AIN AL FAYDA POND FOR STORM WATER NETWORK PROJECT IN AL AIN

AL AIN , MIDDLE EAST, U.A.E.

Longitudinal Protection

Problem

M/s. Abu Dhabi General Services Company PJSC (Musanada), on behalf of the M/s. Abu Dhabi Housing Authority (ADHA) appointed M/s. CORE Engineering Consultancy LLC to do detailed design of External Storm and Irrigation Connection to Jebel Hafeet and Ain Al Faydah Developments. Accordingly, the designer proposed concept design options of stormwater discharge ponds strategy to the relevant project stakeholders, which mainly involved the construction of two massive ponds within Ain Al Fayda & Jabel Hafeet locations, near to the ongoing Emerati Housing Development project. The size of the pond is significant due to the large volume of storm water expected from a 1 in 25 years storm as well as from ground water recharge.

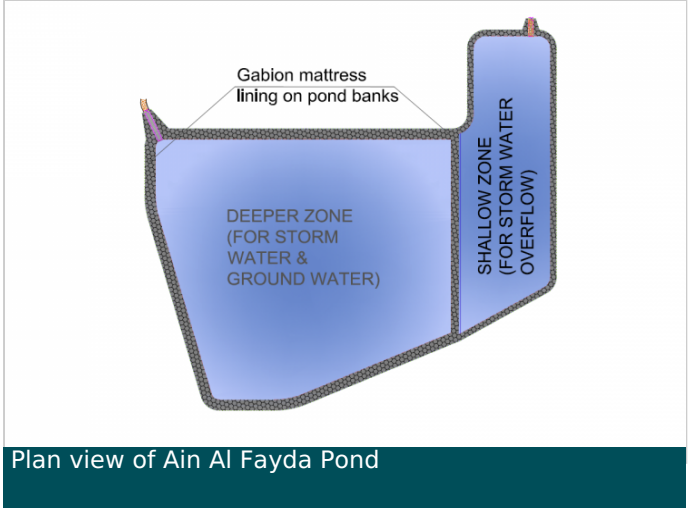
The proposed pond design consisted two zones, namely the 'deep zone' for ground water recharge and storm water flow collection while the 'shallow zone' is meant for accommodating the stormwater overflow from the former area. The pond lining solution has a pivotal role of allowing ground water recharge into the pool without allowing pore water pressure development within the backfill side. For this reason, the designer's lining solution was a 30cm thick loose stone rip rap along the banks of the pond. However, due to problems with loose rip rap lining in previous projects, the end-client advised to change the pond lining with gabion mattress.

Solution

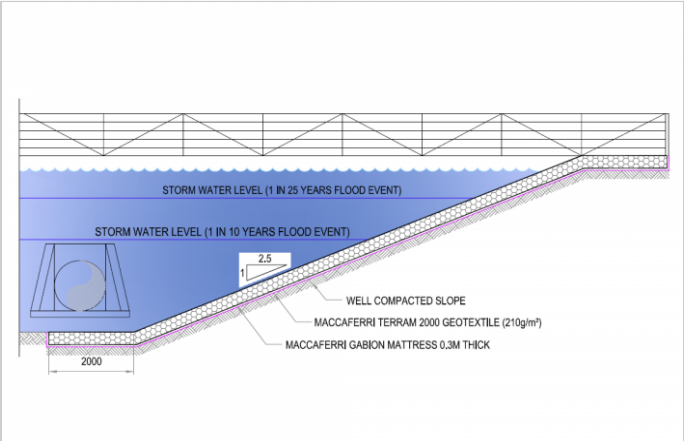
Since, the original designs were already completed by the designer with loose rip rap lining, the condition was put on place that the supplier of gabion mattress should be responsible for the stability of banks & lining sliding stability, Being the pioneer for hydraulic works with double twisted wire mesh products, the contractor approached Maccaferri Middle East to propose a gabion mattress design solution for the pond. Maccaferri proposal consisted of 30cm thick gabion mattress (Zn + PVC coated) installed on a thick layer of geotextile (210 gsm type) on the compacted side slopes. Maccaferri was involved in design, supply and site assistance of the project. The installation began in January 2019 and completed in June 2019, with an average daily lining productivity of 175 m2/day.

Client: Al Ain Municipality
Designer / Consultant: CORE LLC
Contractor: MACE LLC
Products used (Qty.)
- Reno Mattress 26000 m2

Date of construction: 01/2019 - 06/2019



Plan view of Ain Al Fayda Pond



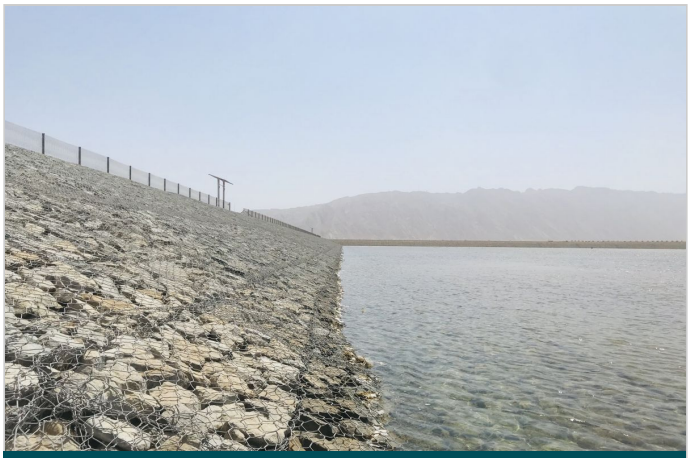
Sectional details of pond bank lining with gabion mattress

MACCAFERRI

During construction : gabion mattress filling in progress

During construction : filled gabion mattress before placement of closing lid

During construction : unrolling of closing lid in progress



Completed pond : water level rising after stopping de-watering

Completed pond : Google Earth view

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