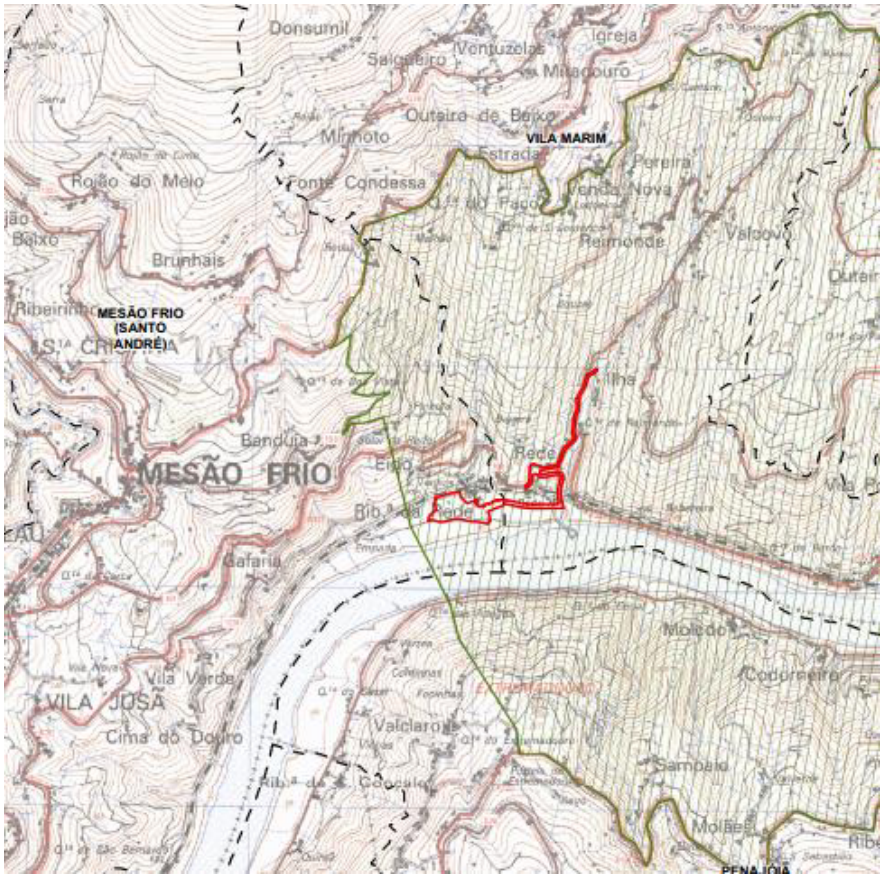
Júlio de Jesus consultores

nemus

DOURO MARINA HOTEL



ENVIRONMENTAL IMPACT ASSESSMENT STUDY

Preliminary Study Phase

Vol. III – Non-Technical Summary

November 2020

Douro Marina Hotel
Environmental Impact Assessment Study
Preliminary Study Phase

Volume III – Non-Technical Summary

INDEX

1. Introduction

This document is the Non-Technical Summary of the **Environmental Impact Assessment (EIA) Study of the Douro Marina Hotel** project, which is in the Preliminary Study phase. This project is located on the right bank (north) of the Douro River, near the town of Rede, parish of Santo André, municipality of Mesão Frio (see Figures 1 and 2, below, and Map 1, in the end of this document).

Source: Douro Marina Hotel architecture project.

Figure 1 - Aerial photograph marking the project site

The project, by ARQ 2525 - Arquitetos, Lda., comprises a 5-star hotel complex, a direct access road, landscaping and connections to the infrastructure networks. These components achieve the objectives of the Rede´s Detail Plan, in the area defined as Execution Unit 4. The hotel complex, with a height of 18 m, comprises six floors, two of which are basements.

The **tenderer** of this project is Douro Marina Hotel, S.A. The **licensing authority** is the Mesão Frio Municipality and the **EIA authority** is the Norte Portugal Regional Coordination and Development Commission (CCDR-N).

The EIA Study was prepared by a partnership of two companies: Júlio de Jesus Consultores, Lda. and NEMUS - Gestão e Requalificação Ambiental, Lda. This EIA was prepared between September 2019 and January 2020, but much of its content is based on the two previous EIA studies, prepared between 2014 and 2017.

The EIA study comprises three volumes:

- Volume I – Main Report;

- Volume II – Annexes;

- Volume III – Non-Technical Summary, the present document.

All documents that constitute the EIA Study are available – in Portuguese – at the Internet site Participa (participa.pt), including the Additional Elements, submitted in November 2020.

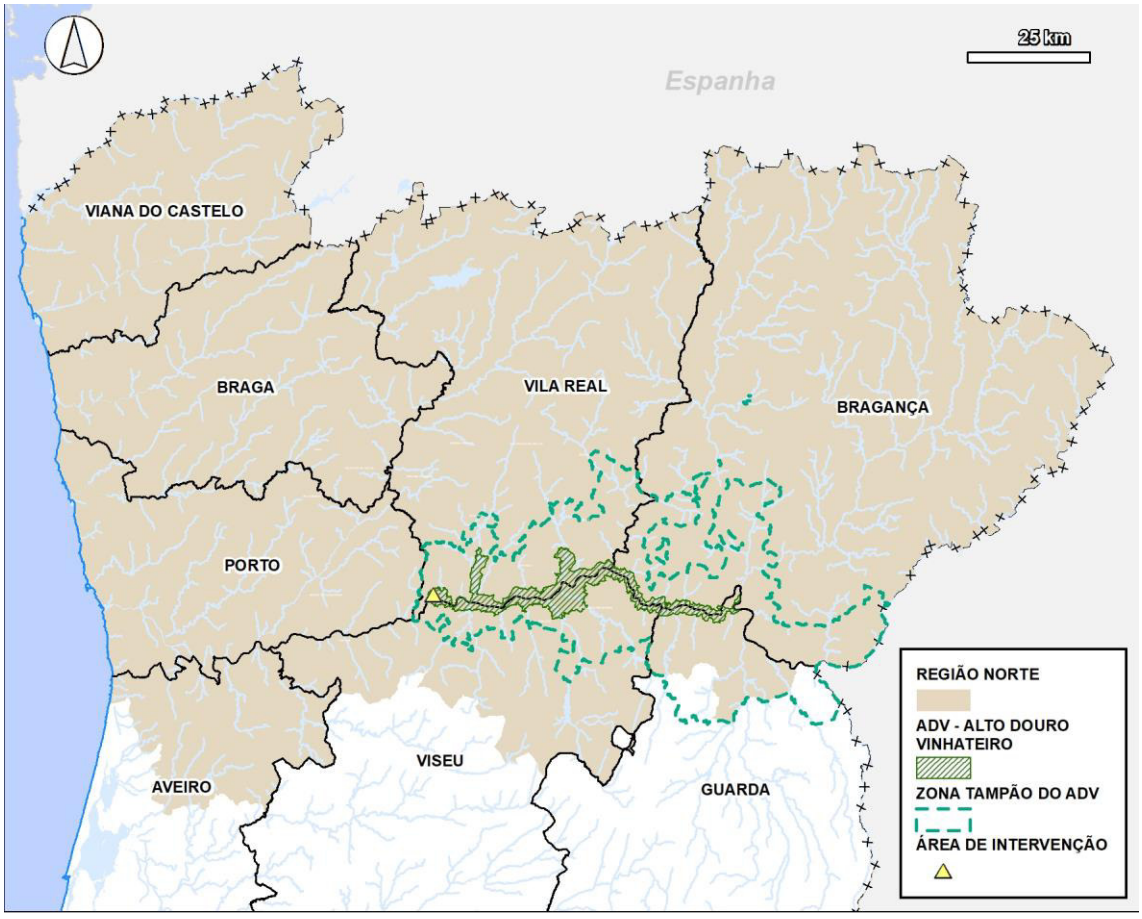


Figure 2 – Location of the project in the Norte region and in the Alto Douro Wine Region (Translation: *Região Norte* – Northern Region; *Alto Douro Vinhateiro* – Alto Douro Wine Region; *Zona Tampão do ADV* – ADWR Brass Zone; *Área de Intervenção* – Intervention Area)

The legal framework for environmental impact assessment of public and private projects likely to have significant effects on the environment is established by the Decree-Law n.º 151-B/2013, of October 31st (current text available at https://data.dre.pt/eli/dec-lei/151-b/2013/p/cons/20171211/pt/html), transposing into national law the European Directive n.º 2011/92/EU, of the European Parliament and of the Council of 13 December 2011.

Since the project corresponds to a hotel complex with 180 accommodation units (rooms and suites), in a total of 360 beds, and it is located in a sensitive area (Alto Douro Wine Region), it is integrated in the typology defined in paragraph 12(c) of Annex II from the Decree-Law, namely:

- "Hotels, tourist villages, tourist flats, tourist complexes and rural hotels, when located outside urban areas, and associated projects".
    - "**Sensitive Areas**": "Hotels, Apartment Hotels, Rural Hotels and Tourist Apartments and ≥ 50 beds".

2. Project Background and Goals

Project Background

This project is included in the Rede´s Detail Plan, respecting all the parameters defined by it, and has been planned since May 2009, with a similar configuration to the current one (see Figure 3, on the next page). The Rede's Detail Plan, approved in 2009, "arises from the need to frame the construction of a five-star resort", mentioning the "resort" as "the most striking intervention foreseen in the Plan". The development and approval of the Plan was monitored by several public entities, with emphasis on CCDR-N, the North Regional Directorate of Cultural Affairs (Direção Regional de Cultura do Norte) and the Tourism Institute of Portugal (Turismo de Portugal).

Article 27 (Characterisation and use) of Subsection IV (Hotel - Execution Unit 4) of the Rede's Detail Plan Regulation states that "the areas allocated to the Resort are intended for the installation of a hotel complex and complementary services". The project refers to the execution of this installation.

The location of the Hotel had already been consecrated in the **Régua and Carrapatelo Reservoirs Management Plan** (Plano de Ordenamento das Albufeiras da Régua e Carrapatelo - POARC), approved by the Council of Ministers Resolution n.º 62/2002, of March 23rd.

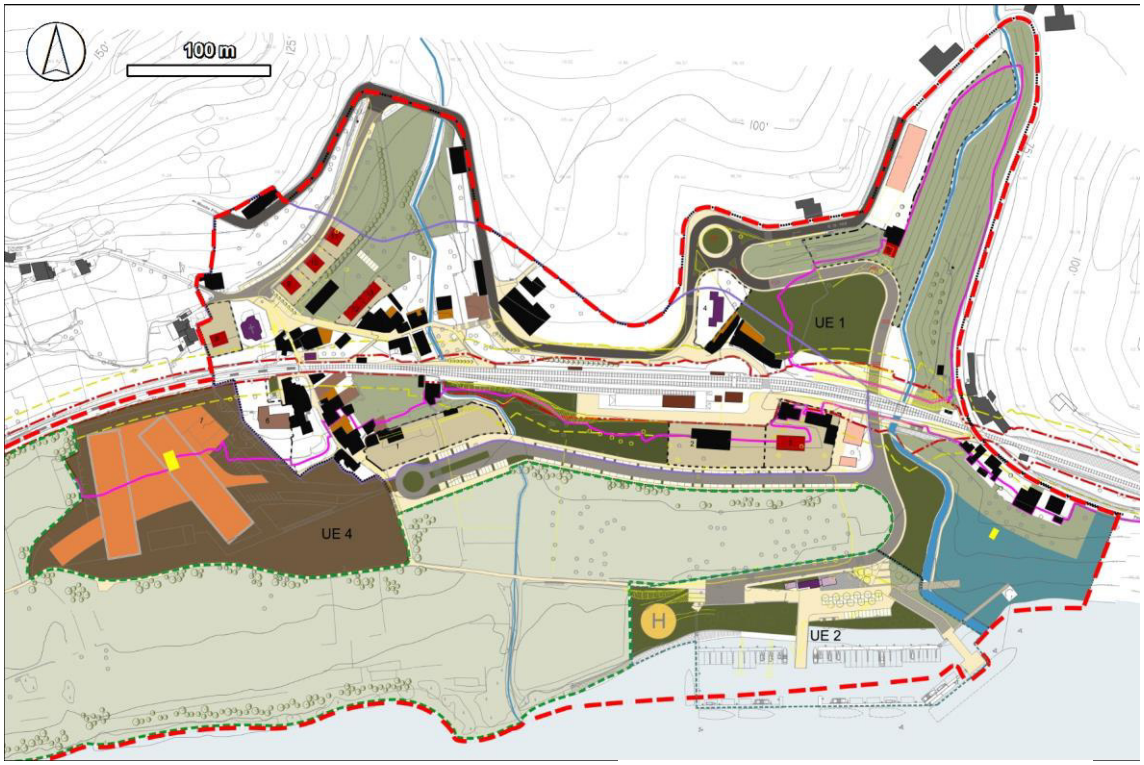
In August 2016, a first EIA study was submitted. It was closed, at the client's request, in December of the same year. A year later, in December 2017, a second EIA study was submitted and, in April 2018, the Non Conformity Statement was issued. This Statement was taken into account in the current EIA study, particularly regarding the previous lack of detail in the project.

Project goals and justification

The project's first **goal** is to determine the implementation and integration of the hotel complex and complementary services foreseen in the Rede´s Detail Plan. The project aims to create a hotel that can provide an excellent tourist and leisure offer in the region, setting very high standards and encouraging future investments that contribute to local and regional development.

In addition, the project is **justified** by the need to support river tourism in the Douro River, offering a high quality accommodation (5-star) hotel and complementary services. The project will also contribute to the creation of direct and indirect employment.

According to the market study carried out by the tenderer, in 2011, the project region has a "lack of top-class hotels" and "medium-sized hotel units". Therefore, it can consider the possibility of "developing articulated products between hotel and cruise" and the integration in "a large geographical area that encourages touring products and with a certain similarity/complementarity in terms of gastronomy and wines". One of the projet's strengths is the location "on the right bank with good sun exposure and visual contact with the river", in a "land with a gentle slope not conditioning the construction of the hotel".



HOTEL AREA
SECONDARY PIER EQUIPMENT
LANDSCAPING HOTEL AREA
EXISTING DWELLING
EXISTING BUILDING FOR PUBLIC EQUIPMENT
EXISTING BUILDING FOR INDUSTRY / WAREHOUSE
EXISTING BUILDING FOR THE RAILWAY STATION
DEMOLITIONS
HELIPORT
ROAD PROPOSAL (ASPHALT)
ROAD PROPOSAL (STONE PAVEMENT)
CAR PARKING (105 PLACES)
TRUCK PARKING (3 PLACES)
SIDEWALK / POTENTIAL MOTOR TRAFFIC ACCESS
PUBLIC RAILROAD LIMIT - PROTECTION STRIP
PUBLIC RAILROAD LIMIT (10M)

LIMITE DO PLANO DE PORMENOR DA REDE - 351 735 m²

EXECUTION UNITS (EU)

EU1 – REDE'S AREA – 124 567 M²
EU2 – SECONDARY PIER – 20 048 M²
EU3 – GOLF – 169627 M²
EU4 – HOTEL – 23 100 M²

ECOLOGICAL STRUCTURE

GREEN SPACES – 9 925 M²
BATHING AREA – 7 743 M²
WATER COURSES
DOURO RIVER
FLOODPLAIN LIMIT (HEIGHT: 65,90 M)

BUILDING AREA FOR DWELLING
BUILDING AREA FOR DWELLING EXPANSION
AREA FOR BUILDING REHABILITATION

Source: Rede's Detail Plan (2009).

Figure 3 –Extract of the Detail plan Network deployment plant

The implementation of the Douro Marina Hotel will invigorate the local economy and introduce new needs into the local labour market. Some specific training needs will be necessary, and the area might be subject to potential temporary inconvenience due to the activities of the various phases of the project.

However, in general, positive contributions are expected, particularly regarding the promotion of the region's tourism sector. The project's privileged location, on the Douro river bank, will enhance the various facets of the regional touristic offer and contribute to the tourist attraction in the north of the country.

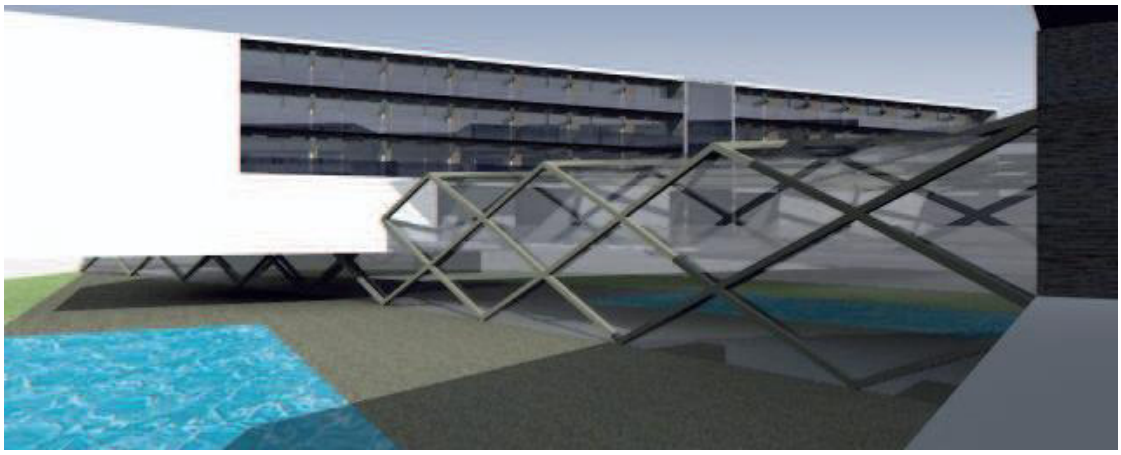
One of the XXII Constitutional Government Programme intentions is the promotion of territorial cohesion, through "the attraction of investment that creates jobs and allows populations to be fixed, ensuring positive migratory balances, is an indispensable condition to counter the abandonment trends of vast areas of the national territory". The project contributes to the implementation of this intention.

3. Project description

The project regards the implementation of a 5 stars hotel complex, in order to achieve the goals of the Rede's Detail Plan, particularly on its Execution Unit 4.

After its implementation, the tourist resort will have a total area of 23 100 m^2 approximately, with 8 497 m^2 allocated to the **hotel building**. The hotel complex has 180 accommodation units, twelve of which are suites and three are adapted for people with limited mobility. The remaining area, of **exterior spaces** (14 603 m^2), goes around the building and includes green spaces, leisure areas and car parking (see Map 2, in the end of this document).

Among the various infrastructures designed for the tourist resort, the main action to be developed is the implementation of the hotel building. The hotel design includes three volumes: the lower one houses the service areas (entrance, floor 0 and floors -1 and -2) and is parallel to the river; the two higher volumes, with floors 1, 2 and 3, are mostly for bedrooms, creating an angular shape, open over the landscape (see figure below).



Source: Douro Marina Hotel architecture project.

Figure 4 –Indicative demonstration of the appearance of the Douro Marina Hotel *façade*, on the entrance floor

The **building** was designed for different services and functions to be aggregated on different floors:

- Floor -2 includes 231 parking spaces and the hotel's technical areas;
- Floor -1 includes technical areas for spa support, a winery, multipurpose rooms and a dining room for events, a support kitchen for this dining room, staff areas (canteen and changing rooms) and the laundry;
- The main entrance of the hotel and the reception are located on the ground floor, as well as various service areas (spa, restaurant, bar);

- The upper floors (floors 1, 2 and 3) contain the rooms (in addition to the entrance to the upper level auditorium, on floor 1).

As for the **exterior spaces**, the Douro Marina Hotel has pedestrian walks, which make the interconnection between the exterior parking areas (239 parking spaces for cars, including 2 spaces for people with conditioned mobility), the green spaces and the hotel's exterior fruition spaces, such as the outdoor swimming pool. The landscape integration project provides for the distribution of blocks with vegetation, compartmentalizing the views from the hotel, together with concrete walls and schist coated paved surfaces. The green areas will be planted with plant species existing in the surroundings.

The project includes a **road access** to the hotel, according to the provisions of Rede´s Detail Plan. This access allows the connection of the project area to the national road nº 108 and includes a tunnel (see Figure 4). This road access is crucial for the project's construction works and, therefore, the execution of the access will be the first task to perform, with an estimated duration of four months. The execution of the accesses will only be completed in the final phase of the project's construction planning, where the roads and their landscaping will be completed.

Figure 5 – Designed road access

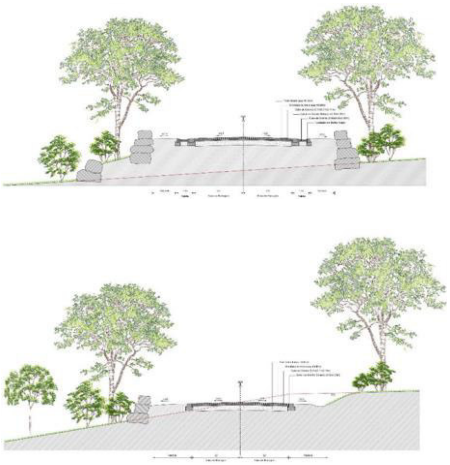


Figure 6 – Schematic view of road access when outside the tunnel

The road access will be subject to a landscape intervention, as outlined in Figure 5, allowing its integration into the landscape until it meets the national road.

The project also includes connections to the **municipal drinking water distribution network** (connection with 64 m long to the water supply system on Rede) and to the drainage of rainwater and sewage networks (connection with 1372 m long to the Vila Marim Treatment Station). The Mesão Frio Municipality provides access through the study and dimensioning of the infrastructures in view of the increased needs and forecasts defined in the Rede´s Detail Plan. The water supply network considers the existence of a 90 m^3 reservoir in order to guarantee the minimum comfort parameters and taking into account possible failures/pressure points in the public distribution network. The planned sewage network includes a grease separator for the wastewater from the kitchens and an oil separator in the parking areas, as well as a pumping station to route the wastewater to the Treatment Plant.

The **power supply** will be carried out from the existing medium voltage network in the surrounding area. The lighting solutions, interior and exterior, have as a principle to harmonize the lighting quality requirements with the conditions resulting from energy saving and coordination with the building's architecture and landscape arrangement.

Regarding technical provisions necessary for the proper functioning of the development, the project includes flood protection measures for the floors -2 and -1, which will be below the known maximum flood level (66 m). This involves the use of autonomous hydraulic sluice systems, without the need for an electrical supply, associated with the walls and floors, which will ensure the watertightness of the floors, safeguarding the safety of people and property.

The construction phase will take 24 months to conclude, consisting in land provision (6 months), primary execution of the accesses (4 months), construction of the hotel (15 months), completion of the execution of the accesses (4 months) and landscaping (6 months), these last two activities simultaneous to the construction of the hotel.

During the construction phase, the **construction site facilities** will be located in the future car parking, at the extreme northeast of the area. This location makes it possible to safeguard the remaining area of the hotel site, maximizes the distance to Douro River and ensures the accessibility to this work area, serving as an interface between the accesses (both temporary and definitive) and the work areas. The social facilities will be located on empty houses, located northeast of the hotel site and owned by the proponent of the project.

On average, approximately 110 **jobs** will be created during the construction phase, with a maximum peak of 250 workers, around the 17th month of work.

4. Description of the environment and its evolution in the absence of the project

To characterize the current state of the environment in the project's area of influence, several factors have been studied, covering geology and geomorphology, soil and land use, groundwater resources, surface water resources (including quantitative aspects and surface water quality), sound factor, air quality, water, wastewater and waste services, ecology, flora and fauna, territorial planning, landscape, archaeological, architectural and ethnographic heritage, the Alto Douro Wine Region (classified as World Heritage), socioeconomics, climate change and human health.

All these factors have been addressed in an integrated process in the region and its surroundings, always considering the relevant legislation, as well as the territorial management instruments.

Fotography 1 –View of the project area from the confluence zone of EN101 and EN108 roads

Fotography 2 – Area where the project is planned to be implemented, from its southern edge

In **geological and geomorphological** terms, schistous soils and deposits of river terraces, which settle on the rocky substrate, emerge in the intervention area. There are no factors that may cause instability of slopes in the hotel area, however the area connected to the wastewater drainage network, due to its steep nature, may experience occasional falls of rock blocks. There is no exploitation of geological resources nor any prospecting and research contract for metallic or non-metallic mineral resources.

Regarding the **soils**, in the area where the hotel is located, orthical fluvissoles dominate (67%). These are former alluvial soils, with small/medium representation, often used for intensive irrigation or dry farming and sometimes permanent grassland. Soils with high suitability for agricultural use and improved grazing, and soils with moderate suitability for forestry and/or natural exploitation predominate. The risk of erosion is reduced to zero. Soil fertility conditions vary from relatively high to medium. As for current land use and land cover, the project implementation area corresponds mostly to open forests and shrub and herbaceous vegetation (52%).

In **hydrogeological** terms, the Douro Marina Hotel is in the Maciço Antigo Indiferenciado da Bacia do Douro, characterized by its reduced aquifer aptitude. The underground water environment covered by the intervention area has a reduced to variable vulnerability to pollution. A water mine has been identified in the intervention area. In the area immediately contiguous to the north-western limit of the project, a mine, a dry well and an infrastructure suggesting that a borehole is inside it, have been identified.

Regarding **surface water resources**, the project is in the drainage basin of the Albufeira de Carrapatelo, designated as heavily modified, due to the significant changes in morphology and natural flow regime associated with the Carrapatelo dam. Due to the morphological and hydrological characteristics of the region, the riverside areas are susceptible to flooding due to local accumulation of precipitation and runoff.

The assessment of **surface water quality**, according to the monitoring results, reveals that local water resources generally meet minimum quality environmental objectives. Nevertheless, very sporadic exceedances of the parameters generally related to organic load are noted, particularly at Moledo (Douro River) station.

The **sound factor** was characterized through the Noise Map of the Mesão Frio Municipality, the acoustic classification of the municipality published by Rede´s Detail Plan and the sound monitoring on site. Sensitive receptors were identified, such as the dwellings and school, commercial and port facilities in Ribeira de Rede and Rede. In the area of intervention, the sound level is relatively undisturbed, with the effect of vehicle traffic and the sound signals used by road and rail users being remarkable. The legal limits on noise levels are generally met, while in the vicinity of the local road network there are notable conflicts with all the legal limits.

The **air quality** characterization was developed based on the data made available by the Portuguese Environmental Agency and collected by the Air Quality Monitoring Network. These data points out the region's exposure to relevant levels of tropospheric ozone, with very frequent exceedances of applicable limits for the protection of human health.

Given the eminently rural and tourist occupation on the region, the operation of combustion engines (both in rural activities and in traffic) and occasional fires are identified as **sources of air pollution**. In the local road network, the EN108 (Porto - Peso da Régua) and EN101 (Mesão Frio - Amarante) stand out. The dwellings and installations in the valley surrounding the intervention area less than 50 m from the road axes or the intervention area have been identified as sensitive receptors.

In the project's area, the **water, wastewater and waste services** sectors are subdivided into upstream management segments, which are managed by private entities with public capital, namely Águas do Norte (AdN) for water and Resinorte for waste, and downstream (i.e., direct service to the final consumer) under municipal management.

As far as **ecology** is concerned, the study area doesn't include any Nature Conservation classified site. The nearest classified sites are located in the north (3 km), east (7 km) and south (6 km), all integrated in the Natura 2000 Network. In the project area, two natural habitats are essentially identified - ruderal grassland and sugarcane - with low or null ecological interest. Regarding the flora with legal protection status, cork oak *(Quercus suber*) has been confirmed in the area. This species is protected by Decree-Law n.º169/2001, of May 25, with the current wording. Regarding fauna, the Bonelli's eagle (*Hieraaetus fasciatus*) has been ideintified in the area. This species is classified as "In danger" by the Red Book of the Vertebrates of Portugal in the Douro Valley, specifically in this area of Régua.

The **territorial management instruments** applicable to the project area are the following: Plano de Gestão da Região Hidrográfica do Douro (RH3); Plano Regional de Ordenamento Florestal do Douro; Plano de Ordenamento das Albufeiras da Régua e do Carrapatelo; Plano Intermunicipal de Ordenamento do Território do Alto Douro Wine Region (PIOT-ADV); Plano Diretor Municipal (PDM) de Mesão Frio and Rede´s Detail PLan. The following administrative easements and public utility restrictions are also identified: UNESCO World Heritage Site (Alto Douro Wine Region); Floodable Areas; Water Domain (River-Beds and Watercourse Margins); Public Water Reservoir Protection Area; National Ecological Reserve, National Agricultural Reserve (defected, within the Rede´s PP process); Public Rail Domain and Acoustic Zoning.

The area of intervention is part of the Alto Douro Wine Region **landscape** unit (Continental Portugal) and the subunit of marginal areas of the Douro, with very high visual quality and punctually high. It is also framed in the tributary valley subunit, in areas with very high visual quality. The visual absorption capacity of the study area is dominantly low (both in the project area and in the future access area) and, therefore, the landscape sensitivity of the area is very high, being punctually medium to high, in the area where the connection to the wastewater treatment plant will be established.

Regarding the **archaeological, architectural and ethnographic heritage**, although the extended region in which the project is inserted contains a diversified patrimonial wealth, the visual survey of the area didn't identify any occurrence of archaeological interest in the area of direct incidence of the project. This survey was harder to follow due to the density of the vegetation, but it is proposed the archaeological accompaniment of the contract. A potential boundary wall (with reference to DMH1) and a boundary wall of property (DMH2), both of low patrimonial interest, and a boundary wall of property (DMH3) and of land restraint (DMH4), both with significant patrimonial value, were identified.

The **Alto Douro Wine Region** is a particularly representative area of the landscape that characterizes the vast Douro Wine Demarcated Area, the oldest regulated wine region in the world, with a diverse heritage. The recognition of its exceptional value led to the classification by UNESCO in 2001, as a World Heritage Site, in the category of cultural, evolving and living landscape. In the area of intervention, no attributes of the Douro Demarcated Region were identified, except the two walls mentioned above.

In **socio-economic** terms, the population of Mesão Frio is following the national demographic trend of ageing and declining population. The population of the parish of Santo André and the municipality of Mesão Frio is slightly younger than the rest of the population in the Douro region. The main economic activities of both the parish and the municipality are retail and wholesale activities. Highlight goes to the employability of the primary sector, in 2011, in the municipality of Mesão Frio, a reflection of the existence of an economy still markedly rural and dominated by vine growing. The growing number of hotel units in Mesão Frio since 2014, as well as the number of accommodation and overnight stays, highlights the increasingly important role tourism plays for the municipality and the Douro region.

The **evolution of the current state of the environment** in the absence of the project will be conditioned and will reflect the provisions of the territorial management instruments in force, such as the PIOT-ADV, but more particularly the Mesão Frio master development plan and Rede´s Detail Plan, for giving concrete indications on the occupation of the area and consequently its future evolution. Thus, in the absence of the project, it is expected that the tourism vocation of the area will be maintained and that the urban consolidation of Rede will be achieved.

5. Main impacts and mitigation procedures

Environmental impact stands for the changes that occur in the field and its surroundings, resulting from the project in a direct or indirect way. These changes can be positive or negative and should be assessed regarding the evolution of the current state of the environment in the project area.

The impact of the project on the environmental factors has been assessed through a set of **criteria**, resulting in the prediction of its importance. The value of an impact can be positive (environmental improvement), negative (environmental devaluation) or null (no impact in the environment); the magnitude represents the size of the impact; the duration can be temporary or permanent; the reversibility of the impact stands for the possibility to return to the previous standard on the field; finally, the significance of an impact reflects its importance and degree (negligible, significant, very significant) and is influenced by the other assessment criteria.

The assessment of environmental impacts focuses on the **construction and operation phases** of the project and is the basis for proposing the **environmental procedures** to mitigate the negative environmental impacts and enhance the positive environmental impacts.

The EIA considered that no relevant **cumulative impacts** are foreseeable with other projects or activities, namely those foreseen in the Rede´s Detail Plan (secondary wharf and golf course), as their achievement is not foreseeable, according to the available information. In any case, any future realisation of such projects would be subject to EIA, in the case of the golf course, and to a case-by-case analysis, in the case of the secondary wharf.

Construction Phase

At this stage, most of the **negative impacts** identified are potentially **minor and temporary**. They result fundamentally from the installation and operation of the construction site and the land modelling, but also from the implementation of the infrastructure. Therefore, some impacts are permanent and remain in the operation phase due to the presence, operation and maintenance of the infrastructure.

This assessment considers the implementation of the proposed general procedures, taking into account the document "General minimisation measures for the construction phase" of the Portuguese Environmental Agency (APA), and is intended to be integrated into the environmental management of the construction work in order to ensure its effective implementation. The assessment also takes into account specific procedures for the environmental factors during the construction phase - procedures to control and minimize the effects on the slopes, soils, and sound levels, procedures to ensure the water supply and adequate drainage and sewage treatment of the field.

However, some negative impacts tending to be **more significant** were also identified, in geomorphology, soils, spatial planning, ecology and landscape.

The most significant impacts on **geomorphology and soils** result from the potential exposure of soils of high agricultural aptitude to the implantation of structures and slope areas to the work of establishing road access and connection to the Vila Marim wastewater treatment plant.

In **ecology**, the impact of average magnitude and significance is the disturbance of faunal communities, namely the Bonelli's eagle. The impact of varying magnitude and significance is the chemical contamination by accidental spillage or dispersion of substances used in the construction phase. In this context, specific procedures are proposed , scheduling the construction work so as to interfere as little as possible with the fauna, as well as carrying out field surveys before the work, to identifying specimens of the flora with a high conservation interest and/or conservation status, such as the cork oak.

The impacts on **land use planning** result from overlapping the project's area with restrictive constraints such as water and public rail.

In **landscape**, the visual impacts of land modelling and implementation of infrastructures will be the most relevant - negative, significant (considering the very high visual quality of the project's surroundings) and of medium magnitude (because the project is visually reflected in a relevant way in the surroundings, in an area of high visual exposure, accentuated by the volumetry of the hotel with a significant area of implantation), despite being temporary (temporary reduction of the scenic value due to the effect of the works). Some specific procedures are also proposed as recommendations for the project's execution, namely landscape integration and actions for visual containment of the work.

On the other hand, **significant positive impacts** have been identified, on economic activities and job creation at the local level. Two procedures are proposed in order to leverage the positive impacts identified on socio-economics, namely the use of local labour, products and services.

Operation Phase

In the operation phase, the exposure of road access and external spaces to the risk of flooding was identified as a **significant negative impact**. M**inor negative impacts** were also identified, associated with soil sealing and potential interference with groundwater resources, potential changes to the quality of the environment, felt by the surrounding population due to the operation and maintenance of the project and associated traffic. Specific procedures to minimise noise levels emitted by the operation and maintenance of the project and **waste** management, for example, contribute to this assessment.

At this stage, the environmental factors where **potentially significant impacts** may occur are surface water resources, ecology and the landscape, plus the Alto Douro Wine Region (by the visual impacts on the landscape).

For **surface water resources**, the exposure of project components, as part of the road access to the hotel and part of the exterior spaces, to the risk of flooding is highlighted, with the hotel building protected with the application of the foreseen procedures (sluices).

In the context of **ecology**, the impacts on the contamination of habitats and communities of fauna and flora and on the disturbance of faunal communities in the surrounding areas are highlighted. Their magnitude and significance could be minimized with the adoption of the specific procedures proposed: environmental awareness among hotel users of local ecological values and recommendations for phytopharmaceuticals to be used in green spaces.

Regarding **landscape**, significant visual impacts are expected, related to the change in the value of the landscape and the visual projection of the project in the surrounding area, even with the implementation of the proposed procedures. In this context it is recommended to regularly maintain structures, infrastructures and outdoor spaces of the hotel unit.

On the other hand, significant positive impacts are expected on **land-use planning**, related to the fact that the project meets the Territorial Management Instruments, in particular Rede´s Detail Plan, respecting the implementation and building parameters defined.

The **positive impacts** of the project on socio-economics, by creating jobs in a region heavily affected by unemployment and by strengthening/consolidating supply and contributing to the development of tourism activities in the region will also be **potentially significant**.

6. Proposed monitoring

The EIA proposes four monitoring programmes: sound, wastewater, waste and fauna (Bonelli's Eagle).

The **sound** monitoring programme aims to monitor the local noise conditions and the effects that the project may have on the receivers, including the follow-up of possible complaints that may occur. This programme should characterise the parameters of equivalent continuous sound level and assessment level, allowing consideration of compliance with the legal framework and possible annoyance. Annual monitoring and reporting are foreseen, considering the seasonality of the activity (from July to September), on three spots next to the most exposed receivers to the project and to the foreseen road access.

The project's **wastewater monitoring** programme applies to the hotel complex operation phase to assess compliance with Decree-Law 198/2008, from October 8th, and the applicable Municipal Regulations. The waters must be sampled at the pumping station to be installed and have a fortnightly frequency during the start-up phase of the treatment plant, with quarterly reporting to the City Council and annual summary to the City Council, the Portuguese Environmental Agency and CCDR-N.

The **waste management and monitoring plan** establishes the framework for monitoring and follow-up of waste production in the various phases of the project, assigning responsibilities for management and monitoring and defining parameters to be monitored and evaluation criteria for the amount of waste produced per typology, the identification of the hazardousness of each typology, the storage conditions and the waste management operation applied. Monitoring should be done in or near temporary storage sites, considering the availability of equipment needed for monitoring. This plan includes quarterly reports during the construction phase and annual reports during the operation phase, to be submitted to CCDR-N.

The **Bonelli's Eagle** monitoring programme takes into account the importance of the study area and its surroundings for the conservation of this bird of prey, with the goal of assessing its response to the implementation and exploitation of the project. The abundance (number of individuals occurring) and the type of use of the habitats present in the study area and its surroundings will be monitored: nesting, feeding, resting/housing or passage in dispersion phase. Sampling should be carried out in the Douro Valley and the habitats, on both banks of the Douro River. Each sampling campaign should include at least five days (five samplings). If possible, the first campaign should be carried out in the breeding period of the species (between February and April) to detect nesting couples. During the construction phase, it is proposed to adopt a monthly monitoring frequency and, in the operation phase, a bimonthly frequency during the first year and quarterly during the second year and following. After the first two years of operation, and depending on the results obtained, the sampling plan should be revised.

7. Conclusions

The **Environmental Impact Assessment, which is in the preliminary study phase**, was developed in order to provide a tool to support the decision on the environmental feasibility of the project and to contribute to its future development (in the execution project phase) and to its implementation (construction, operation and even considering a possible decommissioning) in an environmentally sustainable way.

To that end, the **environmental factors** likely to be affected by the project's interventions have been studied, in particular: Geology and geomorphology; Soils and land use; Groundwater resources; Surface water resources (Quantitative aspects of surface water resources and Quality of surface water); Sound; Air quality; Water, wastewater and waste services; Ecology, flora and fauna; Land use planning; Landscape; Archaeological, architectural and ethnographic heritage; Alto Douro Wine Region; Socioeconomics; Climate change; Human health. Diversified **approaches,** adapted to the scope of the analyses, were adopted, including the analysis of available monitoring data, bibliography and field work.

Despite the identification of **knowledge gaps**, knowledge of the project and the environment is reflected in the detailed **characterization of the environment potentially affected by the project** and this supports the **impact assessment** analysis, which motivated the proposal of **mitigation procedures**.

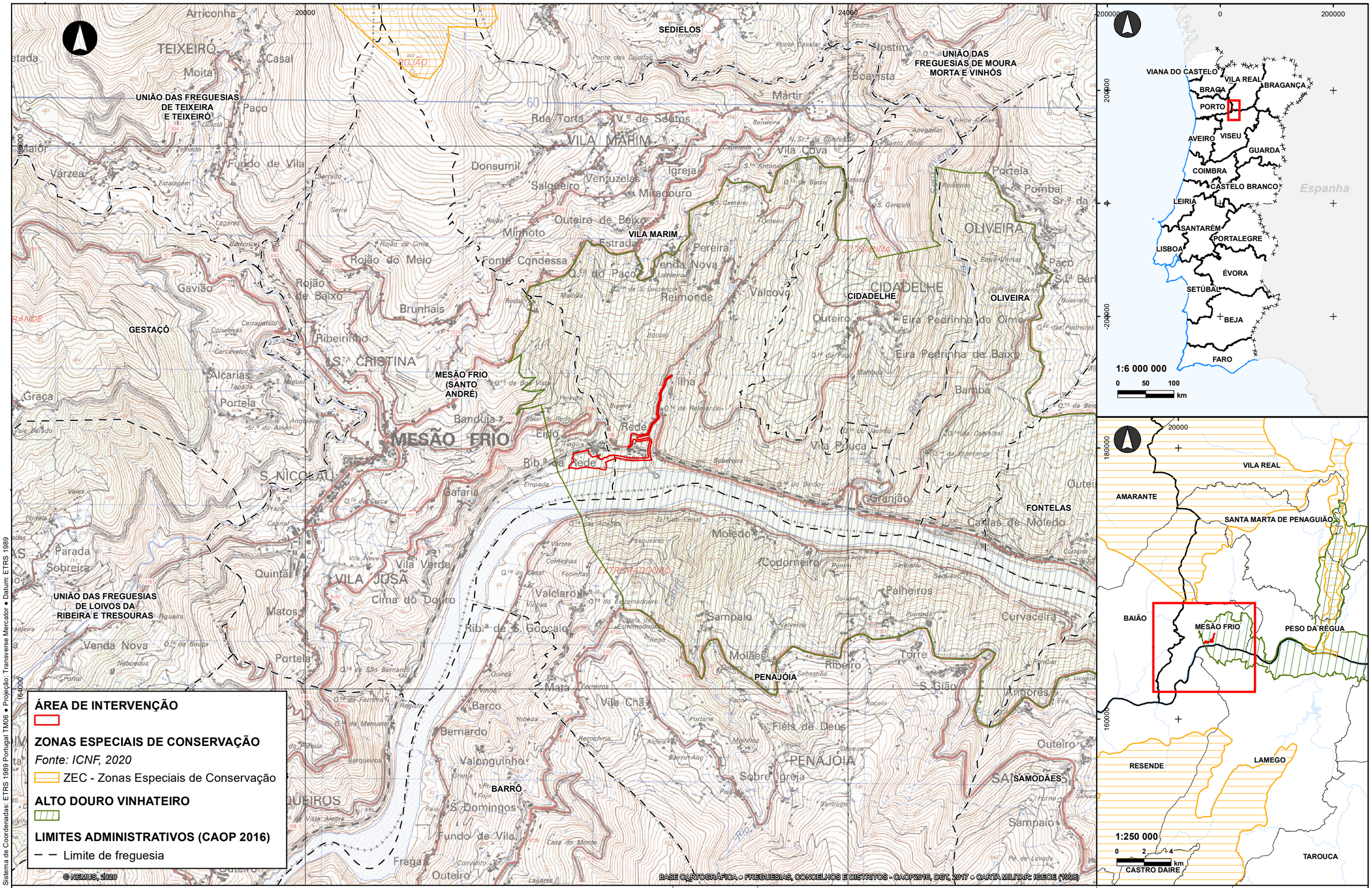
Despite its partial implementation in **floodable areas**, the project has significant positive impacts on land use and land-use planning because it meets the applicable Territorial Management Instruments, in particular the Detail Plan of Rede. The implementation and building parameters of this Plan are fully respected. Procedures have been proposed for the implementation project phase in this context (floodgates in the building, longitudinal and transverse hydraulic organs, retaining walls, damping and rainwater retention basins).

The insertion of the project in the boundary of the **Alto Douro Wine Region** area motivated a specific analysis, which concluded that although it fits the types of environmental dissonance identified in the Alto Douro Wine Region (new hotel structures), and as such identified negative impacts associated, the planned intervention will not call into question (in global terms) aspects such as the authenticity and integrity of the Alto Douro Wine Region landscape, which led to its classification by UNESCO, if all the procedures defined in the Rede's Detail Plan regulation are implemented, and in the scope of other factors such as Landscape and Heritage.

The fact that the project fits a dissonance typology identified in the Alto Douro Wine Region motivated the assessment of significant negative **visual impacts** related to the change in the scenic value of the landscape and the visual projection of the project in its surroundings.

The Rede´s Detail Plan, with its provision for the location, size and height of the Hotel, had positive advices from a number of public authorities. Therefore, the project is considered to have a positive impact in land use plan as it materialise one of the main proposals of the Plan.

The majority of adverse impacts identified in the EIA Study are temporary, limited to the constriction phase, or, when permanents, were assessed as less significant. The only permanent adverse impacts assessed as significative are related to a **ground-water traditional uptake**, the **impacts on landscape** and on the **visual setting of the Alto Douro Wine Region**. The adverse impacts are counterbalanced by potentially significant positive impacts on the socio-economics: by the **creation of jobs** in a region heavily affected by unemployment and by the **strengthening/consolidation of supply and contribution to the development of tourism activities in the region.**



ÁREA DE INTERVENÇÃO

ZONAS ESPECIAIS DE CONSERVAÇÃO

Fonte: ICNF, 2020

ZEC - Zonas Especiais de Conservação

ALTO DOURO VINHATEIRO

LIMITES ADMINISTRATIVOS (CAOP 2016)

Limite de freguesia

BASE CARTOGRÁFICA - FREGUESIAS, CONCELHOS E DISTRITOS - CAOP2016, DGT, 2017 - CARTA MILITAR: IGEOE (1998)

Sistema de Coordenadas: ETRS 1989 Portugal TM06 • Projeção: Transverse Mercator • Datum: ETRS 1989

nemus empowering sustainability

Júlio de Jesus consultores

Projetou	João Fernandes
Verificou	João Fernandes
Desenhou	M. Madeira, J. Fernandes
Aprovou	Pedro Bettencourt

ESTUDO DE IMPACTE AMBIENTAL DO DOURO MARINA HOTEL, EM FASE DE ESTUDO PRÉVIO

Localização e enquadramento geográfico do projeto

Escala	1:25 000
Escala gráfica	0 250 500 m
Número	1
Data	novembro 2020
Folha	1/1
Código	T18031-2011_01_EnqProj

22000
22400
22300
166400
166000
166600
EM607
EN 108
EN 108-4

Sistema de Coordenadas: ETRS 1989 Portugal TM06 • Projeção: Transverse Mercator • Datum: ETRS 1989

BASE CARTOGRÁFICA • REDE RODOVIÁRIA/FERROVIÁRIA - OPEN STREET MAP, 2016 • ORTOFOTO: DGT/IFAP (2012)

ÁREA DE INTERVENÇÃO

REDE RODOVIÁRIA

REDE FERROVIÁRIA

PROJETO

- Estaleiro
- Estação elevatória
- Ligações a serviços

IMPLANTAÇÃO DO PROJETO

- Implantação do hotel
- Cubos de granito 0,05 x 0,05
- Cubos de granito 0,11 x 0,11
- Granito serrado
- *Deck*
- Betonilha vassourada
- Grelha de enrelvamento
- Piscina
- Relva
- Acessos

nemus empowering sustainability

Júlio de Jesus consultores

Projetou	ARQ2525
Verificou	João Fernandes
Desenhou	João Fernandes
Aprovou	Pedro Bettencourt

ESTUDO DE IMPACTE AMBIENTAL DO DOURO MARINA HOTEL, EM FASE DE ESTUDO PRÉVIO

Projeto: planta de implantação, acessos e ligações a serviços

Escala: **1:4 000**

Escala gráfica: 0 50 100 m

Número: **2**

Data: novembro 2020

Folha: 1/1

Código: T18031-2001_02_ImpProj