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Hassyan Seawater Intake and Outfall Project, Dubai, UAE

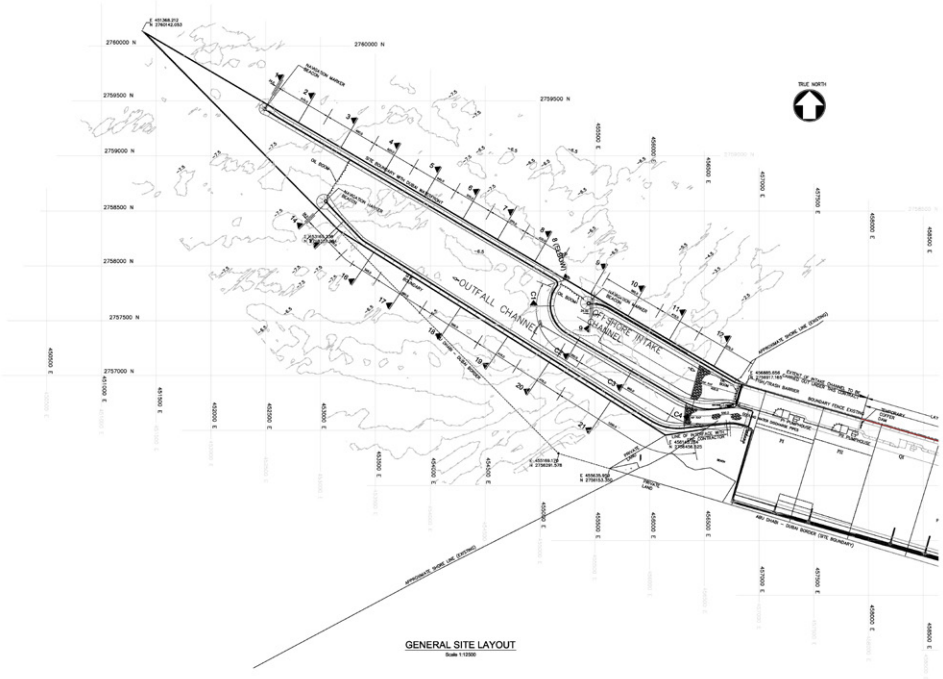
PROJECT TITLE	Hassyan seawater intake and outfall project
LOCATION	Dubai, UAE
CLIENT	ARCHIRODON N.V.

DESCRIPTION

The Hassyan Power and Desalination Plant, in Dubai, UAE, consisted of a combined cycle co-generation power and desalination plant, having an overall capacity of 1,500 MW gross power output and 100 to 120 MIGD distillate water production complex. The project was divided in several phases.

ARCHIRODON N.V., one of the major Greek international contractors, with excellent record in U.A.E. and the Gulf area in general, decided to participate in the Tender called by Dubai Electricity and Water Authority for the Civil Works of Phase I of the project, comprising:

- Inshore and offshore combination of intake and cooling water outfall channels formed by breakwaters, up to 5,200 m in length and up to 7,50 m sea depths (CD) (option 1)
- Quaywalls
- Outfall chamber
- Fish/trash barriers and supporting structures
- Boat house and boat lifting facilities
- Chlorine injection facility
- Raking machine and debris collection facility and oil slick protection
- Shoreline protection works (revetments)
- ntake channel with a piped cooling water outfall and diffusers (option 2)
- Pipe burial and rock protection blanket
- Road, drainage and fencing works



Offshore intake and outfall general layout

ΑΔΚ
ARONIS-DRETTAS-KARLAFTIS
Consulting Engineers S.A.

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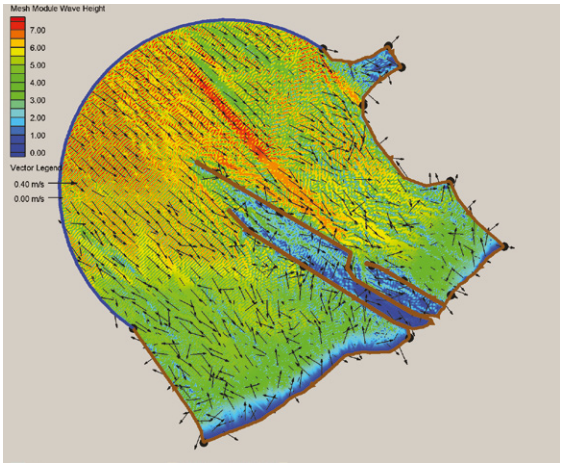
Following direct negotiation selection procedures, ARCHIRODON N.V. decided, in May 2008, to assign the preparation of complete tender designs for the above project to ADK.

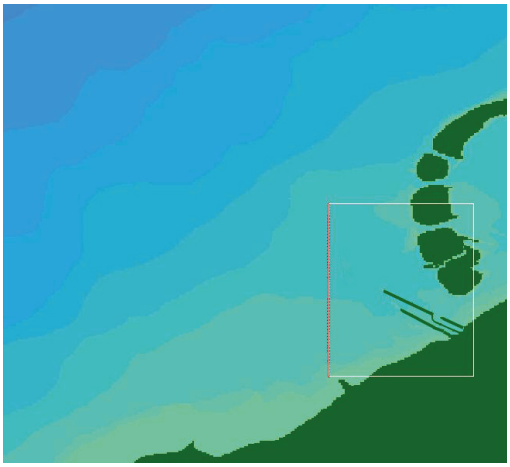
In connection with the above, **ADK Consulting Engineers S.A.** carried out, to the full satisfaction and in close and most constructive cooperation with the Client, the following studies and design activities:

- Establishment of basic design criteria, including design life, return periods, offshore design wave overtopping limits, intake and outfall channel velocities etc.
- Wave modelling study, including description of bathymetry and numerical models utilized, determination of wave characteristics along the seaward site of the breakwaters, wave penetration into the Intake and Outfall Channels etc.
- Design of breakwaters, including checking of stability of rock armour and accropodes, establishment of crest level and wave overtopping, toe protection, checking of crown wall/road stability etc.
- Design of bed protection, both for the intake channel (onshore and offshore sections) as well as for the outfall channel
- Protection of pipe outfall for option 2
- Design of dredging, at required locations and depths
- Complete structural designs, at the required level, for all buildings and structures of the project
- Complete hydraulic designs, at the required level, for all relevant components and structures of the project
- Designs of temporary cofferdams for soil excavations up to -7.00 m

ADK, in addition to Options 1 and 2, the study of which was mandatory as per the requirements of the Tender Dossier, studied and proposed to the Client Option 1A, which provided improved wave penetration characteristics for the outfall channel under Option 1.



Wave pattern around and within the channels, based on the actual incident waves, used for the armouring design of the inner breakwater slopes



Parent grid model region