig must be given to the Authority prior to any works commencing.

b. Identify all local services and take adequate precautions to protect such services from damage for the duration of the works.

c. Inform the Authority immediately if any unknown services are discovered that will impact on the works.

97. **Hazardous, Aggressive or Unstable Materials.** The Contractor is not to import or use fill materials which would either in themselves or in combination with other material or ground water, give rise to health hazards, damage buildings or structures. The construction materials should not include any finishes that may lead to shedding of particles.

98. **Placing Fill.** The Contractor shall ensure that excavations and areas to be filled are free from loose soil, organics, rubbish and standing water, frozen materials or materials containing ice are not to be used. All fill is to placed and compacted against structures, membranes or buried services in a sequence and manner which will ensure stability and avoid damage. The plant employed for transporting, laying and compacting must be suited to the type of fill material being used. All compaction works are to be carried out in accordance with the Specification of Highway Works Volumes 1 – 3, the Contractor is to inform the Authority of the method to be used.

99. **Survey.** The Contractor is to conduct a thorough survey of the site prior to Works commencing.

100. **Existing Ground Conditions.** The Contractor is responsible for ascertaining the existing ground conditions, which are to be taken into account whilst designing and compiling the Health and Safety Plan. The contractor is to satisfy himself as to the condition of the existing ground, identifying areas for work to achieve the required sub-base specification prior to undertaking any road works.

101. **Preparatory Work.** The Contractor must obtain a Permit to Dig and any drawings relating to existing services, which may interfere with the proposed works. The certificate is to be forwarded to the Authority for approval, prior to any works commencing. Identify all local services and take adequate precautions too protect such services from damage for the duration of the works. Inform the Authority immediately if any unknown services are discovered that will impact the works. Clear the site of all debris and break out any existing infrastructure and remove from site to an approved disposal site. The Contractor is to make good any areas of the previously constructed sub-base after consultation and agreement with the Authority.

102. **Obstructions.** There are no known obstructions in the area. However if any obstructions are discovered before or during construction the Contractor is to break out old foundations, beds, drains, as directed by the appointed SO and remove off site. Seal off any drain ends and remove contaminated earth and backfill as specified.

103. **Hazardous, Aggressive or Unstable Materials.** Do not import or use fill materials which would, either in themselves or in combination with material or the ground water, give rise to a health hazard, damage to building structures or instability in the filling.

104. **Placing Sub-base Fill Material.** If there is a requirement to make good the existing sub-base, after consultation with the Authority, the sub-base is to be brought up to a sufficient level and compacted to a sufficient California Bearing Ratio (CBR) to facilitate the proposed construction. Ensure that areas to be filled are free from loose soil, rubbish and standing water. Place and compact fill against structures, membranes or buried surfaces in a sequence and manner, which will ensure the stability and avoid damage. Plant employed for the transporting, laying and compacting must be suited to the type of material.

105. **Compaction.** All compaction operations are to be carried out with suitable compaction methods and equipment to ensure that the compacted layer facilitates all the upper layers.

Construction Specification

106. **Preparatory Works.** The area is to be clear from rubble or debris prior to any works being carried out. The Contractor is to liaise with the Senior Operation and Estate Facilities Manager (SOEFM) or Works Services Manager (WSM) to obtain a Statement of Known Services and copy to the Authority prior to the start of works. All local services are to be identified and adequate precautions taken to protect such services from damage for the duration of the works. The

Authority must be informed immediately if any unknown services are discovered that will have an impact on the works. The sub-grade is to be compacted before placing and compacting fill as necessary to form levels.

107. **Obstructions.** No obstructions are expected to be encountered. If any obstructions are found they are to be broken up as directed on site by the SO and removed. Any drain ends are to be sealed and contaminated earth removed.

108. **Ground Level.** The contractor is to level the existing formation level over the site to provide a level surface to enable construction. All materials arising from works are to be removed from site and deposited in an approved location. The imported fill must be compacted in layers and achieve a minimum **20**% CBR.

109. **Placing Fill.** The Contractor shall be responsible for ensuring that all excavations and areas to be filled are free from loose soil, organics, rubbish and standing water prior to placing fill. The Contractor shall not use frozen materials or materials containing ice or place the fill on frozen surfaces. The Contractor shall ensure that fill is placed and compacted against structures, membranes or buried services in a sequence and manner that will ensure stability and avoid damage. All plant employed for transporting, laying and compacting fill must be suited to the type of material.

110. **Sinkholes.** Any sinkholes or soft spots are to be excavated and filled with a suitable fill material. The material is to be sufficiently compacted to refusal. All areas requiring extra works are to be reported to the Authority for approval on the remedial works.

111. **Hazardous, Aggressive or Unstable Materials.** The Contractor shall not import or use fill materials which would, either by themselves or in combination with other materials or ground water, give rise to a health hazard, damage to the facility structures or instability in the filling. Construction materials are not to include any finishes such that they lead to shedding of particles.

112. **Materials Testing.** It is the Contractor's responsibility to carry out all materials testing and present all test results to the Authority on request and within the H&S file. The Authority will carry out concurrence quality control material tests at regular intervals.

113. **Setting Out.** The Contractor shall keep updated schedules and drawings of all bench marks used in the setting out and shall make these available to the Authority when required.

114. **Construction of Formwork.** The formwork is to be securely constructed by the contractor, and then inspected by the Authority to ensure it is structurally sound and meets the required specifications.

115. **Reinforcement Bar.** Is to be placed by the contractor with a minimum 50mm end-cover from formwork prior to the concrete being poured then inspected by the Authority.

116. **Concrete Materials and Mix Designs.** The contractor shall submit to the Authority the proposed concrete mix design for any concrete works, including in-situ and pre-cast concrete. The size of the aggregate used is not to exceed the nominal 20mm. The contractor is to notify the Authority representative minimum 24 hours prior to pouring of concrete, to allow a Construction Material Technician to take cube samples. Cubes are to be taken from structural concrete with 7 & 28 day crushing results passed to the SOEFM.

117. **Concrete Practice.** The Contractor shall ensure that suitable consideration is given to the placing of concrete in hot and cold weather and appropriate precautionary/avoidance measures are to be undertaken in order to minimise shrinkage and cracking. Concrete is not to be laid if the temperature is below -5°C or above 30°C.

118. At the time of placing concrete the Contractor shall ensure that all surfaces on which concrete shall be placed are clean, with no debris, organic material or free water. The concrete

shall be placed while sufficiently plastic for full compaction. Do not add water or re-temper mixes. The temperature of the concrete at time of placing must not be less than 5°C. Fully compact to full depth (until bubbles cease to appear on the top surface) especially around cast-in accessories, into corners of formwork and at joints. Vibration of the concrete shall be by means of mechanical vibration only, with care taken in the mix design and compaction to minimise segregation. A spare mechanical vibration unit should be at hand in the event of break down during the concrete pour.

119. The Contractor shall prevent surface evaporation from the surfaces during the curing process. It is the Contractor's responsibility to ensure the concrete is cured correctly. With the exception of plant and equipment for cutting contraction grooves the fresh concrete shall not be subjected to the weight of any traffic or equipment for a period of 7 days after the pour.

120. At the time of placing concrete, the reinforcement shall be clean and free of corrosive pitting, loose mill scale, loose rust, and any substance which may adversely affect the reinforcement, concrete, or bond between the two.

121. The formwork is the responsibility of the Contractor but should comply with the following:

a. Formwork is to be rigid and durable, suitable for re-use during construction and of sufficient strength to support the weight of the wet concrete and the placing and finishing operations.

b. Construct accurately and robustly to produce finished concrete to the required dimensions. Formed surfaces must be free from twist and bow, all intersections, lines and angles being square, plumb and true.

c. Forms are to be laid to line and level, adequately braced during placing operations to withstand, without springing or settlement, the impact and vibration of the spreading, compacting and finishing operations.

d. Constructed (including joints between forms and completed work), to prevent loss of grout, using seals when necessary. Secure tight against adjacent concrete to prevent formation of steps.

e. The depth of forms shall be adequate to fully support the nominal thickness of the slab. The thickness of packing below the forms shall not exceed the irregularity of the surface permitted by this specification, specifically +/- 3mm over a 3m straight edge.

f. Forms are to be coated in mould release oil to aid in striking.

122. **Concrete Finish.** Carry out all finishing operations at optimum times in relation to the setting and hardening of the concrete. Do not wet surfaces of concrete to assist surface working. Do not sprinkle cement on to the surface. Use a hand or skip float to give an even surface with no ridges or steps, when the concrete is suitably stiff apply a brush finish to produce a friction surface and resume specified curing without delay. Brush marks are to be made in the same direction at right angels to the direction of travel on each pad after eliminating surface blemishes by scraping straight edges and before the commencement of curing operations. The surface of the concrete shall receive no special treatment other than finishing operations required to produce the specified degree of accuracy of the surface level. The edges are to have a 5mm bullnose edge applied. Any exposed concrete edges are to have a 25 x 25mm chamfered finish applied to prevent damage when striking formwork.

Additional Specifications

123. **Other Construction Materials.** The use of additional construction materials must be compliant with generally accepted good practice and shall be in accordance with suppliers' specifications. All designs shall comply with the latest applicable BS Standards. This includes, but is not limited to: Structural steel products, bolts, holding down bolts; grouts and epoxies; joint seals.

Inspection, Testing, Supervision and Commissioning

124. **Inspection.** The SOEFM reserves the right to inspect the site, materials, installations and construction at anytime. If any of the above items are deemed below the required specification then the SOEFM will insist that the work or item is replaced forthwith at the contractor's expense.

125. **Concrete.** Representative samples are to be taken during each pour and tested for workability using the slump test within the range 50–100mm. Two concrete cubes are to be taken during each pour and placed, compacted and cured in accordance with BS 1881. Destructive testing is to be carried out at 7 and 28 days. Results are to be reported back to the Authority. The Authority reserves the right to carryout independent testing at anytime during the concrete phase of the project.

126. **Supervision.** Strict supervision by the Contractor's Site Manger is critical to the successful completion of the task. The Contractor's Site Manager is to liaise with the PM and SOEFM on a regular basis to keep all personnel informed and current with future works.

127. **Commissioning.** All commissioning is to be carried out in strict accordance to BS/EN codes of practice, noting any expedient regulations pertaining to specialist equipments or installations. All test and commissioning certificates are to be included with the relevant As Built Drawings in the Health and Safety File.

128. All Health and Safety information including certification is to be included in the Handover File, which is to be completed prior to the Board of Officers. The format is to follow the handover procedures, a copy will be presented to the Contractor on request.

Health and Safety File

129. **Presentation of Health and Safety File.** The Contractor is to provide the PM with **three** copies of the H&S File. The Manual is to be contained in a series of A4 size, plastic covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled. Selected drawings needed to illustrate or locate items mentioned in the Manual, where larger than A4, are to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings. The main set(s) of as-built drawings will form annex(es) to the Manual.

130. **The Health and Safety (H&S) File.** The Contractor shall be required to complete the Project Health and Safety File on completion of the works, three copies of which will be provided to the Authority at handover. Advice can be sought from the Authority if required. The H&S File provides information required for future construction work, which includes cleaning, maintenance, alterations, refurbishment and demolition. The Manual is to consist of the following parts, sub-sectioned as appropriate.

a. **Section 1: H&S.** The Contractor is to provide a description of the site and the buildings thereon. This is to include details of construction methods and materials, which may present significant residual hazards in the future.

b. **Section 2: Certificates.** The Contractor is to provide a copy of all Test Certificates (including but not limited to electrical circuit tests, start and commissioning tests) for the installations and plant, equipment, valves, etc, used in the installations. Warranty Certificates and guarantees are also to be included in this section.

c. **Section 3: As-built Drawings.** The Contractor is to provide as-built drawings recording details of all construction, electrical and mechanical work. A fire strategy for the site should also be included with drawings showing emergency escape routes, location of emergency and fire fighting systems, services shut-off valves, switches, etc.

d. **Section 4: Operation & Maintenance (O&M) Schedules.** The Contractor is to provide recommendations as to the preventative maintenance, frequency and procedures to

be adopted to ensure the most efficient operation of the systems. Manufacturer's O&M schedules are to be included. Diagrammatic drawings of each system indicating principal items of plant, equipment, and valves are also to be included.

e. **Section 5: O&M Manuals.** The Contractor is to provide copies of manufacturers' current literature for all products for which the particular proprietary brand has been chosen by the Contractor, including COSHH data sheets, catalogue list numbers and manufacturers recommendations for cleaning and maintenance. The mechanical and electrical systems section shall contain a full description of each of the systems installed, written to ensure that the client fully understands the scope and facilities provided. All manufacturers technical literature for items of plant and equipment, assembled specifically for the project, including detailed drawings, electrical circuit details and operating and maintenance instructions are to be included.

131. **Draft Health and Safety File.** A complete draft of the Manual must be submitted by the Contractor, **not less than 4 weeks** before the date for submission of the final copies of the Manual. This is to be amended in the light of any comments and resubmitted to the PM. Do not proceed with production of the final copies of the Manual until authorised to do so by the PM.

132. **Presentation of Health and Safety File.** The Contractor is to provide the PM with three copies of the H&S File. The Manual is to be contained in a series of A4 size, plastic covered, loose leaf, four ring binders with hard covers, each indexed, divided and appropriately cover titled. Selected drawings needed to illustrate or locate items mentioned in the Manual, where larger than A4, are to be folded and accommodated in the binders so that they may be unfolded without being detached from the rings. The main set(s) of as-built drawings will form annexes to the Manual.

133. **Spare Parts.** At least three weeks before practical completion the Contractor must submit to the PM a schedule of spare parts that the Contractor recommends should be obtained and kept in stock by the Employer for maintenance of the services installations. State against each item the manufacturer's current price, including packaging and delivery to site and the current stockist. A list of normal consumable items is also to be provided by the Contractor.

Restrictions/Constraints

134. **Access to the Site.** This is to be agreed in detail with the SOEFM or WSM prior to start on site.

135. **Working Hours.** The Contractor may be restricted to working between 0800hrs and 1700hrs **(Monday to Sunday Inc),** any deviation from these hours must have prior agreement with the PM. The work site is located in a restricted or controlled area. The contractor may therefore experience delays due to compliance with entrance/exit requirements of restricted/controlled areas.

Facilities/Temporary Works/Services

136. **Locations.** The Contractor is to agree with the SOEFM of the intended siting of all spoil heaps, temporary works and services in advance.

137. **Lighting and Power.** The Contractor shall provide all lighting and power for his works. No facility will exist on site from the general base infrastructure.

138. **Communications.** The Contractor shall provide his workforce with adequate means of communications throughout the life of the Contract in order to carry out the work specified.

139. **Temporary Services.** The Contractor shall provide temporary service connections to both mechanical and electrical systems. All temporary service connections are to be in accordance with current UK regulations.

140. **Site Facilities**. The PC shall be responsible, once agreed with DIO(S), for providing the following facilities:

a. Storage areas.

b. Site communications.

c. Site and stores security.

Welfare Arrangements

141. DIO(S) will negotiate at award of contract the time allocated to the contractor to mobilise their workforce and equipment and make arrangements for welfare facilities to be provided.

Annex A to
DIOCB1/226
Booklet 3 – Specification
Dated: 16 Sept 2020

PROPOSED SENOKO CCTV LAYOUT