**ANNEX "D"**

**BASIC SERVICES ELECTRICAL DESIGN AND SUPERVISION**

**1.1. Preliminary Services:**

At the initial stage, the Electrical Engineer advises the Consultancy Firm of:

(a) the need to secure statutory approvals;

(b) whether the Client’s requirements are feasible;

(c) his duties according to the Health and Safety Laws and the Regulations in force from time to time;

(d) any restrictions on public access to the Site, both during the period of construction works and after their completion, which may affect the design;

(e) the possibility of the Project being affected due to the topography of the Site or due to other obvious natural factors or due to the presence of contamination from previous use of the Site or due to other factors that will emerge from the information which the Firm shall provide to the Electrical Engineer; and

(f) the applicable legislation in relation to the construction development in the specific area where the Site is situated.

**2. Preliminary Design:**

2.1 At the Preliminary Design stage, the Electrical Engineer: -

(a) secures the instructions of the Firm for the commencement of the Design, which include:

(i) information of the Site;

(ii) the Client’s requirements and his objective;

(iii) the calculation of the electric load; and

(iv) the Client’s available budget for the Electrical installations and the desired timeframe;

(b) evaluates with the Firm alternative designs and construction approaches and their economic impacts;

(c) visits the Site, studies the data and the preliminary information relating to the Project and takes into account possible available reports relating to the Project, and consults with utility organizations on their own requirements (e.g. EAC, CYTA, CERA),

(d) prepares the Preliminary Design which is based on the Building Program and which includes the preparation of the data that will enable the Client to understand and approves the proposals which aim to satisfy his requirements and includes:

(i) examination of the available data and information of the Project, suggestions for the various electrical systems which may be used in the Project;

(ii) providing advice to the Firm on the necessity of special investigations and/or laboratory tests required for the proper design and construction of the electrical installations of the Project;

(iii) liaising with the local and other authorities on matters concerning the electrical design;

(iv) providing the required information relating to the Electrical design and affecting the design; and

(v) the estimated cost of the electrical installations of the Project.

**3. Final Design, details and specifications:**

3.1 At the Final Design stage, the Electrical Engineer, in co-operation with the other Design Consultants, agrees with the Firm the schedule of work for the design and implementation of the Project.

3.2 After the approval by the Client of the Preliminary Design and after receiving relevant instructions from the Firm, the Electrical Engineer prepares the Final Design, which takes into account the provisions of the applicable legislation required for the issuance of the permit and subject to the work appropriate to an Electrical Engineer, includes:

(a) layout drawings of each electrical installation showing the exact route, materials and dimensions of networks, the position, size and type of devices;

(b) design drawings, special detailed drawings, engine room drawings etc;

(c) diagrams of networks, automation, connections etc for as many installations as required, as well as a final connection plan with public utility organizations (e.g. EAC, CYTA);

(d) a report which includes:

(i) detailed and analytical calculations for each type of electrical installation; and

(ii) technical characteristics of the main electrical devices/systems;

(e) technical specifications for all electrical materials, devices etc. where, in addition to their specifications, the methods of manufacture and/or installation are specified, as well as the quality control frequency and procedures of materials and the operation of networks and/or systems;

(f) instructions to tenderers, form of tender and general conditions; and

(g) the estimated cost of the electrical installations of the Project.

3.3. At this stage, the Electrical Engineer is also obliged to -

(a) include in his Final Design any requirements of the other Design Consultants and/or Special Consultants;

(b) provide, in the form of diagrams or lists, the construction drawings required for the electrical installations showing the location and the approximate sizes of the main pipelines and inform the Firm of the approximate weight of any relevant item which may affect its design;

(c) advise the Firm of the consequences for any change in the cost and schedule of work;

(d) consult with the public authorities and any other public utility authority or organization to provide the services necessary for the Project;

(e) assess and prepare energy, heating and cooling load lists, where required by applicable legislation;

(f) review and agree with the other Design Consultants the general preconditions affecting the choice of energy resources;

(g) submit, after the Client approves it, the Final Design to the Firm so that it can be submitted to the competent authority, in order to obtain the permits required under the applicable legislation;

(h) prepare, in co-operation with the other Design Consultants and Special Consultants, the tender documents for the electrical installations in sufficient detail to enable tenders to be received;

(i) advise the Firm on the suitability, for the execution of the Project, of persons who will be invited to submit a tender for any contract relating to the construction, supply and/or installation of all or part of the electrical installations of the Project;

(j) co-operate with the other Design Consultants in the evaluation of the tenders, prices and information received, for the execution of all or part of the Project;

(k) revise, if instructed by the Firm and an additional fee is agreed, the Final Design so that it corresponds to an amount lower than the lowest tender amount for the electrical installations; and

(l) revise, in the event that the lowest tender amount for the electrical installations exceeds by 20% the estimated cost of the electrical installations of the Project and if instructed by the Firm, the Final Design without additional fee.

**4. Supervision:**

4.1 During this stage, the Electrical Engineer shall be responsible for supervising the works resulting from the Final Design, making periodic visits to the Site for this purpose, the frequency of which should be such as is necessary for the timely performance of his duties.

4.2. At this stage, the Electrical Engineer, in co-operation with the other Design Consultants and the Special Consultants has a duty in relation to his Design to:

(a) supervise its implementation;

(b) give interpretations, resolve queries, provide solutions to problems of his competence, issue supplementary drawings and contribute to the smooth progress of the works;

(c) monitor the implementation of the specifications and/or approve the samples of materials proposed by the electrical installations subcontractor and their use;

(d) examine the payment requests of the electrical installations subcontractor;

(e) monitor the progress of works against the schedule and keep records of delays;

(f) issue instructions for modifications and evaluate them in accordance with the relevant provisions of the electrical installations subcontract, where required and after obtaining the approval of the Firm;

(g) submit periodic progress reports, in which reference is made to the physical and financial progress of the works, any delays, the modifications and the reasons for them and their effects, the quality of the works and materials, any problems etc;

(h) give general advice on the management and maintenance of the electrical installations of the Project;

(i) provide the information he considers necessary to enable the electrical installations subcontractor to prepare the installation drawings;

(j) advise the Firm on the need for specialized inspections or tests which are required during the construction works;

(k) review the proposals of the electrical installations subcontractor, as required by the electrical installations subcontract, but does not review the alternative designs that the electrical installations subcontractor may submit, unless the Firm gives him relevant instructions and an additional fee is agreed;

(l) review the installation and construction drawings submitted by the electrical installations subcontractor for the works or part thereof, in relation to the purpose of the design and compatibility with the performance criteria:

It is understood that the Electrical Engineer is not required to review the design of any structure or material delivered by the electrical installations subcontractor, unless the Firm gives him relevant instructions and an additional fee is agreed;

(m) participate in meetings at the Site and oversee that the Project is executed with due diligence according to the electrical installations subcontract and advise the Firm for the issuing of instructions to the electrical installations subcontractor;

(n) on completion of the construction works, receive copies of the drawings of the electrical installations and of the instructions of operation and maintenance prepared by the electrical installations subcontractor, check whether they are satisfactory and deliver a copy of them to the Firm. Moreover, if requested by the Firm, the Electrical Engineer shall deliver to the Client one copy for each final drawing supplied by the electrical installations subcontractor for purposes of construction of the electrical installations of the Project; and

(o) identify the incomplete work and make final inspections.

4.3 After the substantial completion of the Project, in co-operation with the other Design Consultants, the Electrical Engineer, in relation to his Design:

(a) checks and approves the drawings of the electrical installations of the Project as constructed, for the purposes of securing any certificate or approval under the applicable legislation;

(b) signs all documents, forms and declarations concerning him as designer/supervisor and which are required for purposes of inspecting the electrical installation before electrification;

(c) evaluates any claims of the electrical installations subcontractor and/or the nominated subcontractors and/or suppliers and submits a report to the Firm; and

(d) provides all the necessary information to the Firm for the preparation and issuance of the Final Account of the Electrical Installations.

**5. Additional Services:**

5.1. Any services other than the Basic Services may be provided as Additional Services, if agreed in writing with the Firm.

5.2. The fee for the provision of Additional Services may be agreed freely and be collected in addition to the agreed fee.

5.3. Variations to an approved Design made due to unforeseen circumstances or at the request of the Firm or the Client or generally for reasons for which the Electrical Engineer is not responsible, are considered as Additional Service.

**6. Miscellaneous Provisions:**

6.1. The Electrical Engineer must obtain the instructions of the Firm in order to proceed to the next stage of Services.

6.2. The provisions of the General Conditions of the Agreement related to the Firm apply mutatis mutandis to the Electrical Engineer.