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# *REDESIGN OF PRIMORDIAL MUSEUM AND ARCHAEOLOGICAL `RESEARCH CENTER IN CIPARI ARCHAEOLOGICAL SITE AREA, KUNINGAN REGENCY WITH BIOPHILIC ARCHITECTURE APPROACH*

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**Abstract.** Indonesia is a paradise for archaeological research, proven by the many kinds of Pleistocene era artifact findings scattered throughout the country, including in Kuningan Regency. One of them is the finding of a megalithic site in Cipari Village, which is the only megalithic heritage archaeological site given more attention by the Kuningan Regency municipal government, with the establishment of the Cipari Archaeological Park Museum in 1976. Ironically, the archaeological museum building at Cipari Site is still relatively simple, and has not been able to follow the guidelines for establishing a museum. The existing building, which has an area of 80m², only contains temporary exhibition rooms, toilets and management rooms which are deemed unable to accommodate groups of tourists who often come from various educational institutions. So, a redesign is needed that is able to house a collection of artifacts as well as an archaeological research center to facilitate archaeologists and scientists, in researching artifacts that have been found in Kuningan and its surroundings. The primordial museum and archaeological research center is a building that stores and researches natural objects of ancient relics found in nature, so it is good if this building can be redesigned by considering its relationship with nature. Therefore, the biophilic architecture approach is deemed appropriate in the redesign of the museum building along with the archaeological research center or in other languages, the Primordial Museum and Archaeological Research Center in the Cipari Archaeology Site Area, Kuningan Regency. Data is also needed which includes primary and secondary data needs and then analyzed with five aspects of the approach, including functional, contextual, technical, performance and architectural aspects. The results will produce design recommendations for the Primordial Museum and Archaeological Research Center in the Cipari Antiquities Area, Kuningan Regency, West Java.

**Keywords:** *Redesign, Primordial Museum, Archaeological Research Center, Cipari Antiquities Site, Kuningan Regency, Biophilic Architecture.*


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## INTRODUCTION

Indonesia is a paradise for archaeological research with an abundance of prehistoric artifacts scattered throughout the country, the result of excavations since the colonial period. (Kaharudin, 2019). Findings of artifacts in the form of stone tools, metals, pottery to beads help archaeologists in revealing what the picture of civilization in the past was like as an important record for the development of archaeological science. (Girana, 2019). In the history of archaeological research that has been held in Indonesia, a pilot and archaeologist of Dutch descent named Van der Hoop discovered the existence of stone coffins on the border between Kuningan Regency and Cirebon City, namely in Sindanglaut Village. The stone findings found by Van der Hoop are identical to the stones marking the megalithic civilization. (Sukendar, 1997). The first finding sparked a journey of archaeological research around the Kuningan Regency area of West Java and its surroundings.

Kuningan Regency has many findings of megalithic archaeological sites that have colored the development of archaeology in Indonesia. (Efendi, 2001). Like one of them, the finding of a megalithic site in Cipari Village, Cigugur District, Kuningan Regency which is the only megalithic heritage archaeological site that is given more attention by the Kuningan Regency municipal government, with the establishment of the Museum of Antiquities in the Cipari Antiquities Area in 1976, then inaugurated by the then Minister of Education and Culture of the Republic of Indonesia, Prof. Dr. Syarif Thayeb on February 23, 1978 while inaugurating a conservation area in the form of the Cipari Archaeology Site. (Riky, 2018). However, the archaeological museum building at the Cipari Antiquities Site is still relatively simple to serve as an educational tourism attraction, when compared to other archaeological museums in Indonesia. The existing building of the Cipari Antiquities Museum has an area of 80㎡, only containing temporary exhibition rooms, toilets and management rooms, it is still not able to accommodate groups of tourists who often come from various educational institutions.

In the existing building, there is no conservation laboratory, while the room is a mandatory requirement for researchers or archaeologists in the process of identifying artifact findings. The existing archaeological museum is also not equipped with supporting facilities such as a library, souvenir shop, cafeteria and auditorium room that should be present as a complement to support the operation of the museum building. This existing condition is still far from the guidelines for establishing and managing museums, so it is a strong factor for redesigning actions by dismantling the old building into a new form that follows the standards for establishing museums, accompanied by the design of a new research center facility for archaeologists to examine the findings of artifacts scattered in Kuningan Regency.

In the redesign of an ancient museum and archaeological research center, a design approach method is needed on the typology of the object and the characteristics of the site, so that the output is able to respond to needs, appropriate and efficient. In essence, the ancient museum and archaeological research center is a building to store and research natural objects from ancient times found in nature, naturally this building can be redesigned with consideration of its relationship with nature. Biophilic Architecture is an approach that relies on the biological connection of humans, buildings and nature as a design strategy, so as to bring back natural elements into a building to improve the welfare of users in it. (Alvina & Marpaung, 2022). Therefore, a biophilic architectural approach is deemed appropriate in the redesign of the archaeological museum building and archaeological research center in order to strengthen the relationship between humans and nature.

Departing from the context of these problems, the redesign of the Primordial Museum and Archaeological Research that is suitable as a conservation mediator becomes a new urgency. In line with this, it is hoped that a cooperative relationship will be established between the Kuningan Regency Government and related agencies such as the West Java Archaeology Center which is a task implementing unit of the National Archaeological Research Center in the field of archaeological research and the West Java Provincial Tourism and Culture Office. With the presence of the Primordial Museum and Archaeological Research Center building, it is able to contribute to the Regional Original Revenue of Kuningan Regency, West Java.

## MATERIAL AND METHODS

The method used in this Redesign uses a descriptive method, namely by collecting, explaining, anddescribing secondary data, which is related to design requirements and conditions in the replanning and redesign of the Primordial Museum and Archaeological Research Center in Cipari Archaeological Site Area, Kuningan Regency . Deductively, it is processed and studied with reference to the potentials and problems that a rise, then a planning and design approach is carried out on the basis of considering various aspects oriented to architectural disciplines, theoretical foundations, and existing standards. Then inductively, the results are obtained in the form of alternative problem solving. This method is used in order to obtain an ideal description of Primordial Museum and Archaeological Research Center to be used as a reference for the goverment to develop the edutourism in Kuningan Regency.

## DESIGN PHILOSOPHY

In the design of a museum, philosophical considerations need to be expressed in design language so that the essence of the museum is more easily conveyed to the general public.

### The Philosophy of Harmonizing the Three Elements of Life

Since the beginning of human civilization was born and developed on earth even since the existence of religion has not been present, humans often bind themselves to other elements in their survival, sacred bonds between nature, humans and figures that are considered sacred are harmonized in dynamism. Its application to the design will be implemented in determining the zoning of the site, considering that on the site there is already a cultural heritage of megalithic installations that have been arranged in the east-west cosmic axis which is representative of the menhir stone offerings in the past.

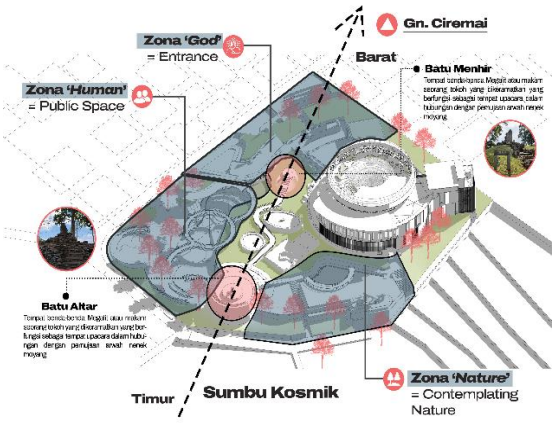


*Figure 1 Cosmic Axial on the Site*

### Dynamism Beliefs in Pre-history Era

In pre-historic times, the ritual of worshiping objects that were considered sacred and sacred became a belief, namely the belief of Dynamism. Departing from the essence of the sanctity and sacredness of these trees, which is used as a guide in planning and designing the site. The existence of existing trees on the site is actually maintained. On the site there is a mereton bay banyan tree on the south side which can be a focal interest at the entrance, while on the north side there is a cluster of shade trees.

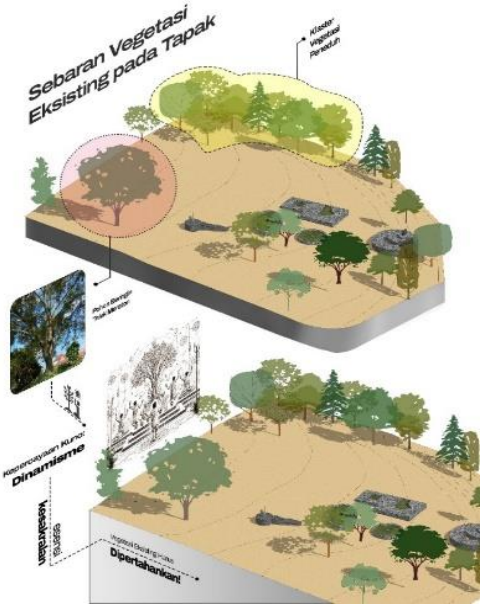


*Figure 2 Preserving Existing Trees as an Implementation of Dynamism Belief*

**Hierarchy of Space**

The hierarchy of the exhibition space is adapted from the lineage of prehistoric times. The indoor installation starts from the paleolithic showroom, as a sign of the beginning of civilization, then continues with the mesolithic period and ends in the neolithic room. In the outdoor space, there is already a megalithic installation. Each installation design is customized according to the characteristics of the period, such as in the paleolithic room made dark, then in the mesolithic room made like a cave with ancient paintings on the ceiling, while the neolithic is made more modern.

**Exhibition Room and Laboratory Placement**

Archaeologists excavate into the ground to find artifacts because there are surprises underground. Departing from these activities, the placement of the exhibition space and archaeological research lab will adjust to this character, namely underground, so that the ground floor on the site can not be filled with new buildings so that cultural heritage objects can remain the main focus on the site.

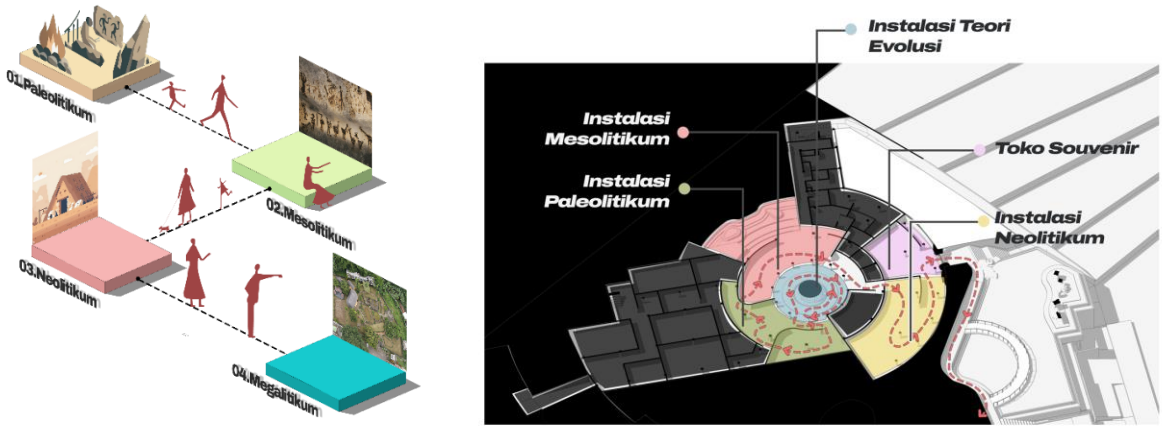


*Figure 3 Space Organization based on Prehistoric Timeline*

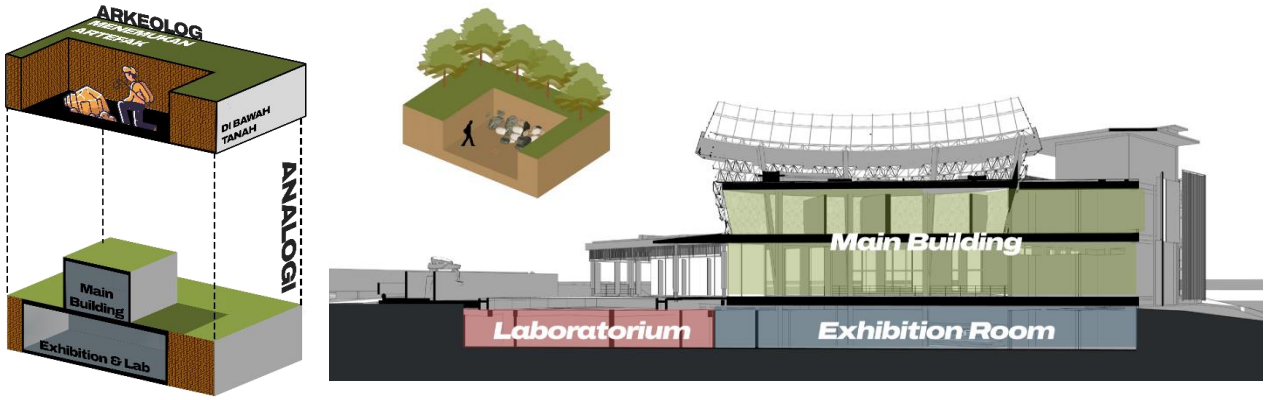


*Figure 4 Building Zoning Philosophy*

**Living Near Water**

Civilizations around the world grew and developed on riverbanks, as evidenced by archaeological findings outside the watersheds of rivers such as the Nile, Furat and Tigris, Huang He, Ganges, and other 'sacred' rivers. Rivers were a marker of territorial boundaries for ancient civilizations, supplying drinking water and making the land fertile for farming. In addition, goods and people could be transported easily, and people in these civilizations could fish and hunt animals that came to drink the water (Lapian, 2008).

**Building Form Philosophy Based on Kuningan's Folkore**

The form of the building's original mass is taken from the shape of 'bokor kuningan', a symbol of the origin of Kuningan City. According to Sundanese cultural historian, Edi Suhardi Ekajati (1991) There is a folklore that tells the origin of the name Kuningan Regency related to the "Bokor Kuningan" in the Legend of Ciung Wanara which is said to be used to test the power of Sunan Gunung Jati. Thus, the concept of Genius Loci (spirit of place) is applied so that this museum building does not forget the place where it stands, namely Kuningan Regency.

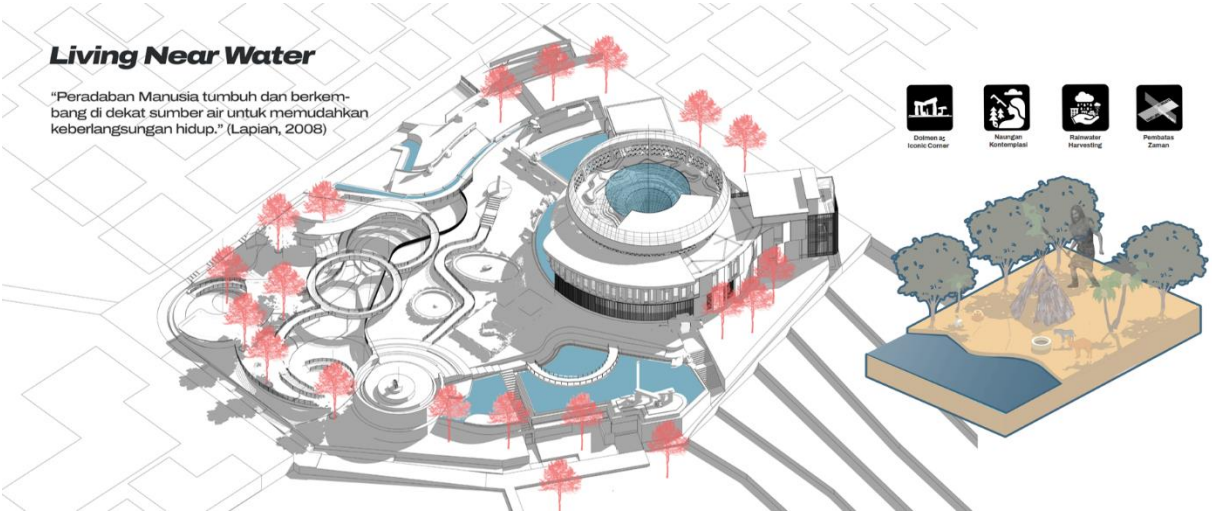


*Figure 5 Presence of Water Element in Buildings*

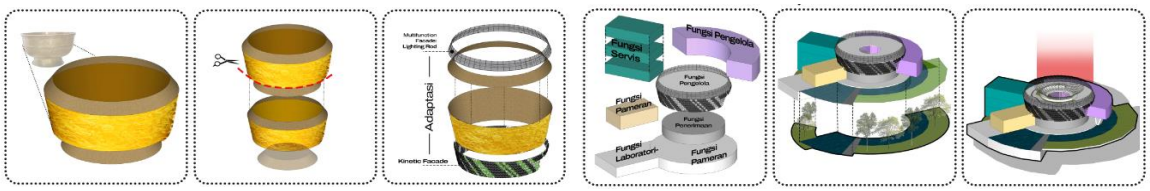


*Figure 6 Form Finding*

## SITE LOCATION

The existing site location is on Jalan Museum Purbakala Desa Cipari, Kuningan Regency with a land area of 8719 square meters. Based on local regulations, the Basic Building Coefficient is 60% so that the area that can be utilized on the ground floor is 5231 square meters, the rest is allocated as a green area. On the site there are several buildings that will be demolished leaving only cultural heritage objects.

***Table 1 Site Data***

| | |
|---|---|
| **Site Location** | Museum Purbakala Street, Cipari, Cigugur, Kuningan Regency, West Java. |
| **Site Area** | 8.719 m² |
| **Typology** | Museum and Research Center |
| **KDB** | 60% of the site ( 5.231,4 m²) |
| **KDH** | 40% of the site ( 3.487,6 m²) |
| **KLB** | 1.2 (10.462,8 m²) |
| **GSB** | 5 meter from the street axis |
| **Site Boundary** | |
| **North** | Rice fields |
| **South** | Museum Purbakala Street |
| **East** | Settlements |
| **West** | Settlements |

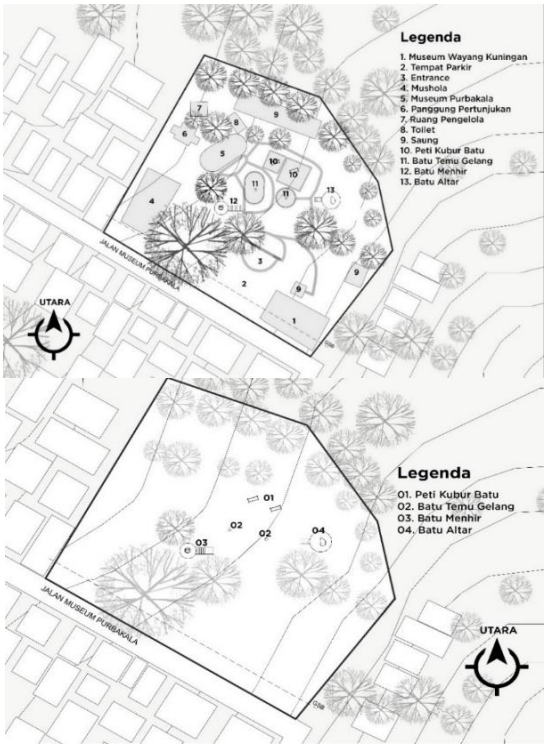


***Figure 7 The Existing Site***

## CONTEXTUAL ASPECT APPROACH

The existing site location is on Jalan Museum Purbakala Desa Cipari, Kuningan Regency with a land area of 8719 square meters. Based on local regulations, the Basic Building Coefficient is 60% so that the area that can be utilized on the ground floor is 5231 square meters, the rest is allocated as a green area.

### Accesibility

Accessibility from and to the site can be accessed via Jalan Museum Purbakala as the main road. Access to the site has not been directly integrated with urban public transportation vehicles or angkot. However, the Kuningan Regency City Government in May 2019 inaugurated a mobile tourist bus or Kemuning Bus which was a grant from the West Java provincial government, through Bank Jabar CSR. The Kemuning bus has similarities with Bandung's Bandros, or Bandung Tour on the Bus. This bus operates from nine in the morning until 5 in the afternoon, circling and stopping at strategic tourist points in Kuningan Regency, with the following routes:


***Figure 8 Bus Kemuning's Route***

Pedestrian circulation needs to be presented as access to the building. Considering that the Cipari Archaeological Site area is not directly integrated with urban and rural public transportation, in the future, the Kuningan Regency Government needs to add routes to the 012 rural transportation route to be able to stop at the Primordial and Archaeological Research Center. The manager in collaboration with the local government needs to make a stopping point for bus parking and private vehicles outside the site, then connected by local transport as a medium to deliver to

the location of the Primordial and Archaeological Research Center.

The manager is made separate from the visitor circulation flow with consideration to make it easier for the manager to access the site. The manager is given a parking lot inside the site while the visitors are separated from the site so that the parking lot does not accumulate on the site, as well as a response to the residential area around the site so as not to disturb residents and respond to pollution around the site.

**Vegetation**

On the site there is some existing vegetation in the form of shade trees such as moreton bay banyan trees, trambesi trees, frangipani trees and other shade trees that cannot be identified. The location of the site is in the highlands at the foot of Mount Ciremai or equivalent to 648 meters above sea level so that the vegetation of the site is relatively abundant with the presence of shade trees such as banyan trees and other shady shade trees that have been around for a long time. With the availability of some existing vegetation, it is wise if the existing vegetation can be maintained, especially shade trees such as the Moreton bay banyan tree, trambesi and high tree canopy. The moreton bay banyan tree on the southwest side of the site can be used as a nature interest focus at the entrance so that it can become a marker or signature at the Primordial Museum and Archaeological Research Center.

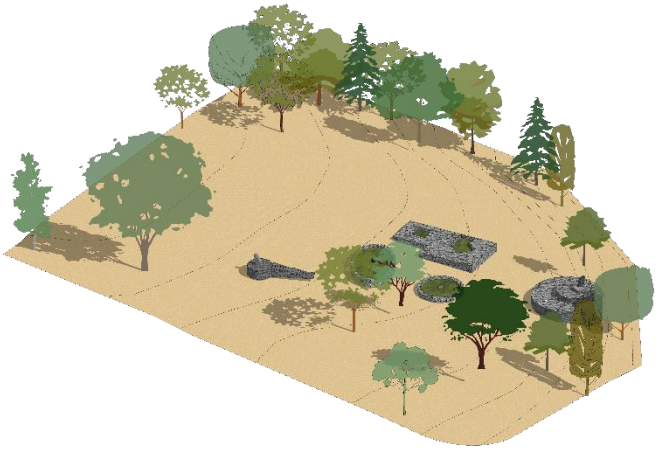

*Figure 9 Existing Vegetation*

**Sensory (View and Noise)**

The source of moderate level noise comes from the west and south sides of the site, namely local residential areas of Cipari Village, so in response it is necessary to provide a vegetation buffer to minimize noise. The vegetation buffer is presented in addition to being a noise buffer, it can provide additional views on the south side, as if it is a gap or space between the site and the residential on the south side. While the optimal view on the site is on the west side, which is directly facing Mount Ciremai and the east side which presents a view of the rice fields and cityview of Kuningan city from an altitude of 660 meters above sea level.

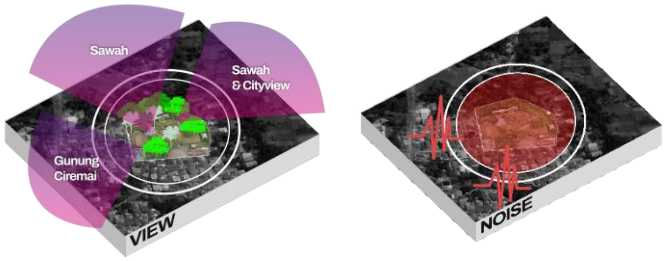


*Figure 11 Sensory Analysis*

**Climatology (Sunpath and Wind Direction)**

The location of the site in the highlands makes it relatively cool with a temperature of 21 degrees Celsius to the hottest reaching 26 degrees. However, preventive measures are still needed in an effort to block the sun's heat from the west side in the afternoon. The humidity level on the site is relatively high, so it needs attention so that the building is not affected. Based on weather data in Cigugur District, the wind direction on the site as shown in the figure, shows the average direction of wind blowing in a year in the morning to noon, dominantly blowing strongly by 15% throughout the year from south southwest to north northeast with a wind speed of 25 mph. So it is necessary to make openings on the southwest and northeast sides.

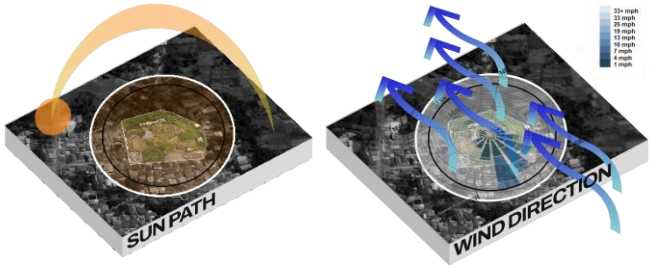


*Figure 10 Climatology Analysis*

**Contour Analysis**

The topography of the site is located in the lowlands at the foot of Mount Ciremai, about 4 km from the center of Kuningan City. Site image data shows a variety of contour spacing variations. However, part of the land has undergone a cut and fill process to facilitate the design, especially in the parking lot which is already flat. Contour alignment is carried out by the cut and fill method to expand the distance between contours, especially in the parking lot, to facilitate vehicle circulation and maneuvering.

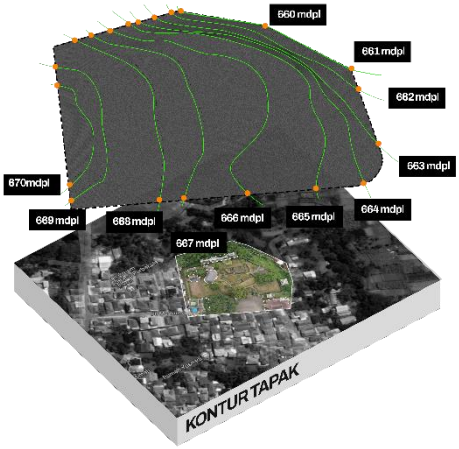


***Figure 13 Topography of The Site***

## BIOPHILIC ARCHITECTURE IMPLEMENTATION

Biophilic architecture is an approach that relies on the biological connection of humans, buildings and nature as its design strategy, so as to bring back natural elements into a building to improve the welfare of users in it (Safitri, 2017). Therefore, the biophilic architecture approach is considered appropriate in the redesign of the archaeological museum building and archaeological research center to strengthen the connection between humans and nature. In biophilic design theory there are 14 design patterns, this project will emphasize on 7 patterns as follows:

**Visual Connection With Nature**

In this principle, nature is forced into the building as an inseparable part of the building. The bond between the outdoor space and the indoor space becomes synergized by nature, thus helping to provide a restorative effect for users who are indoors. One of them is the mesolithic exhibition room, different from the previous exhibition room (paleolithic room) which is designed to be more closed, in this mesolithic room the visual is made to blend with nature as a refreshing effect from the previous room. In addition, it is planned that in this space an amphitheater is made which becomes a buffer between the inner and outer space. This amphitheater functions as a place to listen to the museum guide explain explanations related to life in the mesolithic period.


***Figure 12 Visual Connection with Nature Outside***

**Non-Visual Connection With Nature**

In the second biophilic principle, non-visual aspects are applied to provide an aural experience for users in the museum.Departing from the theory of aural architecture proposed by (Blesser, 2013) that aural architecture actually provides an experience beyond three dimensional by listening. "Listening is a way to touch from a distance" (Fowler, 2005). The representation of aural architecture is applied to the underground exhibition space supported by the selection of materials and audio devices supporting the atmosphere like in nature.


***Figure 14 Non- Visual Connection with Nature Implementation***

Prehistoric humans used caves as shelters and settlements, so the exhibition space was designed by adapting this pattern. Placement of the showroom underground will strengthen the impression of being in a cave that gives a humid and closed atmosphere. The paleolithic and mesolithic exhibition rooms are designed as if they were in a cave, but at the end of the

mesolithic room will be made more open so that users are refreshed after entering the humid paleolithic room. Meanwhile, the neolithic showroom will be made more modern with laser projector technology.

**Presence of Water**

Bringing the element of water into the design will create the sound of water flow that gives a comfortable and calming impression to users in the museum so that it helps the user's psychological restorative process (Octavianti et al., 2018). In the design of this museum and archaeological research center, the water element is presented in the beginning, middle and end sequence. This consistency begins at the entrance of the site, the user will witness a stream of water flowing following the contours of the site.

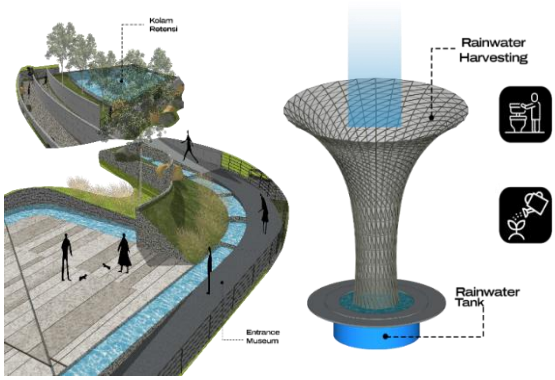


*Figure 15 Presence of Water Implementation*

After passing through this section, the user will be treated to a retention pond that can reflect the shadow of the building as well as become a noise buffer, because at the bottom of the retention pond there is an archaeological research laboratory. Inside the building, there is rainwater harvesting that can collect rainwater to be used as a backup for museum water needs such as flushing toilets, watering plants, etc. Consistency in presenting the element of water continues on the outside of the building as a sign of the end of the neolithic era. The retention pond is presented again as a pause for users to contemplate before continuing their journey to the megalithic exhibition space.

**Biomorphic Form and Pattern**

Biomorphic forms are those that represent natural forms, often in an abstract way, relying on contours, patterns and textures to draw connections with nature. The exit of the museum is designed like a cave so that users feel the experience of coming out of a cave.

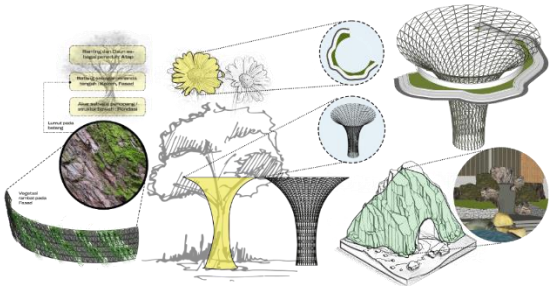

*Figure 16 Nature Analogues*

**Material Connection with Nature**

In this principle, the material chosen should have a connection to nature. In terms of biophilic theory, natural materials will provide comfort, lower diastolic pressure and awaken creativity. Although perforated metal is not a natural material, the cavity in the plate can give a transparent impression. The dualism of modern and traditional materials is combined to create a harmonious design. with a hollow surface that can accelerate the absorption of rainwater into the soil.

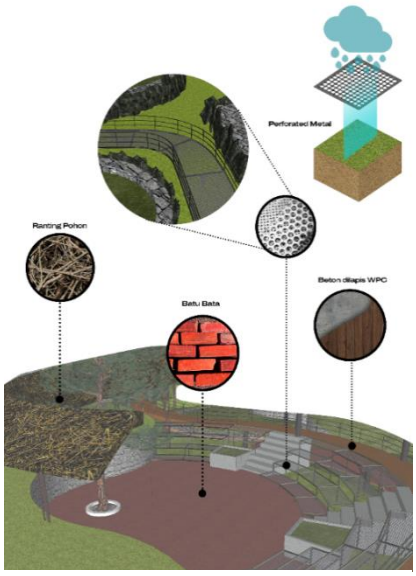


*Figure 17 Material Connection with Nature Implementation*

**Risk and Mystery**

The principle of Risk and Mystery in the biophilic pattern will create a sense of curiosity for users so that users can get a different space experience than usual. Precast concrete seems to float but actually there is a

column hidden behind the rock. The rocks on the side seem to be a portal to 'another world', designed with a pile of rocks makes visitors feel intimidated to immediately prepare themselves to enter the universe of the past. Entrance to the building is not just made frontal, but visitors are forced to go through a series of 'intermediate spaces' as a form of preparation for the 'other world'.

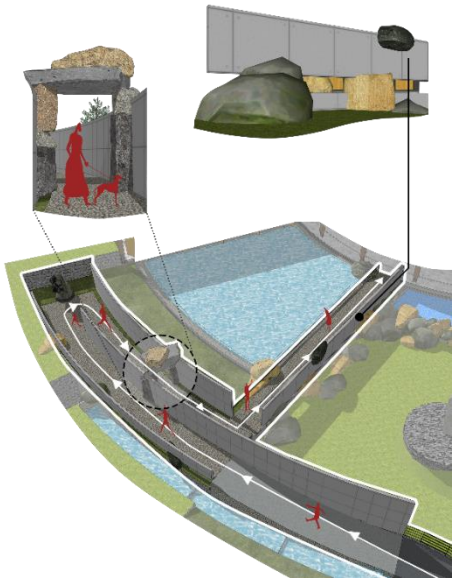

*Figure 19 Risk and Mystery Implementation*

## DESIGN RESULT

*Figure 1921 Site Plan*

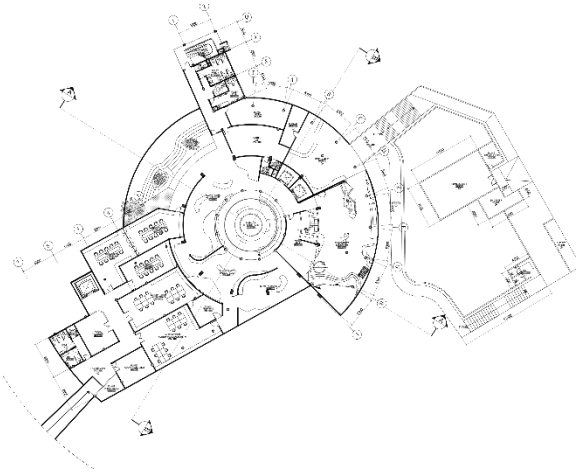

*Figure 20 Basement Floor Plan*

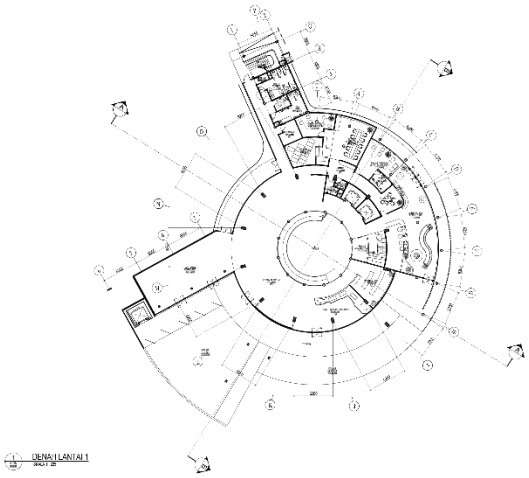

*Figure 18 1st Floor Plan*

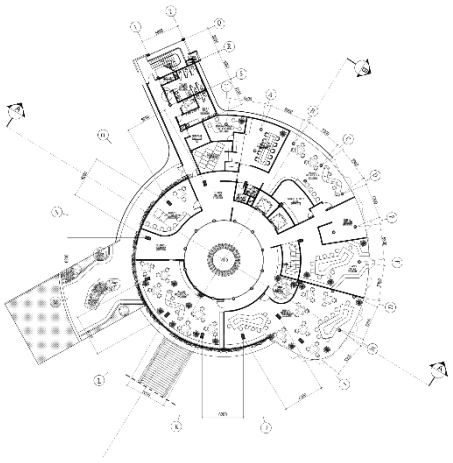

*Figure 20 2nd Floor Plan*

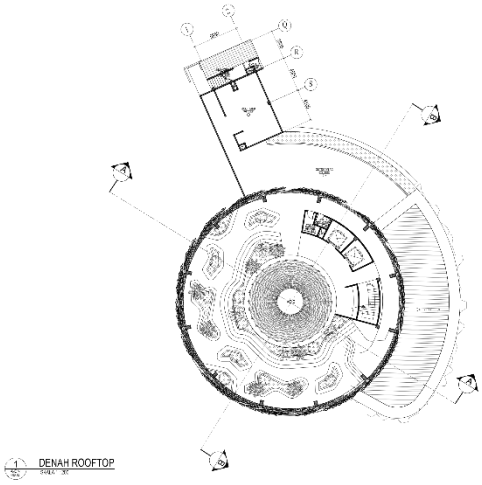


*Figure 23 3rd Floor Plan*

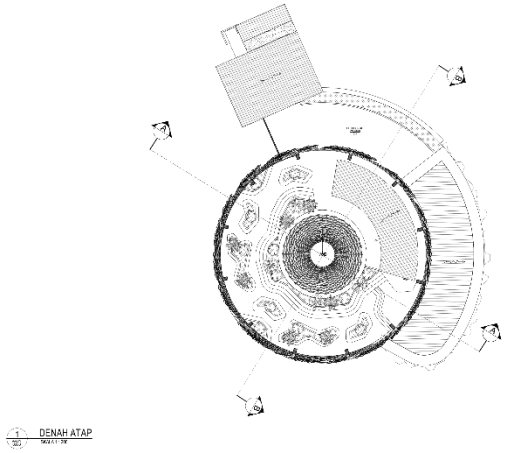


*Figure 24 Rooftop Plan*

*Figure 23 Aerial View*

*Figure 226 View From the Megalithic Installation*

*Figure 24 Frontal View*

*Figure 25 Evolution Theory Room*

*Figure 26 Paleolithic Room*

*Figure 27 Mesolithic Room*

*Figure 31 Neolithic Room*

*Figure 28 Public Space Entrance*

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