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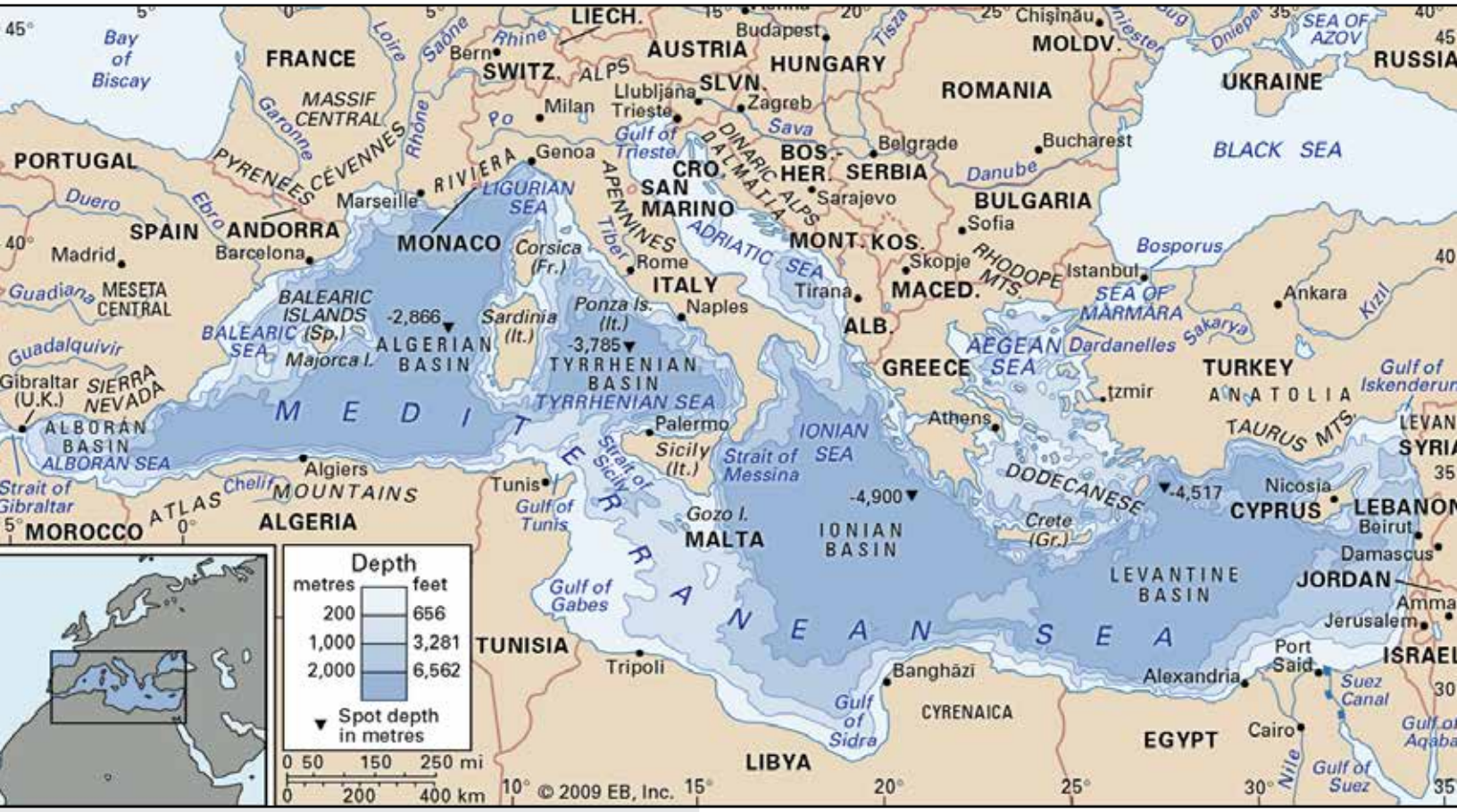

Project Programming: Proposed International Eco Research Center and Resort, Republic of Malta

Introduction

The Vectorworks Sketch to BIM program takes participants through the design of a large-scale project that begins with early conceptualization and ends with complete BIM documentation. We engaged visitors to vote on the Vectorworks website to help determine the project type. Plus, individuals participated in a survey that guided our initial decisions about the scope and scale of this project.

The winning concept selected was an Eco Research Center and Resort. This introductory programming document forms the basis for the criteria that will be used for the design of a proposed international research resort focused on ecological studies.

This project will be located on the Mediterranean island of Malta. A Site Considerations document precedes this one and can be downloaded at vectorworks.net/sketchtoBIM. The underlying concept behind the center is the creation of an international location where participants from around the world can collaborate on important ecological studies.

The Eco Research Center and Resort is built around the concept of bringing together the best minds in sustainable research and technology. They can do this in a casual, resort-like atmosphere that fosters openness while creating new bonds between participants and providing a comfortable, relaxing atmosphere where creative thinking dominates. It will be a destination to conduct research, share information, and gather those who are working to find solutions to global, environmental issues.

The client and project depicted here are hypothetical creations for purposes of demonstrating the techniques and tools used in Vectorworks software.

Research Labs

Ongoing research will be one of the principal functions of the facility. While the site is not large enough to house a full complement of laboratory functions, it will bring sophisticated resources to the specific tasks of understanding the impacts of environmental change in the Mediterranean Sea. These labs will focus on providing support to oceanographic research based locally and reaching into the Atlantic Ocean.

The use of communication technology will allow these labs to network with larger labs around the world for research and the delivery of symposium materials from a variety of earth science research initiatives.

Major Auditorium Complex

One of the facility's primary functions will be to host presentations delivered and recorded in the "TED Talk" format. The theater will have 200 seats and provide appropriate rigging and staging video production equipment. The main auditorium will be an enclosed structure, and there will be an adjoining lobby area that allows all attendees to mingle and interact between presentations.

There should be additional private and semi-private spaces within this adjoining public area for small group discussions accommodating up to 15 occupants. These areas can take the form of seating clusters or partially enclosed rooms that are visible and accessible from the main theater hall. Within the theater, a large, private viewing suite should be provided for high-security participants and observers. These additional areas are indoor, air-conditioned spaces.

There should be an outdoor theater plaza located adjacent to the enclosed space that is configured to allow smaller outdoor venues. These areas can include shade structures. The outdoor presentation areas should provide the proper rigging and electronics for evening events when weather permits. There should be two outdoor locations. The larger theater will accommodate 80 people and be incorporated as seating benches or berms. A smaller outdoor theater should seat up to 40 people.

In addition to these dedicated theaters, the landscaping should allow for small presentation areas that can accommodate 15 to 20 people each. These areas should be integrated into the landscaping so they do not hinder the enjoyment of the site when not in use.

Classrooms

Classrooms will be located adjacent to or near the labs and the theater complex. Some of them will have direct access to the research labs. They will be used in conjunction with university programs to offer options for expanded scholarly research that could be applied to a student's master's thesis on earth sciences, for example.

Other uses of the classrooms could be as a reward to schools that excel in studies related to these fields. Through competitions, an entire school class could win a trip to the Eco Research Center and Resort for a recorded presentation of their findings.

Teams of teachers could also be trained on the newest research and technologies through these classrooms.

Classrooms will vary in size, with the largest accommodating up to 40 people and the smallest accommodating 10 people. Smaller classrooms will also be used to conduct distance learning. All classrooms will include smart technology such as digital white boards.

Classrooms can also be utilized by the long-term research residents in order to share information and collaborate with larger groups.

Library

The library will be part of the research labs and classrooms facility. The library is the heart of traditional institutions of higher learning. As such, the library should be configured as part of the core functions of the research facility.

There will be limited space for traditional library stacks as most of the collection will be digital. Researchers and students will also have access to digital collections of other universities that participate in the Inter-Library Loan consortium. All digital research materials available in the library will also be accessible though the network that extends into the dedicated office space within the residential units.

Visitor Center

The central Mediterranean location of the Eco Research Center and Resort makes it ideal for introducing the broader general public to the important activities that occur there. While the core of the complex lies within a high-security zone, there will need to be an opportunity for allowing less-secured access to some portions of the complex. The purpose of the visitor center is to engage the general public to understand the processes and goals of the ongoing research supported at the site.

This visitor center will house changing displays that highlight current and long-term research activities. This will operate in a similar fashion to a small convention center that allows lower-security functions for general public access. A large dining facility capable of accommodating 150 seats outside the security cordon will allow for sightseeing groups to enjoy a meal and presentation about the center. Large-event meal preparation can be provided from the main commissary. There should be modest meal preparation capabilities at the visitor center for smaller events hosting up to 50.

Oceanographic Research Ship Dock

One of the reasons for selecting Malta for this facility was because of its access to sea-going vessels. There should be access to oceanographic research vessels similar in size to NOAA's 274-feet-long *Ronald H. Brown*. The steep site will create challenges for offloading research materials, equipment, and marine specimens, as well as providing a path for the delivery of these materials to the labs. A new, dedicated harbor with a suitable breakwater structure will need to be created. Security will again be an issue with providing these dock functions.

Consideration should also be given to pier functions for numerous other small boats that could be used to bring participants to the center, without reliance on air transportation. Lower-security dock areas can be provided as long as they do not compromise secure areas. A harbor master facility should be incorporated into the planning to organize and control access through the waters adjoining the site.

Accommodations and Living

Eco Research Center and Resort visitors may stay for short-term activities while others will have extended housing needs. Lengths of stay may vary from a few days to several weeks or months as ongoing research is conducted. Others who participate in ongoing research will require more permanent accommodations as live-in researchers. The center will also host activities that could include larger organization events such as United Nations-sponsored conferences or major research symposiums.

The housing functions should be isolated from the theater and lab functions. The residential areas should be designed to enhance relaxation within a quiet environment. Because many of the units will have extended-stay capabilities, some retail functions should be located nearby, including groceries and prepared dishes. The residential area will also need some social or community gathering places for shared meals and casual discussions among visitors.

There will be a few dedicated, high-security suites with upscale accommodations suitable for dignitaries and high-profile visitors. These suites should be located in a section on the complex that allows secure access to ground transportation and sea vessels, as well as to the other facilities of the research center.

Facility Management Staff

There will be a permanent staff, including director-level managers responsible for the facility's operation. The total number of staff is projected to be 40. On-site housing should accommodate 15 people. The remaining employees will live off-site, commuting daily, and include hotel, security, maintenance, harbor operations, food service, and technical support staff.

Guest Housing Types

It is anticipated that the required residential load on the facility will be 300 rooms. It is estimated that 150 rooms will be occupied continuously while the remainder will be dedicated to special events and peak-load activities.

Approximately 80 of these rooms will be dedicated to extended-stay accommodations, which need to allow the full functions associated with residential suites, including kitchens, dedicated non-sleeping rooms, and laundry services. Larger accommodations should provide room for multiple individuals or a family. Designers should assume that 15 of the 80 units will provide sleeping space for four people. The remainder can be designed as double-occupancy rooms.

Flexibility in room configuration is desirable, and it should be possible for some adjoining suites to interconnect. All rooms and suites should include ample desk areas for study and research. The use of inspiring views and direct access to private balconies should be incorporated whenever possible. Space for quiet reflection plays an important part in the planning of the facility.

Because of the emphasis on collaboration, long-term facilities should include community spaces where other extended-stay residents can interact together in cafés, lounges, and common areas. Short-term accommodations can be configured in more conventional hotel formats but with an added emphasis on participants' abilities to interact in small, semi-private groups. Fully appointed conference rooms should be incorporated into the common areas of the residential blocks, providing meeting rooms for about 15 individuals per room. Larger meeting spaces can be incorporated into the central labs and classroom facilities.

Resort Amenities

Activities typically associated with resort venues should be included in the planning. Recreational activities, a fitness center, and perhaps a spa should be considered, as well as any other activities that reinforce the resort aspects of the facility. These will serve as important opportunities for individuals to form new friendships and alliances. These amenities should be easy to access from the residential areas.

In addition, there should be a variety of dining opportunities. There will need to be some small, café-style restaurants located close to the residential area. A large dining center should be associated with the core plaza where the labs and theater are located. This larger facility should accommodate up to 250 seats for special events.

Landscaping and Plazas

The dramatic grounds that can be created from this 15-hectare site provide an excellent opportunity for an expansive outdoor experience that includes trails, gardens, seaside access, and isolated retreats. The steep landscape will require the incorporation of a number of plateaus upon which the horizontal circulation can accommodated. Vertical circulation issues may be more challenging, especially since water access is required.

The use of native plantings in landscape areas is required. Since the severe deforestation of the 17th century, Malta has been in need of a program that brings back the native pines that once populated the island. A large area of the site should be dedicated to reforestation efforts and to demonstrate the best practices to employ in the process.

Security Considerations

A high-security cordon is required for most of activities within the complex. This is needed because many of the events that occur could include high-profile individuals such as world leaders, corporate executives, renowned scientists, and eco-advocacy organizations. At points of intersection with lower-security activities, consideration must be given to providing a regulated gateway into higher security zones. The coastal site creates some challenges in this regard.

The planning will need to clearly indicate the security techniques and technologies that will be used to control access to the site. Whenever possible, unobtrusive barriers to access should be employed rather than fences or other conventional and unsightly methods.

Ecological Considerations

As a world-renowned Eco Research Center and Resort, this facility must make the most of up-to-date technologies that support sustainable design and construction. The systems installed throughout the complex should provide for the operation of the facility with minimal impact on Malta's energy generation capabilities. It should serve as both a testing ground and as a real-world example of the skillful use of applied technology to promote the use of sustainable design globally.

The building materials used and construction techniques employed should be consistent with the established methodology of the island. Once built, this facility should enhance and reflect the unique style of Malta.