Table 2-2 Hydraulic design flow rates

	After commencement 2022	Stage 1 – 2032	Stage 2 - 2047
Daily average, m^3/day	19,424	23,368	27,216
Average flow, m^3/h	809.32	973.66	1,133.99
Design flow, m^3/h ($Q_{DW,h}$)	1.224,45	1.488,79	1.731,97
Maximum flow, m^3/h ($Q_{WW,h}$)	1,525,39	1,957.99	2,296.28
Minimum flow m^3/h	540.75	636.84	739.67

2.2.2 Hydraulic Profile

The hydraulic profile of the wastewater treatment system shall be designed to allow minimum head loss and energy consumption.

Hydraulic calculations and hydraulic profile should be calculated in accordance with the maximum flow rate for the year 2032 and 2047 as required. Hydraulic design of the wastewater treatment plant should be carried out for the worst case scenario i.e. for the maximum flow rate of Stage 2 and when one unit is out of operation. The calculations should also be controlled in accordance with the minimum flow rate of Stage 1(i.e. in accordance with the control philosophy of the inlet pump) and the maximum flow rate of Stage 1. Even in worst case scenario, equal flow distribution to each treatment unit shall be provided but flooded weirs shall not be designed.

Treated wastewater discharge pipe/channel to Black Sea shall be designed and constructed in the scope of this Contract.

The required head of the pumps shall be determined according to the BOPEL (bottom elevation of pipeline) of the main collector with 1000 mm diameter as -1.94 masl and the WWTP inlet structure water level. The WWTP inlet structure water level is calculated by taking account the head loss through the treatment plant and the site elevation. Distance of the site to the coast is approximately 300 m.

2.3 Pollutant Loads

The estimated pollutant loads at the inlet to the wastewater treatment plant are given in Table 2-3. The given values are for the raw wastewater inlet concentrations from the collector lines and do not include any additional hydraulic and organic loads from the in-plant recycling streams. The design of the treatment plant shall be based on the calculated loads including the recycle streams.

The flow rate of in plant recycling streams shall be minimum 3% of daily average flow rate, pollutant loads shall be 5% of pollutant loads given in Table 2-3 except total nitrogen which shall be 10% of inlet total nitrogen load given in Table 2-3.

Pollutant removal in preliminary treatment units (i.e. screens and grease and grit removal tanks) shall not be taken into consideration in the design of WWTP units and equipment.