

# Sustainability Summary

*Ombria Resort, Portugal*

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*"Our overall design and approach draws inspiration from the Algarve's authentic Barrocal sub-region to create a 'carved by nature' ethos. This enhances the area's culture and traditional heritage by preserving local biodiversity and embracing local craftsmen and their knowledge of materials. The whole team involved operated with this same vision to create a sustainable destination in this part of Portugal."*

*Ombria Resort*



Ombria Resort  
Certified 12/2019

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# 1

## Executive Summary

The Ombria Resort project is located on a river valley, surrounded by hills, in the parishes of Querença, Tôr and Benafim, municipality of Loulé, Algarve. The resort covers an area of 143.7 hectares within a protected area (Sítio Barrocal da Rede Natura 2000), and sits on top of the Querença-Silves aquifer, a vast underground water resource covering 318 km<sup>2</sup>, considered the most important aquifer system of the Algarve Region in the South of Portugal.

The site, formerly a fruit farm, comprises natural landscape including a watercourse and a series of archaeological remnants related to early waterworks and farming. The resort's phased construction encompasses a five-star hotel, Viceroy at Ombria Resort (76 rooms), 65 branded residencies (the Viceroy Residences at Ombria Resort), residential units (31 Luxury Villas, 350 Tourist units), an 18-hole par 71 golf course with a clubhouse and cutting edge amenities - Spa, health, fitness; food and beverage outlets; conference and sports centres; organic farm and outdoor experiences with specially designed recreational facilities for families and children.



## Project Description

The resort, centred on a river valley surrounded by hills, is designed as a natural extension of the geography, with low-density bioclimatic architecture and the use of renewable energies, respecting the natural landscape, local culture and heritage. Sustainability is an integral part of Ombria's vision. All designers and architects involved in the planning phase are operating with the same shared aim: to create a new sustainable destination. The "Carved by Nature" vision draws inspiration from the features, forms, material and themes of the authentic Barrocal sub-region of the Algarve.

The restored river landscapes that run through the northern portion of the site are a key positive outcome of the project. A large portion of the site remains untouched and forms a 'green blanket' as a backdrop to the south and east of the golf course. This natural and semi-natural habitat includes a few low-input tracks and trails for walking and other non-golf fitness activities. The overall design is a compact golf course with a modest footprint in terms of turfgrass. This results in a lower than average quantity of input and water use over time. The compact design also results in grading works that have been carefully designed to reduce disruption to the overall rolling landscape character and protected existing flora.



photo credit: Ombria Resort (Steve Carr)

*"Our commitment to the utmost respect of our surroundings by protecting natural habitats, using natural resources responsibly and working alongside the local community, is part of a larger responsibility to ensure that golf at Ombria Resort also benefits the stunning landscapes and vibrant community we play alongside."*

Ombria Resorts



*“The Ombria Resort and the golf course project are being designed according to the highest international standards, contributing to long-term community development, while preserving and enhancing the local environment by incorporating areas for conservation and promotion of wildlife habitat.”*

*Alexandra Betâmio de Almeida, Independent Verifier - Ombria Resort*

## Key Achievements

Ombria Resort creates a new sustainable luxury destination, promoting and supporting the heart of the Algarve area, enhancing its culture and traditional heritage. The Ombria Resort has created credible and positive outcomes across all issues of nature conservation and enhancement, resource efficiencies and community activities. These are the direct result of the sustainable approach used throughout the entire project process. The key achievements of the project are summarised below under the appropriate sustainability headings.



- Over 1,800 linear metres of riparian habitat restored and rehabilitated.
- 18,000m<sup>2</sup> of riverside habitat.
- Over 700 oak trees planted in a commitment to a 1:5.6 re-planting policy ratio site-wide.
- 22 Ha of turfgrass with 53.3 Ha of natural and semi-natural habitats.
- Use of extensive green roofs across many of the resort's buildings.
- Native species rich rough grassland planting in the out-of-play areas planted.



- Just 160,000 m<sup>3</sup> of earthworks.
- Zero exports of spoil materials.
- 2 on-site plant nurseries, a greenhouse and an organic farm to help future proof that part of the resort's supply chain.
- 100% of the sands and gravel used sourced within 200km of the site.
- 100% of topsoil reused on site.
- Geothermal (244 boreholes) & solar energy sources power the resort.
- Rainwater collected from hard surfaces into storage lakes.



- 10 strong and close partnerships & community initiatives in place with the local council, NGO, university and school.
- Over 90% of construction workforce were local residents.
- Local cultural heritage protected including: 2.8km of aqueducts; 4 watermills; 3 kilns; 100 linear metres of bridges and stone walls.
- 5,000 linear metres of public footpaths created.



*"On a challenging site the project team have managed to carve out a golf course that is interwoven with the native species and landscape of the area. Built by a local labour force, powered by geothermal energies and closely connected to all generations of the local community, Ombria Resort is deeply rooted in authentic Algarvian heritage and culture."*

*Sam Thomas - Director of Golf Development, GEO Foundation*



# 2

## Design Stage

### Overview

Key design considerations addressed by the project included: the careful routing of the golf holes through the steep topography and scattered native specimen trees; minimal turf grass surface areas; restoration and integration of the native river landscapes; conservation of the surrounding woodlands for nature and recreation; highly efficient irrigation system and pump set to cope with the steep terrain; selective site clearance to integrate more 'found' features; modular approach to building massing to help 'bed in' the resort to the hill side also utilizing green roofs; geothermal and solar energy supply; local materials for walls and bridges; and numerous on-site and locally led initiatives to raise awareness of the environment and connect the resort to the local communities.

### Goals:



Restore the river and associated floodplain with native riparian landscape using natural flood controls and alleviation techniques. Preserve, conserve and enhance the ecological value of local natural and semi-natural habitats.



Maximise existing site features and materials to create an efficient golf course model that sits lightly in its location.



Value the region's culture and traditions to provide opportunities for local expertise, suppliers and workforce to contribute to a genuinely Portuguese golf course.



photo credit: Ombria Resort (Steve Carr)

## Activities

The following section outlines the process that went into developing Ombria Resort to be a luxury sustainable destination. It illustrates the commitment and careful consideration of the project team's objectives and vision throughout the early stages of the project's life.



## Nature

The project team were committed from the start to preserve the natural character of the existing terrain and continually reviewed the configuration of the holes and grassing lines during the design process to come to the solution that maximised the preservation of the native specimen trees (oak and holm trees), minimise earth moving to less than 160,000 cubic metres and refined the turfgrass area down from 27 hectares originally to less than 22 hectares.

The space between holes was preserved and retained its existing vegetative mosaics. The out-of-play areas were enhanced with local tree species planting (olive, almond, chestnut, holm and medronheiro). This planting effort formed part of the strong 1:5.6 tree re-planting ratio commitment.

**18,000m<sup>2</sup>**  
**of native riparian**  
**habitats and**  
**over 700 native**  
**trees planted**

The river corridors running through the site were restored, and enhanced in collaboration with the local authorities. Over 1,500 linear metres of river corridor was improved and natural flood alleviation measures were used to reduce flood risk on urban areas further downstream and allow controlled flooding in some parts of the golf course property.



photo credit: Ombria Resort (Steve Carr)




### Resources

A whole property view was taken when developing the resource plan for the resort. A near-to-surface geothermal energy supply was looked at very early on and later supplemented by installation of solar panels. Buildings were designed to reduce energy consumption with traditional techniques and contemporary technologies combined.

Wherever possible, vernacular methods and locally sourced materials, adapted to the climate, were used in the buildings. The compact grassing results in just 18% of the property requiring irrigation (22Ha). Water is sourced from existing boreholes using the traditional aqueduct and is topped up using the captured surface water and the filtered sub-surface drainage collected in the retention lake.

**244**  
**boreholes**  
**installed to**  
**generate**  
**2.3MW of**  
**geothermal**  
**power**



*"The Ombria course is special. The land, in the hills, crossed by river streams, makes it unique. The design makes it different. The region makes it glamorous. It is not, what is currently called, 'championship course' under the point of a view of the very long formatted golf courses.*

*The course is a true challenge for every level of player and any tournament could take place here. Being at the same time a strong golf test and pleasant to play, the 18-holes of Ombria are a model of integration in nature and a breathtaking experience inside the unknown Algarve.*

*The two 9-hole loops are in quite different land areas. The front nine, laid in the base of two totally untouched landscape hillsides, shows a 'wall-to-wall' design, with very well-defined grass limits 'hard line' style, creating the contrast that will change along the seasons. Magnificent holm trees (*Quercus rotundifolia*), preserved inside the playing areas, are a strong part of the strategy, working as hazard."*

*Jorge Santana da Silva (EIGCA), Golf Course Architect of Ombria Resort*



## Community

The local culture and heritage was of primary importance to the team. Protection of natural native habitat, cultural remnants of ancient irrigation systems, water mills, limestone kilns, ancient bridges and stone walling all contribute to the strong sense of place and authentic visitor experience the team aimed to deliver.

The project team also set out early on to engage with the local community groups, schools, councils, churches and charities to host open days, nature walks, contribute to charity events and local fundraising. This, combined with over 5,000 linear metres of public footpaths, provides a strong connection to the local community.

# one on-site organic farm and two greenhouses

**>1,000**  
plants growing  
in the on-site  
nursery



photo credit: Ombria Resort





*"Ombria's commitment to economic, environmental and social responsibility aims to develop a resort in harmony with its natural environment and local community. The fundamental principle of the project is that all land occupation is sustainable and respects environmental values - Low-density concept and design, use of renewable energies, environmental certification, social responsibility, respect for environmental and local heritage, interaction and integration with other members of the local community, and connection to nature are the drivers for achieving these goals.*

*Alexandra Betâmio de Almeida, Independent Verifier - Ombria Resort*



# 3

## Construction Stage

### Overview

Construction work got underway in late 2016 for the golf course with irrigation installed by March 2017. Key considerations during the construction stage included close collaboration with the local authorities on the river restoration and tree preservation; strict pollution control measures and control given proximity to the river landscape; surveying and monitoring of sensitive species of fauna and flora; extensive protection of specimen trees and nesting areas; sustainable procurement of materials and labour; and careful restoration of cultural heritage remnants in collaboration with a local archaeologist.

The construction work was carried out by Maja (infrastructure) and Golfscape/Progolf (golf course) with Golfscape/Progolf being responsible for the grow-in phase of the work. The golf course is set to open in 2022.

Throughout the construction process the monitoring of environmental conditions was kept to the highest standards and frequently fed back in conversations with the local and national authorities to maintain transparency and oversight of all activities in the environmentally sensitive location and areas of flood mitigation. Through this, designs became refined to reduce further the turfgrass areas; retain greater numbers of existing trees and features; and also plant more new trees than was previously in the design drawings including endangered local species Narcissus Algarve and Carvalho de Monchique.

**native  
wildflower  
roughs  
planted over  
35 Hectares**

**construction**





photo credit: GEO Foundation (Alexandra Almeida)

## Activities

The following section outlines the construction process of Ombria Resort. It illustrates the steps taken during construction to deliver the highest quality golf course in a responsible, practical and resourceful way.



### Nature

The flexibility and continual review of the golf course during construction by the architect and construction team helped to refine the designs to reduce turfgrass, and increase native habitat areas. It also involved complex working to be able to retain more existing specimen trees and protect them and other environmentally sensitive zones across the construction site to a high standard.

Work to restore the river landscape was carried out in collaboration with local and national authorities to create ~18,000m<sup>2</sup> of new riparian habitat and remove exotic species, which will be continually carried out as part of the long-term management of the river corridors. The river restoration also included flood mitigation and restored river banks to protect the routes as a green corridor for wildlife movement and nesting.



### Resources

Reuse of local materials played a key role in the construction of walls, topsoil and landscape mulch to reduce the waste going to landfill. Previously stone bridges were changed to wooden ones to make use of locally-sourced wood and being



built using locally available labour. Tight review of logistics and ordering protocols during construction reduced wastage and led to more efficient sourcing of materials. On-site sands, gravels and soils were screened for use as sand cap, waste bunkering and fairway surrounds. Local seed was harvested and propagated to supplement the native planting areas and reduce imported material as far as possible. This resourceful ethos was well communicated across the construction staff and helped to build a team mentality to reduce resource use wherever possible.



### Community

The construction teams were made up of more than 90% of workers from the local towns of Querença and Loulé. As such the commitment from all staff to help preserve the local character and cultural remnants was evident.

Great efforts went into preserving the small-scale irrigation system used by early farmers of the land. Local researchers will be able to have access to study and learn from this for years to come. The restoration was done in collaboration with a local archaeologist. In total 2.8km of irrigation lines were restored; 4 watermills; 3 limestone kilns and over 100 linear metres of ancient stone bridges and walls.

The future aspiration of the resort is to continue to invest in local staff and community initiatives. Training, education and conservation partnership will remain in place to help preserve the close connections forged between the resort and its local communities.

**100%**  
**of gravel and**  
**sands sourced**  
**from within**  
**200km**

**2.8km**  
**of ancient**  
**irrigation lines**  
**restored and**  
**showcased**

Construction





*"The strong sustainable vision of the client has helped drive every decision made from the appointment of local consultants and contractors to increasing the use of authentic local materials, structures and techniques. All this has led to an immersive visitor experience defined by its local environment, people and culture."*

*Sam Thomas, Director of Golf Development at GEO Foundation*



*"As the first GEO Certified® Development in Algarve, Ombria Resort and its entire team has demonstrated great dedication and vision, combined with a long-held commitment to deliver a highly sustainable golf resort in the green lungs of the Algarve hillside. On a compact and dramatic site, the team has seamlessly integrated a golf course with this surrounding native landscape, restored river corridors, reduced flood risk, created a network of footpaths and built strong and meaningful relationships with its local communities."*

*Jonathan Smith, Executive Director at GEO Foundation*





photo credit: Ombria Resort (Steve Carr)



**GEO**  
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