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EINSTEIN TELESCOPE

PLANNING OF A CONSTRUCTION PROJECT

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1. Introduction

a. Context

The Einstein Telescope (hereafter also called 'ET') is a proposed underground infrastructure to host a gravitational-wave observatory. The infrastructure is foreseen to be dug at a depth of about 250 m and will form a triangular shape whose sides are tunnels about 10 km long and whose corners house scientific instruments in caverns.

One of the possible locations for the ET is in the border region between Maastricht (The Netherlands) and Liège (Belgium). Specifically, the ET will be built somewhere in a search area comprising parts of South Limburg (The Netherlands), the municipality Voeren (part of the Province of Limburg, Flemish region, Belgium) and the Province of Liège (Walloon region, Belgium).

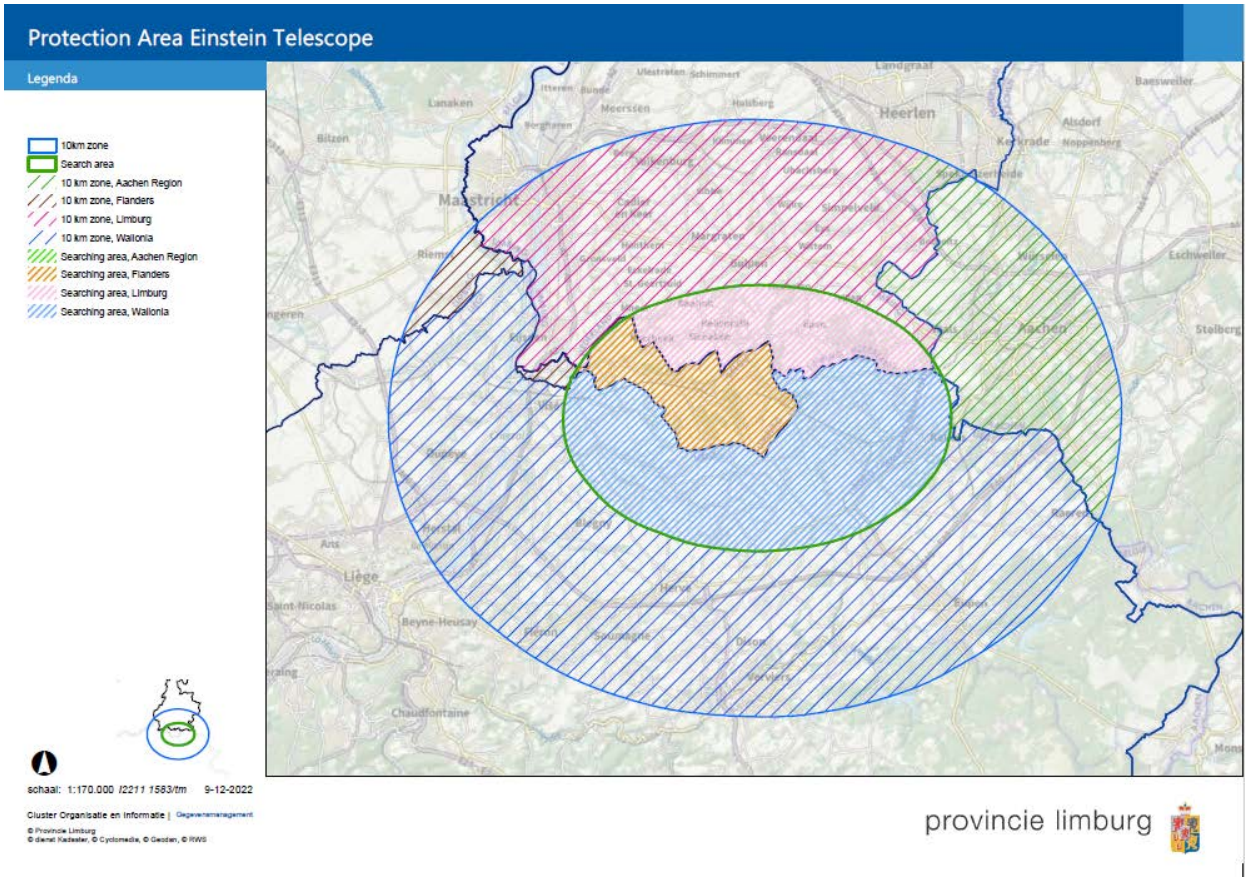


Figure 1: Perimeter of research for the ET project

In this context, we were asked to perform a high-level or global overview of the project timeline, considering the respective requirements in terms of technical and environmental management in three regions: The Netherlands, Flander (Belgium) and Wallonia (Belgium). Germany is not part of the scope of the study.

b. Objectives and deliverables

This report aims to provide specific important aspects related to the development of large (cross-borders) infrastructure projects and a high-level overview of the project steps, including engineering, legal, and permitting aspects, the latter two being approached under the current existing legal framework (with the exception for The Netherlands where we took into account the new

Environmental Law (*Omgevingswet*) which is currently foreseen to enter into force by July of this year).

More specifically, and according to our offer from February the 28th 2022, following deliverables were produced and are attached in the annex of this report.

- Deliverable 1: A schedule of the phases to be planned until the beginning of the civil works, including the interactions between the technical, legal and administrative stages, the decision moments and the risks associated with the implementation of a project of this scale.
- Deliverable 2: An inventory of public authorizations and permits to be acquired before the start of the civil works.
- Deliverable 3: An inventory of private authorizations and legal contracts to be acquired before the start of civil works: description of acquisition procedures and establishment of ownership and use rights.

This report helps to merge and summarize all different aspects.

2. Input data and assumptions

a. Input data

Following the kick-off meeting on August 31st 2022, we received the map hereabove setting the borders of the project perimeter. We also received a report from Implenia (report dated 25th November 2019), in which the construction of the ET is analysed from an engineering perspective. Finally, we also received a list of coordinates from contacts of some public stakeholders in the Netherlands.

b. Assumptions

The map displayed on the previous page suggests that the research area includes a small part of Germany as well. During the kick-off meeting, the representatives of the ULiège confirmed however that this study is limited to the aforementioned regions. Germany and German law will therefore not be part of this report.

During the kick-off meeting it was confirmed that this study can be conducted under the assumption that the access shafts of the ET will be constructed as “vertical shafts”, and not the inclined access tunnels.

We can also work under the assumption that the tunnels of the ET will at least be dug at a depth of 200 meters, and likely at a depth of 250 meters.

3. Important aspects of complex infrastructure projects

Bigger infrastructure projects are characterized by a multitude of aspects that define and have an impact on the design, the permitting, the execution, the maintenance and the operation of the asset. The first step after defining the project objectives, is often to choose the ideal location for the project, as it is the case for the Einstein telescope. The high level study that helps decide on this is referred to as the Feasibility study in which several defined criteria are compared to each other on a global scale. Criteria that are compared can be cost, timing, legal & permitting conditions, socio-economic impact, technical feasibility, resources and logistics (human and materials) needed for the creation and operation of the asset, etc. This kind of feasibility study is mostly done by an external consultant that can evaluate on an objective basis but that cannot judge the weight of each criteria in the decision for the site. Therefore it is equally important that the initiator of the project (the client or end-user) defines weight ratio's between the different criteria as some criteria will be deemed more important than others.

After an ideal site is chosen, based on the feasibility study, the design phase can be started. At this stage, some of the previously mentioned criteria, become starting points or conditions for the continuation of the project. When the design phase starts, it will be very important to coordinate and follow up on all aspects that define the project: the objectives, the conditions, stakeholders, etc. The main goal for a successful project is to **converge** towards a design that maximizes the compliance to the objectives but that also maximizes support with the related stakeholders.

Therefore an integrated project management is necessary.

Figure 2: Integrated management

There are several systems that describe methods on how to achieve this integrated management, like the PMI concept of Rijkswaterstaat in the Netherlands, but they all treat, more or less, the same aspects that need to be monitored and coordinated. Specifically in bigger projects, these aspects are often split up in different teams:

1) A project management that coordinates and monitors compliance to the objectives like cost & timing

2) Proper management and control of Quality and "Health, Safety and Environment" aspects. This team ensures control and uniform methods via workflows, Document

Management Systems, Systems Engineering, Building Information Management, Cost control, planning control, etc.

3) Technical management ensures correct alignment between the different involved disciplines and ensures compliance with valid regulations. Also realistic

4) Contract management will advise on the best possible contractual set-up between client, designers, contractors, consultants, etc. so that risk are avoided and are put with the most suitable party to take these risks. Also change management is an important task in bigger projects.

5) Management of permits and legal aspects. Permit procedures and approach must be aligned with the design team. Also expropriation can be quite a challenge due to the magnitude of the area involved.

6) Management of stakeholders. Big projects have a multitude on stakeholders that are involved and have an impact on it. Proper management and communication proves vital in many similar projects.

It is also opportune to consider some early involvement of execution contractors and maintenance contractors in order to align a contractual set-up or technical design so that risks or additional costs are maximally avoided. Also collaboration with the most important stakeholders during the design, can be a positive input for the project.

In other words, starting up the design phase for big infrastructure projects like the Einstein Telescope will be a complex matter that, aside from technical experts, requires a highly skilled and experienced management team to deal with the above mentioned aspects. Mobilization and maintenance of such a large team, both coordinating and technical personnel, takes time and preparation and will have an impact on the planning.

Furthermore the contract type that will be chosen (Design Bid Build, Design & Build or PPP) and the procurement route will have a huge impact on the organisation of the project and on the process. In our study we started from a more general, traditional approach, but this will have to be revised dependant on the decisions mentioned. If for example a PPP route is chosen, timelines will be impacted an roles and risks will change (engineering in a preliminary phase will be focused on functional specifications, whereas detailed engineering will be undertaken by the PPP consortia, etc.).

4. Stakeholders

Like mentioned in the previous paragraphs, infrastructure projects of the size and complexity of the Einstein Telescope require the participation of many different technical and administrative stakeholders.

The list below gives a non-exhaustive overview of the main stakeholders that will participate in the project. Due to the complexity of the project, it is recommended to initiate a communication towards the different stakeholders already in a very early phase and seek political support.

Public stakeholders:

- Funding authorities
- The regional governments
- The communes and provinces

- Universities
- Permitting authorities
- Sewage authorities
- Road and rail authorities (AWV, SPW, Rijkswaterstaat, Infrabel, etc)
- Utility authorities (electricity, gas, water, signal cables, etc)
- Etc.

Private stakeholders:

- Owner
- Financial organisations
- Engineering offices
- Contractors and suppliers
- Facility management
- Land owners
- Inhabitants
- Interest groups
- Control organisms (SECO, AIB Vincotte, etc.)
- Safety coordinators
- Special consultants (lawyers, experts, etc)
- Etc.

In this kind of project however the number of stakeholders is expected to be high. During the design phase, the owner will be mostly interacting with designers, experts, a project management assistance, peer reviewer, safety auditors and engineers in charge of the impact study. During construction, contractors and their subcontractors will enter the game. All different stakeholders will interact under the supervision of the owner.

5. Project steps

In this section, the global project timeline will be discussed. The project timeline consolidates the various inputs collected during the research. All inputs and analyses are given in the different annexes:

- Annex A. Engineering steps
- Annex B. Deliverable 1 – Schedule of the legal/permitting phases (worst case/best cases)
- Annex C. Deliverable 2 – Inventory of public authorizations and permits
- Annex D. Deliverable 3 – Inventory of private authorizations and legal contracts
- Annex E. Schedule

At this stage multiple scenarios can be considered, as shown in Annex B (without appeal, with appeal, etc.). We chose to represent a realistic case, using a standard design bid build contract form, but, as stated, this of course can vary a lot depending on many factors such as:

- Definitive contract type (design bid build, design & build, early contractor involvement, etc.)
- Success or not in the project communication for stakeholders (avoidance or not of appeals during the permitting and legal phases)

In the following paragraphs, we will detail each phase and the risk or opportunity associated with each of them. The figure below represents a realistic project timeline, based mostly on the procedures from the Flemish regions.

Of course these timelines are all estimations and rough assumptions.

That being said, the Dutch procedures are fairly similar in length to the Flemish procedures. An important difference lies in the duration of appeal procedures, which appear to be quite a bit shorter than in Flanders.

Also in the Walloon Region, the timeline appears to be similar in length, if not shorter. The plan de secteur (equivalent to the RUP) is comparable in length to the Flemish version, the Environmental assessment and the permitting procedures are typically shorter.

As such the timeline – based mostly on the Flemish region – appears to be more on the safe side, displaying longer procedures and appeal phases.

We refer to our Deliverable 1 (in annex) for the timelines of all three regions.

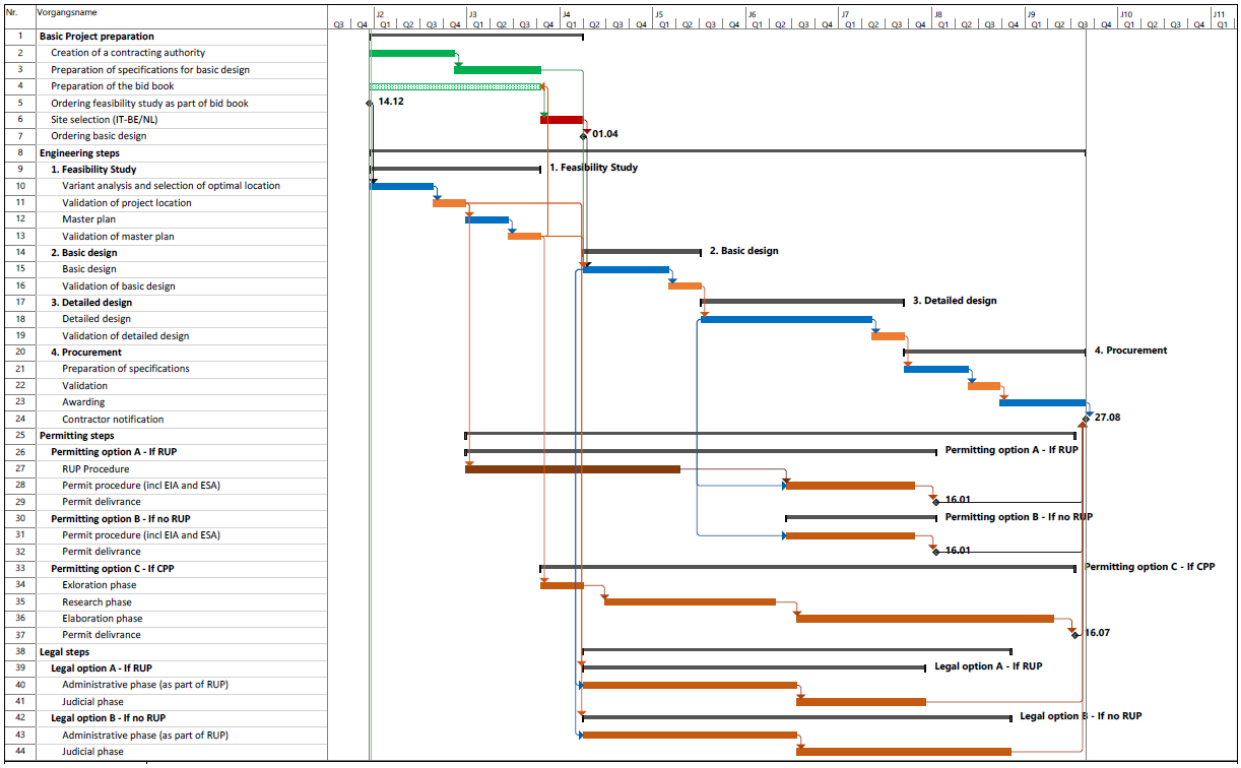


Figure 3: Realistic project timeline

a. Basic project preparation

The first step we want to discuss is the phase we call “Basic Project Preparation” which is currently ongoing. In this phase, we want to emphasize the importance of the different actors of the ET to create an authority that will be responsible for all contracting matters of the project. The existence of such an organization is of paramount importance for all the following steps of the project.

Once the contracting authority is created, the heavy design phases (basic design and detailed design) can start.

The preparation of the bid book is also part of Basic Preparation Phase phase. The selection of the definitive site (Italy or Belgium/The Netherlands/Germany) gives the start for the design work.

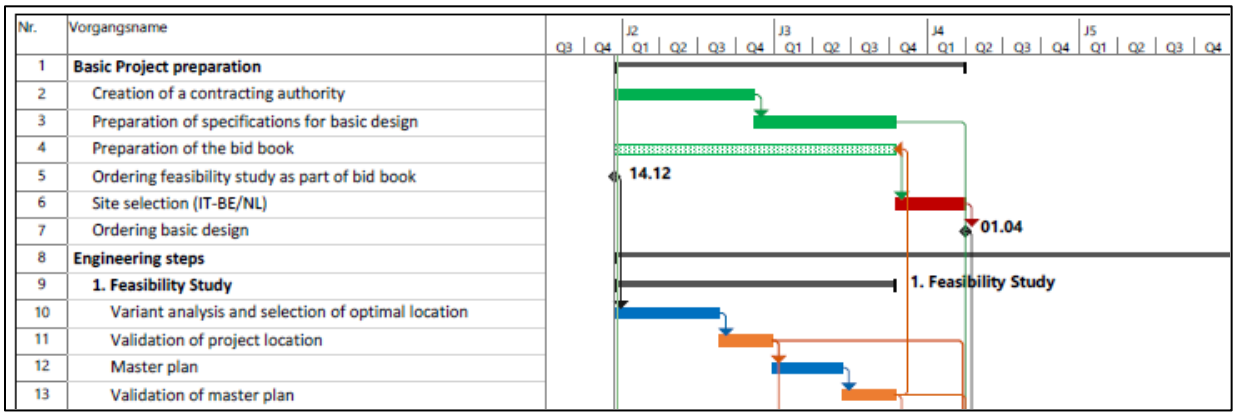


Figure 4: Basic Project Preparation

Feasibility study: The feasibility study comprises a variant analysis, and once the exact location is validated, the production of the Master Plan will serve as a guideline for the rest of the design phases.

We recommend that the feasibility study takes place during the same period that the bid book preparation. The results of this study should be integrated directly within the bid book and give a real added value to increase the chances for BE/NL/DE to be selected as the preferred site.

As mentioned earlier, this phase should start as soon as possible, based on all studies that have been performed until now (by the universities). The anticipation of this phase allows for the integration of the results in the bid book (real added value) and optimization of the overall project timeline.

Integrating the feasibility study in the bid book preparation period allows for an optimization of the project timeline. If ordered after the site selection, this would represent a global shift of the planning of approximately 18 months.

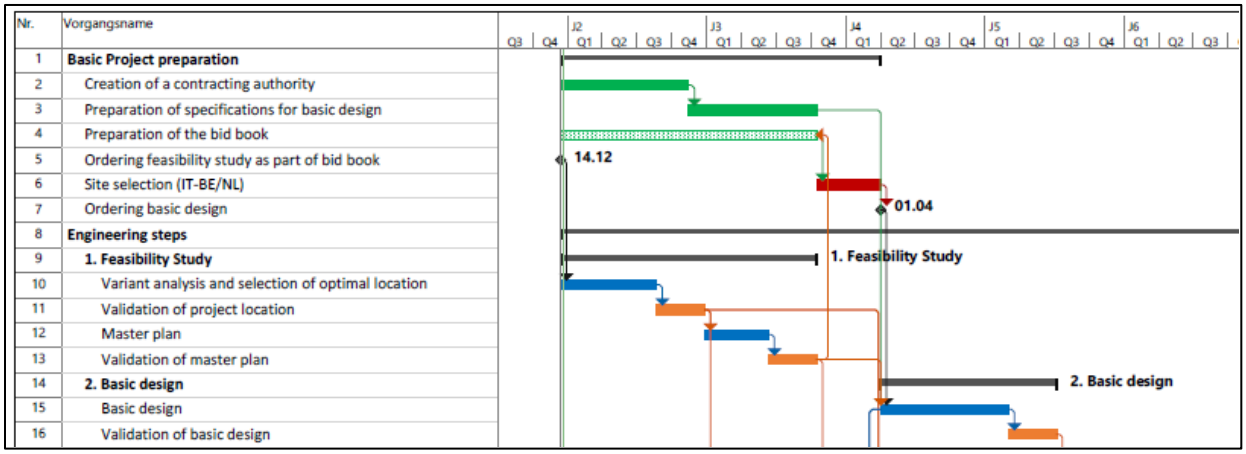


Figure 5: Feasibility Study

For this exercise, we took the assumption that each validation phase last 4,5 months.
The variant analysis is about 9 months long and the master plan is approximately 6 months long.

- As soon as the exact location is selected and validated, the phase of spatial (re)planning can be initiated (only valid if redesignation of lands is required).

- After validation of the Master Plan, the Conceptual & Basic Design can start. This can only be done after procuring the tasks publicly and choosing the most suited partner according to the public procurement law.

b. Conceptual & Basic design

Once the choice for the BE/NL/DE region is made, and after validation of the master plan by the competent authority, the conceptual and subsequent basic design can start. This phase will be followed by a period of validation (assumed to be 4.5 months, including reworking after comments). It will provide indications of the infrastructure costs, work schedule, risk analysis, etc.

Today 12 months have been foreseen for this phase. In this estimation we take into account a lot of repetition in the tunnel design so that the timing for this phase is reduced compared to other infrastructure projects. We assume that there is enough workforce available for this project.

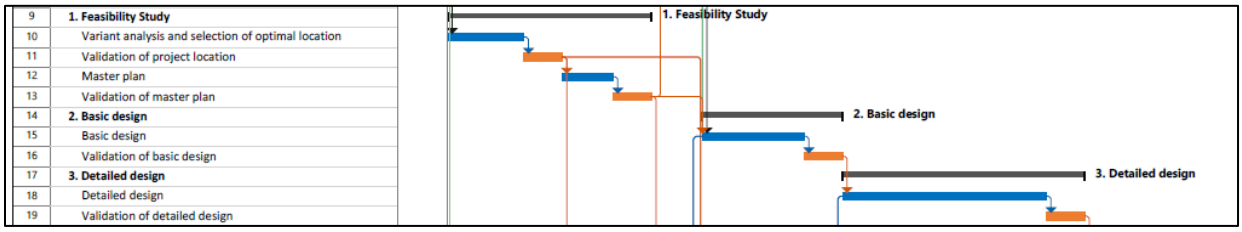


Figure 6: Basic design

c. Detailed design

After the validation of the basic design by the contracting authority, the detailed design can start. This phase is expected to last approximately two years and will lead to the tender design (ie design for procurement) if the majority of the execution design will be done by the executing contractor during construction.

Today 24 months have been foreseen for this phase. In this estimation we take into account a lot of repetition in the tunnel design so that the timing for this phase is reduced compared to other infrastructure projects. We assume that there is enough workforce available for this project.

Similarly, to the basic design, this phase ends with validation by the contracting authority of 4.5 months (including reworking after comments).

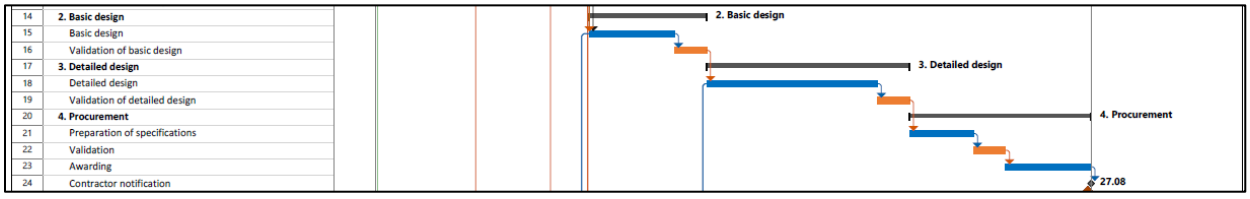


Figure 7: Detailed design

The duration of the detailed design phase depends on many different factors:

- The interface management within the project (also with other disciplines)
- The stakeholders management
- The availability of resources on the market
- The validation phases
- The contract type (execution design excluded or not)

Our experience on big infrastructure projects gives a range with significant deviation.

- Grand Paris Line 17 (design bid build): Detailed design phase (Pro1+Pro2) = 18 months
- Grand Paris Line 15 (design and build with competitive dialogue): Detailed design (Pro1+Pro2) = 12 months
- Brussels Metro Line 3 (design bid build): Detailed design = 5 years

- Oosterweel: Conceptual & Basic design: 18 years; Detailed design: 1.5 year and counting (at least 2 years still in the pipeline for detailed engineering and all important engineering companies are involved)

This shows the possible variations. Because the project is non-urban and impacts a smaller amount of stakeholders than the one listed we assume a duration of about 2 years to be realistic at this stage. The trick will be to generate as much repetition in design as possible. Also the majority of required engineering is geotechnical, so staffing will be a point of attention.

d. Procurement

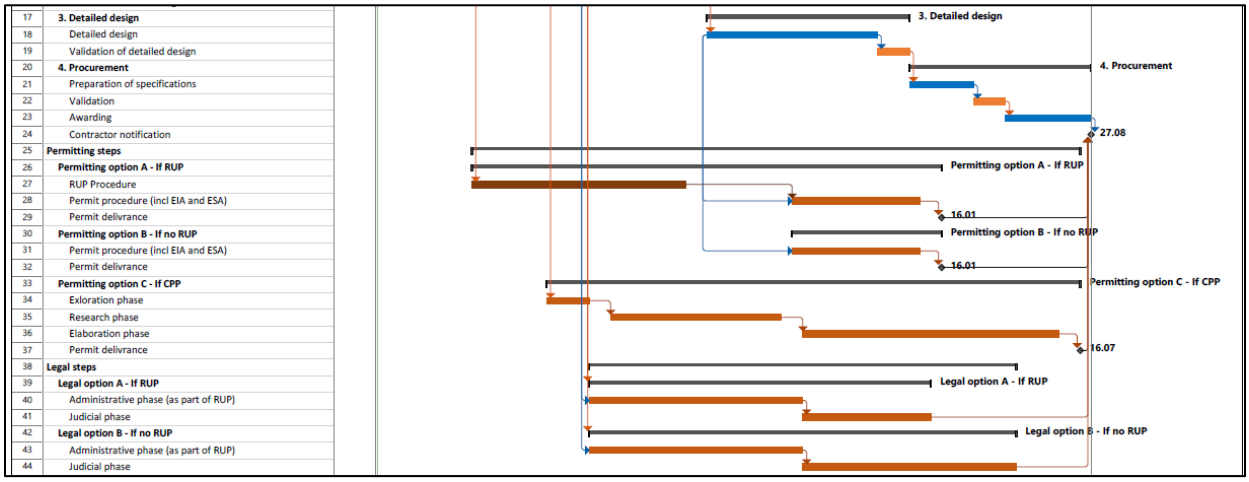


Figure 8: Procurement

Procurement for this magnitude of project will have to be done according to European procurement rules. It is very much depending on the type of contract that will be chosen. Today we took an assumption of 18 months for the timing of this phase.

e. Permitting

The permitting phase (standard procedure) is optimal to be started after finalisation of detailed design but often it is shifted more forward in the planning to gain time (with some risk). In the latter case, permitting is expected to start approximately one year after the start of the detailed design.

The documents given in the Annex B to E gives a summary of the most important permitting steps under the currently existing legal framework. In our project timeline we considered three different options that will be briefly discussed hereafter:

- Option A – standard procedure, with RUP or plan de secteur
- Option B – standard procedure, without RUP or plan de secteur
- Option C – Complex Project Procedure

When considering the standard procedure, we first need to decide if a redesignation of the land has to be done or not (with or without RUP/plan de secteur).

Option A: If yes, this is the first step to be taken. The RUP can start directly after the validation of the exact project location. For such a project, we expect the RUP to be about 30 months long. This duration would be even longer in case of an appeal (see Annex B – Deliverable 1). Once the RUP is finished (including terms of appeal) the permitting procedure can start. It comprises an Environmental Impact Assessment (EIA) and a Safety Impact Assessment (SIA). These procedures can start parallelly to the detailed design and will last at least 18 months, without appeal. This would be the best-case scenario. Obviously, in case of appeal, the permitting phase can extend significantly and even enter into a permit carousel that can last multiple years (cfr. Metro Brussels).

Option B: If no RUP is required, the contracting authority can directly start the permitting procedure in parallel with the detailed design. The risks in terms of duration are exactly the same as for Option A.

Option C: The Complex Project Procedure (CPP) is an alternative to the standard permit procedure and is specifically designed for large-scale, complex infrastructure projects of social, spatial, and strategic importance. It consists of three phases:

- Exploration phase, in which is decided if the project qualifies for the CPP (duration ~6months).
- Research phase, in which an alternative study and the draft-EIA are made. This culminates in a draft preferential decision. This decision will be subject to a public consultation, during which anyone can deliver remarks and objections. This phase coincides with the basic design and the start of the detailed design (duration ~24 months)
- Elaboration phase, which follows more or less the same structure as the research phase, but it will evidently be more concrete and precise. This culminates in a draft project decision. This decision will be subject to a public consultation, during which anyone can deliver remarks and objections. Afterwards, a definitive project decision is taken that can be challenged before the Council of State (duration ~36 months)

If globally the CPP is longer than the standard procedure, it also comes with several theoretical interesting advantages (very few deadlines, high degree of flexibility, nearly no appeal possibility, many similarities between Belgian and Netherlands procedures). In theory, the CPP appears to be an ideal solution due to the flexibility and similarity to the Dutch Project Procedure, allowing for cross-border planning between these two regions. However, In practice the CPP has not been very successful thus far. There are multiple complex projects that are following the CPP[1], but none of these have been finished yet to our knowledge.

In the Walloon Region, the joint plan-permit procedure only applies to some limited acts and works listed in article D.II.54 of the Territorial Development Code. For example, the procedure could apply if the government indicates in the acknowledgment of receipt that the size and socio-economic impact of the project justify the use of the joint procedure. This is the only scenario that could possibly apply to the project.

The difficulty is that, until this is acknowledged in the acknowledgement of receipt, the procedure cannot be conducted jointly and there are no criteria to determine in advance whether a project meets the size and socio-economic impact criteria. Therefore, a joint application should be prepared, which has a certain cost, without being sure that the application will be regular. In order to avoid wasting time and money, an informal contact should therefore necessarily be made with the competent minister to see if he could agree to the implementation of the joint procedure.

[1] *An overview can be found here: https://omgeving.vlaanderen.be/overzicht-complexe-projecten*

Current practice indicates that the government is not very keen to have this procedure implemented. We are not aware of any example where the joint procedure has been implemented on the basis of this criterion.

As indicated in our deliverable 2, the future reform of the Code will increase the number of hypotheses for joint procedure so that the implementation of this procedure may be easier and safer in the future.

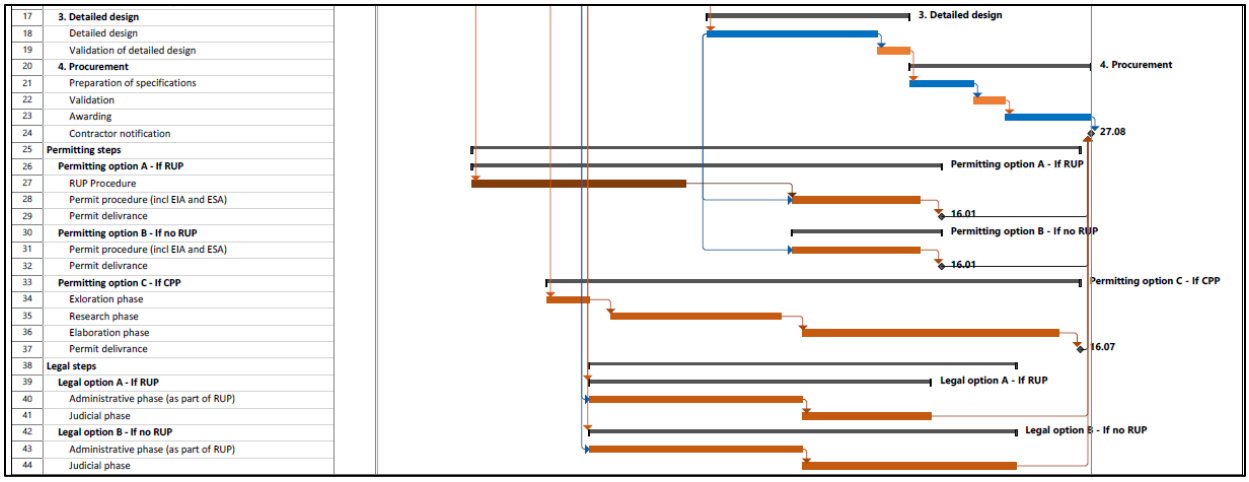
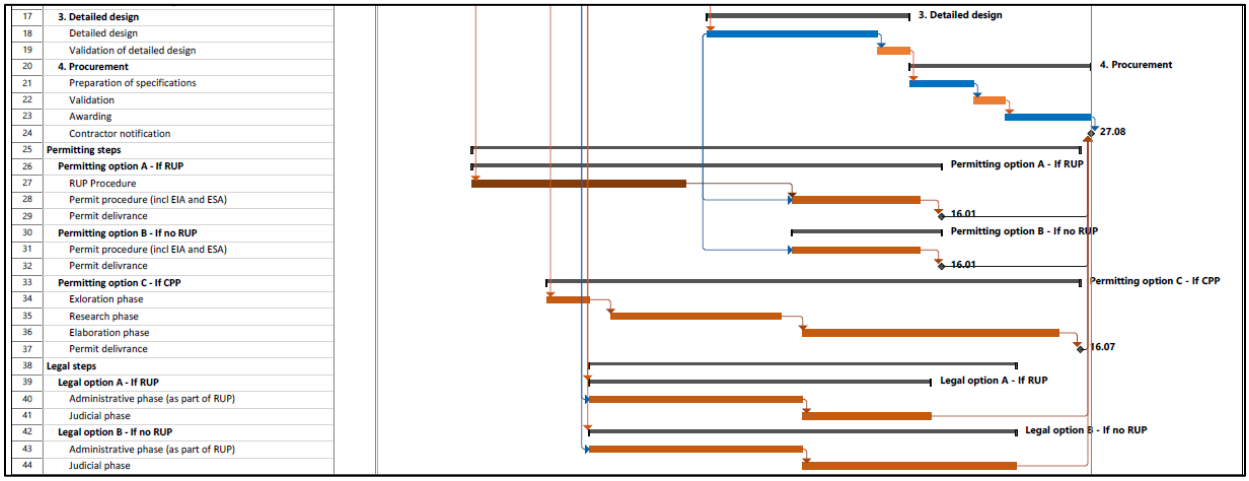


Figure 9: Permitting

f. Legal

The documents given in the Annex B to E give a preliminary overview of relevant legal steps. In our project timeline we considered two different options that will be briefly discussed hereafter:

- Option A – with RUP
- Option B – without RUP



For both options, the first step is an administrative phase of about 30 months (for Flemish and Dutch regions, shorter for Walloon region) and is followed by a judicial phase. The estimation of the duration of the administrative phase is on the “safer” side (and therefore appears to be quite long), since this will involve a large number of land owners that all have to be contacted in order to strive for an amicable acquisition.

The administrative phase can be integrated in the RUP procedure, which can have efficiency benefits. However, this can also be a risk if the RUP gets challenged, because the expropriation plan will in this case form a part of said RUP.

6. Alternative approach outside of the current legal framework

Except for the new Dutch Environmental Law, which is expected to enter into force in the not so distant future (currently expected to be July of this year), the legal and permitting aspects of this project were examined under the currently existing legal framework. Our research indicates that the (preparation of the) construction of the Einstein Telescope under the current legal framework does not seem to be impossible. However, we also noted that the current legal framework also poses possible challenges and uncertainties, especially due to the cross-border nature of the project. This is in part due to the fact that a project like the Einstein Telescope is not fully compatible with the existing legal framework.

Therefore, a completely different approach could be to consider creating a specific legal framework in all countries and or in the regions involved. It might be worth to further investigate for example an approach where the three regions (Flanders, Wallonia & The Netherlands) conclude a framework agreement/treaty in which they provide a legal framework for the Einstein Project. This framework would then be translated into legal texts in the three regions (decrees in Flanders and Wallonia, law in the Netherlands). This framework could involve planning and permitting aspects, potentially even considering obligations on e.g. environmental impacts and public participation.

This approach might be interesting with regards to the use of the underground. Generally speaking, for the access shafts, the research centre and the possible visitor centre and other adjacent functions that are above ground or just a few meters below ground, it will most likely be necessary to acquire the lands of the project area(s), via private contracts or through expropriation. For the tunnels, at a depth of 200-250 meters, it does not seem to be necessary to acquire the underground volumes, since in both The Netherlands and Belgium (federal law), property rights from the owner of a piece of land are limited to what is useful to him. It seems to be a reasonable assumption that in most cases, the property rights of the land owners above the trajectory of the tunnels will not extend so deep that acquiring them will be necessary. However, in order to achieve legal certainties it will still be necessary that legal titles (in the form of a permit/license/concession, similarly to e.g. mining permits/concessions or concessions at sea) are provided. This *ad hoc* legal framework could provide that.

Additionally, this legal framework could also at the same time describe more than just the (preparation of the) construction of the Telescope. It could for instance also create a new legal entity that will operate the Telescope once constructed or describe and organize the funding of the project.

While working with new laws might seem like a heavy burden on the timeline, this does not necessarily have to be the case. Working with new laws means that political motivations and political will also has to be taken into account. If there is enough willingness at the political level, this approach does not necessarily have to take a long time. Roughly speaking (if there is enough political will), the drafting and signing of the framework agreement might take about a year, and the legislative process another year. Besides the advantages mentioned this way of working could create legal certainty, which is needed when setting up mega projects.

7. Concluding remarks and recommendations

Bigger infrastructure projects are characterized by many aspects and stakeholders that define and impact the design, permitting, execution, maintenance, and operation of the asset. As a result, this kind of large infrastructure project is generally lengthy.

As major and complex infrastructure projects, like the Einstein Telescope, are managing a vast amount of information and have to align activities with a multitude of stakeholders, it is imperative to establish an integrated management team to deal with all aspects as described in chapter 3.

In this exercise, we showed how the different steps would succeed each other. In some cases, we chose to optimize the sequence by having various tasks in parallel. Of course, there needs to be a discussion on these as this involves risks.

Another aspect to consider is that the chain of tasks and their duration depends on a lot of repetition in design and the availability of resources on the market. This is not only true for private companies (engineering offices and contractors) but also for public authorities (staffing on managerial aspects aside from technical aspects (project control, contract management, environmental, permitting, etc.)).

Regardless of the option selected at the end, the project will generate reactions from landowners. Early communication with owners and public authorities is essential to avoid lengthy discussions during expropriation, and mediation with private owners will be necessary.

According to the current land planning, it is likely that a redefinition of the land function will be necessary (through a RUP or plan de secteur). This lengthy procedure should be started as soon as possible but is linked to the definition of the exact location of the telescope and an official organisation that can apply for these changes.

Furthermore, the contract type that will be chosen (Design Bid Build, Design & Build, or PPP) and the procurement route will significantly impact the project's organization and process. In our study, we started from a more general, traditional approach, but this will have to be revised depending on the decisions mentioned. If, for example, a PPP route is chosen, timelines will be impacted, and roles and risks will change (engineering in a preliminary phase will be focused on functional specifications, whereas the PPP consortia, etc. will undertake detailed engineering).

This study is a high-level analysis aiming to give a broad and general view of the situation for the permitting and expropriation aspects of the telescope Einstein project. Also to be mentioned is that all boundaries are not known today, and the degree of uncertainties is high. For some aspects, we see some opportunities but would need to investigate further. This is the case, for example, with the separate regulation, the contract type, etc.. In our opinion, it is imperative to create an organisation around the project very fast, further proceed with the investigations on all legal and permitting aspects and start the feasibility study/master plan before to submit the bid books to have a mature project.

8. Annexes

A. Engineering steps in a project

B. Accompanying report for Flemish and Dutch regions and the Netherlands[2]

C. Deliverable 1: Timelines with all different phases

   1. Walloon region
   2. Flemish and Dutch regions
   3. Overall project timeline

D. Deliverable 2: Inventory of public authorizations and permits to be acquired before the start of the civil works

   1. Walloon region
   2. Flemish region
   3. Dutch region

E. Deliverable 3: Inventory of private authorizations and legal contracts to be acquired before the start of civil works

   1. Walloon region
   2. Flemish region
   3. Dutch region

[2] *Explane, our partner in charge of the study in the Walloon region has chosen to group all the information in the tables (deliverables 2 and 3) while Equator, who was in charge of the Flemish and Dutch region has chosen to draft a written note to accompany the tables (deliverables 2 and 3)*

ANNEX A: Engineering steps in a project

1. Feasibility study, variants study and master plan

Description:

During this phase, the technical, geotechnical, urbanistic, environmental, legislative, and financial constraints are determined. The different methods possible for construction are analysed, assessed and the best option is chosen and more deeply analysed (production of the master plan). At the end of this phase, the designer will be able to present a pre-project, with a first estimation of costs and project schedule.

It is also in this phase that the thoughts on the contract type (design bid build, design & build, PPP) are initiated.

Deliverable:

Drawing with:

- Possible location(s) of the project
- Subsoil register (contractors, foundations, etc.)
- Private plots and urban planning constraints
- Geotechnical data

A technical report including:

- A presentation of the situation and the issues identified
- A description of the locations envisaged
- The identified technical constraints and an initial assessment
- The analysis note concerning the tunnel construction techniques,
- The main financial parameters

Feasibility study of the main variants, including the completed multi-criteria comparison for the chosen solutions:

- The technical studies for the construction of the structures and surface development,
- The financial study
    - Investment,
    - Operation,
    - Revenue forecasts,
    - Return on investment,
- Legal study
    - Soils and subsoils
- Planning (timing) study
- Permits study

Master plan including:

- plan views
- plan views of the major surface impacts
- longitudinal profiles
- more detailed plans for complex areas
- phasing of worksite plans
- cross-sections;

- a quantity survey of the main quantities involved;
- a more detailed estimate of capital costs,
- operating costs with projected costs and revenues
- an investment cost

A study including:

- the type of market of the project
- the type of contract to be made with contractors and designers

Planning:

- Feasibility Study
  - Variant analysis: 9 months
  - Master plan: 6 months
- Validation by owner: 3-6 months

2. Basic and Detailed Design

Description:

During this step, the design of the project goes deeper with the collaboration of all the different stakeholders. For example, the following subjects will be analysed more in detail; the requirements during the operation (functional cross-section, access for the personal,…), the impacts on the surrounding (traffic during the construction, settlement above tunnel or around shafts), the security during construction and the exploitation, the construction details, the costs, etc.

In this phase the owner has to take a decision on the contract type (design bid build, design & build, PPP).

Deliverable:

A pre-construction design with:

- A technical report of the Telescope installation,
- more detailed plan views,
- more detailed longitudinal profiles,
- more detailed cross-sections,
- detail drawings,
- descriptive notes by discipline, with starting points, standards in effect, calculations and simulations, argumentation and conclusions,
- a detailed estimate of the investment costs,
- a precise estimate of operating costs and revenues,
- timeframes for completion and phasing,
- expropriation plans.

Planning:

- Basic Design: About 12 months
- Detailed Design: About 24 months
- Validation by owner: ~3-6 months

3. Urbanistic and environmental permits

Description:

Based on the approved Basic and Detailed design, the permits files are completed and sent to the respective administration.

From that moment, the impact study is initiated and results at the end, after a phase of design update (if necessary) on the permits delivery.

Deliverable:

Files for permit request include:

- More detailed plan views,
- more detailed longitudinal profiles,
- more detailed cross-sections,
- a detailed estimate of the investment costs,
- the timeframe for completion and phasing,
- a description of the project.

Formular and eventual answer to be done for the urbanistic and environmental certificates.

Drawings adapted to the feedback from certification

Planning:

Permitting (urban & environmental): in total, including validation from owner, 18 months (if without appeal)

- Permits request: 4 months
- Impact study (external): ~12 months
- Design Update and Permit request update: ~4 months

4. Tendering

Description:

During this step, the project design needed for the call for tender documents will be prepared for the different disciplines, including:

- Tunnel construction works
- Shaft construction work
- Architectural works
- Power supply works
- Electromechanical installations
- Technical installations, smoke extraction, water pipes, sewers, and pumps.
- Access installations (lifts, escalators, etc.)

Then the call for tenders is published, and the question from the contractors must be answered. After receiving all the answers, the different tenders must be analysed to do the awarding.

Deliverable:

The project design for the call for tender documents with:

- more detailed and actualized plan views,
- more detailed and actualized execution plans,
- more detailed and actualized longitudinal profiles,
- more detailed and actualized cross-sections,
- actualized detail drawings
- all formwork plans and reinforcement plans
- Specifications (administrative clauses, technical prescriptions)
- Descriptive quantity take-offs
- Price estimates

Planning: (depending on the type of contract)

- Preparation of call for tenders: ~12 months
    - Tender design
    - Preparation of specifications (admin & technical): 9 months,
- Request for qualifications
- Request for proposal
  Awarding (included legal deadlines and negotiations): 9 months

Annex B: Accompanying report for Flemish and Dutch regions and the Netherlands[3]

[3] *Explane, our partner in charge of the study in the Walloon region has chosen to group all the information in the tables (deliverables 2 and 3) while Equator, who was in charge of the Flemish and Dutch region has chosen to draft a written note to accompany the tables (deliverables 2 and 3)*

Equator

Advocaten - Avocats - Attorneys

Einstein Telescope – Report on the legal circumstances in Flanders and The Netherlands

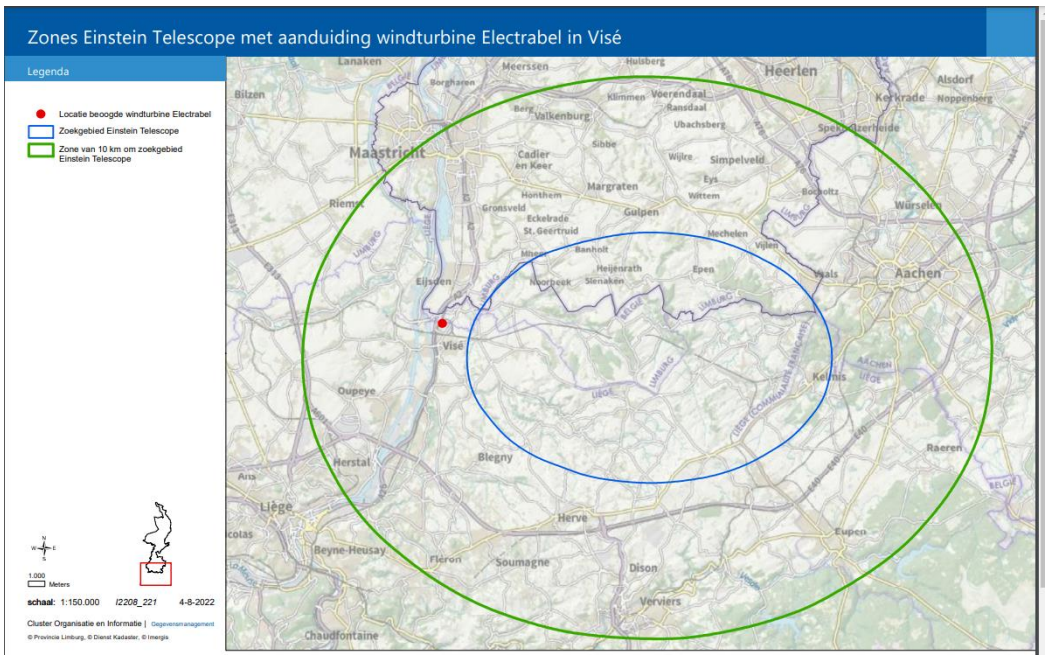
To:	Joseph Ickmans Tractebel Engineering	From:	Equator Advocaten
O.Ref.	2931/22/SVG-KDM	Date:	1 March 2023

I. Scope of the project and this report

1. In this report we will provide a first, high-level overview of relevant legal elements in Flanders and The Netherlands when preparing the construction of the Einstein Telescope.

2. The Einstein Telescope (hereafter also called 'ET') is a proposed underground infrastructure to host a gravitational-wave observatory. The infrastructure is foreseen to be dug at a depth of about 250m and will form a triangular shape whose sides are tunnels about 10km long and whose corners house scientific instruments in caverns.

3. One of the possible locations for the ET is in the border region between Maastricht (The Netherlands) and Liège (Belgium). Specifically, the ET will be built somewhere in a search area comprising parts of South Limburg (The Netherlands), the municipality Voeren (part of the Province of Limburg, Flemish region, Belgium) and the Province of Liège (Walloon region, Belgium):



4. The University of Liège (ULiège) wants to conduct a preliminary feasibility study in order to

determine the legal situation in the three Regions (The Netherlands and the Flemish and Walloon Regions) under which the ET will have to be prepared and constructed.

5. Apart from the map hereabove, we also received a report from Implenia (report dated 25th November 2019), in which the construction of the ET is analysed from an engineering perspective. Finally, we also received a list of coordinates from contacts of the different stakeholders.

6. After a kick-off meeting and further follow-up questions, the following research questions have been identified:

A. What is the best location for the entry shaft: Flanders, Wallonia or The Netherlands?

7. A few remarks need to be made regarding this main question:

- The map displayed on the previous page suggests that the research area includes a small part of Germany as well. During the aforementioned kick-off meeting the representatives of the ULiège confirmed however that this study is limited to the aforementioned regions. Germany and German law will therefore **not** be part of this report.
- During the kick-off meeting it was confirmed that this study can be conducted under the assumption that the access shafts of the ET will be constructed as "vertical shafts", and not the inclined access tunnels.[1]
- We can also work under the assumption that the tunnels of the ET will at least be dug at a depth of 200 meters, and more likely at a depth of 250 meters.
- This constitutes the main and most important research question of this report. The following questions are important topics in their own right, but are more or less to be considered as side questions that will hopefully help lead to a global and integrated answer to the main question.

B. Is it more advantageous to place the shafts on public or private property?

8. It was communicated as the difference between public and private property. This implies that the ULiège would like to know if there is a difference in legal approach towards locations that are owned by public actors (e.g. municipalities, public companies etc.) or private actors (private individuals or private companies).

C. Which region has the most lenient/flexible rules concerning ground excavation?

9. Seeing as the construction of the ET will be built almost exclusively underground, apart from the access shafts, it is of course relevant to know the rules regarding ground excavation in the aforementioned regions. A very large amount of ground and materials will be dug up and will need to be removed to other locations.

10. In this regard, the ULiège would also like to know whether there are legal thresholds in the three regions regarding the depth of digging and ground excavation. Are there different rules when

[1] As mentioned in the Implenia-report.

you dig deeper than a certain threshold? And if so, what are those rules?

D. Which procedures will have to be followed during this project, and what will they look like/ how long will they take/ … ?

11. The ULiège would like the know the legal procedures that need to be followed in order to construct the ET. This mainly involves the procedures to obtain the necessary permits in the three regions, but also possible expropriation procedures, planning procedures and environmental assessments.

12. Regarding the aforementioned procedures, it would also be opportune to know the according timelines.

E. What are the most important decision making moments during the project?

13. During the preparation of the construction of the ET, there will undoubtedly be certain key decision making moments. The following sub questions are relevant in that regard:

- What will have to be decided?
- Who has to decide?
- What are the possible consequences of the decision?

14. From a legal point of view, these questions largely relate to the aforementioned procedures and will usually correspond with and have an impact upon the timelines of said procedures.

Closing remark

15. Before we start with our analysis, we need to point out that this report will only examine Dutch and Flemish law. Our partners from the law office Explane will focus on the Walloon region.

II. Analysis

II.1. What is the best location for the entry shaft: Flanders or The Netherlands

16. The preliminary research that we conducted seems to indicate that The Netherlands appears to have slightly more favourable conditions compared to Flanders when it comes to the existing[2] legal framework under which the entry shaft would be constructed. The main advantage of The Netherlands compared to Flanders is the duration of appeal procedures, which appear to be quite a bit shorter than in Flanders.

17. The main conclusion that we reached however is that the currently existing legal framework is not without hurdles. It therefore might be worth to investigate the possibility of changing legislation, creating new legislation in the regions involved to accommodate the ET project. Also the creation of a specific organisation for preparing, researching, funding and operating the ET is very useful (EGTS, etc.). The regions could also work with an overarching Treaty/Convention to streamline

[2] Note that for The Netherlands we took the new Environmental Law into account. See paragraph nr. 20 on the next page for more information.

their legislation and cooperation.

18. Either way, careful cross-border planning is required in this project, which indicates that global project management will be crucial for this project.

II.2. Which public procedures will have to be followed during this project, and what will they look like/ how long will they take/ … ? [3]

19. In this chapter, we will provide a high-level overview of the main public procedures that, at first glance, might have to be followed in Flanders and The Netherlands in order to build the ET. This overview is restricted to land-related matters (urban planning, permitting, environmental aspects…) and does not take into account other relevant procedures such as public procurement.

20. At first glance, taking into account the scale and specificity of the ET-project, the following procedures might be relevant:

- Planning procedure;
- Permit procedure;
- Environmental Impact and/or Safety Assessment;
- Procedures regarding ground excavation;
- Expropriation procedure.

These procedures will be discussed in the following sections (except for the procedures regarding ground excavation, which will be discussed in Chapter II.3[4]).

21. An alternative approach, the (Complex) Project Procedure, will also be highlighted in the final section of this chapter.

22. For **The Netherlands**, we based our analysis on the new "Environment Law"[5], which will replace the current laws regarding permits, plans, programmes, etc. The law was first adopted in 2016, but the entry into force has been delayed a number of times since then. The entry into force is now expected to take place in July 2023. New delays are of course possible, but since the ET project has a timeline of multiple years it is the most reasonable assumption that the new law will be applicable by the time this project starts.

A. Planning procedure

23. For the **Flemish Region**, only the municipality Voeren is included in the search area. Voeren is predominantly designated as agricultural area and areas for nature[6], with only a few "strips" of land designated as living/industrial area or areas for community and public utilities. There is a real

[3] A summary of this chapter can be found in Annex 2 to this report.
[4] Since ground excavation is a specific research question, and since these procedures are not purely preparatory but are also intertwined with the execution of the construction works.
[5] *Omgevingswet 23 maart 2016* (in short: 'Ow.). We based our analysis on the consolidated text of 4/10/2022 that can be downloaded here.
[6] According to the Regional Plan (*Gewestplan*).

possibility that a redesignation is therefore necessary in order to place the shafts. For the tunnels, an overprint on the existing designations might suffice.

24. The ideal instrument for redesignation is the *Ruimtelijk Uitvoeringsplan* (RUP). A RUP is a plan that is created by the Flemish Region, provinces or municipalities following an integrated planning procedure. It is possible to give specific designations to a certain area that allows the construction of certain facilities or the exploitation of certain activities.

25. The procedure itself is made up of five phases. During each phase, the RUP gets more detailed and concrete. Each phase ends in the finalisation of a (set of) document(s).[7] Between the 4th and 5th phase, the most important public consultation takes place, during which anyone can deliver remarks and objections. Furthermore, the "integrated" aspect of the integrated planning procedure relates to the fact that the Environmental Impact Assessment on the planning level (Plan-EIA) is integrated in the planning procedure.

26. As already mentioned, only the government can make a RUP. The Flemish Region can make a Regional RUP, the provinces make provincial RUPs and the municipalities can make municipal RUPs. Although a RUP can be beneficial towards one or more private actors and said private actors can theoretically also finance the planning process, the right of initiative remains with the aforementioned authorities and these authorities need to ensure that they are always handling in the general public interest, not (solely) in the interests of private actors. Therefore, a balance has to be struck between close contact with the planning authority and making sure that these contacts do not take the form of legally binding obligations for the planning authority.

27. The planning authority decides when the aforementioned phases end by communicating the finalised (set of) document(s). The phases are described and prescribed by Decree, but there are few legal deadlines attached to them. It is therefore difficult to give an estimation regarding the timeline of this procedure. As a general rule of thumb, we can assume that the creation of a RUP takes at least two years, but this can vary a lot depending on priorities, budget etc.

28. The final RUP can be challenged before the Council of State[8], in the form of an annulation appeal. Such a procedure can easily last ~1,5 years.

29. Under the new Environmental Law, the Dutch municipalities will have the obligation to create an Environmental Plan for their territories.[9] It therefore seems to be advised to include the municipalities that lie in the search area (Eijsden-Margraten, Gulpen-Wittem and Vaals, see page 1) in the planning of the ET project, so that the ET is taken into account in their new plans. Alternatively, a change of said plans might be necessary if they have already been created. A Plan-EIA will also have to be included in the plan if the (adjustment of the) plan forms the frame for a project with an EIA duty.

30. The drafting of these plans will of course take time, and since these plans are new and will cover the entire municipal territory it is difficult to give an accurate estimation. For the sake of this

[7] E.g.: phase 1 → starting nota; phase 2 → scoping nota; phase 4 → draft RUP.
[8] *Raad van State* (RvS).
[9] Art. 2.4 & 4.2 Ow.

report, we will align the timeline with the Flemish creation of a RUP.

31. The administrative phase that culminates in a final plan takes around 6 months. Appeal against this decision is possible before the Dutch Council of State, where the procedure will normally takes around 6 months.

B. Permit procedure

32. In **Flanders**, an environmental permit[10] is needed for the activities summed up in art. 5 OVD[11]. Actions which might be relevant for ET:

- Building the temporary "pre-shaft" and afterwards the permanent building at the shaft entrance (art. 4.2.1 VCRO[12] *jo*. art. 4.1.1, 3° VCRO);
- If built in a wooded area, and forest needs to be removed: permit for removal of forest;
- Building the underground constructions (tunnels, laboratories, …);
- Exploitation of the underground laboratories might need a permit, but the answer will differ if specific gasses, dangerous materials are stored/produced, the amount of energy/ waste-water produced, if generators/cooling installations/… etc. are present, and in what capacity. Due to the scope and scale of the project, we can for the purpose of this report assume that at least some activities will fall under the obligation to obtain an exploitation permit.[13]

33. Up until a few years ago, these different activities required separate permits with separate permit procedures. One of the main goals of the Flemish OVD was to simplify and streamline the different procedures, and therefore introduced the so called "integrated environmental permit" (codified in article 7, §2 OVD). It is now possible to group all the different activities into one singular permit request, resulting in a single permit procedure and a single permit.

34. In many cases, the integrated procedure will also be an obligation, and not simply a possibility. It is possible, under certain conditions, to still work with separate permit requests, but as a general rule of thumb we can assume for the purposes of this report that in Flanders one singular permit procedure and the single resulting permit will suffice for the ET.

35. Some activities don't need a permit, but require a simple notification to the competent government. These notifications are also subject to the rule in article 7, §2 OVD, meaning that if they are inseparably linked to other permitting elements of the project, they need to be included in a singular permit request together with these other permitting elements.

36. The administrative procedure to obtain a permit is organised on different levels. Usually, the municipality in which a project is situated will be the competent authority to assess the permit

[10] Dutch: Omgevingsvergunning ; French: Permis d'environnement

[11] OVD = Omgevingsvergunningsdecreet (Environmental permit-Decree); P. FLAMEY and E. MEES, *De omgevingsvergunning in het Vlaamse Gewest*, Brugge, die Keure, 2021, 32.

[12] VCRO = Vlaamse Codex voor Ruimtelijke Ordening (Flemish Codex for Environmental Planning)

[13] The Flemish administration has developed an interactive tool for companies to help companies get an overview of which of their activities require an exploitation permit. See https://vlaremwegwijzer.navigator.emis.vito.be/. It has to be noted that this only provides an indication and is developed with SME's (small-medium enterprises) in mind.

request and to grant or refuse the permit. The decision of the municipality can be challenged in an administrative appeal procedure, during which the relevant province will redo the assessment of the permit request and make a new, in this case final decision.

37. For some projects, due to their scale or subject, the province in which the project is located will be the competent authority to evaluate the permit at first administrative instance, instead of the municipality. In that case, the Flemish government will be the competent authority to evaluate a possible administrative appeal procedure and make a new, in this case decision. For some other projects, again due to their scale or subject, the Flemish government will be the competent authority to evaluate the permit at first and last administrative instance. In this case, there is no administrative appeal procedure and therefore this decision will be final.[14]

38. Every aforementioned final permit decision can be challenged in an annulation procedure before the Council of Permit Disputes (*Raad voor Vergunningsbetwistingen*, in short and hereafter 'RvVb'). This is a judicial appeal that can result in the annulment of the decision, in which case the authority that made the final (now annulled) decision will have to make a new decision, taking into account the judgement of the RvVb.

39. Every administrative instance follows more or less the same structure and timeline.[15] First, there is a period of 30 days during which the competent authority will determine whether the permit request is admissible and complete.

40. When it is determined that the request is admissible and complete, the actual assessment of the request begins. This assessment takes about 4 months in total (105 or 120 days after the initial period of 30 days, depending on whether an advice from the "environmental permit committee" (*omgevingsvergunningscommissie*) is necessary. This period can under certain conditions be extended with another 60 days. Therefore, as a general rule of thumb, a permit procedure will last about 6 months per administrative instance. At the end of the assessment, the assessing authority will have to make a decision to grant or refuse the permit.

41. The aforementioned timeline includes a public investigation of the permit request during which everyone (but in most cases, people in the neighbourhood) can send their remarks and objections to the assessing authority regarding the project.

42. If an administrative appeal is lodged against the decision, the higher authority will redo the assessment. Generally, the same timelines and principles can be taken into consideration. Therefore, in the case of two administrative instances, the total time it takes from filing the permit request until the final decision can take up to 1 year.

43. The aforementioned timeline of 6 months is purely administrative in nature. Should there be a judicial appeal against a permit decision before the RvVb, the uncertainty around these timelines and the eventual permit increases substantially.

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[14] The list of so called "Flemish and Provincial projects" can be found in a Decision of the Flemish Government ("Besluit van de Vlaamse Regering 13 februari 2015 tot aanwijzing van de Vlaamse en provinciale projecten ter uitvoering van het decreet van 25 april 2014 betreffende de omgevingsvergunning", which can be found here).
[15] There is a so called "simplified" procedure with shorter timelines, but the ET will most likely be evaluated under the normal procedure. We therefore will not discuss the simplified procedure in this report.

44. Firstly, the duration of an annulment procedure before the RvVb is, on average, about 1 year. There are a few exceptions and incidents that can increase this timeline, but as a general rule of thumb and for the purposes of this report, we will assume a timeline of about 1 year until a judgement is delivered. Should the RvVb annul the permit decision, the authority that made that decision will have to make a new decision, in which case the aforementioned procedure of up to 6 months will have to be followed again.

45. If the RvVb denies the annulment request, the original decision will remain in place. A cassation appeal before the Council of State against the judgement of the RvVb is theoretically possible, and will, in the case that it is lodged, extend the period of legal uncertainty around the permit decision.

46. In The Netherlands, several activities related to the ET project will require an environmental permit (omgevingsvergunning). E.g.: 'building activities', 'earth removal activities',... Similarly to Flanders, one environmental permit can contain all the activities related to the ET project that require such a permit.

47. In general, the municipalities will be the competent authorities to evaluate permit requests. The exception to the rule are the projects of provincial of national interest. For these projects, the provinces or the national government will have competence. The criteria to determine whether a project is of provincial or national interest are not clearly defined, but due to the scope of the ET project it would not come as a surprise if it is classified as a project of national or provincial interest.

48. When it is determined that the permit request is admissible and complete, the authority will decide within 8 weeks, or 12 weeks if another authority also has to decide (all extendable by 6 weeks). Within this period, stakeholders can submit objections. The person requesting the permit can submit an 'opinion' if the authority is planning on denying the request.

49. The permit decision can be challenged before the administrative judge within 6 weeks after the decision. Afterwards, higher appeal before the Council of State is possible. Both procedures last around 6 months.

C. Environmental Impact Assessment (EIA) and Environmental Safety Assessment (ESA)

50. In both Flanders and The Netherlands, an important part of both planning and permitting procedures is the Environmental Impact Assessment (EIA)[16], Plan-EIA and Project EIA respectively. There are a lot of similarities regarding this topic, which of course has to do with the fact that the rules and obligations regarding EIA mainly stem from EU-Directives.[17] In both Plan- and Project-EIA, the goal is to assess the impact of a plan or project on the environment, taking into account factors such as noise, pollution, biodiversity, water, soil, air, etc.

51. As already mentioned, the Plan-EIA procedure is integrated in the RUP-procedure in Flanders. For Projects listed in Appendix I to the MER-decision of 2004, it is required to follow the

[16] *Milieueffectrapportage*, MER.
[17] Directive 2001/42/EG for Plan-EIA and Directive 2011/92/EU for Project-EIA.

Project-EIA (Environmental Impact Assessment) procedure, possibly resulting in an Environmental Impact Statement (Report). There is also a possibility of integration regarding the Project-EIA: Project-EIA obligations can be fulfilled either before filing an environmental permit request, or during the permit procedure.

52. Both Plan-EIA and Project-EIA procedures involve close contact and cooperation with the so called "Team-MER", a specific division within the Flemish administration. Team-MER also has decision making competences within these procedures.

53. Generally speaking, the Project-EIA-procedure is divided in three phases. Phase 1 involves preparatory work, defining the scope of the Project-EIA and a notification to Team-MER. Team-MER needs to give its approval within 20 or 60 days, depending on whether or not cross border environmental impact is to be expected. During phase 2, drafting of the Project-EIA takes place. It is obligatory to ask a certified EIA-coordinator for assistance. During Phase 2, there can be cooperation with and support from Team-MER, but there are no formal decisions to be taken by Team-MER in this Phase. Therefore, the duration of this Phase depends heavily on the resources that the initiator of the project is willing to commit to the drafting of the Project-EIA. In the final phase, Team-MER will evaluate and accept or reject the Project-EIA. This decision needs to be taken within 60 days. In the case of a rejection of the Project-EIA, the permit procedure will automatically end (should the initiator of the project have opted for a simultaneous procedure).

54. Procedurally speaking, the Environmental Safety Assessment (ESA) is very similar to the Project-EIA in Flanders. Team-MER plays an important role in this procedure as well. The procedure is also divided into three phases, and integration in the permit procedure is also possible. During phase 2, there is also an obligation to ask a certified Environmental Safety-coordinator for assistance. The approval in Phase 1 takes up to 40 days, instead of 20 (or 60). In the case of a rejection of the Environmental Safety Assessment in phase 3, the Permit Procedure will automatically end.

55. The scope of the ESA is of course different than that of the Project-EIA. Generally speaking, an ESA is necessary for project related to hazardous substances. When a project will use certain hazardous substances in an amount that surpasses certain thresholds, an Environmental Safety Assessment will be necessary.

56. In The Netherlands, Annex V to the environment-decision (*Omgevingsbesluit*, Ob.) contains a list of projects that require a project-EIA. The project-EIA procedure will be integrated in the procedure of the environmental permit-request. It is important that the person requesting the plan notifies the competent authority (which will be the authority competent for the permit) that it will request a project that requires an EIA. The authority will decide, after (optionally) asking for advice from a specific EIA-Commission.

D. Expropriation in the public interest

57. In order to construct the ET, it may be necessary to acquire lands from public or private actors. Please not however that public property classified as public domain cannot be expropriated. Therefore this element is relevant in planning shafts on public or private property. On the other hand, public domain can be transferred to another government and the willingness of government

actors to cooperate might be higher than private landowners. If these landowners don't want to sell their lands, expropriation can be a means of last resort. In Flanders, certain levels of government (Flemish Region, provinces and municipalities) and certain named organizations (such as social housing entities) can start an expropriation procedure in order to acquire land in the public interest.

58. There are two main phases in the expropriation procedure: an administrative phase and a judicial phase. During the first phase, the land that will be expropriated is defined. It is mandatory to hold negotiations with the owners of these lands. A draft expropriation plan will be made, together with notes on the necessity and motivation of the expropriation. These documents will be subject to a public consultation, during which anyone (but most likely those who will be expropriated) can deliver remarks and objections. Afterwards, the final expropriation plan is made. The final expropriation plan can be challenged before the Council for Permit Disputes (RvVb) – BUT once the judicial phase begins, any procedures before the RvVb will become null and void.

In order to actually acquire the designated lands after concluding the administrative phase, the owners need to be subpoenaed before the Justice of Peace. This Justice will examine the legality of the administrative phase, and will determine the expropriation compensation. Both these decisions can be challenged before a higher judge.

59. With the different phases and multiple possibilities to appeal, it is difficult to give a coherent timeline is. As a rule of thumb, assume a timeline of about ~1-2 years (but longer is certainly possible). There is a possibility to integrate the administrative phase of the expropriation procedure into the integrated planning procedure mentioned above. In the larger scheme of the ET project, this might be an interesting opportunity to save some time.

60. Similarly to Flanders, the Dutch constitution allows certain levels of government and certain named organizations to start an expropriation procedure in order to acquire land in the public interest. The government entity has to pay a compensation for the expropriated land which has to cover all the losses suffered by the expropriated person. The expropriation conditions are similar to those in Flanders, which is a result of the fact that the right to property is protected on a European level in article 1 of the first protocol to the European Convention for Human Rights. Since expropriation is an exception to said right, it has to be sufficiently motivated that an expropriation is in accordance with the expropriation conditions.

61. There are multiple public entities that can start an expropriation procedure, but similarly to Flanders the main candidates will most likely be the municipalities, provinces or the national government.

62. There is an administrative and a judicial phase. In the administrative phase the expropriating government has to obtain a decision to expropriate (*onteigeningsbeschikking*). This can be given by the municipalities, provinces or the competent Minister. It is also obliged to first try to obtain the property in an amicable way.

63. If an amicable solution fails, the expropriation can be achieved via court. In the judicial phase, the administrative judge will decide whether the expropriation conditions are met and, in case they are, endorse the decision to expropriate. Appeal against this judgement is possible. Both judicial procedures will last around 6 months. The duration of the administrative phase is difficult to

estimate. For the sake of this report, we have aligned the duration with the Flemish administrative phase.

E. Alternative: (Complex) Project Procedure

64. The list procedures mentioned in this chapter is not exhaustive, but these are the main procedures that *prima facie* seem to be important during the preparation of the ET project from a public law point of view. Even though in Flanders there is a certain degree of integration possible during these procedures, we can still identify a number of elements that can have a negative impact on the preparatory work of the ET project:

- Firstly, the large number of different procedures with uncertain timelines makes it difficult to define a global timeline for the ET project;
- There is also a divergence in competences and initiating rights regarding these procedures. While the initiator of the ET project can initiate the permit procedure and Project-EIA- and ESA-aspects, the planning and expropriation procedure remains a sole initiative of public actors. There are also different authorities that have decision making competences;
- Due to the multitude of procedures and decisions to be taken, there are many possibilities for appeal against these decisions. In Flanders, the Council of State is the main instance for appeal, with procedures that can easily take up to 1,5 years. The Council for Permit Disputes is also relevant for the permit procedure, with standard procedures taking around 12 months. In The Netherlands, there are also a lot of possibilities for appeal. Generally speaking, the judicial procedures appear to be shorter, but the multitude of appealable decisions in both Flanders and The Netherlands remains a factor of uncertainty in the preparation of the ET project and risks slowing down the project with multiple years.
- There is also the cross border aspect of the ET project. The problems mentioned in the previous two bullet points are mainly described from a Flanders point of view, but it must not be forgotten that the rules and procedures of The Netherlands and Wallonia also need to be followed. This will create further complexity and asymmetry regarding the procedures, accompanying timelines and decision making moments. For example: it is perfectly possible that all procedures on the side of The Netherlands go very smoothly, but at the same time the permit in Flanders gets challenged before the Council for Permit Disputes. Even though all procedures in The Netherlands went fine, the ET project will in this case still be delayed because of the procedure in Flanders (or *vice versa*).

65. In an attempt to remedy these issues, it might be interesting to look into using the Complex Project Procedure and the Project Procedure for Flanders and The Netherlands respectively. The (Complex) Project Procedure is specifically designed for large scale, complex infrastructure projects of social, spatial and strategic importance. In such a procedure, which is optional, most of the aforementioned subjects (planning, permitting, EIA, possible expropriation) are considered in a global, integrated procedure. The Flemish and Dutch (Complex) Project Procedures are both inspired by a German role model called *Planfeststellungsverfahren* and are therefore very similar to each other.

66. The Flemish Decree[18] provides a procedural framework in which most of the aforementioned procedures are integrated. There are three phases during a Flemish Complex Project Procedure (CPP).

Exploration phase – During the exploration phase, it is determined whether or not a certain project qualifies for the CPP. If deemed possible, this phase culminates in a start decision.

Research phase – During the research phase, an alternative study and the draft-EIA are made. This culminates in a draft preferential decision. This decision will be subject to a public consultation, during which anyone can deliver remarks and objections. Afterwards, a definitive preferential decision will be taken. This decision can be challenged before the Council of State (RvS).

Elaboration phase – The elaboration phase follows more or less the same structure as the research phase, but it will evidently be more concrete and precise. This culminates in a draft project decision. This decision will be subject to a public consultation, during which anyone can deliver remarks and objections. Afterwards, a definitive project decision will be taken. This decision can be challenged before the Council of State (RvS).

Both the preferential decision and the project decision can include a redesignation of lands and can provide a legal ground for expropriation. The project decision is also an Environmental Permit, if necessary and appropriate. It is also possible for a private organization to take on a more active role during the procedure. Decisions are of course still taken by the competent authority.

The Complex Project Procedure contains very few legal deadlines, which allows for a high degree of flexibility in planning out the timeline and during the preparation of the ET project. The entire procedure can take many years, but the actual timeline will in large part be dependent on the available resources and budget.

67. In The Netherlands, the Project Procedure is fairly similar to the Flemish Complex Project Procedure. The procedure is integrated into the new Environmental Law.[19] It has an even higher degree of flexibility regarding timelines, and only has one appealable decision during the procedure instead of two like the Flemish version. Like the Flemish variant, the Project Procedure encompasses most of the aforementioned Dutch procedures.

68. There are a few asymmetries when you compare the two procedures, such as the absence of a prior appealable decision earlier in the procedure as already mentioned. There are also more obligations in the Flemish regulations regarding EIA compared to Dutch law. Researchers have pointed out however that these few asymmetries could potentially be tackled by aligning the Dutch procedure with the Flemish, which seems to be possible due to the high degree of flexibility in the Dutch procedure.[20]

69. There are many possible advantages in using the (Complex) Project Procedure. As already

[18] Decree 25 April 2014 regarding complex projects.
[19] Sections 5.2 & 16.6 Ow.
[20] F. GROOTHUISE e.a., *Grensoverschrijdende samenwerking bij infrastructurele projecten 2.0. Aanbevelingen voor de revitalisering van de samenwerking tussen Vlaanderen en Nederland bij grensoverschrijdende infrastructurele projecten*, Research report from the Universities of Utrecht and Hasselt and LDR-advocaten by order of the Flemish and Dutch governments (can be downloaded here).

mentioned, these procedures have very few legal deadlines and allow for customisation and optimalisation of the global timeline for the preparation of the ET project. These procedures also allow for a more centralised decision making process, whereas using the different sectoral procedures would lead to a divergence in competences. It would allow for the initiator of the project to have a more global overview of the project and its timelines.

A very important advantage is the serious reduction of possible appeal procedures when using the (Complex) Project Procedure. Excluding the judicial phase of the expropriation procedure, using the Complex Project Procedure reduces the amount of appeal procedures to only two. In The Netherlands, this is even more favourable from the point of view of the project initiator, since there is only one possible appeal procedure.

Lastly, the high degree of flexibility in both procedures and the many similarities between them should allow for easier cross border planning between Flanders and The Netherlands, something that would be very difficult when one or both sides of the border would opt for following the sectoral procedures.

70. In theory, the CPP appears to be an ideal solution due to the flexibility and similarity to the Dutch Project Procedure, allowing for cross-border planning between these two regions.

However, we do have to point out that in practice the CPP has not been very successful thus far. There are multiple complex projects that are following the CPP[21], but none of these have been finished yet to our knowledge.

II.3. Which location has the most lenient/flexible rules concerning ground excavation?

71. Seeing as the construction of the ET will be built almost exclusively underground, apart from the access shafts, it is of course relevant to know the rules regarding ground excavation and the underground in general in the aforementioned regions. A very large amount of ground and materials will be dug up and will need to be removed to other locations. In this chapter, the rules regarding ground excavation and the framework regarding the underground in Flanders and The Netherlands will be discussed.

A. Ground excavation

72. Ground excavation is regulated in the so called "Soil Decree"[22] and various implementing decisions from the Flemish government. The decree aims to protect the soil in Flanders from contamination and to reduce contamination where it arises. Therefore, when it comes to ground excavation, traceability of the extracted soils is an important factor.

73. The traceability procedure revolves around the so called Technical Reports. For projects where the volume of extracted ground is >250 m³, a Technical Report is necessary. The ET project will obviously exceed this threshold. The Technical Report has to be drafted by a certified soil

[21] An overview can be found here.
[22] Decreet betreffende de bodemsanering en de bodembescherming (aangehaald als Bodemdecreet van 27 oktober 2006), *BS* 22 januari 2007, 2579.

remediation expert and examines the following:

- The quality of the soil;
- What can or has to be done with the excavated soil (re-use, remediation, processing, waste)

This Technical Report then needs to be subjected to a review by a certified soil management organization[23], which will then issue a declaration of conformity after a period of 30 days. This declaration is valid for two years. Should the digging works start after this period, an update will be required.

The declaration of conformity can be challenged before the Council of State. As already mentioned, the procedure before the Council of State can easily take around 1,5 years. However, in case of an appeal it will most likely also include a suspension procedure, which takes "only" a few months or even a few days in case of the so called UDN-procedure[24]. The goal of these procedures is to suspend the execution of the declaration of conformity and with it the execution of the excavation works as well.

Other certified soil organizations can challenge the declaration of conformity before OVAM in the form of an administrative appeal. This procedure takes 90 days.

74. Our preliminary high lever-research indicates that **The Netherlands** has somewhat more lenient rules regarding ground excavation. An authorisation to carry out digging activities (activities "on or in the soil") needs to be obtained on a project-basis. These authorisations are granted by the national government ("Our Ministers").

The applicant has to provide a number of documents and information in his request. One of the requirements is that the applicant must have an accreditation from the Counsel for Accreditation, or a certification from one of the certification-organisations (such as Kiwa Nederland). If these requirements are met, and the applicant is not in a state of insolvency, the authorisation will be granted.

The authorisation can be suspended or withdrawn by the administration. In that case, the general rules regarding objection and appeal are applicable.

B. The (deep) underground

75. Next to the rules regarding ground excavation, there is also a general framework regarding the (deep) underground in both **Flanders** and **The Netherlands**, commonly known as the mining legislation. Generally speaking, this legislation will have to be taken into account when materials are dug up and processed (which we understand will be the case, as the ET project will try to adhere to the principles of circularity).

76. In **The Netherlands**, the "Mining Law" does seem to be applicable[25]. The Dutch Mining Law is applicable for most materials at a depth of 100 metres below the surface of the earth. This Law therefore needs to be taken into account during the further preparation of the project. The principle

[23] There are two certified organizations: Grondbank vzw and Grondwijzer vzw.
[24] This procedure is for extremely urgent matters.
[25] Mijnbouwwet, can be consulted here.

of this law is that materials ("delfstoffen") starting from a depth of 100m below the surface of the earth are the property of the Dutch state. Therefore, someone who wants to dig up these materials will need a permit to do so.

Seeing as the tunnels of the ET will be dug at a depth of 250 metres, the Dutch mining law will have to be taken into account.

77. The Flemish equivalent to the Mining law is the "Decree on the deep underground"[26]. It also works with the same principle that materials at a certain depth are property of the Flemish region, resulting in a permit system.

However, the Flemish decree is only applicable starting at a depth of 500 metres relative to the TAW reference point[27]. Therefore, the ET with "only" a depth of 250 metres does not fall under the scope of this decree. Originally the underground was defined as "100 metres below the surface of the earth", but this was changed in 2016[28] to account for new applications regarding geothermal heat and energy[29].

78. If you then also take into account the functional approach towards property under the new Belgian Civil Code, where property is limited to what is useful for the owner[30], and assume that therefore everything below a certain depth is property of the Flemish Region[31], it appears that there is a legal vacuum or at least legal uncertainty in Flanders regarding the underground, that would imply that the Flemish government could just start digging the tunnels without a specific legal basis.

In our opinion this is not without legal risks and legal uncertainty. It therefore seems appropriate to create a specific legal framework (at least in Flanders) in order to achieve more legal certainty and clarity.

This suggestion could be incorporated into a more general approach to create new (and coherent) legislation in the regions/partners involved or change existing legislation, which we have highlighted at the end of this report.

II.4. Is it more advantageous to place the access shafts on public or private property ?

79. The biggest difference between Flanders and The Netherlands when it comes to this question, is the distinction between public and private domain. In Belgium (Flanders), lands owned by public entities fall into one of these two categories. Both categories of lands are owned by public entities, but the difference is whether the lands are designated to be used by everyone or not. If they are, the lands are in principle "public domain". If they are not, they are classified as "private domain".

[26] Decreet 8 mei 2009 betreffende de diepe ondergrond, BS 6 juli 2009, 45942.
[27] = the average sea level in Oostende.
[28] Decreet 25 maart 2016 tot wijziging van het decreet van 8 mei 2009 betreffende de diepe ondergrond, wat betreft het invoegen van een hoofdstuk over het opsporen en het winnen van aardwarmte en een hoofdstuk over een structuurvisie inzake de diepe ondergrond, *BS* 6 mei 2016, 30320.
[29] *Parl.St.* Vl.Parl. 2015-2016, nr. 617/1.
[30] Art. 3.63 BW.
[31] Based on art. 3.66 BW: When there is no owner of a certain good, the State is the owner.

Lands under the category of private domain are in principle subject to private law. Therefore there is not a huge difference between these lands and lands that are owned by private entities. These lands can be sold and can be subjected to rights such as superficies etc.

For lands in the public domain category however, a more strict regime will be applicable, where the application of private law is heavily restricted. Public domain cannot be sold and the possibilities of establishing rights of superficies and emphyteusis are disputed. It is more generally accepted that easements are possible on public domain. An underground easement for the tunnels should be possible.

80. In The Netherlands, the distinction between public and private owned property does not exist anymore. Private law is applicable to lands owned by public entities. These entities are subject to the principles of public law, such as the general principles of good government or a 'public purpose' (*publieke bestemming*), which can lead to certain limitations regarding transactions of their lands owned, but in general public entities in the Netherlands have much more freedom in applying private law instruments to their lands in comparison to Flanders. Thus it is possible to put superficies, emphyteusis, easement, … on public owned property, whereas in Flanders this might be more difficult depending on the category of the property in question.

II.5. E. What are the most important decision-making moments during the project?

81. In Annex 1 to this report, we have drafted an example of a timetable for the preparation of the ET project.[32] In this table, we have indicated the different "terms of appeal" in red, indicating that a certain decision has been taken that can be challenged before a (administrative) judge or with an administrative appeal. These decision can be interpreted as the most important decision-making moments during the (preparation of the) project.

82. The table also clearly highlights the difference between applying sectoral law vs. the (Complex) Project Procedure. When applying the (Complex) Project Procedure in both Flanders & The Netherlands – and aligning them with each other – there is a clear path from start to finish with only three possibilities for appeal and subsequent delays. Compare this to applying sectoral law in Flanders and/or The Netherlands, and you can immediately see that the amount of possibilities for appeal – and subsequent delays – increases substantially.

III. Addendum d.d. 28.12.2022

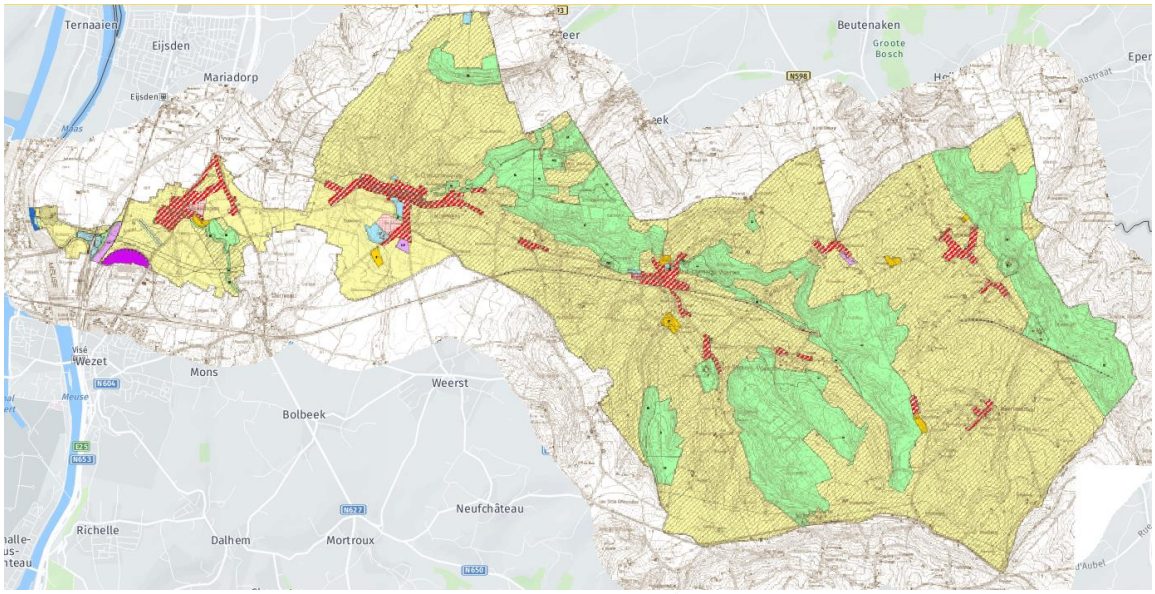
83. During a discussion with the engineers on the 14th of December, a few follow-up questions were asked. In this addendum we will shortly analyse these questions.

III.1. Is it possible to provide a map of the current "destinations" in Voeren and in the Dutch municipalities within the search area

84. For Voeren, we have based our analysis on the regional *Gewestplan*, where it is clear that

[32] Disclaimer: this timetable is only an estimation of what the timelines might possibly look like. This timetable cannot be interpreted as advise or guideline and only serves as a visualisation of the different procedures in relation to each other.

Voeren is predominantly designated as agricultural land (light yellow colour) and lands for nature (green colour). This can clearly be seen on the following map:



(We will also send this map as a separate document)

85. For the Dutch municipalities, we can refer to the following website to view the current destinations by selecting *Ruimtelijke plannen* → *Bestemminsgplannen* in the menu on the right and zooming in to the appropriate levels.

III.2. What would be the required destination in Flanders?

86. More specifically, the question is whether it would be possible to build the ET without a planning procedure (RUP) to change the destination of a certain area. In this case, the current destinations of the *Gewestplan* will need to be considered.

87. As we've previously mentioned, the yellow and green locations are not an option, since the planning regulations of these destinations won't allow the construction of the required buildings. That already takes away a lot of possibilities. The remaining destinations are mainly living areas (red colour) and a few spots of industrial area (purple).

88. Of these destinations, the living areas seem to be the main candidate. While it is possible to have a dedicated "science park" as a subarea of industrial areas[33], there are no such dedicated zones in Voeren according to the *Gewestplan*. Living areas on the other hand are obviously mainly focused on housing, other activities are allowed if they are compatible with the immediate surroundings.

[33] If a planning procedure is followed and a certain area is reserved for the ET (in particular the shafts), this seems to be the obvious choice of destination at first glance.

III.3. Is ESA only for the operation of the facility, or also required for the construction works?

89. Our first research indicates that ESA-obligations are indeed only necessary for the operation of the facility. The construction works and the impact of them will have to be described in the EIA.

III.4. Expropriation of underground volumes

90. It is generally accepted that an expropriation can be limited to an underground volume. In fact, it can be argued that this is an obligation rather than an option, since the expropriation conditions dictate that an expropriation has to limited to what is necessary for the fulfilment of the goal of public interest. If an underground volume is all that is needed, then the expropriation must in principle be limited to that underground volume.

91. Such expropriations seem like an alternative approach compared to working with an easement or acquiring all the lands within the trajectory of the ET by means of private law purchase agreements. The workload is not to be underestimated however, since an expropriation procedure dictates that the expropriating entity needs to strive for amicable acquisitions and, if these negotiations don't go well, the owners will need to be subpoenaed before the Peace Justice in order to finalise the expropriation.

92. Additionally it has to be noted that the new Civil Code in Belgium, similarly to The Netherlands, has a very functional approach towards property rights. Previously it was assumed that a landowner's property rights would also include everything above and below the land in question. Under the new Civil Code, property is limited to what is useful for the owner.[34] Seeing as the tunnels will be constructed at a depth of at least 200 metres, an expropriation might in the end not be necessary in a lot of situations. In that case, it does however seem advisable that a legislative framework is provided for the construction works and the use of the underground, so that the construction works have a more concrete legal basis.[35] These topics might be worth exploring in further research.

III.5. Regarding the timelines

93. We were asked the question whether it is correct that the (Complex) Project Procedure ((C)PP) will take more time than the combination of the sectoral procedures, since this appeared to be the case in the visualisation of the timelines (Annex 1).

94. In general, it is correct that the (C)PP will take more time compared to the combination of the sectoral procedures, assuming that the sectoral procedures go smoothly. The main positives for applying the (C)PP compared to the sectoral procedures are the increased control and the reduced risk of appeal procedures.

[34] Art. 3.63 BW.
[35] Similarly to the mining-regulations, where a system of permits and concessions is used.

III.6. Final notes

95. This report and the considerations regarding the follow-up questions are based on high-level research as previously already communicated. Further detailed information falls outside the scope of this high-level research project and will require additional resources.

In that regard, it might also be an option to investigate the possibility to change legislation/amend legislation in the three regions to accommodate the ET project.

ANNEX C: Deliverable 1 - Timelines with all different phases

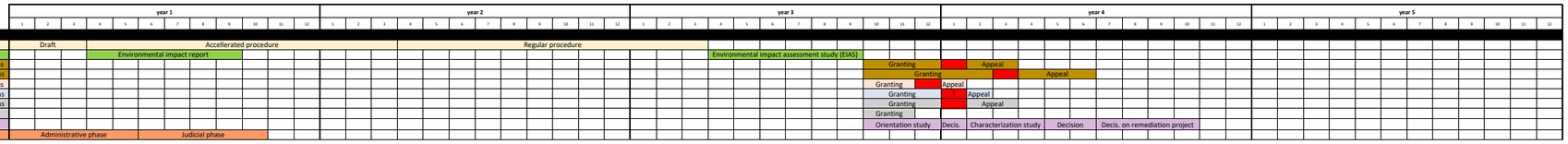
1. **Walloon region**
2. **Flemish and Dutch regions**
3. **Overall project timeline**

Schedule: Construction Permits

Attachment G-12

Preparation Einstein Telescope
DELIVERABLE 1 (estimation of timelines)

Waloon Region	start	end (without appeal)	end (appeal incl.)
Plan de secteur review procedure	n	n + 12 to 27 months	/
Projects environmental impact assessment	?	?	?
Permis unique (if only class 2 establishments)	End of EIAS	End of EIAS + 3 months	End of EIAS + 6 months
Permis unique (if at least one class 1 establishment)	End of EIAS	End of EIAS + 5 months	End of EIAS + 9 months
Heritage permit (German-speaking Community)	End of EIAS	End of EIAS + 2 months	End of EIAS + 4 months
Authorisation to derogate from the nature conservation law	End of EIAS	End of EIAS + 3 months	End of EIAS + 5 months
Authorisation to modify/create a municipal roadway	End of EIAS	End of EIAS + 3 months	End of EIAS + 6 months
Authorisation to modify/create a regional roadway and regional domain authorisation	End of EIAS	End of EIAS + 1 to 2 months	/
Obligations relating to ground management and remediation	End of EIAS	End of EIAS + 4 to 13 months	/
Expropriation in the public interest	n	n + 7 months	n +10 months



Preparation Einstein Telescope
DELIVERABLE 1 (estimation of timelines)

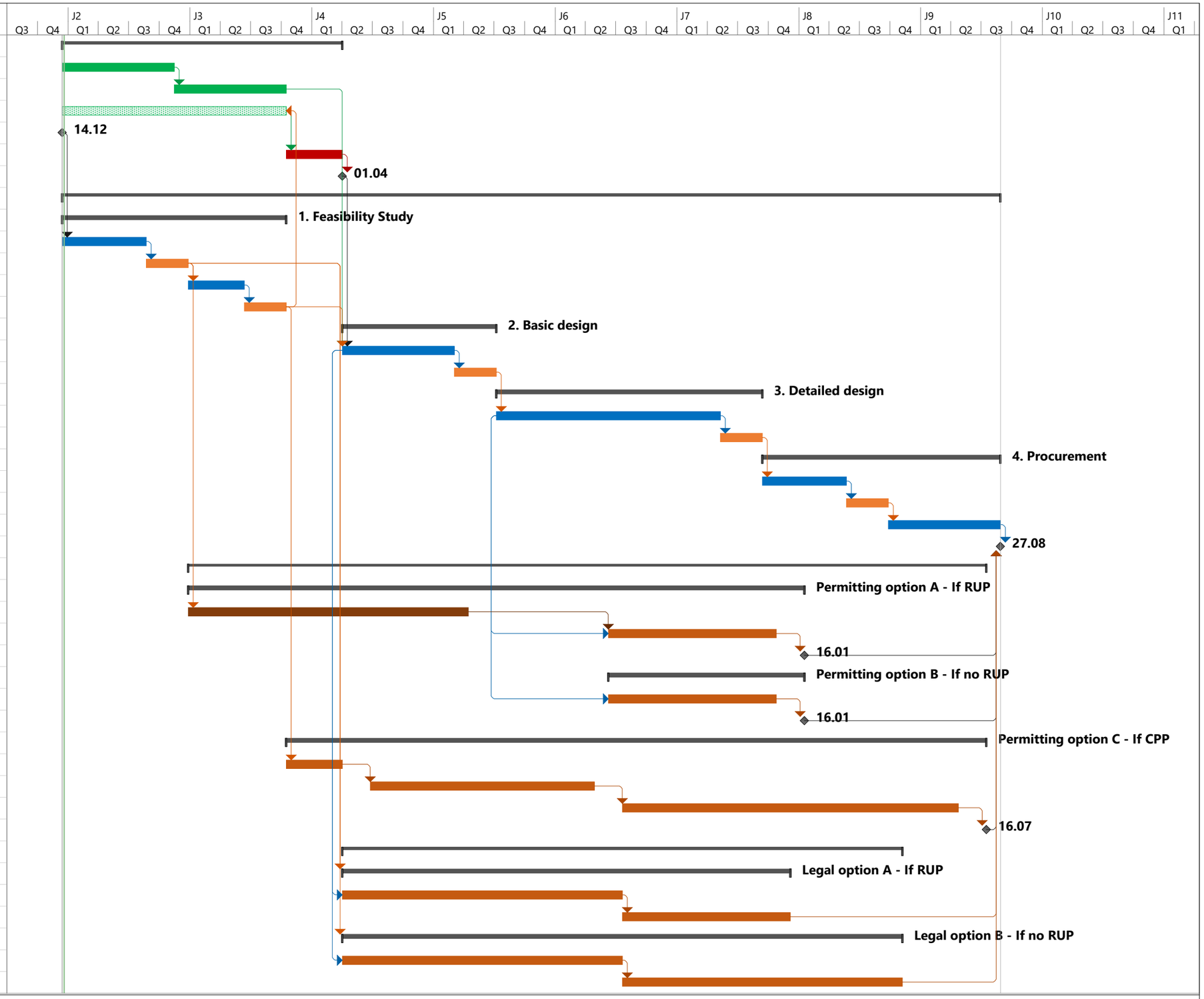
Flanders	start	end (without appeal)	end (appeal incl.)
Integrated planning procedure (RUP)	n	n + 30 months	n + 50 months
Environmental permit	n + 32 months	n + 38 months	n + 71 months
Environmental permit (if appeal against RUP)	n + 50 months	n + 56 months	n + 89 months
Project-EIA (preparation + integration with permit)	n + 24 months	n + 38 months	n + 71 months
Project-EIA (appeal against RUP)	n + 42 months	n + 56 months	n + 89 months
ESA (preparation + integration)	n + 24 months	n + 38 months	n + 71 months
ESA (appeal against RUP)	n + 42 months	n + 56 months	n + 89 months
Environmental permit worst case ("permit-carousel")	n + 32 months	not applicable	??
Permit-carousel (appeal against RUP)	n + 50 months	not applicable	??
Technical report ground excavation	n + 52 months	n + 54 months	n + 74 months
Technical report (appeal against permit)	n + 70 months	n + 72 months	n + 92 months
Technical report (RUP and permit)	??	??	??
Technical report (appeal RUP and permit-carousel)	??	??	??
Expropriation in the public interest	n	n + 36 months	n + 48 months

The Netherlands	start	end (without appeal)	end (appeal incl.)
Environmental plan	n	n + 30 months	n + 39 months
Environmental permit	n + 32 months	n + 38 months	n + 58 months
Environmental permit (if appeal against plan)	n + 39 months	n + 45 months	n + 65 months
Project-EIA (integration with permit)	n + 24 months	n + 38 months	n + 58 months
Project-EIA (appeal against RUP)	n + 42 months	n + 45 months	n + 65 months
Authorisation to carry out digging activities	n + 42 months	n + 44 months	not applicable
Optional- MIRT	n + months	n + 65 months	not applicable
Expropriation in the public interest	n	n + 38 months	n + 46 months

ALTERNATIVE			
Flanders: Complex Project Procedure (estimation)	n	n + 82 months	n + 118 months
The Netherlands: Project Procedure (estimation)	n	n + 82 months	n + 118 months

Terms of appeal

Nr.	Vorgangsname
1	**Basic Project preparation**
2	Creation of a contracting authority
3	Preparation of specifications for basic design
4	Preparation of the bid book
5	Ordering feasibility study as part of bid book
6	Site selection (IT-BE/NL)
7	Ordering basic design
8	**Engineering steps**
9	**1. Feasibility Study**
10	Variant analysis and selection of optimal location
11	Validation of project location
12	Master plan
13	Validation of master plan
14	**2. Basic design**
15	Basic design
16	Validation of basic design
17	**3. Detailed design**
18	Detailed design
19	Validation of detailed design
20	**4. Procurement**
21	Preparation of specifications
22	Validation
23	Awarding
24	Contractor notification
25	**Permitting steps**
26	**Permitting option A - If RUP**
27	RUP Procedure
28	Permit procedure (incl EIA and ESA)
29	Permit delivrance
30	**Permitting option B - If no RUP**
31	Permit procedure (incl EIA and ESA)
32	Permit delivrance
33	**Permitting option C - If CPP**
34	Exloration phase
35	Research phase
36	Elaboration phase
37	Permit delivrance
38	**Legal steps**
39	**Legal option A - If RUP**
40	Administrative phase (as part of RUP)
41	Judicial phase
42	**Legal option B - If no RUP**
43	Administrative phase (as part of RUP)
44	Judicial phase



Projekt: Panning
Datum: Die 20.12.22

Vorgang	Projektsammelvorgang	Manueller Vorgang	Nur Anfang	Stichtag			
Unterbrechung	Inaktiver Vorgang	Nur Dauer	Nur Ende	In Arbeit			
Meilenstein	Inaktiver Meilenstein	Manueller Sammelrollup	Externe Vorgänge	Manueller Fortschritt			
Sammelvorgang	Inaktiver Sammelvorgang	Manueller Sammelvorgang	Externer Meilenstein				

ANNEX D: Deliverable 2 - Inventory of public authorizations and permits to be acquired before the start of the civil works

1. **Walloon region**
2. **Flemish region**
3. **Dutch region**

Cabinet d'Avocats
E X P L A N E

Deliverable 2
List of public authorisations that potentially need to be obtained and public procedures that potentially need to be followed before the start of civil engineering works
(Walloon Region)
DRAFT

8th December 2022

	Scope of application (including possible exemption)	Competent authority	Procedure, including appeals	Criteria for the obtention	Timelines
Walloon area plan (*plan de secteur*) review procedure[1]	Acts and works non-compliant with the area plan and carried out at least partially on the surface: review of the area plan can be put in place to confer greater legal certainty on permits than through a derogation to the area plan. In some cases, a derogation is impossible to grant, so that the	Government (Wallonia or German-speaking community).	A project of revision can be initiated by the government, a municipality or an individual. The government first adopts a draft revision. This draft revision is submitted to an environmental impact report, a	Results of the environmental impact report, the public enquiry and the opinions of the consulted bodies. Since the Walloon area plan is the highest planning instrument in	In theory, the revision must be adopted before the introduction of the building permit application. In theory, the adoption of the final revision order takes place within 24

[1] This is not an "authorisation", but we place it in the table because it can be included in a multi-step authorisation procedure.

	review of the area plan is indispensable. Art. D.II.44 and following of the Territorial Development Code		public inquiry, and the opinion of some public bodies. If it considers it necessary, the government can modify the draft before its final adoption. Under certain conditions, the revision can be conducted under an accelerated procedure, for example when the revision consists in replacing a zone intended for urbanization by another zone intended for urbanization.	the hierarchy, it does not have to comply with the other instruments, subject however to the effects of territorial development plan (*schéma de développement territorial*).	months from the adoption of the draft revision. In theory, in the accelerated procedure, the adoption of the final revision order takes place within 12 months from the adoption of the draft revision.
Joint plan-permit procedure	Some limited acts and works that need both building permit and revision of the area: both decisions can be obtained at the same time as result of an joint procedure. Art. D.II.54 of the Territorial Development Code[2]	Government (Wallonia or German-speaking community).	A single public enquiry for the revision of the Walloon area plan and for the permit is conducted. A single environmental impact assessment of the revision of the Walloon area plan and the permit is carried out. A joint preliminary information meeting is organised for the revision of the Walloon area plan and for the project. The competent authority concerning the permit is the government.	Indication in the acknowledgement of receipt of the application written by the Government, that the size and socio-economic impact of the project justify the use of the joint procedure.	The procedure must be executed before the undertaking of the act/work. The deadlines for ruling on the permit application and the deadlines for ruling on the draft Walloon area plan revision are cumulative.

[2] The future reform of the Code will increase the number of hypotheses for joint procedure.

			For the rest, the Walloon area plan revision procedure and the permit application procedure are being followed normally.		
Projects environmental impact assessment[3]	Each project subject to a building permit, an environmental permit, a *permis unique* and/or an authorisation to modify/create a roadway Art. D.62 and following of the Walloon environmental code. Two types of documents : - or environmental impact assessment notice (*notice d'évaluation des incidences sur l'environnement)*, i.e. the minimum document that must be attached to any application form; - or environmental impact assessment study (*étude d'incidences sur l'environnement*), which must be made for projects listed in Annex 1 of the order of the Walloon Government of 4 July 2002 adopting the list of projects subject to an impact study (…), or for projects that are likely to have a significant impact on the environment. Such a study will	Competent authority to grant the permit/authorisation also competent to check the completeness of the environmental impact assessment.	The environmental impact assessment study his is a complete scientific study carried out by an expert office.	Assessment of the impacts of the project on : - population and human health - biodiversity; - land, soil, subsoil, water, air, noise, vibration, mobility, energy and climate; - material assets, cultural heritage and landscape; the interaction between the factors referred above.	No general timelines, but: - environmental impact assessment study can take several months to complete; - the study must be attached to the application form relating to a building/environnemental permit or permis unique (s. below).

[3] This is not an "authorisation", but we place it in the table because it can be included in a multi-step authorisation procedure.

	necessarily be carried out for ET project.				
Building permit	Several acts and works including : - build, or use land for the placement of one or more fixed installations ; - demolish a building ; - transform an existing building ; - change the destination of all or part of a property ; - place a fixed installation; - significantly modify the ground relief ; - woodlanding or deforestation ; - cutting down some specific trees or clearing some specific vegetation. Art. D.IV.4 of the Territorial Development Code Possible exemptions (art. R.IV.1-1 of the Territorial Development Code). If the project also requires an environmental permit (see cell hereinafter), only one permit must be obtained : the *permis unique* (see cell hereunder).	In principle, municipal college. In some hypothesis, the official delegated by the Walloon government (*fonctionnaire délégué*) is the competent authority. It is for instance the case when the act/work take place on the territory of two or more municipalities or is undertook by some public entities (art. D.IV.22 and R.IV.22-1 of the Territorial Development Code).	An application form and a file must be completed and submitted to the competent authority. Some mandatory consultations are required depending on the nature of the act/work. For instance, the fire department must be consulted when the act/work involves the creation or modification of a road. In some cases, a consultation can be binding for the competent authority. In some cases, the permit application is subject to a public inquiry. The permit can be delivered under conditions and/or planning charges. An appeal is available to the Minister of land use planning. In this case, the Minister becomes the competent authority in the assessment of the permit application.	Compatibility with the contents of the Walloon sector plan and guides on the municipal and regional level (e.g.: *plan de secteur* – see below), and with the criteria of the local planning circumstances. However, in our view, these instruments apply only to acts and works carried out at least partially on the surface and not completely several tens of metres underground. For acts and works carried out at least partially on the surface, if they are considered to be carried out for research purposes, they can be considered at least in the following areas of the Walloon area plan: settlement area, rural settlement area, public service and community facilities	The permit must be obtained before the undertaking of the act/work. When the municipal college is the competent authority, it grants or refuses the permit within 30 days, 75 days or 115 days, from the acknowledgement of receipt of the complete file of the application, depending on the publicity and the consultations required. This period can be extended by 30 days. When the official delegated by the Walloon government is the competent authority, he grants or refuses the permit within 60 days, 90 days or 130 days, from the acknowledgement of receipt of the complete file of the application, depending on the publicity and the consultations

				area, mixed economic activity zone[4][5]. Besides, under certain conditions, it is possible to derogate from these spatial planning instruments. A derogation is provided in particular for constructions and equipment of general interest. The permit or refusal of a permit is also based on the constraints that apply on the ground. It may be a flood risk, a heritage protection measure, another measure from the water code, etc.	required. This period can be extended by 30 days. The appeal to Minister must be filled within 30 days following the reception of the decision. The Minister grants or refuses the permit within 95 days from the reception of the appeal. When a permit is granted by the municipal college, the applicant must wait 30 days before starting acts/works authorised.
Environmental permit	Installation or activity to operate in a class 1 or 2 establishment and identify in a list. Art. 11 of the decree of 11 March 1999 on the environmental permit	In principle, municipal college. In some hypothesis, the technical official	An application form and a file must be completed and submitted to the municipal college. If the establishment is located on the territory of several municipalities, the application is sent to one of the	Compliance with the respect of the legislation/regulations in force and assessment of the impacts of the operation on the	The permit must be obtained before the operation of the class 1 or 2 establishment.

[4] In the area that could potentially host the telescope, there is, for example, a vast public service and community facilities area that is not very urbanised and far from housing, in Dalhem at the former fort of Aubin Neufchâteau. There are also quite undeveloped settlement area and rural settlement area in Kelmis (e.g. between Chemin du Loup and Rue de Moresnet, or near Rue du Viaduc) and a large visibly free space in a mixed economic activity zone in Moresnet (rue de la Foulerie).

[5] The telescope will also have to comply with the requirements of the territorial development plan (*schema de développement territorial*), which is currently being drawn up. It could be very interesting to contact the Walloon administration and the Walloon government to try to integrate, in this plan, prescriptions which directly concern the ET project.

	Annex 1 of the order of the Walloon government of 4 July 2002 establishing the list of projects subject to an impact study, classified installations and activities or installations or activities presenting a risk for the soil. If the project also requires an building permit (see cell hereinabove), only one permit must be obtained : the *permis unique* (see cell hereunder).	(*fonctionnaire technique*) is the competent authority. It is for instance the case when the project takes place on the territory of serval municipalities.	municipal college of these municipalities, at the choice of the applicant, on whose territory the establishment is planned. Then, the municipal college sends it to the technical official. Some mandatory consultations are required depending on the nature of the establishment. For instance, the Groundwater Directorate of the Department of Environment and Water in case of drilling and equipping of wells. The permit application must be subject to a public inquiry, except, in some cases, for temporary and trial establishments. The technical official issues a summary report, unless he's the competent authority. The permit can be delivered under special operating conditions. An appeal is available to the Minister of environment. In this case, the Minister becomes the competent authority in the processing of the permit application.	environment in the broadest sense (protection of nature and man).	If the application concerns a class 2 establishment, the competent authority grants or refuses the permit within 90 days from the acknowledgement of receipt of the complete file of the application. If the application concerns a class 1 establishment, the competent authority grants or refuses the permit within 140 days from the acknowledgement of receipt of the complete file of the application. The appeal to the Minister must be filled within 20 days following the reception of the decision. The Minister grants or refuses the permit within 70 days from the reception of the appeal for class 2 establishments and within 100 days from the reception of the appeal for class 1 establishments.

Permis unique	Project requiring both a building permit and an environmental permit. Art. 81 of the decree of 11 March 1999 on the environmental permit. Such a permit will probably be needed for ET project.	In principle, municipal college. In some hypothesis, the technical official (*fonctionnaire technique*) and the official delegated by the Walloon government (*fonctionnaire délégué*), working together, are the competent authority. It is for instance the case when the establishment takes place on the territory of serval municipalities, or is undertook by some public entities (art. D.IV.22 and R.IV.22-1 of the Territorial Development Code).	An application form and a file must be completed and submitted to the municipal college. If the establishment is located on the territory of several municipalities, the application is sent to one of the municipal college of these municipalities, at the choice of the applicant, on whose territory the establishment is planned. Then, the municipal college sends it to the technical official and the official delegated by the Walloon government. Some mandatory consultations are required depending on the nature of the establishment. For instance, the Groundwater Directorate of the Department of Environment and Water in case of drilling and equipping of wells. The permit application must be subject to a public inquiry, except, in some cases, for temporary and trial establishments. The technical official and the official delegated by the Walloon government issue a summary report, unless they are the competent authority.	See criteria described in the two cells hereabove.	The permit must be obtained before the undertaking of the act/work and the operation of the class 1 or 2 establishment (see "environmental permit"). If the application concerns a class 2 establishment, the competent authority grants or refuses the permit within 90 days from the acknowledgement of receipt of the complete file of the application. If the application concerns a class 1 establishment, the competent authority grants or refuses the permit within 140 days from the acknowledgement of receipt of the complete file of the application. The appeal to the ministers must be filled within 20 days following the reception of the decision. The ministers grant or refuse the permit within 70 days from the reception of the appeal for class 2 establishments and within 100 days from the

			The permit can be delivered under special operating conditions. An appeal is available to the Minister of environment and the Minister of land use planning, working together. In that case, the ministers become the competent authority in the processing of the permit application.		reception of the appeal for class 1 establishments.
Heritage permit (German-speaking Community)	Physical alteration or transformation of the external appearance of a listed real properties, an archaeological site or a real property in a protection zone, located on the territory of the German-speaking community. If the act/work also requires a building permit (see above), the heritage permit do not have to be obtained. Heritage decree of the German-speaking community of 23 June 2008.	Government of the German-speaking community.	An application form and a file must be completed and submitted to the government of the German-speaking community. The government of the German-speaking community can exempt the work from a heritage permit if it judges that there is no impact on the protected real property. The royal commission of the German-speaking community for the protection of monuments and sites must be consulted and issues a notice. The competent authority is not obliged to follow this advice but, if it deviates, it must give reasons. The permit can be delivered under conditions.	Assessment of the impacts of the act/work on the protected heritage.	The permit must be obtained before the undertaking of the act/work. The minister – which is delegated by the government to decide in the first instance – grants or refuses the permit within 30 days, from the reception of the notice of the royal commission of the German-speaking community for the protection of monuments and sites. The appeal to the government of the German-speaking community must be filled within 30 days from the reception of the decision.

			An appeal is available to the government of the German-speaking community.		The government grants or refuses the permit within 30 days from the reception of the appeal.
Authorisation to derogate (*dispense*) from the nature conservation law (N.C.A. – *loi sur la conservation de la nature*)	Acts of works that involve destruction of specimens of protected animal and plant species and their natural habitats or the intentional disturbance of such species. Art. 2, § 2, 2 *bis*, § 2, and 3, § 2, of the N.C.A.	General Inspector of the department of nature and forests ("N.F.D.") of the Walloon region	The application is submitted to the Inspector General of the N.F.D. An appeal is available to the Minister responsible for nature conservation against the *refusing* of dispensation or in the absence of a decision by the Inspector General of the N.F.D. within the period. In this case, the Minister becomes the competent authority in the processing of the authorisation to derogate application	Compliance with three cumulative conditions : - derogation's justification on certain specific grounds, depending on whether it harms birds and/or other protected animals and plants species. These may be "imperative reasons of overriding public interest, including of a social or economic nature". However, this ground is not applicable for birds ; - demonstration that there is no satisfactory alternative to the derogation; - demonstration that the derogation "does not endanger the bird population concerned" or "does not adversely affect the maintenance of populations at a favorable conservation	The derogation must be obtained before the undertaking of the act/work. In theory, the Inspector General of the N.F.D. decides on the application within 3 months from the reception of the complete application. There is no deadline set for the introduction of the appeal. In case of an appeal, in theory, the Minister shall make a decision within 1 month from the reception of the appeal.

				status" (other protected species).	
Authorisation to modify/create a municipal roadway	Create, modify or abolish a municipal road. The modification of a municipal road for a period not exceeding twelve months and necessary for the implementation of an urban planning permit or an environmental permit is not subject to this authorisation. Decree of 6 February 2014 on municipal roads. Order of the Walloon Government of 24 January 2019 establishing the list of modifications to a municipal roadway not subject to prior authorisation by the municipal council.	Municipal council	The content of the application for authorisation is described in article 11 of the decree of 6 February 2014.. There is no legal application form. The application is submitted to the municipal college. The authorisation application must be subject to a public inquiry An appeal is available to the Minister of land use planning.	Assessment of the impacts of the modification/creation with regard to the objectives of improving the road network, making easier for weak users to get around and of encouraging the use of soft modes of communication.	Authorisation must be obtained before the creation, modification or deletion of a municipal road. The municipal council must decide within 75 days from the reception the application. The appeal to the Minister must be filled by the applicant within 15 days from the reception of the decision. For interested third parties, the appeal to the Minister must be filled within 15 days from the reception the decision. The Minister makes a decision within 60 days from the reception of the appeal.
Authorisation to modify/create a regional roadway	Works on the regional public road domain.	Walloon administration: S.P.W. Mobility & infrastructure	An application form must be completed and submitted to the S.P.W. Mobility & infrastructure. The S.P.W. Mobility & infrastructure may grant its	Assessment of the impacts of the modification/creation with regard to the objectives of establishing a road	Authorisation must be obtained before the undertaking of the work. The application must be submitted to the managing

	Decree of 19 March 2009 on the conservation of regional public roads and waterways. Order of the Walloon Government of 24 January 2019 establishing the list of modifications to a municipal roadway not subject to prior authorisation by the municipal council.		authorisation by means of a unilateral act or a contract (see deliverable 3). There is no organized appeal against the decision of S.P.W. Mobility & infrastructure	network in the interests of the public domain, its users or its environment, and in accordance with the principle of equality or other interests of a general nature.	authority 60 days before the start of the planned occupation or the work requested, or at least 30 days before when the work requested only superficially affects the public domain. The administration does not have a time limit for its decision.
Domain authorisation (municipal domain)	Occupy or use the municipal public domain, including municipal roads, in a manner exceeding the ordinary right of use belonging to any citizen.	Municipal college	The managing authority may grant its authorisation by means of a unilateral act or a contract (see deliverable 3). The procedure can be determined in a municipal regulation.	Assessment of the impacts of the domain authorisation with regard to the interests of the public domain, its users or its environment, and in accordance with the principle of equality or other interests of a general nature.	Authorisation must be obtained prior to the occupation or use of the municipal domain. Deadlines for decisions may be provided by communal regulations.
Domain authorisation (regional domain)	Occupy or use the regional public domain in a manner exceeding the ordinary right in a manner exceeding the ordinary right of use belonging to any citizen. The regional public domain includes the public road regional domain, the waterways and the major hydraulic works under the	Walloon administration: S.P.W. Mobility & infrastructure	An application form must be completed and submitted to the S.P.W. Mobility & infrastructure. The S.P.W. Mobility & infrastructure may grant its authorisation by means of a unilateral act or a contract (see deliverable 3).	Assessment of the impacts of the domain authorisation with regard to the interests of the public domain, its users or its environment, and in accordance with the principle of equality or other interests of a general nature.	Authorisation must be obtained prior to the occupation or use of the regional domain. The application must be submitted to the managing authority 60 days before the start of the planned occupation or the work requested, or at least 30

	management of the Walloon Region. Decree of 19 March 2009 on the conservation of regional public roads and waterways		There is no organized appeal against the decision of S.P.W. Mobility & infrastructure		days before when the work requested only superficially affects the public domain. The administration does not have a time limit for its decision.
(Future) Permit or declaration for exploration or exploitation of underground resources	Explore or exploit certain underground resources, including : - hydrocarbons and combustible gases deposits; - geological storage sites for heat or cold energy; - deep or shallow geothermal deposits for energy production (heat or electricity); - man-made or natural underground cavities; - sites for the geological storage of carbon dioxide. Preliminary draft decree on the management of underground resources, which should soon be tabled in the Walloon Parliament	To be seen when the decree is adopted	To be seen when the decree is adopted	To be seen when the decree is adopted	To be seen when the decree is adopted
Obligations relating to the use and traceability of excavated soil	Any movement and use of excavated soil. A control and monitoring regime is applicable, which includes various administrative documents, such as	NGO Walterre (appointed by the Walloon Region).	The control and traceability regime for excavated soil includes several obligations: - a soil quality control must be carried out by an expert before it leaves its original site ;	Compliance with the "threshold values" (*valeurs seuil*) that are established according to the concentration of pollutants present in the soil corresponding	The different steps must be carried out throughout the soil movement process. In theory, Walterre must send the soil quality control certificate to the

	a “soil quality report” (*rapport de qualité des terres*). However, this regime does not apply in particular to: - excavated soil reused on the site of origin, in an area of the same type of use, or a type of use less sensitive than the area from which the soil originated, and provided that the site of origin is not suspect of being polluted; - excavated soil from the site of origin, when the total volume does not exceed 20 m³ provided that this site is not suspect of being polluted or does not exceed 400 m³ and fulfill certain conditions; - excavated soil from natural or agricultural site, under certain conditions. **Order of the Walloon Government of 5 july 2018 relating to management and traceability of excavated soil**		- the expert prepares a soil quality report, which is sent to Walterre for approval; - if the report is approved, Walterre issues a "soil quality control certificate", which determines, in particular, the types of permissible uses of the soil concerned (see below); - the soil movement must be notified to Walterre, which must indicate in particular the soil origin and its destination. If the notification is complete, Walterre issues transport documents. Any vehicle transporting soil must have these documents ; - the end of the soil movement must also be notified to Walterre. The person in charge of the soil removal site must then confirm receipt.	to the level up to which the concentrations are acceptable are determined for each type of use. A “type of use” is determined for each site of origin and each site of reception, based on the allocation of the site of entitlement to the Walloon area plan or its de facto allocation.	applicant within 15 days from the reception of the soil quality report. In theory, Walterre must sent transport documents to the applicant 2 days – 24 hours if the soils are sent to a landfill – from the notification of the soil movement.
Obligations relating to ground management and remediation	According to the decree of 1 March 2018 on ground management and remediation, an “orientation study” – and then, if necessary, a characterization study and/or a remediation plan – must be carried out if an application for building permit relates to a	Walloon administration (Ground Remediation Direction – the “G.R.D.”).	The orientation study must be approved by the G.R.D. If pollutant concentration thresholds are exceeded, the G.R.D. requires a characterization study. The purpose of the latter is to know exactly the nature and level of the pollution and,	Granting of a ground control certificate (*certificat de contrôle du sol*) if : - after receiving the orientation study, G.R.D. notes that no values relating to the	Orientation study must be carried out before the application for building permit that relates to a polluted or potentially polluted land. The study must be attached to the application.

	polluted or potentially polluted land (see http://bdes.spw.wallonie.be/portal/fr/web/guest/app/-/consultation/carte). Derogations apply in several hypothesis and exemption may be applicationed to the Walloon administration (Ground Remediation Direction) (*direction de l'assainissement des sols*).		if so, to establish whether it constitutes a serious threat. This study also determines the need for remediation as well as the timeframe within which remediation should be carried out. The characterization study must also be approved by the G.R.D. According to the results of the characterization study, a remediation of the ground may be imposed by the G.R.D. The level of remediation will depend on the future use of the land.	soil concentration of pollutants are exceeded; - after receiving the characterization study, G.R.D. considers that a remediation of the site is not necessary; - after having taken note of the remediation works, G.R.D. finds that they have been carried out in accordance with the decree requirements.	The G.R.D. sends its decision on the orientation study within 30 days from the reception of the study. The characterization study must be sent to the G.R.D. within 90 days from the latter's decision concluding that such a study is necessary. The G.R.D. sends its decision on the characterization study within 60 days from the reception of the study. The G.R.D. sends its decision on the remediation project within 120 days from the day on which it sent its decision attesting to the admissibility of the project.
Obligations regarding the management of industrial waste	The producer and the holder of industrial waste is submitted to some obligations. There are three types of industrial waste : hazardous waste, inert	Soil and waste department of the Walloon administration.	The producer of hazardous waste must keep a register and retain it for 5 years. This register must contain some information such as the nature of the waste, the quantity, the date of transfer, etc.	NTR	The annual declaration concerning the storage of hazardous waste must be made before the 31 March of each year.

	waste and non-hazardous/non-inert waste. A waste is hazardous if it presents a specific risk to humans or the environment. The list of hazardous waste can be found in the annex I to the Order of the Wallon government of the 10 July 1997 establishing a catalogue of wastes. However, if a waste is in the list of hazardous waste, the soil and waste department can always recognise its non-hazardous nature. Order of the Walloon government of the 9 April 1992 on hazardous waste		Anyone who stores hazardous waste must make an annual declaration to the soil and waste department. Any holder of hazardous waste is required to make a declaration to the soil and waste department for each transport.		
Autorisation for exceptional transport	Circulation of vehicles which, by virtue of their construction or the indivisible load they carry, exceed at least one of the following dimensions: - length: * single vehicle: 12 m * tractor + semi-trailer: 16.50 m * truck + trailer: 18.75 m - width: 2.55 m - height: 4 m - weight: 44 T for 5 axle combinations - rear overhang: 3 m	Walloon administration "mobility & infrastructure"	The application must be done by registered letter by filling in the form available on the website, *or* online via the application WebTeuv (https://webteuv.wegenenverkeer.be/teuv/fr/login?returnUrl=%2F%3FreturnUrl%3D%252F)	Compliance with the technical requirements for the vehicle according to its characteristics (e.g.: front axle, rear axle, obligation to attach a technical note to the application, etc.).	Authorisation must be obtained before putting the vehicle on the road In theory, authorisation must be notified to the applicant within 5 days from the reception of the application or within 15 days from the application requiring consultation (application for technical information from the road manager).

	Royal order of 2 June 2010 on the road traffic of exceptional vehicles				
Expropriation in the public interest	Compulsory acquisition of real estate property by public authority in the public interest. Decree of 22 November 2018 on the procedure for expropriation in the public interest, applicable when expropriation is pursued in regional matters	Walloon government in regional matters[6]	The procedure is divided into three phases : - the administrative phase, at the end of which the government adopts an expropriation order - the negotiation phase between the beneficiary of the expropriation and the person who is threatened with deprivation of its private property right. If an amicable agreement is reached, there is no expropriation but a private sale (see deliverable 3) - the judicial phase, if an amicable agreement is not reached. A judge must order expropriation on the basis of the expropriation order.	Compliance with four cumulative conditions: - existence of an expropriation hypothesis enshrined in a legislative text (this condition may be difficult in practice because we are not aware of any legal basis that would allow, for example, expropriations for the purpose of scientific research[7]); - pursuit of a public interest purpose; - compliance with the procedure established by the decree; - payment of fair and prior expropriation compensation.	Expropriation must be ordered and found to be lawful before taking possession of real estate. The administrative phase last 135 days from the acknowledgement of receipt of the complete file of the expropriation application. The negotiation phase lasts minimum 15 days. The judicial phase lasts : - +- 50 days between referral to the court and taking possession of the property, if the legality of the expropriation is not contested and no appeal is filed against the provisional judgment; - +- 105 days between referral to the court and taking possession of the

[6] Scientific research is a parallel competence of each entity of the country, so that it can be implemented within a regional competence. However, this means that the realisation of the telescope should be linked to a regional competence, which we do not immediately identify.

[7] A priori, we do not perceive a legal basis for ET. It could be very interesting to contact a member of the government or parliament to try that a decree recognising the public utility of expropriating property for the realisation of the telescope or, more broadly, for reasons of scientific research, get adopted.

					property, if the legality of the expropriation is not contested, but an appeal is filed against the provisional judgment; - +- 95 days between referral to the court and taking possession of the property, if the legality of the expropriation is contested, but no appeal is filed against the provisional judgment; - +- 145 days between referral to the court and taking possession of the property, if the legality of the expropriation is contested, and an appeal is filed against the provisional judgment. In addition, there are time limits for appeals (appeal and cassation) against the judgment on expropriation compensation, but these do not affect the taking of possession of the property.

Some undescribed authorisations :
- Authorisation for the construction and operation of a gaseous products transport facility
- Obligations regarding the safety of elevators

- Obligations regarding the use of explosives
- Authorisation regarding electrical installations
- Authorisation regarding fire prevention and safety
- Obligations related to the use of hazardous substances within the meaning of the cooperation agreement of 16/02/2016 (Seveso)

Equator 30.11.2022

Equator

Advocaten - Avocats - Attorneys

Deliverable 2
List of public authorizations that potentially need to be obtained and public procedures that potentially need to be followed before the start of civil engineering works
(Flemish Region)

Project of the 30th November 2022

Disclaimer: this list is only a summary of our research and does not provide full information. See our written report for more details.

	Scope of application	**Competent authority or organization**	**Procedure, including appeals**	**Criteria / remarks**	**Timelines**
Integrated planning procedure	Seeing as the municipality Voeren is predominantly designated as agricultural land and lands for nature[1], there is a real possibility that a redesignation is necessary, at least for the shafts. For the tunnels, an overprint on the existing designations might	Flemish Region, province of Limburg or municipality Voeren.	The creation of a RUP[2] follows an integrated process of five phases. In each phase, the RUP gets more detailed. Between the 4th and 5th phase, the most important public consultation takes place, during which anyone can deliver remarks and objections.	A RUP can only be made by the government (see Competent Authorities). Close contact with planning authority is therefore required.	Few legal deadlines. As a rule of thumb, assume a timeline of at least 2 years (can vary a lot depending on

[1] According to the Regional Plan (*Gewestplan*).
[2] *Ruimtelijk Uitvoeringsplan.*

	suffice so that the tunnels can be constructed via an easement. For every RUP, a Plan-EIA (Environmental Impact Assessment) procedure is also required, possibly resulting in an Environmental Impact Statement (Report)		The final RUP can be challenged before the Council of State[3]. The Plan-EIA procedure is integrated in the RUP-procedure.		priorities and budget). Appeal before the Council of State: ~1,5 years.
Integrated Environmental permit	In Dutch: *geïntegreerde Omgevingsvergunning*. This comprises the planning permit (*stedenbouwkundige vergunning*), environmental permit (*milieuvergunning*) which in itself comprises the exploitation of various classified facilities, and other acts and activities requiring a permit (such as deforestation). The creation/modification of a municipal roadway is also possible during the same procedure (*zaak der wegen*).	Most likely: Flemish Region, due to scale of the construction in floor space (>50.000 m²).	When it is determined that the request is admissible and complete, the actual assessment of the request takes place. This includes asking advice from different public actors, as well as a public consultation during which anyone can deliver remarks and objections. Depending on the competent authority, administrative appeal is possible. The final decision can be challenged before the Council of Permit Disputes.[4]	Since it is an integrated procedure, the list of criteria and conditions may vary. In general, a permit request needs to comply with the applicable planning and environmental regulations, and be in accordance with "good spatial planning"[5].	~6 months per administrative instance. Appeal before the Council of Permit Disputes: ~1 year.
Project-EIA procedure	For projects listed in Appendix I to the MER-decision of 2004, it is required to follow the Project-EIA (Environmental Impact Assessment) procedure, possibly resulting in an Environmental Impact Statement (Report).	Team-MER	Phase 1: notification to Team-MER and preparatory work Phase 2: drafting of the Project-EIA. Mandatory assistance of a certified EIA-coordinator. Phase 3: Evaluation of the Project-EIA. It is possible to do this before the request for an Environmental Permit, or simultaneously. In the case of a rejection of	During Phase 2, there can be cooperation with and support from Team-MER, but there are no formal decisions to be taken by Team-MER in this Phase. Therefore, the duration of this Phase	Phase 1 and Phase 3 both take up to 60 days.

[3] *Raad van State, RvS.*
[4] *Raad voor Vergunningsbetwistingen, RvVb.*
[5] *De goede ruimtelijke ordening.*

			the Project-EIA, the Permit Procedure will automatically end.	depends heavily on the resources that the initiator of the project is willing to commit to the drafting of the Project-EIA.	
Environmental Safety Assessment	Related to hazardous substances. When a project will use certain hazardous substances in an amount that surpasses certain thresholds, an Environmental Safety Assessment will be necessary.	Team-MER	Phase 1: notification to Team-MER and preparatory work Phase 2: drafting of the Environmental Safety Assessment. Mandatory assistance of a certified ES-coordinator. Phase 3: Evaluation of the Environmental Safety Assessment. It is possible to do this before the request for an Environmental Permit, or simultaneously. In the case of a rejection of the Environmental Safety Assessment, the Permit Procedure will automatically end.	Procedurally speaking, it is similar to the Project-EIA procedure.	Phase 1: up to 40 days. Phase 3: up to 60 days.
Soil certificate	Every transaction of land (buildings or no buildings). A soil certificate needs to be transmitted to the person that will acquire the land.	OVAM	Request (digital or by mail) to OVAM. Can also via notary. OVAM will deliver the certificate.	The certificate can be blank, meaning to OVAM there is no known soil contamination or pollution. If there is known soil contamination or pollution, the land will be classified as “high-risk land”.	In case of blank certificate: 14 days. Other cases: 60 days.
Procedures regarding ground excavation	When the volume of extracted ground is >250 m³, a Technical Report is necessary. This Technical Report then needs to be subjected to a review by a certified soil management	Certified soil management organization (Grondbank vzw or	The Technical Report has to be drafted by a certified soil remediation expert and examines the following: - The quality of the soil	The following documents are drafted and issued during these procedures:	Declaration of conformity: 30 days Administrative appeal against said

	organization, which will then issue a declaration of conformity.	Grondwijzer vzw)	- What can or has to be done with the excavated soil (re-use, remediation, processing, waste) The certified soil management organization then examines the Report and issues a declaration of conformity, which is valid for two years (update required if works start after this period). The declaration of conformity can be challenged before the Council of State (RvS). This will most likely be an urgent procedure in order the suspend the execution of the declaration of conformity, and thereby suspending the excavation works.[6] Other certified soil organizations can challenge the declaration of conformity before OVAM in the form of an administrative appeal. A study of the receiving ground also has to be made. In order to start moving the excavated ground, a permission from a certified soil management organization is required. For the transportation itself, transport documents are required.	- Technical Report → declaration of conformity - Study of the receiving ground - Permission to move excavated ground - Transport documents - Declaration of receival - Soil management report Notice that not all these steps are to be taken before the start of the works. The last few steps and documents are intertwined with the works.	declaration by another soil management organization: 90 days Appeal before the RvS: ~1,5 years. Urgent procedures to suspend the execution of decisions can be much shorter (a few months or even a few days in the case of UDN). Permission to move excavated ground: 5 workdays

[6] In extremely urgent cases, the Council of State has a special procedure known as the UDN-procedure (*uiterst dringende noodzakelijkheid*).

			The receiving party issues a declaration of receival upon receiving the excavated ground. The certified soil management organization then issues a soil management report.		
Expropriation in the public interest[7]	As a means of last resort, certain levels of government and certain named organizations can start an expropriation procedure in order to acquire land in the public interest.	Multiple, but the Flemish Region, province of Limburg or municipality Voeren are the main candidates. They also have a more general competence compared to other named organizations.	There are two main phases in the expropriation procedure: an administrative phase and a judicial phase. <u>Administrative phase</u> During the first phase, the land that will be expropriated is defined. It is mandatory to hold negotiations with the owners of these lands. A draft expropriation plan will be made, together with notes on the necessity and motivation of the expropriation. These documents will be subject to a public consultation, during which anyone (but most likely those who will be expropriated) can deliver remarks and objections. Afterwards, the final expropriation plan is made. The final expropriation plan can be challenged before the Council for Permit Disputes (RvVb) – BUT once the judicial phase begins, any procedures before the RvVb will become null and void. <u>Judicial phase</u>	There is a possibility to integrate the administrative phase of the expropriation procedure into the integrated planning procedure mentioned above.	With the different phases and multiple possibilities to appeal, it is difficult to give a coherent timeline is. As a rule of thumb, assume a timeline of about ~1-2 years (but longer is certainly possible).

[7] Expropriation is both relevant as a 'public procedure' (deliverable 2) and as an alternative way to acquire property rights (deliverable 3).

			In order to actually acquire the designated lands, the owners need to be subpoenaed before the Justice of Peace. This Justice will examine the legality of the administrative phase, and will determine the expropriation compensation. Both these decisions can be challenged before a higher judge.		
Alternative: Complex Project Procedure[8]	For large scale, complex infrastructure projects, the Flemish Region has adopted a specific Decree[9]. In such a procedure, most of the aforementioned subjects (planning, permitting, EIA, possible expropriation) are considered in a global approach, with less opportunities for appeal.	Most likely: Flemish Region, due to scale of the construction in floor space (>50.000 m²).	There are three phases during a Complex Project Procedure (CPP). <u>Exploration phase</u> During the exploration phase, it is determined whether or not a certain project qualifies for the CPP. If deemed possible, this phase culminates in a start decision. <u>Research phase</u> During the research phase, an alternative study and the draft-EIA are made. This culminates in a draft preferential decision. This decision will be subject to a public consultation, during which anyone can deliver remarks and objections. Afterwards, a definitive preferential decision will be taken. This decision can be challenged before the Council of State (RvS). <u>Elaboration phase</u> The elaboration phase follows more or less the same structure as the research phase,	The Decree provides a procedural framework in which most of the aforementioned procedures are integrated. It is also possible for a private organization to take on a more active role during the procedure. Decisions are of course still taken by the competent authority.	Multiple years, but as mentioned this comprises most of all the aforementioned timelines. In case of an appeal against the preferential decision or the project decision before the Council of State: ~1,5 years.

[8] See also our extensive report in which we point out the possibility to sync up the Complex Project Procedure in the Netherlands and Flanders.
[9] Decree regarding complex projects.

			but it will evidently be more concrete and precise. This culminates in a draft project decision. This decision will be subject to a public consultation, during which anyone can deliver remarks and objections. Afterwards, a definitive project decision will be taken. This decision can be challenged before the Council of State (RvS). Both the preferential decision and the project decision can include a redesignation of lands and can provide a legal ground for expropriation. The project decision is also an Environmental Permit, if necessary and appropriate.		

Equator 30.11.2022

Equator

Advocaten - Avocats - Attorneys

Deliverable 2

List of public authorizations that potentially need to be obtained and public procedures that potentially need to be followed before the start of civil engineering works

(Netherlands)

Project of the 30th November 2022

Disclaimer: this list is only a summary of our research and does not provide full information. See our written report for more details.

Disclaimer: The law concerning environmental permits, environmental visions, programmes etc. will change somewhere in 2023, probably July, when a new "Environment Law" (*omgevingswet 23 maart 2016*) will enter into force. This table is based on the new law as the project will most likely start after this date.

	Scope of application	**Competent authority or organization**	**Procedure, including appeals**	**Criteria / remarks**	**Timelines**
Environmental policy : **Environmental vision and programmes (***omgevingsvisies* en *programma's***)**	The "Environmental Vision Limburg" is applicable to the province of Limburg. Important to note is that the Environmental Vision Limburg 2021 explicitly mentions the aspiration to develop big, cross-border projects like the	/	/	/	/

	Eintsein Telescope.[1] Thus, it can be assumed that the Province of Limburg will aid in the development of ET. A new vision or programme therefore will most likely not be necessary.				
Environmental plan (*omgevingsplan*)	Each municipality needs to have an Environmental plan (art. 2.4 & 4.2 Ow.). It is possible that this plan will have to be adjusted to be able to at least allow the shafts to be built. If the (adjustment of the) plan forms the frame for a project with an EIA duty, then a 'Plan-EIA' is also required. The authority creating this plan will arrange this.[2] It will have to consult several other (government) bodies.[3] Alternatively, a 'project decision' by the province of Limburg can include such adjustments. Considering that Limburg aspires to assist in the	Municipal council ,or the municipal executive if authority delegated by council (art. 2.8 Ow.).	First: Uniform Preparation procedure as in art. 3:10 a.f. Awb. Then: decision within 6 months after request, which can be extended (art. 3:18 Awb.).	The Environmental plan can only be made/adjusted by the government (see Competent Authority). Close contact with planning authority is therefore required.	~ 6-7 months Appeal before the Council of State: ~ 6-8 months

[1] Environmental Vision Limburg 2021, p. 57 ; 166 ; … (https://www-limburg-nl.translate.goog/onderwerpen/omgeving/omgevingsvisie/?_x_tr_sl=nl&_x_tr_tl=en&_x_tr_hl=nl&_x_tr_pto=wapp).
[2] Art. 16.36 Ow.
[3] For example art. 16.38-39 Ow.

	ET-project (*supra*), they are likely to assist with this.				
Environmental permit	Several activities related to the ET project will require an environmental permit (*omgevingsvergunning*). E.g.: 'building activities', 'earth removal activities', … (art. 5.1 a.f. Ow.) One environmental permit can contain all the activities related to the ET project that require such a permit. If a 'project decision' – procedure is used (see hereunder), the permit can be obtained within this procedure.	The municipal executive (*college van burgemeester en wethouders)* Or Deputy States if the ET project gets qualified as an 'environmental plan activity of provincial interest'.	When it is determined that the request is admissible and complete, the authority will decide within 8 weeks, or 12 weeks if another authority also has to decide (all extendable by 6 weeks).[4] Within this period, stakeholders can submit objections.[5] Stakeholders can appeal against the decision on their objection. The person requesting the permit can submit an 'opinion' (*zienswijze*) if the authority is planning on denying the request. The permit decision can be challenged before the administrative judge (*bestuursrechter*) within 6 weeks after the decision.[6] Afterwards, an appeal with	In general, the request needs to contain all data and documents necessary for the request (art. 4:2 Awb[7]).	Appeal before the administrative judge[8]: ~ 6 months Appeal against this decision before the council of state (*Raad van State*): ~ 6-8 months [9]

[4] Art. 16.62 – 16.64 Ow.
[5] Artt. 7:1; 7:2; 7;10 Awb.
[6] Art. 6:7 Awb.
[7] Awb = Algemene wet bestuursrecht van 4 juni 1992, *Stb.* 1992, 315.
[8] Art. 6:7-8; 8:1; 8:66 Awb.
[9] Art. 8:104-105 Awb.

			the Council of State is possible.		
Project-EIA procedure[10] **(***project-MilieuEffectenRapport***)**	Annex V to the environment-decision (*omgevingsbesluit, Ob.*) contains a list of projects that require a project-MER. If it is decided to work with a 'project-decision' (see hereunder), then a project-EIA has to be obtained. The procedure is streamlined with the procedure concerning the project-decision.	The authority that will decide on the permit.	The project-EIA procedure will be integrated in the procedure of the environmental permit-request. It is important that the person requesting the plan notifies the authority that it will request a project that requires an EIA (art. 16.45 Ow). The authority will decide, after (optionally[11]) asking for advice from the Commission for EIA (*commissie voor de milieueffectenrapportage*)	The notification that the project requires an EIA has to contain specific information mentioned in art. 11.10 Ob. The EIA needs to contain specific information, such as the contents of the project, possible environment-related problems, and other info mentioned in art. 11.16 Ob.	Integrated in procedure for environmental permit. If advice from Commission for the EIA is asked, this advice will be given within 6 weeks.[12]
MIRT **(***Meerjarenprogramma Infrastructuur, Ruimte en transport***)** (Optional)	When the national government financially works together with a region (i.e. Limburg) on a project, the project can be included in the MIRT.[13] For ET, it is possible that a MIRT is used to facilitate the collaboration between national	No legal basis so no specific competent authority. Will be created in collaboration between national and regional level.	<u>Optional step: MIRT-research</u> If certain difficulties/stakeholders aren't yet identified, research can be done to create more clarity around this.	As the MIRT is a vehicle for collaboration between government levels, but also stakeholders, it may be useful for the ET project. Communication with	Step 1-3: several years Step 4: duration of realising the project

[10] See art. 16.34 a.f. Ow; art. 11.1 a.f. Ob; Annex V Ob.
[11] Art. 16.47 Ow.
[12] Art. 11.13, 2 Ob.
[13] There is no legal basis for the MIRT. It is mainly a political instrument made to effectuate collaboration (between governments and stakeholders), creating compatible plans, …

	and regional level, in the event that ET gets funds from national level.		<u>Step 1: Regional agenda</u>[14] Created to identify mutual ambitions between national and regional level. <u>Step 2: MIRT-exploration</u> A 'project organization' is created, which will find solutions and alternatives for the projects, how it will be funded, etc. At the end, a 'preferential solution' will be chosen. This step can lead to the start of a Project Procedure (see hereunder). <u>Step 3: MIRT-plan-effectuation</u> Plans and budget-decisions are formed into a draft-Project decision. Step 3 is finished when a project decision is made (using the procedure explained hereunder). <u>Step 4: MIRT-realization</u> Creation of project decision marks the start of step 4. The project is carried out.	the governments is recommended.	

[14] For collaboration between Nl. And Fl., such regional agendas have been made before.

Soil examination (*bodemonderzoek*)	Considering ground excavations of more than 25 m³ will be done, soil examinations will have to be performed (art. 3.48 a.f. *jo.* Art. 4.1219 a.f. *jo.* 5.7a a.f. Bal[15])	The entity performing the project has to make sure the examination is done.	Examination has to comply to certain norms, for example NEN 5725 (art. 5.7a Bal). Norms such as NEN 5725 provide guidelines as to how to perform the examinations.	/	Depends on the type of examination.
Authorisation to carry out digging activities	Certain activities, including activities "on or in the soil" require an authorisation from the national government.[16] These authorisations are granted on a project-basis.	The national government (ministers) Certification: certification-organisations (example: Kiwa Nederland). Accreditation: Counsel for Accreditation	A request has to be filed with the national government, containing information mentioned in art. 10 BBk. The ministers will grant the authorisation when all the necessary information and documents are present AND the applicant has no issues regarding insolvency.	One of the requirements is that the applicant must be a certified or accredited organisation. Only certain organisations can grant certifications. Accreditations can only be given by the Counsel for Accreditation.	The ministers will answer the request within 8 weeks after receiving it.
Notification regarding exploitation of laboratory	* For the exploitation of a laboratory, a notification has to be given (art. 4.648 Bal)	Normally the municipal executive, but there is an exception where the authority that has to decide on the permit request has competence.[17]	/	The notification has to contain at least the information mentioned in art. 2.17-2.20 Bal.	/

[15] Bal = Besluit activiteiten leefomgeving (*decision activities living-environment*)
[16] Decision regarding Soil Quality (*Besluit Bodemkwaliteit*, BBk) *juncto* art. 11a.2, 2, e. Law concerning Environmental Management (*Wet Milieubeheer*).
[17] Art. 2.3 & 2.9 Bal.

Expropriation in the public interest[18]	As a means of last resort, certain levels of government and certain named organizations can start an expropriation procedure in order to acquire land in the public interest. The government entity has to pay a compensation for the expropriated land which has to cover all the losses suffered by the expropriated person.[19]	Multiple[20], but the province of Limburg or municipalities are the main candidates.	<u>Administrative phase</u> The expropriating government has to obtain a decision to expropriate (*onteigeningsbeschikking*). This can be given by the municipalities, provinces or the competent Minister.[21] It is obliged to first try to obtain the property in an amicable way.[22] <u>Judicial phase</u> If an amicable resolution fails, the expropriation can be achieved via court.[23] The administrative judge will decide whether the expropriation conditions are met and, in case they are, endorse the decision to expropriate. Appeal against this judgement is possible.[24]	The expropriation conditions have to be met, and this has to be sufficiently motivated due to the fact that expropriation is an exception to the right to property, as safeguarded by art.1 EAP EVRM.	The duration of the administrative phase is difficult to determine, since it is dependent on possible negotiations. The first instance of the judicial phase takes around ~ 6-8 months. The appeal procedure also takes ~ 6-8 months.

[18] Expropriation is both relevant as a 'public procedure' (deliverable 2) and as an alternative way to acquire property rights (deliverable 3).
[19] Art. 14 Dutch Constitution.
[20] Art. 11.2 Ow.
[21] Art. 11.4 Ow.
[22] Art. 11.7, 1. Ow.
[23] Section 16.9 Ow.
[24] Section 16.10 Ow..

Alternative: Project-decision [25] [26] **(***projectbesluit***)**	Deputy states, ministers or province boards (*provinciebestuur*) can decide to execute projects in the common interest (*algemeen belang*) via a 'project decision'. These projects don't have to be initiated by a government body. They can be started by a private entity, as long as they are beneficial to the common interest. In such a procedure, most of the procedures mentioned above (expropriation[27], planning, permitting, EIA, possible expropriation) are considered in a global approach.	Deputy states, ministers or province boards (likely to be province board of Limburg, as they explicitly mentioned ET-project in their Environmental Vision Limburg (see above).	There are two phases during a Project Procedure. <u>Exploration phase (part 1)</u> During the exploration phase, the possible problems and solutions are determined. It will also be determined how participation and communication (with the public) will be organized, who will be involved etc. Part 1 of this phase culminates in a start decision. <u>Exploration phase (part 2)</u> Part 2 consists of an alternative study and mandatory advise by the Commission for the EIA will be obtained (if applicable, in collaboration with Flemish team-MER). This culminates in a preparational decision, preferential decision, draft project decision. <u>Elaboration phase</u> The elaboration phase follows more or less the same structure as the research phase, but it will evidently be	/	Multiple years, but as mentioned this comprises most of all the aforementioned timelines. In case of an appeal against the project decision before the Council of State: ~ 6-8 months.

[25] See art. 5.44 a.f. and art. 16.70 a.f. Ow.
[26] See also our report in which we point out the possibility to synchronize the (Complex) Project Procedure in the Netherlands and Flanders.
[27] Art. 16.75 Ow.

			more concrete and precise. The draft project decision will be converted into a realistically feasible project decision. This decision can be challenged before the Council of State. The project decision can include a redesignation of lands and can provide a legal ground for expropriation.[28] The project decision is also an Environmental Permit, if necessary and appropriate.		

[28] Art. 16.75 Ow.

ANNEX E: Deliverable 3 - Inventory of private authorizations and legal contracts to be acquired before the start of civil works

1. **Walloon region**
2. **Flemish region**
3. **Dutch region**

Cabinet d'Avocats
EXPLANE

Deliverable 3 (DRAFT)
List of contractual agreements to be obtained before the start of civil engineering works
(Walloon Region)
DRAFT

8th December 2022

A) Regarding lands owned by private persons or public entities in their private domain:

	Mode of acquisition	**Duration**	**Extent of the right**	**Characteristics (advantages, disadvantages, cost, ...)**
Property rights	Can be obtained from others by buying rights. The transfer or constitution of a real right takes place by and at the time of the exchange of consents of the parties. If an amicable agreement is reached in the negotiation phase of the expropriation procedure	Potentially unlimited	The owner may carry out works and planting on, over and under his land. However, his property right extends only to such height above or depth below the land that may be relevant to his exercise. This legal clause is very useful for the construction	Advantage: the property owner has full prerogatives over his land. Disadvantages: it is the costliest right, given the extent of the parcels to be acquired to develop the telescope. Moreover, this will not solve the problem of other real rights which already existed on this land and which will remain

	(see deliverable 2), the transfer of ownership takes place by means of a purchase. **Civil code, art. 3.50 and following**		of tunnels. Nevertheless, the difficulty is that it is not clear who owns this part of the territory (the Belgian state, the Walloon region, … or nobody?).	
Conventional easement	Can be obtained by contract. **Civil code, art. 3.117 and following**	Limited or unlimited in time (depends on the will of the parties)	It depends on the will of the parties. It may be on, above or under the ground.	Advantages: it is possible to create a variety of easements, including rights of way. The servient land may not do anything that would diminish the exercise of the easement or make it less convenient. Furthermore, the division of the servient land cannot affect the easement. Finally, the dominant land may carry out any work useful to its exercise and may make changes to it in the event of technical developments and while respecting the purpose of the easement. This right in rem would make it possible to agree on useful rights of way for the execution of civil engineering works, for instance. A conventional easement of non aedificandi would also be advisable to prohibit the owner of the subsoil from carrying out any construction. Disadvantage: the easement must be directly and immediately related with the use and utility of the dominant land. This means that in order to hold an easement useful for the telescope project, one must hold another real right of use on the dominant land. Furthermore, the maintenance and conservation of the easement is carried out solely at the expense of the dominant land.
Legal easement	Can be obtained by fulfilling the conditions set out in the law (e.g. : for enclave, the owner of the landlocked must claim a	Potentially unlimited, but the right of way ceases by legal action when it is	The right of way extent on, above or below the neighbor's land.	Advantage: since a legal right of way is acquired by legal action, it does not matter whether the owner of the neighboring land agrees to it or not. Thus, if the land concerned by the telescope is landlocked and in the event that the owners of the neighboring

	right of way before a judge). **Civil code, art. 3.129 and following**	no longer necessary for the normal use of the landlocked.		lands do not want to agree contractually on a right of way, the judge could impose it on them for as long as it is useful. Disadvantages: conditions are defined by law, which leaves less room for maneuver to the parties. Moreover, the judge defines the limit of a right of way by granting the "least damaging passage". This requirement may not be appropriate to the extent of the civil engineering works for the placement of the telescope and, thus, the substantial passage it would require, leading to the payment of substantial compensation for the damage caused.
Usufruct	Can be obtained by will (contracts or wills) or by law. **Civil code, art. 3.138 and following**	May not exceed 99 years. In any event, extinction if the person in whose name it is established dies (i.e., if the legal entity declares bankruptcy or is dissolved).	The usufructuary has the right to the use and enjoyment of the property, on the ground, the subsoil and above ground. However, he must act in a prudent and diligent manner and respect the destination of the property.	Advantages: the usufructuary may carry out certain non-compulsory (i.e. not required by law) works and plantations that will be compensated by the bare-owner if he had agreed to them. Disadvantages: the temporary nature of the right may not correspond with the project, as well as the numerous obligations incumbent on the usufructuary (obligation to insure, to carry out maintenance repairs, etc). Moreover, the obligation to respect the destination of the land may be problematic. Therefore, usufruct is certainly not suitable for the ET project
Emphyteusis right	Can be obtained by buying rights. **Civil code, art. 3.167 and following**	May not be established for less than 15 years and more than 99 years. Exact duration determined in the contract.	The lessee has the right to the use and enjoyment lessee of the property, and may carry out any works and plantations on, under and above the ground, even by modifying the destination of the property, which are	Advantages: the lessee is not bound by the destination of the land. He is therefore entitled to do a wider range of works, compared to the holder of a right of usufruct or of a conventional or legal easement. In addition, he will be compensated for all works and plantations that he has carried out, whether or not the grantor of the right has given his consent to them. Disadvantages: the lessee cannot decrease the value of the land, which may be problematic *in casu* if the constructions carried out on or under the ground for the telescope change the destination of the land so as to prevent any new construction intended for

			then his property for the duration of his right. He may not, however, do anything that diminishes the value of the property.	something else (a private house, for example). Moreover, it is also a temporary right, which does not fit in well with the permanent (or at least long-term) nature of the project.
Superficies	Can be obtained by buying rights. Can also be established as a consequence of another right of use that allowed the holder to carry out work and plantation. This is known as "superficies-consequence". The applicable legal regime is then that governing the other right of use. **Civil code, art. 3.177 and following**	May not be established for more than 99 years. May however be perpetual if constituted by the owner of the land to allow the division into volumes of a complex and heterogeneous real estate complex comprising several volumes susceptible of autonomous and diverse use which have no common part between them.	The holder of the right is considered as the owner of the volumes, on, above and below the ground, as well as all works and plantations which pre-existed or which he carries out.	Advantages: the prerogatives of the holder of this right are equal to those of the real owner, which gives him a large margin of maneuver. Disadvantages: the temporary nature of the right does not fit in well with the permanent (or at least long-term) nature of the project. The application of the exception allowing a permanent superficies can however be argued.

B) Regarding lands owned by public entities in their public domain:

	Scope of application (including possible exemption)	Competent authority	Procedure, including appeals	Criteria for the obtention	Timelines
Domain concession (municipal domain)	Occupy or use the municipal public domain, including municipal roads, in a manner exceeding the ordinary right of use which belongs to all.	Municipal council	The managing authority may grant its authorisation by means of a contract or a unilateral act (see deliverable 2). Unlike the authorisation by individual decision, the concession confers on its holder a subjective right, even if it remains precarious. The award of a concession is not subject to public procurement law, but it must respect the principle of equality. The procedure can be determined in a municipal regulation.	Assessment of the impacts of the domain concession with regard to the interests of the public domain, its users or its environment, and in accordance with the principle of equality or other interests of a general nature.	Concession must be obtained prior to the occupation or use of the municipal domain. Deadlines for decision may be provided by communal regulations.
Domain concession (regional domain)	Occupy or use the regional public domain in a manner exceeding the ordinary right of use which belongs to all. The regional public domain includes the public road regional domain, the waterways and the major hydraulic	Walloon administration: S.P.W. Mobility & infrastructure	The managing authority may grant its authorisation by means of a contract or a unilateral act (see deliverable 2). Unlike the authorisation by individual decision, the concession confers on its	Assessment of the impacts of the domain concession with regard to the interests of the public domain, its users or its environment, and in accordance with the principle of equality or other interests of a general nature.	Concession must be obtained prior to the occupation or use of the municipal domain.

	works under the management of the Walloon Region. **Decree of 19 March 2009 on the conservation of regional public roads and waterways**		holder a subjective right, even if it remains precarious. The award of a concession is not subject to public procurement law, but it must respect the principle of equality. The order of the Walloon government of 6 December 2012 implementing article 3, §4, of the decree of 19 March 2009 on the conservation of the regional public road domain and waterways determines the general conditions applicable to any authorisation granted by the manager by virtue of article 3, §4 of the decree of 19 March 2009 relating to the conservation of the regional public road domain and waterways, as well as the scale of fees.		No general timelines.
Legal public easement	Use and enjoyment of immovable property for the benefit of the general interest. Established by law (i.e. established directly by the legislator) or under the law (i.e. the legislator delegates to	Depends on the competence of each legislator: many legal public easements	No general procedure.	Compliance with a public or general interest and compatible with the assignment of the public domain.	No general timelines.

	another authority the task of setting the terms and establishing the easement). **Civil code, art. 3.129 and following**	are regional given the jurisdiction of the Regions in terms of town planning.			
Emphyteusis right	Use and enjoyment of immovable property if it is compatible with the use of the public domain, namely the assignment for the use of all. **Civil code, art. 3.167 and following**	Depends on the sphere of jurisdiction *ratione materiae* and *rationae loci* in which the property is located	No general procedure.	Compatibility with the public destination of the public domain and precariousness.	No general timelines.
Superficies	Use and enjoyment of immovable property if it is compatible with the use of the public domain, namely the assignment for the use of all. **Civil code, art. 3.177 and following**	Depends on the sphere of jurisdiction *ratione materiae* and *rationae loci* in which the property is located	No general procedure.	Compatibility with the public destination of the public domain and precariousness.	No general timelines.

C) Public Procurement

	Scope of application (including possible exemption)	Procedure	Timelines
Belgian procedure	Contract concluded for valuable consideration between a contracting authority (see art. 2 of the law of 17 June 2016, which includes under others a body created to meet needs in the general interest and which is directly dependent, for example, on a Region or a Community for its activities, financing or management) and a public or private person, and which meets the needs of this contracting authority for supplies, services and works. Application of Belgian law depending on : - the place of operation of the authority and the place of the order; - the amount of the contract: see the thresholds set out in art. 11 of the royal order of 18 April 2017, which will most certainly be exceeded in the framework of the ET project. **Law of 17 June 2016 on public contracts** **Royal order of 18 April 2017 on the award of public contracts in the traditional sectors** **Royal order of 14 January 2013 establishing the general rules for the execution of public contracts** **Law of 17 June 2013 on the motivation, information and remedies for public contracts, certain works, supply and service contracts and concessions.**	ET project will certainly, at least, justify the setting up of: - one or more public procurement of services for studies to be carried out before the start of the construction phase (environmental impact assessment, soil pollution study, engineering-architect studies…). However, one way to avoid the procedure would be to conclude an "in house" contract, i.e. a contract between the contracting authority and a legal person under public or private law over which the contracting authority exercises, inter alia, a control similar to that which it exercises over its own departments ; - a public procurement of works for the construction phase. Ideally, it would be simplest to award a single public procurement design and build to a consortium. Another possibility would be to award a single public procurement that would include services and works. However, this would be very complicated given the proposed project and could lead to a competition deficit as such a global mission would risk reducing the number of candidates.. Depending on the status of the services and the work to be carried out, a choice should then be made between an a negotiated procedure (unless otherwise specified, if the needs are not yet completely defined) or open procedure (if the needs are already defined).	Public procurement must be concluded before the start of the services and works. Time for completing the specification : depends on the degree of specification of the services or work required. Time between the publication of the public procurement notice and the submission of tenders: at least 22 to 35 days depending on the type of procedure. Period of validity of the offer: maximum 90 days.

Equator 30.11.2022

Equator

Advocaten - Avocats - Attorneys

Deliverable 3
List of contractual agreements to be obtained before the start of civil engineering works
(Flemish Region)

Project of the 30th November 2022

A) Regarding lands owned by private persons :

	Mode of acquisition	**Duration**	**Extent of the right (ground/subground)**	**Characteristics (advantages, disadvantages, cost, ...)**
Property rights	Property rights can be obtained from others by buying the rights. Expropriation is both relevant as a 'public procedure' (deliverable 2) and as an alternative way to acquire property rights	Infinite/ until passed on	Infinite right to use, limited by law, regulations and other people's rights.[1] Property of real-estate (*onroerend goed*) extends to everything above and underneath the ground, everything built on/in it, … (exceptions apply).[2] Others can use the space above or below the property at a height/depth	<u>Advantages</u> • Most control over what can and cannot be done on the property, ability to use it for other projects in the distant future, … • Is infinite in time, unlike some other rights <u>Disadvantages</u>

[1] Art. 3.50 Civil Code (*Burgerlijk Wetboek*, BW).
[2] Art. 3.63 BW.

	(deliverable 3). For information about expropriation; see deliverable 2.		which isn't useful to the owner → This might be relevant for the tunnels.	• Buying the property can be more expensive than other options • Might be harder to convince owner into selling his/her property than to obtain easement, …(but expropriation can be an option of "last resort")
Conventional and legal easement (*Conventionele en wettelijke erfdienstbaarheid***)**	Conventional easement is obtained by contract. Legal easement is given by law. For example right to cross a neighbouring property if the rightholder's property doesn't have a connection to a public road.[3] Public easements can also be created via a planning instrument (RUP) → see deliverable 2.	Can be infinite in time. Determined by contract.	Easement in general is a "burden" on a piece of land in favour of another piece of land. The exact scope of the right is limited to what is allowed in the easement contract or as allowed by law.	<u>Advantages</u> • Most likely cheaper than buying the property. • Well suited for the tunnels, as they will probably be deeper than the depth that is useful for the owner of the property. • This right 'follows' the property if it is sold. It will not seize to exist in case of a sale. <u>Disadvantages</u> • The things the holder of the right can do on the property are limited to what is allowed in the contract. • The owner of property has possibilities to ask judge to cancel the easement. However, also a limited possibility for the holder of right.[4]
Emphyteusis right (*erfpacht***)**	Emphyteusis is obtained by contract.	In principle no shorter than 15 years and no longer than 99	The right to hold and use the property with respect for other rights on the property and without lowering the value of the property.[7]	<u>Advantages</u> • Most likely cheaper than buying the property.

[3] Art. 3.135-3.137 BW.
[4] Art. 78 a.f. Book 5 Dutch Civil Code.
[7] Art. 3.172 BW.

		years.[5] Exact duration to be determined in the contract. An exception is possible when the right is established for "goals of the public domain".[6]		• Right can be passed on to someone else, along with the constructions built within the right.[8] • At end of superficies, owner has to compensate the added worth to the property.[9] <u>Disadvantages</u> • More limited than ownership. • If something is built on the property, ownership of the constructions will pass on to the owner of the property at the end of the emphyteusis.[10]
Superficies (*Opstal***)**	Superficies is acquired by a contract. It can be connected with the emphyteusis right.	In principle no longer than 99 years.[11] Exact duration determined in the contract. An exception is possible when the right is established for "goals of the public domain"	Superficies gives the rightholder the right to build something on, above or under a property, and become the owner of that construction as long as the right exists.[13] Superficies can be useful to make sure the person building ET will be the owner of the structure/tunnel built under someone else's property.	<u>Advantages</u> • Most likely cheaper than buying the property. • If something is built on/under the property, rightholder is owner until end of the contract, so he can use, build, destroy as he pleases, unless stated otherwise. • Right can be passed on to someone else, along with the constructions built within the right.[14]

[5] Art. 3.196 BW.
[6] Art. 3.196 BW.
[8] Art. 3.171 BW..
[9] Art. 3.176 BW.
[10] Art. 3.176 BW.
[11] Art. 3.180 BW.
[13] Art. 3.177 BW.
[14] Art. 3.183 BW..

		or to divide a complex and heterogeneous property into volumes.[12]		• At end of superficies, owner has to compensate the added worth to the property.[15] <u>Disadvantages</u> • Only owner of constructions built on the property, not of the property itself. • Ownership of the constructions will pass on to the owner of the property at the end of superficies.[16]

B) Regarding lands owned by public entities :

When the lands in question are classified as "private domain" (= owned by public entities but not designated to be used by all), private law will in principle apply. The public entities will be subject to public rules and principles which might impose certain limitations, but generally speaking we can refer to the table mentioned above.

When the lands in question are classified as "public domain" (= owned by public entities and designated to be used by all), the application of private law is heavily restricted. Public domain cannot be sold and the possibilities of establishing rights of superficies and emphyteusis are disputed.
It is more generally accepted that easements are possible on public domain. An underground easement for the tunnels should be possible.

There is also a precarious "*sui generis*" legal construction, called the domain concession. This will be analysed in the following table.

	Mode of acquisition	**Duration**	**Extent of the right (ground/subground)**	**Characteristics (advantages, disadvantages, cost, ...)**
Domain concession	A domain concession is a contract with the government.	Depends on the contract. Important to note	A domain concession is an administrative contract, in which a government gives a person the right to	<u>Advantages</u>

[12] Art. 3.180 BW.
[15] Art. 3.188 BW.
[16] Art. 3.188 BW.

		that the government can always annul the contract for reasons of general interest.	temporarily use a part of the public domain in a way that does exclude the right of others to use said public domain, and which can be revoked by the government for reasons of general interest.[17] The contract stipulates the extent of the right and the obligations of the contracting parties.	• Allows the contracting party to use public domain with the exclusion of others. <u>Disadvantages</u> • The government can always annul the contract for reasons of general interest, resulting in a certain degree of uncertainty.

[17] V. PETITAT en S. VAN GARSSE, "De ene concessie is de andere niet. Het onderscheid tussen domeinconcessies en concessies van diensten" in C. DE KONINCK, P. FLAMEY, P. THIEL, B. WATHELET (eds.), *Jaarboek overheidsopdrachten 2019-2020*, Brussel, EBP, 2020.

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Deliverable 3
List of contractual agreements to be obtained before the start of civil engineering works (Netherlands)

Project of the 30th november 2022

Disclaimer: this list is only a summary of our research and does not provide full information. See our written report for more details.

A) Regarding lands owned by private persons :

	Mode of acquisition	**Duration**	**Extent of the right (ground/subground)**	**Characteristics (advantages, disadvantages, cost, ...)**
Property rights	Property rights can be obtained from others by buying the rights. Expropriation is both relevant as a 'public procedure' (deliverable 2) and as	Infinite/ until passed on	Infinite right to use, except if it violates other persons' rights.[1] Property of real-estate (*onroerend goed*) extends to everything above and underneath the ground, everything built on/in it, … (exceptions apply).[2]	<u>Advantages</u> • Most control over what can and cannot be done on the property, ability to use it for other projects in the distant future, … • Is infinite in time, unlike some other rights

[1] Art. 1, 2 Book 5 Dutch Civil Code
[2] Art. 20 Book 5 Dutch Civil Code.

	an alternative way to acquire property rights (deliverable 3). For information about expropriation; see deliverable 2.		Others can use the space above or below the property at a height/depth which isn't useful to the owner.[3] → For the tunnels, this can be relevant.	<u>Disadvantages</u> • Buying the property can be more expensive than other options • Might be harder to convince owner into selling his/her property than to obtain easement, …(but expropriation can be an option of "last resort")
Conventional and legal easement (*Conventionele en wettelijke erfdienstbaarheid***)**	Conventional easement is obtained by contract. Legal easement is given by law. For example right to cross a neighbouring property if the rightholder's property doesn't have a connection to a public road.[4]	Can be infinite in time. Determined by contract.	Limited to what is allowed in the easement contract or allowed by law.	<u>Advantages</u> • Most likely cheaper than buying the property. • Well suited for the tunnels, as they will probably be deeper than the depth that is useful for the owner of the property. • This right 'follows' the property if it is sold. It will not seize to exist in case of a sale. <u>Disadvantages</u> • The things the holder of the right can do on the property are limited to what is allowed in the contract. • The owner of property has possibilities to ask judge to cancel the easement. However, also a limited possibility for the holder of right.[5]
Emphyteusis right (*erfpacht***)**	Emphyteusis is obtained by contract.	Can be infinite in time.[6]	The right to hold and use the property in the same way as the owner, but with	<u>Advantages</u> • Most likely cheaper than buying the property.

[3] Art. 21 Book 5 Dutch Civil Code.
[4] Art. 57 Book 5 Dutch Civil Code
[5] Art. 78 a.f. Book 5 Dutch Civil Code.
[6] Art. 86 Book 5 Dutch Civil Code.

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		Determined by contract. However, after 25 years, each party can ask a judge to end the emphyteusis in certain circumstances.[7]	some limits (no change of purpose (*bestemming*) of the property, …)[8] Holder of the right has duty to pay a fee, called 'canon'. Amount is determined in the contract.[9]	• The holder of the right can cancel it at all times, unless stated otherwise in contract.[10] • At end of emphyteusis, owner has to compensate the added worth to the property. Contract can state otherwise if certain conditions are met.[11] • Right can be passed on to someone else or given in 'sub-emphyteusis' (*ondererfpacht*) , except if stated otherwise in contract.[12] <u>Disadvantages</u> • More limited than ownership. For example no right to sell, … • If something is built on the property, the rightholder does not become the owner, unless superficies is also stipulated in the contract.
Superficies (*Opstal*)	Superficies is acquired by a contract. It can be connected with the emphyteusis right.	Can be infinite in time.[13] Determined by contract. However, after 25 years, each party	Superficies gives the rightholder the right to build something on the property, and become the owner of that building as long as the right exists. He can do whatever he wants with it, unless limited in the contract.[15]	<u>Advantages</u> • Most likely cheaper than buying the property. • If something is built on/under the property, rightholder is owner until end of the contract, so he can use,

[7] Art. 97, 1 Book 5 Dutch Civil Code.
[8] Art. 89 Book 5 Dutch Civil Code.
[9] Art. 85 Book 5 Dutch Civil Code.
[10] Art. 87,1 Book 5 Dutch Civil Code.
[11] Art. 87, 2 and 99 Book 5 Dutch Civil Code.
[12] Art. 91-93 Book 5 Dutch Civil Code.
[13] Art. 104 *jo.* 86 Book 5 Dutch Civil Code.
[15] Art. 102 Book 5 Dutch Civil Code.

		can ask a judge to end the superficies in certain circumstances.[14]	The rightholder is also allowed to use the property on which the right is located if this is needed to use the superficies right (unless stipulated differently in contract).[16] (for example driving construction vehicles onto the property to build the construction) Superficies can be useful to make sure the person building ET will be the owner of the structure/tunnel built on/beneath someone else's property. If stipulated, the rightholder has to pay a fee called 'retribution' (*retributie*).[17]	build, destroy as he pleases, unless stated otherwise. • The holder of the right can cancel it at all times, unless stated otherwise in contract.[18] • Right can be passed on to someone else or given in 'superficies' (*ondererfpacht*) , except if stated otherwise in contract.[19] • At end of emphyteusis, owner has to compensate the added worth to the property. Contract can state otherwise if certain conditions are met.[20] <u>Disadvantages</u> • Only owner of constructions built on the property, not of the property itself.

B) Regarding lands owned by public entities :

In the Netherlands, the distinction between public and private owned property does not exist anymore. Private law is applicable to lands owned by public entities. These entities are subject to the principles of public law, such as the general principles of good government or a 'public purpose' (*publieke bestemming*)[21], which can lead to certain limitations regarding transactions of their lands owned, but in general public entities in the Netherlands have much more freedom in applying private law instruments to their lands in comparison to Flanders. Thus it is possible to put superficies, emphyteusis, easement, … on public owned property.[22]

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[14] Art. 104 *jo*. 97, 1 Book 5 Dutch Civil Code.
[16] Art. 103 Book 5 Dutch Civil Code.
[17] Art. 101, 3 Book 5 Dutch Civil Code.
[18] Art. 104 *jo*. 87,1 Book 5 Dutch Civil Code.
[19] Art. 104 *jo*. 91-93 Book 5 Dutch Civil Code.
[20] Art. 105 *jo*. 87, 2 and 99 Book 5 Dutch Civil Code.
[21] R. PALMANS , J. TOURY en T. LEYS, *Openbaar domein*, Antwerpen, Intersentia, 2019, 258.
[22] R. PALMANS , J. TOURY en T. LEYS, *Openbaar domein*, Antwerpen, Intersentia, 2019, 259.