Water Treatment Company Hof HaCarmel LTD
Established by the Hof HaCarmel Regional Council

Request for Information (RFI)

Nir Etzion WWTP Expansion

Small Footprint Wastewater Treatment Technologies

1 Preamble

The Water Treatment Company Hof HaCarmel LTD established and owned by the Hof HaCarmel Regional Council (here and after named "company"), invites suppliers to submit information as detailed below.

The request is for all wastewater treatment technologies based on the activated sludge process as known by the company such as (deep reactor, CAS, SBR, MBR, MBBR, granular SBR) and any other technology not known to the company which can install and operate a fully functional wastewater treatment plant in the designated site with a clear emphasis on foot print reduction.

The request is for corporations in Israel and worldwide.
Within the framework of this request are detailed information on proposed technologies that provide a suitable solution to the requirements of this request in the most efficient manner, while presenting a design that conforms to the various criteria (as given below) and for which this request has been published so that it is possible to comprehend the market and/or the considerations and/or the conditions and/or the benchmarks needed to prepare and publish a tender, that will serve, to the utmost the public and the company's interest.

Within the framework of the tender (to be published in the near future), the participants will be required within their proposals to present an **Israeli designer,** with previous experience in designing WWTP of at least 10,000 m^3/day who will manage the project of this request.

The participants of the tender will be required to supply the following process technology:

- Physical process for pretreatment and primary treatment
- Biological process for secondary treatment
- Solids separation process for obtaining tertiary treatment

- Biological process for Anaerobic/aerobic digestion of sludge
- Thickening and dewatering sludge

The supplier will be responsible to supply the technology and the biological process including all the treatments of the sludge mentioned above, and including all the equipment needed (only new equipment) without reservations while obtaining all standards and/or requirements given in the tender and/or that are in accordance with Israeli laws and regulations.

In order to streamline the proposed procedure, and without having regard to constitute any commitment by the Company and/or any commitment with regards to the conditions and criteria prescribed in the tender (for which the Company reserves the right to formulate the tender as it sees fit, and among others in light of the information received through this application).

It is required for those who will provide the information to be able to deliver themselves all conditions, as follows:

1. The supplier is a registered corporation in an OECD country.
2. The supplier shall demonstrate proven past experience in the supply of a biological process for municipal wastewater treatment plants in the past eight from the date of this request, by means of the proposed technology and does not treat less than 10,000 m^3/day and that these plants have worked successfully for at least one year (at 10,000 m^3/day) so that the effluent and dried digested sludge is similar in quality to that given is paragraph 4 below (the supplier does not require to have operated the plant).

3. The supplier is requested to present a list of projects and written proof on supplying process design and equipment and the wastewater treatment plant performance in the framework of this submittal including the name and location of the plants, their daily flows, initial date of operation, operation reports, contact names, telephone and emails in accordance with the table given in paragraph 5 below.

4. The supplier is the full owner of the proposed biological technology[1] rights (all types of rights) and will require to provide an unlimited license for its use by the company in this specific

[1] Biological technology is defined as the secondary treatment process and the sludge stabilization process.

plant, once it has been implemented and shall be included in the quote given during the tender.

5. The supplier accepts that company representatives and/or those acting on their behalf will be able to visit an active wastewater treatment plant that were equipped and designed by the supplier.

2 General

This RFI calls for providing a solution to expand and increase the current Nir Etzion wastewater treatment capacity from 10,000 m³ /day to 35,000 m³/day (flows are average daily flow on annual basis).

The additional capacity will be provided by a separate plant. The existing plant **will not be** upgraded or renovated until the new plant is completely operational and capable of treating the entire sewage sludge flows. This is to ensure that contractors will not work in the area of the operational treatment plant. **This is a mandatory requirement.**

The main problem for implementing the expansion is the lack of available land. Figure 1 details the land available. The total amount of land is approx 10,000 m² for the additional plant. In addition there is additional area for construction the filtration system adjacent to the effluent reservoir that is south of the WWTP (approx. 3,000 m2)

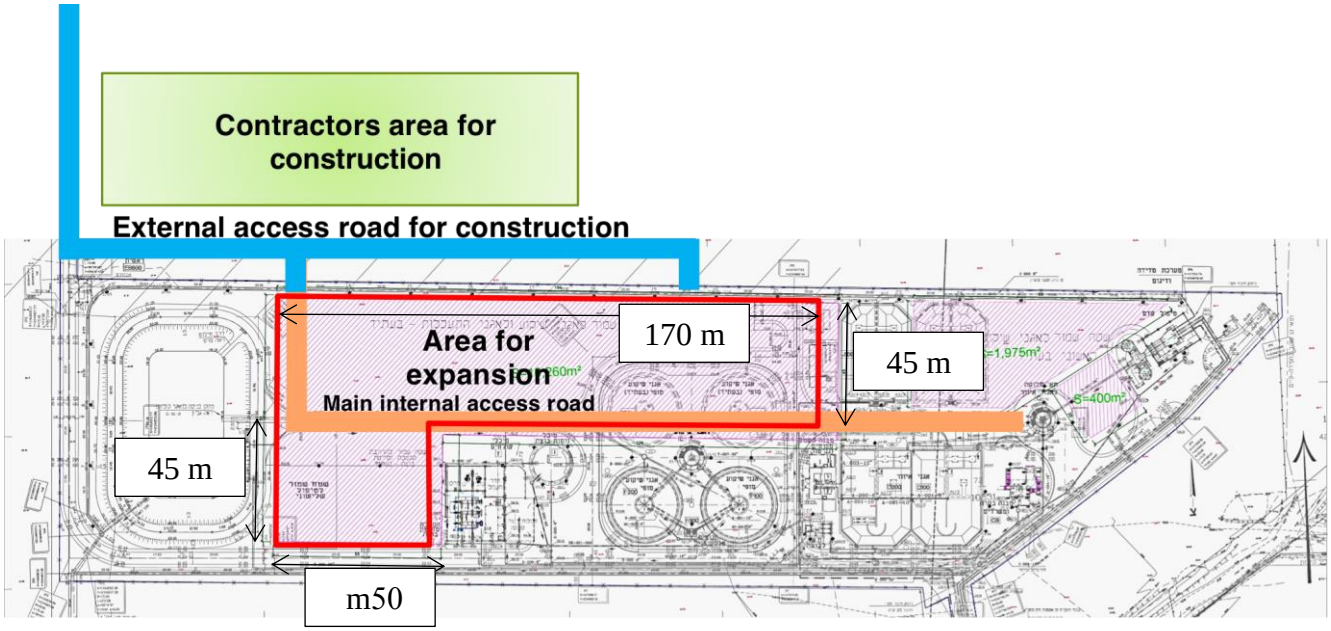


Figure 1: Current WWTP with designated area for expansion (contained within the red boundary line)

3 The Objective

The RFI intention is to allow for various process suppliers to provide information on their unique wastewater treatment process that will allow for reducing the footprint needed to enable constructing and installing all the necessary components and equipment within the allocated area.
The proposed process must provide full biological nutrient removal as required by the design criteria. The supplier must demonstrate this capability in his response.

All proposed process technologies must have been implemented (in at least two sites) with a flow of at least 10,000 m^3/day in the last eight years. The supplier shall provide detailed documentation on this in his response as mentioned above.

In addition, within in the framework of the tender the successful bidder will be required to meet the conditions of obtaining a license from the relevant competent authorities in Israel, including the Ministry of Health, the Ministry of Environment Protection, and any other authority that requires their approval in order to commence construction within a sufficient timeframe as to be specified in the tender.

4 Proposed Treatment Processes

The supplier in his response will provide a conceptual solution that allows for treating the wastewater and sludge on the designated land. The overall conceptual process shall include the following components:

a. Preliminary treatment that will include:
    1) Course bar screens – 15 mm
    2) Fine bar screens – 3 mm
    3) Aerated grit for grit and grease removal

b. Main wastewater treatment shall include:
    1) Primary sedimentation
    2) biological treatment process may include:
        - Activated sludge process – such as deep reactor; CAS, SBR, A2O, etc.,
        - MMBR technology

- MBR technology.
- Granular SBR
- Other proved technology based on activated sludge process.

3) Secondary clarification if needed
4) Tertiary treatment

c. Sludge treatment will be based on:
   1) Sludge thickening
   2) Anaerobic/aerobic digestion
   3) Sludge dewatering

The supplier in the RFP stage will be responsible for supplying the process design for the main wastewater treatment process equipment package. Consequently the supplier shall take full responsibility for providing a complete treatment package that achieves the required effluent quality.

In order to provide some buffer capacity, it is that the secondary effluent reservoir will be converted into a primary effluent reservoir. This will allow for equalizing the inlet flows and handle excessive contaminate loads.

5 Design Data

The design data is provided in table number 1 below.

Two possible required effluent qualities are to be achieved. Standard operation will require achieving effluent quality that is suitable for unrestricted irrigational reuse. During wet weather periods where there is a possibility that the effluent reservoirs are full, effluent may be discharged to the local rivers. In this case the process must allow for treating the effluent in accordance with the law for river discharge.

Table Number 1: Project Flows, Loadings and Required Effluent Quality

Parameter	units	Future Design	Current Design
Average daily flow	m^3/day	35,000	10,000
Dry peak daily flow	m^3/day	42,000	12,000
Wet peak daily flow	m^3/day	55,000	45,000
Peak hourly flow	m^3/hr	3,200	950

Parameter	units	Future Design	Current Design
Influent			
BOD	mg/l	500	330
COD	mg/l	1,300	1,000
TSS	mg/l	500	400
TKN	mg/l as N	85	70
TP	mg/l	15	
Temperature	Celsius	18 - 31	
Effluent for irrigation			
COD	mg/l	100	
BOD	mg/l	5	20
TSS	mg/l	5	30
Total Nitrogen	mg/l as N	25	
Ammonia	mg/l as N	10	
Total Phosphorus as P	mg/l	5	
Fecal coliform bacteria	#/100 ml	10	
Effluent to river if necessary			
COD	mg/l	70	
BOD	mg/l	5	20
TSS	mg/l	5	30
Total Nitrogen	mg/l as N	10	
Ammonia	mg/l as N	1.5	
Total Phosphorus as P	mg/l	1	
Fecal coliform bacteria	#/100 ml	200	

Peak flows during rainy days must be addressed – during these events the system must handle all flows.

The plant shall be based on the use of concrete reactors. **Steel reactors will not be accepted.**

The sludge will then be sanitarily disposed of either to a landfill or to composting in accordance with the local regulations.

It should be noted that a suitable solution would be building deep biological reactors.

6 Information Requested

The following information is requested:

a. The proposed technology for the treatment process, should include:
   - Process flow diagram
   - A detailed description of the proposed process
   - Sizing of the wastewater treatment components (primary, secondary and tertiary treatment)
   - A general layout of the system. What would be the size of the plant needed? Please address the land dimensions given above (Figure 1).
   - The standard scope of process equipment supply and optional equipment support.

b. Three sets of brochures on company capabilities

c. A list of previous similar installations as detailed in table 2. The information supplied shall also include pictures and P&ID of the plants built based on the proposed technology.

No.	Parameter	Plant 1	Plant 2	Plant 3	Plant 4
1.	Client				
2.	Name of Plant				
3.	City				
4.	Country				
5.	Project description and goals				
6.	Flow – design [m³/day]				
7.	Flow actual [m³/day]				
8.	BOD concentration in influent [mg/l]				
9.	Total N concentration influent [mg/l as N]				
10.	BOD concentration in effluent [mg/l]				
11.	TSS concentration effluent [mg/l]				
12.	Total N concentration effluent [mg/l as N]				
13.	Total P concentration effluent [mg/l]				
14.	Proposed process				
15.	Contact person (name, email, telephone)				
16.	Design engineer (name, email, telephone)				

d. The time needed to supply the equipment?

e. The time needed to erect the plant?

f. Does the technology require process support? If the answer is yes – elaborate the support you provide and the estimated costs per year, including details regarding the ability to provide the support for 20 years at the same costs

g. The proposed solution for sludge treatment and disposal? What type of sludge is produced?

h. Detail all the possible chemicals that may be needed for operating the plant.

i. The amount of sludge to be produced?
j. Detail and characterize the civil works that need to be implemented for the proposed technology.
k. If the process is based on consumable equipment such as membranes or plastic carriers, the frequency of replacement and cost for every part.

Clarifications concerning this procedure

This procedure is not a tender and does not constitute a request for proposals for the purpose of contractual arrangements, but rather a request for information as explained above. However, as explained in this request - in the very near future a tender will be published and the information received in the framework of this request, may be used as an aid in preparing the tender.

This request does not grant any rights to the participants in the procedure and /or to impose any obligation on the company, and does not constitute any engagement phase of respondents, and the response to this appeal does not constitute a condition for participation in the tender.

The company reserves the right to use information received in response to this request in order to realizing this project, including the preparation of a tender, in its sole discretion, unless the supplier in his response to this request specifically states in his response that specific data and or details are confidential and cannot be used (or they are limited to specific use as determined by the supplier).

All the expenses involved in preparing the response and /or submitting the information will be borne solely by the supplier. The company will not bear any fee or expense of any kind, incurred with respect to his request for information.

Deadlines for referring clarification questions, submittal dates and site visit

Clarification questions may be submitted on this RFI to Mr. Adir Perez, via email adir@honigeng.com (tel. +972 (0) 50 8385300) until and no later than August 31, 2015 at 14.00 hour, and only in PDF file.

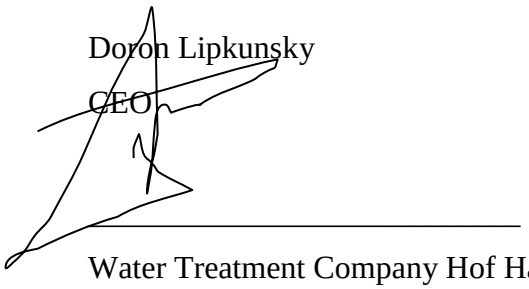
The company reserves the right to ask clarification questions and /or request additional information from those suppliers that have submitted information within the framework of this procedure, in accordance with the circumstances.

Response to the request for information shall be submitted by the suppliers until no later than September 16, 2015 at 14.00 hours, by email adir@honigeng.com to the company or through the company's offices by hand to Kibbutz Ein Carmel. Submission by hand must be addressed to "RFI No. 01 subject WWTP expansion technology Nir Etzion."

The company reserves the right to extend the deadline for submitting responses to this appeal.

Site visit will be held at the Nir Etzion located in Moshav Nir Etzion on August 17, 2015 at 09:00 hours. Participation in the meeting is not mandatory, and suppliers who would like to attend are requested to inform of their attention in advance. The Company reserves the right to cancel the site visit if and when the level of response justifies the decision.

Sincerely,



Doron Lipkunsky
CEO

Water Treatment Company Hof HaCarmel LTD