

Market consultation document

Noise monitoring system Maasvlakte

DCMR Milieudienst Rijnmond



Name : Market consultation Noise monitoring system
Reference : DMS 21732129
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1. Introduction and specification of questions

1.1 Introduction

The DCMR Milieudienst Rijnmond (hereafter the DCMR) plans to invite tenders for the development of a noise monitoring system, which enables visualization of noise sources in a large area. The form of the tender is yet unknown. The decision upon the form of the tender depends on the reactions and answers of the market consultation.

The need for information raises the necessary questions. The DCMR is very keen to make contact with market parties with relevant knowledge and experience in this field; this way, a number of questions can be answered, thereby clarifying its needs and consequently, enabling it to put out a good tender. For this reason, a market consultation will be organised, asking specialist parties to contribute their expertise. This chapter elaborates on the desired information need. In chapter 2, the conditions for participation in this consultation are looked at in more detail. The questions which the DCMR has can be found in chapter 3. The subsequent procedure is then described.

1.2 Goal market consultation

The goal of the market consultation is:

- to gain a deeper insight into the market in the field of noise monitoring systems and the technical and management aspects;
- to gain insight into the developments on the market;
- to gain an impression of the visions, suggestions and ideas of market parties;
- to gain an impression of the interest for this project in the market;
- to define under which conditions the project has to be tendered;
- to gain insight in which tendering strategy has to be followed so that the chance of successful tender is as big as possible.

The results of the market consultation will be incorporated in the tendering documents in such a way that the origin of the information cannot be traced back to any participant of the market consultation.

1.3 DCMR Milieudienst Rijnmond and reason market consultation

The DCMR is based in Schiedam and has been incorporated into a joint undertaking since 1987, possessing the legal status of a public body. Commissioned by sixteen municipalities in and around the Rijnmond area and the province of South-Holland, the DCMR aims to create a liveable and safe region for the people who live and work here. The DCMR does this by:

- constraining and verifying environmental rules and safety regulations
- making permits
- monitoring environmental quality;
- recommending about environmental and safety aspects;
- taking action against nuisance and incidents.

Beside these core activities, the DCMR has specialists in the fields of soil, energy, noise, air and safety. Together, the specialists form the knowledge centre of the DCMR. These experts provide internal advice to the providers of permits and regulators and, external advice to the municipalities and non-profit organisations.

Residents of Oostvoorne (municipality of Westvoorne) frequently experience noise nuisance due to the industrial activities that are carried out at the Maasvlakte and Europoort industrial areas of Rotterdam. The noise nuisance typically lasts for a couple of hours and can cause a disturbance of sleep during night time. It should be noted that Oostvoorne can be a very quiet area when, due to the momentary meteorological conditions, the industrial noise is absent. Outside noise levels in Oostvoorne can be well below 30 dB(A) during both day and night time.

The noise nuisance may be caused by temporary activities on the industrial area. For instance construction works, the use of an emergency flare, or the exceptionally noisy unloading of a ship. An other possibility is that the noise nuisance is caused by the regular industrial activities like those at the ECT container terminal, the EMO bulk terminal, the BP oil refinery, or a heavy loaded train on the rail road track (of which the bridge Suurhoffbrug is known to have a relevant noise emission), to name just a few of the known major noise sources in the area. In an earlier project called "Geluid in Beeld" (reports available in Dutch, see <http://www.geluidinbeeld.nl/>) it has been shown that specific meteorological circumstances can result in an exceptional noise transfer. This explains why at some times the regular industrial activities can result in more noise nuisance.

It is unclear whether the activities that are responsible for the noise nuisance are located at a single location, or if they are spread out over different locations on the industrial area. Until now it has been very impractical to locate the source location(s) due to the distances between the DCMR EPA office, Oostvoorne and the industrial area, and due to the vastness of the industrial area itself.

The current project has been started in order to realize a measurement system that is able to locate the source location(s) when the noise nuisance in Oostvoorne occurs. Earlier project experiments have been carried out by the university of Twente using beamforming techniques for the localization of a low frequency noise source in the middle of a vast industrial area and using a microphone array with large diameter. These experiments showed that source localization is possible with acceptable precision and therefore, in part, inspired the DCMR to conduct this research on itself.

By knowing the source location it will be possible to discern the noise sources. Once the noise sources are known mitigating measures can be assessed in a follow up project. The goal of the current project is limited to locating the noise source locations and is defined as follows:

1.4 Description of the need

The DCMR is looking for a supplier that can develop a noise measuring system which can continuously portray what sound sources cause the most noise nuisance on the Maasvlakte and the western part of the municipality of Westvoorne ¹.

¹ The research focuses only on the noise nuisance that is experienced within the municipality of Westvoorne because of annoying sound sources on the Maasvlakte and the western part of the Europoort. There is no attention to noise pollution in other municipalities. Nevertheless, the knowledge gained within the project can be applied elsewhere.

The noise monitoring system will determine to what extent the different sources in the industrial area (including the N15 and the port railway line) contribute to noise pollution. The results of these measurements will be displayed in an acoustic report for certain period (the length of which remains to be determined).

Parallel to the noise measurements for a certain period of time, a group of inhabitants of the municipality of Westvoorne will be asked to keep track of the periods and moments they suffer from nuisance. This way the nuisance moments can be linked to the sound emission on the business sites. Then the DCMR will examine if the organisation concerned has reported any (irregular) maintenance. These too can be the cause of nuisance. Ideally, the companies keep a log-book of the (irregular) noise emitting work on their site. Through this process a link is established between the subjectively observed noise and the objectively, technically established sounds including the location of the source and a verification of the possible cause.

The aim is to appoint a top 5 of most annoying sources for the municipality of Westvoorne. This knowledge is required to determine where noise reducing measurements could be effective.

As far as possible source measures will be described in an indicative way; no research will be conducted. The elaboration and possible application of source measures fall outside the scope of this project.

1.5 Functional aspects (draft)

1.5.1 Goal

To create Noise Event Contour Maps that indicate the relative contributions and absolute noise emission values of noise sources on any location in the industrial area to specific noise nuisance events recorded in the residential area. The noise event contour maps can be calculated within a few minutes after the occurrence of noise nuisance event and are based on stored measurement data.

The accuracy of the localization will be such that it is possible to distinguish between noise coming from the railroad track, toad traffic on the Europaweg (N15), ships on the water ways and parts of the industrial activities.

1.5.2 Definitions

Industrial area:

The part of the Maasvlakte/Europoort industrial area, west of Dintelhaven and north of the Noor-doever Oostvoornse Meer west of the Magallanesstraat.

- Size approx. 6 km by 5 km.
- Including the ports and water ways of Yangtzehaven, 8e Petroleumhaven, Europa-haven, Amazonehaven, Mississippihaven, Hartelhaven, 6e Petroleumhaven and ca-nals Beerkanaal and Hartelkanaal up to Suurhoffbrug
- Including the Europaweg N15 and the railroad that runs adjacent to it.
- Including noise sources up to a height of 100 meters (e.g. flares).
- Excluding air traffic (helicopters).

Residential area:

The residential area of Oostvoorne, south of Oostvoornse Meer and Kleidijk (N218).

- Size approx. 6 km by 2.5 km (see annex B).
-

- Approximately 5.400 inhabitants.

Residents Panel

A panel of residents of Oostvoorne (provided for by the municipality of Westvoorne) that will report at what moments (date, time, duration) a noise nuisance event occurs and what type.

Noise nuisance event

A typical and recognizable type of noise that occurs during a time window of (typically) several hours that is perceived as annoying by the residents of Oostvoorne, as indicated by the residents panel, and clearly originates from the industrial area (e.g. no helicopters, lawn mowers or other local noise events that originate from the residential area). Multiple types of typical annoying noise may be specified. In consultation with the residents panel a limited number (<10) of noise types will be defined.

Noise nuisance report

Standardized report completed by the participants of the residents panel, submitted by e.g. email, a designated website or other method agreed upon, stating the start time, duration, type of noise nuisance event, etc. The exact contents of the noise nuisance reports will be defined during the development phase of the project.

Noise nuisance event characteristics

Characteristic properties of the noise that is measured in the residential area during a noise nuisance event, both in frequency and duration.

Noise event contour map

Map of the industrial area which shows how much the activities at any location in de industrial area clearly contributes to a specific noise nuisance event.

Operator

User of the noise monitoring system that can operate the system. Operators are noise specialists from the DCMR (noise division and Meldkamer).

1.6 Functional specifications (draft)

Input (in order of occurrence):

- Measurement data:
 - Continuous noise measurements in the residential area.
 - Continuous noise measurements in the industrial area.
 - Continuous meteorological measurements of parameters that are relevant to the noise transfer, such as wind speed/direction and temperature at both the industrial area, the residential area and in between).
 - Data storage for at least one month back in time.
- Noise nuisance reports.
 - Participants of the residents panel will be asked to contribute noise nuisance reports as soon as possible during or after the occurrence of a noise nuisance event.
- Initiation of the production of a noise event contour map will be done by an operator using a website/software that should be available to operators with login:
 - Typical input by the operator will be start time, duration and type of the noise nuisance event.
 - Automated production of a Noise Event Contour Map.

- The system automatically sets relevant parameters in order to produce the noise event contour map with optimal resolution.
- Manual production of a noise event contour maps based on stored measurement data.
 - Parameters that are relevant for the production of the noise event contour map can be set manually by the operator.

Output (in order of occurrence):

- Noise nuisance event characteristics.
 - Must be determined automatically from the noise measurements in the residential area.
 - For each noise nuisance event the noise nuisance event characteristics must be stored with detailed references such as date, time, meteorological parameters, etc.
 - For each noise nuisance event sample recordings must be made of the noise measured in the residential area. Operators can listen to these recordings immediately after the submission of an noise nuisance report.
- Noise event contour maps:
 - A good correlation between the noise on the industrial area and in the residential area;
 - Based on using the noise nuisance event characteristics;
 - Transfer function and meteorological situation taken into account;
 - Poor correlation must be indicated.
 - Scaling of the contributions:
 - Relative: red/./green = high/./low contribution;
 - Absolute: indication of total sound power (in the frequency range that is relevant for the noise nuisance event) per unit area.
 - Resolution: As indicated the system should be able to distinguish between noise sources such as the railroad track, road traffic, ships on the water ways and parts of the industrial activities, such as flares. In order to achieve this the following resolutions are set as minimum requirements. Alternative approaches can be suggested.
 - Horizontal: grid 100x100 meters or better;
 - Vertical: steps of 30 meters or better.
 - The time it takes to calculate and produce a noise event contour map must be no more than 5 minutes.
 - Each noise event contour map must be stored together with all parameters that are relevant for its (re-)production, including the noise nuisance event characteristics.
- Archive of noise event contour maps produced at any time during the whole project, including sample recordings, parameters and noise nuisance event characteristics, must be available to the operators both during the project and after the project has ended. The archive must be accessible with regular office software (e.g. pdf reader, text editor, etc.).

1.7 Technical specifications (draft)

The idea is to place one or more monitoring posts in Oostvoorne. The exact details of the monitoring system (for example the amount of posts and the locations) are yet unknown and will also have to be decided by the supplier who will be involved in the development of the monitoring system. It is clear that the existing monitoring system, situated on the Gildenlaan in Oostvoorne, is not suitable for this noise monitoring system.

Minimally required:

- Frequency range: octave bands 31 Hz – 2 kHz
- Dynamic range: 20 – 110 dB(A), 30 – 120 dB(Z)
- Accuracy: IEC 61672-1 Class 2 or better

- Wind noise: in order to clearly distinguish between wind induced noise (at the microphone/wind screen) and the industrial noise, wind noise specifications have to be known and has to be similar/better then those from the Rion WS-03 outdoor wind screen (20 cm diameter). This is required because wind speeds at Maasvlakte are generally quite high (often >10 m/s, see KNMI website for details) and is especially relevant in the 31 – 125 Hz octave bands.
- Environment: the system has to function in all environmental conditions that apply to the area concerned, e.g.:
 - operating temperatures: -20° C to +50° C
 - relative humidity: 0 – 100 %
 - rain, snow, fog
 - salt, sand (blown in from the sea and the beaches)
 - birds (seagulls, of which there are a lot in the area, may foul or damage the windscreen if they sit on it)
- Operational: the system has to be 24/7 operational
- Downtime: in case of malfunction of the system in any way, the system may be unable to achieve its goal (as specified in this document) for no more then 10% of the time per month of operation.
- Mechanical: These requirements are still preliminary and will have to be elaborated later. It is expected that placement of the monitoring stations can be done in all public places. Lamp posts can possibly be used to attach them to. However it is likely that, from an acoustical point of view some areas will be preferred for the placement of monitoring stations where no lamp post are available.
- Power: These requirements are still preliminary and will have to be elaborated later. Electrical power for the monitoring stations will probably have to be delivered by solar panels. In some cases it may be possible to use hardwired power from for instance a lamp post.
- Data transfer: Since there will be not be any hardwired data connection available in the Industrial Area or the Residential Area, data transfer from the monitoring stations will have to be done by mobile data connections like 3G, 4G or other.
- Other: In case it is desirable to place monitoring stations at the company sites on the Industrial Area, specific safety restrictions will be applicable that can vary per company. The possibilities and limitations will have to be discussed with the companies concerned.

Summary of what must be delivered (draft)

- All hardware for the meteorological and noise monitoring stations in both the residential area, the industrial area and in between (if necessary), including installation and testing.
- Website or application for operation and use of the whole system.
- Data storage, including backup, for the duration of the project.
- Optional: removal of all monitoring stations.

1.8 Other aspects (draft)

- The DCMR shall have the required functionality of and access to the noise monitoring system in unlimited availability. The facilitative provisions for this, such as the remuneration and the period, must be set down in contract form between the supplier and the DCMR.

2. Conditions for taking part in market consultation

2.1 Knowledge and experience

We would very much like to hear your response to the questions. Parties wishing to take part in this market consultation should have in depth knowledge of and ample experience in the field of noise research. In this connection, would you please provide a brief description in the space designed for this purpose in annex 2 (2.2).

2.2 Reference projects

We would like to see the relevant knowledge and experience you have acquired demonstrated by means of reference projects for similar work. Please provide a brief description in the space designed for this purpose in annex 2 (2.3).

3. Questions for market consultation

In this chapter, the questions the DCMR has with respect to the situation are described. Please answer the questions by means of the format provided in annex 3.

Experience with comparable reference projects

1. Have you ever placed and successfully delivered a comparable system in the past (since 2008)? Can you give us a description of the references with an explanation as to why these references are similar to our project. Please include:
 - a. The year you started and the year you finished the project
 - b. Client's name
 - c. Description of the order
 - d. Possible differences with this project.
2. We would very much like to hear also about your experience with comparable project. Which 'lessons learned' can be used in the application at hand? Wherever possible, please answer with respect to the invitation to tender as well as the implementation process.

Your contribution towards meeting our need

3. Is it a noise monitoring system based on existing (proven) technology, or on new design/research and/or a new development? If it is a new study/development, give an indication of the innovate and/or still to develop in technological aspect in comparison with existing technology?
4. If this were a new design/research and/or a new development, could you specify what the pitfalls could be during realisation of the system? What could be reasonable alternatives?
5. Which parties are the main suppliers of such systems? Are there any Dutch supply channels?
6. In connection with your role during the development/implementation:
 - Where do the core competencies of your organization lie?
 - If it is a new design, do you intend to develop/implement the noise monitoring system yourself or by means of an alliance with other partners?
7. Do the systems require digging activities for energy supplies, and/or are there mobile systems?
8. In your opinion, which are the major differences in quality between such systems?
9. Which aspects could be assessed in order to compare systems in relation to the demands and wishes asked of the systems?
10. If the DCMR lays down the design of the noise monitoring system at the supplier, how can be ensured that during the assessment of the different designs (differences in amount of measurement posts and placement on different locations) can meet the demands asked?

Clarification: is it possible to measure another level of noise/is it possible that another level of noise will be measure with a different amount of systems and/or placement on different locations? Can it be that the DCMR has to establish the design unambiguously or can the design also come from a supplier? And in reference to the last: how do you determine the freedom of design within the given output conditions?

Pricing

11. Can you give an indication of the costs of a fixed and/or mobile system?
12. In the ultimate invitation to tender, a fixed price will be requested for the noise monitoring system. In addition to this, fixed prices will be requested for implementation, training, management and maintenance. Therefore a number of sub-aspects should possibly be more clearly framed. Would you please indicate what further demarcation of these aspects would help you in submitting your tender without 'open ends'. That is to say, in such a way that it is clear to both the DCMR and the supplier where the project starts and ends.
13. Can such a system both be sold through ownership and be given on loan? Which alternative would be the most plausible in connection to the period of usage (approximately 12 months)?

Distinguishing abilities

14. How do you distinguish yourself from other parties in the market (both in respect of your company and product)?

Additional information

15. Is it possible to place an experimental setup of the system, and to return it in case the system functions insufficiently?
16. If you feel that certain aspects which are not listed in the above questions should be covered in your consultation document, then please let us know in your reply.

4. Procedure

4.1 General

Every company with demonstrable practical knowledge in the field of noise monitoring systems is hereby welcome to react to this request.

- This market consultation is published publicly on www.tenderned.nl.
- The market consultation will follow a number of phases, which each have their own period of time. There are two stages in the market consultation:
 - 1) A written questions phase
 - 2) Request for further clarification/explanation.
- If a tender procedure is held following this market consultation, the information obtained from this consultation, will be published in the relevant tender documents. The information will be anonymised with the aim of ensuring a level playing field for parties. All information in subsequent tender documents are subject to change in relation to this consultation document.
- The DCMR reserves the right to discontinue the process of market consultation and/or any subsequent tender procedure, either temporarily or permanently.
- Participating in this market consultation is entirely on a voluntary basis; not participating in this consultation has no negative consequences.
- This document and the market consultation serves as a preparation. Therefore it cannot be considered as an invitation to subscribe to the possible tender(s) or any other tender.
- If you do not wish to give an answer to a specific question, will you please state the reason.

4.2 Reimbursement of calculation costs

There will be no reimbursement of calculation costs for this market consultation.

4.3 Phases

Phase 1, Written phase

For this market consultation, the exchange of information will, in principle, take place in writing. Besides suppliers known to the DCMR, unknown parties are hereby invited to join this market consultation after reading the documents via www.tenderned.nl.

Before answering the open questions, see annex 3, there will be an opportunity to ask questions, make comments and/or clarify or point out inaccuracies about this document or the market consultation. Questions or comments can be submitted no later than 12th of March 2014, 12:00 hours by e-mail (europesaanbesteden@dcmr.nl), stating **Questions market consultation**

noise monitoring system'. Participants of the market consultation are kindly requested to ask questions using the format as specified in annex 1. Your questions will be answered by a project team. The project team consists of representatives involved in this market consultation. The questions and answers will take place through an anonymous note of information (NvI) and published on www.tenderned.nl.

Should this document encourage you to participate in this consultation, please submit your documents no later than 9th of April 2014, 12:00 hours by means of a digital document (see annex 3) by e-mail eupeesaanbesteden@dcmr.nl stating '**Market consultation noise monitoring system**'.

After the DCMR has received the answers to the questions, the DCMR will analyze them.

Phase 2, Request for further explanation/clarification

Should the consultation documents submitted by you give rise to a more detailed explanation, you will receive an invitation for a meeting. This meeting will be held confidentially.

4.4 Questions

The questionnaire, annex 3, has been prepared with care. Given the number of questions, answering them will take time and requires the necessary effort. However, the DCMR appreciates very much if you will answer the questions, so that a good quality tender document and, above all, realistic programme of requirements can be drawn up.

The DCMR aims to the stated goal, locating noise pollution, based on the questions and the responses received.

To answer the open questions, please use the format set out in annex 3. The DCMR requests that answers be limited to a maximum of 10 pages (A4) in total using font Arial 10. You are free to send attachments in relation to the answers.

In addition to the open questions as listed in annex 3, you are asked to indicate if the requirements taken from the programme of requirements (annex 4):

- are realistic (in other words are the requirements executable by you as market party); and
- are default of the system or if customization is necessary.

You are requested to indicate what applies to you in the row "Realistic" and "Implementation required" by means of ticking or crossing the box. If you ticked "no" in the row "Realistic", you do not need to fill in the row "Implementation required". Instead, you are requested to give a further explanation in row "Notes".

In addition to the above mentioned questions, market parties are free to give their comment on the concept programme of requirements as a reaction to the market consultation. When commenting, please refer to the part and number of requirement.

4.5 Communication during the market consultation

During the market consultation all communication with the DCMR regarding this subject will be by the e-mail address listed (preferably) or with the contact person as listed in section 4.6.

4.6 Contact details DCMR

Contact : Mrs. E.T. Ouwerkerk-van Zanen
Senior purchaser
Tel. +31(0)102468066

E-mailaddress : eupeesaanbesteden@dcmr.nl

Visiting address : DCMR Milieudienst Rijnmond
Parallelweg 1
3112 NA Schiedam

Postal address : DCMR Milieudienst Rijnmond
P.o. box 843
3100 AV Schiedam

4.7 Schedule

For this market consultation the DCMR has the following schedule:

Activity	Date
Publication Market consultation	Wednesday 26th February 2014
Submitting questions	Wednesday 12th March 2014, 12:00
Answering questions	Wednesday 19th March 2014
Submitting reactions on Market consultation	Wednesday 9th April 2014, 12:00
Sending invitation for further clarification	Wednesday 16th April 2014
(Possible) Further clarification	Week 17, 21st – 25th April 2014

We thank you in advance for your cooperation.

5. (Additional) conditions

In addition to the listed conditions in this document, the following additional conditions apply on this market consultation:

- this document is intended solely for market consultation purposes;
- the market consultation is not part of the tender but a consultation round;
- this market consultation is explicitly not to make a pre-selection of candidates or interested parties within the context of the planned (European) tender;
- market parties who choose not participate in the market consultation, are not excluded from participating in the final tender. Nor are parties participating in the market consultation in any way excluded from or privileged in a possible participation to the tender;
- the market consultation is for all participants as well as the DCMR, non-binding;
- parties (including parties not participating in the market consultation) will derive no (vis-à-vis) obligations or rights to the DCMR regarding this market consultation;
- participation in this market consultation offers no right to obtain the tender;
- any cost to participate in this market consultation will not be reimbursed by the DCMR;
- market parties agree that information supplied by them, can be processed in the, still to be developed program of requirements;
- information provided in the context of the market consultation may differ from information to be provided in the actual tender;
- the DCMR complies with the principles of non-discrimination and transparency;
- as far as possible input from participating parties will be treated confidentially. The legitimate (business) interests of the parties will be taken into account;
- the official language during this market consultation is English;
- the DCMR is in no way tied to the outcome of the market consultation or required to realisation and/or procurement of the project to which the market consultation concerns;
- claims about the use of information, confidentiality, or requests for fees associated with this will not be accepted;
- the documents submitted by the participating parties are considered public documents and free of copyright. If copyrights apply, the DCMR is protected by the participating parties;
- the DCMR will make no value judgment concerning the given answers on the questions;
- the DCMR reserves the right:
 - to change the schedule as mentioned in this document;
 - to perform the intended procurement process in terms of form and content, in another manner than the process that is possibly mentioned;
 - to discontinue this market consultation, temporarily or permanently.
- by participating in this market consultation the parties unconditionally agree to the conditions set out in this document.

6. Attachments

This market consultation document includes 4 attachments i.e.:

- Annex 1, Format for asking questions for note of information
- Annex 2, Format for participation in market consultation
- Annex 3, Open questions
- Annex 4, Selected requirements to answer

ANNEX 1 – Standard form for asking questions

From<< name party>>..... **Date**<<date>>.....
Concerning The questions asked regarding the market consultation
Project Noise monitoring system **Ref.** DMS 21732129

Please note below your questions concerning the market consultation.

Question no.	Concerns*	Question	Answer
1.			
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35.			

* Refer to name document (market consultation or attachment) and article and/or section and page number, if applicable.

ANNEX 2 – Formats for answering

If you wish to participate in this market consultation, would you kindly make use of the formats below for answering the questions.

2.1 Standard form for company details

	Question	Antwoord
a.	Name of the company	name
	Place of business:	address, postal code and residence or place of business
	Postal address:	PO box number
	Postcode and town:	postal code city
	Country:	country of establishment
	Telephone number:	number
	Faxnumber:	number
	BTW registratie	number
b.	When the occasion arises, with which companies do you cooperate with for (part of) the services described and what type of work does this involve?	yes / no If yes, please state: name natural or legal person, address, postal code and residence or place of business
c.	Contact person for the company:	name and initials
	Telephone number:	number
	E-mail address contact person:	e-mail address

2.2a Standard form for experience

	Description
Description of experience with reference to the aspects mentioned in this document	

2.2b Standard form for knowledge

	Description
Description of knowledge with reference to the aspects mentioned in this document	

2.3 Standard form for reference projects

Name of reference project	Projectname
Name of commissioning party's organisation	Name Address Postal code and residence or place of business
Name commissioning party's contact person Position Telephone (direct dial)	Name Position Telefoonnumber
<i>Comment: The DCMR retains the right to make contact with the referees given.</i>	
Project executed as main contractor	Ja / nee
If sub-contracting or a combination is involved, with which party did you cooperate:	Name sub-contractor(s) and nature of the work per sub-contractor
The actual work executed by your company (possibly in combination):	Description of the work
Year starting and finishing the project	Starting date / finishing date
<p>Content and results: You add a concise description of the content and results of the project (may be short, and no longer than 1 A4). Here you should mainly provide an explanation of the aspects referred to in section 1.4 to 1.9, as well as an account of the differences in comparison with this project.</p>	

ANNEX 3 – Standard form for open questions

From<< name supplier>>..... **Date**<<date>>.....
Concerning Market consultation
Project Noise monitoring system **Ref.** DMS 21732129

Question no.	Question	Answer
Experience with comparable reference projects		
1.	Have you ever placed and successfully delivered a comparable system in the past (since 2008)? Can you give us a description of the references with an explanation as to why these references are similar to our project. Please include: a. The year you started and the year you finished the project b. Client's name c. Description of the order d. Possible differences with this project.	
2.	We would very much like to hear also about your experience with comparable project. Which 'lessons learned' can be used in the application at hand? Wherever possible, please answer with respect to the invitation to tender as well as the implementation process.	
Your contribution towards meeting our need		
3.	Is it a noise monitoring system based on existing (proven) technology, or on new design/research and/or a new development? If it is a new study/development, give an indication of the innovate and/or still to develop in technological aspect in comparison with existing technology?	
4.	If this were a new design/research and/or a new development, could you specify what the pitfalls could be during realisation of the system? What could be reasonable alternatives?	
5.	Which parties are the main suppliers of such systems? Are there any Dutch supply channels?	
6.	In connection with your role during the development/implementation: <ul style="list-style-type: none"> • Where do the core competencies of your organization lie? • If it is a new design, do you intend to develop/implement the noise monitoring sys- 	

	tem yourself or by means of an alliance with other partners?	
7.	Do the systems require digging activities for energy supplies, and/or are there mobile systems?	
8.	In your opinion, which are the major differences in quality between such systems?	
9.	Which aspects could be assessed in order to compare systems in relation to the demands and wishes asked of the systems?	
10.	If the DCMR lays down the design of the noise monitoring system at the supplier, how can be ensured that during the assessment of the different designs (differences in amount of measurement posts and placement on different locations) can meet the demands asked? Clarification: is it possible to measure another level of noise/is it possible that another level of noise will be measure with a different amount of systems and/or placement on different locations? Can it be that the DCMR has to establish the design unambiguously or can the design also come from a supplier? And in reference to the last: how do you determine the freedom of design within the given output conditions?	
Pricing		
11.	Can you give an indication of the costs of a fixed and/or mobile system?	
12.	In the ultimate invitation to tender, a fixed price will be requested for the noise monitoring system. In addition to this, fixed prices will be requested for implementation, training, management and maintenance. Therefore a number of sub-aspects should possibly be more clearly framed. Would you please indicate what further demarcation of these aspects would help you in submitting your tender without 'open ends'. That is to say, in such a way that it is clear to both the DCMR and the supplier where the project starts and ends.	
13.	Can such a system both be sold through ownership and be given on loan? Which alternative would be the most plausible in connection to the period of usage (approximately 12 months)?	
Distinguishing abilities		
14.	How do you distinguish yourself from other parties in the market (both in respect of your company and product)?	

Additional information		
15.	Is it possible to place an experimental setup of the system, and to return it in case the system functions insufficiently?	
16.	If you feel that certain aspects which are not listed in the above questions should be covered in your consultation document, then please let us know in your reply.	

Annex 4 – Selected requirements to answer

Topic	#	Description features	Realistic*		Implementation required*		Notes
			Yes	No	Standard	customi- zation	
Functional specifications (draft)							
Input (in order of occurrence)	1.	Measurement data: <ul style="list-style-type: none"> ○ Continuous noise measurements in the residential area. ○ Continuous noise measurements in the industrial area. ○ Continuous meteorological measurements of parameters that are relevant to the noise transfer, such as wind speed/direction and temperature at both the industrial area, the residential area and in between). ○ Data storage for at least one month back in time. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2.	Noise nuisance reports. <ul style="list-style-type: none"> ○ Participants of the residents panel will be asked to contribute noise nuisance reports as soon as possible during or after the occurrence of a noise nuisance event. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3.	Initiation of the production of a noise event contour map will be done by an operator using a website/software that should be available to operators with login: <ul style="list-style-type: none"> ○ Typical input by the operator will be start time, duration and type of the noise nuisance event. ○ Automated production of a Noise Event Contour Map. <ul style="list-style-type: none"> ▪ The system sets automatically relevant parameters in order to produce the noise event contour map with optimal resolution. ○ Manual production of a noise event contour maps based on stored measurement data. <ul style="list-style-type: none"> ▪ Parameters that are relevant for the production of the noise 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* You are requested to indicate what applies to you by means of ticking or crossing the box. If you ticked "no" in the row "Realistic", you do not need to fill in the row "Implementation required". Instead, you are requested to give a further explanation in row "Notes".

	event contour map can be set manually by the operator.					
Output (in order of occurrence):	4. Noise nuisance event characteristics. <ul style="list-style-type: none"> ○ Must be determined automatically from the noise measurements in the residential area. ○ For each noise nuisance event the noise nuisance event characteristics must be stored with detailed references such as date, time, meteorological parameters, etc.. ○ For each noise nuisance event sample recordings must be made of the noise measured in the residential area. Operators can listen to these recordings immediately after the submission of an noise nuisance report. 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5. Noise event contour maps: <ul style="list-style-type: none"> ○ A good correlation between the noise on the industrial area and in the residential area; <ul style="list-style-type: none"> ▪ Based on using the noise nuisance event characteristics; ▪ Transfer function and meteorological situation taken into account; ▪ Poor correlation must be indicated. ○ Scaling of the contributions: <ul style="list-style-type: none"> ▪ Relative: red/./green = high/./low contribution; ▪ Absolute: indication of total sound power (in the frequency range that is relevant for the noise nuisance event) per unit area. ○ Resolution: As indicated the system should be able to distinguish between noise sources such as the railroad track, road traffic, ships on the water ways and parts of the industrial activities, such as flares. In order to achieve this the following resolutions are set as minimum requirements. Alternative approaches can be suggested. <ul style="list-style-type: none"> ▪ Horizontal: grid 100x100 meters or better; ▪ Vertical: steps of 30 meters or better. ○ The time it takes to calculate and produce a noise event contour map must be no more then 5 minutes. ○ Each noise event contour map must be stored together with all parameters that are relevant for its (re-)production, includ- 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		ing the noise nuisance event characteristics.					
	6.	Archive of noise event contour maps produced at any time during the whole project, including sample recordings, parameters and noise nuisance event characteristics, must be available to the operators both during the project and after the project has ended. The archive must be accessible with regular office software (e.g. pdf reader, text editor, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Technical specifications (draft)							
Minimally required:	7.	Frequency range: octave bands 31 Hz – 2 kHz	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	8.	Dynamic range: 20 – 110 dB(A), 30 – 120 dB(Z)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	9.	Accuracy: IEC 61672-1 Class 2 or better	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	10.	Wind noise: in order to clearly distinguish between wind induced noise (at the microphone/wind screen) and the industrial noise, wind noise specifications have to be known and has to be similar/better then those from the Rion WS-03 outdoor wind screen (20 cm diameter). This is required because wind speeds at Maasvlakte are generally quite high (often >10 m/s, see KNMI website for details) and is especially relevant in the 31 – 125 Hz octave bands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	11.	Environment: the system has to function in all environmental conditions that apply to the area concerned, e.g.: <ul style="list-style-type: none"> o operating temperatures: -20° C to +50° C o relative humidity: 0 – 100 % o rain, snow, fog o salt, sand (blown in from the sea and the beaches) o birds (seagulls, of which there are a lot in the area, may foul or damage the windscreen if they sit on it) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	12.	Operational: the system has to be 24/7 operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	13.	Downtime: in case of malfunction of the system in any way, the system may be unable to achieve its goal (as specified in this document) for no more then 10% of the time per month of operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	14.	Mechanical: These requirements are still preliminary and will have to be elaborated later. It is expected that placement of the monitoring stations can be done in all public places. Lamp posts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		can possibly be used to attach them to. However it is likely that, from an acoustical point of view some areas will be preferred for the placement of monitoring stations where no lamp post are available.					
	15.	Power: These requirements are still preliminary and will have to be elaborated later. Electrical power for the monitoring stations will probably have to be delivered by solar panels. In some cases it may be possible to use hardwired power from for instance a lamp post.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	16.	Data transfer: Since there will be not be any hardwired data connection available in the Industrial Area or the Residential Area, data transfer from the monitoring stations will have to be done by mobile data connections like 3G, 4G or other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	17.	Other: In case it is desirable to place monitoring stations at the company sites on the Industrial Area, specific safety restrictions will be applicable that can vary per company. The possibilities and limitations will have to be discussed with the companies concerned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Summary of what must be delivered (draft)							
	18.	All hardware for the meteorological and noise monitoring stations in both the residential area, the industrial area and in between (if necessary), including installation and testing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	19.	Website or application for operation and use of the whole system:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	20.	Data storage, including backup, for the duration of the project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	21.	Optional: removal of all monitoring stations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	