

# RESTORE

## Recommendation for best practice

Viewpoint and stairway to reconnect  
the historical road Maastricht (NL) to Liège (B)

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Restoring Mineral Sites for Biodiversity, People and the Economy across North-West Europe



## 1. Introduction

ENCI Maastricht, the cement industry company, has been mining limestone as a raw material from an open quarry just south of Maastricht since 1926.

This has resulted in a quarry covering a site of approximately 155 hectare.

Agreements put in place in 2009 will ensure that all mining will cease in 2019.

Included in these agreements (called the Transformation Plan for the ENCI area) were preparations in 2011-2013 for the reinstatement of the historic Maastricht (NL) - Liège (B) connection.



A working group called 'Verbindingen' (connections) was established in 2011 under the guidance of Eduard Habets, regional manager with the Society for preservation of natural monuments in the Netherlands (or 'Natuurmonumenten' for short). This is the future owner of the quarry.

This working group, consisting of representatives from ENCI, Maastricht local council, the Province of Limburg, Natuurmonumenten and local residents, presented its final report in 2013. The report titled 'Toegang Luikerweg' (Luikerweg Access) tabled the notion of creating an access from the quarry to the still existing Luikerweg road some 40 meter below. This phase was known as the initiation phase.

After letting their imaginations run loose for a while and flitting between impressive out-of-the-box ideas, all parties eventually settled on a jointly endorsed sketch design.

On 18 April 2013, the 'Stichting Ontwikkelingsmaatschappij ENCI-gebied', a foundation responsible for the development of the area, assigned its Director, Peter Mergelsberg, to realise the connection.

## 2. Diverse considerations

Below is a summary of the various points we have considered in our meetings and which were assessed on 6 February 2014.

Red : unacceptable

Orange : acceptable but with conditions

Green : acceptable

Supplier	Short description	Budget 40% estimate for design	Sympathetic with the landscape	Support
Staalbouw Frijns	Vertical open steel staircase	850,000	Red	Red
Natuurmonumenten	Independent vertical staircase; timber finish	1,200,000	Yellow	Green
Natuurmonumenten	Independent vertical staircase; concrete finish	1,300,000	Yellow	Green
Kone/Thyssen Krupp/Otis/Lödige	Glass lift	540,000	Yellow	Red
Natuurmonumenten	Vertical staircase formed in the limestone wall	800,000	Green	Green
RDVA	Suspension bridge	460,000	Green	Red
RDVA	Landscaped connection through the hill	950,000	Green	Yellow
RDVA/Geohazard	Diagonal staircase fixed to the limestone wall	590,000	Green	Green

It was decided during the assessment that access in the form of a diagonal staircase fixed to the limestone wall would meet with the three previously determined review frameworks. It was also agreed that further research and engineering preliminaries could proceed. This ended the definition phase and marked the start of the design phase.

### 3. Images of the chosen design

The viewing platform:



The stairs fixed to the limestone descending the wall.



The view from the network of corridors



#### 4. From sketch design to definitive design

A project framework was set up once the design and direction were settled and Mr Tony de Haan of Natuurmonumenten was tasked with the project management.

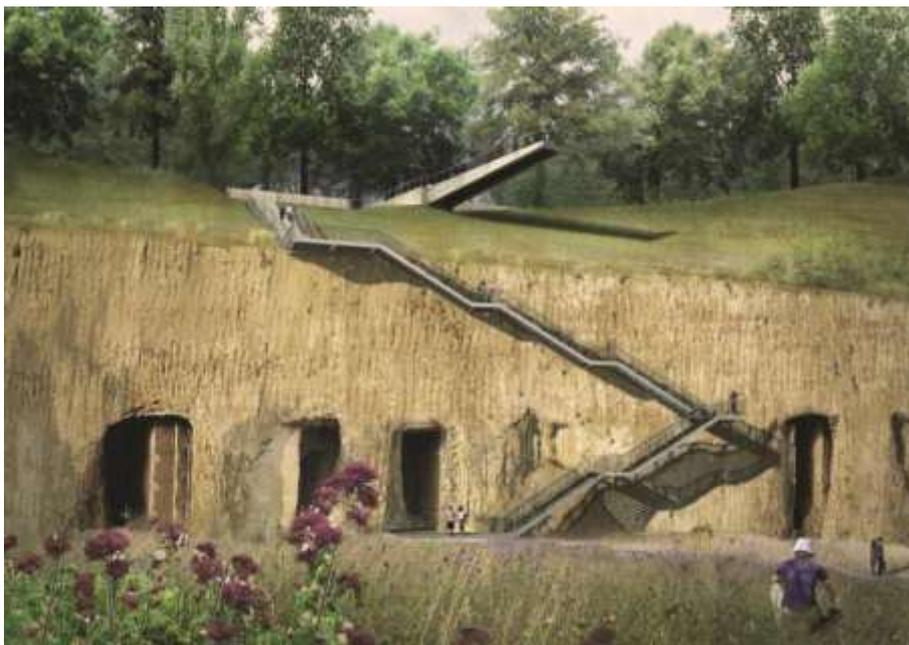
The direction and the connection with the old Luikerweg road were the principle influences on the form and location of the chosen design. This required the assistance of a number of professionals to assess the soil stability and foundation technology.

Detailed research by Rouwet, Bekendam and Fugro demonstrated that the gradient and the location required changing when compared to the original design proposal. This was mostly due to the stability of the network of corridors and the caves in the limestone. The form and location were amended accordingly in the imagery of the sketch designs.

A scale model was produced to arrive at a definitive design. This was made by Chris de Vries and David Rademacher of RDVA Architects in Amsterdam in close cooperation with Natuurmonumenten and Castermans Engineering Bureau of Gronsveld.

A financial check demonstrated the need to simplify substantially the proposed materials to remain within budget.

The definitive design was signed off on 10 December 2014 by Mr Jan Mans, Chairman of the Board of the 'Stichting Ontwikkelingsmaatschappij ENCI-gebied' (SOME).



Final design (image)



Final design (image)

## 5. From definitive design to appointing the contractor

The structural engineers detailed up the specifications for the access project based on the available technical calculations and the construction drawings.

Four contractors were approached on 15 December 2014; all of them recognised specialists in erecting complex stairs connections.

The contractors were:

<b>Name and location</b>
BAM utiliteitsbouw BV Regio Zuid; Maastricht
J. Boonzaaijer Aannemingsbedrijf BV; Loosdrecht
Bouwbedrijf Coppes BV; Valkenburg a/d Geul
Knols Projects BV; Maastricht

Each of the contractors visited the site on 9 January 2015 and added their remarks to the specifications.

An information memo was drafted based on these discussions and disseminated to all stakeholders on Tuesday 13 January 2015.

All parties submitted their tenders before Tuesday 20 January 2015 as appropriate.

The tenders were opened on 20 January 2015 in the presence of Mr Lou Castermans (engineer), Tony de Haan (Natuurmonumenten, project manager), Eduard Habets (Natuurmonumenten, regional manager and future owner) and Peter Mergelsberg (Director of Stichting Ontwikkelingsmaatschappij ENCI-gebied, the client).

In the first instance, only envelope No 1 containing the tender and giving the total contract amount from each of the potential contractors was opened.

The tenders submitted were as follows:

<b>Name and location</b>	<b>Tender amount excl. VAT</b>
BAM utiliteitsbouw BV Regio Zuid; Maastricht	623,710 Euro
J. Boonzaaijer Aannemingsbedrijf BV; Loosdrecht	724,900 Euro
Bouwbedrijf Coppes BV; Valkenburg a/d Geul	669,000 Euro
Knols Projects BV; Maastricht	485,000 Euro

Following this, envelope No 2 from the contractor offering the lowest total amount was then opened. This contained the detailed budget, the plan of approach and the programme for the performance of the project.

On 3 February 2015, the structural engineer assessed and agreed that the tender covered the specifications and that no notable obstacle existed for arriving at a decision.

On 4 February 2015, the client assessed the tender financially and checked this against the budget. This resulted in a positive financial assessment.

On 5 February 2015, Mr Tony de Haan (project manager) and Mr Lou Castermans (engineer) explained to the Stichting Ontwikkelingsmaatschappij ENCI-gebied (SOME) both the technical contents of the tender and the details of how the contract would be awarded. Upon receiving this information, the SOME Board decided to give the green light to appoint Knols Projects BV of Maastricht as the main contractor for the project.

## 6. Preparing the slope towards the Luikerweg access for construction

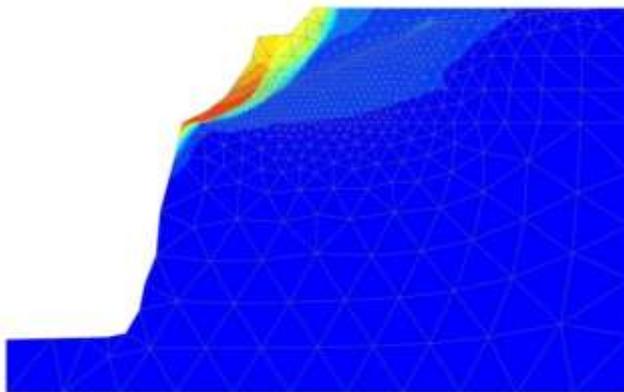
The performance phase started with preparing the site for construction. ENCI awarded the preparations contract to three parties. All were given clear instructions regarding health and safe practices in view of working at heights.

The area was made ready for construction with the slope needing to be reduced from almost vertical to a 1:2 ratio (almost 27 degrees).

With diggers required to work on the rim of the quarry adjacent to a 40-45 meter precipice, the contract was awarded to Janssen, who provided the most comprehensive health and safety plan as assessed by ENCI Maastricht's health and safety department.

According to plan, ENCI delivered the area ready for construction on 1 April 2015.

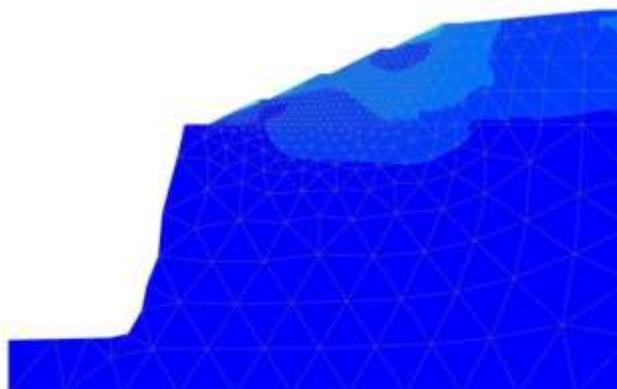
*Before the area was prepared for construction*



*During ENCI's earth moving works*



*After ENCI's earthmoving works*



## **7. Luikerweg access construction**

The tasks and roles for all parties were agreed at the first construction meeting on 23 February 2015.

Mr Lou Castermans and Mr Tony de Haan were appointed by the client as directors for managing the construction project.

Contractor Knols Projects BV was appointed as the main contractor. It was agreed that all interested parties would be kept informed of progress by weekly construction meetings.

A construction plan was detailed up. Any deviations to this will only be discussed at the weekly construction meetings.

The official start of construction was on 8 April 2015 when the first preparatory works commenced.

A complete record of the construction process will be retained in support of the communication and to demonstrate the progress.

## **8. Delivery of the Luikerweg access project**

Construction is expected to be completed by the end of August 2015.



There is a grand festive opening of the viewpoint planned for the beginning of September 2015.

Access to the quarry will open during the first quarter of 2016, once the quarry has been given the all clear regarding the health and safety demands as set out in the 2009 Transformation Plan.

## 9. Recommendations for the construction of the Luikerweg Access

It is essential to put in place a number of basic preconditions when redeveloping a site previously used for mining raw materials.

- Ensure legally binding agreements.
- Signed by both current and future owners and indicating both political and government support.
- Residents and locally involved nature organisations need to support the agreement. They also need to sign the plans and be offered the opportunity of working in tandem with implementing the area's redevelopment plan.
- The financial arrangements need to be absolutely clear before commencing.
- The agreed budget must be kept apart in a separate bank account, to be managed and accounted for by the signing partners.
- The complete plan and the various performance projects must be set out in clear project units. This includes the requirement to make organisational agreements in advance, which partly contribute to the successful execution of the redevelopment process of any site previously used for mining raw materials.
- The following 6 steps need to be strictly adhered to:
  - ✓ Initiation phase
  - ✓ Definition phase
  - ✓ Design phase (sketch design - definitive design)
  - ✓ Realisation phase
  - ✓ Evaluation phase
- Ensure that all signing partners, including the neighbourhood and the nature organisations, are 100% behind the drafted phase document before starting on the next phase.
- Adhere strictly to the approved plan and do not lose sight of the initial concept.
- Over time, deviations will occur at each evaluation, however these should be restricted to time and money and should never influence the concept.

Working together to give nature a home



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