



EXCAVATION PERMIT

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Valid to date: **2016-10-22**

4. Implementation and execution

4.6. Operations management

Excavation permit

1. Aim

The aim of this procedure is to minimise personal and operational risk for excavation and groundwork done as commissioned by Yara Sluiskil B.V.

This is done by laying down strict rules for preparing and executing the work and determining responsibilities for the Company (Yara) and the respective contractor.

2. Target group/validity

This procedure must be used by Yara and contractors for all groundwork within the boundaries of Yara Sluiskil B.V. property.

3. Responsibilities

Yara safety experts are responsible for keeping the procedure up to date. They must see to it that the target group is instructed.

The principal on behalf of Yara shall remain the person finally responsible for the work to be executed. The applicant of the excavation and/or ground work (Yara or a contractor who outsources work to a subcontractor) shall be obliged to add this procedure to the request for a price quotation and/or the

contract that is concluded with a (sub-) contractor. In so doing, the (sub) contractor is notified of the specific requirements that Yara sets for the work.

The executing contractor shall be fully responsible for following the excavation and groundwork procedure laid down. The possible chief contractor shall at all times remain the final person responsible for the work to be executed for Yara.

The following people have been authorised to sign excavation permits on behalf of Yara:

Civil:

Facility service

The maintenance coordinator
The civil facility planner

SPTM

Senior civil engineer
Civil engineer

Electrical:

Central maintenance

Maintenance coordinator high/low voltage

SPTM

The (electrical) work supervisor
The (electrical) systems supervisor

4. Derogations

4.1. Derogations from the procedure

Derogation from the procedure must be approved by the Yara safety experts.

4.2. Derogations from the procedure in the event of an emergency

If the procedure cannot be followed during an emergency, permission to derogate from the procedure must be given by the civil engineering supervisor or, outside the day shift working hours, by the head of the WTB (mechanical engineering) service, if so desired, perhaps in deliberation with the Head of the QSHE Service and/or with the Head of the E Service.

4.3. Additional condition to grant an excavation permit

An excavation permit can only be granted after a form corresponding to the excavation permit has been completed for the TRA, which includes the part on “work preparation”. This form must be signed by all involved and must be accompanied by the drawing of the working area (see 4.3.1). The people responsible for the preparation must discuss the TRA with all those executing the work. If there is any doubt or something is not clear, it is possible to have the responsible head of the division/head of the service or the MT member on duty sign it. If this should happen outside the day shift working hours, it must be signed by the management member on duty.

The TRA shall be given the same number as the lowest number of the excavation permit(s) of which the TRA forms a part.

The TRA team for an excavation permit shall consist of (at least) the following:

- Yara engineering supervisor;
- Yara electrical supervisor;
- The main contractor’s executor of the work;
- At least one executor of the work.

N.B.: A PROCO (Production Coordinator) from the department where the excavation work will be carried out will be included in the TRA team for excavation work if there are any (installation) risks above ground.



TRA_graafvergunning_REV.1.xlsx

The TRA shall also include a reference to the CROW-132. If it appears from the exploratory soil examination that the contamination exceeds the intervention value, the stipulations as laid down in CROW-132 shall apply.

If any groundwater must be pumped or water must be removed, the manner in which the water is to be removed will be determined in deliberation with the Yara environment coordinator.

5 Description

5.1 Classification

Two classifications are applied for the Yara site, namely:

- High- risk areas
- Limited- risk areas

These areas are described as follows:

- **High-risk area**

- Any area that has not been mapped out by means of test trenches and for which the respective Yara supervisor has not given his or her initial as proof that:
- An excavation method different from the one outlined in 4.2 has been allowed or
- Work other than excavation work has been allowed.
- An area as wide as the cable bed that has been localised with the aid of test trenches or the pipeline(s) that has (or have) been localised with the aid of test trenches, and which are not drinking water, sewage, fire-fighting or cooling water pipelines, extended with a 50-centimetre safety margin on both sides of an area that has been mapped out by digging test trenches.
- See Chapter 4.2, figures 1 and 2.

- **Limited-risk area**

- An area that has been mapped out by test trenches and in which only drinking water, sewage, fire-fighting and/or cooling water pipelines are to be found.
- The status of “limited risk” shall only apply to areas that have been drawn on the excavation permit by the engineering supervisor and when this drawing has been initialled by the engineering supervisor.

At the start of all groundwork, the “high- risk” qualification shall apply at all times. An exception might be if the area, in the past, already as low risk area is identified. These areas are indicated by the drawing room on the excavation permit with a YELLOW area fills.

It is only by digging test trenches that an area can be qualified as a limited risk area.

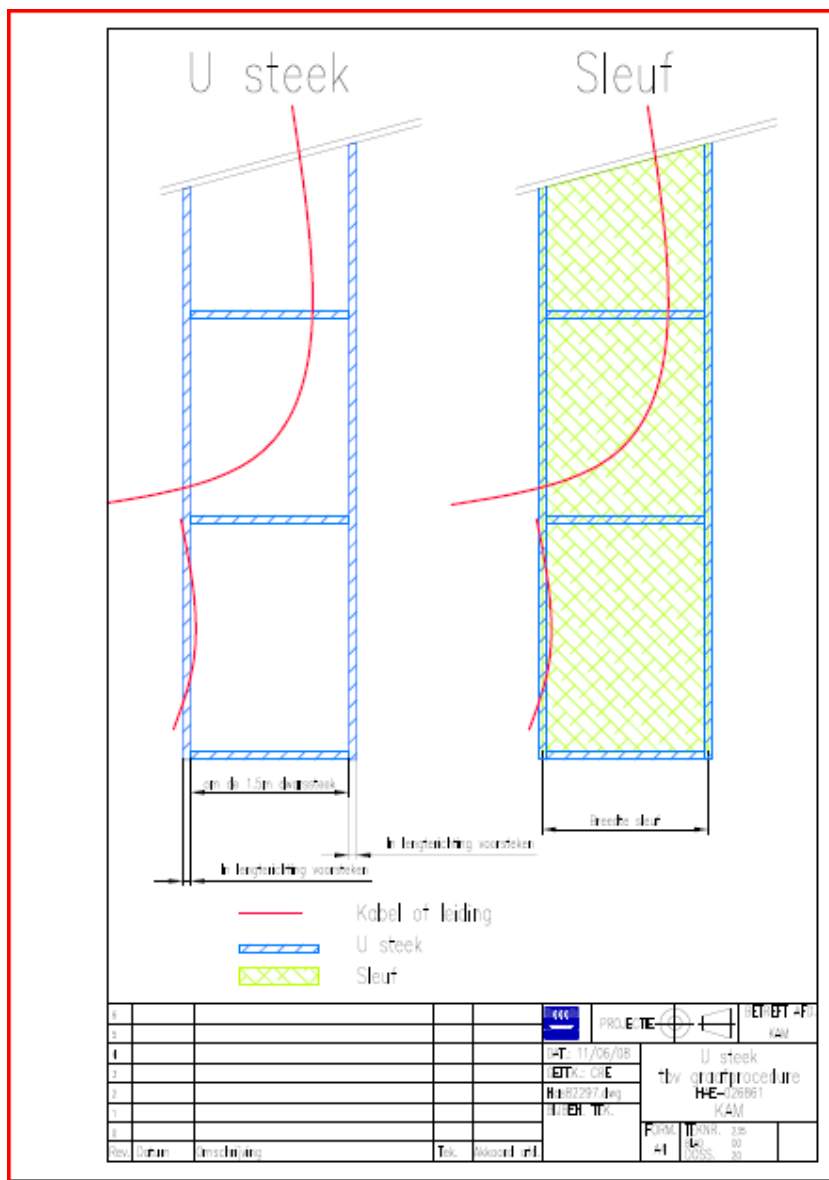
This is explained again in paragraph 4.2, figure 3.

Areas that are still defined as high-risk areas after test trenches have been dug must be demarcated with the aid of inserted pickets and cordoning ribbon, and the local defined margins must be included. This demarcation is to be done or as instructed by the engineering supervisor who has drawn the areas with high and/or limited risk on the excavation permit and has initialled the excavation permit for this purpose. The person who demarcates must notify the people executing the work of the excavation permit.

5.2 Rules

The following shall apply to areas with the “high-risk” qualification:

1. Any asphalt/foundations shall be removed mechanically and/or manually.
2. Every layer of 25 cm that is excavated shall first be “pre-dug” with a spade.
3. If no objects are struck, 10 of the 25 cm may be excavated.
4. If it is necessary to dig even deeper, the previous step shall be repeated until cables, pipelines or underground installations are encountered.
5. The cables, pipelines or subterranean installations shall then be further dug out manually, with the exception of sewage, fire fighting, drinking water and cooling water pipelines. Cables must be suspended every 1.5m with non-cutting material to prevent the insulation from tearing due to sagging.
6. If the hole is/becomes very deep, the issuer of the work permit must consider whether a “closed space” is concerned.
7. The contractor is to see to it that there is expert and demonstrably trained personnel to pre-dig in accordance with the U-digging method (see figure 1).



Explanation of the “U-digging method”

The U-digging method means that the ground is pre-dug lengthwise on both edges of the trench to ensure that no cables or cable loops penetrate the excavation area on either side. The pre-dug sides are linked by pre-digging the entire width of the excavated area. This method of working is continued while advancing forward.

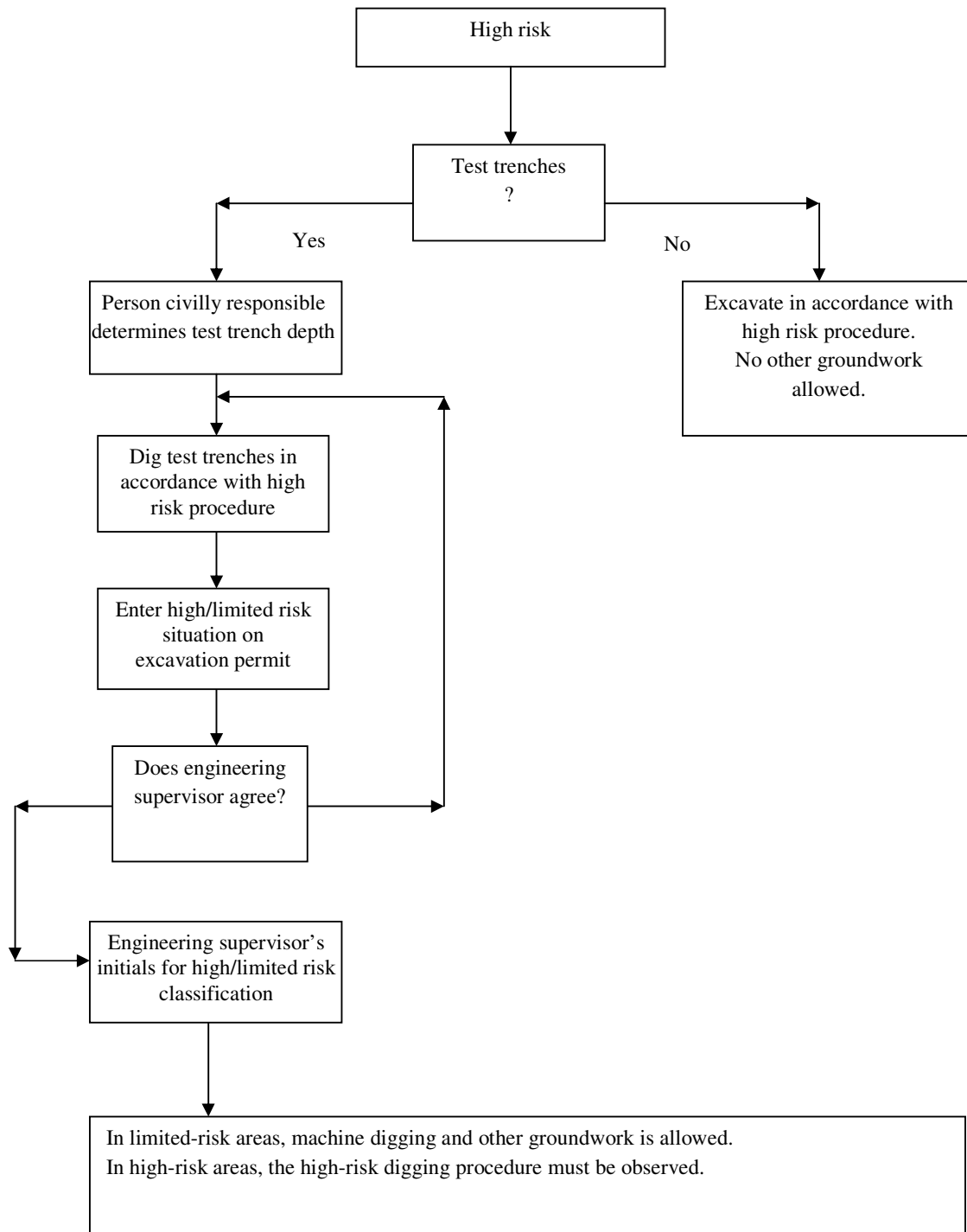
Specific rules for work other than excavation**Pile driving/vertical drilling**

Before any piles are driven or drilled, any underground cables and/or pipelines must be removed from the underlying ground. This must be done by digging holes having a minimum depth of 1,500 mm in the places where a number of the piles are to be placed and subsequently placing PVC pipes in these holes to keep the drilling or pile driving location free of any cables and/or pipelines that may be present. If it concerns a group of poles, it may be sufficient to dig a 1,500-mm deep, 1,000-mm wide trench around the location of the poles. This will also ensure that the location in question is free of any obstacles. For larger surface areas, e.g. 50m x 50m, an additional requirement may be set to provide the respective site with a test trench that is made crosswise over the site for 100% certainty.

Horizontal drilling

Where horizontal drilling is concerned, the risks must be recorded as well as possible by means of drawings of possible cable routes in the area where the drilling is to be done. (Test) trenches lengthwise of the (ingoing and outgoing) drilling trajectory will provide definitive insight into the cable routes in the immediate vicinity of the object under which the drilling is to be done.

The definitive working method must be determined by means of the TRA pertaining to the excavation permit. The following flow chart illustrates the working method that is normally allowed:



Figures 2 and 3 provide examples of high-risk areas. The position of the existing cable bed has been identified by digging test trenches. Nothing else has been encountered besides the cable bed. Only the area at a distance of more than 50m from the cable bed shall be regarded as a limited-risk area, after approval by the engineering supervisor. Mechanical excavation and other groundwork are allowed in this area.

Before and during test trench digging

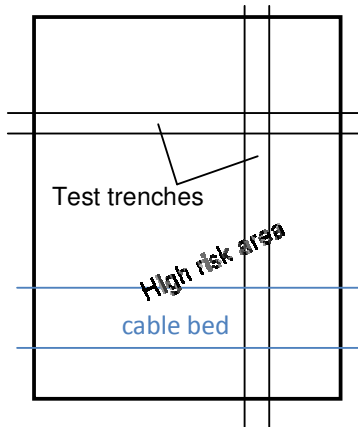


figure 2

After test trench digging

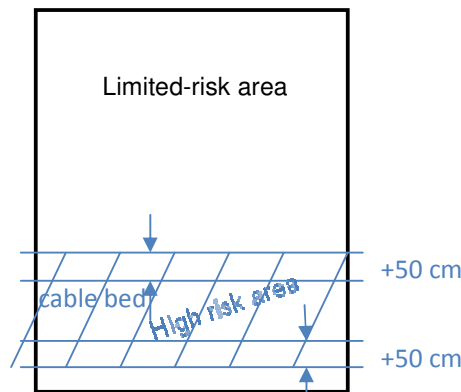


figure 3

Furthermore, the following rules must be observed:

- The Yara supervisor must be indicated.
- The contractor's supervisor must be indicated.
- A separate excavation permit must be issued for every specific job, depending on the risks). If there a reason arises which must be made from the original excavation permit, for example, change of work, a new excavation permit must be applied for the job. Excavation permit must be kept at the workplace together with the work permit.
- Excavation permits are valid for a maximum 1 month, as of the day of issue. The contractor shall be responsible for handing in the excavation permit at the Yara draught/draft office, including any possible amendments, as soon as the groundwork has been finished or the permit has expired. The engineering supervisor shall be responsible for issuing a new permit after the previous one has expired. This shall be done in accordance with the way in which the first permit was issued. Any possible remarks or measurement data must be stated on the permit. The contractor may personally apply for an extension, at least 3 days before the valid permit expires. Applying for an extension is only possible if the excavations are continued within an uninterrupted period. The application must be accompanied by a copy of the permit for which an extension is requested, including any amendments (e.g. cables/pipelines found), so that these amendments may be incorporated in the new permit.
- If the excavation work is done mechanically in a high-risk area, a trained ground worker must be present at all times. As long as he or she is not present, the mechanical excavation operations must be suspended.

5.3 Permit procedure for excavation and groundwork

5.3.1 Excavation permit

Excavation permits must be requested through the Yara commissioner, preferably at least 1 day in advance. Excavation permits are requested by telephone, in writing or by e-mail (F_YARA_SLU_EMP_OND_3665), stating the location and the reason for the work. Excavation permits are always issued by the Yara draught office.

If any underground cables, pipes or installations are modified, installed or removed, the draught office must be given timely notification of this, so that the necessary measurements can be taken.

The most important items in this procedure are:

- In addition to stating whether or not permission for mechanical excavation has been granted, excavation permits must also state the location, reason for the work, name of the applicant and the excavation permit issuer.
- After the excavation permit has been drawn up, the draught office must fill in the necessary data, add all required (detailed) information regarding the position of the cables and pipelines to the permit and subsequently sign in agreement. The engineering supervisor shall then discuss the permit and the additional information with the electrical systems supervisor. If an agreement is reached, both shall subsequently sign the excavation permit. A list of authorised positions has been included in chapter 3.

It is therefore both the engineering supervisor and the electrical systems supervisor who are responsible for completing the excavation permit in full and for adding any information available to the excavation permit. This is why parties consult one another regarding the permit in question.

Excavation permits shall contain a plan on a scale of 1:250 of the area where the excavation work is to be carried out, a plan on a scale of 1:2000 for orientation purposes and a key explaining the symbols and colours used.

A member of the draught office can be reached through the Security service to issue an excavation permit outside the day-shift working hours. This excavation permit must then be filled in and signed by the WTB and heads on duty after they have discussed the job and the situation in situ. If no digital copy of an excavation permit can be obtained, the WTB and E heads on duty will decide whether the work will be started or continued, depending on the priorities that have been set.

When any work is done outside the Yara site demarcation that would require an application for an excavation permit if it had taken place on the site, a so-called WION notification (see WION tab) must be made. This shall be done by the main contractor.

For work in the vicinity of railways that are managed by a rail infrastructure manager outside the site, the technical regulations for permit issuance set by the railway network manager must always be observed. The same applies, for example, to any discharge permits and/or withdrawal and/or removal permits (if applicable) for (ground)water if the work takes place outside the Yara site demarcation.

An example of the checklist that is added to excavation permits has been attached to this procedure. The department for which the work permit is issued must be stated on this checklist.

5.3.2 Work permit

All excavation and groundwork requires a normal work permit, issued by the relevant Yara department(s) in accordance with the applicable HAE 026168 procedure. The “Work permit system” can be consulted online.

The checklist attached to this document must be completed before any work permit for this type of work is granted, however. This checklist constitutes a part of the excavation permit document that is issued by the draught office. It is used by the person issuing the work permit as a way of checking the preparation. A work permit will be issued on condition that the work preparation or TRA form mentioned in paragraph 3.3 must be completed in its entirety, signed and submitted together with the excavation permit.

The underground risks have been described by experts (TRA team excavation work) and the management measures have been established.

The work permit issuer will assess the risks ABOVE GROUND and issue a work permit containing an evaluation of the risks above ground and laying down any additional management measures.

5.4 Documentation and filing

Unless specified otherwise, the applicant must file the copy of the excavation permit and the accompanying TRA with the facility service up to 3 months after the end of the ground work.

5.4.1 Measurement date & Photographs

The company that performs the work, request for at least, one day before trenches be closed, to drawing office to take the measurement date. The drawing office process the data within a week on the orinele drawings.

6 References

HAE 026168 Work permit system.



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7 Appendices

App. 1, Checklist pertaining to the excavation permit

App.1 Checklist pertaining to the excavation permit

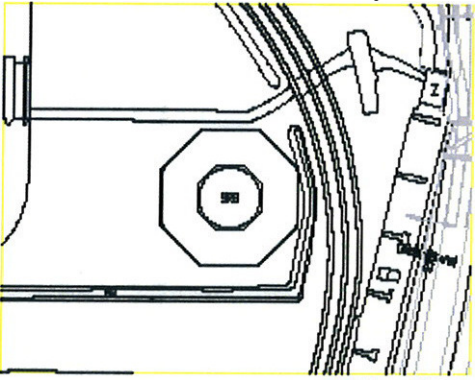
Excavation permit Term of validity max. 1 month
 Cable and pipeline dimensions NOT BINDING!!!!
 Limited risk area
 Excavation permit free area
 If no other comments ALWAYS HIGH RISK!!!

Acc. to excavation and groundwork procedure no. HAE-026861
 Return excavation permit, possibly with adjustments, to draught office after work is finished!!!

To be filled in by a competent Draft Office staff member

1.1 Excavation permit applicant Martin Rodenburg
 1.2 Re department for work permit Maintenance shop

1.3 Date 06/01/15 1.4 Serial no 12282
 1.5 Excavation permit coordinate 704 1056
 1.6 Measuring required by: contractor or draught office, so fill in later
 1.7 Operations: excavation work for
Sewer construction
 1.8 In agreement Draught office LOP Initials Signature



SCALE : 1/2000

To be filled in by the Engineering supervisor

2.1 Contractor familiar with excavation and groundwork procedure? Yes/No
 2.2 Availability or presence of detailed drawings, checked? Yes/No
 2.3 TRA no.: _____ Date: _____
 2.4 Contractor's supervisor _____
 2.5 Minimum test trench depth (if applicable), _____ cm
 2.6 Remarks _____
 2.7 In agreement _____ Initials _____ Signature _____

To be filled in by the Electrical Systems supervisor

3.1 Remarks _____
 3.2 In agreement E&I _____ Initials _____ Signature _____

To be filled in by the contractor's supervisor

4.1 Yara supervisor known? Yes/No
 4.2 In agreement contractor _____ Initials _____ Signature _____

WION: Wet Informatie-uitwisseling Ondergrondse Netten (Underground Grids Information Exchange Act)

Short description

This legislation requires underground grid (cables and pipelines) owners to provide information on the nature and location of these grids to the land registry office. This applies to both all grids outside the site and to certain grids within the company's own site. (See list of registered grids.) WION also requires all internal grids (cables and pipelines) that are connected to an external grid or that have hazardous contents to be registered.

Yara has provided all required data to a company that passes the data of our registered grids on to the land registry office by way of software to ensure its availability through "Klic-online". When excavation work is carried out outside our site, these land registry data regarding our grids are exchanged with the company that is to carry out the excavation work. The same notification protocol must be followed for excavation work concerning registered Yara internal grids (see list), after which a work notification will be sent through the land registry office.

For all intended excavation work in the vicinity of one (or more) grids managed by Yara Sluiskil B.V., electronic work notifications (email) will be sent to all people directly involved. Until (re)evaluation, the following people will in any event be notified of any intentions to carry out excavation work:

- the appointed Yara Asset Manager (t.b.n.)
- HESQ Head on Duty

Accountability

Legislation requires that grid managers appoint a so-called "Asset Manager", whose responsibilities include such tasks as providing correct grid data to the land registry office (this is done by the designated company at Yara). The Asset Manager also reports any emergencies in accordance with the prescribed procedure.

Emergencies

As a grid manager, Yara is required to provide a communications system to be used in the event of an emergency or damage to one of our registered grids.

Work notifications to earth movers for (excavation) work in the direct vicinity of our grids, made by the land registry office, carry an emergency number: **0115-474144** (Yara company security). This number must be warned in the event of any damage to any of our grids outside the site. The security officer on duty shall then immediately warn the HESQ Head on Duty, who shall contact the operational manager of the grid in question to generate action. The HESQ Head on Duty may choose to access the location in question to record the damage, partly with a view to insurance follow-up actions.

List of grids managed by Yara Sluiskil B.V.

Reference



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External references: OHSAS
VBS

Internal references: