

# **HERITAGE IMPACT ASSESSMENT**

## **SPECIAL PROTECTION ZONE OF THE ALTO**

### **DOURO WINE REGION**

ENVIRONMENTAL IMPACT STUDY

QUARRY N.º 6637 “VALE DE VIDEIRO II”

PROJECT PHASE: EXECUTION PROJECT

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## 1 INTRODUCTION

The Project is located in a Special Protection Zone of the Alto Douro Wine Region (Aviso n.º 15170/2010, July 30 amended by Aviso n.º 4498/2021, March 11) considered to be located in a sensitive area in accordance with the Legal Regime of the Environmental Impact Assessment RJIA (Decreto-Lei n.º 151-B/2013 October 31st amended by Decreto-Lei n.º 47/2014 March 24th, by Decreto-Lei n.º 179/2015 August 27th, by Lei n.º 37/2017 June 2nd and amended and republished by Decreto-Lei n.º 152-B/2017 December 11st 2017 and amended by Decreto-Lei n.º 102-D/2020 December 10th, and by Decreto-Lei n.º 11/2023 February 10th, rectified by Declaração de Retificação n.º 7-A/2023 February 28th).

The project is framed within RJIA in subparagraph i) of paragraph b) of point 3 of Artigo 1º of RJIA, that says *“The projects typified in annex II to this decree-law, of which it forms an integral part, that (...) Are covered by the established thresholds” and in subparagraph a) of n.º. 2 of annex II, as they are “Quarries that, together with other similar units, within a radius of 1 km, exceed 15 ha or 200,000 t/year”.*

The Project is located in the Natura 2000 Network, integrating the Special Protection Zone of the Côa Valley (PTZPE0039), as well as Special Protection Zone of the Alto Douro Wine Region (Aviso n.º 15170/2010, Aviso n.º 15170/2010, July 30) and in the immediate vicinity of Rock Art Centres, a complex classified as NM – National Monument/World Heritage, and as such is considered to be located in a sensitive area under the terms of RJIA.

According to Lei n.º 107/2001 September 8th and in accordance with and for effects of the disposed on n.º 3 of Artigo 72.º from Decreto-Lei n.º 309/2009 October 23rd, for being on the UNESCO World Heritage List in 2001, is published, in the Aviso n.º 15170/2010 July 30th, amended by Aviso n.º 4498/2021 March 11th, the Special Protection Zone of the Alto Douro Wine Region.

In 2011, ICOMOS (International Council on Monuments and Sites) published a guide on the assessment of the heritage impact for Cultural World Heritage Properties - “Guidance on Heritage Impact Assessments for Cultural World Heritage Properties” (ICOMOS, 2011). According to it, all projects that may have an impact on the attributes on which the Outstanding Universal Value (OUV) of a cultural asset inscribed on the World Heritage List is based, must be submitted to a Heritage Impact Assessment (AIP). The use of this methodology implies the interpretation of the meaning of the cultural landscape of the ADWR. The typology of the ADWR Site, Evolutionary and Living Cultural Landscape, imposes the integration of the heritage component in the landscape, as well as the landscape in the heritage. AIP should assimilate the meaning of the landscape concerned, and be clear and directly related to the attributes conferring the OUV to the place (Ramos C. et al, 2013).

According to the ICOMOS Guide (section 2, point 2-1-7), EIA shall perform AIP as an integrant part of it.

Present AIP is an integrant part of the Quarry N.º 6637 “Vale de Videiro II”. Project Quarry N.º 6637 “Vale de Videiro II” is described in the EIA and the Quarry Plan, being, however, presented in a specific point in this report.

## 2 PROJECT DESCRIPTION

### 1.1 SPACIAL AND ADMINISTRATIVE LOCATION OF THE PROJECT

The area to be licensed within the quarry is located in the parish and municipality of Vila Nova de Foz Côa, district of Guarda (*vide* Figure 1, Figure 2, Figure 3 e Appendix - Map n.º 1 – Spatial Location of the Project and Map n.º 2 – Aerial Photography of the Project Area), that according to the Nomenclature of Territorial Units (NUT) used for statistical and administrative purposes is:

- NUT I – Portugal Continental;
- NUT II - Norte;
- NUT III – Douro;
- District – Guarda;
- Municipality – Vila Nova de Foz Côa;
- Parish – Vila Nova de Foz Côa.

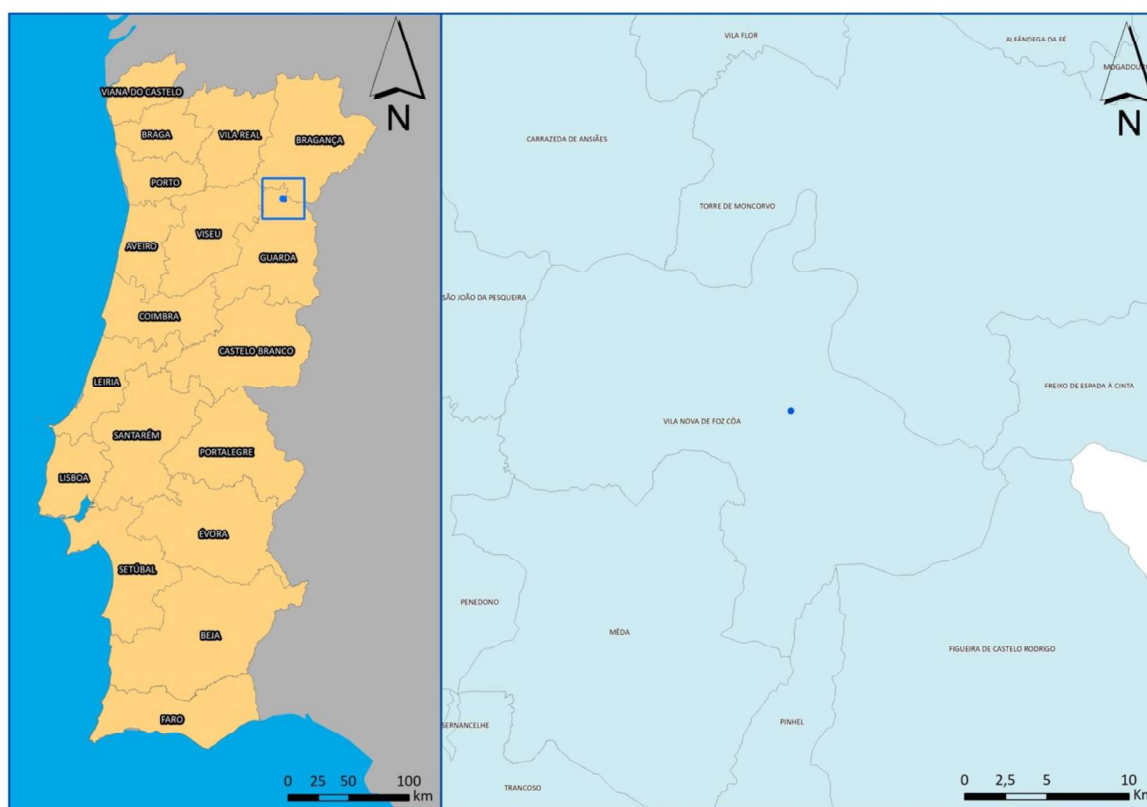
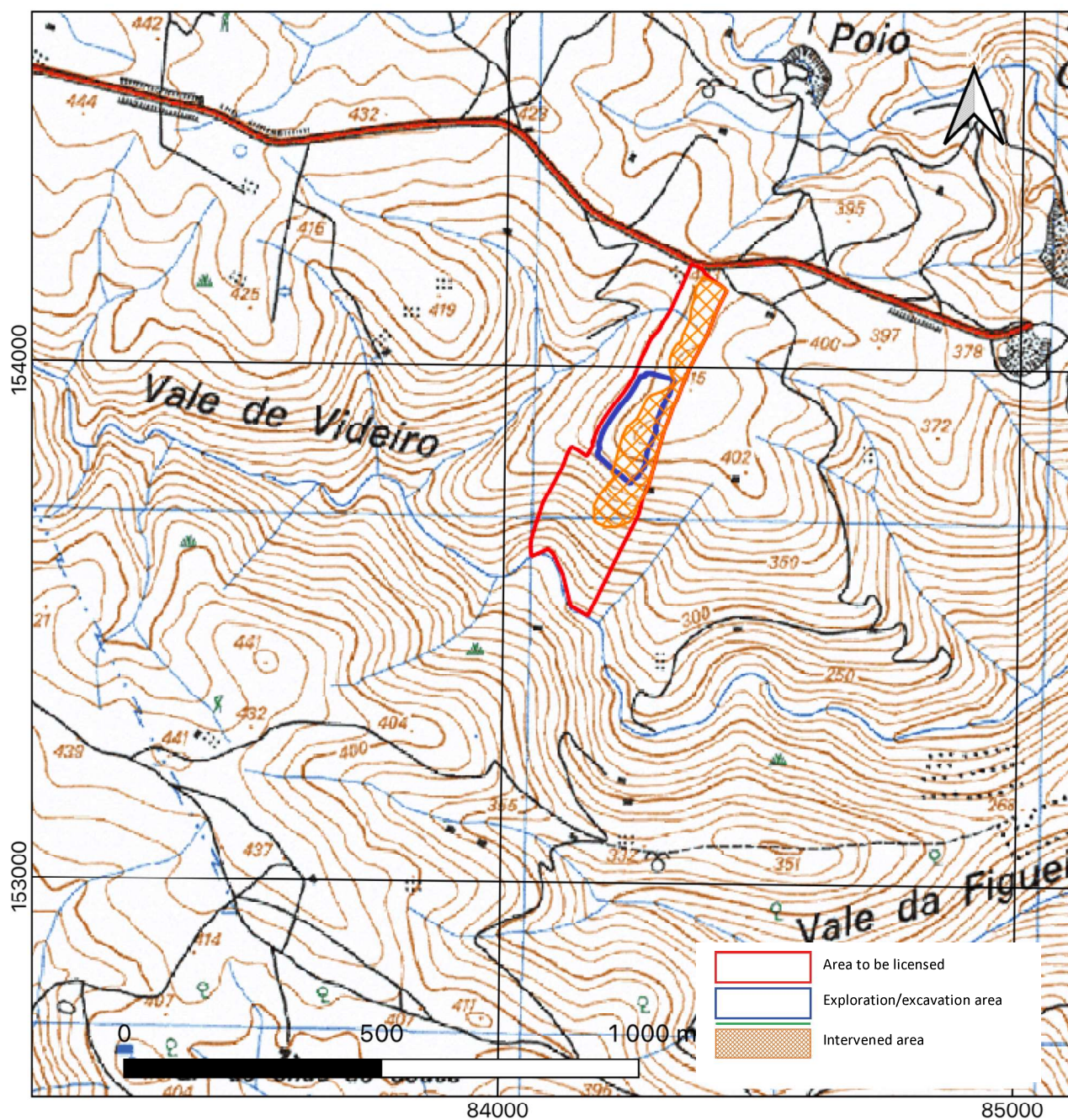


Figure 1: National framework of the project Quarry n.º 6637 “Vale de Videiro II”.





Georeferência: sistema de coordenadas planimétricas (M,P) - PT-TM06/ETRS89

Cartografia de base: CAOP 2022, DGT; Carta Militar de Portugal Série M888 - Folha 141 - Vila Nova de Foz Coa, Edição: 2, IGEOE.

Figure 2: Local framework of the project Quarry n.º 6637 “Vale de Videiro II”.





Figure 3: Area framework over aerial photograph.

Quarry n.º 6637 “Vale de Videiro II” is located in Special Protection Zone of the Alto Douro Wine Region, *vide* Figure 4 and Appendix - Map n.º 10 – Special Protection Zone – Alto Douro Wine Region.

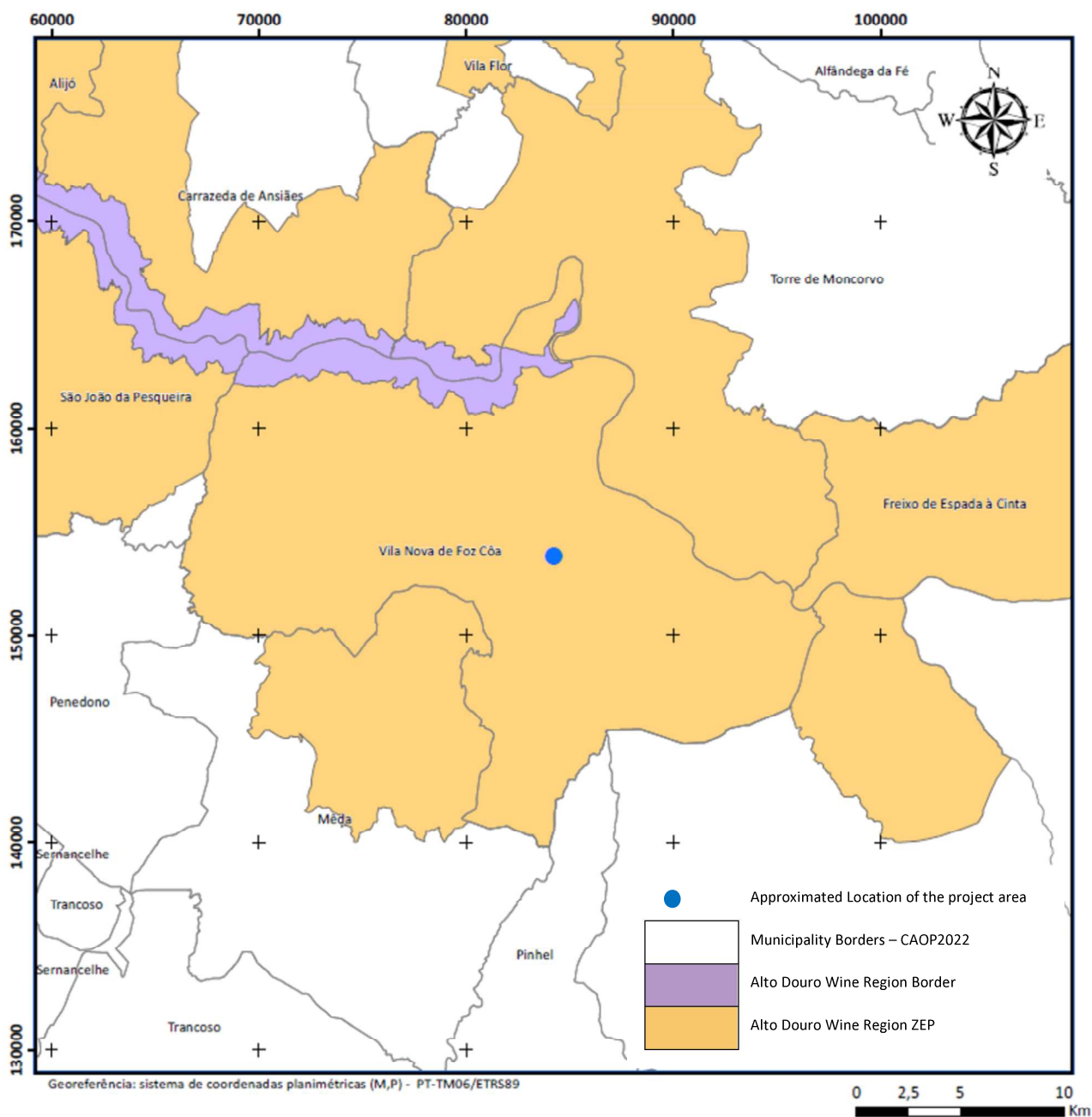


Figure 4: Location of Quarry n.º 6637 “Vale de Videiro II” with indication of the limit of the Alto Douro Wine Region and the Special Protection Zone – Alto Douro Wine Region.

## 1.2 BACKGROUND

The proponent, in 2002, acquired land located in the industrial area of Pedreiras do Poio, Vale da Mó, with the aim of carrying out shale exploration. That same year, they opened industrial activity with the main code “CAE 08115 – slate extraction”.

The proponent initiated to Environmental Impact Assessment Procedure by submitting the Environmental Impact Study to the EIA Authority in 2007. The Environmental Impact Study was considered non-compliant and the Environmental Impact Assessment Procedure was suspended.

In 2009, the proponent requested the regularization of Quarry “Vale de Videiro II”, with an area of 25 216 m<sup>2</sup>, under Artigo n.º 5.º of Decreto-Lei n.º 270/2001 October 6th, amended and republished by Decreto-Lei n.º 340/2007 October 12th.

On July 14, 2009, a provisional exploration license was granted for a period of 1 year under the terms of n.º 10 of Artigo 5.º of Decreto-Lei n.º 270/2001 October 6th, amended and republished by Decreto-Lei n.º 340/2007 October 12th.

In 2017, the proponent decided to carry out the regularization within the scope of the Extraordinary Regime for the Regularization of Economic Activities (RERAE), defined in Decreto-Lei n.º 165/2014 November 5th, amended by Lei n.º 21/2016 July 19th. The Quarry Plan, submitted within the scope of RERAE, presents the area of the quarry to be licensed of 25 216 m<sup>2</sup>, and the exploration area of 3 536 m<sup>2</sup>, with the Mining Plan foreseeing reserves of 26 523 m<sup>3</sup> resulting in a lifespan of 12,28 years considering an average annual extraction of 2 160 m<sup>3</sup>.

In September 2017, the proponent obtained the declaration of recognition of municipal public interest by the Municipal Assembly of Vila Nova de Foz Côa.

On June 26, 2019, a Conditional Favourable Resolution was issued following the Decision Conference.

Taking into account the availability by the proponent of a larger area, which is what guarantees a sustainable exploitation in the future, the proponent now intends to proceed with the application for licensing of the extension of the quarry area to 81 446 m<sup>2</sup>.

Quarry n.º 6637 “Vale de Videiro II”, in addition to the extraction activity, it also has the industrial activity of transformation that works in the same area.

Note that Quarry n.º 6637 “Vale de Videiro II” is part of the list of Quarries in Critical Situation, contained in the Resolution of the Council of Ministers n.º. 50/2019, March 5th, which includes quarries that have one or more factors that may be critical for people and goods and for the environment, resulting from their activity and their impact on the environment, regardless of the current state of licensing or activity. In this legal document, the Quarry n.º 6637 “Vale de Videiro II” is indicated for the need for signage, fencing and studies and/or execution projects, and its degree of intervention is classified as Low.

The Intervention Plan has been prepared and is being implemented, with a first report with evidence of implementation being sent in July 2022 and a second progress report in February 2023. The corrective security



measures already applied and maintained are as follows:

- a) Signaling of the most critical sites, in the perimeter and inside the quarry.

SITUATION POINT – Applied Measure (*vide* example of the signage applied in the photos shown in Figure 5).



Figure 5: Photographs of the existing signage in the Quarry showing the implementation of the signalling measure of the places that present greater criticality, in the perimeter and inside the quarry.

- b) Peripheral fence on the perimeter of the quarry.

SITUATION POINT - Applied Measure (*vide* example of the signage applied in the photos shown in Figure 6).



Figure 6: Photographs of the existing fence in the Quarry showing the implementation of the peripheral fence measure in the perimeter of the quarry.

- c) Clearing of the bush near the periphery of the licensed area.

SITUATION POINT – Implemented measure and still ongoing.

- d) Sealing of the excavation edges.

SITUATION POINT – Applied Measure (*vide* example of the signage applied in the photos shown in Figure 7).



Figure 7: Photographs of the existing fence on the edge of the excavation showing the implementation of the sealing measure of the edge of the excavation.



e) Reprofilling of the heap.

SITUATION POINT – Measure under implementation. A new intermediate landing is being developed that intersects the heap in the downward direction NW-SE. The existing level for the NE heap sector will also be extended (*vide* Photographs of the heap presented in Figure 8).

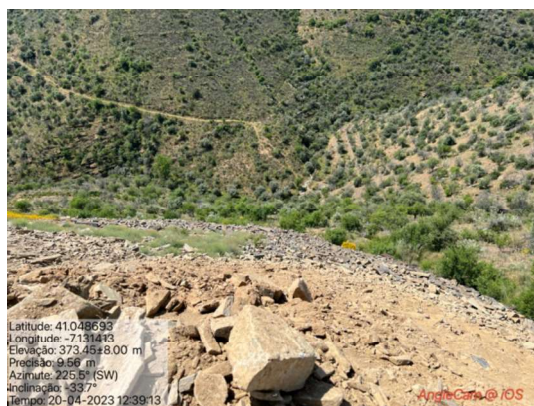


Figure 8: Photographs of the existing heap to the south showing the implementation of the heap reprofilling measure.

f) Smoothing and stabilization of steeply sloping slopes by creating a raised landing at the base.

SITUATION POINT –Measure under implementation. An elevated plateau is being created at the base of the steeper slope along the boundary of the NE-SO licensed area, close to the adjoining mine. This safety level, in addition to reducing the final slope of the existing slope, will allow the company to maintain the protection area between the limit of the licensed area and the excavation border (*vide* Photographs of the heap presented in Figure 9).



Figure 9: Photographs of the implemented landing showing the implementation of the smoothing and stabilization measure of the steeply sloping slopes with the creation of a raised landing at the base.

- g) improvement of internal traffic routes where necessary.

SITUATION POINT – Implemented measure and still ongoing.

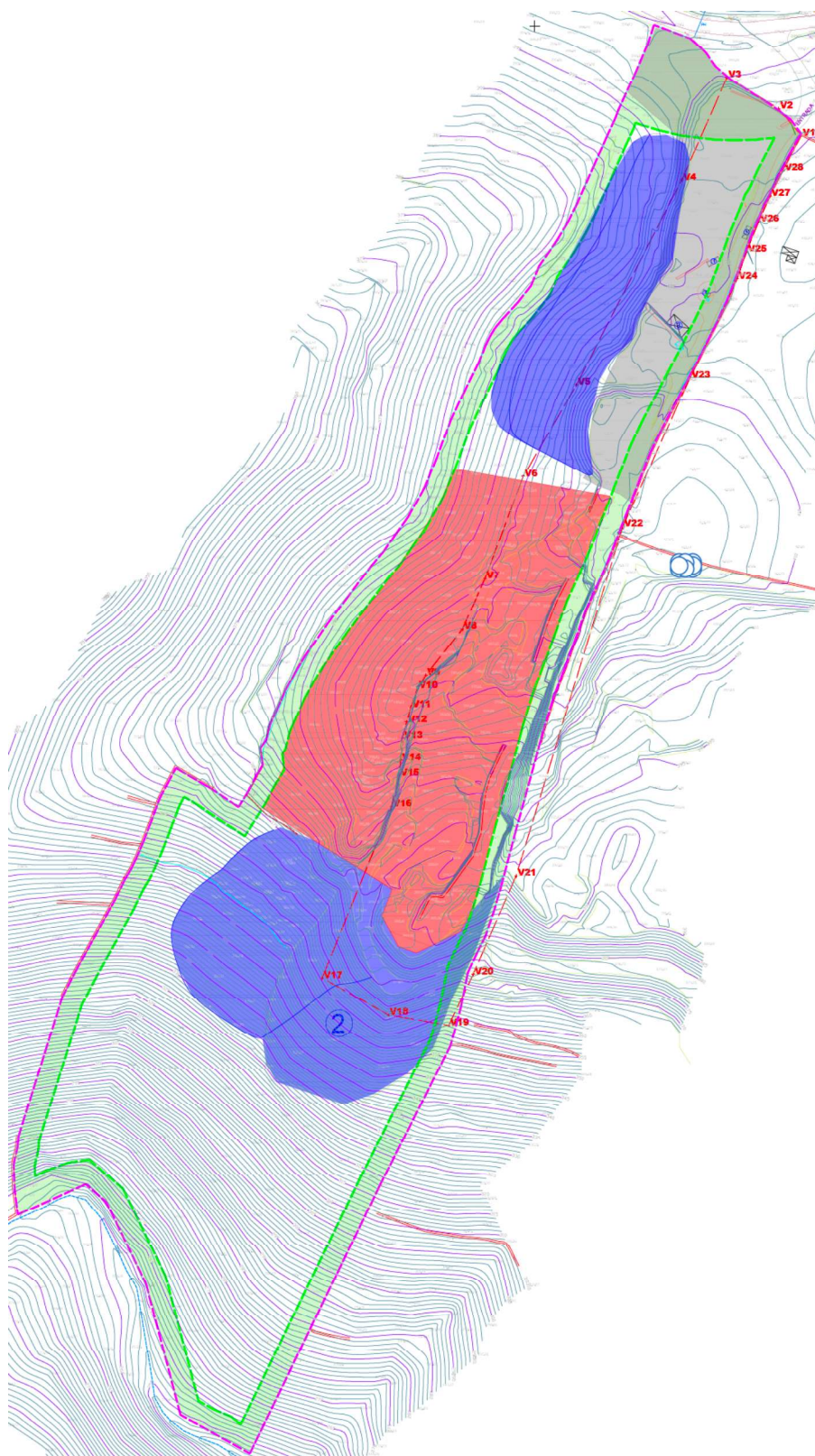
- h) Define a place for loading heavy goods vehicles away from the slopes.

SITUATION POINT – Implemented measure.

## 2.1 QUARRY AREA AND TYPES OF MINERAL MASSES

The proposed area to be licensed is 81 446 m<sup>2</sup> in which will be enlisted the exploration area of up to 16 300 m<sup>2</sup>. The defense zones provided for in the law will be complied with, adding up to 18 171 m<sup>2</sup>. The zoning plan is presented in the Figure 10.





0 125 250 m

## Legenda:



Figure 10: Zoning Plant.

The purpose of the exploration is to produce shale products for ornamental purposes. Photographs of products produced in the Quarry n.º 6637 “Vale de Videiro II” are presented, such as flagstones and slabs (tops sawn or cracked by natural schistosity) manually opened by the laminating planes for floor and wall coverings (can be black or oxidized - ochre/yellow tones). When the width of the material produced resembles the height, then we have pillars, bollards (widely used in Landscape Architecture projects as fences/fences for flowerbeds and landscaped areas to be delimited. In the case of the longer ones, they are already commercially called pillars (>1.5m), still widely used in the vineyards of the ADWR.

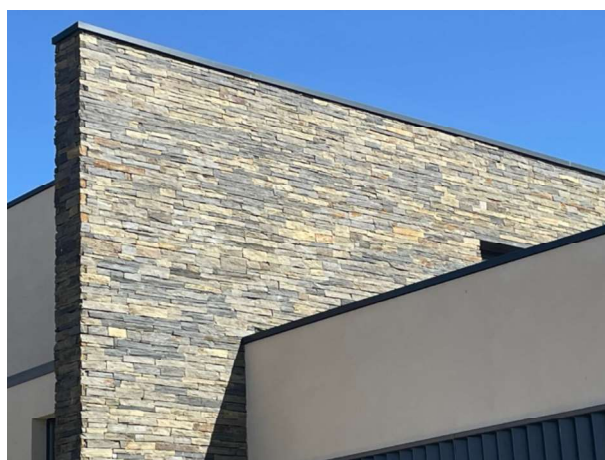
Figure 12 presents photographs of applications of these products in works/constructions.







Figure 11: Photographs of products produced in Quarry n.º 6637 “Vale de Videiro II”.





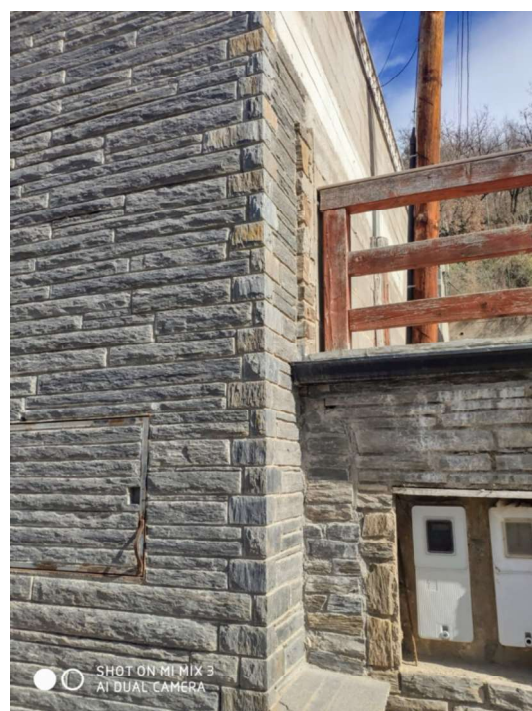
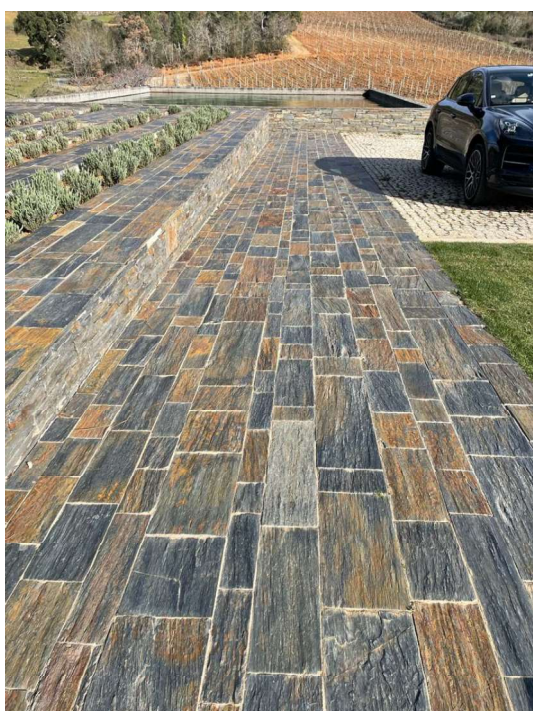
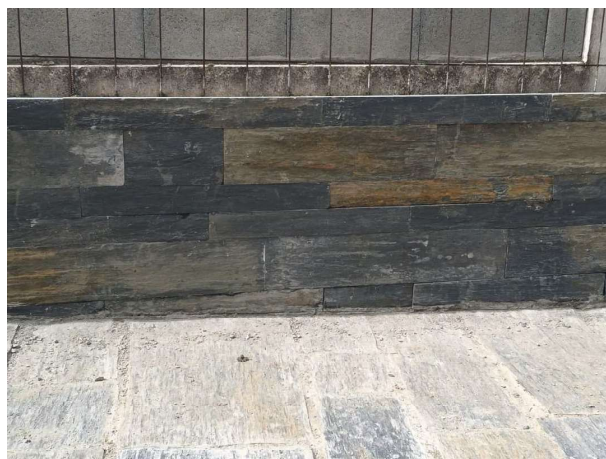
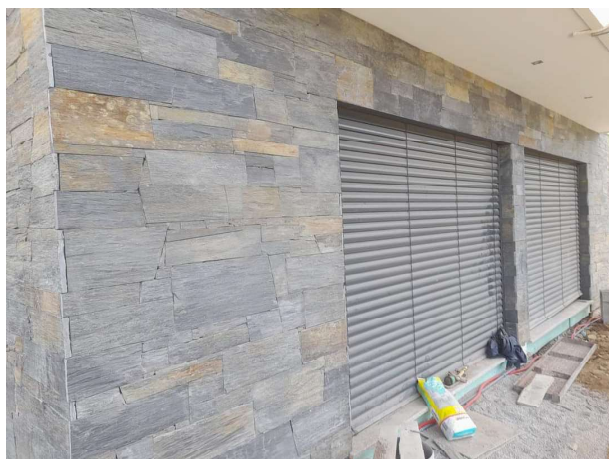






Figure 12: Photographs of products produced in Quarry n.º 6637 “Vale de Videiro II”.

Figure 13 and Figure 14 present photographs showing the intervention already carried out in the quarry area and the transformation area.



Figure 13: Photographic record of Quarry n.º 6637 “Vale de Videiro II”.



Figure 14: Photographic record of the industrial area associated with Quarry n.º 6637 “Vale de Videiro II”.

## 2.2 RESERVES OF MINERAL MASSES, ANNUAL PRODUCTION AND TIME FORECAST OF EXPLOITATION

According to the proposed Mining Plan, the cut will cover about 16 300 m<sup>2</sup> and the exploration will be carried out between 380 m and 415 m of elevation.

The estimated gross annual average extraction is 3 630 m<sup>3</sup>/year. This value is always dependent on the market.

Table 1 presents the calculations of the reserves and the phasing of the operation.

Table 1: Exploration phasing and total reserves.

Countertops	Height	Area (m <sup>2</sup> )	Reserves (m <sup>3</sup> )	Yield	Commercial (m <sup>3</sup> )	Debris (m <sup>3</sup> )
405 - 410	5	394	985,0	0,7	689,50	295,50
395 - 405	10	8070	40350,0	0,7	28248,50	12106,50
385 - 395	10	13244	66220,0	0,7	46354,00	19866,00
380 - 385	5	15335	38337,5	0,7	26836,25	11501,25
		Total	164582,5	0,7	102124,75	43767,75

The current production at the Quarry n.º 6637 “Vale de Videiro II” as well as its future forecast, considering a 70% utilization rate, are presented in the Table 2.

Table 2: Shale extraction and annual production at the Quarry n.º 6637 “Vale de Videiro II”.

	2022 (m <sup>3</sup> )	Future Annual Average (m <sup>3</sup> )
Quarried shale	2 389	3 630
Shale produced for ornamental purposes	1 838	2 541

Based on the estimated exploitable reserves of approximately 145 892.5 m<sup>3</sup> and the extraction rate of 3 630 m<sup>3</sup>/year, it results in a lifetime forecast of about 40 years.

## 2.3 EXTRACTIVE METHODOLOGY

The blasting system is based on the conditions existing in the quarry, but also on the experience of the extraction techniques most commonly used in similar quarries and, therefore, of the unit operations to be carried out to achieve the proposed objectives.

The method of exploration will be carried out in the open, on a slope flank, carried out by straight steps, from top to bottom, as recommended in Decreto-Lei nº 270/2001, October 6th, amended and republished by Decreto-Lei nº 340/2007, October 12th.

The dismantling of the fronts will thus be from top to bottom, as long as the cover land has been removed, including a strip of at least 2 meters wide. It is expected that during the operation phase the height of the steps will vary between 3 and 5 m and their width will depend on the evolution of the work, and should never be less than 4 m, in order to allow the circulation of means and equipment in optimal safety conditions.

The method of exploitation on which the mining will be carried out in the quarry consists of the advancement of the blasting with recovery at the end, and whenever possible with the application of measures in a phased manner.

Recovery at the rear will not be possible in this project because, during exploration, there will always be active fronts.

The blasting method may require the use of explosives, especially in places where the masses are more cohesive and it is necessary to use a small amount of gunpowder or detonating cord to disaggregate the materials through the cleavage planes.

In the specific case of the dismantling of the shale in question, the quarry adopts the method common in the other quarries of the Poio core. In this way, and following what was indicated in the last Quarry Plan elaborated, "the height of each step is variable, on average with 1.5 m. Starting starts with the drilling of pneumatic hammers. The generally used clearance, *i.e.*, the distance from the face of the bench to the line of fire, is 1 m; the spacing between two holes in the same row is about 1.5 m; The most commonly used explosive is black powder (in cartridge form). The blocks, in the traditional situation, are subject to the "trunking" operation, that is, they are separated until the desired section is obtained.

The most frequent block size is about 0.8 m x 1.0 m x 1.65 m: the height 0.8 m depends on the position of the layer, which is sometimes smaller; The width of 1.0 m is a function of the spacing, depending on the energy capacity of the explosive and the height of the bench, the length of 1.65 m depends on the spacing of the fractures, which are usually perpendicular to the previous planes.

The upper elevation benches will be dismantled first, followed sequentially by the lower elevation benches.

The blocks will be removed from the cutting area by means of a loader using the access ramps to the floors,



being placed in the block park and squared on the cutting machine when necessary. From the interior of the cutting area, unused rock fragments will also be removed, through the loader, which will be deposited in the existing heaps and to be created in the licensed area.

Figure 15 presents photographs showing the intervention already carried out in the quarry area.





Figure 15: Photographic record of the Quarry area n.º 6637 “Vale de Videiro II”.

## 2.4 EQUIPMENT AND HUMAN RESOURCES

Quarry n.º 6637 “Vale de Videiro II” has internal accesses and dirt roads, which have good transverse profiles, with widths and inclinations suitable for the purpose for which they are intended, allowing the safe circulation of all the equipment, with planned periodic maintenance.

The accesses will be built and improved according to the needs verified during the progress of the operation, always taking into account the aspects related to the safety in the circulation of mobile equipment and people. Thus, the access network inside the quarry is not necessarily static, and may, depending on whether it is favourable, undergo changes aiming the optimization of the system.

The type of equipment needed for the work will not change significantly compared to the one currently used, as the quarry will maintain the same technique and the current equipment may be sufficient, even taking into account the increase in production.

The existing equipment in Quarry n.º 6637 “Vale de Videiro II” are listed on Table 3.

Existing equipment can always be replaced by a similar one if its useful life limit is reached or if there is a



breakdown .



Loader (Komatsu)



Excavator (Volvo)



Stacker (Manitou)



Tractor (Manitou)



Cube Machine



Sawing Machine



Compressor

Figure 16: Photograph of the equipment currently existent at the Quarry n.º 6637 “Vale de Videiro II” and at the industrial facilities.

Table 3: Equipment currently existent at the Quarry n.º 6637 “Vale de Videiro II” and at the industrial facilities.

EQUIPAMENTO	N.º
Front Loader	1
Excavator	1
Sawing Machine	1
Telescopic forklift	2
Compressor	1
Pneumatic Hammers	1

At Quarry n.º 6637 “Vale de Videiro II” there are currently 8 workers of which 3 are specifically assigned to the quarry and transport of the extracted material to the attached processing unit, *i.e.* the extractive activity itself, 4 in the transformation of the raw material, *i.e.* in the shale cutting and sawing processing establishment and in the preparation for shipment and 1 foreman/manager.

The work is carried out from Monday to Friday, during the twelve months of the year, in a single eight-hour shift, which will always take place during the day in the summer period from 5:30 am to 1:30 pm and in the winter period from 7:30 am to 12:30 pm and from 1:00 pm to 4:00 pm.

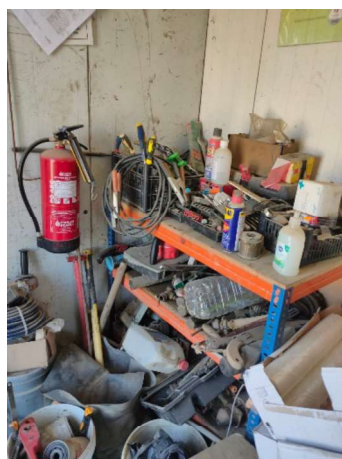
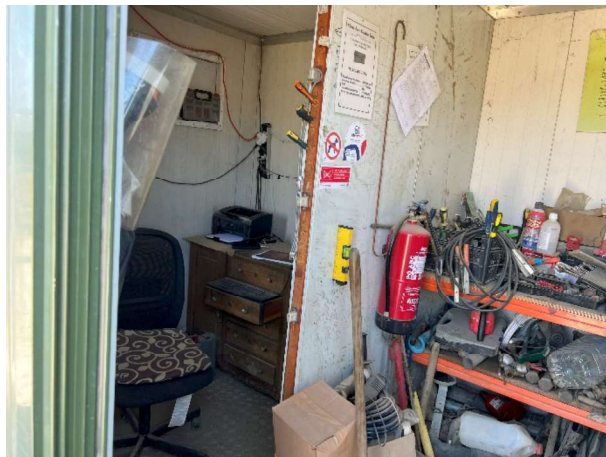
## 2.5 SOCIAL FACILITIES AND ANNEXES TO THE OPERATION

Quarry n.º 6637 “Vale de Videiro II” has 2 containers (*vide* Figure 17), with a joint area of approximately 56 m<sup>2</sup>, one of which serves as bathroom and changing room. The second container is currently used as an office and



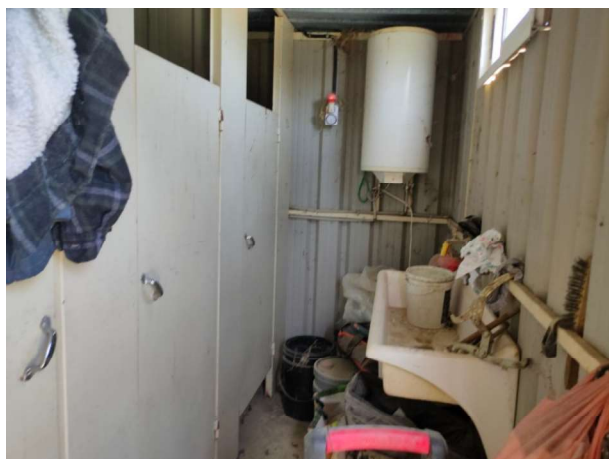
workshop and storage area, also served for the storage of oils and other waste. Two new containers will be purchased for the new social facilities and office. The existing containers were left as warehouses.

All this infrastructure will be dismantled and removed after the closure of the quarry.



Office, workshop and storage





Bathroom and changing room

Figure 17: Photographic record of the social facilities.

### 3 LAND OCCUPATION

Quarry n.º 6637 “Vale de Videiro II” is located in a rural area and is relatively remote from the small settlements in the study area.

In the area of the quarry and its immediate surroundings, human intervention is evident, taking into account that it is included in the extractive nucleus of Pedreiras do Poio.

It is also observed that the cultivation of olive, almond and vine have a high representativeness in the agricultural crops around the study area.

Pastures and agricultural areas with natural spaces (agricultural areas in coexistence with areas without soil mobilization with natural regeneration of low and annual herbaceous scrub indicative of the first stages of natural succession) also occur on the higher slopes, with a significant area of scrub observed both in the quarry area and in the surrounding area, *vide* Figure 18 e Map n.º 3a e Map n.º 3b - Extract from the Land Use Cartography COS 2018.

In the surrounding area near the Quarry n.º 6637 “Vale de Videiro II” there is a predominance of scrubland in the landscape, followed by orchards, olive groves, vineyards and temporary rainfed and irrigated crops.



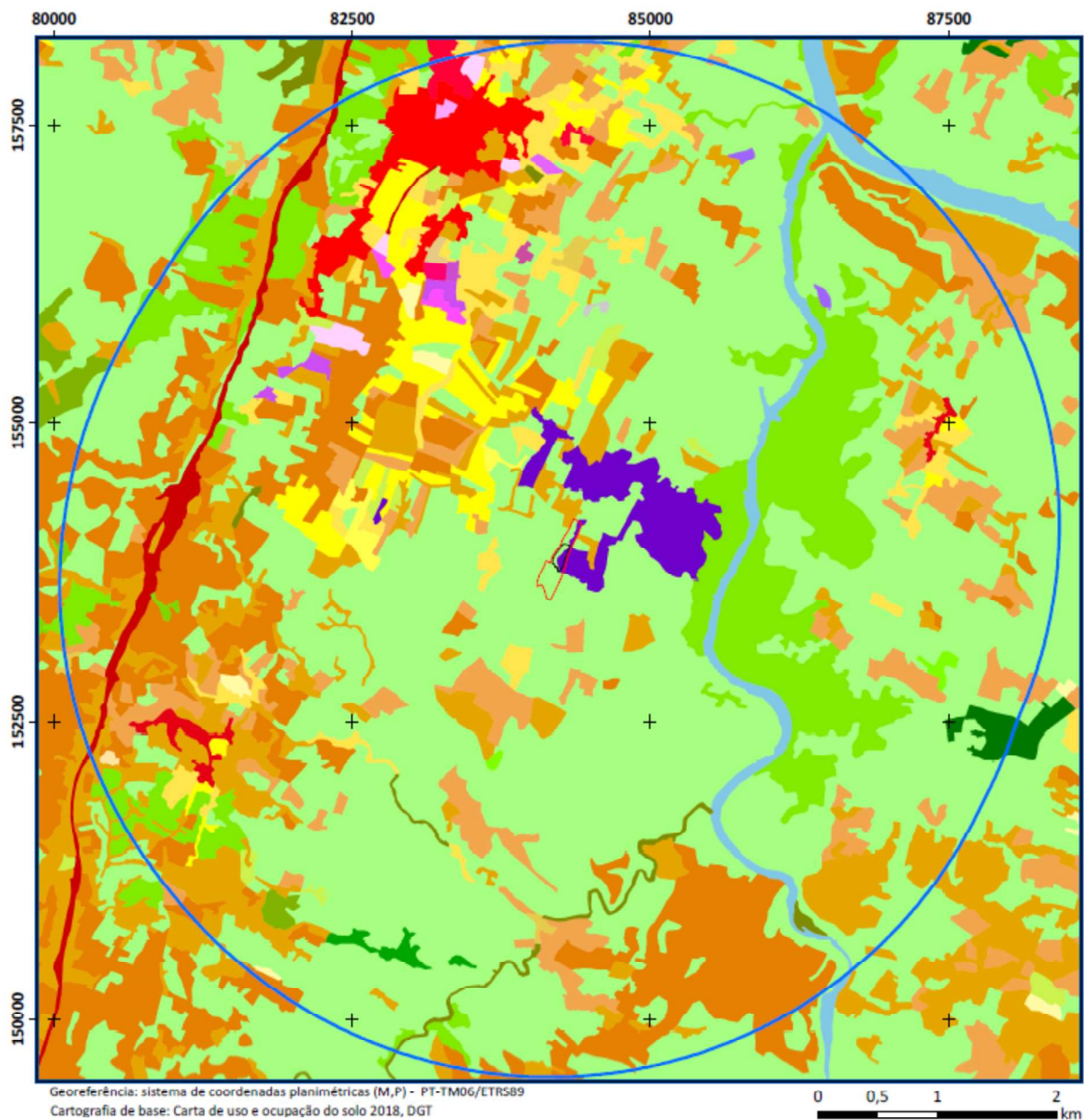




Figure 18: Extract from the cartography of the Land Use COS 2018 in the quarry area and its surroundings.

At the municipal level, the project area is covered by the PMD of Vila Nova de Foz Côa. PDM was published in Resolução de Conselho de Ministros n.º 2/95, January 13th. The first amendment was published by Aviso n.º 127579/2015, October 28th, in order to compensate for the need to adapt it to the provisions of the Legal Regime of Territorial Management Instruments, to the various sectoral and regional plans published and in progress and to the evolution of economic, social, cultural and environmental conditions that have occurred in the meantime. The first amendment by adaptation was published by the Aviso n.º 7367/2017, June 30th. The adaptation of the PDM resulted from the approval of the PMDFCI — Municipal Plan for the Protection of the Forest against Fires, by dispatch recorded on July 19<sup>th</sup> 2016 of Instituto de Conservação da Natureza e das Florestas. The process of the 2nd revision of this document is currently underway (Aviso n.º 9973/2020, July 2nd, the deadline being extended according to Aviso n.º 18693/2020, November 17th, and Aviso n.º

56152022, March 16th). Vila Nova de Foz Côa's PDM consists of the Regulation, the Planning Plan (deployed in Soil Classification and Qualification and Acoustic Classification and Municipality Ecological Structure), by the Conditioning Plan (deployed in Utilities and Restrictions of Public Utility and Forest Protection against Fires). Regarding the planning, it turns out that the area to be licensed from Quarry n.º 6637 “Vale de Videiro II” overlaps: Geological Resources Space (Potential Area and Consolidated Exploration Area); rural land space (Conservation Forest Areas) and Classified Heritage space and in the process of Classification (Special Protection Zone of the Alto Douro Wine Region and Special Protection Zone of the Côa Valley) (*vide* Map n.º 4 - Extract of the Planning Map- 1st Classification and Qualification of the Soil, Map n.º 5 -Extract of the Planning Map - 1B Acoustic Classification and Municipal Ecological Structure of Vila Nova de Foz Côa and Map n.º 6 - Extract of the Planning Map – 1C – Heritage Map of the PDM de Vila Nova de Foz Côa). Considering the cartography of the Municipal Map for the Protection of the Forest Against Fires – Risk (Map n.º 7 – Extract from the Municipal Map for the Protection of the Forest Against Fires – Risk), the area to be licensed does not overlap areas classified as High or Very High Fire Risk.

For the constraints defined in the PDM Regulation, it is verified that the area to be licensed from Quarry n.º 6637 “Vale de Videiro II” is located in a Classified Heritage area and in Classification Routes (Special Protection Zone of the Alto Douro Wine Region and Special Protection Zone of the Côa Valley) and overlaps the area of Geological Resources – Mineral Masses – Quarries. It also overlaps the Ecological Resources area - Rede Natura 2000 – rede Natura, Ecological Resources area - Reserva Ecológica Nacional –REN area and areas classified as High and Very High Class of fire hazards (*vide* Map n.º 8 – PDM Constraints – 2A, Map n.º 9 – PDM Constraints – 2B and Map n.º 10 – Special Protection Zone - Alto Douro Wine Region ).

## 4 POIO QUARRIES

Quarry n.º 6637 “Vale de Videiro II” is located in the extractive nucleus of the Poio Quarries, consisting of several extractive and manufacturing industries with a record of activity for many decades. The existing shale quarries in Portugal are practically all located in the industrial area of Poio Quarries, highlighting the importance of this industrial pole for extractive activity in Portugal.

Poio Quarries are also considered a site of geological or geomorphological interest as it is an example of the deep flysch sedimentation associated with the Lower Paleozoic of the autochthonous of the Central-Iberian zone.

The nearest existing industrial units are the quarries: Quarry n.º 6632 “Vale Videiro I”, Quarry n.º 4998 “Jardim n.º 4”, Quarry n.º 4995 “Rego da Vide” and n.º 5002 “Fraga do Poio n.º 20”, Quarry n.º 4999 “Alto da Companhia, Quarry n.º 2434 “Fraga do Poio n.º 7” e Quarry n.º 6827 “Vale da Mó n.º 1” (*vide* Figure 19 e Map n.º 10 –Spatial location of the quarries in the project surroundings).



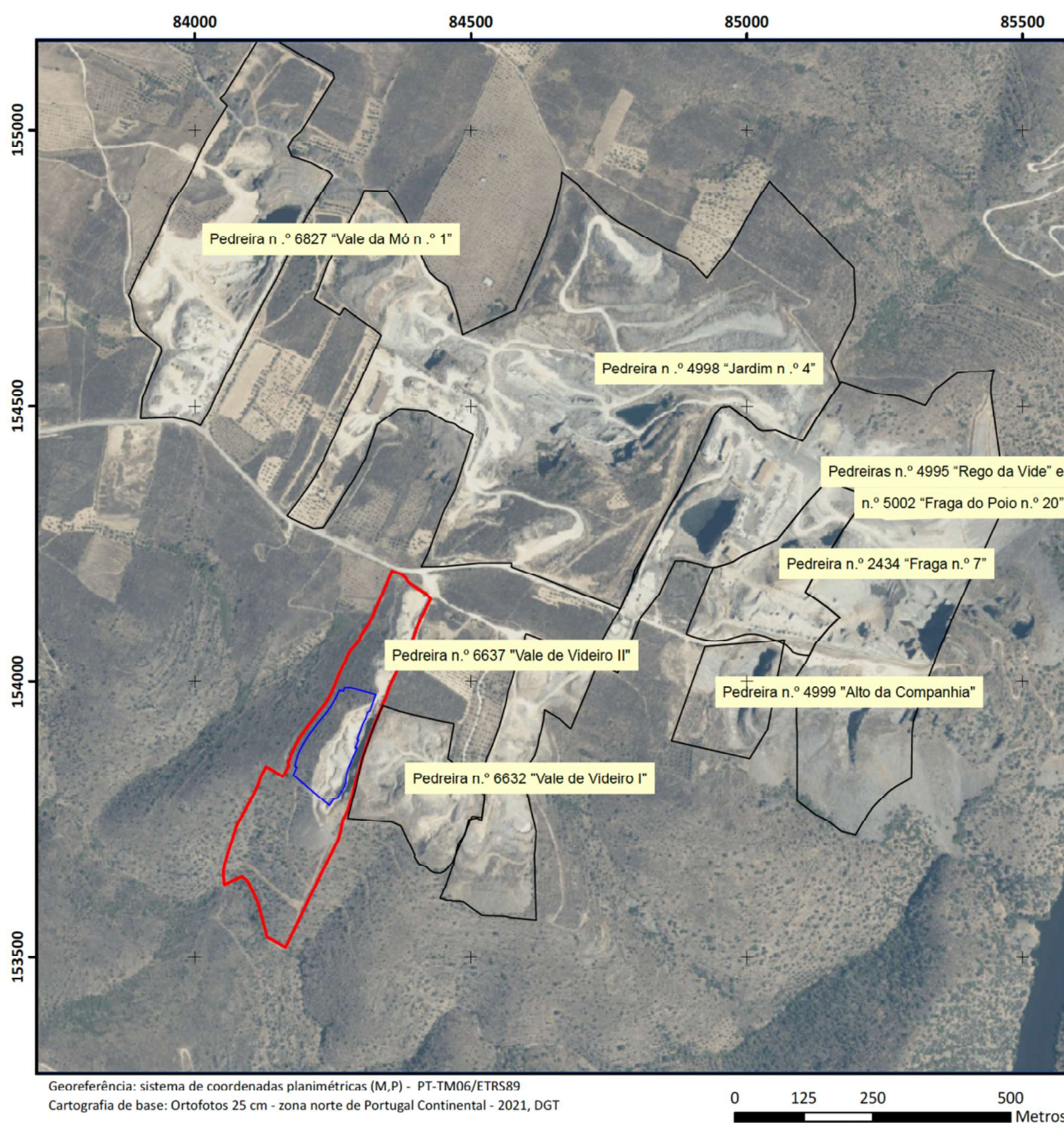


Figure 19: Aerial photograph with identification of the Poio Quarries. The red line indicates the area to be licensed from the Quarry n.º 6637 “Vale de Videiro II” and blue line the exploration area.

Looking the information available on SIAIA (<http://siaia.apambiente.pt>) It made possible to collect information on the reserves, lifespan and production of the neighboring quarries, *vide* Table 4. On SIAIA, there is only available information about 4 of the 6 neighboring quarries, however, from the knowledge of the technical



team, it is known that the quarries whose information is missing are small quarries compared to the Shale Quarries n.º 4995 “Rego da Vide” and n.º 5002 “Fraga do Poio n.º 20” and Quarry n.º 4998 “Jardim n.º 4”.

Table 4: Identification and analysis of extractive industry projects located within a radius of 1 km from the Quarry n.º 6637 “Vale de Videiro II”.

Quarry Designation	Available on SIAIA	Decision date	Reserves (m³)	Life-time	Shale extraction (m³/ano)	Decision
Quarry n.º 6632 “Vale Videiro I”	Yes	23/12/2010	311 670	37	8 424	Favorable conditioned
Quarry n.º 4998 “Jardim n.º 4”	Yes	29/06/2022	3 717 770	62	60 000	Favorable conditioned
Shale Quarries n.º 4995 - Rego da Vide and n.º 5002 - Fraga do Poio n.º 20”	Yes	11/06/2019	4 963 651	40	124 000	Favorable conditioned
Quarry n.º 4999 “Alto da Companhia”	No	---	n.d.	n.d.	n.d.	---
Quarry n.º 2434 “Fraga do Poio n.º 7”	No	---	n.d.	n.d.	n.d.	---
Quarry n.º 6827 “Vale da Mó n.º 1”	Yes	07/06/2022	1 463 631	59	25 000	Favorable conditioned

It should be noted that the neighboring quarries: Quarry n.º 6827 “Vale da Mó n.º 1”, Quarry n.º 4998 “Jardim n.º 4”, Shale Quarries n.º 4995 - Rego da Vide and n.º 5002 - Fraga do Poio n.º 20” and Quarry n.º 2434 “Fraga do Poio n.º 7” will implement the PARP that was developed by the same technical team that developed Quarry n.º 6637 “Vale de Videiro II” PARP, thus being in complementarity and consonance.

## 5 SPECIAL PROTECTION ZONE OF THE ALTO DOURO WINE REGION

Alto Douro Wine Region (ADWR) was inscribed on the UNESCO World Heritage List in the category of Evolutionary and Living Cultural Landscape, on December 14th 2001, at the 25th session of the World Heritage Committee, held in Helsinki (<http://whc.unesco.org/en/news/143/>).

The World Heritage List is defined within the framework of the World Heritage, Cultural and Natural Heritage Convention adopted by UNESCO in 1972 (UNESCO General Conference adopted on November 16, 1972 <http://whc.unesco.org/en/conventiontext/>) and it aims to protect heritage assets endowed with an Outstanding Universal Value (OUV). Portugal approved the Convention in 1979 by Decreto-Lei nº49/79 June 6th.

Only in 1992, the World Heritage Committee adopted the category of Cultural Landscape as a result of the need to distinguish the heritage resulting from the interaction between man and nature, and which translates the interconnections between biological and cultural diversity, specifically associated with traditional forms of land use (Ramos C. e Fonseca G., 2014).

The ADWR application was supported by the criteria (iii), (iv) and (v) used to assess the Outstanding Universal Value (UNESCO, 2011):

- (iii) constitute a unique, or at least exceptional, testimony of a cultural tradition or a living or missing civilization;
- (iv) represent an exceptional example of a type of construction or architectural or technological ensemble, or landscape that illustrates one or more significant periods of human history;
- (v) be an exceptional example of traditional human settlement, of the traditional use of the territory or the sea, which is representative of a culture (or cultures), or human interaction with the environment, especially when the latter has become vulnerable under the impact of irreversible changes.

Being the justification for its inclusion in the UNESCO World Heritage List in the category of Evolutionary and Living Cultural Landscape, according to these criteria (<http://whc.unesco.org/en/list/1046>):

- (iii) ADWR has been producing wine for about 2,000 years and its landscape has been shaped by human activities;
- (iv) the components of the ADWR landscape are representative of the full range of activities associated with the production of terraces, Quintas, clusters, chapels and communication routes;

- (v) the cultural landscape of ADWR is an exceptional example of a traditional European wine region, reflecting the evolution of this human activity over time.

The ADWR corresponds to the most representative and best-preserved area of the Douro Demarcated Region (RDD) which is the oldest demarcated and regulated wine-growing region in the world, with delimitations since 1756. The area covered comprises 24 600 ha, about one tenth of the total RDD, with its buffer zone having an area of 225 400 ha. It develops along the slopes of the Douro River encompassing the municipalities of Mesão Frio, Peso da Régua, Santa Marta de Penaguião, Vila Real, Alijó, Sabrosa, Carrazeda de Ansiães, Torre de Moncorvo, Lamego, Armamar, Tabuaço, São João da Pesqueira e Vila Nova de Foz Côa.

The implementation area of the quarry n.º 6637 “Vale de Videiro II” is covered by the ADWR area namely by (ZEP-ADWR) (*vide* Map n.º 10 – Special Protection Zone - Alto Douro Wine Region).

## 6 HERITAGE IMPACT ASSESSMENT

The technical team responsible for AIP is presented in Table 4.

Table 4: Technical team responsible for AIP.

Element	Academic/professional qualifications	Responsibility
Paulo Gabriel Fernandes de Pinho	Degree in Environmental Engineering Master in Air Pollution PhD in Applied Environmental Sciences Senior Member of the Order of Engineers APAI Professional	Natural Heritage and Landscape
Sérgio Miguel Gomes Lopes	Degree in Environmental Engineering Master in Mechanical Engineering PhD in Natural and Technological Risks Senior Member of the Order of Engineers	
Carina Bairrada Marques	Degree in Biology	
Diana Fialho Jorge	Degree in Biology	
Marcos Daniel Osório da Silva	Degree in Archaeology Master in Roman Archaeology	Archaeological, Architectural and Ethnological Heritage

This study takes into account the methodology defined in the ICOMOS Guide, namely in Appendix 4, adapted to the Project under study. The most expressive cultural and natural values were evaluated. In ADWR World Heritage these expressive attributes are (Ramos C. e Fonseca G., 2014):

- Cultural Values – the dominance of the vineyard alternating with Mediterranean bushes, villages, Quintas and couples, terraces and wall in shale, access roads and highways, the railway and the navigability of the Douro River, the different types of planting of the vineyard, the anthrosols and water conservation, the pattern of the landscape;
- Natural Values – complex geomorphology, scarcity of fertile soil and water, abrupt slopes, Atlantic-Mediterranean climate gradation, Mediterranean vegetation and crops, diversity of wine-growing genetic heritage, habitat diversity, light, colours, odours, Douro River and its affluent.

### 6.1 LANDSCAPE

The implementation area of Quarry n.º 6637 “Vale de Videiro II” consists of a physiographical cut zone alternating between hills and valleys, with a rugged relief in much of its area, as a consequence of rigid tectonics and differential erosion, related to the fitting of the Côa River and its main affluent.

The area surrounding the Quarry presents a variation of dimensions between 140 near Côa River and 450 m