8.4.2. Preliminary Design

The Preliminary Design Package shall include but not limited to the following:

a. Copies of:
   i. Assignment Letter of the Client.
   ii. Approval of UPC of the Master Plans and Concept Design.
   iii. Environment Agency - Abu Dhabi (EAD) approval
   iv. Approval of connection from DMAT Operation and Maintenance Section refer to section 5 of this document.
b. Project Vision Statement.
c. Project site location plan showing existing site boundary, access roads and primary infrastructure facilities serving the site.
d. Site survey and site context including existing utilities / services, access and connectivity, surrounding land use.
e. Topography survey to be submitted in digital (X, Y, Z) AutoCad and Excel format.
f. Geotechnical investigations report/results (soil, rock, water tests and groundwater conditions).
g. Site analysis to identify opportunities as well as – technical and design constraints.
h. Full and detailed description of design criteria adopted.
i. Designs including the following:
   a. Proposed site plans and grading plans.
   b. Proposed network layouts. Layouts containing stormwater and subsoil drainage should be presented separately.
   c. Proposed catchment area plan highlighting sub catchments and any catchments contributing or expected to contribute to the proposed network.
   d. Proposed infrastructure layouts showing pump stations, storage ponds (if applicable).
   e. Electromechanical concept design including pump curves, pump selection and details of any ancillary works (if applicable).
   f. Hydraulic Design calculations and technical calculation sheets (MS Excel format.
   g.) must contain as a minimum pipe diameters, levels, slopes, and catchment area with respective coefficients, time of concentration, intensities, full and partial pipe flows and velocities. Hydraulic calculations shall be prepared based on Storm events as specified in the Design Manual (refer to section 2 above).
   h. Electromechanical Design to include System Curve for Parallel Operation Scenarios and Sump operation levels as well. and surge analysis for pumps operation
   i. Hydraulic modelling for the proposed network as specified (refer to section 3 above).
   j. Subsoil drainage calculation shall be based on soil parameters and groundwater conditions. The calculations must contain as a minimum pipe diameters, levels, slopes, and radius of influence (if applicable), drainage coefficients, pipe flows and velocities. Hydraulic calculations shall be prepared with reference to the Design Manual (refer to section 2 above).
   k. Full and detailed design calculation of each element of the works.
   l. Sizing design calculations for any proposed structures.
j. Sections showing ROW with all details of all services corridor. Project implementation plan.