SECTION C

PROJECT BRIEF

PART 1

SCOPE OF SERVICES

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1. DEFINITIONS, ABBREVIATIONS AND ACRONYMS

1.1. Interpretation

1.1.1. For the purposes of the Project Brief, defined terms shall have the meaning set out in the General Conditions of Engagement. Additional defined terms necessary for interpretation of the Project Brief are set out below.

1.2. Defined Terms

1.2.1. "**Applicable Codes or Standards**" shall mean the engineering codes and standards identified by the Consultant, and non-objected by the Engineer, as being relevant and applicable to the Project, and which shall be used by the Consultant, third parties to achieve a uniformity of approach throughout the Project.

1.2.2. "**Assure**" shall mean the task to review and a give a statement of non-objection.

1.2.3. "**Assurance**" shall mean the commitment to Assure.

1.2.4. ''**Authority Having Jurisdiction**'' shall mean any Governmental, regulatory or code / standard review and / or enforcement agency having authority to review, approve or otherwise regulate the Project.

1.2.5. "**Authority's Requirements**" shall mean the document entitled Authority's Requirements, as included in the construction contract or contracts, and any additions and modifications made thereto in accordance with the Agreement. Such document specifies the purpose, scope, and / or design and / or other technical criteria, necessary for the execution of the construction contract or contracts.

1.2.6. "**Authority to Mobilise**" shall mean the formal permission for personnel mobilisation issued by the Engineer enacted using the Authority's standard Authority to Mobilise (ATM) form.

1.2.7. "**Baseline Programme**" shall mean the programme as non-objected by the Engineer representing the Services to be provided under the Agreement.

1.2.8. "**BIM**" shall mean building information management and is defined as the process involving the generation and management of a digital representation of the physical and functional characteristics of the Project.

1.2.9. "**Building Information Model**" shall mean the result of BIM and shall be a shared knowledge resource use to support the Project throughout the design, procurement, construction, testing and commissioning and operational and maintenance phases of the life cycle of the Project.

1.2.10. **"PWA CAD Standards Manual"** shall mean the computer aided design manual developed by the PWA to be adhered to on all Authority Projects.

1.2.11. "**Central Planning Office**" shall mean the Government office set up to provide Project coordination and integration planning between the various government departments.

1.2.12. "**Concept Design**" shall mean the Phase of design as defined in the Scope of Services and Deliverables particularly stated for this Phase within this document. This represents Key Phase A of the Project as identified in Section G.

1.2.13. "**Consents Register**" shall mean the record of requirements of and relevant processes for meeting requirements of the Utilities and other public (or privately owned) facilities or assets that may require disturbance by the works, which shall be set up and maintained by the Consultant in conjunction with the Engineer.

1.2.14. "**Consultant Leader**" shall mean the person who shall be non-objected by the Engineer to be the primary point of contact with the Engineer for the performance of the design services until completion of the Project.

1.2.15. "**Contractor**" shall mean the Contractor(s) appointed by the Authority and responsible for carrying out all physical works relating to the Project. The Contractor(s) may include, but are not limited to works Contractors, advance works Contractors, specialist fit-out Contractors etc.

1.2.16. "**Core Team**" shall mean the Consultant's personnel to be present in Qatar for the term of the Agreement and as defined by the Consultant by Key Phase.

1.2.17. "**Cost Consultant**" shall mean the cost consultant appointed to provide cost consultancy services.

1.2.18. "**Cost Management Plan**" shall mean the plan developed by the Cost Consultant which sets out how the commercial management of the Project will be delivered.

1.2.19. "**Deliverables**" shall mean the end result of efforts expended under particular sections of the Agreement to be submitted to the Engineer for review as identified in this document and other Agreement Documents.

1.2.20. "**Detail Design - Technical Design**" shall mean the Phase of design as defined in the Scope of Services and Deliverables particularly stated for this Phase within this document. This represents Key Phase C of the Project as identified in Section G.

1.2.21. "**Detail Design – Production Information and Tender Action**" shall mean the Phases of design as defined in the Scope of Services and Deliverables particularly stated for this Phase within this document. This represents Key Phase D of the Project as identified in Section G

1.2.22. "**Gateway**" means the Gateway process which allows for defined interventions at critical Phases in the development of a Project and to allow technical fiscal and programme approvals to authorise progression to the next Phase of project development.

1.2.23. "**Project Implementation Plan**" (PIP) shall mean the collection of documents which collectively define, describe and encompass the Consultant's proposed systems, methods, procedures, processes, sequencing of activities and how these combine to deliver the Consultant's Scope of Services. It forms part of the Project Execution Plan (PEP).

1.2.24. "**Key Date**" shall mean pre-defined dates in the Master Programme, as may be amended by the issue of a Change Addendum, against which specified performance shall be attained by the Consultant.

1.2.25. "**Key Phase**" shall mean a pre-defined element of the Services within which specific performance of associated services must be attained.

1.2.26. "**Master Programme**" shall mean the activity time plan designed and implemented by the Engineer covering all activities and tasks, including labour and other economic resourcing, which together constitute the entire scope of works under the Project.

1.2.27. "**Monthly Progress Report**" shall mean the detailed management report to be considered at the monthly meeting.

1.2.28. "**Peer Review**" shall mean the independent assessment of an author's work by others recognised in the relevant profession as being qualified to at least the level of capability and experience of the author of the work to be assessed (reviewed), as meeting standards of quality and safety that would be expected by the profession, whether of design, construction or operation and maintenance.

1.2.29. "**Plant**" shall mean the complete mechanical, electrical or plumbing plant (MEP) and functioning element of the Works.

1.2.30. "**Project**" shall mean any aspect of the assignment, management and administration for the Work, for example: site investigation, design, supervision, construction, etc.

1.2.31. "**Project Execution Plan**" (PEP) shall mean the Consultant's comprehensive suite of fully integrated and fully functioning plans, systems and procedures for the Project.

1.2.32. "**Scheme Design**" or 'design development' shall mean the Phase of design as defined in the Scope of Services and Deliverables particularly stated for this Phase within this document. This represents Key Phase B of the Project as identified in Section G.

1.2.33. "**Scope of Services**" shall mean the description of the Services set out in this document and other Agreement documents.

1.2.34. "**Statutory Approvals**" shall mean any and all approvals, non-objections, authorisations ratifications etc. required from Qatari Ministries, the Authority, government agencies, local government agencies etc. as are, from time to time, required for completion of the Project.

1.2.35. "**Utility**", "**Utilities**" shall mean, inter alia, any water, irrigation, sanitary, storm water drainage, gas, electric, fibre optic, cables, traffic control systems, infrastructure, pipelines, landscaping, or the like above, at or below onshore ground level or offshore sea or seabed level impacting on or interfacing with the Services.

1.2.36. "**Value Engineering**" means the process of carrying out design review studies with the objective of exploring alternative designs that would result in added value to the deliverables.

1.2.37. **"Control Point"** shall mean a defined subset of the gateways. Each gateway deliverable sign off relates to one of a number of technical approvals of each gateway.

1.3. Abbreviations and Acronyms

AEC	Audio Education Complex
ADA	American with Disabilities Act Information
AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
BIM	Building Information Modelling
BOH	Back of House
BS	British Standards
CADD	Computer Aided Design Development
CAR	Corrective Action Request
CBS	Cost Breakdown Structure
CD	Commencement Date
CEO	Chief Executive Officer
CMC	Customer Management System
COO	Chief Operations Officer
CPO	Central Planning Office
CRM	Customer Relationship Management System
CSC	Construction Supervision Consultant
CSI	Construction Specification Institute
DC	Design Consultant

DCU	Document Control Unit (Authority)
DDA	Disability Discrimination Act (UK)
EIA	Environmental Impact Assessment
EDMS	Electronic Document Management System
EMS	Environmental Management System
GIS	Geographic Information System
GORD	Gulf Organisation for Research and Development
GSAS	Global Sustainable Assessment System
H&S	Health and Safety
HSSMS	Health, Safety and Security Management System
IBC	International Building Code
IPC	International Plumbing Code
ISO	International Organization for Standardization
IT	Information Technology
ITT	Instruction to Tenderers
KPI	Key Performance Indicator
LOC	Letter of Conformance (GSAS)
MEP	Mechanical, Electrical & Plumbing
MMUP	Ministry of Municipal and Urban Planning
NBS	National Building Specifications
NCR	Non Conformance Report
NFPA	National Fire Protection Association
O&M	Operation and Maintenance
OH&S	Occupational Health and Safety
OHSAS	Occupational Health and Safety Management Systems
PEP	Project Execution Plan
PIP	Project Implementation Plan
PMDS	Project Management Delivery System
PMP	Project Management Plan
PSA	Professional Services Agreement Edition 2010 (Revision A)
PWA	Public Works Authority (the Authority)
POA	Power of Attorney
QAR	Qatari Riyals
QCS	Qatar Construction Standard
QMS	Quality Management System
QNB	Qatar National Bank
QA	Quality Assurance

QHSE	Quality, Health & Safety and Environment & Sustainability Management
QS	Quantity Surveyor
RACI	Responsible, Accountable, Consulted, and Informed
RIBA	Royal Institute of British Architects
RICS	Royal Institution of Chartered Surveyors
ROW	Rights of Ways
SEA	Strategic Environmental Assessment
SMM7	Standard Method of Measurement Seventh Edition
SM&CP	Stakeholder Management and Communication Plan
UPDA	Urban Planning & Development Authority
WBS	Work Breakdown Structure

2. INTRODUCTION

2.1. General

2.1.1. The State of Qatar is a peninsula located on the northeast coast of the much larger Arabian Peninsula with a total land area of approximately 11,500 square kilometres. The population is approximately 1.7 million inhabitants (2009 census) with almost 83% of the inhabitants residing in Doha and its main suburb Al-Rayyan.

2.1.2. The State of Qatar has experienced rapid economic growth over the last several years. This economic growth has resulted in increased demand for the State to construct and provide first-class infrastructure such as government buildings, transportation networks and services.

2.1.3. The Public Works Authority (Ashghal), hereafter referred to as the 'Authority', is responsible for the planning, design, procurement construction, asset management, and delivery of infrastructure and building works in the State of Qatar.

2.1.4. The Authority contributes to the economic and social development of the State through implementing public projects in accordance with the approved plans of the State. In coordination with other agencies in the State, the Authority implements and programmes the execution of public projects consistent with the approved State objectives and allocated budget.

2.1.5. The Authority's tasks also include preparation of studies, designs, and technical specifications for the public projects; contracting for implementation of public projects and overseeing the work; implementing major maintenance projects according to the plans, programmes and studies developed; as well as implementation, management, operation and maintenance of drainage, groundwater, surface water and water treatment projects.

2.1.6. Through its major departments, the Authority strives to develop the State's infrastructure and public amenities to the level of international standard achieved by developed countries and communities. In general it contributes to the overall sustainable development of economic and social areas in the State.

2.1.7. The Authority consists of administrative units set out below:

A. Administrative units under the Minister of Municipality and Urban Planning: The Internal Audit Unit; and

B. Administrative units under the President including Office of the President, Public Relations and Communication Unit, Legal Affairs Department and Corporate Development & Planning Department.

2.1.8. The Authority's major business units consist of five (5) major 'Directorates' as listed below and described thereafter:

a. Asset Affairs;

b. Buildings Affairs;

c. Infrastructure Affairs;

d. Technical Support Affairs; and

e. Shared Services Affairs.

a. **Asset Affairs**

This Directorate handles operation and maintenance of assets through two (2) departments:

i. Drainage Operation and Maintenance (O&M) Department; and

ii. Road Operation and Maintenance (O&M) Department.

b. **Buildings Affairs:**

This Directorate consists of two (2) departments:

i. Design Department; and

ii. Project Department;

dedicated to government building projects such as schools, ports, recreational facilities, healthcare facilities and other government buildings.

c. **Infrastructure Affairs:**

This Directorate consists of three (3) departments:

i. Local Roads Department;

ii. Drainage Department; and

iii. Expressway Department.

d. **Technical Support Affairs:**

This Directorate consists of three (3) departments:

i. Contracts Department, which is responsible for procurement, process and procedures in the delivery of the Authority's projects;

ii. Engineering Business Support Department, which provides technical support for the projects in terms of project planning, estimating, financial reviews and payments, time schedules, addendums, change orders, variations tracking and documentation .

iii. Quality and Safety Department, which is responsible for the quality control of projects and safety at work sites, offices and coordinates and reviews all PWA environment permitting applications to the Ministry of Environment (MoE).

e. **Shared Services Affairs:**

All other departments that provide technical support come under this sector including Administration and Finance Department, Human Resources Department; General Services Department and Information Technology Department.

2.1.9. The Authority is implementing the Project as part of its efforts to develop the State's infrastructure and public amenities for the benefit of the public.

2.1.10. The Consultant has been selected by the Authority to assist in the Project's implementation by undertaking the services set out in accordance with this Scope of Services.

2.2. Project Brief Document Hierarchy

2.2.1. This document is the first part of five (5) documents which will comprise Schedule A [Project Brief] found within the Agreement.

2.2.2. The five (5) parts comprising Schedule A [Project Brief] are to be read and construed as a composite whole and shall be taken as mutually explanatory of one another. In the event of an ambiguity, discrepancy or inconsistency within the documents, the order of precedence shall be as follows:

a. Part 1: Scope of Services (this document);

b. Part 2: Authority's Requirements;

c. Part 3: Services Implementation;

d. Part 4: Project Data; and

e. Part 5: Authority's Policies and Procedures.

2.2.3. This document sets out the duties to be performed by the Consultant and the Deliverables required from the Consultant together with duties of the Authority.

2.3. Professional Services Agreement

2.3.1. The Consultant shall be appointed under the terms and conditions of the Professional Services Agreement (PSA) General Conditions of Engagement 2010 (Revision A) to provide professional services to the Authority.

3. PROJECT OUTLINE

3.1. General

The Consultant will provide complete and comprehensive **Pre Contract Professional Consultancy Services for Rehabilitation of Four (4) Historical Buildings at Various Locations**

3.1.1 as outlined in this agreement.

3.1.2 The required pre-contract professional services include but not necessarily limited to prepare and submit of following:

(1) Architectural drawings :

a) A narrative explaining the concept of the scheme and demonstrating adherence to the design brief.

b) A comprehensive Geotechnical and Topographical reports

c) Concept/Preliminary Design.

d) Floors plans to a scale of 1:50 / 1:100.

e) A section through both main axes to a scale of 1:50 / 1:100.

f) An elevation drawing of each façade (north, south, east and west) to a scale of 1:50 / 1:100.

g) External works drawings.

h) Detailed drawings.

i) Sketches/Perspectives.

(2) All structural drawings.

(3) All services drawings (electrical, mechanical, civil defense, water, drainage etc.)

(4) All permits related for the above mentioned projects.

(5) Final DC2 approved & stamped sets of drawings.

(6) Tender document according to the latest revision of QCS regulations in English language, cover page show perspective.

(7) Bill of Quantities in English language & attached with tender documents.

(8) Clarifications to Tenderers queries (related to construction tender).

3.1.3 The Consultant shall gather and study all available supporting information and incorporate it as appropriate into the Scope of Services deliverables.

3.1.4 The Consultant shall undertake all works necessary for the design as described culminating in and including the preparation of fully detailed designs and complete Tender/Contract procurement Documentation for inviting competitive tenders for the construction of all Works as described **Services**

3.2. Project Description

The project is for the Rehabilitation of four (4) Nos. of Historical Buildings in Various Locations as required in the client approved project brief.

Project brief:

Restoration of four existing historical buildings, shall be rebuilt and restored to their original profile/footprint. The intent is re-build the four building utilizing the traditional old methodology with Qatari Heritage Design and Construction in conjunction with all Engineering disciplines:-

a) Architectural (combination of old and new building finishing materials for internal for floor, walls & ceiling and through the external skin),

b) Electrical (use of antique motif lighting and accessories),

c) Mechanical (recommended by specialist),

d) Structural (traditional method of construction using old and new building technology).

Scope of works for each site:

a) **Umm Al Qehab Mosque (Pin No. 80120002**)

- Existing building (ground floor only) with the area of 200 m². Restoration of all the necessary existing historical profiles at floors, walls, ceilings roofs, parapets, the profile of the minaret plus and decorative elements. All the amenities of the mosque shall be established and re-build into their original functions if available, (refer to as built drawings to be supplied by client representative from Qatar Museum Authority).

- External works, for the boundary perimeter fence shall encompass decorative PVC coated cyclone fence at the height of 2 meters fixed to 75mm diameter hot dip galvanized steel posts painted with weather proof paint plus decorative steel gates (1 No.) at 4.00 m. wide with two leafs with (1.00 m. X 2.00 meter high) pedestrian steel gate. Provide external lightings lamp post and decorative antique motif bollards lighting around the site perimeter. To provide landscaping (hard and soft), including irrigation system (optional if required).

b) **Al Sulokiah Mosque (Pin No. 76280005**)

- Existing building (ground floor only) with the area of 218 m². Restoration of all the necessary existing historical profiles at floors, walls, ceilings roofs, parapets, the profile of the minaret plus and decorative elements. All the amenities of the mosque shall be established and re-build into their original functions if available, (refer to as built drawings to be supplied by client representative from Qatar Museum Authority).

- External works, for the boundary perimeter fence shall encompass decorative PVC coated cyclone fence at the height of 2 meters fixed to 75mm diameter hot dip galvanized steel posts painted with weather proof paint plus decorative steel gates (1 No.) at 4.00 m wide with two leafs with (1.00 m. X 2.00 meter high) pedestrian steel gate. Provide external lightings lamp post and decorative antique motif bollards

lighting around the site perimeter. To provide landscaping (hard and soft), including irrigation system (optional if required).

c) **Ain Sinan Mosque (Pin No. 77080050 - Maintenance permit issued on 02/03/2015)**

- Existing building (ground floor only) with the area of 200 m². Restoration of all the necessary existing historical profiles at floors, walls, ceilings roofs, parapets, the profile of the minaret plus and decorative elements. All the amenities of the mosque shall be established and re-build into their original functions if available, (refer to as built drawings to be supplied by client representative from Qatar Museum Authority).

- External works, for the boundary perimeter fence shall encompass decorative PVC coated cyclone fence at the height of 2 meters fixed to 75mm diameter hot dip galvanized steel posts painted with weather proof paint plus decorative steel gates (1 No.) at 4.00 m wide with two leafs with (1.00 m. X 2.00 meter high) pedestrian steel gate. Provide external lightings lamp post and decorative antique motif bollards lighting around the site perimeter. To provide landscaping (hard and soft), including irrigation system (optional if required).

d) **Al Zaman House (Pin No. 06160026 - Maintenance permit issued on 16/03/2015)**

- Existing building (G+1) with an area of approximately 810 m². for the ground and first floor. Restoration of all the necessary existing historical profiles at floors, walls, ceilings roofs, parapets, the profile of the minaret plus and decorative elements. All the amenities of the mosque shall be established and re-build into their original functions if available, (refer to as built drawings to be supplied by client representative from Qatar Museum Authority).

- External works, for the boundary perimeter fence shall encompass decorative PVC coated cyclone fence at the height of 2 meters fixed to 75mm diameter hot dip galvanized steel posts painted with weather proof paint plus decorative steel gates (1 No.) at 4.00 m wide with two leafs with (1.00 m. X 2.00 meter high) pedestrian steel gate. Provide external lightings lamp post and decorative antique motif bollards lighting around the site perimeter. To provide landscaping (hard and soft), including irrigation system (optional if required).

- Restorations shall be deemed fully coordinated from the PWA-Engineer and Client representative or with the Qatar Museum Authority before the start of any construction at each site.

e) For External Works:

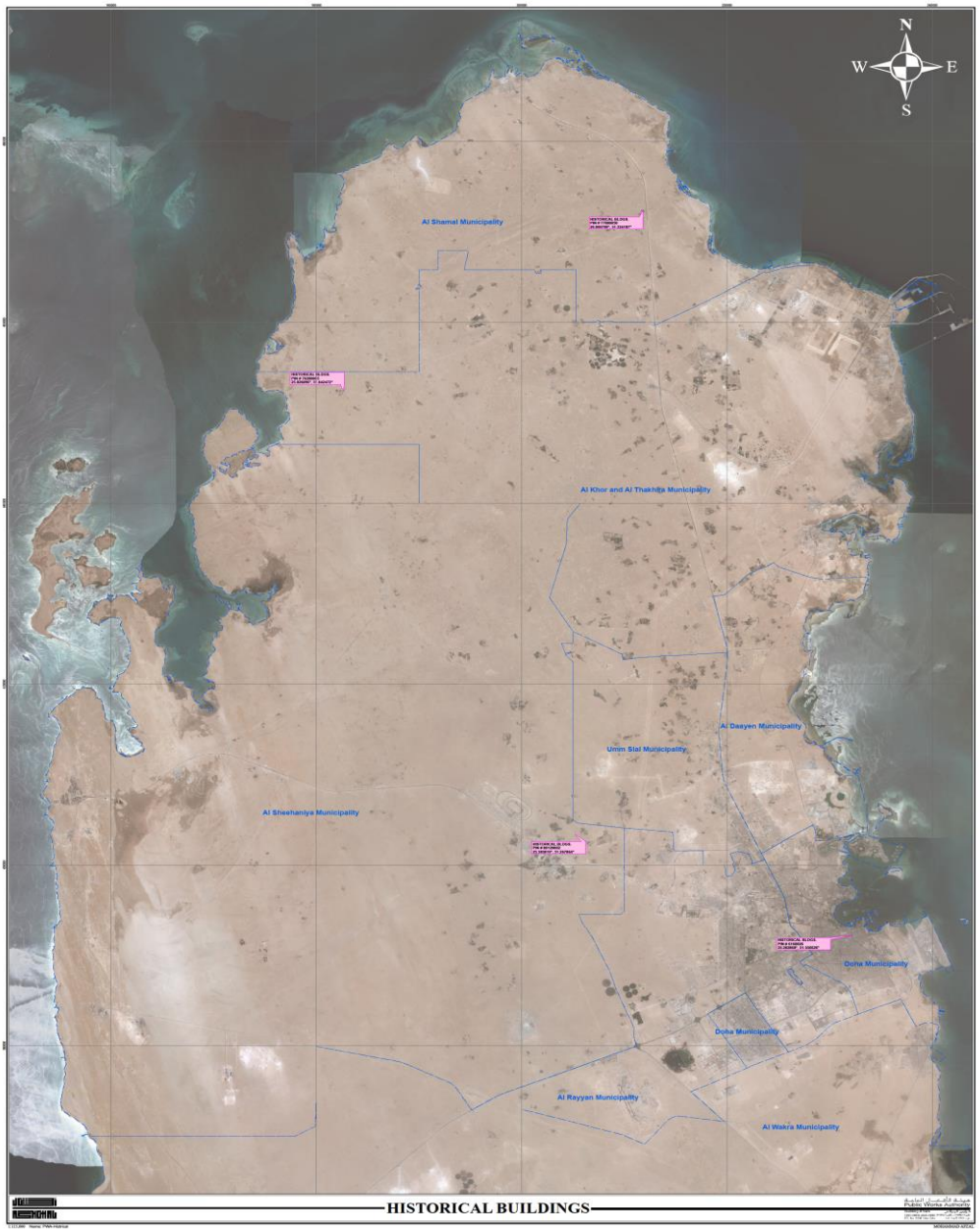
- Shall be finished with Interlock paving and curb stone or verify and or to match the existing site finishing condition.

- Demolition and refurbishment of existing utilities below ground and above the ground.

General Note:

The architecture should aim to achieve the minimum of three stars in GSAS rating system and whilst respecting the historical and traditional design of four buildings. The projects should be integrated in its environment (surroundings) the facilities and requirements of the project are, but not limited to, the following:

Refer to the attached Qatar Map project site locations with appropriated Coordinates:



4. SCOPE OF SERVICES

4.1. Overview of Key Roles and Responsibilities

4.1.1. The Consultant will provide complete and comprehensive professional Design services as outlined in this agreement.

4.1.2. The extent of the Pre Contract Professional Consultancy Services required are generally described as follows:

a. validation services / design services / ITT Documents and Tender Award;

4.1.3. The Consultant shall provide design management services to ensure that the designs are completed on time, within budget and that comprehensive technical Authority's Requirements, with the confirmed non-objection of the Engineer, are available to suit the requirements of the programme.

4.1.4. The Consultant shall be responsible for the complete design of the works, and shall ensure that the Authority's Requirements adequately and fully represent all aspects of the design.

4.1.5. The Construction Works of this project shall commence on the date mentioned on the written order to commence by the Engineer.

4.1.6. This project shall be completed according to the programme schedule proposed by the Consultant during the design Phase.

4.2. Schedule and Completion Obligations

4.2.1. All Project description information included in this Project Brief is to be considered by the Consultant as Preliminary and subject to change as per the requirements defined by the Authority during the Validation and Concept Design Phases and the project Scheme Design & Detail Design phase. The purpose of the information provided within this Brief is to give the Consultant the best information available to the Authority at this time, and to provide the Consultant with the general magnitude of the Project for bidding purposes. All project specifics will be confirmed by the Consultant during the Design Phase.

4.2.2. The Consultant shall allow sufficient time in his design schedule to obtain the necessary approvals from all third parties and the time taken to obtain these approvals shall not give rise to an extension of completion obligations under the Agreement.

4.3. Governance of the Project

4.3.1. The Engineer has been appointed by the Authority to act on its behalf and will be responsible for the overall management of the Project.

4.3.2. The Engineer appointed by the Authority to oversee the Project on its behalf shall act as the primary point of contact with the Consultant for the purposes of administration and management of the Agreement.

4.4. Coordination of the Project

4.4.1. During the design Phases the Consultant shall initiate and conduct constructability reviews and construction logistics planning to ensure that the design is readily constructible within the constraints and programme for the delivery of the Project. The Consultant shall coordinate with the Engineer in this regard and shall ensure the design is developed to achieve the required design and construction programmes.

4.4.2. The Consultant shall be responsible, in conjunction with the Engineer, for determining the compliance of the design with the construction programme and budget.

4.5. Cost Control Obligations

4.5.1. The Consultant shall note that delivery of the Project within budget is a primary objective and that completion of the Project within the budget is to be understood to be a key Project objective by all parties to the Agreement.

4.5.2. The budget for the works will be provided by the Engineer at the outset of the Agreement and updated as advised by the Consultant at appropriate pre contract Phases including appropriate contingency levels for both design development and construction phases and thereafter shall be changed only with the Engineer's non-objection.

4.5.3. The Consultant shall develop the design to satisfy the Engineer, through the presentation of comprehensive cost assessments that the Works can be delivered within the authorised budget.

4.5.4. In the event that the Engineer determines that the Works cannot be reasonably expected to be constructed within the budget constraints the Consultant shall amend the design in order to achieve this key Project objective. The amendments to the design that are necessary for this purpose shall be deemed to be design development. Such amendments shall not be considered as changes to the Scope of Services.

4.6. Construction Contract Strategy

4.6.1. It is anticipated that the Engineer shall carry out a procurement strategy study encompassing contracts for advanced works, supply of defined elements of the Works by the Authority and any provision of plant and equipment by the Authority. The purpose will be to determine the most effective procurement strategy.

4.6.2. The Consultant shall work in collaboration with the Engineer on the development of the procurement strategy with the objective of implementing the most appropriate forms of procurement to meet the requirements of the Project and delivering the necessary design to enable the procurement and delivery of such works.

4.6.3. Meeting these objectives shall include the Consultant's responsibility for the full co-ordination of all aspects of the design and the management of design interfaces between the various contracts within the Project and all stakeholders including governmental bodies, third parties and utilities, such that the design reflects all the constraints on and requirements of the delivery of the Project prior to tender for construction contracts.

4.7. Management of Design

4.7.1. The Consultant shall provide all expertise, systems, policies and processes necessary for the successful completion of the design on the basis that the Consultant represents a world class design organisation capable of providing the full range of skills that may be expected of the designer of an asset of this nature in relation to the Services. In relation to their scope of work the Consultant shall provide the services, personnel, knowledge, systems and leadership necessary to deliver the Project objectives and outcomes.

4.7.2. In order to deliver these services the Consultant shall define a design organisation and lines of responsibility for its management team, and define responsibilities using RACI charts or other appropriate management tools to document the roles and responsibilities and management interfaces.

4.7.3. Compliance with the Authority's Procedures and Policies.

4.7.3.1. The Consultant shall comply with all the Authority's relevant and appropriate policies, processes and procedures and shall maintain appropriate records to provide a comprehensive audit trail that can demonstrate this compliance. These policies, processes and procedures will be provided to the Consultant by the Engineer.

4.7.3.2. The Consultant shall ensure that its personnel are made aware of and trained in the use of all relevant and appropriate policies, processes and procedures throughout the duration of the Agreement.

4.7.3.3. The Consultant shall facilitate audits as required by the Authority and / or the State Audit Bureau of Qatar.

4.7.4. Project Implementation Plan (PIP)

4.7.4.1. The PIP shall form part of the overall PEP which shall include, as a minimum, coordinated plans to collectively define, describe and encompass the Consultant's proposed systems, methods, procedures, processes, sequencing of activities, and shall show how these combine together to demonstrate that the Services shall be delivered to meet the Agreement requirements.

4.7.4.2. The PIP shall encompass, but not be limited to:

a. design deliverables plan;
b. document management plan;
c. design review and Value Engineering plan;
d. health, safety and security management plan;
e. quality management plan;
f. project administration plan;
g. communications plan;
h. meetings schedule;
i. interface management plan;
j. utility liaison plan;
k. planning, environmental and traffic consents plan;
l. environmental management plan;
m. sustainability plan;
n. engineering plan;
o. budget management;
p. document management plan;
q. Applicable Codes and Standards;
r. design manuals;
s. CADD manual;
t. BIM manual;
u. GIS manual;
v. design review and Value Engineering system;
w. interface management system;
x. GSAS manual;
y. stakeholder management and communication plan and;
z. risk management plan.

4.7.4.3. At the highest level the PIP shall include the following management systems as a minimum:

a. master design schedule;
b. design delivery schedule;
c. document management system;
d. quality management system;
e. interface management and communications system;
f. design programme and project controls;
g. Work Breakdown Structure (WBS);
h. design schedule;
i. change control management system;
j. document management system;
k. reporting system;

l. health, safety and security management system; and
m. environmental management system.

4.7.4.4. Unless otherwise stated, all plans and documents within the preliminary PIP shall be submitted for the Engineer's non-objection within fourteen (14) Days of the Commencement Date. The plans shall be fully functional in all regards within thirty (30) Days of the Commencement Date.

4.7.4.5. Further submissions of the PIP for the Engineer's non-objection shall be made:

a. when required in accordance with the Baseline Programme;
b. when requested by the Engineer; and
c. whenever any Change occurs that invalidates the information contained in the previously submitted and non-objected document, within fourteen (14) Days of the occurrence of such Change.

4.7.5. Design Schedule and Project Controls

4.7.5.1. The Consultant shall adopt best practice methods for planning the delivery of the design and shall obtain the Engineer's non-objection prior to their implementation.

4.7.5.2. In preparing the design plan the Consultant shall incorporate initial design reviews, the output of site investigations, the output of traffic impact assessment and environmental impact assessment studies, all approval and consent activities, impacts of interfacing projects and third parties activities, advanced works contracts. The Consultant shall develop for the Engineer's non-objection a Work Breakdown Structure (WBS) that encompasses all aspects of the design, and organise it in a logical and clearly coded structure that reflects the different disciplines, locations, scopes and relationships.

4.7.6. Design Management Consultant Meetings

4.7.6.1. A key design management tool employed by the Consultant shall be the regular Project design team meeting. This meeting shall be the primary tool for clear dissemination of the Engineer's instructions to the wider design working groups and for providing clear and concise guidance on the emerging design.

4.7.6.2. Progress meetings will be attended by the Consultant and others as and when invited by the Engineer.

4.7.6.3. The Project progress meetings shall be held in advance of the design team meetings.

4.7.6.4. A key aim of the Consultant's team is to work with maximum efficiency within the set timeframe and it is therefore proposed to have regular design team meetings with the lead technical decision makers of each party in order to ensure a smooth design and decision making process.

4.7.6.5. The Consultant shall require the presence and dedication of the key technical decision makers of each of its sub-consultants and shall provide the same from its side.

4.7.6.6. The design team meetings (workshops) shall be directed by the Consultant. A schedule of meetings shall be developed by the Consultant during the mobilisation period in order to ensure key personnel's attendance at these meetings.

4.7.6.7. As a minimum the Consultant shall hold the following design meetings and workshops:

a. Weekly design team progress and ley issues meeting;
b. Weekly design co-ordination meetings;
c. Monthly design progress meetings; and
d. Monthly design review and presentation meetings.

4.7.6.8. Minutes of these monthly meetings shall be taken by the Consultant and reported back to the Project progress and governance meetings.

4.7.7. Design Progress Monitoring and Reporting

4.7.7.1. The Consultant shall develop for the Engineer's non-objection a reporting plan for managing and reporting the progress of the design in accordance with the Engineer's system requirements. Progress reports shall be in format to suit the specific requirements of the design programme as non-objected by the Engineer.

4.7.7.2. The Consultant shall provide reports throughout the duration of the Agreement.

4.7.7.3. The Consultant shall gather and verify data in support of progress reporting and provide the Engineer with timely and accurate information in the form of monthly and quarterly progress reports that shall describe the progress of all aspects of the design and each design activity all benchmarked against the Project programme. Each report shall provide forecasts of the future progress of the design.

4.7.7.4. The monthly progress report shall be a detailed management report, being the monthly progress report to be considered at the monthly meeting. As a minimum the monthly report shall include as applicable:

a. general status of each part of the Baseline Programme highlighting, by exception, issues where unacceptable progress or outcomes are anticipated with proposed mitigation;
b. Consultant resourcing including any proposed key personnel changes and other personnel issues;
c. proposed changes to the design delivery schedule;
d. scope definition status;
e. land matters;
f. stakeholder issues;
g. design delivery schedule and WBS (activities and deliverables) including any proposed changes to the design delivery schedule;
h. workshop results and issues (Value Engineering report);
i. concept / design / value management / peer review status;
j. risk management activities, mitigation, risk register and designers risk register;
k. Technical Design schedule report;
l. Technical Design cost / budget report;
m. scope Change control including and Changes to the Consultant's Agreement, both current and proposed;
n. environmental issues;
o. sustainability issues;
p. interface issues;
q. recovery plans; and
r. monthly look ahead.

4.7.7.5. The report shall report on the performance of other sub-consultants whom the Consultant is responsible for managing.

4.7.7.6. All reports shall be delivered in accordance with the requirements of the Engineer's reporting periods, and shall be submitted within five (5) Days of the end of the period being reported.

4.7.7.7. The Consultant shall prepare, organise, and lead technical and financial presentations and briefings relating to the Services on a periodic and as needed basis.

4.7.7.8. The Consultant shall provide input of relevant data to facilitate the production of progress reports that are produced by the Engineer or others within the Project team.

4.7.7.9. The Consultant shall ensure design team disciplines produce design risk assessment for each Phase of the project in a format acceptable to the Engineer. The Consultant shall be prepared to handle the occurrence of any unidentified risk and be able to create viable workarounds to minimise the adverse impact of such risks.

4.7.7.10. The Consultant shall designate team member(s) who shall be responsible for design safety throughout the design process, and ensure this person is issued with each major design discipline's design risk assessment.

4.7.7.11. The Consultant shall ensure safety and hazard reporting occurs throughout the design process, from inception to handover, and that elements of design created to eliminate or mitigate are not later eliminated for as long as they remain relevant.

4.8. Quantity Surveying

4.8.1. For the provision of these services at the pre contract Phase, the Consultant shall employ an approved Quantity Surveying practice duly registered with the Accrediting and Classifying Committee as a sub-consultant, except where the Consultant is himself registered to practice Quantity Surveying; and

4.8.2. The Quantity Surveying services to be carried out by the Consultant shall be as stated in the Conditions of Engagement and as supplemented and / or amended by the Project Brief and all relevant notices or circulars issued by the Authority.

4.8.3. The Scope of Services shall also include but are not necessarily limited to:

a. The Consultant is to note and highlight that adherence to the approved budget is of paramount importance and regular cost planning exercises shall be required throughout the post-contract phase to ensure that the awarded contract sum is not exceeded.

b. The Consultant is to forewarn the Engineer immediately should he consider that the budget is being exceeded and is to offer suggestions and recommendation to rectify the situation;

c. The Consultant shall prepare scope descriptions and cost estimates of such feasible design alternatives as will allow for construction contract award flexibility;

d. The Consultant shall prepare a detailed cost estimate based upon a quantity take-off of all work necessary for the complete construction of the Project, which estimate is hereinafter referred to as the "Preliminary Design Phase Cost Estimate". The Preliminary Design Phase Cost Estimate shall be in sufficient detail to demonstrate to the Authority that the work designed is within the Authority's approved Programme Budget established prior to the Preliminary Design Phase by the Authority, based upon the information provided by the Consultant during the Concept Phase;

e. Prepare pricing schedules for the entire Works. For building work, including civil engineering works, mechanical and electrical installations, these shall be prepared in accordance with the SMM7 - Standard Method of Measurement of Building Works, 1998 Edition, issued by the Royal Institute of Chartered Surveyors. All Bill of Quantity Formats and reporting platforms shall be in accordance with the requirements of the Authority;

4.9. Project Administration

4.9.1. Within the level of authorities delegated by the Authority to the Consultant, the Consultant shall undertake specific Project Administration activities at pre-contract Phase. These include but are not limited to:

a. Assessment of the Project;
b. Overall Project Scope Management;
c. Project Planning;

d. Project Controls;
e. Commercial Management;
f. Project Initiation and Delivery Planning;
g. Project Quality Management & Assurance;
h. Health, Safety and Security Management;
i. Design Management;
j. Project Communications Management and;
k. Design Close Out.

4.9.2. Assessment of the Project

4.9.2.1. The objective of this task is for the Consultant to carry out a detailed assessment of the Project Documents including availability of data, develop a realistic baseline Project delivery plan including master schedule and budget and staff mobilisation plan.

4.9.2.2. The stated objective of this task shall be achieved in accordance with the following phases:

a. Review the status of current project;
b. Review prepared Project plans;
c. Review the overall project scope by meeting with the concerned Government Departments and the other stakeholders;
d. Review current design documents, standards, construction specifications, procurement strategies, contract engagement conditions, project constraints and opportunities, the Authority existing business procedures and Qatar construction industry practices and capabilities; and
e. Submit draft Project assessment report to the Authority including Construction Contract master schedule of project and budget.

4.9.3. Overall Project Scope Management

4.9.3.1. Within the authorities delegated to the Consultant, he shall:

a. co-ordinate requirements and schedules with the concerned government departments and the other Stakeholders including the Authority and its other programme managers, Statutory and Permitting Authorities, and Public Utility Providers;
b. document the overall Construction Contract Project scope requirements in a baseline Project requirements document which will be included in the Project Delivery System; and
c. undertake all Project Administration Reporting in accordance with the requirements of the Authority.

4.9.3.2. Initiate, manage and report on studies and surveys including:

a. Traffic Impact Study;
b. Topographical Survey;
c. Geotechnical Investigation and Report;
d. Risk Management Report; and
e. Buildability Assessment Report.

4.9.4. Establishment of Project Management Delivery System

a. The Consultant shall establish and deliver a comprehensive suite of fully integrated and fully functioning plans, systems and procedures for the project which are compatible with the Authority's PMDS systems.

b. The Consultant shall prepare and implement a Project Management Delivery System with two main parts:

i. Project Management Plan (PMP) which should include, as a minimum, the Project organisational structure; Project team responsibilities and reporting relationships; and

ii. Project Implementation Plan (PIP) which should include, as a minimum, coordinated plans to collectively define, describe and encompass the Consultant's proposed, systems methods, procedures, confirmation processes, sequencing of activities, and the like and shall show how these combine together to demonstrate that the services meet the Authority requirements.

c. The PIP shall contain, as a minimum, the following:

i. Stakeholder Management and Communication Plan:

Stakeholders, including the end-user, the Authority, the Authority Project Managers, Statutory and Permitting Authorities, and Public Utility Providers;

ii. Environmental Management System (EMS);
iii. Sustainability Plan;
iv. Project Controls;

- Risk and Opportunity Management Plan;
- Work Breakdown Structure;
- QS and Cost Control Plan;
- Project Master Schedule;
- Change Control Management System;
- Document Management System and;
- Reporting System;

v. Commercial Management:

- Cost Control System; Claims Management Plan;

vi. Quality Management System (QMS);
vii. Health, Safety and Security Management System (HSSMS);
viii. Communication Management Plan; and
ix. Consultant's Demobilisation Plan.

d) Unless otherwise stated, all Plans and documents shall be submitted in preliminary form within one month of the Commencement Date followed by detailed Plans within three (3) months of the Commencement Date. Further submissions shall be made:

i. When required in accordance with the Consultant Services programme;
ii. When requested by the Authority; and
iii. Whenever any change occurs that invalidates the information contained in the previously submitted and reviewed document, within fourteen (14) Days of the occurrence of such change.

4.9.5. Project Sustainability Planning

4.9.5.1. The Authority adopts Global Sustainability Assessment System (GSAS) and the concept of sustainable developments in its public building projects. The Authority signed a

Memorandum of Understanding with the Gulf Organisation for Research and Development (GORD) on the provision of measures to adopt, apply and develop a sustainable building concept to create a better living environment for natives and residents.

4.9.5.2. The Consultant shall ensure that the Authority's Sustainability Objectives and monitoring requirements are communicated and implemented throughout the construction contract of the Project to all parties and participants.

4.9.5.3. As GSAS represents a guide for "Good Design Principals", regardless of the GSAS credits, PWA expects the concepts outlined to be considered by the Consultant, and where practical implemented.

4.9.5.4. The over-riding sustainability objectives, as administered by the Consultant, shall involve all stakeholders including but not limited to the Authority, third parties, the public (as agreed by the Authority) and Consultants.

4.9.5.5. The Consultant shall:

a. register with GORD as a GSAS Licensed Service Provider for this Project;
b. register the project with GORD for GSAS Certification;
c. manage the project's sustainability activities in accordance with the Authority standards;
d. prepare the list of criteria regarding short term sustainability during construction;
e. set out the inter-relation with either the GSAS accreditation or other green building guidelines and, if required, document how the project will achieve the accreditation;
f. monitor the design and execution of the works against the requirements of the Authority standards; and
g. be responsible for payment, directly to GORD, of all GSAS registration, certification, audit and workshop fees levied by GORD necessary for the implementation and certification of GSAS, and over the lifetime of the project. These GSAS related fees as well as the Consultant's GSAS related staff time inputs must be included in the Consultant's fees and are not eligible for reimbursement by the Authority. In this capacity the Consultant shall hold all necessary up-to-date GORD registrations and maintain direct employees or a specialist sub-consultant services qualified as a GSAS-CGP (GSAS Certified Green Professional) to manage the GSAS application to GORD. The minimum number of GSAS-CGP employees required shall be determined, from time to time, by GORD. All fees are to be paid in a timely manner, and not exceeding stipulated timescales by GORD, and shall not cause complication or delay to the Project relative to GSAS certification or general Project delivery;
h. develop a Soil Erosion Plan to meet the requirements under GSAS Site Criteria and Credit S.1 - Land Preservation;
i. prepare a project Commissioning Plan and ensure compliance with the requirements of GSAS Management & Operations Credit MO1 – Commissioning Plan. The plan shall detail the 'Owners Project Requirements' (OPR) and 'Basis of Design' (BOD);
j. prepare a GSAS Sustainable Design Specification document for review and approval by the Authority to inform the Construction Supervision Consultant and the Contractor of the GSAS related design requirements and specifications for the project; and
k. prepare final GSAS compliance reports.

4.9.6. Project Controls

4.9.6.1. Risk Management

a. The Consultant shall provide a Risk and Opportunity Management Plan as part of the PIP for the Authority's non-objection, incorporating a systematic risk management process and strategy to be applied for the Project.

b. The Risk and Opportunity Management Plan should provide a framework by which risks will be identified during the Design and Construction Phase and assessed as well as setting out the risk response and control strategies to be followed.
c. The Consultant shall carry out construction contract project-wide risk management using documented processes, procedures.
d. The Consultant shall perform a quantification analysis of the possible cost and schedule impacts resulting from the identified risks as part of the Risk and Opportunity Management Plan.
e. The Consultant shall structure a process for documenting and reporting on the status of identified risks on a regular basis throughout the Project.
f. All Project Controls Reporting shall be in accordance with the requirements of the Authority.
g. The Consultant shall assist in the review of the update and submit for the Engineer's non-objection the design risk and opportunity management plan at least every sixty (60) Days and at the outset of each phase of the Services.

4..9.6.2. Cost Estimating, Budgeting & Cost Management

a. The Consultant shall prepare a Cost Management Plan for the Project and submit updates each month to the Authority for approval.
b. The Consultant shall retain qualified cost estimators with relevant experience in architectural, civil, structural, building services and other related areas of public facility planning and construction work to provide up-to-date cost estimates and cash-flow projections.
c. The Consultant shall provide qualified QS oversight and review, and shall issue regular reports to the Authority as well as providing support to the Authority.
d. The Consultant shall recommend, in coordination with the Authority a plan and procedure for implementation, review and approval for all Change Addendum. The Consultant shall provide qualified QS staff to review all Consultants and the Authority generated Change Addenda. The Consultant shall make recommendations, and the empirical basis for Consultant recommendations, to the Authority concerning review and approvals of all Change Addenda.

4.9.6.3. Project Master Schedule

a. In association with the Project Development Plan, the Consultant shall develop and maintain a cost loaded Project Master Schedule using the latest Primavera Enterprise scheduling software version or an approved equivalent, using the Critical Path Method (CPM), to be compatible with Authority's PMDS stipulated systems.
b. The scheduling format shall be utilised throughout the construction contract of the Project, and shall be required to be utilised by all involved Consultants and Contractors.
c. The Project Master Schedule shall be as per the Commencement Date of the Consultant Agreement.
d. The Project Master Schedule shall specify the proposed start and finish dates for each activity and the dates by which certain activities (critical path activities) must be complete.
e. As deemed necessary throughout the Project, and/or as requested and approved by the Authority, the Consultant shall recommend and make revisions to the Project Master Schedule.

4.9.6.4. Change Control

a) The Consultant shall develop and establish a Change Control Management System for approval by the Authority.

b) The system shall be compatible with the Authority change control applications and solutions used.

4.9.6.5. Document Control

The Consultant shall provide administrative and document control support to the overall duration of the Project. This shall include, but not be limited to, implementation and management of an Electronic Document Management System and document control activities consistent with the Authority's Contract Management document control system.

4.9.6.6. Software and IT Facilities

The Consultant shall provide the necessary software and IT facilities needed at his own cost including servers which should be housed in the State of Qatar.

The Consultant shall possess and provide all required software, software licenses, hardware, and qualified trained staff to operate same, at no additional cost to the Authority, to provide all required management, administration and reports to the Authority as required under this Contract.

4.9.6.7. Progress Monitoring and Reporting

The Consultant shall collect, analyse, track, monitor and report on a Monthly and Quarterly basis. The reports should include the following as a minimum:

Quarterly - An Executive Overview report of the Consultant’s portfolio to supplement the Monthly detailed project report noted below.

a. Project staffing report at the portfolio level highlighting any particular issues;
b. The Consultant's payment status report; and
c. A Portfolio look ahead for the coming Quarter highlighting any strategic / relationship / interface issues.

Monthly - a detailed Management report that will provide the 'Project Record' however will be reviewed on an exception basis only at the monthly meeting.

a. General status of the project highlighting, by exception, issues where unacceptable progress or outcomes are anticipated with proposed mitigation;
b. Consultant resourcing;
c. Scope definition status;
d. Stakeholder issues;
e. Procurement status;
f. Risk management plan supported by mitigation and register;
g. Detailed schedule report;
h. Detailed cost/budget report;
i. Change report;
j. Environmental issues;
k. Sustainability issues;
l. Monthly Authority Project Tracking Report;
m. Interface issues; and
n. Monthly look ahead.

4.10. Commercial Management

4.10.1. Construction Contract Procurement Management

a. The Consultant is encouraged to recommend the procurement / contract strategies that will provide the most efficient delivery vehicle in respect of value for money, time and quality.

b. Following approval of the Construction Contract Procurement and Contracting Strategy, the Consultant shall for the Project identify the services (if required) to be procured during the Construction Contract in accordance with the requirements of the project and the detailed procurement schedule including (if required) but not limited to the following:

i. Construction Contract Surveys;
ii. Construction Phase Designers;
iii. Special Environmental Studies and Mitigation Plans;
iv. Other construction contract consultants such as those for environmental reports, facilities management, commissioning and training;
v. Advanced works contractor if required;
vi. Main works contractor if required;
vii. Other services;
viii. Identify and report on suitable service suppliers and contractors for the project Construction Contract procurement methodology adopted; and
ix. Manage the Construction Contract procurement of the required services as necessary through the Phases of expressions of interest, prequalification, tendering and award in accordance with the Authority standards including;

- prepare and issue prequalification questionnaires;
- analyse and report on the prequalification documents received;
- prepare tender documents; Prepare and issue Construction Phase requests for proposals and requests for tender;
- manage the Construction Contract tendering process including the answering of requests for clarification;
- arrange, chair and minute pre-tender, mid-tender and post-tender interviews;
- analyse and report on the proposals and tenders received, using an evaluation method approved by the Authority with recommendations regarding award;
- arrange, chair and minute contract negotiation meetings between the Authority, the service suppliers and the contractors; and
- monitor the procurement activities of the main works contractor in accordance with the Authority standards.

4.10.2. Contract Administration

The Consultant shall within the authority delegated to the Consultant by the Authority:

a. supervise, review, monitor, evaluate and provide a monthly report on all sub-consultants and specialty consultants. The Consultant shall keep the Authority fully informed of any issues which may have a contractual implication.

4.10.3. Bonds and Insurances

The Consultant shall ensure that for each of the contracts, the necessary bonds and insurances are executed and renewed and/or extended in due time as required.

4.10.4. Budget and Cost Control

a. The Consultant shall provide oversight of the Master Budget. The Consultant shall identify variances from planned budget together with reasons and proposed measures, if any, to rectify and/or mitigate the identified variances.
b. The Consultant shall develop and update monthly a cost system, which shows Project cash flow requirements, records of committed costs; anticipated costs remaining, and overall estimate cost to complete.

c. The Consultant shall review, analyse, and recommend to the Authority in a written report, the comparative cost estimates, man-hour estimates and proposed Change Addendums.
d. All Budget and Cost Control Reporting shall be in accordance with the requirements of the Authority.

4.11. Project Initiation and Delivery Planning

The Consultant shall be responsible for identifying all construction contract activities to ensure that projects requirements, end user specifications, statutory approval requirements, long lead items are all identified and taken into consideration.

4.12. Construction Contract Specialty Consultant

4.12.1. The Consultant shall review end user requirements and the nature of works to determine if construction contract specialty design is needed. If so, the Consultant if approved by the Authority shall manage the procurement and delivery of such services.

4.13. Land Acquisition and Property Interface Management as requested by the Authority

4.13.1. The Consultant shall:

a. provide confirmation of the interfaces with existing and proposed adjacent properties and developments. This shall include coordination with relevant authorities and the various agencies within the Authority and applicable legal authorities having jurisdiction; and
b. shall assist the Authority in providing and reviewing legal descriptions, easement plans, property surveys and other documents and/or services required as part of the project.

4.14. Procurement Strategy Support

4.14.1. The Consultant shall establish and report what construction contracts shall be made for the Work.

4.15. Logistics Planning

4.15.1. The Consultant shall prepare and coordinate logistics plans for the Project, that identify logistics issues that should be pursued at the Project level which can provide benefits to the delivery of projects as a consequence of early commencement.

4.16. Constructability and Construction Method Reviews

4.16.1. The Consultant shall organise end conduct construction contract stakeholder review meetings to review, amongst others, aspects of constructability, construction interfaces and construction methods.

4.16.2. These review meetings shall have representatives from the Project Construction Contract Stakeholders, and, relevant industry representatives.

4.17. Quality Management & Assurance

4.17.1. Quality Management System

a. The Consultant shall establish and administer a Quality Management System (QMS), which defines all the Project processes and has the necessary flexibility to be applicable throughout the lifecycle of the Project.

b. This QMS shall be fully compliant with local legislation and any applicable regulations and codes of practice. The QMS shall be modelled around the requirements of

IS09001:2008 "Quality Management Systems Requirements" and the underlying philosophy to promote a culture of continuous improvement.

c. The QMS shall be administered by the Consultant and may involve all stakeholders including, but not limited to, the Authority, third parties, the public (as agreed by the Authority), consultants and the contractors.
d. The Consultant shall ensure that the QMS policy is communicated throughout the Project and enable the Authority to witness any defined Quality Control points.

4.17.2. Quality Management Deliverables

The Consultant shall:

a. manage the project quality assurance system and quality control plan in accordance with the Authority standards;
b. monitor the design activities and quality of the works against the requirements of the contract documents and the Authority standards;
c. where special test or investigations are required to confirm compliance or non-compliance, the Consultant shall identify all special test and investigations required and manage the tendering of all the Authority approved special tests and investigations;
d. identify trends in quality non-compliances and proactively identify with the consultants measures to stop the trends; and
e. monitor the preparation and submittal of final reports by the consultants on quality management.

4.17.3. Quality Assurance & Audit

By means of formal review and approval the Consultant shall acquire a thorough knowledge of the intentions of all parties participating in the construction contract of the Project with regards to quality assurance and quality control. The Consultant shall verify and validate the effective implementation of such plans by means of and audit of project activities and the associated records.

4.17.4. The Consultant Audits

a. The Consultant shall carry out audits of all the activities in QMS at quarterly intervals, or at such other intervals as the Authority may require, ensuring the continuing suitability and effectiveness of the quality system. Reports of each such audit shall be submitted promptly to the Authority.
b. The Consultant shall submit for review by the Authority details of the authority, qualifications, and experience of personnel assigned to construction contract design verification, to audit activities, and to inspection and testing activities.

4.17.5. The Authority Quarterly QMS Audits

a. Quality audits may be conducted by the Authority to verify the implementation and maintenance of the QMS as specified herein.

4.17.6. Non-conformances

a. The Consultant shall maintain a Non-conformity Register to indicate the status of all non-conformities, which are identified by the Authority. The Consultant shall issue a written report to the Authority on all Nonconformity findings reported.
b. The Authority shall have the right to suspend work activities should a party fail to address non-compliances. The Consultant shall establish an approved, documented

mechanism that prioritizes the resolution of such issues. Accordingly, contract documents shall include the Authority's rights and the established mechanism.

c. Where the Authority orders a suspension of any defective works or part thereof, such suspension shall continue until the Consultant has satisfied the Authority that satisfactory corrective action has been taken to eliminate the cause of the suspension.

d. The Authority shall, in accordance with the Contract and as recommended by Consultant, deduct the value (including any approved defective work value factors) of defective works from monies due within interim payment certificates until corrective actions are implemented and deemed by the Authority to be effective.

4.18. Health, Safety and Security Management (HSSM)

4.18.1. Health and Safety Management System (HSMS)

a. The Consultant shall within the authority delegated to the Consultant by the Authority, work closely with the Authority, Civil Defence, Police, Security Forces Consultants to develop preliminary Health, Safety and Security Plans. Where necessary and if non-objected by the Authority, the Consultant shall contract, manage and coordinate specialised Health, Safety and Security Consultants to develop plans and provide advice and guidelines to ensure that the proper provisions are incorporated within the designs.

b. In order to ensure a safe and healthy work environment for all Project staff at all times, the Consultant shall establish and administer and shall issue a report to the Authority on an over-riding health and safety management system as approved by the Authority which will be effective throughout the lifecycle of the Project, from commencement through to start-up and operations.

c. This HSMS shall be fully compliant with local legislation, any applicable regulations and codes of practice. The HSMS shall be modelled around the requirements of BS OHSAS18001:2007 "Occupational Health and Safety Management Systems - Requirements" and the underlying philosophy to promote a culture of continuous improvement. In addition, the Consultant must ensure that the Project wide health and safety culture is based around the fundamentals of risk management such that the hazards associated with the Project environment are regularly assessed in order that perceived project risks can be mitigated at the earliest opportunity.

d. The over-riding HSMS shall involve all stakeholders (as agreed by the Authority), including but not limited to, the Authority, third parties, the public, consultants and contractors.

4.18.2. HSSMS Deliverables

The Consultant shall as non-objected by the Authority:

a. establish the project outline for a health, safety and security management system and plan;

b. manage the project in accordance with the health, safety & security plan and QCS; and

c. review and approve, as necessary, all health, safety and security management plans, procedures, permits, safe systems of work and any other paperwork required to manage the project to the safety standards in the latest version of QCS.

4.18.3. HSSMS Assurance and Audit

4.18.3.1. By means of formal review and approval, the Consultant shall acquire a thorough knowledge of the intentions of all parties participating in the Project with regards to quality assurance, safety, and quality control. The Consultant shall verify and validate the effective implementation of such plans by means of surveillance and audit of project activities and the associated records.

4.18.3.2. Authority Audits

a. HSSMS audits may be conducted by the Authority to verify the implementation and maintenance of the HSSMS as specified herein.
b. During the Contract period, upon receipt of Corrective Action Request (CAR), Non Conformance Report (NCR), or similar issued by the Consultant as a result of HSMS audit, the Consultant shall submit for review a proposed corrective and preventive action plan within the timescales agreed with the Authority.

4.18.3.3. Non-conformances

a. The Consultant shall maintain a Non-conformity Register to indicate the status of all nonconformities, which are identified by the Authority and the Consultant.
b. The Authority shall have the right to suspend work activities should a party fail to address non-compliances address or situations which could give rise to accidents taking place. The Consultant shall establish an approved, documented mechanism that prioritises the resolution of such issues and closes issues raised out.
c. Accordingly, contract documents shall include the Authority's rights and the established mechanism.
d. Where the Authority orders a suspension of any defective works or part thereof, or as recommended by the Consultant, such suspension shall continue until the Consultant has satisfied the Authority that satisfactory corrective action has been taken to eliminate the cause of the suspension.
e. The Authority shall, in accordance with the Contract, deduct the value (including any approved defective work value factors) of defective works from monies due within interim payment certificates until Corrective Actions are implemented and deemed by the Authority to be effective.

4.19. Consultant Resources for Services

4.19.1. The Consultant shall propose his preferred organisation structure and provide an explanation of how the proposed organisation and personnel level is best suited to the Agreement.

4.19.2. The Consultant shall maintain close liaison and co-ordination with all members of the Project team to ensure that a complete, fully co-ordinated compatible and cost effective design is produced for all disciplines. Adequate personnel and resources shall be assigned to the design team to meet all design deliverables, programme dates and completion obligations.

4.19.3. The Consultant shall assign a Consultant Representative to the design team who shall be non-objected by the Engineer and shall be the primary point of contact with the Engineer for the performance of the Services until completion of the Project. The Consultant Leader's duties shall include but not be limited to the following:

a. initiate, plan, organise and control the provision of the Services so that they are performed in accordance with the Agreement;

b. manage the design process including carrying out regular design reviews to ensure that the design is fully compatible, integrated, complete and coordinated amongst the disciplines and that the design is fully and accurately recorded in the Deliverables;

c. ensure that individuals are working on consistent layout and background drawings through the use of controlled CADD files;

d. ensure that the non-objected Deliverables are not varied (outside the realms of normal design development) without the authorisation of the Engineer;

e. ensure that interfaces with other parties are being resolved and ensure that they are regularly advised of the design as it develops including any potential Changes at the interfaces together with the details of the non-objected provisions included in the design to meet their requirements. Advise the Engineer and the other parties where they are unable to reach agreement to resolve any interface issues;

f. ensure that the requirements of the relevant Government authorities and departments are complied with;

g. receive all instructions from the Engineer and ensure they are complied with;

h. issue Deliverables to the Engineer according to the dates required in the design delivery schedule; and

i. advise the Engineer of any outstanding critical design decisions required in order to progress the design.

4.19.4. The Consultant Leader shall work in collaboration with the Engineer to implement all necessary design management techniques in addition to those stated in the Agreement to ensure that the Services are fully performed in accordance with the Agreement.

4.19.5. Core Team

4.19.5.1. The Consultant shall assign a team of appropriately qualified individuals as key personnel until completion of the Detail Design Phase. Part of the team shall be assigned as the Core Team based in Doha. The Core Team shall comprise as a minimum the following:

a. the Consultant Leader's delegate who shall be capable of undertaking all of the duties of the Consultant leader and shall be non-objected by the Engineer;

b. design interface and coordination leader;

c. lead representative of each major design discipline;

d. stakeholder manager; and

e. BIM manager, who also will act as CADD Manager.

4.19.5.2. Core Team personnel shall have been employed by the Consultant for no less than one year prior to this engagement, unless otherwise non-objected by the Engineer and have appropriate experience.

4.19.5.3. The Consultant shall provide adequately experienced and qualified personnel to carry out the tasks required of it. Personnel qualifications and experience shall be commensurate with the strategic and specific nature of this Project and particularly with regard to the fixed construction completion date.

4.19.5.4. Personnel above the level of senior engineer shall possess a minimum of fifteen (15) years of directly related and verifiable experience in similar undertakings and positions unless otherwise non-objected by the Engineer.

4.19.5.5. The Consultant personnel shall be fully capable of ensuring that the Services are carried out to the best quality, most economically advantageous cost and within the specified time to the Applicable Codes and Standards.

4.19.6. Consultant Team Resources

4.19.6.1. It is to be anticipated by the Consultant that the resource requirements of the Project will vary over its duration. A fundamental requirement of the Consultant's approach to

delivering the Services shall be flexibility of resource deployment to ensure that the appropriate resources are available at the right time.

4.19.6.2. The Consultant shall agree a baseline personnel structure and resourcing profile for the duration of the Agreement developed from the fully resource loaded Baseline Programme. This shall be contained within agreed resource schedules and shall be sufficient in its capability and capacity to accommodate the requirements of each Key Phase of the Project. The personnel structure and resourcing profile shall show the Consultant's anticipated variations in its personnel plan to accommodate the varying workload over the term of the Agreement.

4.19.6.3. The Consultant shall provide all necessary personnel required to deliver the requirements of the Agreement, and changes to planned resources shall not constitute a Change.

4.19.6.4. The Engineer may require Changes to be made to the Services at any Phase of the Project in response to emerging knowledge, and the Consultant shall provide further forecasts of resources in response to instructions for Changes.

4.19.6.5. The Consultant shall maintain a schedule of all the employees it mobilises onto the Project, which shall be available to the Engineer upon request. The schedule shall contain for each person the name, position, grade, and the proposed role and inputs. This schedule shall incorporate a sixty (60) Day resource look-ahead to facilitate resource planning.

4.19.6.6. The Consultant shall maintain records of all personnel commencement and completion dates, plus leave periods, and notify the Engineer of these intents a minimum of fourteen (14) Days in advance.

4.19.7. Technology

4.19.7.1. The Consultant shall develop for the Engineer's non-objection an information technology system for use in managing the design in line with the PMP and interchange formats.

4.19.7.2. The Consultant IT system shall be able to interface seamlessly with the Engineer's IT systems.

4.19.7.3. The Consultant shall ensure that its personnel are trained in the use of the technology to the extent required to carry out their duties.

4.20. Collaborative Working

4.20.1. The Consultant shall establish management procedures for governing its various works. The Consultant shall co-operate with the Engineer and other consultant organisations appointed by the Authority to develop these processes and arrangements in a supportive manner. The Consultant shall identify any gaps in existing arrangements and make proposals for improvements for successful delivery of the Project.

4.20.2. The Consultant shall allow the Engineer and any other Authority representatives as may be engaged onto the Project, access to their design management and delivery systems and procedures.

4.20.3. The Consultant shall be responsible for developing a comprehensive design that takes account of the reasonable requirements of others at all interfaces and the liaison with stakeholders in the delivery of the design. The Engineer shall assist the Consultant in discharging its obligations to coordinate with other government agencies. For the avoidance of doubt the Consultant shall be required to develop the design to take account of the requirements of all interfacing authorities and projects and shall prepare and submit all necessary documents and materials in compliance with statutory procedures, Government procedures and for obtaining all approvals and consents required for the design. Evolution of the design to achieve the approval of all statutory and other parties shall constitute design development and shall not be considered as changes giving rise to Changes.

4.20.4. The Consultant shall liaise with other parties as necessary to achieve satisfactory resolution of interface matters affecting the design of the works including, but not limited to, those listed below:

a. other consultants employed by the Authority;
b. the Authority's personnel;
c. adjacent property owners and their agents;
d. consultants appointed by other Government departments;
e. other Government departments;
f. Central Planning Office; and
g. Utility companies.

4.20.5. The Consultant shall develop the design to the extent necessary to obtain the necessary approval of all relevant statutory and checking authorities including, but not limited to, the following:

a. the Engineer;
b. the environmental protection department;
c. the aviation authorities (if appropriate);
d. the drainage authorities;
e. the planning authorities;
f. the Utility companies;
g. the Fire Services Department and other emergency services;
h. the road transport authorities; and

i. any other agency having jurisdiction over the design of the Works.

4.20.6. Any amendments to the design that are necessary in order to obtain approvals and consents shall be deemed to be design development. Such amendments shall not be considered as Changes to the Scope of the Services.

4.20.7. The Consultant shall liaise with other consultants assigned to the Project to ensure that design principles adopted for the Project will be consistent with those adopted for other Authority infrastructure and building programmes and projects.

4.21. General Responsibilities

4.21.1. The Consultant shall provide for the professional services as set forth in the Agreement.

4.21.2. The Consultant shall perform its services consistent with professional skill and care to provide for the level of quality required in the Agreement.

4.21.3. The Consultant shall perform its services as expeditiously as possible and as required to meet the schedule requirements of the Agreement.

4.21.4. The Consultant shall manage and coordinate the activities of its team members, including all required specialists, to produce a project as set forth in the Project Description and as required to meet the Agreement.

4.21.5. The Consultant shall conform and comply with all provisions set forth in the Agreement.

4.21.6. The Consultant shall conform and comply with all codes, guidelines and standards as described in the Project Brief and as required by the Agreement.

4.22. Overall Requirements

4.22.1. The Consultant's Basic Services shall include all of the usual and customary: Architectural, Engineering (Structural, Mechanical, Electrical and Civil), Landscape Design and Interior Design services required to produce a complete project as described in the Project Description and to meet the requirements of the Agreement.

4.22.2. The Consultant shall provide the services of additional Specialty Consultants as required with specific reference to the particular and special design requirements that would be attributed to a best practice designed office facility so as to produce a complete project as described in the Project Description and to meet the requirements of the Agreement.

4.22.3. The Consultant shall coordinate its Services with those Services as provided by the Engineer and the Engineer's Consultants to produce a complete Project as described in the Project Description and to meet the requirements of the Agreement.

4.22.4. The Consultant shall be responsible for working with the end user to incorporate equipment on to drawing information, including the production of schedules of equipment and the like to support specification, selection and procurement activities by others.

4.22.5. The Consultant shall prepare a Schedule for the performance of its Services as soon as practical upon Agreement of the Contract. The schedule shall include all key dates for the implementation of the Project including: commencement, all key phases of design, Engineer and Authorities Having Jurisdiction (AHJ) reviews and approvals, the Authority's consultants participation, tender period, construction, commissioning, maintenance period and final Engineer acceptance of the work. Once non-objected by the Engineer time limits established by the schedule shall not be exceeded except by mutual agreement of the Consultant and Engineer.

4.22.6. The Consultant shall at appropriate times contact the AHJs and all other associated entities, as identified in the Project Description and the Contractual Agreement, required to approve the Project. In designing the Project the Consultant shall conform and respond to all applicable requirements as set forth by the AHJs and other associated entities.

4.22.7. The Consultant shall meet with the Engineer, the Engineer's representatives and other identified parties on a regular basis and as required to advance the project in line with the Project Schedule and the Agreement.

4.22.8. The Consultant shall assist the Engineer as required to prepare and produce all documentation required for the review and approval of Governmental, Authorities Having Jurisdiction or other required organisations having authority / jurisdiction / approval rights over the project.

4.22.9. The Consultant shall participate by preparing all information as required to be in accordance with a series of approval gateways. These are milestones in the project lifecycle beyond which the project shall not proceed without specific management and funding approval from the Authority. See Section C – Part 5 [Authority's Policies and Procedures] for approval gateway details.

4.22.10. The Consultant shall refer to the latest version of the PWA Design Standard Guidelines (Document: BA-LD-001-D03-Design Standards and Guidelines-Buildings) in conjunction with the Instruction To Tenderers (ITT) and any variance to minimum standards shall be raised to the Engineer.

4.22.11. The Consultant shall use the National Building Specification (NBS) or Construction Specifications Institute (CSI) or similar approved to supplement the Qatar Construction Specifications.

4.23. Requirement of Services by Phase

4.23.1. Validation

4.23.1.1. The requirements for mobilisation are set out in Section C: Part 2 of this document. In addition to this requirement the Consultant shall carry out the preliminary activities set out in this Chapter.

4.23.1.2. At the outset of the Services the Consultant shall carry out a detailed assessment of the current status of any design, availability of data, stakeholder's and end user's

requirements and develop a delivery plan including master schedule and budget and personnel mobilisation plan for the Engineer's review. In order to achieve this, the Consultant shall:

a. mobilise a Core Team in Doha during the thirty (30) Day mobilisation period;

b. submit the Project Baseline Programme and mobilisation plan within fourteen (14) Days from the Commencement Date for the Engineer's review and non-objection;

c. prepare a detailed schedule of Deliverables for the concept design Phase within fourteen (14) Days from the Commencement Date for the Engineers review and non-objection;

d. prepare a detailed schedule of Deliverables for all of the subsequent design Phases for the Engineers review and non-objection;

e. establish office facilities in premises to be identified by the Consultant;

f. review the current status of the Project and prepare summary report for the Engineer's non-objection;

g. review the forward looking programme for the Engineer's non-objection;

h. identify the requirements for managing external interfaces for the Project by meeting with government departments whose activities cause them to have an interest in the Project and with other stakeholders who also have interests;

i. review current standards, construction specifications, procurement strategies, constraints and opportunities, the Authority's existing business procedures and State of Qatar construction industry practices and capabilities;

j. prepare for the Engineer's non-objection the Applicable Codes and Standards to be applied to the Project. The Applicable Codes and Standards shall reference all applicable international codes of practice and design standards that are to be adopted, together with any particular references and local departures from those standards due to local environmental and cultural requirements. Any proposed deviations from standards shall be subject to the Engineer's non-objection prior to incorporation into the design. Designs may be required to be carried out on behalf of other Authorities as part of the overall Project requirements, such as, but not exclusively, works for Utility companies or third parties, and where this is the case the Consultant shall design these elements to the appropriate standards. The Consultant shall be responsible for keeping up to date with the latest issues and amendments of all standards;

k. submit for the Engineer's non-objection preliminary Project Execution Plan (PEP) [*see Section C – Part 2, Chapter 3 for details*] and PIP; and

l. initiate, manage, and report on studies and surveys for the Engineer's non-objection including but not limited to:

   i. geotechnical survey;

   ii. design reviews to verify the current design and on-going development of design;

   iii. hazard and operational risk assessments (HAZOP);

   iv. road safety audits;

   v. Value Engineering exercises; and

   vi. design risk management exercises.

4.23.1.3. Unless otherwise stated, all plans and documents within the preliminary PIP shall be submitted for the Engineer's non-objection within fourteen (14) Days of the

Commencement Date. At the end of thirty (30) Days the Consultant shall prepare for the Engineer's non-objection:

a. a Project Execution Plan (PEP) incorporating the Project Implementation Plan (PIP);

b. a proposed document management system ;

c. a Buildings Information Management (BIM) execution strategy;

d. the Concept Design management plan and the Concept Design implementation plan;

e. a detailed Schedule of Deliverables for the Concept Design Phase;

f. a preliminary Schedule of deliverables for all subsequent Project Phases;

g. a completed Ministry of Environment (MOE) Application for Environmental Permit (AFEP) form submitted to the Authority for initial pre-approval and subsequent submittal by the Authority for submittal and approval by MOE. If additional environmental studies or reports are required by the Authority or the MOE, this additional work will be addressed as Additional Services of the Consultant in accordance with the contract documents;

h. a Phase 1 Environmental Investigation Report indicating the basis for conclusions by the Consultant reflected in the MOE AFEP form completed by the Consultant. Report shall outline the basis for additional environmental investigations (if required), and shall include listing of all involved agencies, outlining and mapping areas of environmental concern for submittal to Ministry of Environment (MOE) and the Authority;

i. a Project Required Approvals and Permits Report indicating all required permit and design review approvals required by all Municipal and Governmental Authorities having Approval Jurisdiction over the Project. The report will indicate all contact information, information required, application forms, approvals, permits and anticipated schedules required for obtaining approvals. This report shall be included with and made part of the construction contract documents and outline the Consultant's, and, the Contractor's responsibilities for these items during the construction and post construction phase;

j. a certified Geotechnical Investigation Plan outlining geotechnical investigation, procedures and implementation. The plan shall be implemented by Consultant to obtain all data required for complete structural evaluations and design of all facilities and infrastructure affected by new construction including: piers, foundations, project infrastructure, roads, retaining walls, canopy structures and building structures. Consultant shall prepare a final Geotechnical report to support designs for new construction (and remediation of existing structures if required). This report shall be included with and made part of the construction contract documents and outline the Consultant's and the Contractor's responsibilities for these items during the construction and post construction phase; and

k. a Municipal Utility Interface Report outlining and describing all public and private utilities to be interconnected with the project site. The report shall provide a schedule of all required utility approvals and construction required to be interconnected to the site infrastructure. The report will confirm and map the location of all existing utilities to be interconnected to the project. The Municipal Utility Interface Report shall include all utility contact information and required steps and schedules for utility interconnection approval and construction. This report shall be included with and made part of the construction contract documents and outline the Consultant's and the Contractor's responsibilities for these items during the construction and post construction phase.

4.23.1.4. As part of this initial exercise the Consultant shall:

a. update the Baseline Programme and obtain the Engineer's non-objection;

b. identify the overall Project scope by meeting with relevant government departments and other stakeholders including the Authority and its other programme managers;

c. capture the overall Design requirements in a baseline project requirements document for interface to and for inclusion with the Consultant's stakeholder management plan noting roles and responsibilities; and

d. identify individual Project scope requirements by meeting with the government department for which the Project is being executed, representatives of the end users and other stakeholders.

4.23.1.5. At the end of the mobilisation Phase the Consultant shall produce an inception report that shall capture all the scope development, key items requiring direction for each discipline and the approach to design development for each part of the Project design and each discipline. This document shall be issued for the Engineer's review, comment and non-objection. In addition the inception report shall summarise the status of the mobilisation of the team, the submission of Deliverables, the establishment of the office facilities and the assistance required of the Engineer in identifying the requirements for managing external interfaces. It also shall include a list of actions and attention points for the next phases.

4.23.1.6. The Consultant shall prepare an evaluation of the information provided by the Engineer including evaluation of the: programme, schedule, budget for the cost of the work, project site, proposed procurement / delivery method and any other initial information provided to ascertain the requirements of the project.

4.23.1.7. The Consultant shall notify the Engineer, in writing, of any discrepancies discovered in the information provided to the Consultant.

4.23.1.8. The Consultant shall notify the Engineer, in writing, of any additional materials or information deemed necessary by the Consultant to form a complete understanding of the Project's requirements.

4.23.1.9. The Consultant shall meet with the Engineer and the Engineer's designated representatives, including initial user interviews to verify general space and use requirements of the user, to review and validate all Project information.

4.23.1.10. The Consultant shall present its preliminary evaluation and confirmation of the Project's requirements for the Engineer and review potential alternative approaches to the design and construction of the Project.

4.23.1.11. Based on this review the Consultant and the Engineer shall reach an understanding regarding the requirements for further development of the Project.

4.23.1.12. Based on this understanding the Consultant shall prepare a Project Pre-Design Validation Report including summaries and updates of all of the information noted above for review and non-objection of the Engineer. This report shall serve as the basis for the subsequent development of the Project.

4.23.1.13. If required by the Ministry of Environment the Consultant shall appoint an Environmental consultant to undertake an Environmental Impact Assessment of the project in accordance with the requirements of the Ministry of Environment.

4.23.1.14. The Consultant shall liaise with the Environmental Consultant and provide all necessary information regarding the design in order to allow the Environmental Consultant to assess the Project, and shall take account in the design of the constraints arising from the statutory authority's assessment of the Environmental impacts of the Project.

4.23.2. Concept Design Phase

4.23.2.1. Based on the approved final requirements of the Project as agreed to in the previous phase and as documented in the Project Pre-Design Validation Report, the Consultant shall proceed with the development of the Concept Design Phase.

4.23.2.2. The Consultant shall prepare and present for the Engineer's review and approval three (3) separate preliminary Concept Design options illustrating the scale and relationship of the principle components of the project. Each of the three (3) options should be different in design approach form and function.

4.23.2.3. Based on the single approved preliminary Concept option the Consultant shall prepare a complete Concept Design for the project.

4.23.2.4. The Concept Design shall set forth the form, function and general relationships of all major components of the Project including: site access and circulation concepts, building massing concepts, initial exterior elevation studies, confirmation of programmatic requirements / schedule of accommodations, functional relationships of programmatic requirements, initial identification of architecturally significant equipment and systems, initial construction phasing considerations, and designers risk registers.

4.23.2.5. The Concept Design shall consist of drawings, models and written information as required to sufficiently convey the intent of the Concept Design to the Engineer for its review and approval of the Project. Documents will include: site plan, building plans, building elevations, sketches, models, preliminary selections of building materials and written descriptions of all major building systems and components as required to sufficiently describe the Project. The Consultant shall prepare an updated Project Budget and Schedule highlighting any revisions to previously reviewed and approved information.

4.23.2.6. As part of this Design Phase, all special interior and exterior spaces and typical interior exterior spaces finishes to be electronically rendered in coloured three (3) dimensions including computer generated walk-throughs for presentation and approval by the Authority. All computer generated walk through (CGWT) will contain a minimum of thirty (30) seconds of computer generated video time in each space depicted. Material colours and textures to be indicated. CGWT sequence will depict arrival at the facility from the public street entrance and include the following sequences (with intermittent three hundred and sixty (360) degrees views of each major space), parking, pedestrian approach to main building entrance, building exteriors (all sides), main building entrance and exterior plaza, building lobby entrance, main lobby, main pedestrian access sequences within the building, corridors, elevator lobbies, specialty spaces, recreation and support areas, meeting rooms, dining areas, specialty stairways and typical - offices, rooms, typical bathrooms, etc.

4.23.2.7. The Consultant shall also provide a scaled physical model with a scale appropriate to the Project, subject to the Engineer's non-objection which demonstrates how the Project fits on site and its relationship to the existing buildings, roads and infrastructure, boundaries etc. to support the sign off of the preferred option of the schematic design.

4.23.2.8. The Consultant shall prepare, for the Engineer's non-objection, an updated list of the Applicable Codes and Standards to be applied to the Project as initially developed in the previous phase. Any proposed deviations from the previously presented list shall be highlighted and brought to the Engineer's attention. The list of Codes and Standards shall be subject to the Engineer's non-objection prior to incorporation into the design.

4.23.2.9. Unless otherwise stated, all plans and documents within the preliminary PIP shall be submitted for the Engineer's non-objection within fourteen (14) Days of the Commencement Date. At the end of thirty (30) Days the Consultant shall prepare for the Engineer's non-objection:

a. a Project Execution Plan (PEP);

b. a Project Implementation Plan (PIP);

c. a Building Information Management (BIM) execution strategy;

d. a Document Management System (DMS) strategy;

e. a detailed Project Baseline Schedule including all Project Phases;

f. a detailed Schedule of Deliverables for the Concept Design Phase;

g. a Schedule of deliverables for all subsequent Project Phases;

h. an analysis of the site and, in the case of the rehabilitation of an existing structure, the existing condition of the structure, including, but not limited to: determining the location, measurement and other essential data of existing architectural, equipment, structural, mechanical, electrical and utility features, and submit a report to the Authority setting forth such analysis and confirming that the data available is sufficient to proceed with the design of the project. Provide additional information reasonably determined by the Authority to be necessary or desirable, such as topography, soil data, and other related municipal and utility company data and / or a plan for accessing such information;

i. a construction phasing analysis, which shows the time frames provided and maintains adjacent occupancies, including a description of temporary construction and facilities necessary to maintain end user operations; establish a general sequence of the phasing demonstrating the continuity of end user operations where required;

j. a Code Analysis providing provisions for compliance with all applicable requirements as identified in the previous Phase; and

k. a Concept Design Report which shall include, but not be limited to: such graphic material, code analysis, and information as is necessary or appropriate to fully illustrate the proposed design and the construction materials of the Project, and the relationship of the Project to other facilities either existing or proposed to include designer's risk registers, and such other factors as may affect the design of the Project or otherwise involve or relate to the Project. Also to be included are Engineering reports analysing and economically justifying: the proposed structural, mechanical, electrical and all other systems in the Project; the constructability of the structure and components, including the fabrication and production of components and maintainability and operational efficiency of the completed project; the effect of proposed work on the existing components and systems; and the historical performance of the proposed components and systems.

4.23.2.10. The Concept Design shall not be considered fully reviewed and non-objected until any and all revisions to the Project budget and schedule are reviewed and non-objected by the Engineer.

4.23.2.11. The Consultant will present the complete Concept Design to the Engineer for the Engineer's review, comment, and non-objection. The Consultant will modify the Concept Design as required to obtain the Engineer's non-objection.

4.23.2.12. Based on this review the Consultant and the Engineer shall reach an understanding regarding the requirements for the further development of the Project.

4.23.2.13. Based on this understanding the Consultant shall prepare a Project Concept Design Report including summaries and updates of all of the information noted above for review and non-objection of the Engineer. This report shall serve as the basis for the subsequent development of the Project.

4.23.3. Scheme Design Phase

4.23.3.1. Based on the approved Concept Design the Consultant shall prepare a complete Scheme Design package for the project.

4.23.3.2. The Scheme Design documents shall illustrate and describe the development of the approved Concept Design of the project. Information shall consist of drawings, models and other documents as required to fully convey the development of all aspects of the project both interior and exterior. Drawings and documents may include: site plans, building plans, elevations, sections, typical details and diagrammatic layouts of all principle building systems and components as required to establish and describe the size and character of the project as to architectural, structural, mechanical, and electrical systems and any other such systems and elements as appropriate to understanding the design of the project. The design development documents shall include outline specifications that identify and establish levels of quality and performance for all major material and systems to be incorporated into the project. The design development documents shall include initial identification and locations for any speciality systems or equipment required by the project and include designers risk registers. The design development documents shall incorporate and coordinate the work of all specialty consultants. The Consultant shall assist in the preparation of an updated project budget and schedule highlighting any revisions to previously reviewed and approved information.

4.23.3.3. The Consultant shall prepare, for the Engineer's non-objection, a finalised list of the Applicable Codes and Standards to be applied to the Project as initially developed in the previous phase. Any proposed deviations from the previously presented list shall be highlighted and brought to the Engineer's attention. The list of Codes and Standards shall be subject to the Engineer's non-objection prior to incorporation into the design.

4.23.3.4. Unless otherwise stated, all plans and documents within the preliminary PIP shall be submitted for the Engineer's non-objection within fourteen (14) Days of the Commencement Date. At the end of Thirty (30) Days the Consultant shall prepare for the Engineer's non-objection:

a. a finalised Project Execution Plan (PEP),

b. a finalised Project Implementation Plan (PIP),

c. a finalised Building Information Management (BIM) execution strategy,

d. a finalised Document Management System (DMS) strategy,

e. a Project Baseline Schedule including all Project Phases,

f. a detailed Schedule of Deliverables for all subsequent Project Phases; and

g. a Schematic Design Report based on the Concept Design Report as prepared in the previous Phase. The Design Development Report shall expand and enhance upon such previous information and shall include all additional information as developed in this Phase to fully describe all systems, components, materials and features of the Project.

4.23.3.5. Scheme Design shall not be considered fully reviewed and non-objected until any and all revisions to the project budget and schedule are reviewed and non-objected by the Engineer.

4.23.3.6. The Consultant will present the complete Scheme Design package to the Engineer for the Engineer's review, comment, and non-objection. The Consultant will modify the Scheme Design package as required to obtain the Engineers non-objection.

4.23.3.7. Based on this understanding the Consultant shall prepare a Project Schematic Design Report including summaries and updates of all of the information noted above for review

and non-objection of the Engineer. This report shall serve as the basis for the subsequent development of the Project.

4.23.3.8. The Consultant shall produce a complete set of draft Authority's Requirements that shall describe the design in full, and shall identify areas of the design that are likely to be subject to further design development. These draft Authority's Requirements shall be sufficiently detailed as to allow for early Contractor engagement and the Consultant shall liaise with the Engineer to agree the format of this submission. The delivery of the draft Authority's Requirements must be clearly shown on the Baseline Programme.

4.23.4. Technical Design Phase

4.23.4.1. Based on the approved Scheme Design package the Consultant shall prepare the Technical Design Documents for the project.

4.23.4.2. The Technical Design Documents shall illustrate and describe in full detail the complete development of the approved Scheme Design of the project. All aspects of the project are to be fully designed, documented and coordinated across all disciplines and all consultants. Technical Design Documents are to include all drawings, specifications, calculations, data, schedules, designers risk registers etc. as required to fully execute the project through construction, commissioning and end user occupancy.

4.23.4.3. The Technical Design Documents shall not be considered fully reviewed and non-objected until any and all revisions to the project budget and schedule are reviewed and non-objected by the Engineer.

4.23.4.4. The Consultant will present the complete Technical Design Documents to the Engineer for the Engineer's review, comment, and non-objection. The Consultant will modify the Technical Design Documents as required to obtain the Engineer's non-objection.

4.23.4.5. The Technical Design Documents shall not be considered fully reviewed and approved by the Engineer until all governmental / jurisdictional reviews and approvals required for the project are in place.

4.23.4.6. All tender documents shall contain sufficient information to fully define the scope and complexity of the Works to allow pricing documents to be prepared for the Works and to allow tenderers for the Works to develop construction methods, obtain sub-contract prices, support the preparation of works programmes and sequences and to submit accurate costs and risk profiles for the Works.

4.23.4.7. The structural system and building envelope and extent of works areas assumed to be required to construct the works shall be established and provided for in the tender documents. These shall be developed to such a Phase to obtain the Engineer's non-objection.

4.23.4.8. Tender documents for building services and mechanical and electrical systems shall contain sufficient information such that design development and coordinated installation drawings can be prepared by a Contractor(s) without the need for further clarification.

4.23.4.9. The Consultant shall provide fire engineering services to coordinate the fire safety designs of the buildings, roads, bridges and tunnels such that they align with the detailed requirements of the relevant fire safety strategies.

4.23.5. ITT Tender and Document Phase (including Construction Documentation).

4.23.5.1. Based on the approved Technical Design Documents package the Consultant shall assist in the preparation of a Tender package for the selection of a Contractor, or Contractors, for construction of the Project.

4.23.5.2. The Consultant shall assist in the preparation of comprehensive tender construction contract procurement documentation as necessary for inviting competitive bids for the

construction works for each project jointly or separately as required. All Tender Documents will be provided in accordance with the requirements of the Engineer.

4.23.5.3. Assist in the assembly and distribution of the tender documents to prospective bidders and to distribution points designated by the Engineer.

4.23.5.4. Assist the Engineer during the bid and award period in the preparation of instructions to tenderers, forms of proposals, advertisement for tenders, seeking of tenderers, opening and analysis of tenders, investigation and selection of tenderers, and recommendations relative to the award of the contract for the construction of the Project.

4.23.5.5. In the event the tenders of all qualified, responsible and reliable Contractors for the construction of the Project are in excess of the amount of the current Project budget of the Engineer, the Consultant, to the extent necessary, in the Engineer's judgment, to bring the cost of the Project within said Project budget, shall revise, subject to the non-objection by the Engineer, all or any part of the drawings and specifications of the Project that the Engineer may deem advisable or, if the construction contract for the Project has been awarded by the Engineer, the Consultant shall prepare all credit Change Addendums, including any necessary revisions to the drawings and specifications that the Engineer may deem advisable to bring the cost of the Project within the said Project budget.

4.23.5.6. Notwithstanding any other provisions of this Agreement, all of the services to be provided by the Consultant under the provisions of this paragraph shall be provided without reimbursement of costs or any additional compensation therefore, unless the Engineer determines, in its sole discretion, that the factors that caused the variance between the low bid and the said Project budget were not the responsibility of the Consultant or could not reasonably have been anticipated by the Consultant.

4.24. Submission of Deliverables

4.24.1. The Deliverables shall provide all working papers, reports and drawings necessary to deliver the required outcomes of the Project.

4.24.2. Each Deliverable shall be a comprehensive package, addressing all of the requirements specified.

4.24.3. All Deliverables shall be thoroughly reviewed, checked and signed off by the Consultant Leader as part of the Consultant's internal quality procedures prior to submission.

4.24.4. The Concept Design Phase, Scheme Design (Design Development) Phase, Detail Design – Technical Design and Detail Design – Production Information and Tender Action (including Construction Documentation) Phase documents shall be packaged as required for any contract required for the delivery of the Project. Each contract package shall stand alone, and no cross referencing of documents to be issued to different contracts will be provided.

4.24.5. All Deliverables shall be submitted in both hard and soft copy as required by the Engineer's operating systems. Soft copies of the Deliverables shall include one book-marked 'pdf' single document file of the same appearance as the hard copy Deliverable, fully referenced and searchable, together with all of the original format files.

4.24.6. The Consultant shall comply with the requirements of the design manual to be non-objected by the Engineer, and shall submit all documents in the document system specified as per the latest version of the PWA CAD Standards Manual. The PDF version PWA CAD Standard Manual may be downloaded from PWA's website (Home – Our Services – Service Details). Individual CADD files shall be used for each drawing, together with design and reference files where required by the design manual. All drawings shall be issued as clipped CADD files with all reference files merged into the master file (i.e. one file for one drawing) and as 'pdf' files, with all drawing files (including design / reference files) issued on CD / DVD Rom.

4.24.7. The Consultant shall submit all textual documents on CD / DVD Rom in 'pdf' as well as Word, Excel. Paper and electronic copies of documents shall be submitted, together with a register stating document reference, date, title and data file name in a non-objected format.

4.25. Non-objection of Deliverables

4.25.1. Within fourteen (14) Days of the receipt of Deliverables the Engineer shall return the design and check certificate advising that the submitted Deliverables have been non-objected, non-objected with comments or have failed to meet the required standards. Rejected Deliverables shall be resubmitted within fourteen (14) Days thereafter. Rejected Deliverables shall be returned with a detailed list of remarks and reasons why the document cannot be non-objected (digital document with remarks / track changes).

4.25.2. A Deliverable shall be rejected if it is insufficient or inaccurate in detail or quality.

4.25.3. When resubmitting Deliverables for non-objection the Consultant shall provide a detailed reply including a list of confirmed remedial actions taken against the reasons stated by the Engineer for the failure to obtain approval. Resubmission shall not be accepted for review unless it is accompanied by a list of actions stating remedial measures.

4.25.4. Designs and other Deliverables for portions of the design subject to approval or consent by third parties shall be presented in a format acceptable to each such third party.

4.26. Building Information Modelling (BIM)

4.26.1. The Consultant shall design and deliver this Project using BIM in accordance with the following requirements:

No	Projects to Immediately Migrate to BIM Delivery	Building Area	Project Value
1	All Healthcare Projects Inclusive of Clinics	All	All
2	All Research and Development Facilities/Laboratories	All	All
3	All Schools (Kindergarten through to Secondary School)	All	All
4	All Authority projects with a value over QAR 50,000,000 and/or 10,000 m^2 excluding industrial/warehouse building types.	10,000 m^2	QAR 50,000,000

a) Level of Definition shall be LOD 300 as per AIA Document E202-208

No.	LEVEL OF DEVELOPMENT DEFINITION (LOD 300) - As per AIA Document E202-2008
	Model elements are modeled as specific assemblies accurate in terms of quantity, size, shape, location and orientation. Non geometric information may also be attached to model elements.
	Construction: Suitable for the generation of traditional construction documents and shop drawings.

	Analysis: The model may be analyzed for performance of selected systems by application of specific performance criteria assigned to the representative model elements.
	Cost Estimating: The model may be used to develop cost estimates based on the specific data provided and conceptual estimating techniques.

b) The Consultant shall submit a specific dedicated detailed Multidiscipline "Design BIM" Execution Plan following, at minimum, the requirements of "Section 2- Project BIM Deployment Plan" of the AUTODESK document "Autodesk BIM Deployment Plan: A Practical Framework for Implementing BIM", Adopt a Model Progression Specification (MPS) of his "Design BIM" Execution plan in order that all components of the building shall be designed as per LOD (as per detailed requirements of document AIA E202-2008) at minimum LOD 300 for BIM model delivered at Tender Phase . The Execution Plan shall define the Consultant's BIM standards and shall be submitted within 30 days of project Award to the Engineer for approval. The final tender model shall be provided in the latest version of AUTODESK Revit Architecture/Revit/MEP and the corresponding AutoCAD Revit Suite 2012 products (64 – bit) or IFC compatible approved equal, and shall coordinate information management and output in accordance with the Authority standards. All BIM systems information shall be in conformance with the Authority's standards.

c) Specific required outputs include, but are not limited to the following:

I. Provide BIM generated detailed priced Bill of Quantities;

II. Provide clash/collision detection; and

III. Provide detailed multidisciplinary clash detection reports which shall be submitted at Scheme Design and Technical Design Phases and derived from the BIM model.

d) The Consultant shall be responsible for the complete coordination and release of 'End of Construction' BIM record model data and shall include provision for this service in the Commercial and Technical proposals.

4.26.2. At the outset of the Project, a BIM execution workshop shall be held with the Consultant and the Engineer, and a BIM execution strategy document shall be developed and issued taking note of the BIM requirements document included in Section C – Part 2.

4.26.3. The Consultant shall implement the BIM execution strategy making use of BIM methodologies in all aspects of its work as a comprehensive combination of both 3D geometry and the associated information about the components within the design.

4.26.4. The BIM execution strategy document shall define the BIM principles and responsibilities for the Consultant and include:

a. the modelling and drafting Standards to be used;

b. the level of detail to be included in the 3D BIM models;

c. the software (and version) to be used throughout by the Consultant;

d. the use of BIM models for design review within the Consultant, and with the Engineer;

e. the processes for the hand-over and sharing of data between teams;

f. the use of BIM data for analysis such as structural analysis; and

g. the format of contractual deliverables.

4.26.5. Production of this document and the implementation of the processes defined within it shall be the responsibility of the Consultant.

4.26.6. The Consultant may prepare the design as a set of individual BIM models in the correct coordinate space and level datum of the Project to suit its design efforts.

4.26.7. The Consultant shall produce a comprehensive model incorporating its multidisciplinary designs using industry standard BIM software capable of integrating inputs from multiple proprietary computer aided design and drafting (CADD) applications (the model) based on the outline BIM proposal. The BIM software selected shall be subject to the Engineer's non-objection.

4.26.8. The Consultant shall integrate into the model inputs from the Engineer, site investigations and surveys, stakeholders and third parties.

4.26.9. Where information from stakeholders or third parties is not supplied in a compatible 3D format the Consultant shall re-format or reproduce such data as necessary for its accurate incorporation into the model.

4.26.10. The Consultant shall develop in conjunction with the Engineer a coding structure for all elements of the model and shall ensure that the coordinated model complies with the coding structure.

4.26.11. The Consultant shall identify from the model all conflicts and clashes and the design shall be developed to resolve these conflicts and clashes.

4.26.12. The Consultant shall use the model as required or as deemed necessary by the Engineer in reporting and in interfacing with the public, stakeholders or other third parties.

4.26.13. The Consultant shall incorporate the requirement to develop and maintain the model into the Authority's Requirements Contractor tendering. The design Consultant shall make available a soft copy of the model (or extracts of the model to suit the procurement strategy) along with the original format BIM models and CAD information as agreed with the Engineer for inclusion in the tender and contract documents.

4.26.14. The Consultant shall incorporate into the Authority's Requirements the provision of a licence to use the Consultant's design represented fully in the models solely for the purposes of tendering, design, construction, operation and maintenance of the Project Works.

4.26.15. The Consultant shall be responsible for the accuracy and management of the model up to the transfer of responsibility for the development of the model to the Contractor(s) on award of the contract(s).

4.27. Approvals, Third Parties and Interfaces

4.27.1. Planning, Environment and Highways Consents

4.27.1.1. The Consultant shall note that third party contracts may be let by the Authority and managed by the Engineer and that other such contracts may be let.

4.27.1.2. The Consultant shall ensure that up to the handover of design responsibility to the Contractor(s) the design of all Works takes account of the necessary planning, environment and traffic consents required for the Works and shall ensure that these are recorded in a suitable register of consents so that there is continuous overview data available of the progress and achievement of conditions relating to consents for the Works.

4.27.1.3. The Consultant shall develop a procedure for consultation with planning, environment and highways authorities and obtain the Engineer's non-objection. The Consultant shall thereafter ensure that all consultation with these authorities is carried out in accordance with this process.

4.27.1.4. The Consultant shall produce the necessary documentation and materials in accordance with the requirements for consents, in the correct format and at the right time as specified in the consents required.

4.27.1.5. The Consultant shall be responsible for ensuring that all necessary consents for the work are procured, and shall inform the Engineer in the event that satisfying the requirements of any consent gives rise to a significant Change in the scope of the Project or the requirements set for consents conflict with the Project objectives.

4.27.1.6. The Consultant shall ensure that any consent required to be obtained by Contractor(s) are identified during the initial design phase and that these are recorded in the consents register.

4.27.1.7. The Consultant shall design and co-ordinate all highways and traffic related interfaces across the Project, and shall ensure that the requirements of interfacing highways and traffic related works are taken into account in the design of the Project.

4.27.1.8. The Consultant shall discharge all planning, environmental or traffic related conditions associated with consents where these are under his control.

4.27.2. Interface Management

4.27.2.1. The Consultant shall be responsible for resolving all external and internal interfaces with interfacing projects and programmes and between sections introduced within the Project.

4.27.2.2. The Consultant shall establish an interface management system for the design of the Project for the Engineer's non-objection. The Consultant's interface management system shall integrate with the interface management system prepared by the Consultant for the Project.

4.27.2.3. The Consultant shall provide consistent oversight of the progress of the design to ensure that interfacing issues are registered, tracked and dealt with in the interface management system.

4.27.2.4. Interfaces will include external interfaces with major stakeholders; agency interfaces amongst programmes and projects; and internal Project interfaces between disciplines and between sections of the Project.

4.27.2.5. The Consultant shall utilise interface management tools to track and monitor the exchange of information across the Project within the interface management system prepared by the Consultant for the Project.

4.27.3. Third Party Agreements

4.27.3.1. In developing the design of the works it is anticipated that the Project may be required to provide undertakings and assurances to various third parties. The Consultant shall notify the Authority should any of these undertakings and assurances give rise to a Change under the Agreement or result in a significant impact upon the design of or the budget for the Works.

4.27.3.2. Once agreed between the third parties and the Authority the Consultant shall be responsible for ensuring that these undertakings and assurances are adhered to in the delivery of Detail Design and reflected in the Authority's Requirements.

4.27.3.3. The Consultant shall manage the design interfaces for all Statutory Approvals, acting as the single point of contact for the design of the duration of the Project.

4.27.3.4. The Consultant shall ensure that the design of the Project complies with Qatar Laws and with any agreements and undertakings reached during the course of the design.

4.28. Stakeholder Management, Public Involvement and Communications

4.28.1. The Consultant shall identify all applicable Project stakeholders and shall compile a list thereof for the non-objection of the Engineer. The Authority has identified a number of potential stakeholders within Section C – Part 4 [Project Data], Chapter 4.

4.28.2. At all Phases of the Project the Consultant shall adopt a policy of creating close working relationships with all external stakeholders on design aspects.

4.28.3. The Consultant shall determine the impacts of the Project on existing infrastructure and organisations and shall take active steps to manage these impacts so that the programme of the Works proceeds as planned.

4.28.4. The Consultant shall take account of dependencies from related bodies and projects and work toward minimal disruption to the agreed design planning.

4.28.5. The Consultant shall liaise widely with all interfacing parties, stakeholders and projects in order to present a single point of contact for management of design related third party engagement.

4.28.6. The Consultant shall support the Authority in its public relations efforts.

4.28.7. The Consultant shall attend briefings as required with the public, external third parties and stakeholder groups.

4.28.8. The Consultant shall support the preparation of information for use in support of meetings with personnel, the public, the media, external stakeholders and potential suppliers.

4.28.9. The Consultant shall provide the Engineer with responses to design related public inquiries and comments on the design.

4.28.10. The Consultant shall support the Engineer and Authority as required with the management of media and community relations and work closely with the Engineer and Consultant to ensure a coordinated approach to communications on design aspects, and shall obtain the Engineer's non-objection for a communications plan and strategy in order to address communications with personnel, the public, the media, external stakeholders and potential suppliers.

4.28.11. The Consultant shall assist in the development of a comprehensive public involvement programme in conjunction with the Authority's public relations department, which shall be designed to inform the public of benefits, objectives, costs, schedule impacts and progress of the Project throughout all phases, from planning through to construction, operations and handover.

4.28.12. The Consultant shall confer and coordinate with relevant government agencies and departments, the various agencies within the Authority's organisation and applicable Qatar legal authorities having jurisdiction regarding the delivery of the Services.

4.28.13. The Consultant shall manage stakeholder engagement and interfaces on design aspects, arising as a result of engagement with third parties and interfacing programmes and projects.

4.28.14. The Consultant shall as necessary for design purposes and in consultation with the Engineer, identify and liaise with stakeholders including:

a. those with a mandated authority role over the Project such as the Municipality and Civil Defence, Ministry of Environment and other government agencies and ministries;

b. those whose activities will be affected by the Project such as the Utility companies and third parties;

c. those who should be consulted and kept informed about aspects related to the design; and

d. instigate, manage and report on meetings held with stakeholders.

4.28.15. At the validation Phase of the Project the Consultant shall:

a. identify the Project stakeholders with the assistance of the Engineer;

b. prepare a flow chart showing how the necessary permits and approvals will be obtained;

c. identify the Utility infrastructure and interfaces and any necessary Utility and traffic diversions; and

d. manage the preparation, submittal and approval of the documents required by the authorities for the instigation of the Project.

4.28.16. The Consultant shall for the Project duration:

a. assist the Authority delivery team with the resolution of disputes with stakeholders;

b. support the Authority in communication with the project stakeholders in accordance with the Consultant stakeholder management plan;

c. instigate, manage and report on meetings with the Project stakeholders;

d. liaise with the stakeholders concerning the planning of the necessary Utility diversions and traffic diversion schemes; and

e. manage the preparation, submittal and approval of the documents required by the various authorities for the completion of the Project.

4.28.17. All public involvement meetings and all documentation and reporting on public involvement shall be in both Arabic and English languages.

4.29. Risk Management

4.29.1. The Consultant shall assist in the development of a design risk and opportunity management plan as part of the PIP for the Engineer's non-objection, incorporating a systematic quantitative risk management process and strategy to be applied for the design activities.

4.29.2. The design risk and opportunity management plan will provide a framework by which risks will be identified and assessed as well as setting out the risk response and control strategies to be followed. The design risk and opportunity management plan shall be aligned with the Consultant's risk management process and be presented for the Engineer's non-objection.

4.29.3. The Consultant shall assist implement and develop for the Engineer's non-objection an approach to risk management that complies with the requirements of the Engineer and shall include, but not be limited to assessment of risks, analysis of risk impacts on cost, schedule and other key criteria, mitigation measures and monitoring of same, drawdown of contingency, residual risk and fall-back plans.

4.29.4. The Consultant shall assist in the review of the update and submit for the Engineer's non-objection the design risk and opportunity management plan at least every sixty (60) Days and at the outset of each phase of the Services.

4.30. Quality Management

4.30.1. The Consultant shall comply with the Engineer's Quality Management System (QMS).

4.30.2. The Consultant shall administer a QMS, which is aligned with the Engineer's QMS.

4.30.3. This QMS shall be fully compliant with local legislation and any applicable regulations and codes of practice. The QMS shall be modelled around the principles of ISO9001:2008 "Quality Management Systems Requirements" and the underlying philosophy to promote a culture of continuous improvement.

4.30.4. The QMS shall be administered by the Consultant and may involve all stakeholders including but not limited to the Authority, third parties, the public (as non-objected by the Engineer), consultants and the contractors.

4.30.5. The Consultant shall ensure that the QMS policy for design purposes is communicated throughout the Consultant and enable the Engineer to witness any defined quality control points.

4.30.6. The Consultant shall ensure that all personnel are provided with appropriate training to undertake the functions required of them under the QMS.

4.30.7. The Consultant's contracts with sub-consultants shall contain appropriate requirements for QMSs and that they operate in accordance with these contractual obligations.

4.30.8. The Consultant shall cooperate with the Engineer in undertaking audits and shall develop an audit plan to ensure that audits are undertaken at such a time that key activities can be audited.

4.30.9. The Consultant and its sub-consultants shall undertake all agreed remedial actions arising from non-conformance discovered during audits.

4.30.10. The Consultant shall:

a. manage the design QMS in accordance with the PIP; and
b. monitor the design activities against the requirements of the PIP.

4.30.11. Quality Assurance & Audit

4.30.11.1. By means of formal review and non-objection, the Consultant shall acquire a thorough knowledge of the intentions of all parties participating in the Project with regards to quality assurance and quality control.

4.30.11.2. The Consultant shall verify and validate the effective implementation of the QMS by means of surveillance and audit of Project activities and the generation and storage of associated records.

4.30.11.3. The Consultant shall carry out audits of all the activities in the QMS at quarterly intervals or at such other intervals as the Engineer may require ensuring the continuing suitability and effectiveness of the quality system. Reports of each such audit shall be submitted promptly to the Engineer. The Consultant shall submit for review by the Engineer details of the authority, qualifications, and experience of personnel assigned to design verification, to audit activities, and to inspection and testing activities.

4.30.11.4. The Consultant shall facilitate and fully cooperate with the State Audit Bureau.

4.30.11.5. Quality audits may be conducted by the Engineer on behalf of the Authority to verify the implementation and maintenance of the QMS as specified herein.

4.30.11.6. During the Agreement period, upon receipt of non-conformance reports, or similar issued as a result of quality audit, the Consultant shall submit for the Engineer's non-objection a proposed corrective and preventive action plan within fourteen (14) Days of notification.

4.30.11.7. The Consultant shall maintain for his activities a 'non-conformity register' as a part of the QMS to indicate the status of all non-conformities which are identified by audit or by other means.

4.30.11.8. The Consultant shall establish a documented mechanism, non-objected by the Engineer that prioritises the resolution of non-conformities.

4.30.11.9. As part of the monthly progress report, the Consultant shall issue a written report to the Engineer on all non-conformity findings, proposed remedial actions, consequent proposed amendments to procedures and the status of actions arising.

4.31. Sustainability Planning

4.31.1. In order to maximise the use of sustainable design and renewable technology in construction and operations, the Consultant shall develop for the Engineer's non-objection an over-riding set of sustainability objectives which shall be effective throughout the development of the design.

4.31.2. The Project shall be designed to attain a minimum equivalent to **three (3) star GSAS accreditation**.

4.31.3. The Consultant shall ensure that the Authority's sustainability objectives and monitoring requirements are communicated and implemented throughout the construction Phase of the Project to all parties and participants.

4.31.4. The over-riding sustainability objectives, as administered by the Consultant, shall involve all stakeholders including but not limited to the Authority, third parties, the public (as agreed by the Authority), consultants and the Contractors.

4.31.5. The Consultant shall:

a. manage the project's sustainability activities in accordance with the Authority's standards;

b. prepare the list of performance criteria regarding short-term sustainability during construction;

c. set out inter-relationships with the GSAS certification and document how the project will achieve the required level of certification;

d. monitor the design and execution of the works against the requirements of the Authority's standard; and

e. prepare final GSAS compliance reports and monitor the preparation of the reports by the Contractor on sustainability management.

4.32. Testing and Commissioning

4.32.1. The Consultant shall develop for the Engineer's non-objection a testing and commissioning strategy that is consistent with the requirement to assure that the Project as delivered complies with the Authority's Requirements for the Project.

4.32.2. The Consultant shall work with the end-user as notified from time to time in order to coordinate all aspects of the design related to operations and to write Authority's Requirements for testing and commissioning.

4.32.3. The Consultant shall prepare a schedule listing all items and / or systems which require testing and commissioning for non-objection by the Engineer.

4.32.4. The Consultant shall prepare the means, methods and procedures for the testing and commissioning of all items and / or systems which require testing and commissioning for non-objection by the Engineer.

4.33. Operations and Maintenance

4.33.1. The Consultant shall develop for the Engineer's non-objection the Authority's Requirements for the operations and maintenance manual for the Project to be prepared by the Contractor(s). These activities shall be planned and implemented so that the Authority's Requirements obtain the Engineer's non-objection no later than thirty (30) Days prior to the completion of the tender documents.

4.34. Fire Engineering

4.34.1. The Consultant shall develop fire and life safety policies, criteria and strategies for the design of the Project in liaison with the Engineer and Qatar civil defence organisations.

These policies, criteria and strategies shall be in accordance with applicable Qatar codes and regulations, applicable other international standards, and commonly used practices.

4.34.2. The Consultant shall manage the design with regard to fire and life safety through implementing the design strategies; review of the design of facilities, equipment and systems; and by preparation of fire engineering reports at various Phases of the design to illustrate compliance of the design with the strategies.

4.34.3. The Consultant shall prepare submissions to the fire authorities including responses to comments, modifications to submissions, preparation of specialist study reports and any necessary modifications to the design as necessary for obtaining approval from the fire and civil defence authorities.

4.34.4. The Consultant shall attend meetings with relevant authorities to present and clarify designs.

4.34.5. The Consultant shall provide computational fluid dynamics models of aspects of the Project to verify the Consultant's designs and Contractor(s) designs for smoke control systems.

4.35. Environmental Impacts Assessment

4.35.1. If required by the Ministry of Environment the Consultant shall appoint an Environmental consultant to undertake an Environmental Impact Assessment (EIA) of the Project in accordance with the requirements of the Ministry of Environment.

4.35.2. The Consultant shall liaise with the Environmental Consultant and provide all necessary information regarding the design in order to allow the Environmental consultant to assess the Project, and shall take account in the design of the constraints arising from the statutory authority's assessment of the Environmental impacts of the Project.

4.36. Traffic Impact Study

4.36.1. The Consultant shall undertake as part of the effort the preparation of a model of the surrounding road system and layout incorporating the Project in both existing and future configurations to predict traffic flows and volumes. The output of the specialist Traffic Consultant shall include recommendations to relieve peak traffic volumes taking into account all modes of transit systems being planned for the immediate area.

4.37. Traffic and Highway Design

4.37.1. Subject to the limits of the Scope of Services set out above the Consultant shall design all highway works necessary for the Project and shall define all interfaces with existing highways in consultation with the highway authorities and statutory authorities to ensure a comprehensive design is created for the Project that is coherent with the surrounding and planned Doha road system.

4.37.2. The Consultant shall develop the road alignment to reflect the requirements of the relevant design criteria, initially optimised in terms of geology, existing infrastructure, user comfort and road safety.

4.37.3. The Consultant shall prepare the standards to be applied to the design of the permanent way and agree these with the Engineer.

4.37.4. The Consultant shall:

a. prepare a single unified CAD based road alignment for the Project; and

b. prepare plan and profile drawings showing cross sections, width of lanes, engineering construction. The drawings shall include road alignment, chainage, plan and cross sections.

4.38. Archaeology

4.38.1. If appropriate the Authority shall appoint an archaeological consultant to undertake studies into areas of special interest.

4.38.2. The Consultant shall liaise directly with the archaeological consultant and take account of the constraints arising from their work.

4.39. Noise and Vibration

4.39.1. The Authority may appoint a specialist consultant to undertake noise and vibration assessment of the Project during both the permanent and construction Phases.

4.39.2. The Consultant shall liaise directly with the specialist consultant and take account of the constraints arising from its work.

4.39.3. The Consultant shall provide noise and vibration data relating to the design of the Project for use by the specialist consultant and shall develop noise and vibration mitigation measures as part of the design should these be found to be necessary.

4.40. Security

4.40.1. The Consultant shall liaise with the Doha Municipality and all Authority Having Jurisdiction to determine any security plans which shall define any potential threats against which the Consultant shall provide design for the Project. The Consultant shall carry out a security assessment for the design of the Project in line with this overarching framework and shall incorporate all necessary systems and infrastructure necessary to fulfil the requirements for security.

4.40.2. The Consultant shall incorporate all necessary systems and infrastructure necessary to fulfil the requirements for security established during the design Phase and shall obtain the necessary approval of the overarching security authorities.

5. DETAILED SCOPE OF SERVICES

5.1. Overall Scope

5.1.1. The Consultant shall provide all the services necessary to fulfil the requirements of the Agreement.

5.1.2. The following Chapter describes elements of the Services to be provided, but compliance with the Services set out herein shall not relieve the Consultant of its responsibilities under the Agreement.

5.1.3. The Services are described for each of the following phases or Phases of the Project:

a. Validation Services Phase.

b. Concept Design Phase .

c. Schematic Design Phase

d. Technical Design Phase.

e. ITT Documents and Tender Phase.

f. Design Guardianship During Construction Phase

5.1.4. The Consultant’s services include all of the usual and customary: architectural, engineering (structural, mechanical, electrical and civil), landscape design and interior design services required to produce a complete Project as described in the Authority’s Requirements and to meet the requirements of the Agreement.:

5.1.5. The Consultant shall provide services to ensure that the designs are completed on time, within budget and that comprehensive technical Authority’s Requirements, with the

confirmed non-objection of the Engineer, are available to suit the requirements of the programme.

5.1.6. The Consultant shall be responsible for the full design of the architectural, engineering and specialist design elements of the Project and the co-ordination of all design elements from inception to completion of the Project (including commissioning).

5.1.7. The Consultant's services include the following, inter alia:

a) Accessibility;
b) Acoustics;
c) Animation;
d) Design Architecture;
e) Architect of Record;
f) Artwork/Public Art;
g) Audio Visual;
h) Brief Taking and Writing;
i) Civil Engineering;
j) Code Compliance;
k) Commissioning Agent;
l) Energy/Comfort;
m) Façade and Building Cleaning and Maintenance;
n) Fire Engineering Strategy and Life Safety;
o) Graphics; Wayfinding and Signage;
p) Health, Safety and Security; and Sustainability;
q) Environmental
r) Information Communications Technology;
s) Interior Design;
t) Irrigation Design;
u) Kitchen/Food and Beverage Services/Laundry/Waste Management;
v) Landscape Architecture;
w) Lighting (Internal, External and Speciality);
x) Mechanical, Electrical and Plumbing;
y) Model Making;
z) Project Management;

aa) Space Planning;
bb) Specification Writing;
cc) Structural Engineering;
dd) Traffic Engineering;
ee) Vertical and Horizontal Transportation;
ff) Water Features and Pools;
gg) Wind Tunnel (façades, building and pedestrian comfort); and
hh) Other specialists and consultants required to complete the Project.

5.1.8. The above list of specialist disciplines required to complete the design is not intended to be exhaustive and does not imply any exclusion of a discipline not listed.

5.1.9. The requirements identified and set out in this section shall be regarded as the minimum services or minimum standards of performance required to be executed or satisfied by Consultant under the agreement.

5.1.10. The Consultant shall:

a) obtain all relevant information and data necessary to perform its obligations;
b) identify those technical and economic solutions which are most suited to the requirements of the Project;

c) complete and fully coordinate all aspects of the Project across all disciplines, ensuring that deliverables are fully coordinated at 100% completion of every Project Phase;

d) be responsible for the complete design of the Works, and shall ensure that the design represents all Authority's and end user's requirements adequately;

e) provide Assurance throughout to confirm that the design from the contractor(s) and the Works meet the Authority's Requirements;

f) review the Contractor's documents prepared by the contractor(s) to the extent necessary to assure full compliance with the Authority's Requirements, and assure that all the requirements are delivered so as to meet the Project objectives;

g) provide the Services of additional specialty consultants as required to produce a complete Project as described in the Authority's Requirements and to meet the requirements of the agreement;

h) coordinate its services with those services provided by the Engineer and the Engineer's consultants to produce a complete Project as described in the Project Requirements and to meet the requirements of the agreement;

i) be responsible for working with the end user(s) to incorporate equipment on to drawing information, including the production of schedules of equipment and the like to support specification, selection and procurement activities by others;

j) at appropriate times, contact the "Authorities Having Jurisdiction" (AHJ) and all other associated entities, as identified in the Authority's Requirements and the Agreement, required to approve the Project. In designing the Project the Consultant shall conform and respond to all applicable requirements as set forth by the AHJ and other associated entities;

k) assist the Engineer as required to prepare and produce all documentation required for the review and approval of the Government, AHJ or other required organisations having authority/jurisdiction/approval rights over the Project; and

l) participate by preparing all information as required to be in accordance with a series of approval gateways. These are milestones in the Project lifecycle beyond which the Project shall not proceed without specific management and funding approval from the Authority.

5.1.11. The Authority has established a Collaborative Portal System to expedite the permitting as per the Design Process of relevant agencies. The Consultant shall be required to provide No. two (2) CD/DVD in DWG and PDF format the following:

a) attributes:

b) plans;

c) sections & elevations;

d) road layouts;

e) right of way;

f) utility corridors;

g) levels;

The CD/DVD shall be issued at the following milestones:

a) DC1;
b) DC2; and
c) Issued for Construction

5.2. Summary of Objectives of Each Phase

5.2.1. The following elements Common to All Phases:

5.2.1.1. The Consultant shall be responsible for the overall design of the Project up to and including all interfaces with infrastructure and utilities required for the project to function as a safe and reliable facility compliant with the requirements of the Authority and all other authorities with jurisdiction, specification of the design through comprehensive Authority's Requirements and shall provide system design Assurance throughout the Project up to the conclusion of the Maintenance Period.

5.2.1.2. The Consultant shall develop and complete the design to the level required in compliance with all Applicable Codes and Standards.

5.2.1.3. The Consultant shall design the Project to the extent necessary to provide comprehensive Authority's Requirements of non-objected design that reflects all the requirements of all stakeholders and statutory authorities. The Consultant shall assure system design integrity throughout the subsequent design and construction, and a commitment, along with others, to delivering the Project to specification, time and cost.

5.2.1.4. The Consultant shall critically review and validate information provided by the Authority and by others and shall obtain any additional information which is necessary to complete the Services.

5.2.1.5. The Engineer shall be notified of any major development to the Design that the Consultant identifies as having a significant impact on:

a. the aesthetics or iconic nature of the Project;

b. the Project budget; and / or

c. the Project programme.

5.2.1.6. Upon receipt of notification the Engineer shall determine:

a. that the development arises from design development or from complying with requirements necessary for gaining approvals or consents for the design and shall confirm that the development is to be incorporated; or

b. that the proposed development is unnecessary and is not in the best interests of the Project and shall not be incorporated.

5.2.1.7. The Consultant shall ensure that all aspects of his design are fully compatible, integrated, completed to the level of detail necessary and co-ordinated, and that the design is accurately recorded in the Deliverables prepared. The design shall incorporate the requirements resulting from the resolution of interface with other parties and the approval of all statutory and affected authorities which the Consultant shall be responsible for obtaining.

5.2.1.8. Based on all provided background information, a fully approved design shall be developed from which comprehensive Authority's Requirements shall be further developed and prepared, suitable to allow procurement of the Works. The Consultant shall provide Deliverables to reflect the contract arrangements determined for the procurement and construction of the Project as appropriate. The design provided in the Deliverables shall

be approved and consented to by all statutory and third parties having jurisdiction over the Works prior to commencement of any construction contract(s).

5.2.1.9. The Consultant shall ensure that the design developed is able to be constructed within the programme and budget allowed for the Project.

5.2.1.10. The Consultant shall also provide design Assurance services during the construction tender, construction delivery, testing and commissioning and Maintenance Period of the Contract(s) let throughout the duration of the Project.

5.2.1.11. The Consultant shall liaise with all statutory authorities and third parties, interfacing projects and building owners so as to produce a co-ordinated design that takes account of all constraints and requirements.

5.2.1.12. The Consultant shall establish working procedures and practices in conjunction with other team members so as to ensure the smooth operation of the development and delivery of the Project. The systems adopted shall be non-objected by the Engineer.

5.2.1.13. The Consultant shall provide design leadership so as to provide a single point of contact for the co-ordination of all aspects of the design.

5.2.1.14. The Consultant shall organise, lead and record the outcomes of appropriate coordination meetings and workshops so as to ensure a fully co-ordinated design.

5.2.1.15. The Consultant shall review the Applicable Codes and Standards to be applied to the design of the Project.

5.2.1.16. The Consultant shall:

a) organise, lead and record the outcomes of design review and Value Engineering and Value Management workshops as required to establish the scope and form of the works, the interfaces at the boundaries of the Project and any design developments that are necessary as a result of compliance with codes, standards, information arising from site investigations, the EIA and all other requirements arising as a result of liaison with statutory authorities and other third parties. The purpose of these workshops shall be to ensure the Authority is fully informed and involved in design development;

b) upon request from the Authority propose alternate designs, and make Value Management and Value Engineering recommendations to the Authority in order to provide better value to the Authority regarding the Project;

c) undertake a series of Value Management and Value Engineering studies as part of the Services with the aim of delivering a design of the highest standard value for money. The Value Management and Value Engineering workshops shall be carried out in accordance with international best practice;

d) sufficient workshops shall be held so as to cover the full scope of the Project. The Consultant shall propose a schedule of Value Management and Value Engineering workshops for the non-objection of the Engineer during the thirty (30) Days of the Services following commencement;

e) support the Engineer in making decisions relating to the design, so as to balance cost, schedule, quality, functionality and other value criteria appropriate to the element under consideration;

f) coordinate the timing of the Value Management and Value Engineering processes so that outcomes of the process can be incorporated into the design without impact upon the Baseline Programme delivery dates;

g) organise, lead and record the outcomes of Value Management and Value Engineering workshops as required;

h) issue all records of meetings whether created by the Consultant or received by others to the Engineer; and

i) keep records of all meetings that affect the development of the design, whether created by the Consultant or issued by others, so that a comprehensive record of all decisions affecting the design is available to the Engineer.

5.2.1.17. The Consultant shall agree and implement a risk management process with the Engineer and carry out design risk workshops in conjunction with the Authority and the Engineer. A comprehensive risk management system shall be created in collaboration with the Engineer to ensure the adequate management of design risk throughout the Project. Design risk shall be managed by the Consultant in accordance with international best practice, and as a minimum all identified risks shall be categorised, quantified, and mitigation measures shall be managed and reported upon monthly.

5.2.1.18. The Consultant shall attend all meetings as directed by the Engineer as being required for the proper co-ordination and reporting of the progress of the design, and all other meetings as necessary for the delivery of the Services.

5.2.1.19. The Consultant shall receive and distribute instructions issued by the Engineer.

5.2.1.20. The Consultant shall keep records of all meetings that affect the development of the design, whether created by the Consultant or issued by others, so that a comprehensive record of all decisions affecting the design is available to the Engineer. The Consultant shall issue all records of meetings whether created by them or received by others to the Engineer.

5.2.1.21. The Consultant shall distribute information received from working groups, meetings with sub-consultants and ad hoc meetings to the Engineer.

5.2.1.22. The Consultant shall distribute information arising from all sources across the design team so as to ensure a coordinated design.

5.2.1.23. The Consultant shall track and record the distribution of design information between working groups and sub-consultants.

5.2.1.24. The Consultant shall review and comment on contract documentation prepared by the Engineer for the appointment of specialist consultants and contractors. Such review and comment shall be restricted to the scope, role and responsibilities of the documentation only.

5.2.1.25. The Consultant shall prepare a design schedule for review and acceptance by Engineer. The format of this schedule shall be agreed with the Engineer.

5.2.1.26. The Consultant shall work closely with the Engineer and other entities employed for the delivery of the Project, and liaise with all statutory authorities and third parties, interfacing projects and building owners so as to produce a co-ordinated design that takes account of all constraints and requirements.

5.2.1.27. The Consultant shall deliver all packages of information necessary to enable the Engineer to carry out his work in a form to be non-objected by the Engineer.

5.3. Design Deliverables Common to All Phases

5.3.1. The Consultant shall provide the design and design management services necessary for the delivery of the Services by all disciplines. The Consultant shall include Design Deliverables common to all Phases. The disciplines are to include but not be limited to the list below.

5.3.2. Architecture

5.3.2.1. Aesthetics

5.3.2.1.1. The Consultant shall provide architectural services as necessary to ensure the coordination of all design disciplines to deliver a coherent and consistent outcome for the Project that achieves the objective of creating an iconic design solution within the constraints of the budget and the programme.

5.3.2.1.2. Deliverables are including but not restricted to:

a. drawings

b. design progress reports;

c. model; and

d. animation.

5.3.2.2. Buildings

5.3.2.2.1. The Consultant shall develop the design of all buildings and ancillary structures necessary for the operation and maintenance of the Project.

5.3.2.2.2. The Consultant shall include the design of the buildings and ancillary structures in architectural renderings and physical models and animations.

5.3.2.2.3. Deliverables:

a. Buildings and ancillary structures design information including but not restricted to:

i. Architectural design report;

ii. Architectural specification;

iii. renderings;

iv. setting out drawings;

v. plans, sections and elevations;

vi. room layouts; and

vii. external finishes and treatments.

5.3.2.3. Lighting

5.3.2.3.1. The Consultant shall develop a lighting scheme for the Project incorporating architectural feature lighting and functional highway lighting, including, but not limited to, lighting for all elements, road way lighting, pedestrian walkways, all public areas, BOH areas, leisure attractions, visitors platforms and terraces, ventilation openings, islands.

5.3.2.3.2. Deliverables:

a. drawings;

b. renderings; and

c. specifications

5.3.2.4. Compliance with Applicable Codes and Standards

5.3.2.4.1. The Consultant shall develop design criteria to be applied to the Project and check the design for compliance with the Applicable Codes and Standards.

5.3.2.4.2. Deliverables:

a. criteria report; and

b. code interpretation report.

5.3.2.5. Accessibility

5.3.2.5.1. The Consultant shall ensure that the design is compliant with appropriate accessibility requirements and best practice as per ADA or DDA.

5.3.2.6. Façade

5.3.2.6.1. The Consultant shall develop a façade and building envelope design for all structures.

5.3.2.6.2. Deliverables:

a. drawings

b. report indicating cladding design parameters; and

c. renderings.

5.3.2.7. Landscape Design

5.3.2.7.1. The Consultant shall develop a landscape design for the entire Project.

5.3.2.7.2. Deliverables shall include, but not be limited to:

a. general site plans;

b. landscape design report;

c. typical details of landscaping;

d. planting drawings and schedule;

e. planting report;

f. irrigation drawings;

g. irrigation report;

h. paved surface drawings;

i. outline report of materials;

j. drainage drawings; and

k. drainage report.

5.3.3. Engineering

5.3.3.1. General

a. The Consultant shall provide a comprehensive engineering design within the requirements of a Procurement Strategy currently being finalised.

5.3.3.2. Site Investigations

a. The Consultant shall review all existing site investigation data and material and specify their requirements for further geophysical site investigations and geotechnical site investigations necessary for the design of all assumed temporary and permanent works.

b. The Consultant shall provide input to the Engineer to ensure that the contract documents for site investigations to be carried out by others is adequate for the purposes of developing the design of all assumed temporary and permanent works.

c. The Consultant shall provide experienced geotechnical engineer and engineering geologists to monitor site investigation works to ensure that the design requirements for investigations are met and that the information provided is adequate.

d. The Consultant shall liaise with the Engineer to issue instructions to vary the site investigations as necessary to ensure the adequate delivery of data in light of emerging site conditions and design.

e. The Consultant shall review factual reports produced by the site investigation contractor(s) and ensure that these reflect the site conditions as witnessed by its own site liaison staff.

f. The Consultant shall prepare geotechnical interpretative reports and determine design parameters from these.

5.3.3.3. Deliverables:

a. scoping documents for site investigations; and

b. geotechnical Interpretative reports

5.3.3.4. Geotechnical Analysis

a. The Consultant shall review existing ground investigation material and data arising from site investigations procured by the Authority so as to develop parameters for use in the design. The Consultant shall produce an interpretative geotechnical investigation report based on the factual data arising from the site investigations.

b. The Consultant shall develop a design for construction of all ground works to the extent necessary to define the Authority's Requirements and achieve all Statutory Approvals.

c. The Consultant shall prepare geotechnical designs addressing structural geology, seismicity, foundations, temporary works and retaining structures, for the design of all elements.

d. The Consultant shall prepare a geotechnical engineering report that assesses the excavation of the ground required for the construction of the works such that realistic methods of construction can be assumed in the planning of the Works contracts.

5.3.3.5. Deliverables:

a. geotechnical engineering designs and drawings for all structures;

b. geotechnical engineering reports on assumed methods of dewatering, excavation and all other geotechnical works required to be undertaken for the delivery of the Project; and

c. geotechnical Interpretative reports.

5.3.4. Noise and Vibration

5.3.4.1. The Authority may appoint a specialist consultant to undertake noise and vibration assessment of the Project during both the permanent and construction Phases.

5.3.4.2. The Consultant shall liaise directly with the specialist consultant and take account of the constraints arising from its work.

5.3.4.3. The Consultant shall provide noise and vibration data relating to the design of the Project for use by the specialist consultant and shall develop noise and vibration mitigation measures as part of the design should these be found to be necessary.

5.3.5. Air Pollutant Surveys and Analysis

5.3.5.1. The Authority may appoint a specialist consultant to undertake air pollution surveys and impacts analysis of the project in accordance with the requirements of the Ministry of Environment.

5.3.5.2. The Consultant shall liaise with the specialist consultant and provide all necessary information regarding the design in order to allow the consultant to assess the impacts of the Project, and shall take account in the design of the constraints arising from the assessment of the pollution impacts of the Project.

5.3.6. Traffic Impact Study

5.3.6.1. The Consultant shall undertake as part of the effort the preparation of a model of the surrounding road system and layout incorporating the Project in both existing and future configurations to predict traffic flows and volumes for the Project. The output of the specialist Traffic Consultant shall include recommendations to relieve peak traffic volumes taking into account all modes of transit systems being planned for the immediate area. If an Environmental Impact Assessment (EIA) is required by the Ministry of Environment then the Traffic Consultant will provide appropriate traffic data broken down as required by the Environmental Consultant to enable environmental assessment of the project.

5.3.7. Buildings MEP design

5.3.7.1. The Consultant shall prepare the necessary design information for the MEP systems for all buildings required for the Project and achieve all statutory and third party approvals.

5.3.7.2. Deliverables:

a. calculations;

b. reports; and

c. drawings.

5.3.7.3. The Consultant shall prepare MEP design for the Project as follows, but not limited to:

a. M&E installation layout;
b. establish power supply and lighting design requirements;
c. global layout of main sumps and mid sumps;
d. incorporate emergency concept requirements; and
e. incorporate O&M requirements.

5.3.7.4. Buildings and exhibits requirements:

a. space requirements for all systems;
b. define required areas for all systems; and
c. O&M requirements.

5.3.7.5. Technical installation requirements:

a. traffic control system;
b. communications system;
c. road signing and marking; and
d. power supply.

5.3.7.6. Deliverables:

a. technical evaluation report - Installations solutions;
b. drawings showing each system and combined services drawings;
c. M&E installations layout; and
d. information for cost and schedule control work.

5.3.8. Spoil Disposal Study

5.3.8.1. The Consultant shall identify spoil quantities resulting from excavation works and shall prepare a strategy for reuse of material within the project as far as possible and subsequently for disposal. The Consultant shall coordinate with relevant municipalities regarding the disposal of soil and other waste material. The Consultant shall liaise with the Engineer over this study and all construction related planning activities.

5.3.8.2. Deliverable:

a. spoil reuse and disposal strategy report.

5.3.9. Security

5.3.9.1. The Consultant shall liaise with the Doha Municipality and all Authority Having Jurisdiction to determine any security plans which shall define any potential threats against which the Consultant shall provide design for the Project. The Consultant shall carry out a security assessment for the design of the Project in line with this overarching framework and shall incorporate all necessary systems and infrastructure necessary to fulfil the requirements for security.

5.3.9.2. The Consultant shall incorporate all necessary systems and infrastructure necessary to fulfil the requirements for security established during the design Phases and shall obtain the necessary approval of the overarching security authorities.

5.3.9.3. Deliverables:

a. security study;

b. security measures provision report; and

c. Drawings of systems and infrastructure.

5.3.10. Sustainability

5.3.10.1. The Consultant shall undertake a sustainability assessment for the design of the Project in line the requirements set out in Section C, Part 2 [Authority's Requirements].

5.3.10.2. The Consultant shall respond to these requirements in the preparation of their designs.

5.3.10.3. The Consultant shall incorporate all necessary systems and infrastructure necessary to fulfil the requirements for sustainability.

5.3.10.4. Develop a design that will achieve a minimum of GSAS 3 stars.

5.3.10.5. The Consultant shall engage/consult with GORD prior to DC1.

5.3.10.6. Deliverables:

a. sustainability plan and targets;

b. sustainable design measures; and

c. GSAS Sustainability Design Specification;

d. GSAS Letter of Conformance confirming the design will achieve GSAS 3 star certification; and

e. quarterly sustainability GSAS progress reports.

5.4. Scope

5.4.1. The Consultant shall provide services to develop, specify, illustrate and complete the design and specification for the Works to a suitable level based on but not limited to the disciplines and activities described in this Chapter. For each element of the Works the Consultant shall develop the Design to the extent necessary to obtain Statutory Approvals, to resolve all interfaces incorporating the requirements of other disciplines and third parties to prepare a coordinated solution and to define comprehensive Authority's Requirements which shall consist of, without limitation, drawings, technical specifications and particular specifications describing the constraints placed upon the Contractor(s) in delivering the Works as described below

5.4.2. Architecture including but not limited to the following:

a. the form and finishes of all infrastructure;

b. form and planning of all buildings including spaces which include the design and development of all elements of the architectural form and visual treatment of the buildings, components and related spaces including the elevation, sections and volumes;

c. partitions and fire resistant construction;

d. internal finishes;

e. external finishes;

f. external and internal glazing and cladding systems;

g. external waterproofing systems including roofing, external rendering systems and the like;

h. internal and external waterproofing including water tanks, water sensitive areas and the like;

i. external architectural works;

j. metalwork;

k. signage;

l. hard and soft landscaping;

m. specialist components including but not limited to floor finishes, cladding, suspended ceilings, internal and external glazing, louvers, canopies, glass lift enclosures, metal roofing, litter bins;

n. specialist animal exhibit areas; and

o. public areas suitable for the use of the general public for the purposes of viewing the exhibits and enjoying the leisure and entertainment elements.

5.4.3. Civil, geotechnical and structural engineering including but not limited to the following:

a. structural engineering works and structural design associated with architectural elements;

b. roadworks including vehicle parking, access roads, service areas, associated drainage, street furniture, traffic aids, road markings, signage, lighting, permanent amendments to roads and footpaths, major temporary traffic measures to facilitate the construction of the works, cut and cover structures, and any other works that require temporary traffic measures;

c. transportation planning and engineering in relation to the Project and in the vicinity of construction sites and adjacent road networks affected by the construction and operation of the Works, including traffic impact assessments and traffic surveys as necessary. For the avoidance of doubt, the assessment of the impact of the proposed works on the city-wide coordinated traffic engineering model for Doha will be undertaken by the CPO;

d. geotechnical works, including but not limited to: piling, settlement predictions, retaining walls, foundations and backfill;

e. foul and surface water drainage including ground and seepage water for all structures, including drainage within ancillary structures and to all external works including drainage impact report covering both construction works and operational discharge and any re-provisioned works;

f. Utility works including diversion of existing and provision for new Utilities (both temporary and permanent);

g. structural and foundation designs for any bridges and other structures;

h. structural design of all subways, footbridges and pedestrian links;

i. structural design associated with the building services and mechanical and electrical systems including shafts, plinths, openings, supports and sub-frame for any advertising panels and other roadside auxiliaries;

j. structural appraisal and modification design on existing buildings and structures and other features affected by the works;

k. lightning and stray current protection systems;

l. corrosion protection and control systems including all facilities for monitoring and evaluation;

m. structural design to provide fixing for road systems and other highway related systems;

n. provision for manholes, chambers, niches, recesses, plinths, fixtures, openings and the like, both inside and adjacent to the highway for highway related systems, drainage and Utilities;

o. site formation, stabilisation and strengthening of slopes and features affected by the works;

p. connections between the works and all existing infrastructure including, but not limited to, highways, footways, drainage systems, Utilities and buildings;

q. major temporary works design which has direct impact to permanent works and existing structures;

r. temporary road management systems at the connections to the highways;

s. recommendations for monitoring systems, regimes and measurement for before, during and after the construction of the works for structures, ground and environmental conditions;

t. groundwater table control, alert, alarm and action levels during construction of affected works and proposals for mitigation measures; and

u. outline demolition design and planning for safe demolition of all buildings / structures to be removed as a result of the Works.

5.4.4. Fire Engineering including but not limited to:

a. developing fire and life safety policies, criteria and strategies for the design of the Project in liaison with the Engineer and Qatar Civil Defence organisations. These policies, criteria and strategies shall be in accordance with applicable Qatar codes and regulations, applicable other international standards, and commonly used practices;

b. managing the design with regard to fire and life safety through implementing the design strategies; review of the design of facilities, equipment and systems; and by preparation of fire engineering reports at various Phases of the design to illustrate compliance of the design with the strategies;

c. preparation of submissions to the fire authorities including responses to comments, modifications to submissions, preparation of specialist study reports and any necessary modifications to the design as necessary for obtaining approval from the fire and civil defence authorities;

d. attendance at meetings with relevant authorities to present and clarify designs; and

e. provision of computational fluid dynamics models of aspects of the Project to verify the Consultant's designs and Contractor(s) designs for smoke control systems.

5.4.5. Landscaping including but not limited to:

a. protection of all trees and flora to be retained, transplantation of trees where required, felling or pruning trees, where affected by the works;

b. hard landscaping;

c. soft landscaping;

d. irrigation systems; and

e. landscape lighting.

It is a requirement for the Landscaping Works that the selected Landscape Architect is based full time in the State of Qatar for the duration of his works. This must be defined as a set period as part of the initial proposal and may be subject to increase in order that set deliverables are met.

5.4.6. Building Services, Mechanical and Electrical Engineering including but not limited to:

a. environmental control systems including air-conditioning, ventilation and air pollution control design;

b. tunnel ventilation;

c. air cooled and water cooled systems including chilled water plant and chilled water distribution systems, condensing water plants and system and all associated water treatment plant;

d. centralised air-conditioning systems for equipment rooms;

e. normal and emergency lighting systems;

f. fire fighting, protection, suppression and detection systems including direct links to the fire authorities;

g. electrical power supply and distribution systems including power supply for roadside systems and emergency power supply;

h. electrical power supply and distribution system for buildings and concessions which are fed directly from the local electric power supply;

i. water supply system including potable water, irrigation systems, cleaning water, make-up water for air-conditioning, flushing and hot water supply;

j. noise and vibration control including acoustic provision for electrical and mechanical equipment in accordance with the requirements of the EIA report;

k. lightning and earthing system;

l. external lighting and power supply;

m. acoustic design;

n. foul and surface water drainage;

o. specialist systems for animal exhibits;

p. compressed air systems;

q. smoke control system including smoke extraction and pressurisation of escape routes and emergency access routes;

r. building, system and building services control systems;

s. main road control systems, to be compatible with control systems at interfacing road networks;

t. miscellaneous systems; and

u. cathodic protection or similar

5.4.7. Utilities including but not limited to:

a. administer, negotiate, and perform all tasks necessary to obtain all Utility permits and consents. The Consultant shall attend all required meetings with Utility agency's personnel to review schedule, scope, design and cost adjustments, or relocations of any kind. This shall include agencies responsible for design, installation, operation and management of intelligent transport systems where required;

b. confer with and coordinate with such Utility providers; produce minutes and reports;

c. prepare the design of all Utility diversion works or other works relating to Utilities to the approval of the Utility provider and other authorities and interfacing parties where these designs are not carried out the Utility provider;

d. plan and execute any Utility diversions that may be required as advanced works in accordance with the Authority's processes and requirements for these works;

e. ensure that consents and approvals are obtained for any design or construction works from the affected Utility organisations;

f. oversee on behalf of the Project the design of Utility works diversions or other Utility works that are entrusted to Utility organisations to ensure full coordination of these interfacing works with the design of the Project;

g. the Consultant shall co-ordinate within the BIM model all Utility diversion schemes or other Utility works and the design thereof whether these works are designed or constructed by the affected Utility organisation;

h. ensure that interfacing programmes and projects are taken into account when designing the Works including but not limited to coordination of design, within the Project and with interfacing programmes and projects, of combined diversions sequence and programme, including traffic management activities; and

i. the Consultant shall be the point of contact for all matters relating to the design of the Works with Utility companies etc.

5.4.8. The Consultant shall liaise with the relevant Utility authorities and providers regarding, but not limited, to the following:

a. electricity supply and transmission;

b. gas supply and transmission;

c. water supply and transmission;

d. drainage and sewerage services;

e. cooling water networks;

f. fire services water mains; and

g. fixed and mobile network telecommunication services.

5.4.9. Land and property including but not limited to:

a. liaise with the Engineer to identify property rights required in order to deliver the Project;

b. liaise with the Consultant to develop for the Authority's non-objection a schedule of all works areas and temporary land required for the construction of the Works; and

c. develop land drawings for the use of the Consultant in obtaining the agreement of the relevant authorities to the acquisition of land required for the delivery of the Project.

5.4.10. Cost Control and Quantity Surveying including but not limited to:

a. review rates, approach to estimates, contingency and methods of measurement;

b. develop a plan to provide primary oversight of the design to ensure that proposed designs fit within budgets;

c. provide the Consultant's cost advice including but not limited to:

i. cost control on the design throughout its development and provision of all necessary support to the independent cost estimate review;

ii. preparation of Authority's Requirements from which cost documentation required for tender document preparation purposes shall be prepared by others;

iii. develop cost estimate reports for the Project that follow the progress of design and establish a baseline on which future design efforts will follow. These reports

shall be prepared bi-monthly; with interim updates required if in the sole opinion of the Engineer development of the design leads him to believe that such interim updates are required. These reports shall highlight significant Changes to the design and their impact on the budget;

iv. provide throughout the design phases reports to the Engineer on the cost of various design and construction alternatives being considered in design development, in Value Engineering and in remaining within the agreed Works budget. As a part of the cost analysis, the Consultant will consider costs related to efficiency, useful life, maintenance, energy and operations; and

v. benchmark the Consultant's cost estimates by references to similar projects undertaken in the area or where this is not possible on a component, quantum basis. Cost reporting shall set out the bases for the cost estimate and each element thereof along with associated assumptions, if any.

5.5. Third Parties and Interfacing Contracts

5.5.1. The Consultant shall be responsible for liaison with all third parties and with all stakeholders and statutory authorities in order to determine the requirements for the design at each interface. The Consultant shall be responsible for obtaining all approvals from all authorities with jurisdiction over the Works.

5.5.2. The Consultant shall liaise with the Engineer at the outset of the services to agree a process for managing the wide scale engagements necessary to ensure the development of a fully coordinated design that shall meet all the requirements of all stakeholders.

5.5.3. The Consultant shall ensure that the Engineer is aware of all third party agreements and design related requirements, and shall liaise directly with the Engineer on all such matters.

5.6. Validation Design Phase

5.6.1. The Project Validation Phase shall be carried out concurrently with the Mobilisation. The requirements for mobilisation are described elsewhere in this document.

5.6.2. The Consultant shall collect all relevant Project data and define, in conjunction with the Authority, and agree the final Authority's Requirements.

5.6.3. The Consultant shall:

a. Attend a Kick-Off Meeting.

b. Attend orientation meetings at the Project site, the end user offices and / or the Authority office to review the Project and Authority's Requirements.

c. Review, analyse, and evaluate the contents of the Project documents.

d. Conduct initial end user and / or Authority interviews to verify general space and use requirements.

e. Collect all Project information, including but not limited to:

i. Affection Plan / Pin Number.

ii. Site survey.

iii. Aerial photograph(s).

iv. Master development plan.

v. Relevant detailed master plans.

vi. Relevant design guidelines.

vii. Statutory and third party approvals and permitting procedures.

viii. Geotechnical survey / soil investigation report.

ix. Foundation recommendation report.

x. Topography survey and maps of the site and its surroundings.

xi. Hydrography reports.

xii. Drawings of existing structures, features and utilities.

xiii. Climatic and environmental data.

xiv. Pedestrian and traffic data.

5.6.4. The Consultant shall:

a. Obtain and review the Authority's Requirements; feasibility studies; vision; mission statement; design guidelines and any end user Brief(s).

b. Obtain and review all existing site information.

c. Review the rules and regulations applying to the site and comment and advise on any early works that may have commenced.

d. Identify any gaps or required clarifications.

e. Take appropriate action to adjust / augment / develop / finalise the Authority's Requirements into a Strategic Brief including a detailed area schedule.

5.6.5. The Consultant shall:

a. Inspect, research and survey the Project site to identify the physical characteristics of the Site, legal boundaries of the site, potential for buried artefacts or fossils, topography of the site, soil characteristics, trees, planning and zoning restrictions, hydrology, slope, drainage, deed restrictions, rights-of-way, roads, locations and dimensions of existing buildings, trees, existing geotechnical surveys, utilities, encroachments, adjoining property and structures and other information relevant to the Project.

b. Evaluate the site for the:

i. Purposes of site utilization;

ii. Application of the master development plan (if available);

iii. Application of design guidelines;

iv. Achievement of the Authority's Requirements / brief.

c. Identify the opportunities and constraints of the existing site conditions.

d. Prepare an analysis of the site in the form of a site evaluation report.

e. Provide additional information reasonably determined by Authority to be necessary or desirable, such as topography, soil data, and other related municipal and utility company data and / or a plan for accessing such information.

5.6.6. The Consultant shall develop the Authority's Requirements into a Strategic Brief.

5.6.7. The Consultant shall:

a. Verify detailed space, technical, functional and operational requirements.

b. Establish with the Authority or the end user their key business drivers, objectives, priorities, expectations and aspirations, and evaluate the implications.

c. Fully understand and map functional and adjacency requirements.

d. Prepare a consolidated document that will form an integral part of the Authority's Requirements as the Strategic Brief.

5.6.8. The Consultant shall conduct, as required, a series of formal as well as informal workshops / interviews in Doha, Qatar involving the end user and Authority personnel.

5.6.9. The Consultant shall, through precedents and benchmarking, suggest ways in which improvements to the design of the technical and functional facilities could be used to deliver best practice and thus help the end user or the Authority to achieve their business goals.

5.6.10. The Consultant shall:

a. Meet with end users and Authority, government departments and others to determine matters of principle.

b. Conduct detailed end user / Authority interviews to verify specific spaces and use requirements of the end user / Authority.

c. Provide an end user / Authority interview report to the Authority stating:

i. Individuals interviewed.

ii. Minutes of all meetings with action items and schedules detailed.

iii. Documents received.

d. Prepare a Strategic Brief confirming the Authority's Requirements in terms of:

i. Purpose.

ii. Areas.

iii. Standard of facilities and finishes.

iv. Special equipment.

5.6.11. The Consultant shall, in close collaboration with the Authority, finalise the Authority's Requirements into the Strategic Brief and area schedule to include, but not be limited to:

a. Authority's Requirements / description; considerations and options.

b. Design guidelines.

c. Area requirements (internal and external).

d. Operational requirements and logistics.

e. Facilities requirements.

f. Special relationships and adjacencies between facilities.

g. Designation of users.

h. Interface with existing or proposed facilities.

i. Special equipment or systems (including vertical transportation, facades, etc.).

j. Extent of infrastructure, landscaping and external works.

k. Preliminary budget estimate.

l. Preliminary cash flow forecast.

m. Preliminary programme.

5.6.12. The Consultant shall confirm, adjust and augment the Strategic Brief to represent the Authority and end user's requirements (as far as the end user's requirements are known at this Phase). Where the end users are not yet appointed, the Consultant shall provide sufficient detail to accommodate the key requirements for the majority of anticipated potential end users. The Consultant shall be responsible for obtaining an approval from the End User for key project requirements.

5.6.13. Prepare diagrammatic studies of the Project showing all major area and component requirements and their relationship to the site, services, utilities and other structures; and in the case of a project involving site work, the relationship of site systems to the site, services, utilities, and structures.

5.6.14. Prepare a code analysis report providing for compliance with all applicable requirements.

5.6.15. Prepare an analysis including the following factors: intended use, space and sequencing requirements; site and property requirements; environmental considerations; provision of all utilities; local building practices; time schedules for all phases of the Project; budget and cost forecasts; pedestrian access and egress patterns; public transportation facilities; vehicular traffic and parking availability and requirements; relationship to other projects either existing or proposed; sufficiency and adequacy of the Program; and other relevant factors.

5.6.16. The deliverables for this Phase shall include:

a. Site Inspection and research report.

b. Site evaluation report.

c. Terms of Reference for additional geotechnical investigation work. Obtain cost estimates from three companies for the services.

d. Spoil disposal strategy report.

e. Project Strategic Brief and area schedule.

f. Diagrammatic studies of the Project showing all major requirements and their relationship to the site, services, utilities and other structures.

g. End User / Authority Interview Report stating:

h. Individuals interviewed.

i. Minutes of all meetings with action items and schedules detailed.

j. Documents received.

5.7. Concept Design Phase

5.7.1. During the Concept Design Phase the Consultant shall develop the Concept Design to take account of the various requirements of the Applicable Codes and Standards that shall be applied to the Design; the emerging requirements arising from the Environmental Impact Assessment (EIA) (if required - to be provided by the Consultant) and site

investigation information; the requirements of third parties; interfacing projects; stakeholders and statutory authorities and the outcome of Value Engineering and Value Management studies. The intent is that a single option shall be presented to the Engineer that complies with the cost and time constraints of the Project and which will deliver the required outcomes.

5.7.2. The Consultant shall develop a procurement strategy in support of the Project objective to complete the Project at the earliest possible date. Early Contractor engagement shall be undertaken, and the Consultant shall prepare initial scope of works packages as necessary in support of these procurement initiatives.

5.7.3. The Consultant shall work collaboratively with the Engineer to take full account of all input arising from early contact with the contracting community by the Engineer with a view to testing constructability of the design.

5.7.4. The required outcome of this phase is an agreed design that adequately reflects all the constraints of the Project and that can be shown to deliver the required objectives for the project within the allowed budget and the timeframe.

5.7.5. Prepare a detailed cost estimate based upon a quantity take-off of all work necessary for the complete construction of the Project, in sufficient detail to demonstrate to the Authority that the work designed is within the approved Programme Budget, based upon the information provided by during the Concept Phase.

5.7.6. The Consultant shall liaise with all statutory authorities and third parties, interfacing projects and building owners so as to produce a co-ordinated design that takes account of all constraints and requirements.

5.7.7. The Consultant shall establish working procedures and practices in conjunction with other team members so as to ensure the smooth operation of the development and delivery of the Project. The systems adopted shall be non-objected by the Engineer.

5.7.8. The Consultant shall provide design leadership so as to provide a single point of contact for the co-ordination of all aspects of the design.

5.7.9. The Consultant shall organise, lead and record the outcomes of appropriate coordination meetings and workshops so as to ensure a fully co-ordinated design.

5.7.10. The Consultant shall review the Applicable Codes and Standards to be applied to the design of the Project.

5.7.11. The Consultant shall organise, lead and record the outcomes of design review and Value Engineering and Value Management workshops as required to establish the scope and form of the works, the interfaces at the boundaries of the Project and any design developments that are necessary as a result of compliance with codes, standards, information arising from site investigations, the EIA and all other requirements arising as a result of liaison with statutory authorities and other third parties. The purpose of these workshops shall be to ensure the Authority is fully informed and involved in design development.

5.7.12. The Consultant shall agree and implement a risk management process with the Engineer and carry out design risk workshops in conjunction with the Authority and the Engineer. A comprehensive risk management system shall be created in collaboration with the Engineer to ensure the adequate management of design risk throughout the Project. Design risk shall be managed by the Consultant in accordance with international best practice, and as a minimum all identified risks shall be categorised, quantified, and mitigation measures shall be managed and reported upon monthly.

5.7.13. The Consultant shall attend all meetings as directed by the Engineer as being required for the proper co-ordination and reporting of the progress of the design, and all other meetings as necessary for the delivery of the Services.

5.7.14. The Consultant shall receive and distribute instructions issued by the Engineer.

5.7.15. The Consultant shall keep records of all meetings that affect the development of the design, whether created by the Consultant or issued by others, so that a comprehensive record of all decisions affecting the design is available to the Engineer. The Consultant shall issue all records of meetings whether created by them or received by others to the Engineer.

5.7.16. The Consultant shall distribute information received from working groups, meetings with sub-consultants and ad hoc meetings to the Engineer.

5.7.17. The Consultant shall distribute information arising from all sources across the design team so as to ensure a coordinated design.

5.7.18. The Consultant shall track and record the distribution of design information between working groups and sub-consultants.

5.7.19. The Consultant shall review and comment on contract documentation prepared by the Engineer for the appointment of specialist consultants and contractors. Such review and comment shall be restricted to the scope, role and responsibilities of the documentation only.

5.7.20. The Consultant shall prepare a design schedule for review and acceptance by Engineer. The format of this schedule shall be agreed with the Engineer.

5.7.21. The Consultant shall provide all design management services necessary for the delivery of the Services.

5.7.22. During the Concept Design Phase the Consultant shall develop thee (3) different Concept Design options, leading to approval of the agreed Concept Design by the Authority.

5.7.23. The Consultant's responsibilities and Services during the Concept Design Phase include, but are not limited to, the following. The Consultant shall:

a. Develop the agreed design concepts.

b. Complete the design tasks required for the design guideline review.

c. Conduct and document design guideline review.

d. Continue to validate the Strategic Brief and design guidelines.

e. Define the full scope of the Project.

f. Refine the form of the Project elements.

g. Establish the key technical criteria that shall serve as a planning basis for the subsequent design Phases.

h. Prepare and coordinate with the Authority, end user(s), and other consultants, a written updated brief for the Project that includes area tabulations, relationship and adjacencies of the Project components, descriptions of basic design goals and objectives.

i. Assist and liaise with the Authority to review and approve the cost estimates and budgets for the Project prepared by the cost consultant.

j. Obtain approval from the End User for key aspects of the design.

k. Obtain the Authority's written instruction to proceed to the next Phase.

5.7.24. In addition to any deliverables that the Consultant may be required to provide under other provisions in this agreement, the Consultant shall also submit for the Authority's review and approval, the following Concept Design Phase documents.

5.7.25. Documents shall cover all disciplines and shall include, but not be limited to the deliverables list outlined below. The Consultant shall compile all disciplines into one set of documents, with cover sheet summarizing all sections and sheets.

5.7.26. There shall be no separate interior design set of documents. All plans, elevations, sections and details should compile architectural and interior elements. Interior design set of documents to be restricted to loose FF&E items only.

5.7.27. The scales listed below are an estimate and if different scales are necessary to provide the information desired by the Authority, the Consultant shall provide the information at the appropriate scale.

5.7.28. The Concept Design Phase services shall conclude when the Consultant has obtained written acceptance from the Authority.

5.7.29. The Consultant's responsibilities and Services during the Concept Design Phase include, but are not limited to, the following.

a. Updated Project Execution Plan;

b. Updated Design Management Plan;

c. Updated Project programme; design deliverables programme and proposed construction programme;

d. Updated site inspection and research report / site evaluation report

e. Updated Project brief;

f. Updated Project area schedule

g. Updated code analysis report;

h. Comprehensive and coordinated Concept Design Report(s) and presentation materials.

i. Phasing diagrams;

j. Value management report.

5.7.30. Concept Design Reports and Presentation

5.7.30.1. The primary deliverable from the Concept Design Phase is coordinated Concept Design Report(s) and presentations which shall clearly communicate a design solution to the Authority's Requirements.

5.7.30.2. Concept Design reports and presentations shall be provided by each design discipline. The information shall include: design criteria, performance criteria, description of systems, main space planning and general arrangements and initial load analysis; etc.

5.7.30.3. The format of the reports shall be a written A4 or A3 document with sketches, diagrams and drawings provided where appropriate to communicate conceptual planning and ideas.

5.7.30.4. The Concept Design Report(s) shall also include several options, including massing studies, for discussion with the Authority and highlight any risks, assumptions and clarifications that will require resolution during subsequent design development.

5.7.30.5. Comprehensive and fully coordinated Concept Design Report(s) shall be submitted and presented at 50% and 100% completion.

5.7.30.6. The Consultant shall consolidate all comments resulting from the review of the Concept Design including comments from the Authority, the end user; the cost consultant, the MMUP or any other key stakeholders.

5.7.30.7. The Consultant shall update and reissue the relevant sections of the Brief and the Concept Design Report(s) to the Authority and all members of the Project team within an agreed timescale.

5.7.31. Deliverables:

a. Complete and coordinated Concept Design Report(s) and presentation materials shall be provided by each discipline.

b. A3 booklet(s); drawings; renders; models and Power Point presentation.

5.7.32. Project Brief

5.7.32.1. The Consultant shall:

a. Continue to validate the Strategic Brief, define the full scope of the Project, refine the form of the Project elements and establish the key technical criteria that will serve as a planning basis for the subsequent design Phases.

b. Prepare and coordinate with the Authority, end user(s), and other consultants, a written updated Project brief for the Project that includes area tabulations, relationship and adjacencies of the Project components, descriptions of basic design goals and objectives, etc.

c. Develop outline room data sheets.

d. Continue to collect relevant data and establish, in conjunction, with the Authority the Project brief.

5.7.33. Deliverable:

a. Project brief.

5.7.34. Project Area Schedule

5.7.34.1. The Consultant shall:

a. Prepare updated area calculations based on the Authority's and MMUP's requirements and definitions (Gross Floor Area; Built Up Area; Floor Area Ratio (Gross External Floor Area / Net Internal Area); rentable area, gross plot area, etc.); net buildable area, maximum allowable and provided Gross Floor Area (GFA),), Building Efficiency (NIA / GFA) and site coverage ratios and any other key areas required by the Authority or end users.

b. Maintain, update and issue the schedules throughout Project.

c. Area calculations shall be calculated in accordance with the latest RICS Standard Method of Measurement 7 (SMM7).

5.7.35. Deliverables:

a. Project area schedule.

b. Diagrammatic plans.

5.7.36. Authorities, Permits and Code

5.7.36.1. The Consultant shall:

a. Identify government, statutory, code, third party and other legal requirements.

b. Prepare strategies to obtain necessary government and third party approvals and consents.

c. Take responsibility for maintaining a record of all formal communications with authorities, third parties and service providers.

d. Provide copies of all documentation in English and Arabic. Responses to the Consultant in Arabic only shall be distributed to the Engineer together with legalised translations of the same. All translations shall be provided by the Consultant at his expense.

e. Manage and maintain a tracker of all NOI's, No Objection Certificates, permits, applications and approvals; clearly recording current status, next steps, responsible party and action required. The tracker shall be updated as necessary, but as a minimum on a monthly basis.

5.7.37. Deliverables:

a. Updated Applicable Codes and Standards document.

b. Updated code analysis report determining applicable codes and strategy / programme / schedule outlining required submittals and submittal requirements to authorities having jurisdiction over the Project.

c. Tracking report identifying all required NOC's, NOI's, permits and approvals, by whom, to whom, with records of the current status and actions and actions. The tracker shall be a live document; updated and circulated as a minimum on a monthly basis.

d. A code, life safety and fire protection summary to include: the applicable codes, a plan review, identification of code compliance issues, outline fire and life safety report and investigation of building enhancements required.

5.7.38. Commercial

5.7.38.1. The Consultant shall:

a. Submit documents as required to the cost consultant, including area schedules, drawings and outline systems descriptions and finishes schedule.

b. Review and evaluate preliminary pricing information received from cost consultant and adjust design as required to maintain Authority's budget, with input and approval from the Authority.

5.7.39. Value Management

5.7.39.1. The Consultant shall:

a. Conduct a value management workshop to optimize the allocation of the budget to the Project and to ensure that Project cost does not exceed the Authority's established budget.

b. Incorporate approved value management options into design within an agreed timescale and at no additional cost to the Authority.

5.7.40. Deliverables:

a. Value management workshop.

b. Value management report.

c. Value management options incorporated into the design.

5.7.41. Concept Design / Kick-Off Workshop

5.7.41.1. The Consultant shall attend a site visit and a Concept Design Workshop in Doha, Qatar, attended by the Authority, all key stakeholders; all key consultants and sub-consultants.

5.7.41.2. The participants of the Workshop shall:

a. Confirm / establish key stakeholder objectives;

b. Confirm the vision for the Project;

c. Agree the goals and objectives;

d. Agree the development strategy;

e. Agree the design guidelines;

f. Agree the detailed schedule of areas

g. Agree the Authority's Requirements / Strategic / Project Brief;

h. Agree the Project programme / schedule;

i. Agree the deliverables;

j. Agree the Project budget;

k. Agree the Project procedures.

5.7.41.3. The Consultant shall:

a. Document the workshop results in an A3 presentation format and issue within the agreed timescale.

b. Develop the workshop concepts and present three preliminary Concept Design(s) for Authority review and cost estimate by the cost consultant.

5.7.42. Deliverables:

a. Three options taken to a point to effectively communicate design character and intent.

b. Three diagrammatic options at 1:500 and 1:200 scale, or as required.

c. Site plan.

d. Site plan in GIS format as required by MMUP and Authority.

e. Building and landscape plans: elevations and sections.

f. Project area schedule

g. The Consultant shall obtain Authority approval of the above before proceeding.

5.7.43. Acoustic

5.7.43.1. The Consultant shall:

a. Develop a preliminary report detailing acoustic aspects and material selection and criteria for all areas of the Project including but not limited to:

i. Site analysis and acoustics survey to define the current acoustic modelling levels, as well as analysis of relevant areas in planning that may impact upon the future development (e.g. new highways, industrial areas, etc.).

ii. Identify and evaluate noise and vibration sensitive occupants, activities and spaces.

iii. Identify architectural acoustics (internal noise levels; reverberation, acoustic separation between critical rooms; etc.).

iv. Exterior noise intrusion.

v. Airborne and impact sound insulation between critical spaces.

vi. Building services acoustics (external and internal MEP noise limits; etc.).

b. Recommend designs and systems to minimize noise and vibration and to meet or exceed applicable standards and codes.

5.7.44. Deliverables:

a. A preliminary report detailing acoustic aspects and material selection and criteria for all areas of the Project including but not limited to:

i. Site analysis, including proposed future developments;

ii. Acoustic design criteria;

iii. Recommendations to minimize noise and vibration and to meet or exceed applicable standards and codes.

5.7.45. Architectural

5.7.45.1. The Consultant shall prepare the following information for the three Concept Designs:

a. Site plan(s) at 1:250 / 200 / 500 and as required for DC1;

b. Detailed sketches of key Project components at 1:50

c. Floor plans at 1:200;

d. Elevations at 1:200;

e. Cross sections at 1:200;

f. Drop off zones / entrances 1:100 / 50;

g. Coloured presentation material for all components including site plans, site analysis, building plans, sections, elevations incorporating all interior design elements.

h. Architectural coloured renderings clearly demonstrating both architectural and interior design concept and intent. Dimensioned where necessary – critical dimensioning.

i. Prepare and select hardware concept design;

j. Concept material selection, furniture, fittings and installations;

5.7.46. Deliverables:

a. Plans and sketches to demonstrate and describe the design concept and direction of all elements of the Project including broad operational planning of both back of house and front of house areas:

b. Site plan at 1:250 / 200; 1:500 covering all Project elements. Showing relationships with the existing and planned road network and infrastructure, adjacent buildings, site levels and contours. Key circulation routes and logistics;

c. Site plan in GIS format as required by MMUP and Authority.

d. Detailed sketches of key Project components 1:50

e. Floor plans at 1:200;

f. Elevations at 1:200;

g. Cross sections at 1:200;

h. Drop off zone / entrance 1:100 / 50;

i. Vehicular and human traffic movement diagrams for both vertical and horizontal movement.

j. Concept for hardware.

k. Complete and coordinated architectural Concept Design Report and presentation:

   i. Design philosophy and story.

   ii. Three options / approaches with support graphics as required to effectively communicate design character and intent.

   iii. Key project components including integration of landscape design.

   iv. Other support information, mood boards, etc. as required to clearly and precisely allow the scheme to be clearly understood by anyone reading the booklet.

v. Project area schedule

vi. Plans; sections and elevations.

vii. Detailed physical model of preferred scheme at a scale agreed with the Authority (1:500 / 250 / 200 / 100). Scale required may vary depending upon the specific project.

viii. Photos of the above model.

ix. Coloured presentation material for all components including site plans, site analysis, building plans, sections, elevations incorporating all Interior Design elements.

x. Architectural coloured renderings clearly demonstrating both architectural and interior design concept and intent. Dimensioned where necessary – critical dimensioning. Full colour digital perspectives.

xi. Overall aerial perspective incorporating the entire project.

xii. Further perspectives as needed to communicate the Project scope and intent.

xiii. Perspective sketches depicting all elevations of all components of the Project. Perspectives front and rear views.

xiv. Two bird's eye views showing the entire site and all components of the Project and their relationship with adjacent areas and buildings.

xv. Five different exterior perspectives of different locations of the Project at eye level;

xvi. Exterior perspective showing the main entrance;

xvii. Five interior perspectives - one each showing the main public spaces and room designs. Views of interior and key room spaces.

5.7.47. Artwork / Public Art

5.7.47.1. The Consultant shall develop an artwork / public art program.

5.7.48. Deliverable:

5.7.48.1. A concept artwork / public art program.

5.7.49. Audio Visual

5.7.49.1. The Consultant shall:

a. Identify and refine the Authority's requirements regarding audio visual design and recommend appropriate audio visual systems for the Project. This may include elements of advertising and wayfinding and installations in elevators and around key circulation routes.

b. Attend meetings as required with key stakeholders to review operational requirements for audio visual systems including necessary cabling, fixed equipment including speakers and portable meeting room equipment and all related control systems and interfaces to third party systems such as dimming control

c. Develop concept design, operating program and budget for systems including:

d. List of spaces requiring audio visual systems and description of how the spaces will be used.

e. Systems capabilities descriptions delineating systems that will be used for each room or area in outline format (i.e. screen, projection, audio, control).

f. Preliminary budget estimates.

g. Take into consideration and make recommendations as required for the items that may affect the installation of the systems;

h. Conduct competitive property research effort to determine scope and quality of technology being provided by other properties that will compete with the Project and provide recommendations

5.7.50. Deliverable:

a. A Report on anticipated systems and opinion on probable costs for systems and preliminary design sketches for those systems.

5.7.51. Civil Engineering

5.7.51.1. The Consultant shall:

a. Analyse the geotechnical survey and report, as well as any other site survey information prepared by third parties, including the early works contractor. Analyse the early works contractor's geotechnical survey (if applicable) and prepare a comprehensive geotechnical interpretative report regarding the site of the Project, together with recommendations for excavation and foundations.

b. Review all existing site investigation data and material and specify their requirements for further geophysical site investigations and geotechnical site investigations necessary for the design of all assumed temporary and permanent works.

c. Determine the requirements for additional geotechnical investigation work and review the geotechnical survey and foundation recommendation report, if available, and confirm acceptance and / or request more data if required.

d. Be responsible for payment of all fees associated with retaining the geotechnical consultant for the completion of the geotechnical report.

e. Advise the Authority on any requirement for environmental, topographic, hydrographic or soils survey, for any model study or for any other survey, study or test that is necessary to supplement existing information.

f. Identify such testing, measurements, verification, and / or surveys as may be required to properly execute the design of the Project.

g. Prepare scoping documents for all site investigations. Provide input to the Engineer to ensure that the contract documents for all site investigations to be carried out by others is adequate for the purposes of developing the design of all assumed temporary and permanent works.

h. Prepare the terms of reference for the same and obtain cost estimates from three (3) companies for the services.

i. Liaise with the Engineer to issue instructions to vary the site investigations as necessary to ensure the adequate delivery of data in light of emerging site conditions and design.

j. Review factual reports produced by the site investigation contractor(s) and ensure that these reflect the site conditions as witnessed by the Consultant.

k. Review existing ground investigation material and data arising from site investigations procured by the Authority so as to develop Concept Design parameters for use in the design.

l. Produce geotechnical interpretative reports and determine design parameters from based on the factual data arising from the site investigations.

m. Develop a design for construction of all ground works to the extent necessary to define the Authority's Requirements and achieve all statutory approvals.

n. Produce Concept Design geotechnical designs addressing structural geology, seismicity, foundations, temporary works and retaining structures, for the design of all elements.

o. Produce a geotechnical engineering report that assesses the excavation of the ground required for the construction of the works such that realistic methods of construction can be assumed in the planning of the works contracts. Geotechnical engineering reports shall include assumed methods of dewatering, excavation and all other geotechnical works required to be undertaken for the delivery of the Project;

p. Produce a certified geotechnical investigation plan outlining geotechnical investigation, procedures and implementation. The plan shall be implemented by the Consultant to obtain all data required for complete structural evaluations and design of all facilities and infrastructure affected by new construction including: piers, foundations, project infrastructure, roads, retaining walls, canopy structures and building structures.

q. Produce a final geotechnical report to support designs for new construction (and remediation of existing structures if required). This report shall be included with and made part of the construction contract documents and outline the Consultant's and the contractor's responsibilities for these items during the construction and post construction Phases.

5.7.52. Deliverables:

a. Survey of all existing surface and underground utilities.

b. Condition survey of all adjacent structures, roads, pavements and boundaries, prior to commencement of site works.

c. List of survey work by others.

d. Written summary of site investigation requirements: scope of works and list of requirements for site investigation for use by the Authority to procure all necessary surveys, geotechnical studies (soil borings) and summary of available site utilities.

5.7.53. Commercial Kitchen; Food and Beverage / Laundry / Waste Management

a. The Consultant shall identify and refine the Authority's requirements for commercial kitchen areas, including space, equipment, mechanical, waste, logistics and other needs.

b. Where end users are appointed, liaison shall be necessary to incorporate their requirements into the design. Where no end user is available, the Consultant shall

provide a suitable food and beverage Concept Design for the Project, including outlet types, mix and typical menus. All MEP design shall be undertaken to suit the proposed outlet types identified within the food and beverage mix and agreed with the Authority.

5.7.54. Deliverable:

a. A report outlining Authority and end user requirements for the food and beverage strategy.

5.7.55. Energy and Comfort

5.7.55.1. The Consultant shall:

a. Develop a sun shading concept employing sun diagrams, shading effect diagrams, conceptual facade sections, evaluating solar energy systems, evaluating solar loading as per the relevant GSAS criteria.

b. Establish performance standards for comfort, lighting demand and air conditioning;

c. List and rank environmental parameters.

d. Determine relevant boundary conditions (location, natural recourses, climate, topography, geotechnical ground data, identification of main core utilizations, and grouping and zoning of buildings).

e. Evaluate local climate conditions; evaluate prevailing wind conditions and directions (summer – winter, day – night) for an appropriate general envelope design.

f. Recommend appropriate renewable energy systems;

g. Determine whether new energy supply technologies are appropriate;

h. Arrange for demonstrations of components and buildings elements.

i. Advise on proposed energy systems, including recycling of resources such as heat, cooling and water.

5.7.56. Deliverables:

a. Performance standards for comfort, lighting demand and air conditioning; list and rank environmental parameters.

b. Evaluation of local climate conditions; evaluate prevailing wind conditions and directions (summer – winter, day – night) for an appropriate general envelope design.

c. Report with recommendations.

5.7.57. Façade and Building Cleaning and Maintenance

5.7.57.1. The Consultant shall:

a. Recommend façade and building cleaning and maintenance strategies and alternatives.

b. Determine space requirements for façade and building cleaning and maintenance equipment and any special requirements or impacts of equipment (including elevator sizing and loading).

c. Provide tracking and loading information for all cleaning and maintenance equipment, coordinated with structural, MEP and landscaping consultants as necessary.

d. Provide MEP inputs for provision of power and water outlets.

e. Advise on safety and operational issues relating to facade and building cleaning and maintenance, including walkways, guardrails, anchoring systems, etc.

5.7.58. Deliverable:

5.7.58.1. A façade and building cleaning and maintenance report including:

i. Performance requirements related to the maintenance of the building exterior and interior surfaces.

ii. Plant and storage requirements to undertake the maintenance schedule.

5.7.59. Fire and Life Safety Engineering

5.7.59.1. The Consultant shall:

a. Establish codes to be used in planning and agree with local authorities (ie. QCD, etc).

b. Advise on application of code, including aspects such as: power, lighting, pressurization, statutory signage requirements, etc.

c. Outline all applicable fire and life safety design requirements for the Project (including escape routes, fire and / or smoke compartments and separation, sprinkler systems; and emergency vehicle access requirements, fire command centre), etc.

d. Recommend fire and life safety systems for the Project.

e. Advise on application of new technologies and their acceptance (or otherwise) by civil defence.

f. Update the report during each design phase reflecting changes to the design.

5.7.60. Deliverable:

a. Outline fire and safety report preliminary report outlining fire and life safety assessment including but not limited to: classification of occupancy and hazards of contents; occupant load; means of egress; fire compartmentation and separation; vertical openings; fire department access requirements; emergency command centre requirements; special structures and high rise buildings; local high rise buildings; building services; fire protection equipment; exits; Illumination and means of egress; marking means of egress; equipment rooms.

b. Interpretation of local regulatory requirements. Identification of code compliance issues. The code and life safety and fire protection summary to include: applicable codes and a plan review.

c. Investigation of building enhancements.

5.7.61. Graphics; Wayfinding and Signage

5.7.61.1. The Consultant shall prepare three Concept Designs for internal and external signage and graphics for the Project.

5.7.61.2. The wayfinding analysis shall include:

a. Research signage and wayfinding requirements;

b. Define user groups and requirements;

c. Define typical journeys for all potential users;

d. Provide itemized list of all potential sign items required.

e. Provide signage in Arabic and English.

5.7.61.3. The Consultant shall:

a. Create a sign family and three concepts in line with development design intent and identity.

b. Create one example demonstrating application of concept for a range of signage types within proposed sign family.

c. Indicate suitable materials, finishes and colours for all three Concepts.

5.7.62. Deliverables:

a. Sign families and three concepts in line with development design intent and identity.

b. One example demonstrating application of concept for a range of signage types within proposed sign family.

c. Indication of suitable materials, finishes and colours for all three concepts.

d. Signage and Wayfinding report

5.7.63. Information Communications Technology (ICT)

5.7.63.1. The Consultant shall:

a. Develop the building management and automation system

b. Attend meetings as required with key stakeholders to review operational requirements for telecommunications systems.

c. Prepare a comprehensive Authority / end user design criteria questionnaire / query list to extract the relevant information from key stakeholders.

d. Develop Concept Design, operating program and budget for systems including the following but not limited to:

i. Conceptual work statement.

ii. Basis of design report / conceptual design criteria report.

iii. Prepare preliminary budget cost estimates.

iv. Technical narrative describing the project understanding, design overview, design principles, installation standards and support system description as will be applicable to the various technical design disciplines and project components.

v. Applicable design standards and how these standards relate to the specific sub components and disciplines.

vi. Indicative space requirements for telecommunications rooms, locations, interconnectivity between buildings within the plot and outside plant, etc.

vii. Benchmark equipment

viii. Preliminary electrical load and heat calculations.

ix. Take into consideration and make recommendations as required.

e. Conduct competitive property research effort to determine scope and quality of technology being provided by other properties that will compete with the Project and provide recommendations.

f. Assist in matters related to all public agencies with jurisdiction over the Project.

5.7.64. Deliverables:

5.7.64.1. The ICT report shall describe the overall strategy, how each of the individual systems operates, and how the overall system is of benefit to the Authority and / or end user.

5.7.64.2. Recommend ICT systems and equipment for the operation, monitoring, and maintenance of the Project;

5.7.64.3. The building maintenance system (BMS) and how this operates with all of the other individual systems within the building, including a fibre optic backbone where appropriate.

5.7.65. Interior Design and Furniture, Fittings and Equipment (FF&E)

5.7.65.1. The Consultant shall:

a. Develop three different layouts and interior design concepts for the Project including, but not limited to: key front of house areas, all entrances / receptions, public spaces, common areas, front of house corridors, lobbies, public elevators, public amenities, support staff areas, restaurants, cafeterias, conference rooms, assembly halls, auditorium, offices and other interior areas consistent with the Authority's quality requirements and the brief.

b. Develop three alternate space planning layouts for specific public areas and coordinate and integrate the initial engineering disciplines (MEP / ITC / AV).

c. Prepare a schedule of finishes and outline FF&E for all interior design designated areas, and compare with cost plan / budget allowances.

5.7.66. Deliverables:

5.7.66.1. The Consultant shall prepare the following information for the three Concept Design Options:

a. Preliminary floor plans.

b. Furniture and interior design direction, including specialist lighting where appropriate.

c. Preliminary furniture plans.

d. Image selection describing furniture and interior design direction.

e. Preliminary schedule of finishes and material palette.

f. Sketches showing design direction.

5.7.67. Landscape

5.7.67.1. The Consultant shall prepare three landscape design concepts for the Project (including a landscape / environment analysis) and 3D renders showing:

a. Site development plan identifying boundaries; buildings; access and egress points; internal vehicular and pedestrian communication routes and use zones in accordance with the current master plan.

b. Indication of hard and soft landscape treatments including spatial arrangement and appearance.

c. Take into consideration GSAS criteria as they relate to landscape design.

d. Schematic layouts for the proposed landscape scheme including planting; decorative water features; recreational facilities; structures and shading elements; finishes;

planting species; site furniture; decorative lighting; signage (and coordination with wayfinding); equipment and artwork.

e. Proposed details of tree pits, depths and loading constraints, together with an outline of the structural and MEP implications of any landscape areas or features on building slabs or roofs, together with an irrigation and drainage concept.

f. Schedule of equipment required to maintain the proposed landscape design, together with storage area requirements, proposed locations, and landscaping staff facilities where required.

g. Sustainability report including information of proposed species and origins, regional suitability, maintenance regime, irrigation systems and requirements.

5.7.68. Deliverables:

5.7.68.1. The Consultant shall prepare the following information for the three Concept Design options:

a. Rendered site plans indicating all site circulation, hard and soft landscape areas, special features, site engineering elements e.g. retaining walls; etc.

b. Site perspectives, scaled concept sections and detailed areas to indicate sufficiently to Authority site specific character of landscape design philosophy and elements.

c. Preliminary landscaping plans and cross sections;

d. Material palettes and imagery: hardscape; softscape; lighting; furniture and fixtures; shade structures.

e. Irrigation and drainage strategy

f. Landscape maintenance requirements

5.7.69. Lighting (Interior; Exterior and Speciality)

5.7.69.1. The Consultant shall:

a. Evaluate the impact of facade and building materials on lighting design and present three options for external architectural illumination.

b. Recommend lighting designs, including integration of landscape areas into the architectural lighting design.

c. Prepare lighting options and concept designs for external lighting and for internal lighting where specialist areas are defined.

d. Liaise with the interior designer for continuity of lighting concept internally and externally and advise on fittings selected.

e. Prepare outline performance specifications for lighting types and quantities selected, and liaise with MEP designer to coordinate supply, loads, etc.

f. Take into account lighting requirements relating to GSAS criteria.

5.7.70. Deliverables:

5.7.70.1. Lighting design report to include: concept statements, target illumination levels, performance criteria of light fixtures and sources for the three Concept Design options.

5.7.70.2. Evaluation of the lighting needs for the three Concept Design options.

5.7.70.3. Concept lighting designs to convey the atmosphere or “mood” of the design through the use photographs, sketches, plans, fixture catalogue cuts and fixture samples.

5.7.71. MEP Engineering

5.7.71.1. The Consultant shall:

a. Review and refine the Authority’s Requirements;

b. Develop initial MEP concepts;

c. Establish basic spatial configuration for major mechanical plants and integrate these into the concept drawings;

d. Describe all proposed MEP systems and accessibility of large plant items e.g. chillers, generators, etc.

e. Identify available Site utilities and compare with loading and supply requirements, and formulate strategy to accommodate and differences.

f. Assess the need for additional utility infrastructure for the Project. This may require the Consultant to meet with all government, statutory and approval authorities, service providers or governmental entities.

g. Advise on environmental and sustainability measures and any systems that provide environmental benefits.

h. Assist the GSAS sustainability consultant on load and supply requirements.

5.7.71.2. The Consultant shall:

a. Identify available site utilities and future planned supply (as well as completion dates);

b. Assess the load demand assessment for the Project and prepare a load demand notification for the development;

c. Assess the need for additional utility infrastructure for the Project, including potential options.

d. Identify all authorities, agencies and utility services providers that will need to be contacted during the project and develop a permitting strategy (with lead consultant);

e. Advise on all NOC’s, NOI’s, permits and approvals required during the project life cycle.

5.7.71.3. These actions may require the Consultant to meet with all government, statutory and approval authorities, service providers or government entities.

5.7.72. Deliverables:

5.7.72.1. Preliminary design criteria.

5.7.72.2. MEP building services alternative concepts consistent with architecture and sustainability goals.

5.7.72.3. MEP preliminary environmental strategies.

a. Daylight and Energy Summary Report of the recommended approach, including the following: recommendations for type of façade and roof; recommendations for ventilation and cooling strategies; sun protection requirements; options and alternatives; effect of thermal mass on comfort; assessment of current planning state concerning energy consumption and comfort; use of natural energy sources and

appropriate components; rough dimensions of earth heat exchangers; use of ground water; slab heating / cooling; verification of concept by means of dynamic thermal simulation; daylight simulation and airflow simulation.

b. Coordinated Concept Design Report for the MEP services developed on a minimum of three alternative options. Section the report into mechanical, electrical, plumbing, fire, vertical and horizontal transportation services, ICT systems and building management services systems. Provide supporting single line drawings and diagrams to illustrate the proposed systems as required to clearly illustrate the concepts.

5.7.72.4. The report shall include the following as a minimum:

a. Narratives to describe the design philosophy, advantages and disadvantages and the qualitative and quantitative comparative evaluation of each option, together with a recommendation for consideration by the Authority. Specific features and functions of each system;

b. The site conditions, availability and restrictions of the site infrastructure supply and collection services and proposed details of connections to the infrastructure services.

c. Systems considered shall include but not be limited to:

i. Mechanical systems including heating, ventilating, air conditioning, plumbing and controls

ii. Electrical systems including primary and secondary distribution, interior and exterior lighting, dimming systems, uninterrupted power systems, background music distribution, cable television security, closed circuit television, low voltage alarms, compute system distribution, portable radio system, portable pager system, banquet and meeting facility special systems distribution, car parking management system, vertical transportation requirements, etc.

iii. Plumbing systems including cold water and hot water services, sewerage and drainage systems and use of grey water and / or condensate where appropriate.

iv. Fire protection and life safety system including smoke movement control, emergency power, automatic sprinklers standpipe and fire hose system, special protection systems, fire alarm and annunciation system.

v. Lightning protection system requirements.

5.7.73. Security and Threat Analysis and Assessment

5.7.73.1. The Consultant shall:

a. Liaise with all recognised security authorities and identify potential security risks (both general and specific);

b. Recommend security systems and design elements to provide a safe and secure design for the Project.

c. Advise landscape, traffic, architectural and MEP consultants on measures that may be required to mitigate against perceived threats, including CCTV camera numbers and locations; speed bumps; barrier controls; secure entry procedures; etc.

d. Advise on a strategy for up / downgrading security systems to accommodate periods of higher or lower threat, if applicable.

e. Advise on requirements for a security control room and staff facilities (location, size, equipment and operational requirements).

f. Deliver a site security risk assessment including generic mitigation measures.

5.7.73.2. The security analysis shall include:

a. Research operational requirements with key stakeholders, including conducting interviews with key individuals to determine any special design requirements that must be included in the overall system and network.

b. Become familiar with facility location, culture, competitive products, local codes and ordinances and equipment availability.

c. Prepare preliminary security strategy and identify number of personnel required.

d. Propose only most current technologies and products.

e. Evaluate and document security system options and technologies considering relative cost, risks and performance. Specific consideration should include but is not limited to: analogue or IP digital camera system; on-line electronic locking systems (magnetic card, proximity, smart card); wireless on-line locking systems (wi-fi, zigbee); off-line locking systems; wired and wireless alarm notification devices (door contacts, buttons, buzzers, lights); bollards, rising plates and other vehicular barrier technologies; vehicle inspection stations and equipment.

f. Take into consideration and make recommendations as required for the following items as they may affect the installation of the security systems: need for multiple entries to the property by guests, staff and suppliers; control of parking areas and vehicular access routes; 24 hour access to the property by guests and staff; indoor or outdoor connections to third party space or areas not managed or controlled by end user; need for redundant utilities to ensure security systems remain functional in an emergency; HVAC requirements for security systems; fire suppression and detection systems for security rooms; generators; raised flooring and elevated raceways for security equipment rooms; identification of all critical systems.

g. Conduct a competitive property research effort to determine the scope and quality of technology being provided by other properties that will compete with this Project and provide recommendations to the Authority.

5.7.74. Deliverables:

5.7.74.1. Security Report: analysis of anticipated systems and opinion on probable costs for on systems and preliminary design sketches for systems.

5.7.74.2. Site security risk assessment including generic mitigation measures.

5.7.75. Special Structures / Façades

5.7.75.1. The Consultant shall:

a. Prepare studies of special structures and façade and cladding systems alternatives and make recommendations to the Authority.

b. Identify reference projects and facade and cladding systems, together with key technical characteristics and assembly methods.

5.7.76. Deliverables**:**

5.7.76.1. Reports and drawings with examples and recommendations.

5.7.77. Structural Engineering

5.7.77.1. The Consultant shall:

a. Prepare a scope of works for a geotechnical investigation (if not already undertaken) and / or analyse the geotechnical investigation report and identify areas requiring further analysis, together with specifications for the work to be undertaken.

b. Analyze geo-technical data and provide a detailed report for use in the structural design, including an interpretative report and a foundations recommendation report.

c. Advise on foundation design and appropriateness of cathodic protection.

d. Prepare scope of work for wind tunnel testing.

e. Study alternate structural systems and construction methodologies and advise on time and cost implications of these.

f. Advise on initial structural concepts for special areas e.g. atria and large span structures.

g. Undertake code analysis and advise on adopted codes, including earthquake codes.

5.7.78. Deliverables:

5.7.78.1. Assist the Authority in studying alternatives.

a. Preliminary structural design options;

b. Structural design sketches for the foundations and superstructure;

c. Complete and coordinated Concept Design Report to incorporate the following:

i. Structural design criteria, including loads, design standards and codes of practice.

ii. A minimum of three well considered structural concept solutions, sufficiently developed with diagrams to enable a detailed comparison. A list of advantages and disadvantages for each option, taking into consideration all relevant design and construction issues such as buildability, procurement, materials, detailing, cost advantages, etc. Structural design framing schemes for the purpose of architectural and MEP system selection; structural design sketches for the foundations and superstructure;

iii. Recommendation for the preferred / most suitable option with justification, including risk assessment

iv. Foundation and piling design, including recommendation on use of cathodic protection;

v. General arrangement drawings and typical member details for the preferred option showing the general disposition of superstructure elements, foundations, indicative sizes for key members, lateral stability provisions, materials, special details and any other relevant information. Structural concept drawings shall be coordinated with all other relevant disciplines such as architecture, MEP, landscape, etc. as necessary.

d. Specification and scope of works for geotechnical investigation, as required. Where appropriate, specification(s) and scope of works for other specialist reports such as topographic surveys, wind tunnel testing, measured surveys of buildings, surveys of existing adjacent services and structures, etc.

5.7.79. Traffic Circulation and Parking

5.7.79.1. The Consultant shall:

a. Establish criteria for Traffic Impact Study (TIS) and all other design services required by the relevant authorities.

b. Identify all access and egress points and proposed circulation routes, including zone separation where appropriate.

c. Establish basic planning criteria for car parking and truck loading docks in accordance with local regulations, governmental requirements and statutory authorities.

d. Analyse and validate parking requirements by determining parking demand for the particular location including adjacent buildings, overflow parking required, visitors peak demand and maximum building(s) occupancy periods. Identify potential synergies and shared use possibilities.

e. Establish a parking control concept and parking management system by providing basic concepts in written form, with reference to sample projects.

f. Review the parking and truck loading dock requirements, including number of spaces to be provided, number of loading berths to be provided, types of users, vehicular access, special conditions, roadway requirements and other requirements.

g. Prepare and review available master plan studies, reports, surveys and current plans which will be pertinent to the functional design of the parking area and the specific needs of the users;

h. Review current and projected future traffic studies that have been completed for the Project that address peak vehicular traffic, roadway needs and improvements and other traffic related issues.

i. Recommend parking geometry including stall sizes and angles, drive aisle widths, ramp slopes and widths, turning radii, entry / exit lane widths and loading berth sizes,

j. Coordinate the geometry with the building grid for occupied spaces above the parking levels in accordance with local regulations, governmental requirements and statutory authorities.

k. Identify requirements for specialist equipment such as parking barriers; traffic lights; rising plates; etc.

l. Submit Traffic Impact Study (TIS) as required by the relevant authorities.

5.7.80. Deliverables:

a. Vehicular traffic diagrams and computer model.

b. Parking Report on collected data summary of review and recommended parking geometry which shall include:

i. A brief description of the proposed development, definition of the study area and overall approach to the parking and traffic design.

ii. Analysis of the existing condition - summary of the current conditions on the major streets and internal roads surrounding the proposed development.

iii. Parking requirement – assessment of the demand for parking generated by the development, and the manner in which this demand is met.

c. Concept design drawings indicating multi-modal Site access and circulation analysis – evaluation of access, egress and circulation on-site for vehicles, public transportation, pedestrians and bicycles, design of development parking..

5.7.81. Vertical Transportation

5.7.81.1. The Consultant shall:

a. Identify unique requirements of the building or anticipated occupancy and their influence on the vertical transportation systems.

b. Establish the analysis design criteria, including peak occupancy and arrival periods; travel times; waiting times; lift speeds; etc.

c. Utilize the selected design criteria and projected populations to conduct a vertical transportation equipment analysis.

d. Select and recommend the most viable alternatives based on an option study / feasibility analysis.

e. Submit coordinated Concept Design Report for approval on the vertical transportation system including conformance to various codes.

5.7.82. Deliverable:

a. A vertical transportation report to include the following:

i. Recommended design requirements, including building occupancy studies and waiting times;

ii. Vertical transportation equipment analysis;

iii. Study and feasibility analysis; and

iv. Conformance to various codes.

5.7.83. Waste Management

5.7.83.1. The Consultant shall recommend systems to efficiently and safely manage and dispose of waste generated by the Project in an environmentally responsible manner.

5.7.83.2. Waste management systems shall be coordinated with all occupancy groups and users. Particular attention shall be given to requirements for food and beverage; kitchen and laundry facilities, where the separation of clean and dirty routes is mandatory.

5.7.83.3. In addition the Consultant shall coordinate his design to meet the requirements for Environmental permitting.

5.7.84. Deliverable:

5.7.84.1. Report including recommendations of waste management systems.

5.8. Schematic Design Phase

5.8.1. The Consultant shall provide Scheme Design Services based on the Concept Design Report; the Project brief and design guidelines approved by the Authority at the completion of the Concept Design Phase.

5.8.2. The Scheme Design Phase shall conclude when the Consultant has obtained written approval from the Authority.

5.8.3. In addition to all responsibilities required in the exercise of reasonable skill and care, the Consultant's Scheme Design Phase responsibilities and services shall include, but are not limited to, the following:

5.8.4. The Consultant shall:

a. Prepare and submit the approved Concept Design option to the MMUP for the DC1 Planning Application.

b. Obtain copy of MMUP DC1 Planning Application Approval.

c. Develop the approved Concept Design in accordance with the Project brief and design guidelines.

d. Keep the Authority informed, seek guidance and direction and follow instructions as required.

e. Coordinate the input of the Authority's other consultants, (if relevant).

f. Report on design guideline compliance.

g. Consider and evaluate alternative structural and services engineering (MEP, fire and life safety, security, etc.) systems and report on technical and cost comparisons (indicating advantages and disadvantages) between the proposed systems.

h. Prepare an analysis of Project procurement options and phasing and recommend a preferred procurement approach.

i. Continue to interview, select and contract all specialist consultants as required for the architectural and engineering design process to proceed smoothly.

j. In addition to any Scheme Design Phase documents that the Consultant may be required to provide under other provisions in this Agreement the Consultant shall also provide for the Authority's review and approval at least the following Scheme Design Phase documents.

k. Documents shall cover all disciplines and will include, but not be limited to the deliverables list outlined below. The Consultant shall compile all disciplines into one set of documents, with a cover sheet summarizing all sections and sheets.

l. There shall be no separate interior design set of documents. All plans, elevations, sections and details should compile architectural and interior elements. The Interior Design set of documents shall be restricted to loose FF&E items only.

m. The scales listed below are an estimate; if different scales are necessary the Consultant shall provide the information at the appropriate scale.

5.8.5. Deliverables:

a. Updated Project Execution Plan

b. Updated Design Management Plan

c. Updated design code review / compliance report

d. Updated Project brief.

e. Updated Project area schedule

f. Comprehensive and coordinated Scheme Design Reports and presentation materials

g. Update the Project programme; design deliverables programme and proposed construction programme

h. Value management report

i. Value Engineering report

j. Phasing diagrams

5.8.6. Scheme Design Reports and Presentation Materials

5.8.6.1. The primary deliverable from the Scheme Design Phase is a coordinated Scheme Design Report; presentation and drawings which shall clearly communicate a design solution to the Authority's Requirements.

5.8.6.2. Scheme Design Reports shall be provided by each design discipline, providing information such as design criteria, performance criteria, description of systems, main space planning and general arrangements and initial load analysis. The reports shall include several options for discussion with the Authority and highlight any risks, assumptions and clarifications that will require resolution during subsequent design development.

5.8.6.3. The reports shall be written A3 document with sketches, diagrams and drawings provided where appropriate.

5.8.6.4. Comprehensive and fully coordinated Scheme Design Reports shall be submitted and presented at 50% and 100% completion.

5.8.6.5. The Consultant shall consolidate all comments resulting from the review of the Scheme Design Reports, including comments from the Authority, the end user; the cost consultant, the MMUP or any other key stakeholders.

5.8.6.6. The Consultant shall update and reissue the relevant sections of the Scheme Design Reports to the Authority and all members of the Project team within an agreed timescale.

5.8.7. Deliverables

5.8.7.1. Comprehensive and fully coordinated Scheme Design Reports and presentation material from all disciplines.

5.8.7.2. A3 booklet(s); drawings; renders; model(s) and Power Point presentation.

5.8.8. Project Brief

5.8.8.1. The Consultant shall;

a. Continue to validate the Project brief, define the full scope of the Project, refine the form of the Project elements and establish the key technical criteria that will serve as a planning basis for the subsequent design Phases.

b. Prepare and coordinate with the Authority, end user(s), and other Consultants, a written updated Project brief for the Project that includes area tabulations, relationship and adjacencies of the Project components, descriptions of design goals and objectives, etc.

c. Continue to collect relevant data and establish, in conjunction, with the Authority the Project brief.

d. Room data sheets shall include but not be limited to:

i. Architectural and interior design data.

ii. Environmental characteristics of the room for HVAC.

iii. Electrical outlets and lighting.

iv. Communication and security systems.

v. Pre-installation works needed for equipment or furniture to be installed.

vi. Special requirements.

vii. A detailed layout plan with scale 1:50 or 1:20 with reference numbers to the equipment and furniture items including the required services outlets.

5.8.9. Deliverables:

a. Updated Project brief that includes area tabulations, relationship and adjacencies of the Project components, descriptions of design goals and objectives, etc.

b. Updated room data sheets

5.8.10. Project Area Schedule

5.8.10.1. The Consultant shall:

a. Update the Project area schedule: including Gross Plot Area, Built Up Area (BUA), Net Floor Area (NFA) by use type and maximum allowable and provided Gross Floor Area (GFA) by use type, Floor Area Ratio (FAR), site coverage ratio.

b. Provide areas of building components to the cost consultant for costing purposes as required, as well as identifying materials and finishes.

c. Provide parking calculations as per the requirements of the relevant authority.

5.8.11. Deliverables:

a. Updated Project Area Schedule.

5.8.12. Authorities, Permits and Codes

5.8.12.1. The Consultant shall:

a. Perform a code search to confirm all relevant regulations, codes of practice and design requirements and continue integrating these into planning.

b. Establish contact with government, statutory and approval authorities, and third parties from whom consents are needed, and recommend strategies for obtaining consents;

c. Continue meetings with the government, statutory and approval authorities, as necessary;

d. If requested or required by government, statutory and approval authorities or Authority, present the design to government, statutory and approval authorities for their review and comment;

e. Adjust the design to meet authorities' additional requirements at no extra cost to the Authority.

f. Review, evaluate and update strategy for obtaining all consents, approvals, No Objection Certificates (NOCs), Permits and the like needed to be obtained from all relevant authorities and departments.

g. Develop an outline of required consents needed for the Project, indicating applicable building codes, approval authorities, required permits and an approval schedule.

h. Develop a matrix of required consents needed for the Project, indicating applicable building codes, approval authorities, required permits and an approval schedule.

i. Manage and maintain a tracker of all NOI's, NOC's permits, applications and approvals clearly recording current status, next steps, responsible party and action(s) required. This will be updated as necessary, on a monthly basis as a minimum.

j. Be responsible for maintaining a record of all formal communications with authorities, third parties and service providers and provide copies of all documentation in English and Arabic. All translations shall be provided by the Consultant at his expense.

k. Confirm the design meets all relevant codes and standards as required.

5.8.13. Deliverables:

a. Scheme Design code review report.

b. Approvals tracker.

c. No Objection Certificates (NOCs); NOI's, Permits.

5.8.14. Commercial

5.8.14.1. The Consultant shall:

a. Submit documents as required to cost consultant (including drawings, specifications, area schedules and quantities where relevant).

b. Review and evaluate preliminary pricing information received from cost consultant and adjust design as required to maintain the Authority's budget, with input and approval from the Authority. Where appropriate, advise the cost consultant where pricing information provided can be adjusted through use of alternative materials or products.

c. Recommend construction methods, evaluate time and cost savings that might be realized from using different tendering methods.

5.8.15. Value Management / Value Engineering

5.8.15.1. The Consultant shall:

a. Conduct a value management / Value Engineering workshop to optimize the allocation of the budget to the Project components and to ensure that Project cost does not exceed the Authority's established Budget and to ensure that value is achieved in the design.

b. Incorporate approved value management / Value Engineering options into the design at no additional cost to Authority.

5.8.16. Deliverables:

a. Value management / Value Engineering Reports;

b. Approved value management / Value Engineering options incorporated into the design at no additional cost to Authority.

5.8.17. Acoustic

5.8.17.1. The Consultant shall:

a. Develop acoustic criteria in terms of background noise levels, speech privacy, reverberation times and other applicable parameters.

b. Identify key spaces that require acoustic modeling, such as, theatres, auditoria, lecture spaces, conference centres, etc.

c. Define acoustic design criteria for various spaces including but not limited to the following categories:

i. Maximum permissible background noise levels in terms of Noise Criterion (NC) ratings due to the operation of HVAC systems, plumbing, electrical and elevator systems.

ii. Acoustic separation between different spaces, categories of ceiling, walls and floors in terms of STC ratings, to achieve speech privacy and noise isolation.

iii. Optimum reverberation time criteria for spaces such as ceilings, walls, floors.

iv. Impact noise IIC / INR ratings of floor slabs and floor finishes for control of impact noise transmission between vertically adjoining spaces.

d. Study space adjacencies and identify potential intrusive noise transmission due to nature of various functions and offer suggestions to remedy.

e. Review base building mechanical and electrical design concepts, identify potential problems and offer suggestions to remedy.

5.8.18. Deliverables:

5.8.18.1. Analytical report with recommendations on different acoustic performance for the different Project elements, to include recommendations concerning:

a. Spatial relationships, room geometry, wall types and floor / ceiling system construction.

b. Mechanical system design and other Project components.

c. Impact of selected finishes and insulation.

5.8.19. Architectural (including all fixed Interior Design elements)

5.8.19.1. The Consultant shall:

a. Prepare plans, elevations, sections, perspectives, outline specifications and schedules, in sufficient detail to illustrate and establish firmly the size and character of the entire Project with regard to site utilization, architecture, landscape, interior design (including FF&E), signage and wayfinding, structure, MEP, fire protection and life safety systems, communications, security, logistics and waste management, sustainability, performance specification (CSI or NBS), sustainability (GSAS) and any special equipment, and all other pertinent information as required for the Project from all disciplines.

b. Develop preliminary facade systems drawings for the major facade types in an appropriate scale (1:20 / 1:25 / 1:50), keyed to the overall elevations;

c. Develop the design of major interior spaces (lobbies, all public spaces, entrance area, etc.) using large scale elevations and perspectives;

d. Provide sample boards for all proposed materials;

e. Investigate availability and suitability of a range of alternate materials and report on cost, quality, durability and availability of options proposed.

f. Refine the architectural character, integrating the developed ideas of the full range of disciplines including architecture, interior design and landscape design.

g. Refine the relationship of the Project components and develop the planning in detail, integrating more fully resolved studies relating to operational requirements, horizontal and vertical circulation, structural engineering, mechanical, electrical and plumbing and other services and studies of the Consultant's specialist sub-consultants, e.g. traffic, security and environment.

h. Develop concepts and selection of hardware.

5.8.20. Deliverables:

a. Site plan in GIS format as required by the Authority and MMUP.

b. Site plan at 1:500 scale (or other appropriate scale) showing location of all major elements including but not limited to: architectural layouts; landscaping and exterior elements; building orientation and massing; roads; footpaths; parking areas; public transport connections; drainage and services distribution routes.

c. Floor and roof plans, elevations and sections with complete dimensions at 1:100 / 1:200 scale.

d. Reflected ceiling plans at 1:100 / 1:200 scale, incorporating all ceiling elements in one drawing.

e. Building exterior elevations at 1:100 / 1:200 scale.

f. Building sections at 1:100 / 1:200 scale.

g. Core plans and sections through stairs, lifts and toilets at 1:100 scale.

h. Alternative schemes for cladding and identify panel types and number.

i. Scheme details, as required, of typical wall sections and partial enlarged elevations.

j. Schedules of materials and finishes and hardware.

k. Door and window schedule.

l. Outline specifications (CSI or NBS).

m. Mock-up report identifying all mock-ups required for the Project.

n. Material samples.

o. Complete and coordinated Schematic Design Report and presentation materials:

   i. Design philosophy and story.

   ii. Brief.

   iii. Key project components including integration of landscape design.

   iv. Project Area Schedule

   v. Floor plans, elevations and sections

vi. Preliminary facade systems. Scheme design drawings showing wall types, materials geometrics, and function. Alternative schemes for cladding. Detailed drawings of typical wall sections.

vii. Roof structure / top of building drawings.

viii. Drawings showing waterproofing materials

ix. Schedules of external finishes

x. Schedule of internal finishes

xi. Coloured presentation material for all components including site plans, site analysis, building plans, sections, elevations (incorporating all interior design elements).

xii. Coloured renderings

xiii. Overall aerial perspective incorporating the entire Project.

xiv. Five A1 coloured exterior perspectives or as required by the Engineer.

xv. Four A1 coloured entrance perspective (front and rear views) or as required by the Engineer.

xvi. Five A1 interior perspectives showing the entrances, lobbies, common areas, etc or as required by the Engineer.

xvii. Further perspectives as needed to communicate the Project scope and intent.

xviii. Any other information, mood boards, benchmarking, etc. as required to clearly and precisely allow the scheme to be clearly understood by anyone reading the booklet.

p. Animation: all special interior and exterior spaces and typical interior exterior spaces finishes to be electronically rendered in coloured three dimensions including computer generated walk through for presentation and approval by Authority. All computer generated walk through (CGWT) shall contain a minimum of fifteen seconds of computer generated video time in each space depicted. Material colours, finished fixtures and textures to be indicated. CGWT sequence will depict arrival at the facility from the public street entrance and include the following sequences (with intermittent 360 degrees views of each major space), parking, pedestrian approach to main building entrance, building exteriors (all sides), main building entrance and exterior plaza, building lobby entrance, main lobby, main pedestrian access sequences within the building, corridors, elevator lobbies, specialty spaces, recreation and support areas, meeting rooms, dining areas, specialty stairways and typical - offices, rooms, typical bathrooms, specialty rooms, etc.

q. Detailed physical model at 1:250 / 1:500 scale (as agreed with Authority).

r. Architectural study model at 1:500 scale (as agreed with Authority).

s. Two façade study models at 1:50 scale, demonstrating key areas e.g. facade, atrium, etc. (as agreed with Authority).

t. Photos of the above models.

5.8.21. Artwork / Public Art

5.8.21.1. The Consultant shall present a scheme artwork / public art program with locations identified, together with all technical requirements for the installation of public art e.g. structure, power, water, lighting, etc. to be coordinated with landscape design as required for external artwork.

5.8.22. Deliverable:

5.8.22.1. A scheme artwork / public art program, identifying types, sizes and weights of public art installations, including coordinated service provision such as power, water, light, loadings, etc.

5.8.23. Audio Visual

5.8.23.1. The Consultant shall:

a. Recommend audio visual systems.

b. Describe all audio visual and related elements, including the following: audio visual devices, audio visual space requirements, power loads for cooling calculations, data outlet requirements, broadband distributed CATV requirements, and required lighting levels at key locations.

c. Gather manufacturer's specification sheets indicating the major components of the system.

d. Prepare preliminary studies of spaces requiring audio visual systems including but not limited to the following: space, power and data requirements for equipment; sightlines, projection lines and ceiling height requirements; projection room depths; preliminary power and HVAC load requirements; preliminary lighting control interface requirements.

e. Preliminary budget estimates

5.8.24. Deliverables:

a. Scheme drawings and specifications describing the scope of the systems.

b. An outline description of recommended audio visual systems.

5.8.25. Civil Engineering

5.8.25.1. The Consultant shall:

a. Prepare a scheme design for:

i. Site preparation, demolition, excavation and earth mass grading;

ii. Water, storm, sanitary, power and electrical utilities;

iii. Roads.

b. Investigate the goals and information to define the most appropriate infrastructure implementation strategy for the site, including roads, and utilities. Potential roadwork is limited to 1m beyond the existing curb lines, except for instances where new access and egress situations are necessitated by the TIS and to be coordinated across all disciplines.

c. Utilities exiting the building will be planned by the MEP engineer 5m beyond the face of the building and connected from there to the main utility line by the civil engineer, limited to attaching via laterals to utility lines on the opposite side of the street.

5.8.26. Deliverables:

a. Scheme design for below and above ground components.

5.8.27. Commercial Kitchen; Food and Beverage; Laundry and Waste Management

5.8.27.1. The Consultant shall:

a. Refine the kitchen and food and beverage space requirements.

b. Provide the MEP engineers with basic load criteria in alignment with end user requirements.

c. Advise on 'clean and dirty' routes to and from the food and beverage units and their kitchens.

d. Liaise with the waste management consultant to agree procedures for waste disposal.

5.8.28. Deliverables:

a. Plans of equipment layout.

b. Preliminary total demand load for all MEP services.

c. Scheme detailed kitchen, food and beverage plans, specifications and schedules.

d. Logistics planning and diagrams.

5.8.29. Energy and Comfort

5.8.29.1. The Consultant shall:

a. Finalize the climate and facade concept.

b. Prepare computer generated daylight simulations in the public spaces, circulation spaces and parking areas to assess daylight conditions and visual comfort.

c. Prepare computer fluid dynamic simulation of outdoor conditions for the surroundings and open courtyards of the building, under prevailing wind conditions.

d. Verify final ventilation concept for public spaces by simulation using computer fluid dynamics, under summer and winter conditions.

e. Perform indoor climate simulation by dynamic thermal simulation of the whole building as a system (annual temperature and humidity ranges and energy demand) and definition of total thermal building loads and load profiles.

f. Perform an energy model of the whole building.

g. Define and verify service strategy for cooling, dehumidification and ventilating.

h. Define and verify climate control concepts.

i. Take into consideration GSAS criteria.

5.8.30. Deliverables:

a. Building automation and individual control options report taking into account GSAS criteria requirements.

5.8.31. Façade and Building Cleaning and Maintenance

5.8.31.1. The Consultant shall:

a. Develop preliminary facade systems drawings for the major facade types in an appropriate scale (1:20 / 1:25 / 1:50), keyed to the overall elevations.

b. Determine space requirements for façade and building cleaning and maintenance equipment and any special requirements or impacts of equipment (including elevator sizing and loading).

c. Provide tracking and loading information for all cleaning and maintenance equipment and coordinate with structural, MEP and landscaping consultants as necessary.

d. Provide MEP inputs for provision of power and water outlets.

e. Advise on safety and operational issues relating to facade and building cleaning and maintenance, including walkways, guardrails, anchoring systems, etc.

f. Provide maintenance and cleaning cycle and estimated durations for all areas of building envelope.

5.8.32. Deliverables:

a. Facade and building cleaning and maintenance report.

b. Scheme design drawings showing the means of facade cleaning and area allocation for maintenance equipment and facilities.

c. A facade mock-up procurement report

5.8.33. Fire and Life Safety Engineering

5.8.33.1. The Consultant shall prepare scheme fire protection and life safety designs, including the following:

a. Identify the applicable fire safety codes for the Project and prepare a fire safety code summary identifying the fire protection requirements of the applicable codes.

b. Review concept design documents for compliance with the fire protection aspects of the applicable codes. A minimum of two reviews (preliminary and final) shall be provided.

c. Identify code compliance issues. Identify fire protection issues and develop alternative approaches for the project team's review. Assist in prioritising the alternatives, and developing strategies for code compliance and for enhanced fire safety features that may be considered for a building of this type.

d. Outline fire and life safety report. Document key fire protection features and code related issues in an outline fire and life safety report. This preliminary document will outline proposed fire safety features and key issues. The report will form the basis for preliminary discussions with local code officials, including escape routes, fire and / or smoke compartments and separation, sprinkler systems; and emergency vehicle access requirements, fire command centre, etc.

e. Investigate building enhancements. Assist in the investigation and development of proposals for building life safety enhancements to the building's architectural, structural and building services / life safety systems beyond current code requirements.

f. Provide general consulting regarding specific fire protection.

g. Advise on changes to local regulations and / or local practice that varies to commonly accepted practices elsewhere and propose solutions for areas of conflict.

h. Advise on application of new technologies and their acceptance or otherwise by Civil Defence.

i. Advise on fire suppression systems that are space efficient and cost effective.

5.8.34. Deliverables:

a. Scheme Design Report and drawings outlining fire zoning, life safety, fire fighting and fire alarm drawings.

b. Fire and life safety strategy report: classification of occupancy and hazards of contents; occupant load; means of egress; fire and smoke compartmentation and separation (and CFD analysis if required); vertical openings; fire department access requirements; emergency command centre requirements; special structures and high-rise buildings; local high rise buildings; building services; fire protection equipment; exits; illumination and means of egress; marking means of egress; equipment rooms

5.8.35. Graphics; Wayfinding and Signage

5.8.35.1. The Consultant shall:

a. Develop signage and wayfinding concepts including but not limited to:

I. Material samples, finishes and outline specifications;

II. Sign location plans;

III. Define signs required for complete sign family;

IV. Define visual language for sign program (colours, fonts, pictograms, etc.).

b. Develop drawings showing the wayfinding / graphic and signage including design of all signs interior and exterior.

c. Coordinate signage locations; fixings and electrical connections.

d. Identify potential market suppliers.

5.8.36. Deliverables:

a. Sign manual and schedule incorporated into a signage and wayfinding report.

b. Drawings showing the wayfinding / graphic and signage for interior and exterior spaces on key plans / sections / elevations.

c. Sign layout for site, buildings and spaces.

5.8.37. Information Communications Technology (ICT)

5.8.37.1. The Consultant shall:

a. Interview key personnel regarding the needs of the business and system requirements.

b. Initiate a strategic needs assessment.

c. Identify inventory needs for the new location.

d. Survey the existing telecommunications system, if any.

e. Assess and evaluate video distribution over the data infrastructure.

f. Assess any specialty application software requirements as they relate to integration with the existing communications systems as well as the requirements for networking between sites.

g. Review existing program requirements and documentation including requirements incorporated into the core and shell documents.

h. Perform reviews, recommendation reporting and coordination of building design and infrastructure as required to develop the technical program.

i. Develop an ICT program that is capable of handling current operations while remaining adaptable to future changes.

j. Analyse, and recommend the Project ICT budget including equipment costs, installation costs and projected annual operational costs.

5.8.38. Deliverables:

5.8.38.1. A report detailing the design parameters for development of the technology systems solution along with scheme design drawings for proposed passive and active network systems.

5.8.38.2. Base building design criteria with respect to the telecommunications systems including but not limited to: structured cabling distribution systems; conduit and raceway requirements; control and equipment rooms; adjacency heat loads; power; noise criteria, sound isolation and reverberation time; audio systems (including those for hard of hearing); delivery of services from public switched network suppliers; etc.

5.8.38.3. Updated and refined electrical, space and heat load calculations.

5.8.38.4. Updated list of specialized equipment with bulk loads.

5.8.38.5. Indicative rack layout drawings for space planning and inter-rack connectivity scale 1:100.

5.8.38.6. Points schedules, applicable to scope of works.

5.8.38.7. Tenant design criteria document (if applicable).

5.8.38.8. Updated summary migration schedule (if applicable).

5.8.39. Interior Design and FF&E

5.8.39.1. The Consultant shall:

a. Prepare scheme designs of interior spaces including, without limitation, entrances, retail, common areas, cafeterias, dining rooms, assembly halls, reception lobby layout and core layout as directed by the Authority.

b. Prepare perspectives to show design concepts, common area layouts, other layouts.

c. Present initial sample boards.

d. Prepare a Schedule of Finishes and outline FF&E for all interior design designated areas, and compare with cost plan / budget allowances.

5.8.40. Deliverables:

a. Floor plans and furniture plans of all areas.

b. Schedule of internal finishes in common areas.

c. Furniture and interior design direction. Plans; layouts and test fits.

d. Sketches / high quality hand drawn/ computer generated renderings; coloured perspectives of all areas showing design direction as directed by the PWA.

e. Material boards, samples and image selection describing furniture and interior design direction.

f. Outline specifications for finishes and built-in furniture/millwork and any other relevant interior design element to be coordinated with architectural set.

g. Preliminary finishes and material palette.

5.8.41. Landscape

5.8.41.1. The Consultant shall:

a. Prepare Scheme Designs of major design elements including, without limitation: water features; plant selection; paving; etc.

b. Develop specialist concepts.

c. Develop space allocation program.

d. Develop an operating pro forma and cost estimate.

e. Prepare a schedule of maintenance equipment required to maintain the proposed landscape design, together with storage area requirements, proposed locations, and landscaping staff facilities where required.

f. Prepare a sustainability report, including information of proposed species and origins, regional suitability, maintenance regime, irrigation systems, shading structures along pathways and requirements.

g. Coordinate with lighting specialist and GSAS lighting criteria requirements.

5.8.42. Deliverables:

a. Internal and external landscaping drawings; sections of basic features and initial planting concept description.

b. Water features and pools: provide schematic design drawing with comprehensive report.

c. Schedules of external finishes.

d. Site plans, sections, detail plans and elevations of all areas to sufficiently describe all major elements of the design including key lighting elements and fixed furniture.

e. Site wide landform proposal; contour lines / spot elevations existing / proposed grid and gate levels. Interfaces and connections to existing landforms, streets, sidewalks, etc.

f. Irrigation schematic including: preliminary demand loads, tank location and details, mainline, secondary, drip, bubbler, etc.

g. Landscape utility plan. Reference site wide utilities on this plan to ensure no conflicts (manholes, service corridors, etc.); indicate landscape services in association with site.

h. Hard landscape plans. Sitewide - paving details, shelters, shade structures, steps, ramps, walls, fences, gateways, sections, seating, tree grates, accessibility for disabled and visually impaired, etc.

i. Soft landscape plans. Sitewide - palms, trees, shrubs, groundcovers, lawns, etc.

j. Landscape lighting. Pedestrian lighting, flood light, decorative lighting, bollard, water feature and pool, fixtures, outdoor fixed furniture, etc. Plans should indicate fitting by location with cut sheet indicating technical data to approved or equal (cut sheets are only to represent aesthetics of product).

k. Water features and pools. A comprehensive report and narrative, plans, sections and details of water elements including preliminary hydraulic and water demand calculations, system schematic, pump room location details, pump details, fixtures, finishes, waterproofing, weir details, etc.

l. Presentation boards with images, perspectives, cross sections, sketches, material samples, cut sheets.

m. Outline specifications.

5.8.43. Lighting (Interior; Exterior and Speciality)

5.8.43.1. The Consultant shall:

a. Develop a complete lighting presentation package for all significant front of house and public spaces, including external facade lighting, site lighting, and all special interior spaces, lobbies and public circulation areas within the entire Project.

b. Prepare computer generated photometric studies.

c. Develop a strategy for control of the lighting.

d. Prepare preliminary lighting plans for typical and atypical areas indicating fixture types, locations and preliminary fixture schedules.

e. Develop standards for lighting of a typical floor.

f. Liaise with interior designer and architect, landscape architect and electrical engineer, for continuity of lighting concept internally and externally, and advise on fittings selected.

5.8.44. Deliverables:

a. Scheme Design drawings of interior and exterior spaces showing lighting schemes.

b. Lighting and coordinate reflected ceiling plans with architect and electrical engineer plans for all required areas.

c. Outline specifications for lighting fixtures, power requirements and heat loads generated.

5.8.45. MEP Engineering

5.8.45.1. The Consultant shall:

a. Locate new and existing utilities with the local utility providers and design utility connection rooms;

b. Establish design criteria and planning goals for the following systems: cogeneration; central refrigeration plant options, including electric, gas, etc.; air conditioning options; heat recovery systems; air distribution options; geothermal energy; displacement ventilation; energy conservation options; off-hour and back-up options (cooling plant); emergency power generation; heat recovery; utilities – water, gas, sewer, storm, electrical, etc.; standby power and UPS (load shedding); electrical service studies; passive and active solar energy systems, glass technology options, sustainable 'green' technology, envelope trade-offs, shading and orientation; day lighting and lighting conditions, controls; photovoltaics.

c. Develop cost effective and energy efficient planning concepts.

d. Define basic space requirements for all major systems.

e. Define basic shaft spaces in building core and coordinate with architect and structural engineer.

f. Provide outline system description of recommended mechanical and electrical systems, including an estimate of system capacities.

g. Provide drawings indicating main equipment room locations, major shaft / riser locations and equipment sizes for incorporation into the architect's scheme design drawings.

h. Provide preliminary system flow and / or riser diagrams for critical major systems i.e. HVAC, chilled water distribution, condenser water, electrical power distribution, domestic water, waste water and fire protection.

i. Provide base building design criteria and spatial requirements for all mechanical, electrical, plumbing, fire fighting, ICT and BMS systems and equipment for incorporation into the scheme building design, including but not limited to: control and equipment rooms; adjacency requirements; HVAC equipment rooms; plumbing and fire services equipment; power; noise criteria and sound isolation; fire separation; vertical shafts.

j. Provide locations, load bearing and detailing requirements for ceiling hang points related to equipment, HVAC ducts and equipment, cable trays and conduits, etc.

5.8.46. Deliverables:

5.8.46.1. MEP Engineering

a. Confirmation of space requirements for all mechanical services.

b. List of long lead items.

c. Load demand calculations for all of the system.

d. A deviations report for those items that have been approved by the Authority as a deviation from the approved Concept Design. Include the deviations report as an appendix to the Scheme Design Report.

e. Fully complete and coordinated Scheme Design Reports and drawings to include but not be limited to the following: the site conditions, availability and restrictions of the site infrastructure supply and collection services and details of connections to the infrastructure services. Narratives to describe the design philosophy of the scheme designs.

f. Mechanical services: flow diagrams of all HVAC systems; control diagrams sufficient to define method of control of all major equipment and systems; single line layouts of all HVAC systems showing equipment and zoning for each area; single line diagrams of all exhaust and make up air systems; single line piping diagrams of all chilled / cooling water systems; sections through mechanical spaces and all congested spaces; Indicate capacities of all major equipment. Preliminary heat load calculations. Preliminary calculations for sizing of equipment and systems. Fire sprinkler systems layouts and riser diagrams. fire hose, cabinets, fire extinguishers, siamese connections, and fire hydrant systems layouts and riser diagrams. Any other information or computation required to permit verification of the design compliance with the design criteria, codes, standards and that is satisfactory for the intended purpose.

g. Electrical services: site plan 1: 250; grounding, lightening protection plans. 1:100; lighting plans 1:100 and 1:50; power / communications plans 1:100 and 1:50; electrical rooms, mechanical rooms, communications and fire rooms plans 1:100 and 1:50; one line diagrams; riser diagrams; preliminary schedules for lighting and power panel boards, distribution panel boards; design studies – electrical supply and distribution; electrical characteristics; total connected loads; kilowatt demand load; diversity factors; voltage drop; etc. Fire alarm and detection systems.

h. Plumbing services: single line layouts of all plumbing systems; large scale layouts of toilets, equipment rooms, kitchens, etc. Isometric riser diagrams for sanitary sewer, waste and vents; hot, cold and potable water; fire standpipe; storm drain; special piping systems; grey water use; design studies listing criteria, codes, documents, and design conditions used. Justification and brief description of types of plumbing fixtures, piping materials and equipment proposed for use. Preliminary calculations and sizing of domestic hot and cold water, sanitary, roof drainage, compressed air, vacuum, water treatment, and special gas systems. Preliminary hot water demand analysis; potable water consumption analysis. Preliminary storm water and sewerage outflow analysis. Any other information or computation required to permit verification of the design compliance with the design criteria, codes, standards and that is satisfactory for the intended purpose.

5.8.47. Security and Threat Analysis and Assessment

5.8.47.1. The Consultant shall:

a. Explore and consider a variety of security technologies; taking into account cost, practicality, user friendliness, redundancy, expansion capability, as well as present and future needs.

b. Fully discuss electronic, architectural, and personnel security measures, weighing threats against potential countermeasures.

c. Advise landscape, traffic, architectural and MEP consultants on measures that may be required to mitigate against perceived threats including CCTV camera numbers and locations, speed bumps, barrier controls, secure entry procedures, etc.

d. Advise on a strategy for up / downgrading security systems to accommodate periods of higher or lower threat, if applicable.

e. Advise on requirements for a security control room and staff facilities (location, size, equipment and operational requirements).

f. Deliver a site security risk assessment including generic mitigation measures and advise on need for a 'speed of approach' study.

5.8.48. Deliverables:

5.8.48.1. Outline report of the initial security plan and design including schematics and drawings but not limited to:

a. Description of recommended systems

b. Security device locations

c. Security control room requirements and layouts

d. Site security risk assessment

e. Outline specifications.

f. Preliminary budget estimate

5.8.49. Special Structures / Façade

5.8.49.1. The Consultant shall:

a. Study alternate schemes for cladding.

b. Consult with the architect on wall types, materials, geometries and function;

c. Review geotechnical report and prepare summary of structural implications;

d. Research manufacturers' products, materials and sources;

e. Prepare design details of typical wall sections;

f. Develop facade performance criteria;

g. Coordinate façade design with structural design and develop attachment details;

h. Advise on movement and thermal criteria of materials and systems as well as earthquake requirements;

i. Study alternate schemes for cladding.

5.8.50. Deliverables:

a. Design details of typical wall sections;

b. Performance criteria;

5.8.51. Structural Engineering

5.8.51.1. The Consultant shall:

a. Study foundation types. Finalize foundation type selection. Develop foundation plan (typical details and footing schedule). Develop preliminary foundation element sections showing size, connections and typical details of structural members.

b. Develop the overall building design;

c. Coordinate with other disciplines such as MEP engineers concerning systems and details;

d. Submit progress of wind tunnel studies and update recommendations as required by code/directed by PWA;

e. Finalize design criteria;

f. Finalize load maps of assumed floor loadings;

g. Finalize preparation of unique concrete and steel details;

h. Continue computer analysis of lateral load resisting system;

i. Develop exterior wall support details;

j. Consult with the architect on wall types, materials, geometries and function;

k. Review geotechnical report and prepare summary of structural implications.

l. Prepare and submit all structural data necessary for approvals from Doha Municipality and other government, statutory and approval authorities.

5.8.52. Deliverables:

a. Fully complete and coordinated Scheme Design Report to include but not be limited to the following: design criteria and a description of the overall structural design approach. Structural design criteria, including loads, design standards and codes of practice

b. General arrangement drawings and typical member details for foundations and superstructure. Columns layout plans and beam / slab framing plans for all floors and typical sections indicating major member sizing.

c. Foundation plans and details with sizes for principal elements. Foundation and piling layouts, schedules or details indicating footing sizes and reinforcement, sections, etc. The information should be sufficient to tender an early works package.

d. Detailed basement wall sections.

e. Framing plans with sizes for key structural elements

f. Typical details and key sections through buildings.

g. All slab openings.

h. Expansion joint locations.

i. Elevations of the lateral load resisting systems indicating preliminary member sizes.

j. Special requirements / conditions, e.g. shoring, pinning, etc.

k. Load maps of assumed floor loadings. Loads key sheet and general notes and calculations

l. General specification for materials

m. Waterproofing drawings, specifications and standard details.

n. Performance specification for enabling works package with typical details to enable tender designs to be obtained from specialist contractors (if required)

o. Design calculations, grouped in one manual.

p. Geotechnical engineering analysis report.

5.8.53. Traffic Circulation and Parking

5.8.53.1. The Consultant shall:

a. Develop (conceptual designs) approved Concept Design to meet the Project parking and loading requirements, including ingress and egress patterns and street connections as per the requirements of MMUP and other authorities.

b. Determine the functional efficiency and review the proposed method of operation, including the proper number of lanes and required queuing areas.

c. Coordinate with design of occupied space above parking areas.

d. Recommend accessible parking particularly as it impacts parking capacity or functional design (including floor-to-floor heights).

e. Advise on valet parking requirements, zone separation and potential synergy effects with different user groups.

f. Establish base floor elevations, slopes on ramps and recommended floor-to-floor heights.

g. Locate stair, elevator and escalator towers relative to parking.

h. Integrate aspects of car parking management system and specialist equipment into design.

i. Advise on loading bay requirements and management of this area including deliveries, and waste management.

5.8.54. Deliverables:

a. Parking scheme design drawings and associated report with swept path analysis.

b. Updated TIS with vehicular traffic diagrams and studies for submission to government and statutory authorities.

5.8.55. Vertical Transportation

5.8.55.1. The Consultant shall:

a. Identify the unique requirements of the building or anticipated occupancy and their influence on the vertical transportation systems at this time.

b. Establish the vertical transportation analysis design criteria, including peak occupancy and arrival periods, travel times, waiting times, lift speeds etc.

c. Select and recommend the most viable alternatives for vertical transportation equipment in a written report.

d. Submit a report based upon the analysis and preliminary planning indicated on the architectural scheme drawings. The report shall include a definition of the selected design criteria and terms, establish criteria to obtain proper levels of vertical transportation service, include the results of computer and / or manual study and analysis calculations, and recommended solutions.

e. Update the analysis and recommendations based upon the revised designs. Studies shall continue until a final design is selected. Upon resolution and selection of final design, the following preliminary information shall be provided: basic lift / escalator core dimensions and arrangements and outline specifications.

f. Coordinate with the architect and interior designer on the design of the lift cab interiors.

5.8.56. Deliverables:

a. Scheme drawings and report analysing information on architectural drawings.

b. Outline specifications and report on key suppliers including facilities management contracts and conditions.

5.8.57. Waste Management

5.8.57.1. The Consultant shall:

a. Refine space and MEP requirements for waste management and handling facilities within the Project (both at centralised and decentralised locations).

b. Identify chilled storage rooms, ventilated storage areas and compaction facilities required, including loading and unloading procedures, wash-down areas and staff requirements.

c. Develop an outline of the waste management concept for review by the end user.

d. Identify potential specialty equipment for use in the Project.

e. Implement requirements of environmental sustainability design.

f. Advise on ‘clean and dirty’ routes.

5.8.58. Deliverables:

a. Drawings showing dedicated spaces for waste management equipment and a comprehensive report.

b. Waste management report: identifying municipality requirements and proposed waste management strategy, including chilled storage areas, dry storage rooms, waste handling machines and / or conveyor systems, bin lifting machinery, wash-down areas, material recommendations, compactor locations and requirements, material separation and storage areas, staff requirements, collection cycle and vehicular requirements, etc.

5.8.59. Site and Substructure Enabling Works Package

5.8.59.1. At the Authority’s discretion, the Authority shall initiate the Site and substructure enabling Works package to suit the Project Programme and to ensure the earliest possible Project delivery.

5.8.59.2. The Consultant shall produce a comprehensive tender package comprising the components mentioned hereinafter.

a. Produce these non-sequential Project deliverables in a timely manner at no additional cost to the Authority.

b. Be responsible for producing all drawings, calculations and documents necessary to attain all approvals and to construct the Project elements mentioned hereinafter.

c. Attend all meeting and workshops with all government, statutory and approval authorities in order to attain the approvals required.

d. Prior to proceeding with the works on site, the Consultant shall be responsible for submitting and attaining all necessary permits from all approval, statutory and government authorities.

e. The site and substructure enabling works package shall include:

   i. Site surveys;

   ii. Site clearance and levelling works;

   iii. Site offices set-up works;

   iv. Temporary fence works;

   v. Demolition works;

   vi. Excavation works;

   vii. Dewatering, earth retention and shoring works;

   viii. Piling works and perimeter foundation works;

   ix. Permanent retaining wall construction works.

f. The Consultant shall prepare, in a timely manner and in accordance with the Project programme, a complete set of tender documents for the site and substructure enabling works package for the Authority's review and approval.

g. The documents shall set forth in detail the complete requirements for the site and substructure enabling works package of the Project.

h. The site and substructure enabling works package documents shall include the drawings and specifications that establish in detail the quality levels of materials and systems required for the site and substructure enabling works package of the Project.

i. These documents shall be fully dimensioned and coordinated between all of the various design disciplines, and shall be validated as required.

j. The documents shall serve as the basis for tendering and constructing the site and substructure enabling works package of the Project.

k. The Consultant shall:

   i. Incorporate into the site and substructure enabling works package documents any comments from the Authority or any governmental, statutory and approval authorities.

   ii. Obtain all necessary approvals from governmental, statutory and approval authorities, third parties including, permits, NOC's; etc.

   iii. Prepare written, graphic and explanatory materials and attend meetings with government authorities or third parties.

   iv. Identify Authority preferences for tendering that might impact the format of the construction drawings or specifications.

   v. Recommend construction methods, evaluate time and cost savings that might be realized from using different tendering methods.

vi. Following approval of the documents by the authorities and the Authority, the Consultant shall then undertake the tender process including, but not limited to, tendering, negotiation and administration services.

5.9. Technical Design Phase

5.9.1. The Consultant shall produce a complete set of draft Authority's Requirements that shall describe the design in full, and shall identify areas of the design that are likely to be subject to further design development. These draft Authority's Requirements shall be sufficiently detailed as to allow for early contractor engagement if required and the Consultant shall liaise with the Authority to agree the format of this submission.

5.9.2. Prepare detailed cost estimates in line with each design Phase, including a final cost estimate, based upon the complete contract documents of all work necessary for the complete construction of the Project, which estimate is hereinafter referred to as the "Final Cost Estimate". This Final Cost Estimate shall be consistent with the programme budget and shall include quantity take-off of all work and equipment included, with unit prices and mark-ups reflecting current market conditions, without lump sums of any kind.

5.9.3. During the remainder of the Scheme Design Phase the Consultant shall develop the Design to the extent necessary to achieve all Statutory Approvals for the Works, resolve all interfaces with others and to fully describe the Authority's Requirements to the extent necessary that a Contractor(s) could deliver the Works without the need for further input or information that would constitute a Change.

5.9.4. The required outcome of this phase is a fully co-ordinated, complete and coherent set of Deliverables that describes the Works and the constraints under which they shall be delivered, such that the Engineer can seek competitive tenders for the final design and delivery of the Works. These Deliverables shall comprise, without limitation, drawings, technical performance specifications and other particular specifications of constraints and requirements imposed on the Contractor arising from the resolution of interfaces and third party requirements.

5.9.5. Prepare a Pre-Bid Report, in both hard copy and computer readable form, in accordance with the formats specified by the Authority, which shall include, but not be limited to, the final working drawings, final performance specifications and Final Cost Estimate. The Pre-Bid Report is to be submitted to the Authority for its review and approval a minimum of four (4) weeks prior to the date set for the advertisement for bids from contractors. The Consultant assumes complete responsibility for the correctness, accuracy and completeness of the final working drawings approval of such drawings and specifications by the Authority shall in no way affect or limit this responsibility of the Consultant.

5.9.6. Prepare and submit for final approval comprehensive pricing schedules based on the final cost estimate. Consultant will maintain complete responsibility and liability for the accuracy of the pricing schedules prepared for Construction Tender Documents. The pricing schedules shall fully detail and describe the extent of Works required and shall include as many items as required to cover all elements of work with descriptions that properly and effectively describe the elements of work to the extent that no ambiguities can arise in respect to the intended extent of work required under the construction contract.

5.9.7. The Consultant shall work closely with the PWA Engineer and other entities employed for the delivery of the Project, and liaise with all statutory authorities and third parties, interfacing projects and building owners so as to produce a co-ordinated design that takes account of all constraints and requirements.

5.9.8. The Consultant shall provide design leadership so as to provide a single point of contact for the co-ordination of all aspects of the design.

5.9.9. The Consultant shall organise, lead and record the outcomes of appropriate coordination meetings and workshops so as to ensure a fully co-ordinated design.

5.9.10. The Consultant shall organise, lead and record the outcomes of further design review and Value Engineering and Value Management workshops as required to develop optimal solutions for the scope and form of the works, the interfaces at the boundaries of the Project and any design developments that are necessary as a result of compliance with codes, standards, information arising from site investigations, the EIA and all other requirements arising as a result of liaison with statutory authorities and other third parties. The purpose of these workshops shall be to ensure the Engineer is fully informed and involved in technical design development.

5.9.11. The Consultant shall continue to implement a design risk management process with the Engineer and carry out design risk workshops in conjunction with the Engineer such that a comprehensive risk management system ensures the adequate management of design risk throughout the Project. Design risk shall be managed by the Consultant in accordance with international best practice established in the Concept Design Phase, and as a minimum all identified risks shall be categorised, quantified, and mitigation measures shall be managed and reported upon monthly.

5.9.12. The Consultant shall attend all meetings including all Gateway/control point reviews as agreed with the Engineer as being required for the proper co-ordination and reporting of the progress of the design, and all other meetings as necessary for the delivery of the Services.

5.9.13. The Consultant shall keep records of all meetings that affect the development of the design, whether created by the Consultant or issued by others, so that a comprehensive record of all decisions affecting the design is available to the Engineer. The Consultant shall issue all records of meetings whether created by them or received by others to the Engineer. Agendas shall be issued two days prior to any meeting or workshop.

5.9.14. The Consultant shall distribute information received from working groups, meetings with sub-consultants and ad hoc meetings to the Engineer.

5.9.15. The Consultant shall distribute information arising from all sources across the design team so as to ensure a fully coordinated design.

5.9.16. The Consultant shall track and record the distribution of design information between working groups and sub-consultants.

5.9.17. The Consultant shall review and comment on contract documentation prepared by the Engineer for the appointment of specialist consultants and contractors. Such review and comment shall be restricted to the scope, role and responsibilities of the documentation only.

5.9.18. The Consultant shall prepare a design schedule for review and acceptance by Engineer. The format of this schedule shall be non-objected by the Engineer.

5.9.19. The Consultant shall provide all design management services necessary for the delivery of the Services.

5.9.20. The Consultant shall provide Technical Design Phase services based on the Scheme Design Phase documents and the Project brief and area schedule approved by the Authority at the completion of the Scheme Design Phase.

5.9.21. The Consultant shall develop the approved Scheme Design documents:

a. to prepare coordinated documents from all disciplines;

b. to prepare coordinated detail specifications; and

c. to obtain final approval of all design elements by the Authority and the end user.

5.9.22. The Technical Design Phase shall conclude when the Consultant has obtained written approval from the Authority. The Consultant shall obtain Authority's written instruction / no objection to proceed to the next Phase.

5.9.23. At intervals appropriate to the progress of the Technical Design Phase, and mutually agreeable to the Authority and Consultant, the Consultant shall provide Technical Design documentation for the Authority's review and approval.

5.9.24. Documents shall cover all disciplines and shall include, but not be limited to the deliverables list outlined below. The Consultant shall compile all disciplines into one set of documents, with cover sheet summarizing all sections and sheets.

5.9.25. There shall be no separate interior design set of documents. All plans, elevations, sections and details should compile architectural and interior elements. The scales listed are an estimate and shall be reflective of the necessary scale that is required to convey the appropriate level of information.

5.9.26. The Consultant shall:

a. Develop all other systems for all other disciplines by Sub-Consultants as required to support the Project.
b. Further develop and finalise detail specifications, schedules and material samples for all disciplines.
c. Report on design guideline compliance.
d. Submit documents as required to the cost consultant.
e. Continue process of validating design.

5.9.27. In addition to all responsibilities required in the exercise of reasonable skill and care, the Consultant's Technical Design Phase responsibilities and Services shall include, but are not limited to, the following:

5.9.28. In addition to any deliverables that Consultant may be required to provide under other provisions in this Agreement the Consultant shall also provide at least the following Technical Design Phase deliverables.

5.9.29. General Deliverables

a. Updated Project Execution Plan.
b. Updated Design Management Plan.
c. Updated Project brief.
d. Updated Project Area Schedule.
e. Updated Project design criteria; updated technical design code compliance review report.
f. Updated approvals tracker.
g. Updated Project programme; design deliverables programme and proposed construction programme.
h. Comprehensive and coordinated Technical Design Reports and presentation materials.
i. Construction Phasing diagrams.
j. Value Engineering Report.

5.9.30. Technical Design Reports and Presentation

5.9.30.1. The primary deliverable from the Technical Design Phase is a set of fully complete and coordinated Technical Design Reports; presentations and drawings which shall clearly communicate a design solution to the Authority's Requirements.

5.9.30.2. Comprehensive and fully coordinated Technical Design Reports shall be submitted and presented at 50% interim and 100% final completion.

5.9.30.3. The Consultant shall consolidate all comments resulting from the review of the Technical Design including comments from the end user; Authority, the cost consultant, Authorities or any other key stakeholders and update and issue to the Authority and all members of the Project team and issue within an agreed timescale. The Consultant shall advise on any and all actions to be undertaken to resolve the comments, together with an outline of potential impact(s) on the Project.

5.9.30.4. The Consultant shall update and re-issue the relevant sections of the Technical Design Reports to the Authority and all members within the Project team within an agreed timescale.

5.9.31. Deliverables:

a. Comprehensive and fully coordinated Technical Design Reports and presentations by all disciplines

b. No. 3 copies of A3 booklet(s); drawings; renders; model(s) and Power Point presentation.

5.9.32. Project Brief

5.9.32.1. The Consultant shall;

a. Continue to validate the Project Brief, define the full scope of the Project, refine the form of the Project elements and establish the key technical criteria that will serve as a planning basis for the subsequent Design Phases.

b. Update and coordinate with the Authority, end user(s), and other consultants, the Project brief including area tabulations, relationship and adjacencies of the Project components, descriptions of design goals and objectives, etc.

c. Room data sheets

d. Develop detailed technical and operational briefs.

e. Continue to collect relevant data and establish, in conjunction, with the Authority the Project brief.

5.9.33. Deliverables:

a. Updated Project Brief;

b. Updated Room Data Sheets

c. Detailed Technical and Operational Briefs.

5.9.34. Project Area Schedule

5.9.34.1. The Consultant shall update the Project area schedule, including gross plot area, Built Up Area (BUA), Net Floor Area (NFA) by use type and maximum allowable and provided Gross Floor Area (GFA) by use type, Floor Area Ratio (FAR), site coverage ratio, rentable area. This shall be updated as necessary and issued on a monthly basis as a minimum.

5.9.35. Deliverable:

a. Updated Project area schedule.

5.9.36. Authorities, Permits and Codes

5.9.36.1. The Consultant shall:

a. Review, evaluate and update strategy for obtaining all consents, approvals, No Objection Certificates (NOCs), Permits and the like needed to be obtained from all relevant authorities and departments.

b. Confirm the design meets all relevant codes and standards as required.

c. Adjust the design to meet authorities' additional requirements at no extra cost to the Authority.

d. If requested or required by government, statutory and approval authorities or Authority, present the design to government, statutory and approval authorities for their review and comment;

e. Update the matrix of required consents needed for the Project, indicating applicable building codes, approval authorities, required permits and an approval schedule.

f. Continue to maintain a record of all formal communications with authorities, third parties and service providers and provide copies of all documentation in English and Arabic. Responses to the consultant in Arabic only shall be distributed together with legalised translations of the same. All translations will be provided by the Consultant at his expense.

g. Review, evaluate and update the authorities approvals tracker of all NOI's, NOC's permits, applications and approvals clearly recording current status, next steps, responsible party and action(s) required. This shall be updated as necessary an disused on a monthly basis as a minimum.

h. Continue meetings with third parties, including governmental, statutory and approval authorities to obtain required consents, permits, NOC's, NOI's, etc.

i. Obtain NOCs from MMUP, Department of Transport (DoT) and Civil Defence at minimum prior to registering and uploading Pre-Qualification Application to Doha Municipality for Building Permit Application.

j. Prepare Permit drawings for the Authority's review and approval.

k. Prepare and submit the Building Permit Application to Doha Municipality.

5.9.37. Deliverables:

a. NOCs from MMUP, Department of Transport (DoT) and Civil Defense at minimum prior to registering and uploading Pre-Qualification Application to Doha Municipality for Building Permit Application.

b. Updated Technical Design code compliance review report.

c. Updated authorities approvals tracker.

5.9.38. Commercial

5.9.38.1. The Consultant shall:

a. Submit documents as required to PWA;

b. Review and evaluate pricing information received from the cost consultant;

c. Check costs and assist in budget development.

d. Adjust design as required to maintain Authority's budget, with input and approval from Authority.

e. Review and evaluate pricing information received from the cost management consultant; and adjust design as required to maintain Authority's budget, with input and approval from Authority.

f. If necessary, revise Tender Documents to meet the Authority's Approved Budget at no extra cost to the Authority.

g. Support the cost consultant in its preparation of a strictly confidential and definitive estimate of cost, based on completed Tender Documents. This estimate shall not exceed the Authority approved budget.

h. Base final construction document drawings on Authority's approval of all applicable cost studies and / or modified designs authorized by the Authority. Additional submittals may be required.

i. Prepare and submit a detailed vendor and supplier list and certify that the submitted list satisfies the following:

i. Specified products / items are available, on a competitive basis, from a minimum of three to four sources. One specification per item is sufficient, as long as the item is available from multiple sources.

ii. Products / items comply with tender specifications and documents.

iii. Contact details of venders / suppliers are current. Produce a detailed vendor and supplier list.

5.9.39. Value Engineering

5.9.39.1. The Consultant shall:

a. Conduct a Value Engineering and Value Management workshop to optimize the allocation of the Budget to the Project components and to ensure that Project cost does not exceed the Authority's established budget and to ensure that value is achieved in the design.

b. Incorporate approved Value Engineering options into the design at no additional cost to Authority.

5.9.40. Deliverables:

a. Value Engineering workshop.

b. Value Engineering Report.

c. Approved Value Engineering options incorporated into the design at no additional cost to the Authority.

5.9.41. Acoustic

5.9.41.1. The Consultant shall:

a. Prepare detailed specifications, drawings and details for special acoustic treatment e.g. mechanical / electrical system noise and vibration control, partition construction, lecture rooms, theatres, acoustic ceilings, etc.

b. Based on design operating conditions of equipment, review structural framing design to determine minimum floor slab thickness and mass requirements for equipment rooms.

c. Prepare schedules of drawings and specifications of partition types as appropriate.

d. Review duct penetration locations for both supply and return ducts.

e. Review interior fit out and shell and core information and refine acoustic design and produce report.

f. Prepare and review specifications, drawings, details and schedules for special acoustic treatment for incorporation in Project documents.

g. Review documents to confirm incorporation of recommended acoustic systems and treatment.

h. Review and evaluate all documents to determine that all vibration and acoustic design criteria will be met, that appropriate construction types and detailing have been used, that correct materials and products have been specified

i. Review noise and vibration control specifications for mechanical equipment

j. Prepare acoustical material specifications and mounting details as necessary

k. Review interior fit-out and shell and core information and refine acoustic design and produce report on same and construction Documents.

5.9.42. Deliverables:

a. Drawings and recommendations including selection of specific types of equipment, acoustic treatments, materials, construction detailing, isolation techniques, etc.

5.9.43. Architectural Design (including all fixed Interior Design Elements)

5.9.43.1. The Consultant shall:

a. Develop floor plans indicating general floor layouts and showing column grid, structural cores, lifts shafts (if required), service risers, staircases, plant rooms, electrical rooms, service closets, garbage rooms, support spaces, delivery areas, etc.

b. Develop reflected ceiling plans indicating all ceiling elements and special construction;

c. Develop sections indicating structure, service zones, ceiling, lifts shafts (if required), plant rooms, etc.

d. Coordinate the input of the specialist sub-consultants, including landscape and interior design and all the interfaces.

e. Develop site plans showing architectural layouts, landscaping and exterior elements, building orientation and massing, roads, footpaths, parking areas with parking bays numbered and areas defined, public transport access, drainage and services distribution routes;

f. Develop building and significant exterior elevations indicating windows, balconies, terraces, entrances, canopies, external cladding, louvres, etc. and façade cleaning arrangements;

g. Develop major interior spaces (lobbies, etc.) using large scale elevations and perspectives, integrating all key fixtures.

h. Develop preliminary facade systems drawings for the major facade types in an appropriate scale 1:20 / 1:25 / 1:50, keyed to the overall elevations, with key details.

i. Develop standard building elements such as elevator cabs, bathrooms, etc. using large scale elevations and material samples.

j. Develop the hardware schedule.

5.9.44. Deliverables:

a. Site plan 1:200; showing all buildings, roads, site, features, clear delineation of the Project limit lines, landscaping levels, property line vehicular access, parking, drainage and major mechanical / electrical equipment

b. Detailed floor plans 1:100 / 1:50, showing: all spaces labelled with areas; structural system; major mechanical rooms; vertical transportation elements; core elements; vertical shafts; interior partitions; floor elevations; key dimensions; column grids; general notes; material notes; overall dimensions; general notes indicating major extent of materials and any special condition or material; keying of building sections; major overhead items noted; Project limit lines noted if not otherwise clear; floor patterns and finishes.

c. Roof plans indicating roof materials, drains and falls, and major roof mounted equipment including gantries, walkways and tracks.

d. Reflected ceiling plans showing ceiling and lighting layouts, ceiling heights and finishes.

e. Detailed sections 1:100 / 1:50, showing all facade component sizes, materials, glazing and shading devices, key dimensions, vertical transport and adjacent conditions, floor to floor heights, typical wall sections keyed, details keyed.

f. Detailed elevations 1:100 / 1:50 showing all façade component sizes, materials, glazing and shading devices, key dimensions, glazing and mullion spacing, floor lines indicated, relationships to existing and new finishes grades shown, ceiling heights, major internal elevations with extent of finishes, interior materials called out in notes.

g. Key plans, sections and interior elevations 1:20 / 1:50, showing all wall component sizes, materials, and integration of technical systems colour boards, renderings.

h. Detailed facade systems drawings 1:20 / 1:50 indicating relevant curtain wall details (if applicable), preliminary wall sections at building perimeter, relevant installation details of external materials, partial elevations indicating materials and their inter-relationships.

i. Site plan in GIS format as required by MMUP and Authority.

j. Site survey.

k. Site existing conditions at scale at an appropriate scale to be agreed with the Authority.

l. Site plan and limit of contract area at scale at an appropriate scale to be agreed with the Authority.

m. Site plan at scale 1:500 or as appropriate to the project:

   i. Buildings and roads, dimensionally tied down and referenced to all relevant adjacencies;

   ii. Street lines, property lines, setbacks, easements;

   iii. New and existing roads and ramps with grade elevations;

iv. Light poles and other existing and proposed services, including manholes, fire hydrants, vaults and other sub-grade spaces; and

v. Site development - grading and drainage system, landscaping, paving patterns, site furniture, railings and lighting.

vi. Detailed site plans at scale 1:500 or as appropriate to the project:
vii. Key plan;

viii. Buildings dimensionally tied to all relevant adjacencies;

ix. Street lines, property lines, setbacks, easements;

x. Light poles and other proposed services;

xi. Manholes, sewers, hydrants, area ways and other sub-grade spaces;

xii. New and existing roads and ramps with grade elevations;

xiii. Site grading and drainage system; and

xiv. Proposed and existing utilities.

n. Detailed building and significant exterior elements elevations at scale 1:100 / 1:200:

i. All building elevations shown;

ii. All window locations fixed and shown;

iii. All floor level elevations fixed and shown;

iv. All top of window elevations marked; and

v. Overall vertical dimensions and heights.

o. Exterior elevations at scale 1:100 / 1:200:

i. Full heights including roof structures and mechanical equipment spaces;

ii. Fenestration, brise soleil, curtain wall, cladding systems in relation to interior walls and slabs;

iii. Overall floor heights and slab elevations;

iv. Column lines and axes;

v. Setbacks, building profiles and expansion joints; and

vi. Finishes and surface patterns.

p. Below grade plans and floor plans at scale 1:100 / 1:200:

i. Wall types and thicknesses;

ii. Structural grid including column locations; sizes and grid lines fixed;

iii. All interior fixed spaces layouts including building cores, elevators, shafts, toilets, equipment rooms, interior partitions, door swings;

iv. Dimensions, all space designations, all floor elevations, door types, window types, cross references to detail sheets;

v. Built-in furniture and equipment locations;

vi. Finish materials of all spaces;

vii. Detailed references and internal finish location plans, including floor pattern;

viii. Building perimeter and exterior wall types are fixed;

ix. All internal partitions located;

x. Doors located with door swings, door types marked;

xi. Finish elevations noted;

xii. Partition types called out with legend shown;

xiii. Section, elevation and detail references noted;

xiv. All casework shown and called out, including all wet areas (with tiling layouts);

xv. All rooms are named and numbered;

xvi. All fired rated partitions are identified;

xvii. Enlarged core areas shown with key equipment dimensioned;

xviii. All expansions joints identified; and

xix. Roof plans showing drawings and major equipment.

q. Roof plans at scale 1:100 / 1:200:

i. Roof top equipment and screening elements dimensioned and cross referenced; and

ii. Finish materials.

r. Blow-up Plans and Details of key areas at scale 1:20 or as appropriate to the project:

i. Public spaces, core elements, stairs, elevators, toilet facilities, kitchens, pantries, locker and changing rooms;

ii. Clearances, equipment and built-in furniture and fixtures layouts, shaft requirements;

iii. Floor treatments;

iv. Wall cladding;

v. Detailed enlarged plans and reflected ceiling plans, scales vary:

vi. Typical layouts with dimensions and all equipment shown;

vii. All shafts and service cores shown and dimensioned;

viii. All elevators and stairs drawn and dimensioned;

ix. Casework elevations and millwork sections and profiles shown and dimensioned;

x. Typical interior and exterior column covers and finishes shown and detailed; and

xi. Typical window head / jamb / sill details included.

s. Reflected ceiling plans at scale 1:100 / 1:200 (including all ceiling elements in one drawing):

i. Lighting layout and all ceiling elements and systems (sprinklers, access panels, etc.);

ii. Coves, furring, skylights;

iii. Materials and acoustic treatments;

iv. Relationship with partitions and interface with window details;

v. Lighting and all MEP, fixtures;

vi. Fully coordinated with details and references; and

vii. Lift stop diagrams and schedules.

t. Detailed reflected ceiling plans at scale 1:100 / 1:200 (including all ceiling elements in one drawing):

i. Showing all key ceiling elements dimensioned and located;

ii. All ceiling grids and / or patterns shown;

iii. Light fixtures located;

iv. HVAC diffusers located;

v. Relationships with partitions, casework, etc. resolved and coordinated;

vi. Access panels, ceiling mounted tracks, and all other suspended items located;

vii. Fire sprinklers, speakers, smoke detectors, cameras, exit signs, audio visual screens, projectors, hang points and all other ceiling elements located;

viii. Large scale floor plans for stairs, restrooms, elevators, building cores, loading docks, common spaces, other areas;

ix. Reflected ceiling plans for all areas;

x. Building section(s) including large scale sections, exterior wall typical conditions, non-typical conditions, stair shafts, elevator hoist ways, loading dock, other sections;

xi. Exterior and internal building elevations;

xii. Roofing, flashing, and waterproofing;

xiii. Large scale interior elevations, sections, plans and details;

xiv. Interior details for walls, doors, frames, ceilings, stairs, elevator cabs, millwork, built-in furniture, finishes, casework and other assemblies;

xv. Façade and curtain wall - complete documents including detailed drawings, technical specification;

xvi. Retail design - complete documents for shop fronts and shell and core interiors and coordination as required with other retail designers; and

xvii. Mock-up drawings for different elements of the Project, as requested by the Authority, including, but not limited to: curtain wall, shading structures, etc.

u. Kitchen equipment layout at scale 1:50. Wet, dry, and cold stores and preparation areas for all food and beverage facilities.

v. Fire compartmentation plans at scale 1:100 / 1:200 (including details as required).

w. Detailed building sections and internal elevations at scale 1:100 / 1:200:

i. Sections through all major portions of buildings showing design concepts including vertical transportation;

ii. Floor to floor and ceiling heights noted;

iii. Floor and parapet / roof elevations noted;

iv. Related wall sections / details referenced;

v. Grade elevations noted;

vi. Relationship to new and existing grades noted;

vii. Grid lines shown;

viii. Rooms / spaces named; and

ix. Interior elevations of major spaces shown.

x. Detailed sections at scale 1:50: recesses, bays; building entries; exits and ramps; finishes, joints, textures and patterns.

y. Interior elevations and sections at scale 1:50: areas cross referenced with floor and ceiling plans; ceiling lines, lighting and ceiling elements, floor elevations; wall treatments and materials; location of all fittings and accessories.

z. Detail wall sections, at scale 1:20 and various:

i. Foundation; below grade construction and perimeter treatment shown;

ii. Major exterior wall sections conditions to convey basic building construction systems and materials;

iii. Abutting floor systems;

iv. Raised floor systems;

v. All critical dimensions indicated;

vi. Window types; locations and parapets detailed and dimensioned;

vii. Doors, glazed screens, partitions, access panels, fire hose cabinets, etc.;

viii. Mechanical penetration and block outs; and

ix. Parapet and roof flashing and waterproofing.

aa. Large scale details as required to describe all key exterior and interior elements at scale as required:

bb. Plans, sections, details of fully annotated and dimensioned detail drawings of special areas, features fixtures and fittings to fully describe the typical works;

cc. Final interior details at scale 1:50, 1:25 and 1:10. Including but not be limited to, false ceiling, toilets, partitioning, toilets, floor and wall layout with finishes and patterns.

dd. Cabinetry / millwork, plans, sections, details at scale 1:50, 1:25 and 1:10.

ee. Equipment selection / specifications.

ff. Schedules: doors, frames and hardware; windows, louvres, glazing; finishes; cabinetry / millwork; material samples; FF&E.

i. Coordinated hardware schedule and material cut sheets for selected items.

gg. Room data sheets as required.

5.9.45. Material samples

5.9.45.1. Complete and fully coordinated Technical Design Reports and presentations.

a. Updated design philosophy and story.

b. Updated Project description.

c. Updated Project brief.

d. Updated area calculations for all areas and summary report.

e. Key project components.

f. Site plan 1:200; showing all buildings, roads, Site, features, Project limit line, and landscaping property line vehicular access, as well as all public transport connections.

g. Floor plans 1:100 / 1:50, showing: all program spaces labelled with areas; structural system; major mechanical rooms; vertical transportation elements; core elements;

vertical shafts; interior partitions; floor elevations; dimensions; column grids; general notes; material notes.

h. Coordinated reflected ceiling plans.

i. Sections and elevations 1:100 / 1:50, showing all facade component sizes, materials, glazing and shading devices, key dimensions, floor elevations.

j. Key plans, sections and interior elevations 1:20 / 1:50, showing all wall component sizes, materials, and integration of technical systems colour boards, renderings.

k. Facade systems detailed drawings 1:20 / 1:50.

l. Type of building and roofing detailed drawings 1:20 / 1:50.

m. Waterproofing detailed drawings 1:20 / 1:50.

n. Food and beverage design cut sheets and specifications.

o. Sample boards of finishing materials options.

p. Updated interior design perspectives (study perspectives).

q. Detailed specifications (CSI or NBS).

r. Five updated perspectives listed in the Scheme Design Phase.

s. Three updated external renderings.

t. 1:25 / 1:50 partial model of special feature(s).

u. Retail design documents for shop fronts and shell and core interiors with input from other retail designers.

v. Enlarged elevations of key areas to show design intent

w. Five updated interior perspectives / three dimensional visualizations as listed in Scheme Design Phase.

x. Three updated external renderings.

y. 1:25 / 1:50 partial façade model.

z. Any other information, mood boards, etc. as required to clearly and precisely allow the Project to be clearly understood by anyone reading the booklet. Other support documentation as required to be at rear of booklet in appendices.

5.9.45.2. Detailed technical performance specifications, in the agreed format and including the necessary contractual and technical information to assure adherence to contract documents.

a. Building Permit Application submittal package

5.9.46. Artwork / Public Art

5.9.46.1. The Consultant shall:

b. Identify artwork / public art to be commissioned.

c. Coordinate with lighting design, interior design, water features, landscape and any other relevant disciplines.

d. Prepare details of artwork and fully coordinated installation requirements identifying fixings, footings and structural connections, electrical power and data connections and mechanical and / or plumbing requirements.

e. Fully detailed technical specifications and schedules.

f. Maintenance and operational requirements.

5.9.47. Deliverables:

a. Artwork / public art report including budget.

5.10 ITT Tender and Document Phase

5.10.1 The Consultant shall prepare comprehensive tender construction contract procurement documentation as necessary for inviting competitive bids for the construction works for each project jointly or separately as required. All Tender Documents will be provided in accordance with the requirements of the Authority.

5.10.2 On completion of the ITT Tender and Document Phase a full set of design information shall be delivered to the Engineer for registration with the Authority's DCU within thirty (30) Days from the end of the Technical Design Phase, hard and soft copy, and shall include but not necessarily be limited to:

a. two prints and two DVDs of every drawing issued by the Consultant;

b. one copy of every report;

c. all Utility services approvals from all relevant agencies;

d. all survey information (as applicable); and

e. all of the above must be replicated in digital form in the appropriate electronic format / software etc.

5.10.2.1 During this Phase the Consultant shall support the Authority and the Engineer by responding to queries raised by tenderers arising from their review of the tender documents and provide any additional information required for clarification.

5.10.2.2 During the tender period for the Works contract(s) the Consultant shall review any recommendations, proposed Changes to the designs, methods of construction and general queries raised by the tenderers. The Consultant shall discuss these matters with the Engineer to formulate responses and incorporate Changes to the Authority's Requirements as agreed with the Engineer.

5.10.2.3 The Consultant shall assist in the assessment of tenders and collaborate with the Authority and the Engineer in the creation of a construction contract document that reflects the Authority's Requirements for the Works, including any clarifications or Changes that have arisen during the tender period.

5.10.2.4 In the event the bids of all qualified, responsible and reliable contractors for the construction of the Project are in excess of the amount of the current Programme Budget of the Authority, the Consultant, to the extent necessary, in the Authority's judgment, to bring the cost of the Project within said programme budget, shall revise, subject to the approval and acceptance by the Authority, all or any part of the drawings and specifications of the Project that the Authority may deem advisable or, if the construction contract for the Project has been awarded by the Authority, the Consultant shall prepare all credit change orders, including any necessary revisions to the drawings and specifications that the Authority may deem advisable to bring the cost of the Project within the said programme budget.

5.10.2.5 Notwithstanding any other provisions of this Agreement, all of the services to be provided by the Consultant under the provisions of this paragraph shall be provided without reimbursement of costs or any additional compensation therefore, unless the Authority determines, in its sole discretion, that the factors that caused the variance between the low bid and the said programme budget were not the responsibility of the Consultant or could not reasonably have been anticipated by the Consultant.

5.10.2.6 The required outcome of this phase is the creation of a comprehensive contract for the delivery of the Project with the most appropriate contractor.

5.10.3 ITT Tender and Document Phase - Generally

5.10.3.1 The Consultant shall assist the Engineer during the Production Information and Tender Action Phase by providing the following services:

a. packaging of relevant sections of the Authority's Requirements information;

b. consultation regarding potential bidders;

c. participation in pre-tender conference to describe the technical and aesthetical parameters of the Project;

d. responding to technical RFIs and questions during the tender process;

e. assistance in analysis of the tender submissions and selection of Contractor; and

f. review of the short-listed Contractor's proposal documentation where it relates to his proposed engineering or architectural design.

5.10.3.2 Actions prior to release of bid documentation to inform drafting of contract(s):

5.10.4 Risk Identification

5.10.4.1 the Consultant shall adopt a design risk management approach identifying main risks and key issues prior to the drafting of the Authority's Requirements and any subsequent works contracts;

5.10.4.2 prior to the issue of the tender, the Consultant shall work with the Engineer to generate a design risk file for the Project based upon the Deliverables. Based on this risk management approach the main risks and key issues will be defined;

5.10.4.3 Included in the list of Contractor's proposals required for review will be a series of samples, benchmarks and mock ups of critical elements that will show that the contractor has the capability to meet (and is fully aware of) the quality standards that he will be required to achieve. In liaison with the Consultant the Engineer shall have mock ups constructed to provide a defined standard against which the Contractor can effectively provide his offer.

5.10.5 Definition of achievable schedule for review of Contractors proposals

5.10.5.1 resulting from the compilation of contractors proposals required for review the Consultant shall produce a schedule of achievable review periods. This schedule shall be based on the 21 Day review cycle, enabling calculation of the number of drawings, written pages or other material that can be reasonably reviewed by the Consultant within the review period; and

5.10.5.2 This programme of document submission shall be included in the contract(s). The agreed programme of document submission shall also define the anticipated number of reviews per document that it is anticipated will be required.

5.10.6 Actions after Submission of Tenders

5.10.6.1 the Consultant shall provide a statement of consent that the Contractor's tender design (on the basis of the agreed list of contractor's proposals required for tender review) meets the Authority's Requirements or a statement of no objection for alternative contractors'

proposals that do not meet or match the Authority's Requirements but which are acceptable.

5.10.7 Construction Documents - Generally

5.10.7.1 The Consultant shall review the work developed for tender and construction documents to Assure compliance with the objectives of the Project and the Authority's Requirements.

5.10.7.2 The Consultant shall provide review of but not limited to the following disciplines:

a. Architectural design - infrastructure;
b. Architectural Design – Buildings;
c. facade / envelopes;
d. interior design of public spaces;
e. interior design of back of house spaces;
f. interior design of special functions;
g. landscape Architecture - landscape design;
h. landscape Architecture – planting;
i. landscape Architecture – irrigation;
j. landscape Architecture - paved surfaces;
k. landscape Architecture – drainage;
l. structural Engineering;
m. mechanical Engineering;
n. plumbing Engineering;
o. electrical Engineering;
p. traffic & highway - road alignment; and
q. geotechnics.

5.10.7.3 The Consultant shall attend any workshops with the Contractor(s) in which alternative material specifications, erection methods and structural detailing will be discussed and agreed or discounted.

5.10.7.4 The Consultant shall adopt a risk management approach identifying main risks and key issues. Based on this risk management approach the Consultant shall define the key design risks and key design issues.

5.10.7.5 The extent of the review work to be carried out in the construction document production phase is given in the following paragraphs, which define specific "design" and "design review" roles at this Phase.

5.10.7.6 The Consultant in its "reviewer" role during the construction documentation production Phase shall support the Engineer in provision of advice on matters related to the design of the Works.

5.11 Summary of the Deliverables

5.11.1 The following Sub-chapter provides minimum guidelines for the anticipated Deliverables envisioned per applicable Phase of the design. It is the Consultant's responsibility to ensure that all proposed deliverables adequately convey design intent. The Consultant is encouraged to provide any additional documentation as may be necessary to gain the Authority's non-objection of the Services.

5.11.1.1 Concept Design

a. Concept Design Phase

This period is the development of the Concept Design against an agreed brief including outline proposals for Architecture, Urban Design, infrastructure, utilities, landscaping, structural and mechanical engineering services. All of the work generated under this phase will be conceptual in nature and presented in written formats and graphically in as much detail to gain owner acceptance for a preferred direction in each project area and authorization to proceed to the next Phase of design.

i. Concept Design Deliverables:
- vision statement and Project guiding principles;
- detailed schedule of design deliverables and amended Baseline Programme;
- Concept Design plans - illustrative, annotated and scaled appropriately to convey design intent and obtain the Engineer's non-objection for progress to Design Development Phase;
- Concept Design land use plan with area tabulations in AutoCAD and 'pdf' format (geophysical coordinates and topographic information to be provided by the Authority);
- Concept Design programme components diagram with Concept Design space allocation per programme component sufficient in detail to obtain the Authority's non-objection for progress to Design Development Phase;
- key element enlargement plans / sketches and scaled appropriately and suitably detailed to convey design intent and obtain the Authority's non-objection;
- Architectural elevations / massing / character development and scaled appropriately to convey design intent and obtain the Authority's non-objection for progress to Design Development Phase;
- cross-sections through key area - suitably detailed, annotated and scaled appropriately to convey design intent and obtain the Authority's non-objection for progress to Design Development Phase;
- illustrative character perspectives of programme components as may be required to convey design intent and obtain the Authority's non-objection; and
- Concept Design schedule of full services process.
- Designers Risk Register

ii. Concept Sustainability Study:
- analyse and identify environmental / social / economical elements within the proposed design that will assist the Engineer in achieving the goal of a minimum 'three (3) star' or equivalent rating as currently rated with the GSAS,
- Traffic Concept Study:
- trip generation & parking demands;
- circulation plan and traffic flow (internal systems and context fit); and
- coordination with external traffic impact study.

- Engineering Utilities Concept Study:
- external infrastructure due diligence assessment;
- Concept Design chiller methodology report;
- Concept Design bulk power requirements;
- Concept Design bulk potable water requirements;
- Concept Design sanitary waste and storm sewerage calculations; and
- Concept Design irrigation requirements.

iii. Concept Design Report:
- A3 size booklet format describing, in written narrative and graphic form. The Concept Design report shall include all relevant deliverables as required to convey design intent and receive the Authority's non-objection to proceed to Design Development Phase.

iv. BIM Process Management:
- prepare Concept Design BIM data base files
- Animated Video – final presentation level animated generated fly- through (3 min.- 5 min in length) produced for marketing purposes

v. Programme / Budget Assistance:
- provide assistance as maybe required in conjunction with the Engineer throughout the Concept Design Phase to ensure any information and pertinent costing is given in order to help establish an overall Project budget.

vi. Statutory Approvals:
- Concept Design Phase assessment of all required Statutory Approvals and recommended strategy for engagement and compliance. Include provisions and potential impacts to the Baseline Programme.

b. Schematic Design (Design Development)

i. Schematic Design Phase

This period is the further development of the Concept Design to a level of outline specification. The majority of work under this phase will still be conceptual in nature but intended to further define Project components and presented in written formats and graphically in as much detail to gain the Authority's non-objection for a preferred direction in each Project area.

ii. Schematic Design Deliverables:
- updated project guiding principles and design criteria;
- updated detailed schedule of design deliverables and Baseline Programme;
- updated overall illustrative master plan;
- updated overall land use plan with site area tabulations in AutoCAD and 'pdf' format with definition of limits of work as coordinated with the Engineer. (geophysical coordinates and topographic information to be provided by the Authority);
- updated location plan - all plans coordinated with the including general levels, arrangement plans, sections, elevations and isometrics as required. All plans to be at an appropriate scale to convey design intent;
- updated phasing plans and coordination;

- enlarged plans of areas of significant detail and appropriate scale to convey design intent;
- sun impact diagrams;
- Schematic Design Phase sustainability assessment;
- diagrammatic and illustrations as required of significant features or elements requiring further description for Authority approval;
- illustrative perspectives of significant feature areas;
- updated programme diagram with updated space allocation per programme component sufficient in detail to obtain the non-objection of the Engineer to progress to Technical Design Phase;
- Schematic Design Phase floor plans, elevations, cross sections with space allocations tabulations;
- Design Development Phase fire and life safety assessment; and
- updated Designer's Assessment Register.

iii. Traffic / Circulation Design:
- updated roadway alignment; points of access and egress;
- updated parking counts and Scheme Design Phase layouts;
- updated circulation plan; and
- coordination with final traffic impact study.

iv. Engineering Utilities Design:
- updated external infrastructure due diligence assessment;
- updated chiller requirements;
- updated bulk power requirements;
- updated bulk potable water requirements;
- updated irrigation water supply;
- updated sanitary waste and storm sewerage calculations; and
- communication and security requirements.

v. Sustainability Design:
- work closely with respective authorities within the GSAS office to help develop a strategy and checklist criteria for measuring sustainable effectiveness of the project.

vi. Scheme Design Report
- A3 size booklet format describing, in written narrative and graphic form, fundamentals of all the elements and systems specific to each discipline and scope of work, the Scheme Design report shall include, but not be limited to, the following sections:
- executive summary - written narrative for each project component to include areas of concern, scope Changes, major decisions taken during previous Phase;
- compilation of all relevant documentation (plans, diagrams, charts, etc.) as noted above to include transportation and Utilities documentation;
- review and update of all design for each project component; and

- updated design schedule - coordinated with Project Execution Plan.

vii. BIM Process Management:
- updated BIM data.

viii. Programme Budget Assistance:
- provide assistance as maybe required in conjunction with the Engineer throughout the scheme Phase to ensure any information and pertinent costing is given in order to ensure that the approved project budget is valid; and
- carry out such studies as may be necessary to determine the feasibility of the Master Programme against existing budget allowances.
- Statutory Approvals:
- gain all required planning approvals to ensure design process progresses according to schedule and all design will meet applicable regulations.

c. Technical Design Phase

i. Technical Design Phase

This period is for the further development of the design to allow preparation of technical design to take place and detailed specifications to be concluded. Upon the receipt of the Engineer's non-objection of the Schematic Design Phase submission and non-objection to proceed, the Consultant shall commence production of fully coordinated Technical Design drawings and specifications setting forth in detail the requirements for the construction of the Project. The Consultant shall co-ordinate and integrate into these drawings and specifications with design work prepared by the Authority's other consultants and the work of Contractors as required. The Technical Design Phase includes, but is not limited to:

- updated overall master plan in AutoCAD and 'pdf' format;
- updated overall land use plan with site area tabulations;
- updated location plan - all plans coordinated with the Consultants designs including general levels, arrangement plans, sections, elevations and isometrics as required. All plans to be at an appropriate scale to convey design intent;
- updated definition of limits of work and notification to the Engineer of areas of overlap with other consultants (geotechnical and topographic information as prepared by the Consultant);
- updated phasing plans and coordination;
- updated programme components plans with updated space allocation per programme component sufficient in detail to obtain Engineer non-objection for progress to Production Information and Tender Action Phase;
- updated floor plans, elevations, cross sections with space allocations tabulations; and
- update fire and life safety assessment;
- update designer's risk register.

ii. Traffic Detail Design:
- updated roadway alignment; points of access and egress;

- updated parking counts and preliminary layouts;
- updated circulation plan; and
- co-ordination with final traffic impact study.

iii. Engineering Utilities Technical Design:
- updated external infrastructure due diligence assessment;
- updated chiller requirements;
- updated bulk power requirements;
- updated bulk potable water requirements;
- updated irrigation water supply;
- updated sanitary waste and storm sewerage calculations; and
- IT communication and internal security strategy report.

iv. Technical Design Deliverables
Upon the non-objection of the Schematic Design Phase by the Engineer, the Consultant shall immediately proceed with the preparation of the Technical Design documents of the Project areas designed by the Consultant, which shall initially be submitted in draft form for the Authority's non-objection and which will include, but not be limited to, the following:

- fully coordinated drawings, Technical Design specifications and other documents detailing all disciplines / components required to adequately convey the Technical Design of the entire Project;
- essential design elements from above need to have all final options / amendments ready for final non-objection for production of final Deliverables;
- following submission of the Technical Design report, the Consultant shall make a full presentation of the report to the Engineer supported by written and illustrative material as appropriate;
- Statutory Approvals (including all approvals and submission requirements);
- procurement strategy with regards to unusual items or material or any item requiring long lead time;
- finalise the Project budget; and
- finalise programme for the Authority's non-objection.

v. Technical Design Report
Technical Design report shall be in A3 size booklet format describing, in written narrative and graphic form, fundamentals of all the elements and systems specific to the discipline. The Technical Design report shall include, but not be limited to the following sections:

- executive summary to include selected design options, scope Changes, major decisions taken during this Phase etc.;
- sustainability implementation plan;
- review and update of all design disciplines for the Project;
- final implementation of Project execution strategy (include summary of work packages to be issued for the Works); and

- validation of Technical Design in coordination with the other consultants.

vi. Technical Design Packages:
The Consultant shall coordinate all design works by sub-consultants. The sizes, layouts and routes of all services, structures and spaces shall be finalised, coordinated and submitted as part of the Technical Design drawings and documents. All work shall be done in accordance with local permitting and government approvals. The drawings that will be appropriate scales will include the following disciplines:

- Architectural design set;
- interior design set;
- exhibit design set;
- fire and life safety set;
- kitchen design set;
- façade and interior lighting set;
- structural design set;
- mechanical design set - plumbing systems, HVAC;
- electrical design set;
- infrastructures / site wide Utilities set;
- civil engineering set;
- security, IT and BIS systems (building and site wide) set;
- AV-CCTV systems set;
- site design set;
- infrastructure set;
- landscape and irrigation set;
- interpretive design set;
- signage / wayfinding set; and
- site lighting.

vii. Sustainability Technical Design:
- provide draft audit checklist for the Project to meet the minimum objective of a 'three (3) star' equivalent rating as measured by GSAS.

viii. BIM Process Management:
- updated and final BIM files of the Authority's non-objected programme components.

ix. Outline Design Specifications:
- the Consultant shall prepare and submit in previously approved formats, outline specifications for all Project components. These will include draft quality control requirements, product Technical Design specifications and execution and workmanship requirements. Outline Project specification will also include performance specifications for custom manufactured and assembled systems;
- the Consultant shall collate specifications of the areas designed by other consultants for inclusion in the Technical Design specifications. The outline

specification shall include draft of the sustainability requirements, system components, operating criteria or other relevant sustainability items; and

- all specifications of materials, equipment, finishes etc. shall be with proven performance and shall ensure high performance and the capability of withstanding repetitive abuse by users. Specifications of materials shall also be based on being maintenance friendly.

x. Costing Assistance:

- the Consultant shall prepare the pricing schedules and the draft Bills of Quantities;
- the Consultant shall, throughout the final Technical Design Phase, monitor the design against cost to ensure that the approved budget is maintained. Should the Authority request Changes, and / or increases in scope, which result in an increase to the approved budget, the Consultant will immediately advise his inputs regarding any cost implication; and
- the Consultant will conduct take offs and develop the Cost Plans. All design calculation sheets and drawings shall be submitted to the Authority, as back up to the Cost Plans in a separate bound document.

xi. Statutory Approvals:

- gain all required planning approvals to ensure design process progresses according to schedule and all design will meet applicable regulations.

d. Technical Design – Production Information

This period is to for the development of detailed information for construction. Upon the receipt of the Authority's non-objection of the Technical Design Phase submission and non-objection to proceed, the Consultant shall commence production of thoroughly coordinated construction drawings and specifications setting forth in detail the requirements for the construction of the Project. The Consultant shall co-ordinate and integrate into these documents design work prepared by the Authority's other consultants and the work of Contractors.

i. Production Information Deliverable Packages

The Consultant shall provide final contract document sets that detail all components for construction of the Project, in such detail as may be required to construct the Project components. All work shall be done in accordance with Statutory Approvals. These drawings will indicate all critical dimensions, material finishes, locations, desired details illustrating the extent required for construction and will form the set of documents that the Engineer will tender and build from:

- Architectural design set;
- interior design set;
- exhibit design set;
- fire and life safety set;
- façade and interior lighting set;
- structural design set;
- mechanical design set - plumbing systems, HVAC;
- electrical design set;

- infrastructures / site wide Utilities set;
- civil engineering set;
- security, IT and BIS systems (building and site wide) set;
- AV-CCTV systems set;
- site design set;
- landscape and irrigation set;
- signage / wayfinding set; and
- site lighting.

ii. Sustainability Design:
- provide draft audit checklist for the Project to meet the minimum objective of a 'three (3) star' equivalent rating as measured by GSAS.

iii. BIM Process Management:
- final BIM file update of Engineer non-objected programme for turn-over to Engineer appointed consultant.

iv. Final Design Specifications:
- The Consultant shall prepare and submit in previously approved formats (CSI or NBS), final specifications for all Project components. These will include draft quality control requirements, product detail technical specification and execution and workmanship requirements. The final design Project specification will also include performance specifications for custom manufactured and assembled systems;
- the Consultant shall collate specifications of the areas designed by other consultants for inclusion in his design specifications. The final design specification shall include draft of the sustainability requirements, system components, operating criteria or other relevant sustainability items; and
- all specifications of materials, equipment, finishes etc. shall be with proven performance and shall ensure high performance and the capability of withstanding repetitive abuse by users. Specifications of materials shall also be based on being maintenance friendly.

v. Final Cost Assistance:
- the Consultant shall prepare the Cost Plan and pricing schedules for areas designed by the Consultant and shall prepare the draft final Bills of Quantities;
- the Consultant shall, throughout the Production Information Phase, monitor the design against cost to ensure that the approved budget is maintained. Should the Authority request Changes, and / or increases in scope, which result in an increase to the approved budget, the Consultant will immediately advise his inputs regarding any cost implication; and
- the Consultant will conduct take offs and develop the Cost Plans. All design calculation sheets and drawings shall be submitted to the Authority, as back up to the Cost Plans in a separate document.

e. Tender Action (including Construction Documentation)

i. Prequalification of Contractors (Not required)

This period is to for the Consultant to assist in the preparation and collation of tender documentation for construction tenders:

- the prequalification of contractors will be performed primarily by the Engineer. The Consultant, if required shall assist the Engineer in selecting and preparing the preliminary list of contractors to submit an expression of interest in tendering for the Project;
- the Consultant shall prepare draft proposals for pre-qualification criteria and procedures, to be submitted, discussed and non-objected by the Engineer; and
- the Consultant shall participate in pre-qualification of contractors and shall submit a report to the Engineer recommending a short list of contractors to tender for the Project.

ii. Tender Clarifications:
- the tender process will be managed primarily by the Engineer with input from the Consultant as required. The Consultant shall review all tenderers' queries and prepare appropriate responses for the Authority's non-objection before issue to tenderers. All addenda, circulars and bulletins may only be issued with the Authority's non-objection. All correspondence with tenderers shall be through the Engineer.

iii. Tender Evaluation:
- the Consultant shall evaluate tenderer's technical and commercial offers and shall prepare a tender report with analyses and recommendations.

iv. Award of Construction Contract
- construction contract is awarded.

5.12 Construction Scope Phase Services of Design Architect

5.12.1 General

5.12.1.1 The Consultant shall provide "Design Guardian and Compliance Services" Services for the duration of the construction activities.

5.12.1.2 These Services are to provide continued design Service support to the Contractors and Supervision Consultants during the Construction Period and the completion of the Snag List by the Construction Contractor. The Services shall include; inter alia:

a. responding to Supervision Consultant design clarification requests;

b. production of further clarifying design information to support construction;

c. review and comment on alternative proposals submitted by the Contractor;

d. review and comment on all design change proposals;

e. review and comment on material and shop drawing submissions;

f. update of base prototype design information, including BIM model to ensure clarifications and corrections are uniformly applied across all construction;

g. carry out weekly site inspections;

h. attend monthly progress meetings;

i. liaison with all necessary Supervision Consultants and Contractors toa dequately

plan site visits for weekly inspections, benchmark and mock-up sample reviews;

k. review and inspect completion of outstanding Contractor's construction works during the various construction contract Period, so that the Supervision Consultant is able to certify completion

5.12.2 Design Guardianship

5.12.2.1 The Design Consultant shall report to the PWA as part of the PWA Team during the Construction Phase to provide "Design Guardian Services" for the duration of the construction activities.

5.12.2.2 These Services are to provide continued Design Service support to PWA concerning certain specific work performed by the Supervision Consultants and Contractors during the Construction Period.

5.12.2.3 These Construction Phase Services shall include;

a. responding to Supervision Consultant design clarification requests;

b. review and comment to PWA on alternative proposals and alternative materials submitted by the Contractor;

c. attend minimum bi-weekly administrative site visit meetings;

d. Review and issue "objection" or "non-objection" with comments to PWA for mock-up and material sample reviews;

e. Review and issue "objection" or "non-objection" with comments to PWA for compliance with the design intent.

5.12.3 Consultant Resource, Pricing and Payment

5.12.3.1 The Design Consultant will provide all required resources to carry out this service which shall include the following disciplines;

a. Senior Architect;

b. Senior Structural Engineer up to completion of the enclosure of the structure;

c. Senior Mechanical Engineer

d. Senior Electrical Engineer

5.12.3.2 All costs for these Construction Phase Services of the Design Consultant will be included in the Contract Pricing Schedule.

5.12.3.3 Invoicing for the Design Consultant's Services during the Construction Phase will be monthly and proportional to the percentage of completion of the installed Construction work approved by PWA.

5.12.4 Site Visits

5.12.4.1 The Design Consultant shall visit the site a minimum of two times per week (bi-weekly).

5.12.4.2 Visual inspection of the works to ensure compliance with the design intent. The Design

Consultant shall be required to issue a monthly progress written report to PWA regarding compliance with the design intent.

5.12.5 Change

5.12.5.1 The Design Consultant shall review the Supervision Consultant's submittal on design change proposals and material substitutions for compliance with the overall design intent. The Design Consultant shall review and issue "objection" or "non-objection" with comments to PWA.

5.12.5.2 In the event of a bone fide alternative proposal from the Contractor, the Supervision Consultant shall submit this alternative to the Design Consultant for review. The Engineer will require the Design Consultant's recommendation (non-objection, non-objection with comments or rejection) on all alternative proposals before any Site Instruction can be issued.

5.12.5.3 In the event of a change that impacts the general design intent of the design being required by the Authority or the End User, the Design Consultant shall lead and prepare the particulars of this change and submit proposals to the Engineer within fifteen (15) Days of receipt of the change request. Upon non-objection from the Engineer the prototype design shall be updated, including all drawings, BIM model and specifications and the Engineer will instruct all necessary Supervision Consultants and Contractors to proceed with this change.

5.12.6 Reporting

5.12.6.1 The Design Consultant shall provide a monthly progress report, which shall include the following minimum sections:

a) requests for Information/ Design Clarifications received and responses issued in the Period;

b) submittals received and reviewed;

c) benchmarks/ Mock-ups Reviewed;

d) record of site visits including photographs, inspection reports and non-conformance.

register.

5.12.7.2 The Design Consultant shall maintain a register of non-conformances to the design to indicate the status of all non-conformities, which are identified by the Engineer, Supervisory Consultant and the Design Consultant.

5.12.7 Progress Meetings

5.12.7.1 The Design Consultant shall attend monthly progress meetings with PWA to present monthly report findings and provide evidence of progress on the Service being provided.

5.12.8 Submittals

5.12.8.1. The Design Consultant shall review and issue “objection” or “non-objection” with comments to PWA for all for all design change proposals and material substitutions within (10) Days of receipt of same.

5.12.8.2. The Design Consultant shall provide responses to Requests for Information from the Supervision Consultants thru PWA as soon as possible, but not later than Ten (10) Days from receipt.

6. DURATION OF THE SERVICES

6.1. General

6.1.1. The Agreement period (duration of the Services) is measured:

- from the mobilisation period immediately following the Commencement Date; to
- the Completion Date and hand-over of the building to the Client.

During this period the Design Consultant shall provide the Services described in this Project brief.

6.1.2. Delivery of the Project objectives and completion of the Services is time critical and therefore a primary objective of the Authority and of the Project.

6.1.3. The Consultant shall perform and complete the Services to meet the requirements of the Key Phases.

6.2. Key Phases and Key Dates

6.2.1. The Baseline Programme shall have as its basis the achievement of the Key Dates and Key Phases. Key Dates are specified for the various Key Phases of the Project in Table 6.2 below and refer to the latest date of completion date for each.

Table 6.2 – Project Key Phases and Associated Key Dates

Key Phase	Key Phase Title	Key Date (Days from Commencement Date)
A	Completion of Validation Services Phase	CD + 14
B	Completion of Concept Design Phase	CD + 44
C	Completion of Scheme Design Phase	CD + 104
D	Completion of Technical Design Phase	CD + 269
E	Completion of ITT Documents and Tender Phase	CD + 344
F	Design Guardianship During Construction Phase	CD + 400

CD = Commencement Date

6.3. Gateway Review

The Consultant shall be responsible for project compliance in accordance with a series of approval gateways. These are milestones in the project lifecycle beyond which the project shall not proceed without specific management and funding approval from Engineer. At each approval gateway, a Project Review of the technical scope, projected whole life cost and program for the project will be a pre-requisite for approval to proceed to the next Phase.

Approval Gateway 1, Project Initiation – Conducted at project inception this review has the following objectives:

1. Confirmation of PWA's needs;
2. Identification of the need for investment in line with PWA strategy;
3. Confirmation of drivers, project output or delivery requirements;
4. Confirmation of outline, the options and budgets to be considered for the project;
5. Confirmation of funding provision;
6. Incorporation of the needs of Operations and Maintenance Department;
7. Identification of any strategic issues including statutory approval requirements attached to the project;
8. Identification of potential impact on operation and maintenance (O&M) costs; and
9. Identification of all non-Ashghal stakeholders and required approvals (e.g., MoE, P.E.O., Kahramaa, MoF, etc.).

Approval Gateway 2, Pre-Design – Conducted following Project Option Assessment with the following objectives:

1. PWA Approval of all Reports and Deliverables required in Program Verification Phase
2. Confirmation that the Option is an effective solution to PWA's needs;
3. Recommendation of the approved project option;
4. Confirmation of drivers, project output; delivery requirements and long lead items;
5. Confirmation of Estimated Project costs (capital and whole life costs);
6. Confirmation of Project Milestones;
7. Identification of the impact of the preferred option on O&M costs;
8. Reports on feasibility Work undertaken to date;
9. Reports on Options considered for the project;
10. Confirmation of support from PWA Stakeholders
11. Confirmation of non-Ashghal general concurrence or compliance capability with project options; and
12. Establishment of Approvals, timeline/milestones for all non-Ashghal stakeholders (e.g., MoE, Kahramaa, etc.).

Approval Gateway 3, Design – Approval of Project Budget Allocation to include:

1. PWA Approval of all Deliverables required in Design Phase
2. Re-Confirmation of Options is an effective solution to PWA's needs;
3. Confirmation of PWA Budget for Project;
4. Confirmation of project output and delivery requirements;
5. Confirmation of latest project Milestones;
6. Confirmation of latest impact on O&M costs;
7. Reports on Design and project development work to date;
8. Reports on costs incurred to date;
9. Establishment of budget allocation for services and works
10. Capture of information required by PWA finance directorate; and
11. Confirmation of Approvals, timeline/milestones for all non-Ashghal stakeholders (e.g., MoE, Kahramaa, etc.).
12. Confirmation of PWA/Client Satisfaction;

Gateways 4, 5 and 6 as listed below is only for information to the Consultant and do not form part of the design consultant's scope.

Approval Gateway 4, Project Change/Variance – Conducted when a project is at variance or is forecast to be at variance with the agreed program in terms of cost, time, scope or output. It includes:

a) Confirmation that variation is an effective solution to PWA's needs;

b) Confirmation that project can proceed with the approved change;

c) Confirmation of change in project budget or program;

d) Confirmation that project drivers, output and delivery requirements are still relevant following the change; and

e) Confirmation of Approvals, timeline/milestones for all non-PWA stakeholders.

Approval Gateway 5, Delivery – Beneficial Use – Conducted when any asset, created or modified by the project, is capable of use by the Asset owner. It includes:

a) Confirmation of PWA/Client Satisfaction;

b) Confirmation of expenditure to date and forecasts to project close;

c) Confirmation of the scope of all outstanding works and services;

d) Confirmation of acceptance by Client of the asset for beneficial use;

e) Approval of all information necessary for updating the PWA Asset Inventory;

f) Approval of as built records and details of any assets taken out of operational use; and

g) Confirmation of Approvals delivery for all non-PWA stakeholders.

h) PWA Approval of all Deliverables required in Construction Phase

Approval Gateway 6, Project Closure – Completed prior to end of Contract. It includes:

a) Re-Confirmation of PWA/Client Satisfaction;

b) Confirmation of all Maintenance Period Deliverables Completed by Contractor and CSC

c) Confirmation that the anticipated outputs and benefits of the project have been delivered;

d) Confirmation of the actual cost incurred for the project;

e) Confirmation of the actual impact on O&M costs;

f) Confirmation that all project documentation has been committed to archive and is retrievable; and

The services listed below are included in the Design Consultant's services:

For the avoidance of doubt, the Approval Gateway is a critical milestone in the development of each project and successful completion relies on the timely publication and distribution of all relevant documentation. The Consultant shall be responsible for planning, arranging and recording the output of each gateway review and shall undertake the same duties for repeated gateway reviews should the Project circumstances so dictate.

The Consultant shall be responsible for organizing and preparing presentation documentation for the purpose of control point reviews. The format for the control point reviews to be provided by the Consultant shall take the form of a 45 minute presentation followed by a 45 minute question and answer segment. The presentation package must clearly communicate to the PWA the project status at the milestones indicated in the Design Process Control Point Chart. The presentation package must cover the following disciplines:

a) Architecture (including site plan)
b) GSAS (Sustainability)
c) Interior Design
d) Landscape Architecture
e) Structural
f) Mechanical
g) Electrical
h) Plumbing
i) Civil
j) Infrastructure
k) AV/IT/Security

The Control Point deliverables shall include:

a) No. 1 A1 Boards representing key project information (ie. Site Plan, plan, elevation, sections renderings, etc.).

b) No. 12 A3/A4 copies of the presentation.

c) All documents on No. 3 CD/DVDs with label indicating the project title, project number and date.

d) PDF of the presentation to be issued a minimum of three days prior to the scheduled control point presentation.

Required control points designated by PWA are as per the following:

Design Processes Control Points

1. Design - Program Validation Phase – 100%
2. Design - Concept Design Phase – 100%
3. Design - Scheme Design Phase – 100%
4. Design - Technical Design Phase – 100%
5. Design – Completion of ITT Documents and Tender Phase – 100%

Construction Processes Control Points

1. Construction Process – Mobilization - Kick Off Meeting
2. Construction Process – Mobilization - Deliverables Review
3. Construction Process – Delivery Works - Completed
4. Construction Process – Handover – Interim
5. Construction Process – Handover - Final
6. Construction Process – Defect Liability Period – Post Handover

6.4. Time for Completion

6.4.1. The Time for Completion of the whole of the Services is **Four Hundred (400)** Days.

6.4.2. The Time for Completion of the Services includes all necessary time for processing of documentation and obtaining the Engineer's non-objection for all Deliverables.

7. FACILITIES, INFORMATION AND SERVICES OF OTHERS

7.1. Facilities Provided by the Consultant

7.1.1. Except where expressly provided otherwise, the Consultant shall at its own cost provide all the facilities needed to carry out the Services, including accommodation, transport and all other resources and shall make its own arrangements for visas, exit permits, residence and work permits.

7.1.2. Subject to Paragraph 7.2 [Facilities Provided by the Authority] the Consultant shall provide all and sufficient offices, resources and equipment as shall be necessary so as to facilitate the performance and completion of the Services in accordance with the:

- Agreement, Schedule C [*Schedule of Resources*], Part 1 [*Master Programme*]; and
- Quality and other performance requirements of Conditions of Engagement, Schedule A [*Project Brief*].

7.1.3. The Consultant shall provide its staff with mobile phones, computers, printers and stationeries etc. so as to facilitate the performance of the Services on time and with the qualities as described in this document.

7.1.4. In accordance with the provisions of General Conditions of Engagement the Consultant shall maintain an operational office in the State of Qatar for the duration of the Project.

7.1.5. Unless expressly stated otherwise under Paragraph 7.2 [Facilities Provided by the Authority] the Consultant shall equip the office as needed to effectively and efficiently perform the Services.

7.1.6. Unless expressly stated otherwise under Paragraph 7.2 [Facilities Provided by the Authority] the Consultant shall provide, inter alia:

a. all necessary IT hardware and software systems, including specific Project based software systems and associated licences;

b. all Project controls systems and associated licences;

c. all necessary Project office stationery and associated consumables;

d. all necessary personnel transportation;

e. all necessary personnel mobile phones and associated communications devices;

f. all visas, permits and the like necessary to perform and complete the Services; and

g. all necessary statutory insurances and appropriate insurance coverage for Consultant provided equipment and resources for the duration of the Agreement.

7.2. Facilities Provided by the Authority

7.2.1. None.

7.3. Information Provided by the Authority

7.3.1. The information to be provided by the Authority is contained within Section C: Project Brief, Part 4: Project Data.

7.3.2. The information provided by the Authority and expressly indemnified for its accuracy pursuant to General Conditions of Engagement Sub-clause 6.4 [Authority Provided Facilities, Information and Services] is contained within Chapter 3 [Authority Indemnified Project Data] of Section C: Project Brief, Part 4: Project Data