

INTRODUCTION

BACKGROUND

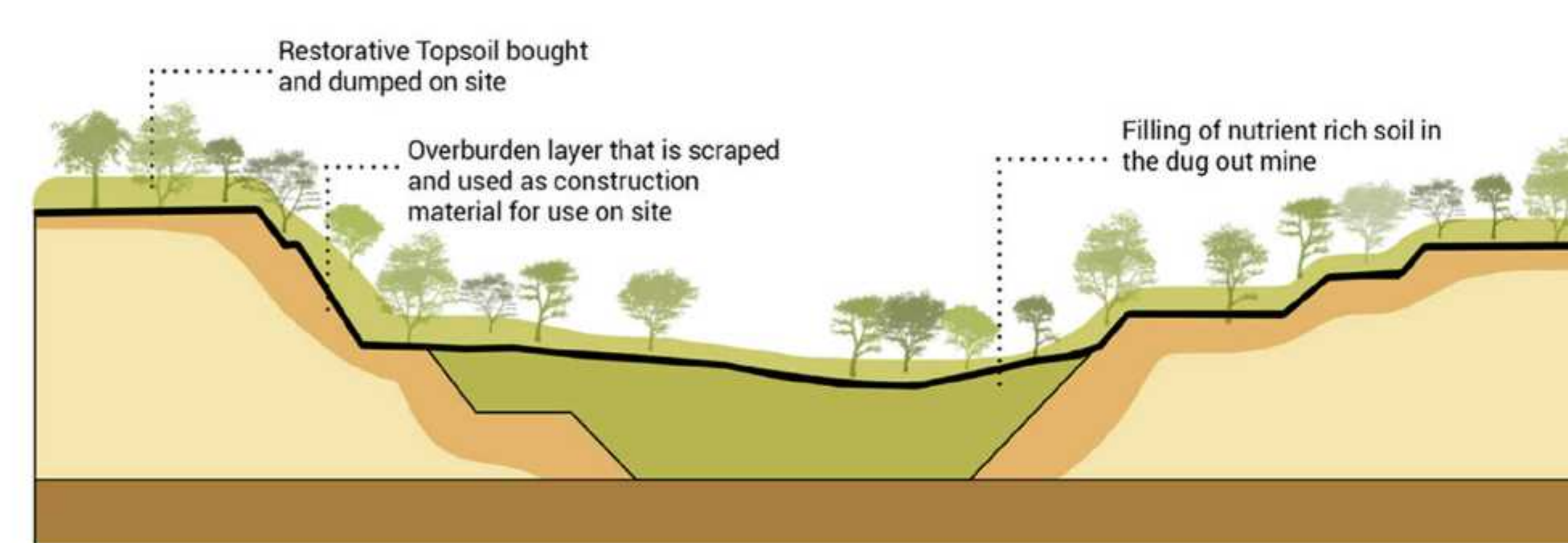
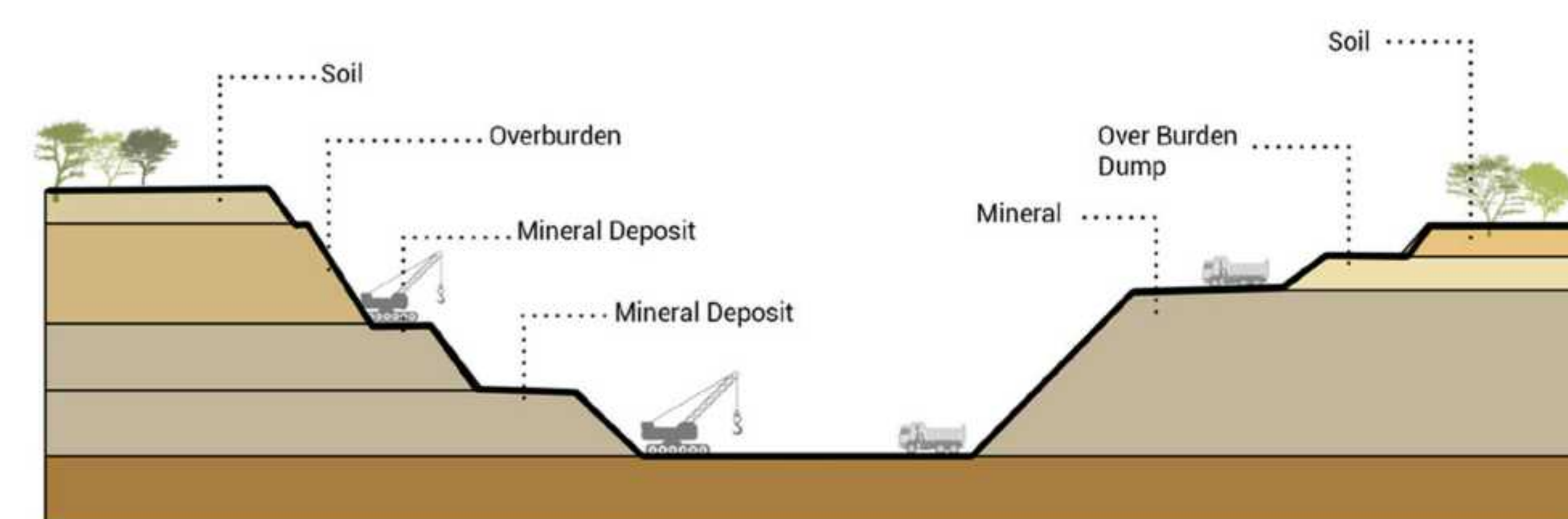
Coal mines in India generate 1243.92 Billion units of energy that powers houses, industries, and institutions alike. The mining industry contributes to the annual GDP of India and facilitates various other industries' functioning. Coal India Limited (CIL) currently owns the largest fraction of the total mines in the country. Annually 778.19 MT tonnes of coal is extracted in the country. The mining industry employs a workforce of 88 Lakhs (FY 2021, Source: Statista.com) people. India is the second largest producer and consumer of coal in the world.

Therefore, as an important industry of our economy, the coal mining process is instrumental in fulfilling our country's energy needs and generates employment for lakhs of people of our country. This field is expected to increase its production and efficiency with the increase in energy demands, growing population, and rise in the industrial sector.

However, a major setback of the mining sector is the remnants of the entire process of mining that are left behind after the mine is exhausted.

OBJECTIVE

An ubiquitous objective of treating an abandoned mine also requires one to restore the ecological imbalance that resulted from mining during the period it was active. Redevelopment and renewing of such land calls for a holistic development approach that takes care of social intimacy, income generation, and environmental factors into consideration.

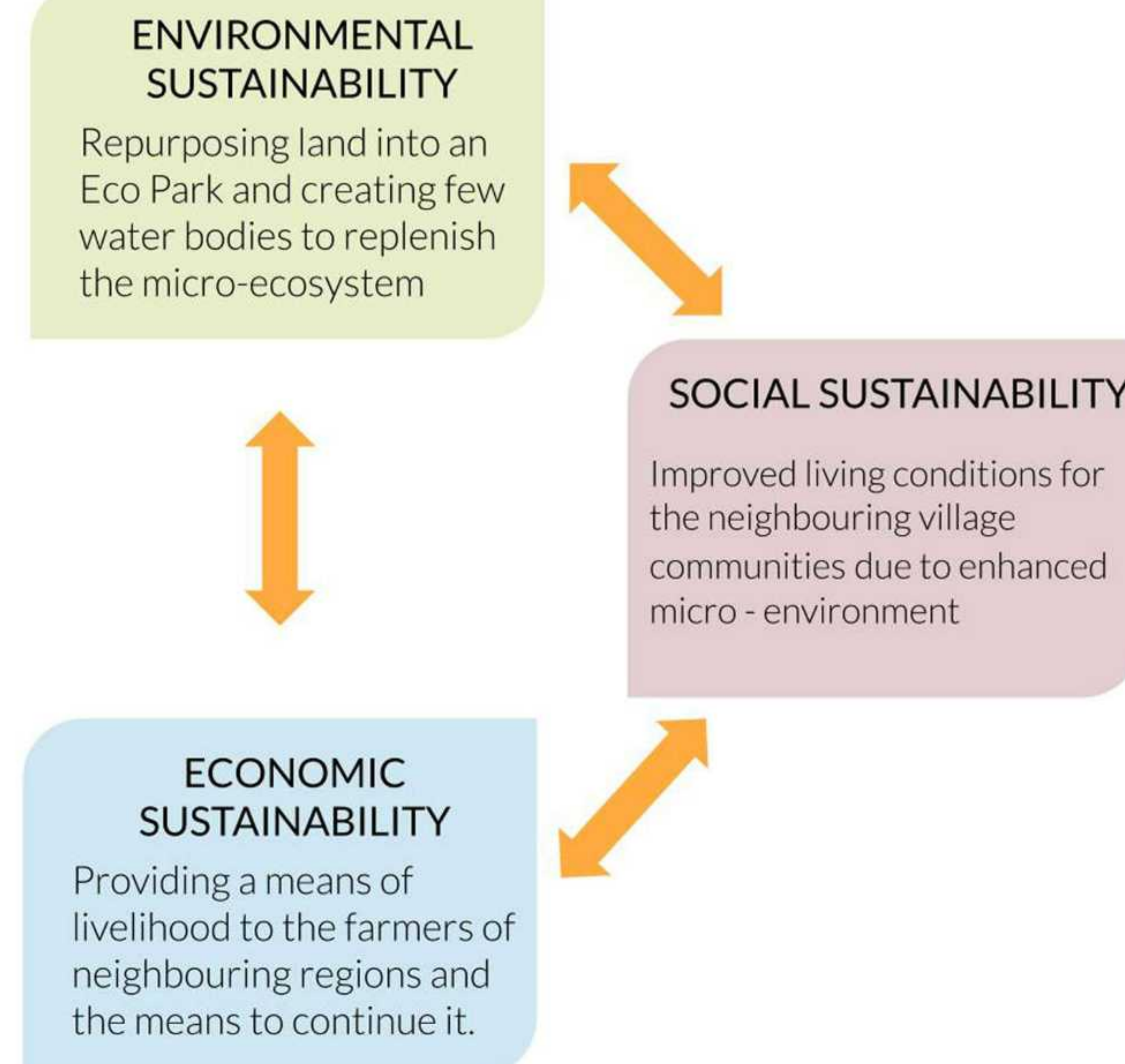


AIM

"An attempt at integrating the possible plausible ways in which mine land can be repurposed after its abandonment, to serve people, community and ecology, to restore the imbalance created during its wake"

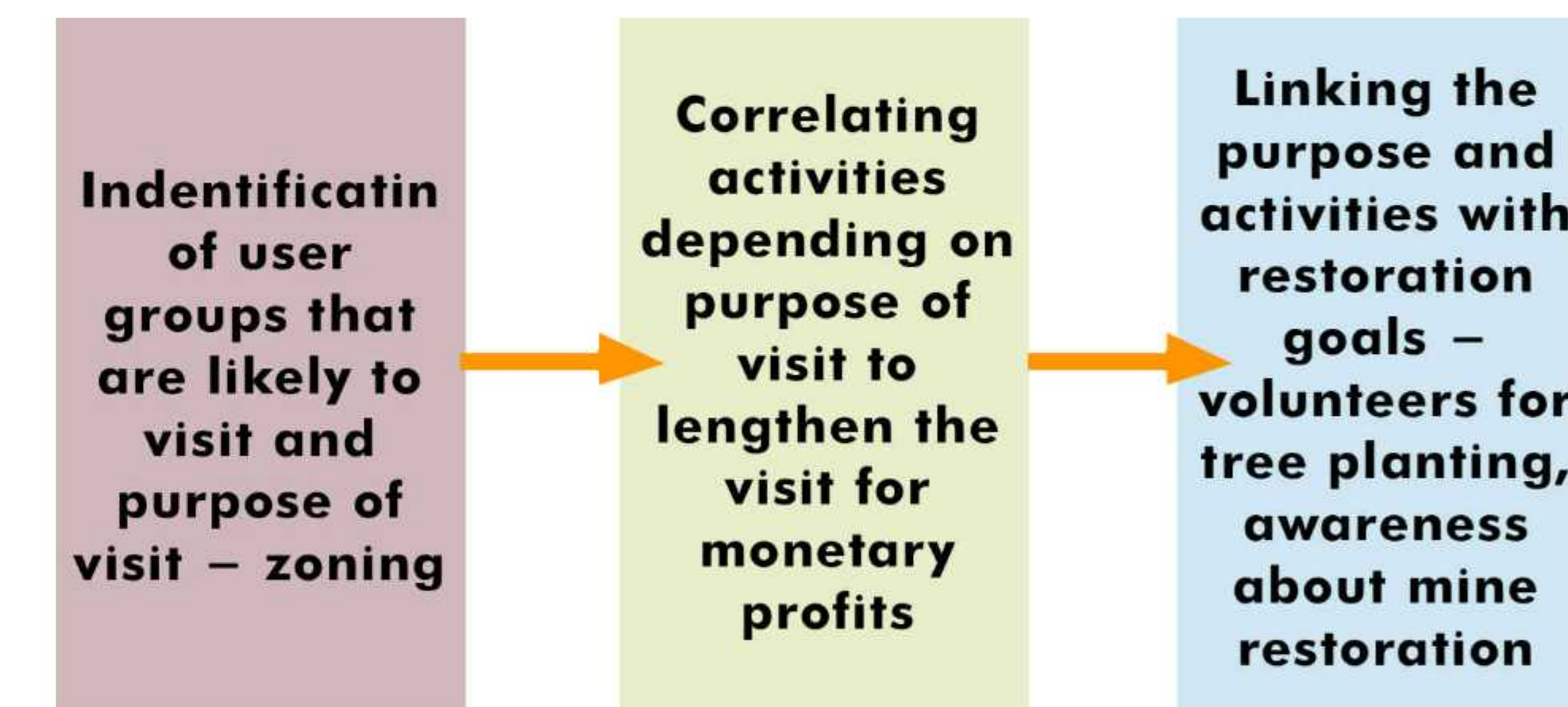


The process of bringing life back to an abandoned mining land and in order to restore the ecological balance the above mentioned processes are carried out usually in the prescribed order.



IMPACTS OF RECLAMATION PROCESS

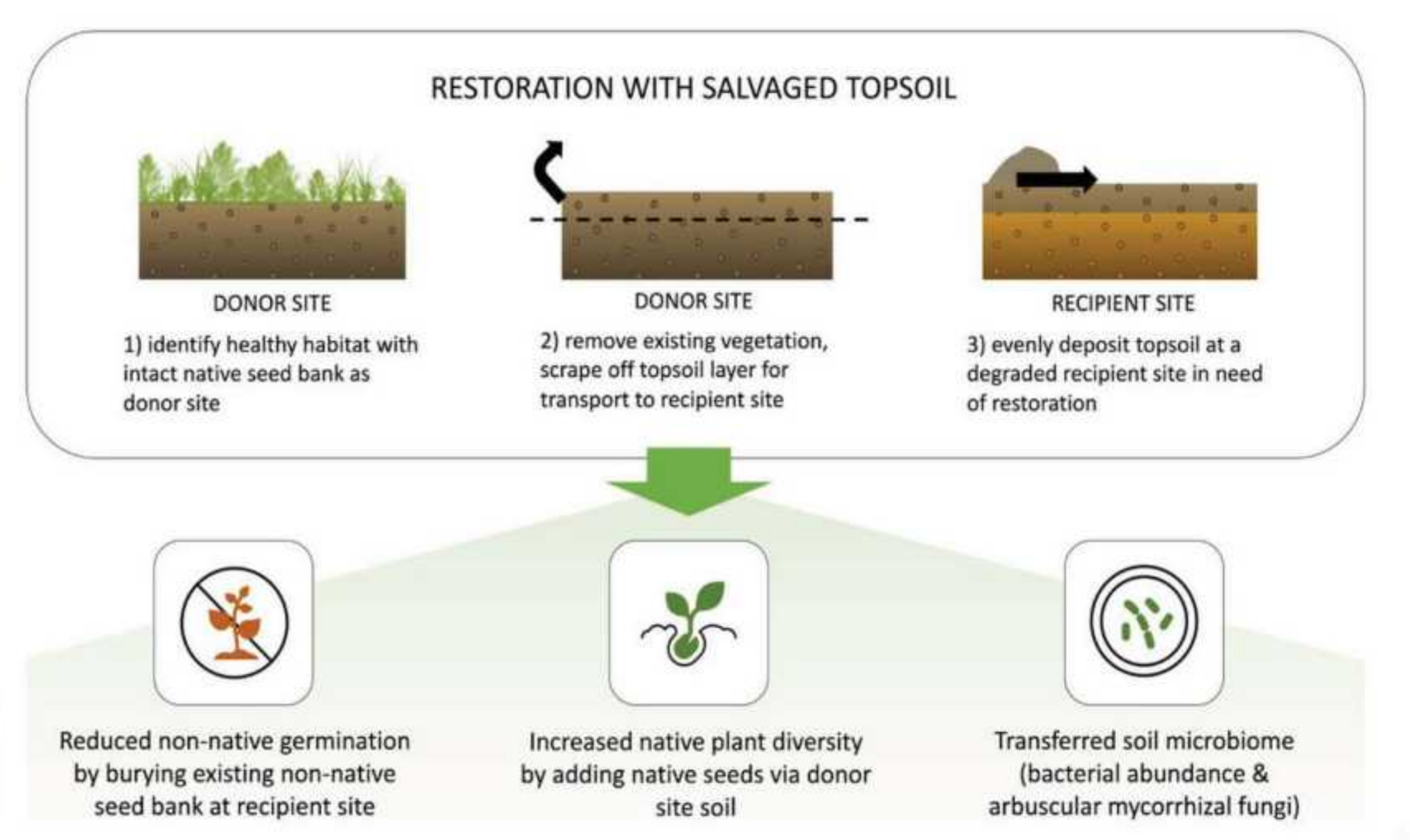
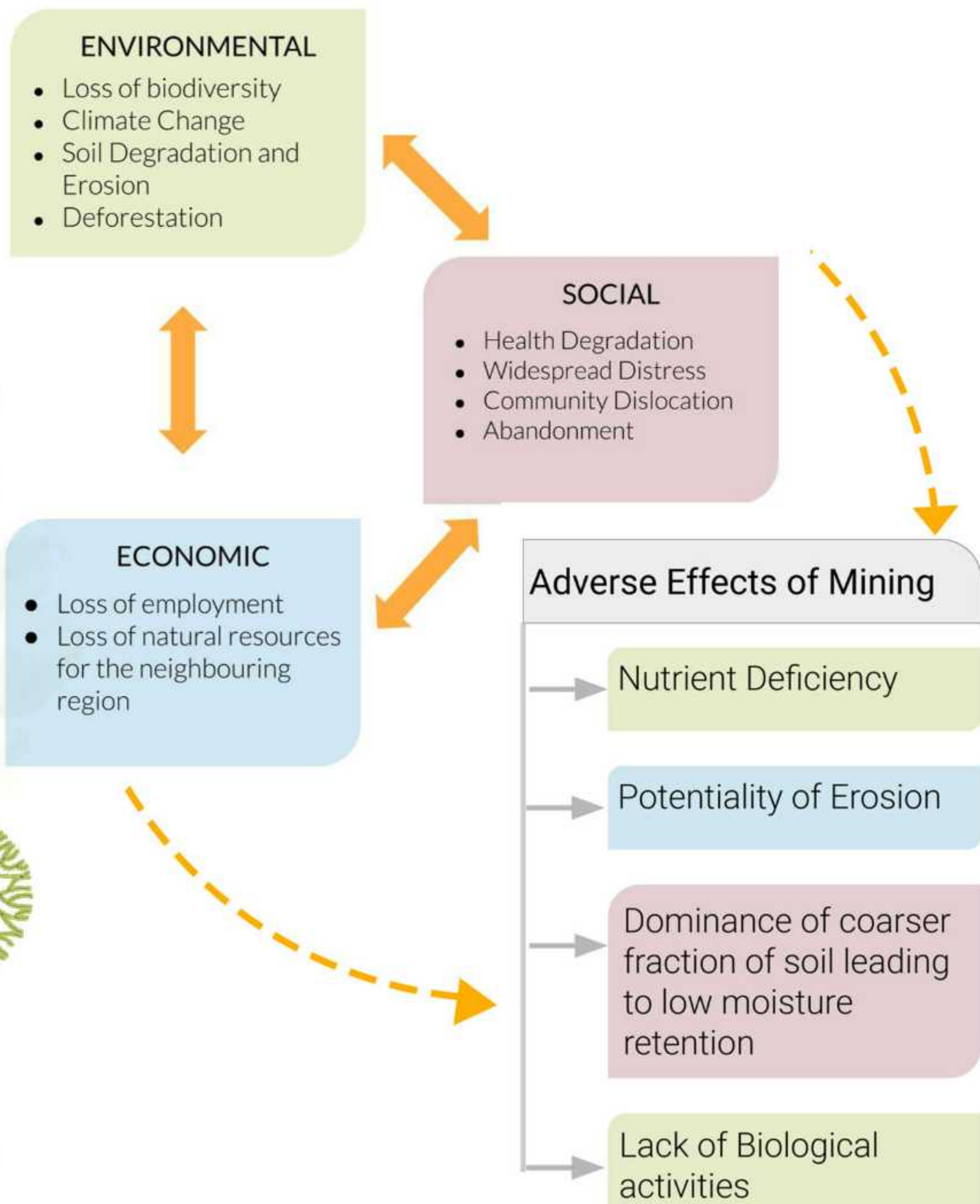
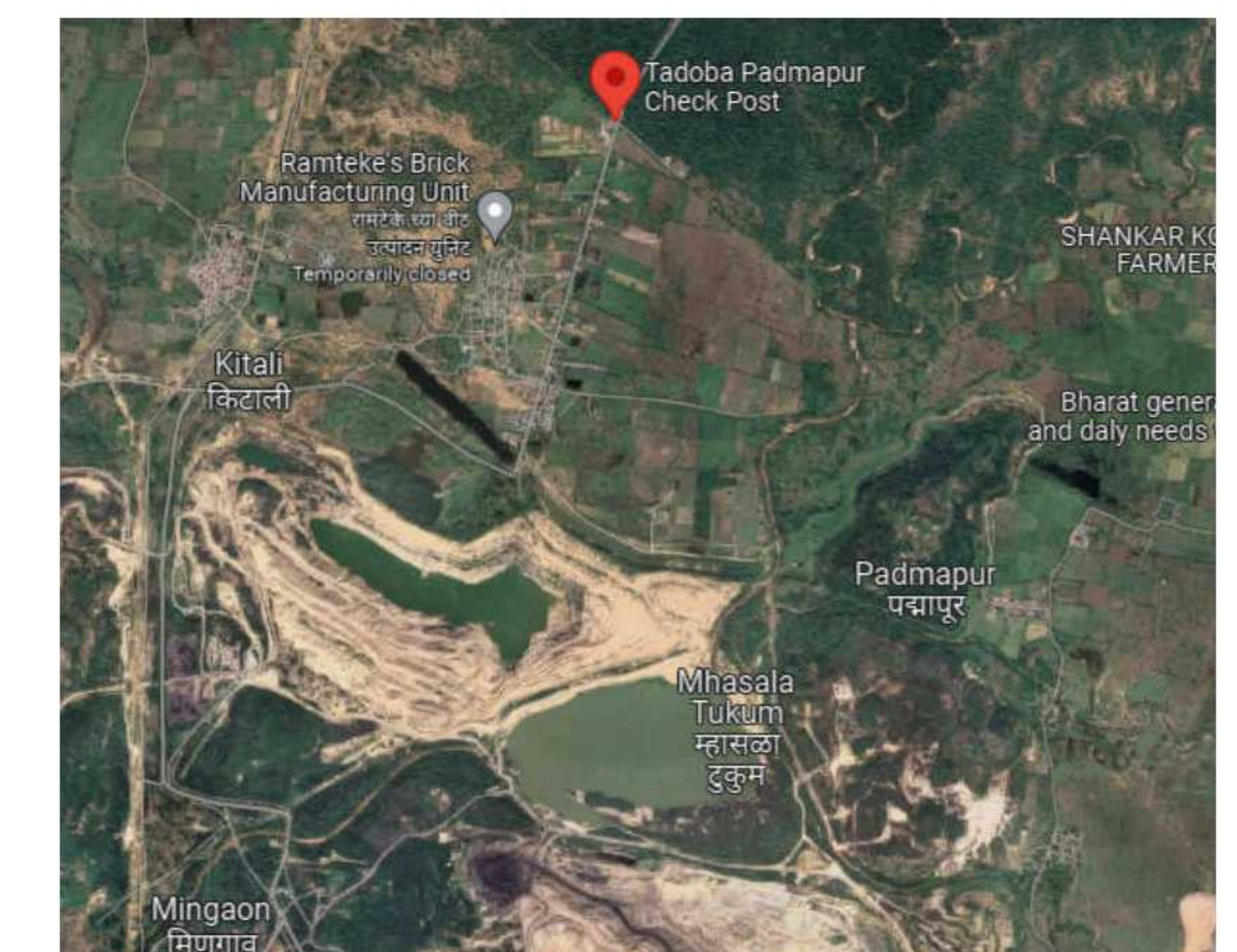
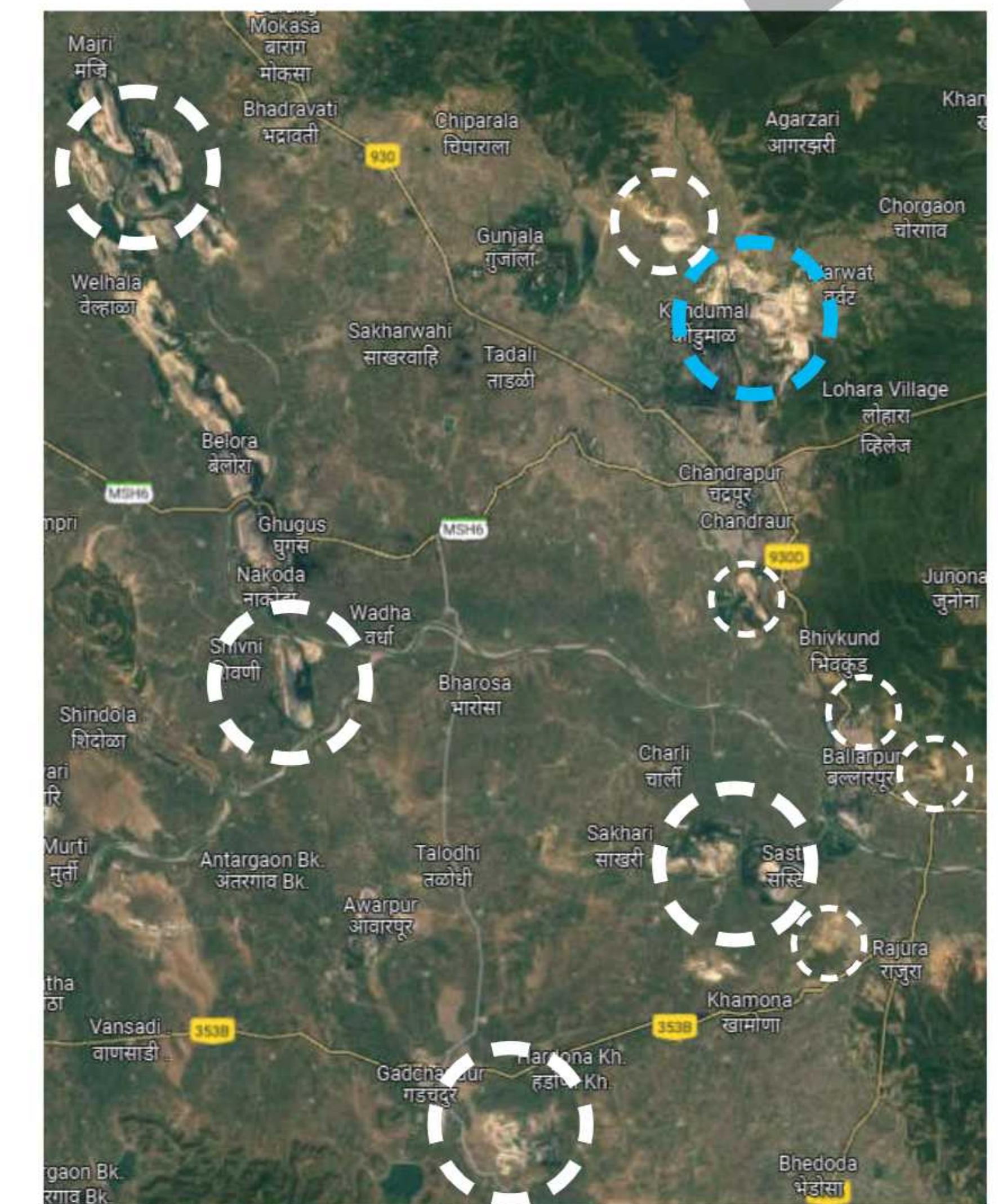
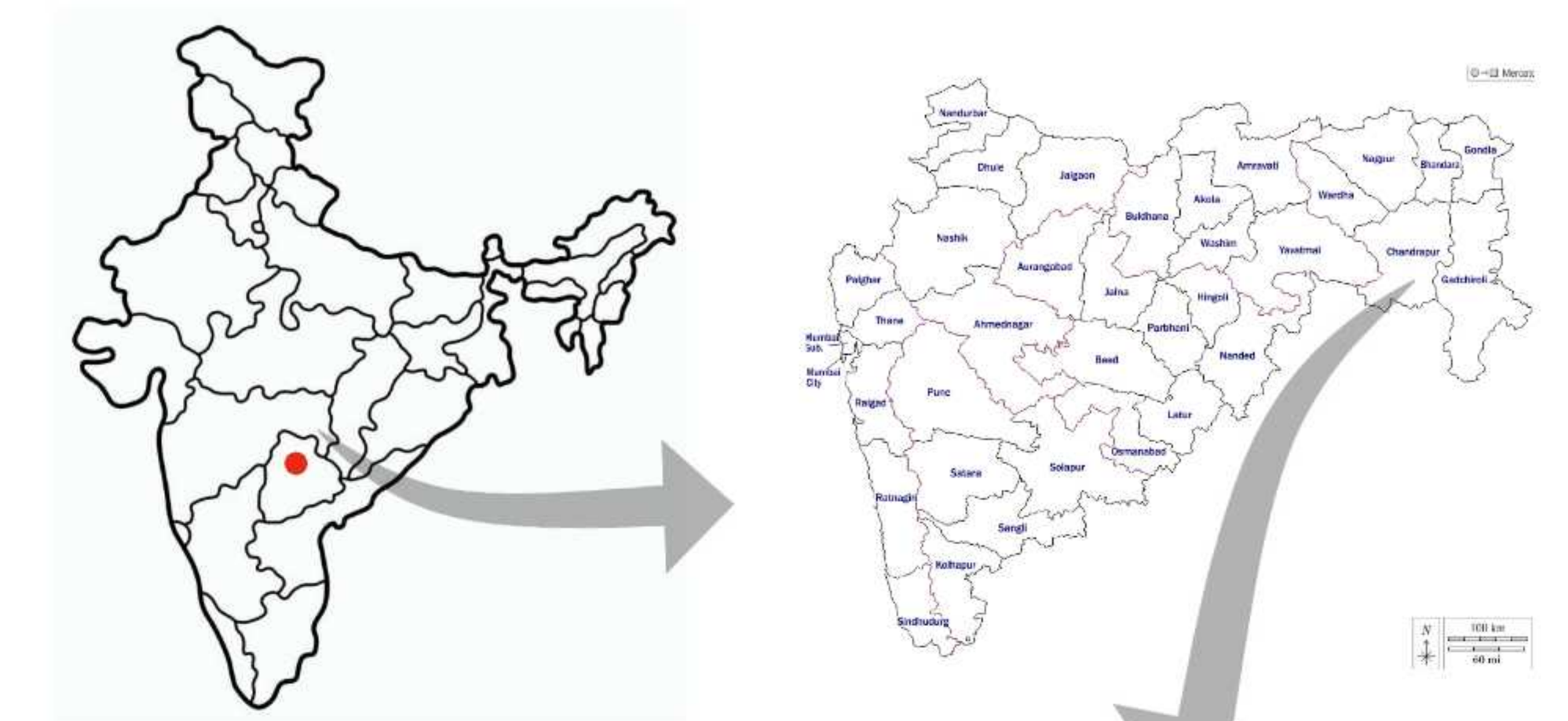
METHODOLOGY FOR DESIGN



SITE: Padmapur Open Cast Coal Mine, Chandrapur

The Mine is situated in Chandrapur District of Maharashtra State. It is at a distance of about 8 Kms on the North side of the Chandrapur Town. Chandrapur is on the main ChennaiDelhi Railway Track between Kazipeth & Wardha. The town is well connected by Road to Nagpur by S.H. - 84 & N. H. - 06. Chandrapur Town is about 170 Km south of Nagpur and well connected by road and rail to the rest of the country. The area is bounded by Longitude 79° 17' E to 79° 19' E and Latitude 20° 01' to 20° 03' N.

The project is located on North of Durgapur Opencast project and covered by Survey of India Topo Sheet No. 55 P / 8. This project is almost a captive mine of Chandrapur Thermal Power Station(CTPS) and its production is fully linked to CTPS. About 40 to 60 % of the Coal Produced at Padmapur Opencast Mine is supplied to the Chandrapur Super Thermal Power Station (CSTPS) belonging to MAHAGENCO through an Unit Train System (UTS), which is also known as Merry-Go-Round (MGR) and the rest to other industries by road.

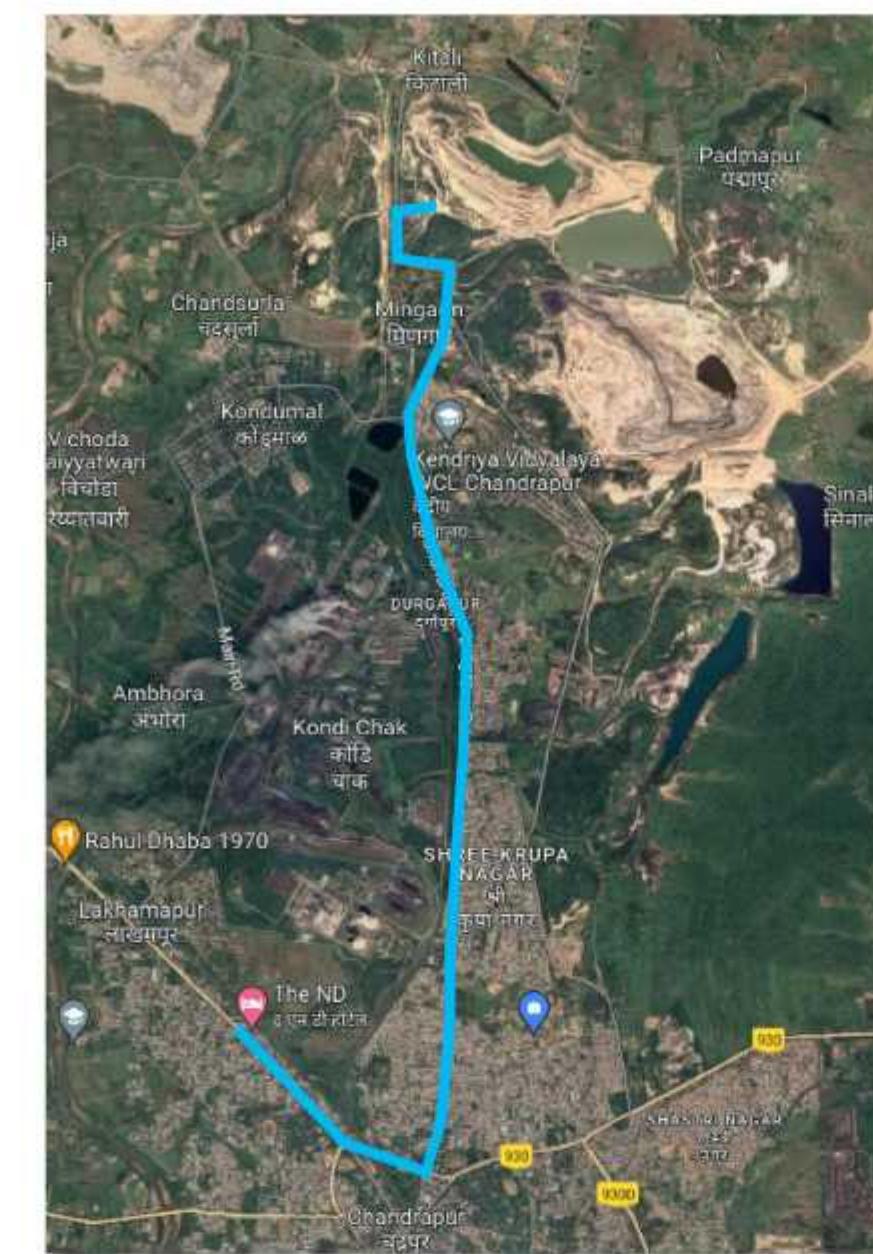


EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

Table 1: Salient features at a glance

| | | |
|-----|--|---|
| 1. | Date of Starting | : 01.05.1985 |
| 2. | Life of the Mine (Initially Estimated) | : 38 Years |
| 3. | Date of Re-Organisation | : 01.10.2003 |
| 4. | Leasehold Area | : 816.21 Hectares |
| 5. | Coal Bearing Area | : 350 Hectares |
| 6. | Present Depth of the Mine | : 151 Metres |
| 7. | Reserves in Million Tonnes (Net Mineable) (PR + Scheme + Reserves in Padmapur Deep) | : 37.130 Million Tonnes.. |
| 8. | Total Overburden Cover | : 80.88 Million M ³ |
| 9. | Balance Coal Reserves As On 01.04.2018 | : 11.910 Million Tonnes. |
| 10. | Coal Mined Out From April - Oct. 2018 | : 0.376 Million Tonnes. |
| 11. | Balance Coal Reserves As On 01.11.2018 | : 11.534 Million Tonnes. |
| 12. | Average Stripping Ratio (M ³ / Tc) | : 3.74 |
| 13. | Coal Seam Thickness | : 15 to 20 Metres |
| 14. | Dip Direction | : N 54 ^o 30' E. |
| 15. | Boundary of the Area | Longitude : 79 ^o -17' to 79 ^o -19' E. |
| | | Latitude : 20 ^o -01' to 20 ^o -03' N. |
| 16. | Grade of Coal | Steam : ' G - 8 / G - 9 ' MIX |
| | | Processed ROM : ' G - 10 ' & ' G - 11 ' |
| 17. | Coal Production (2017 - 2018) | : 13.308 Lakh. Te. |
| 18. | Targeted Coal Production (2018 - 2019) | : 10.00 L. Te. |



Connectivity from the Highway



Bench of the Mine- Now destroyed



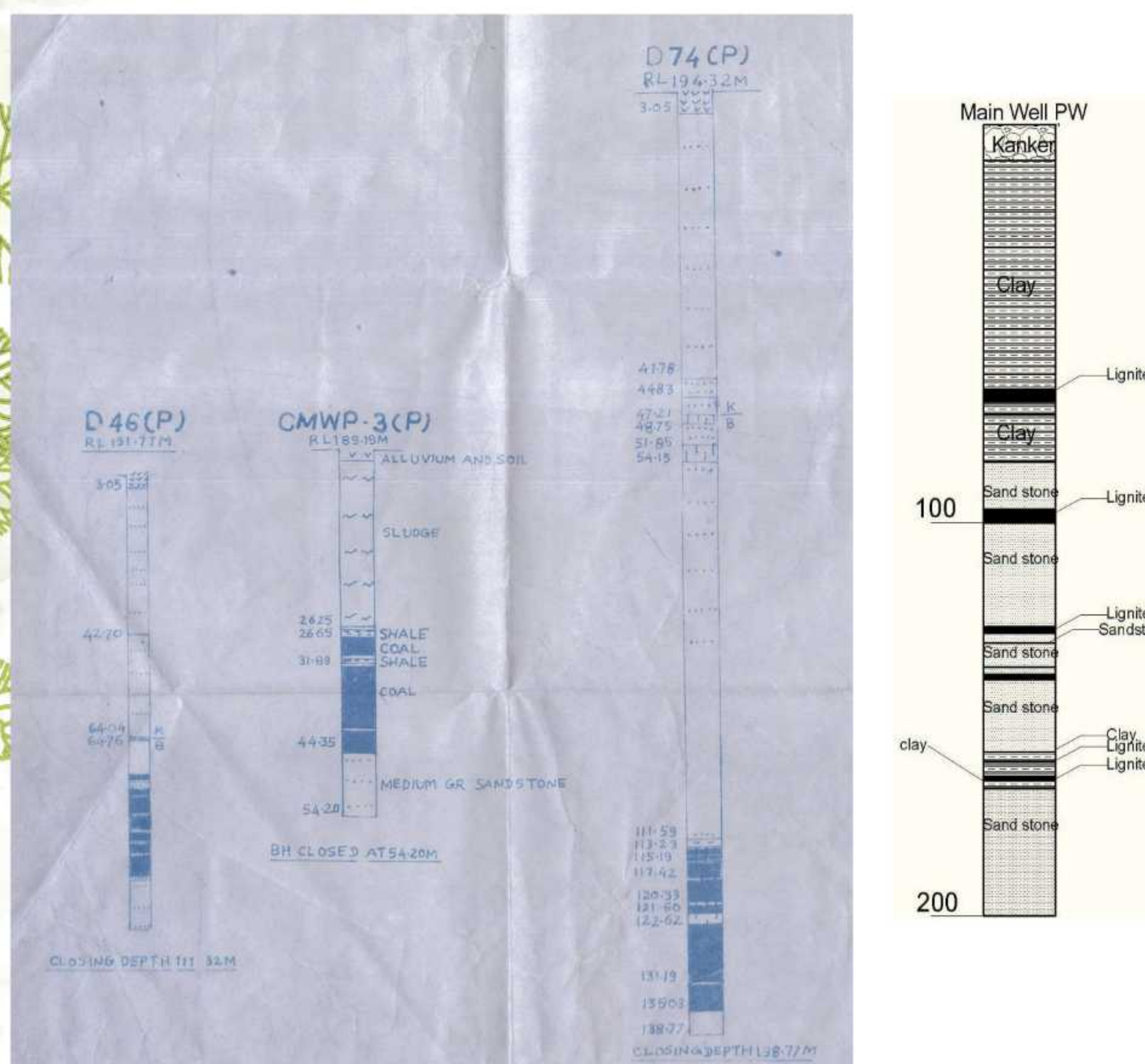
Berms to restrict the access



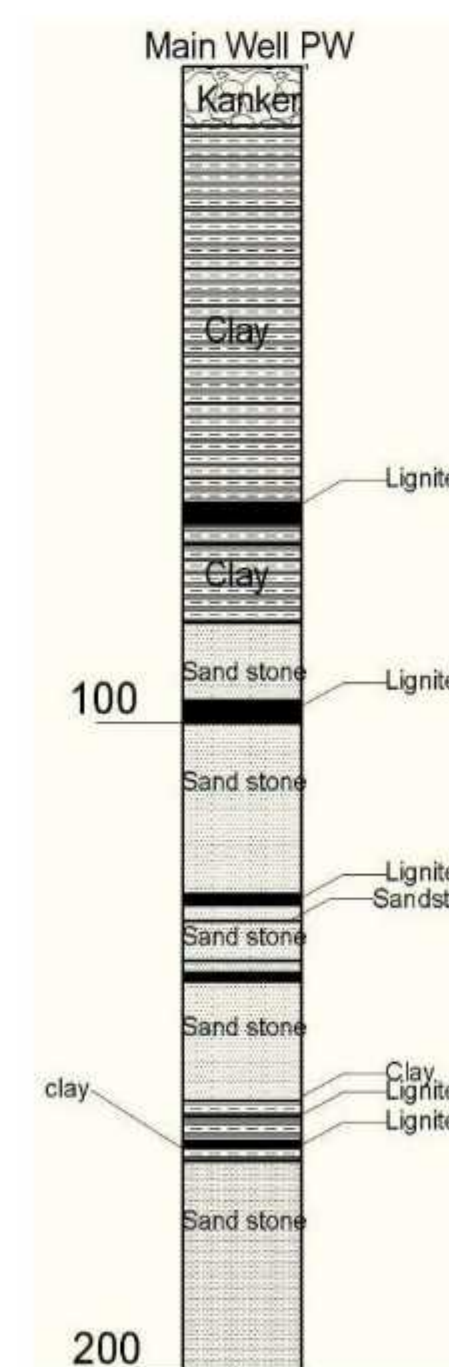
View of the mine from top



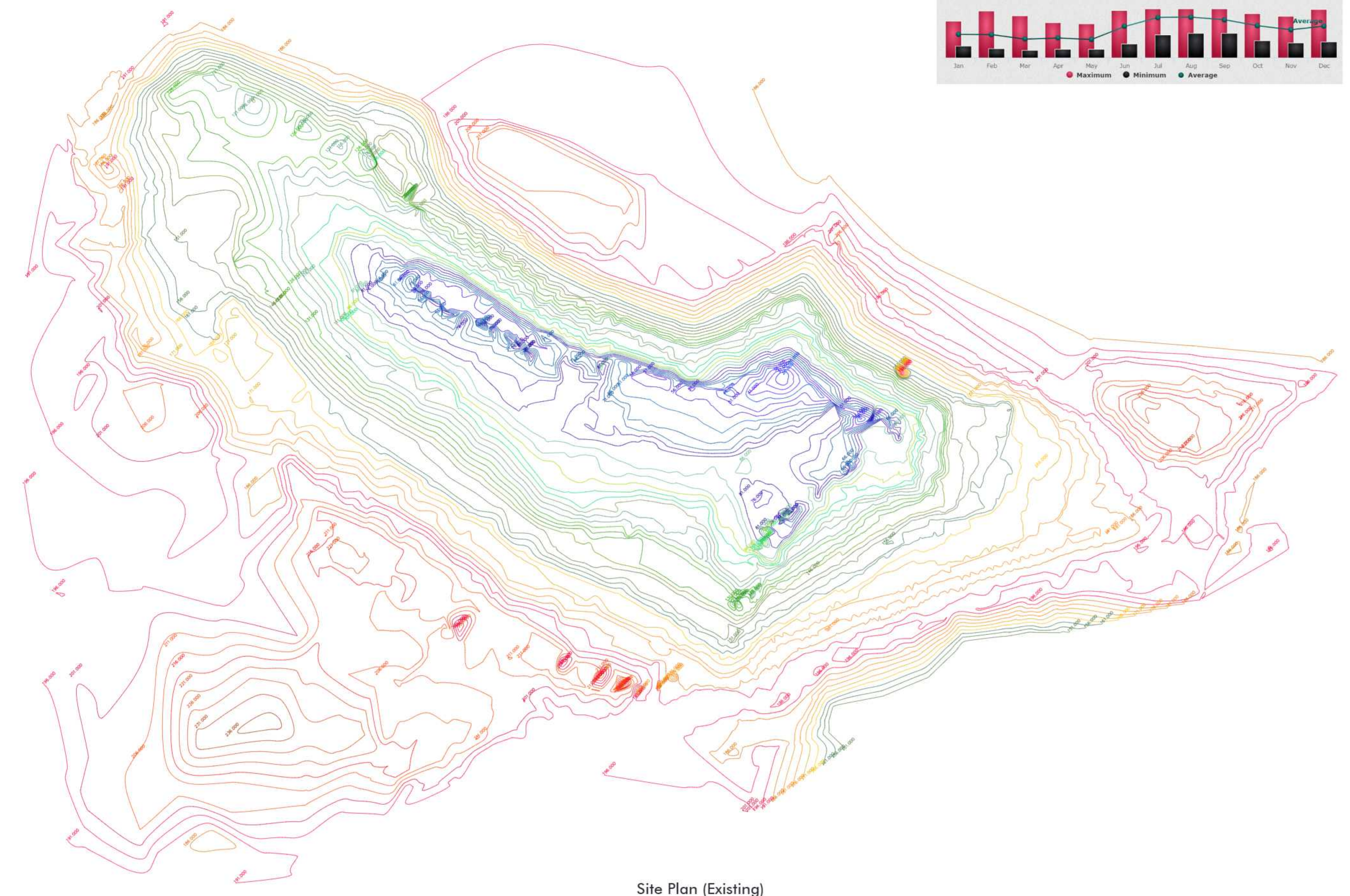
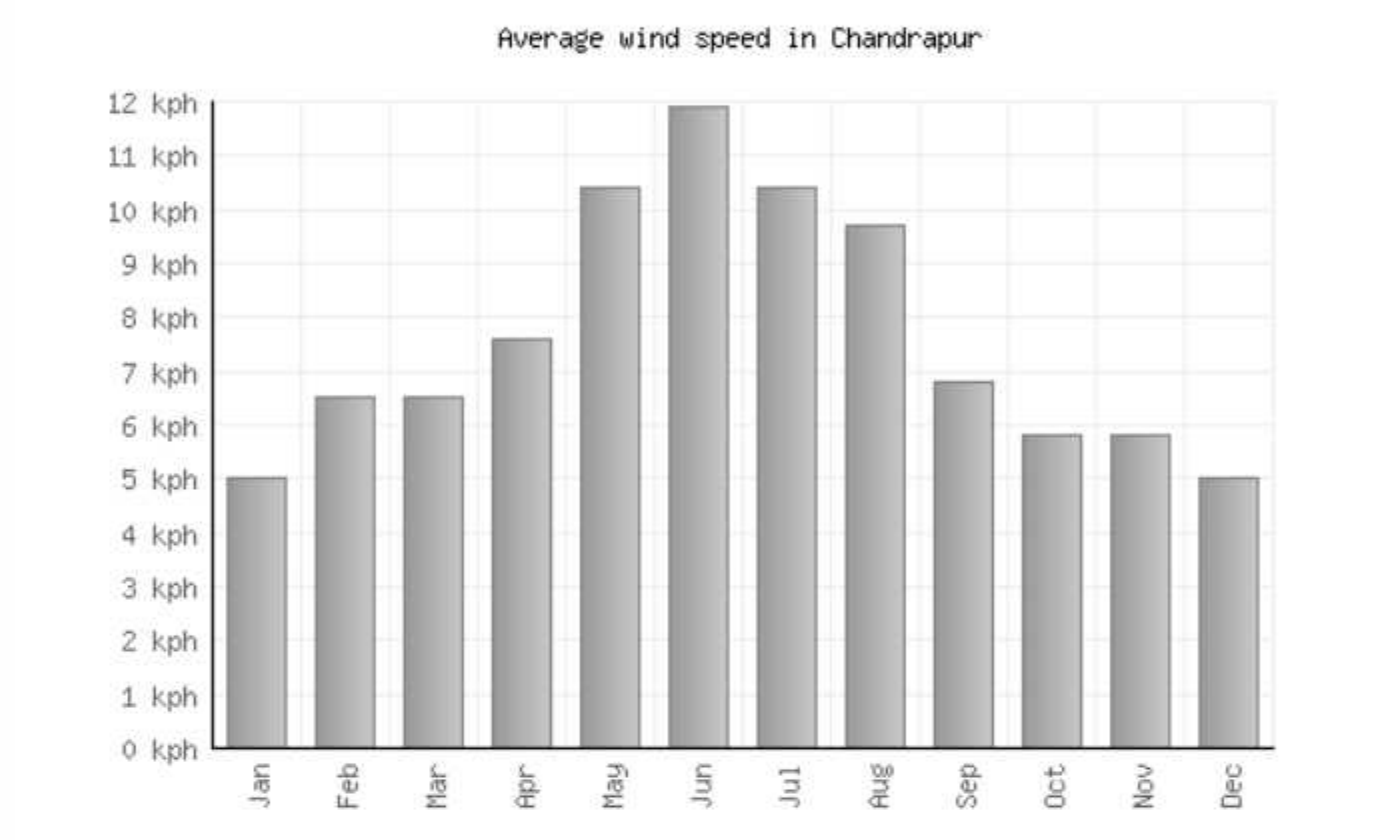
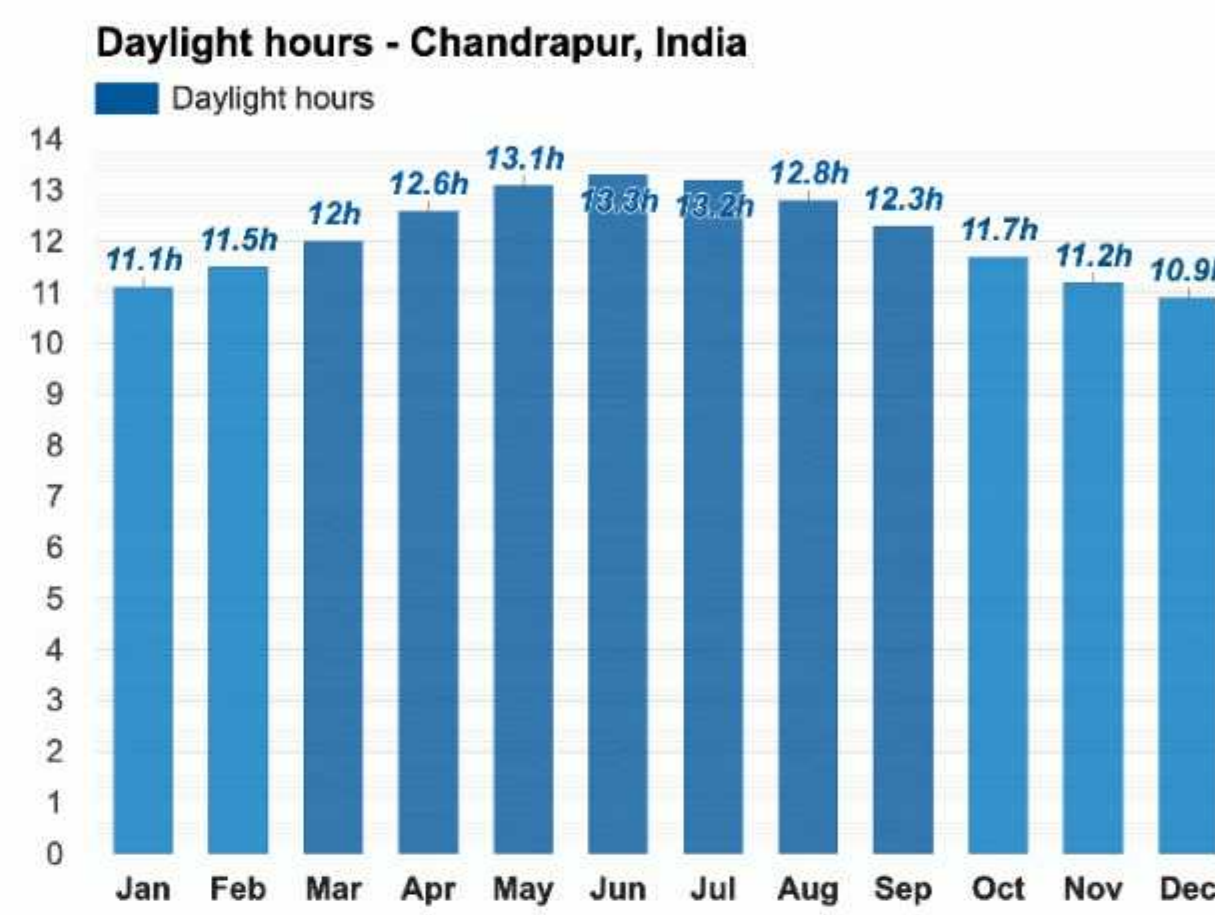
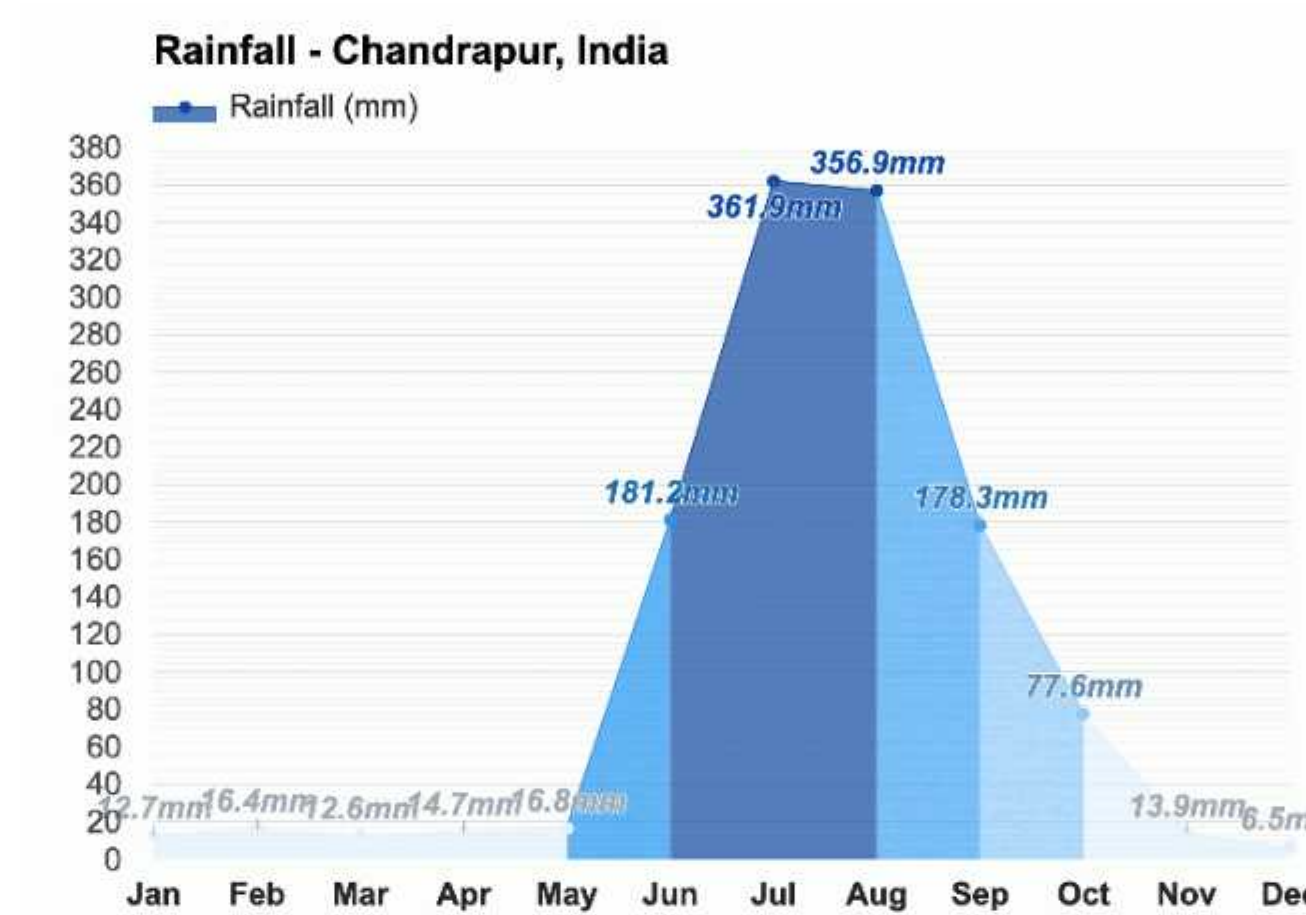
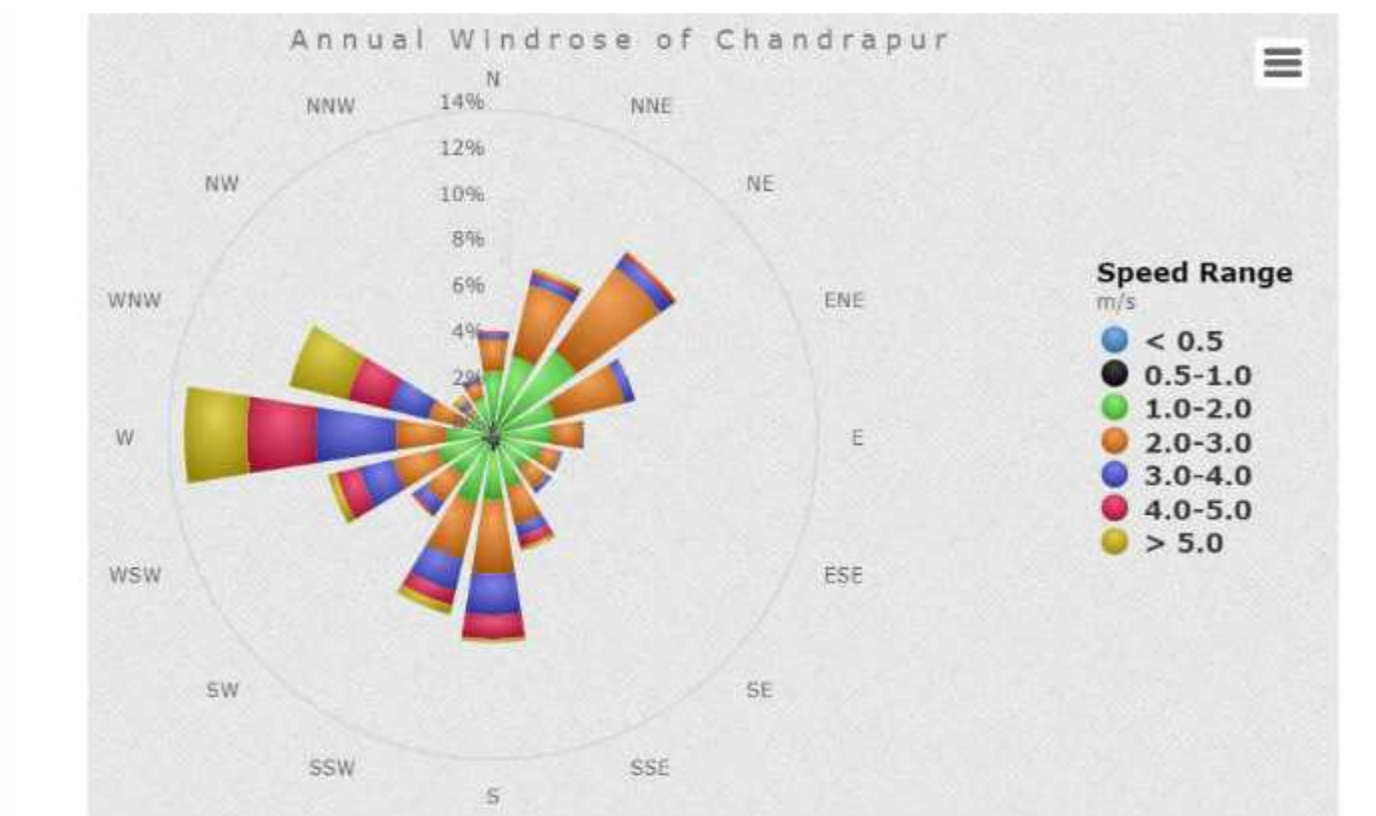
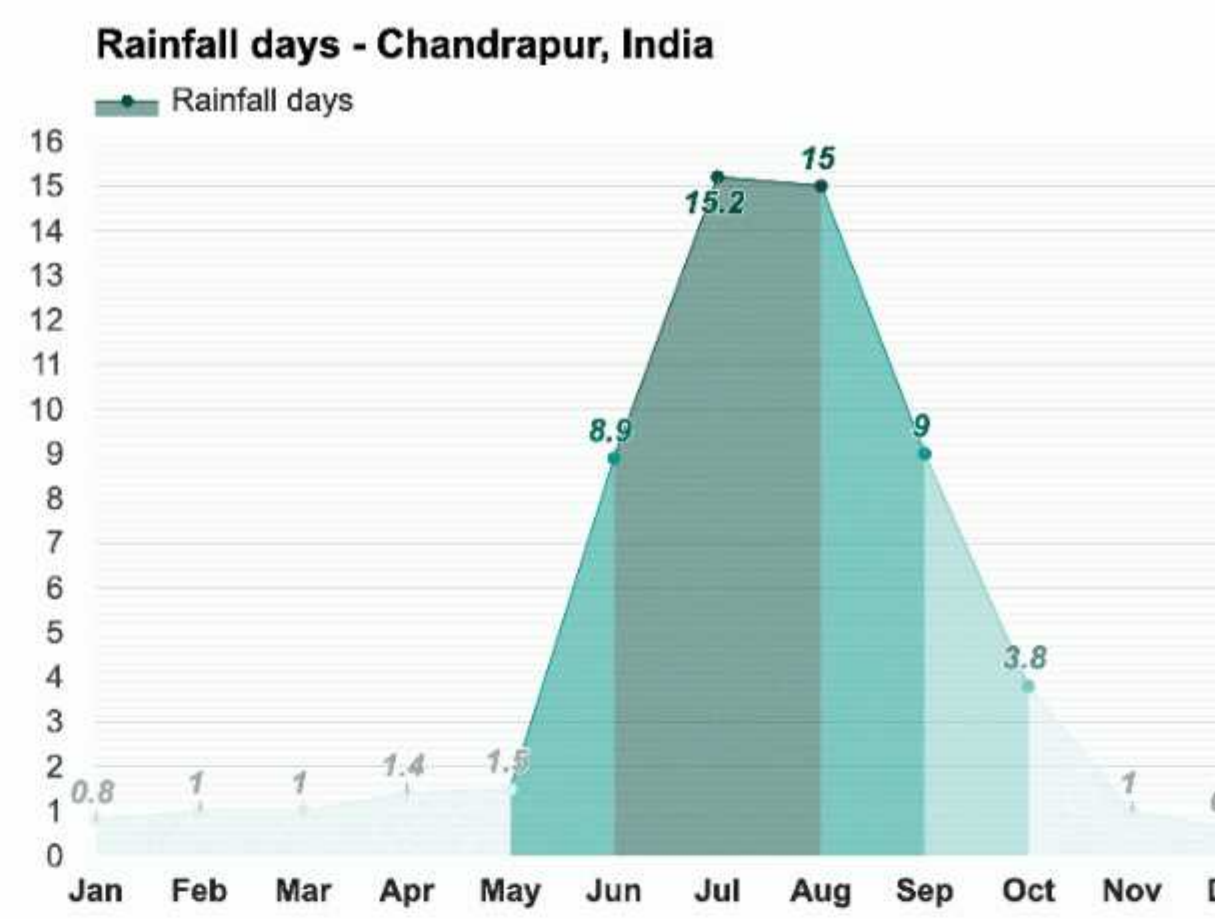
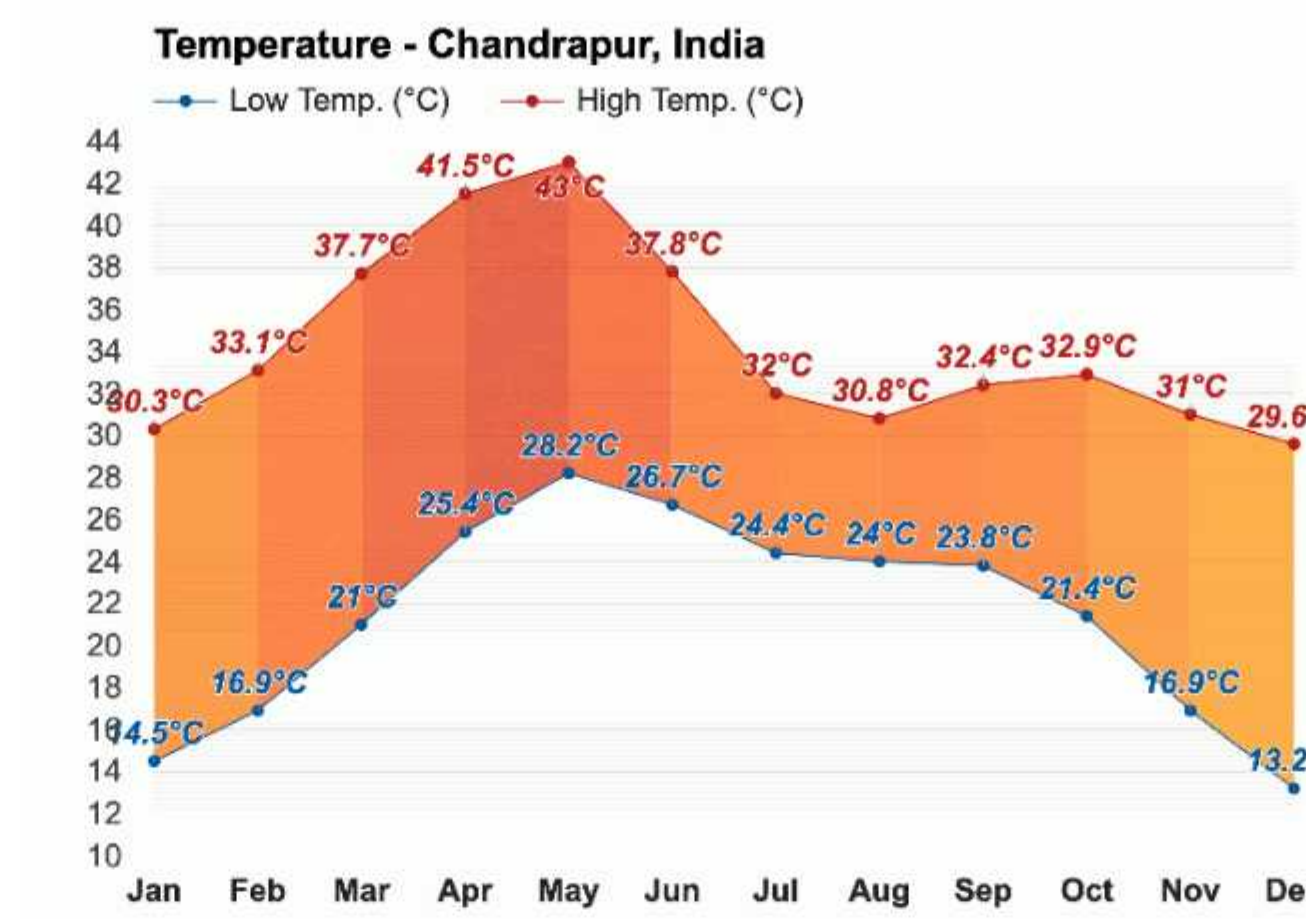
View of the mine from Bench



Bore hole sections of the mine



Climatic Data



Site Plan (Existing)



HISTORY OF THE MINE



02/2017



01/2018



05/2019

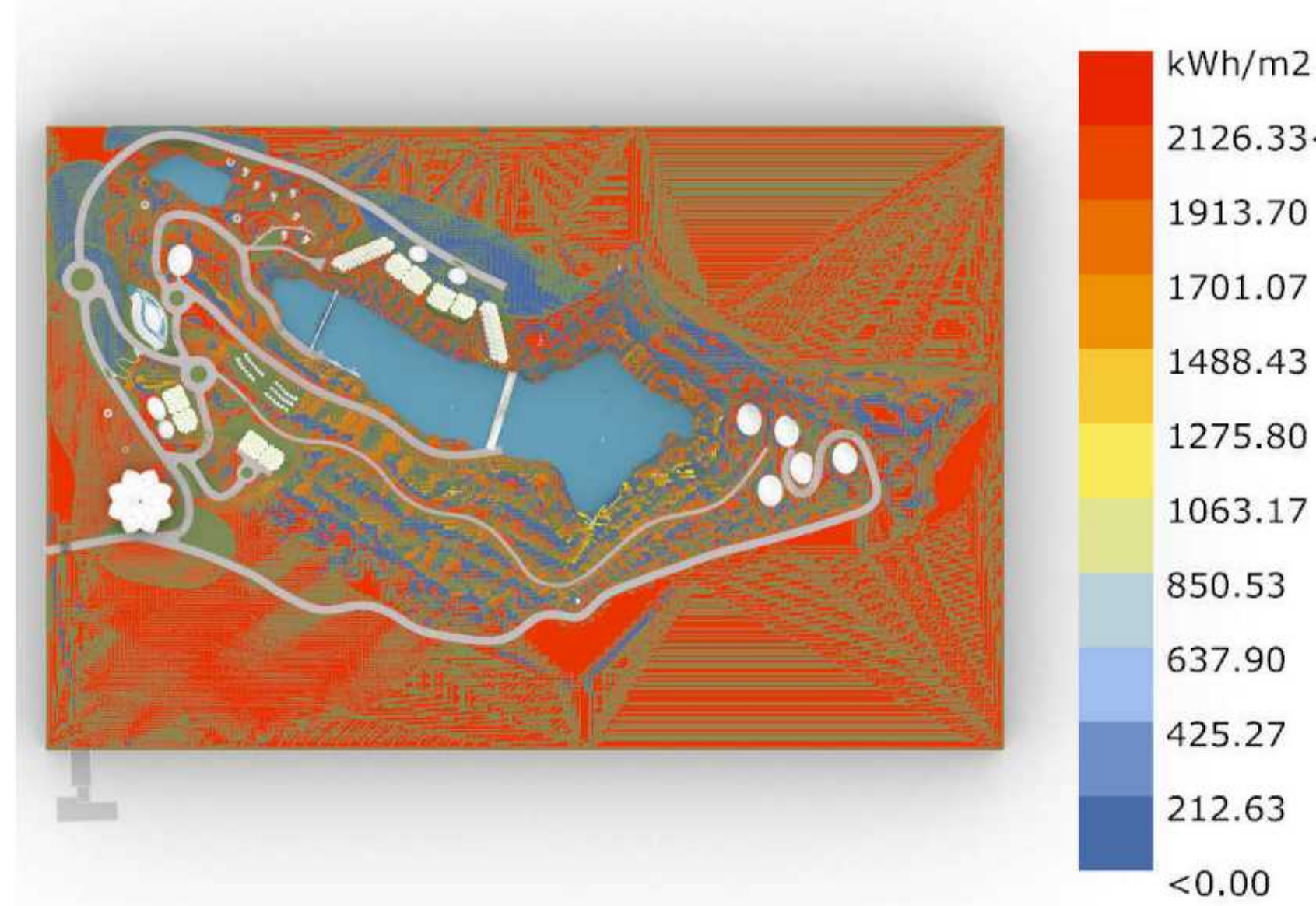


08/2020

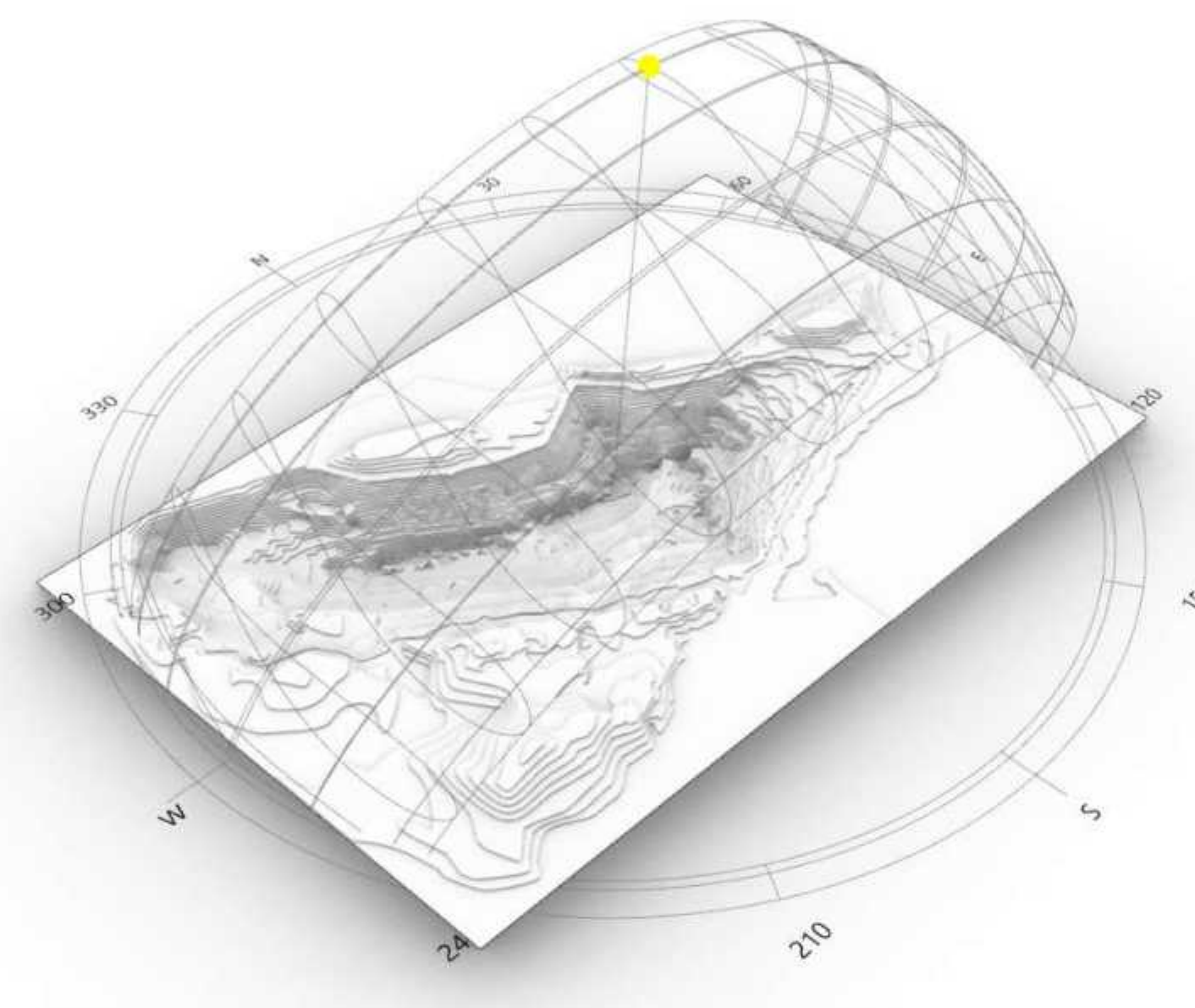


03/2023

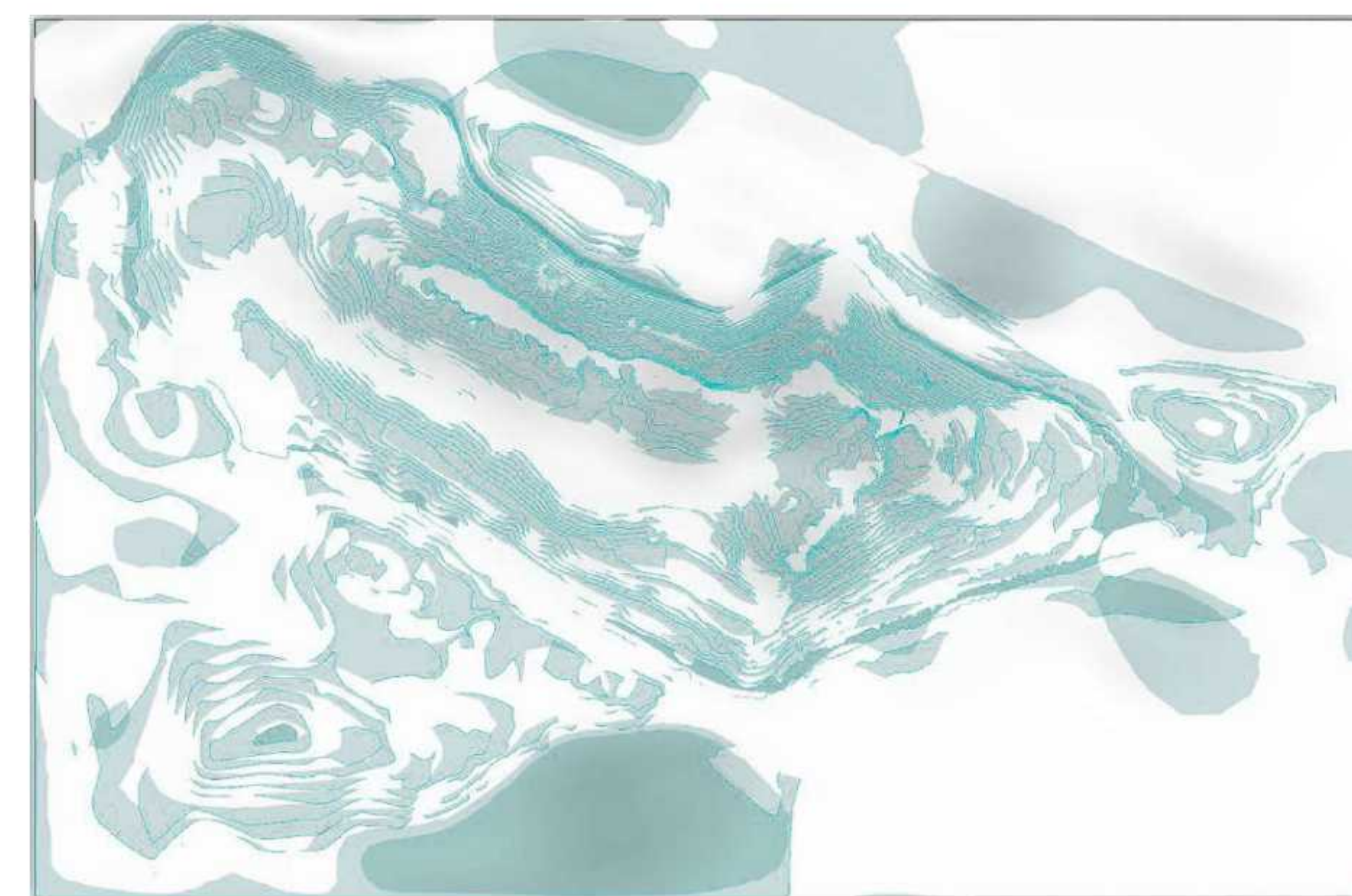
Parametric and Climatic analysis



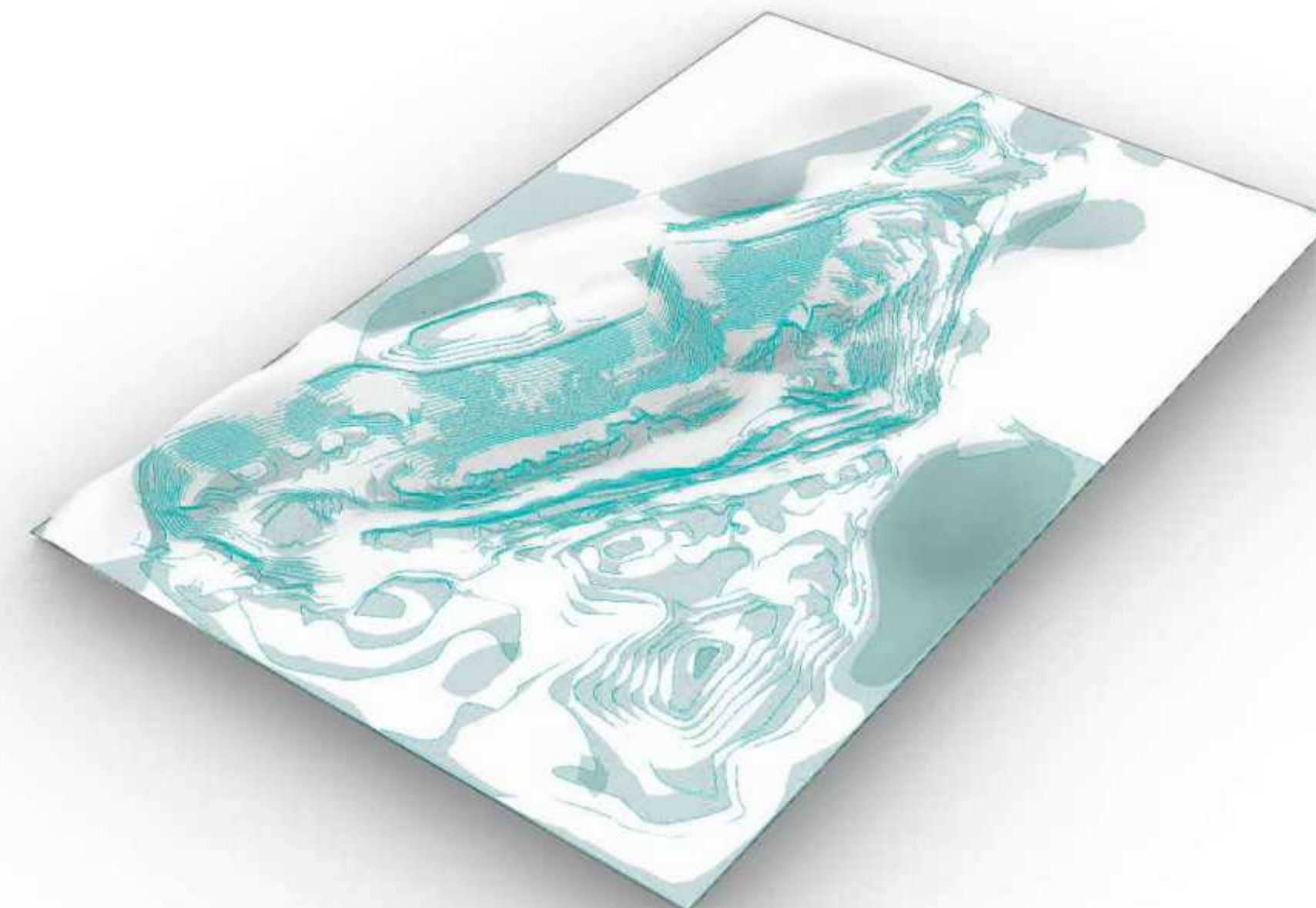
Thermal Analysis



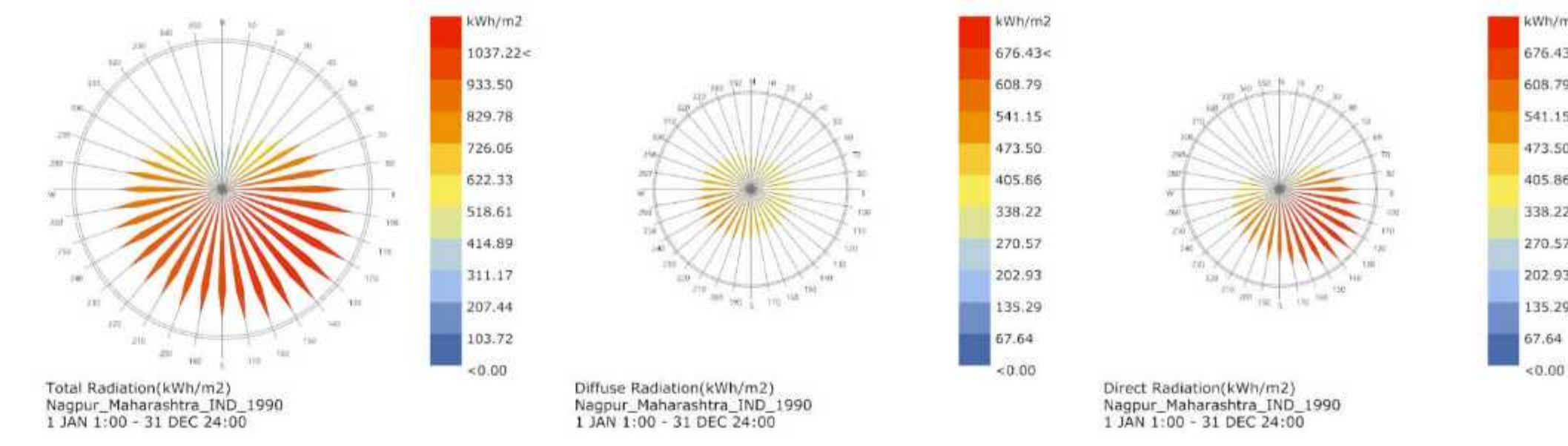
SunPath



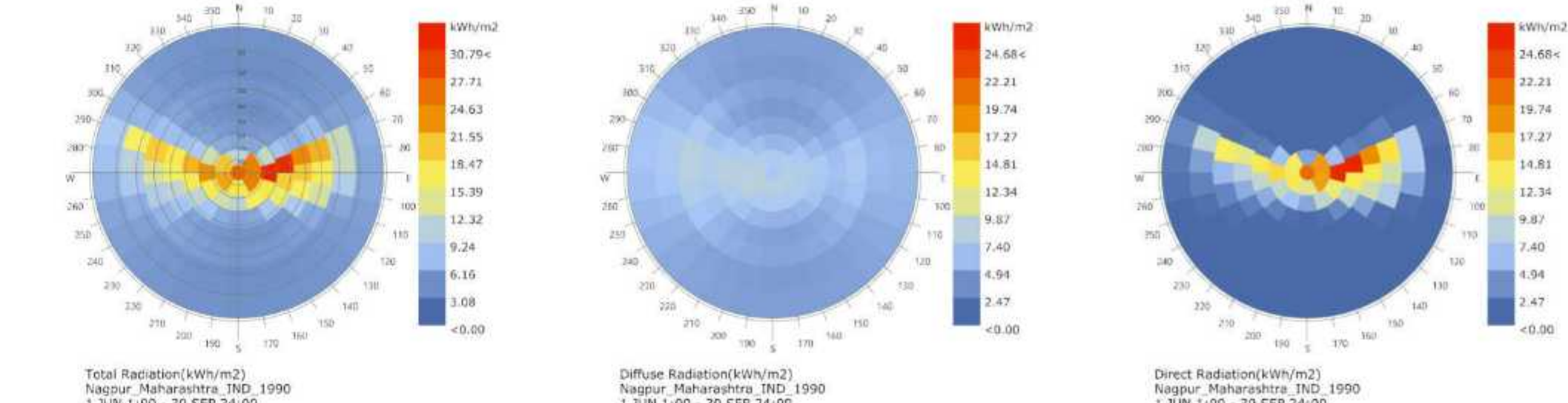
Water Catchment areas



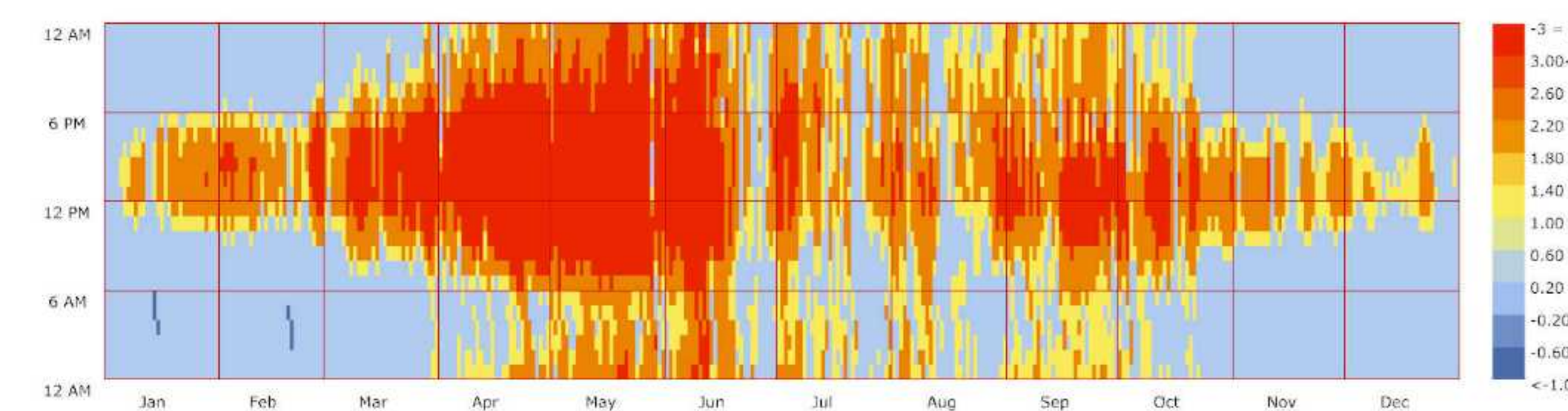
Water Catchment areas



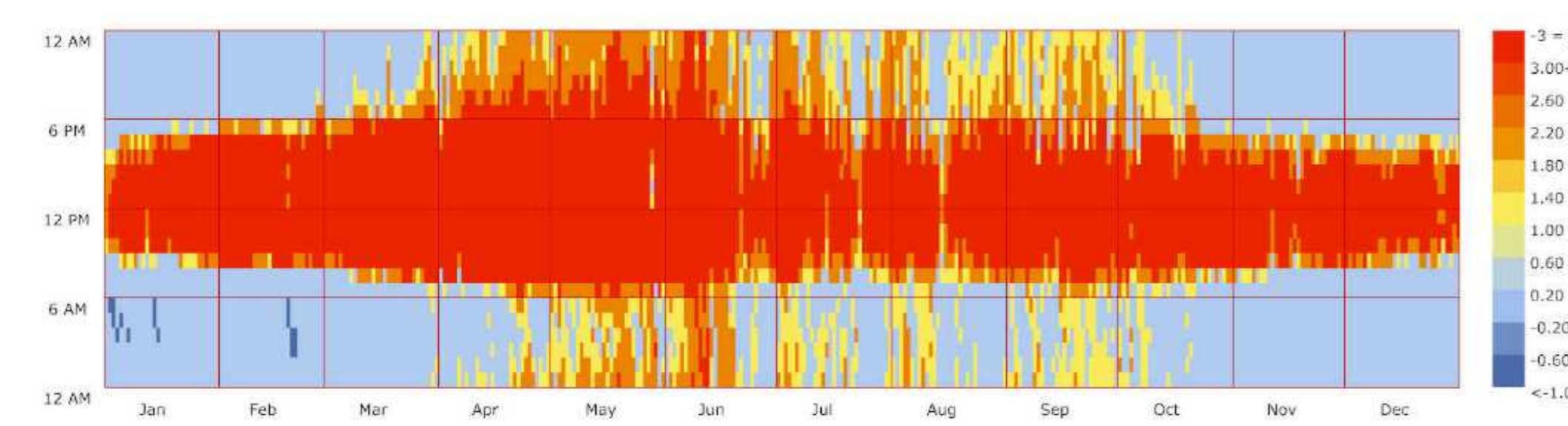
Radiation Analysis



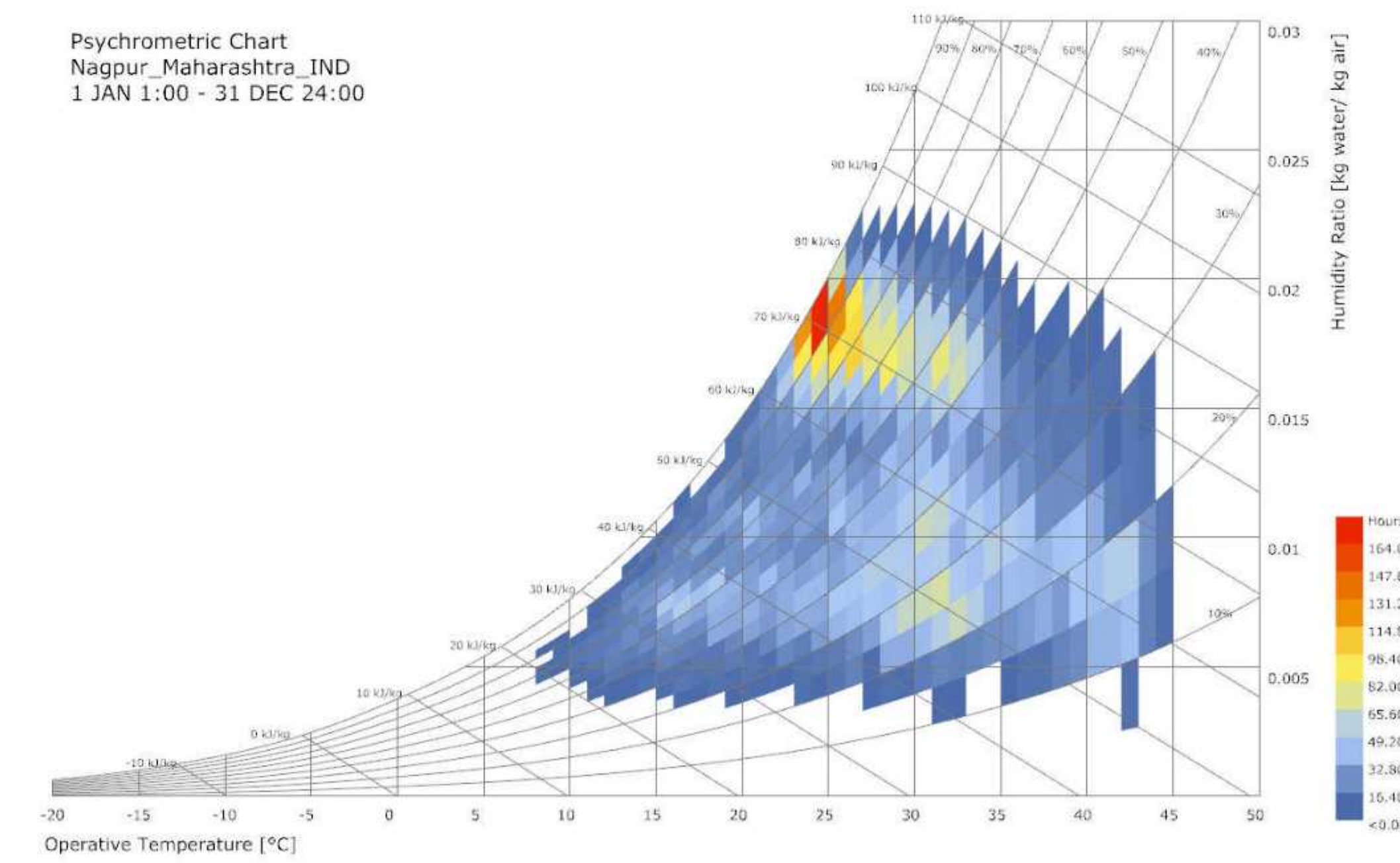
Radiation Analysis



Outdoor Comfort (-3 = Extreme Cold | -2 = Cold | -1 = Cool | 0 = Comfort | 1 = Warm | 2 = Hot | 3 = Extreme Heat) - Hourly



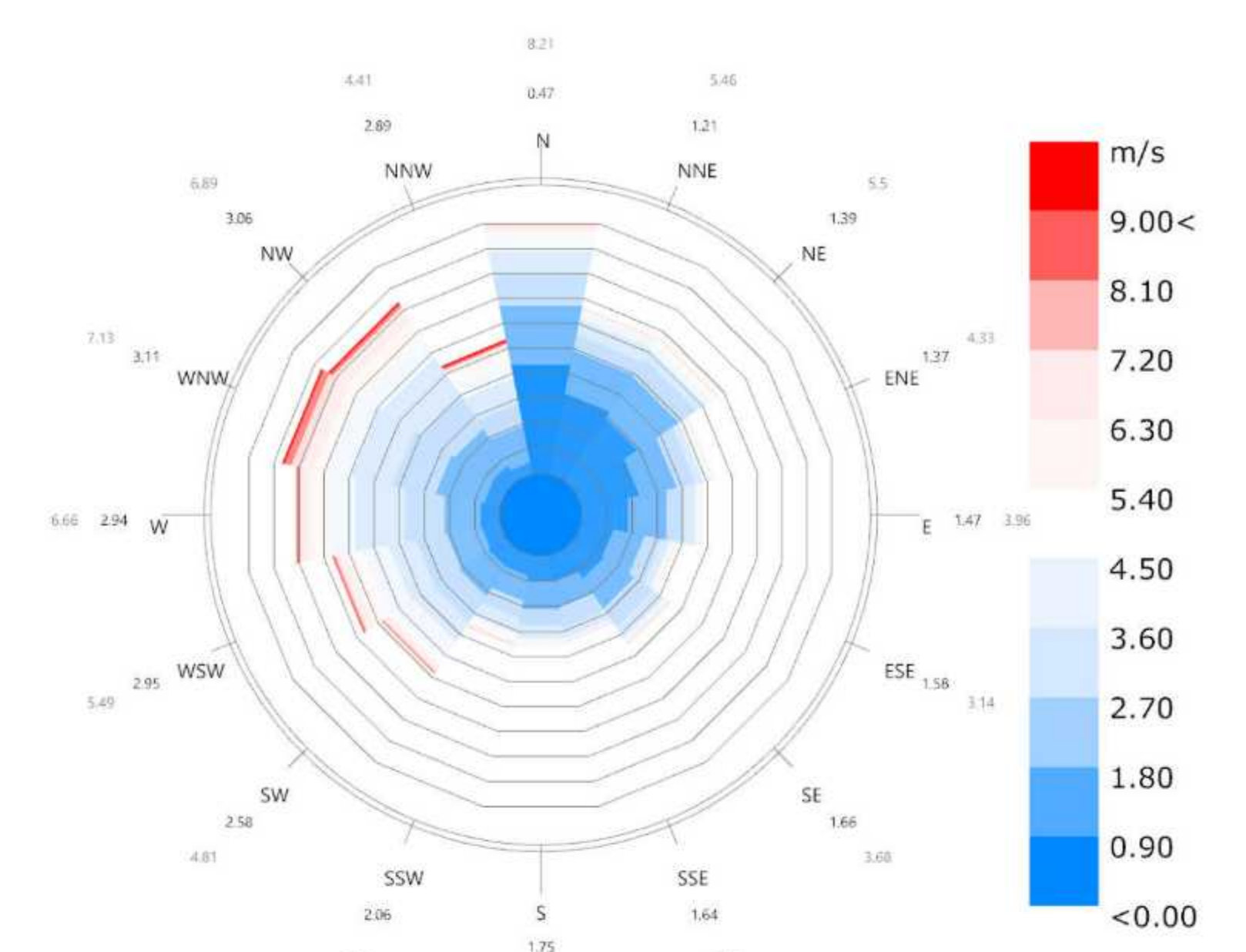
Outdoor Comfort



Psychrometric Chart

Analysis:

- The wind direction is from NW.
- If we place buildings, radiation will decrease.
- Dome- Most Total radiation is from the East direction.
- Direct radiation is from the SW direction.
- Average rainfall is 1,114mm.
- The average annual temperature is around 26.6 °C



Wind-Rose
Nagpur_Maharashtra_IND
1 JAN 1:00 - 31 DEC 24:00
Hourly Data: Wind Speed (m/s)
Calm for 21.61% of the time = 1893 hours.
Each closed polyline shows frequency of 0.8% = 71 hours.

Vegetation

| Trees | Vegetation |
|----------|-------------------------------------|
| | Teak |
| | Bamboo |
| | Sal |
| | mahua |
| | Tendu |
| | Tamarind |
| Shrubs | Lantana camara |
| | Karvi (Strobilanthes sp.) |
| | Zizyphus (Zizyphus sp.) |
| | Bael (Aegle marmelos) |
| | Cassia (Cassia sp.) |
| | Dhaman (Grewia tiliaefolia) |
| Herbs | Medicinal: Neem, and Tulsi |
| | Windflowers: Buttercup, and Lily |
| | Creepers: Wild grape, Morning glory |
| Climbers | Climbing Balsam |
| | Moonseed |
| | Wild Grape |
| | Morning Glory |
| | Trumpet creeper |

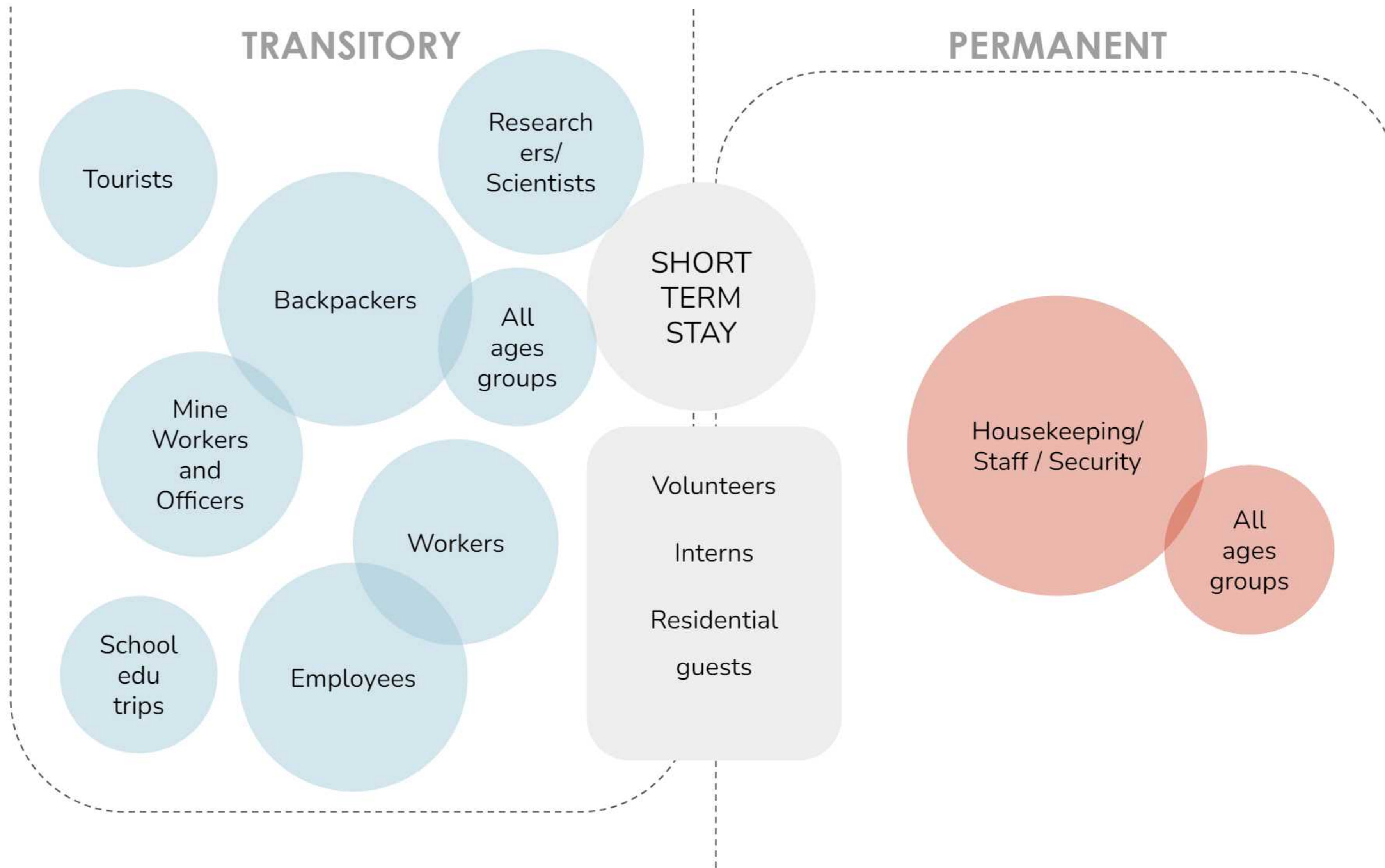
Table 1 Design parameters for mining slopes

| Sr No | Types of material | Maximum Height (m) | Maximum Slope angle (°) | Minimum Bench Width (m) | Overall Slope angle (in benches) |
|-------|--|--------------------|-------------------------|-------------------------|----------------------------------|
| 1 | Soft Soil / Black Cotton Soil | 3 | 55 | 10 | 15 |
| 1a | * After every three benches (soft soil / black cotton soil) a provision for 15 m safe berm width has to be kept. | | | | |
| 2 | Coal | 10 | 50 | 12 | 26 |
| 3 | Hard rock | 10 | 50 | 12 | 28 |
| 3a | * After every three benches (coal / hard rock) a provision for 15 m safe berm width has to be kept. | | | | |

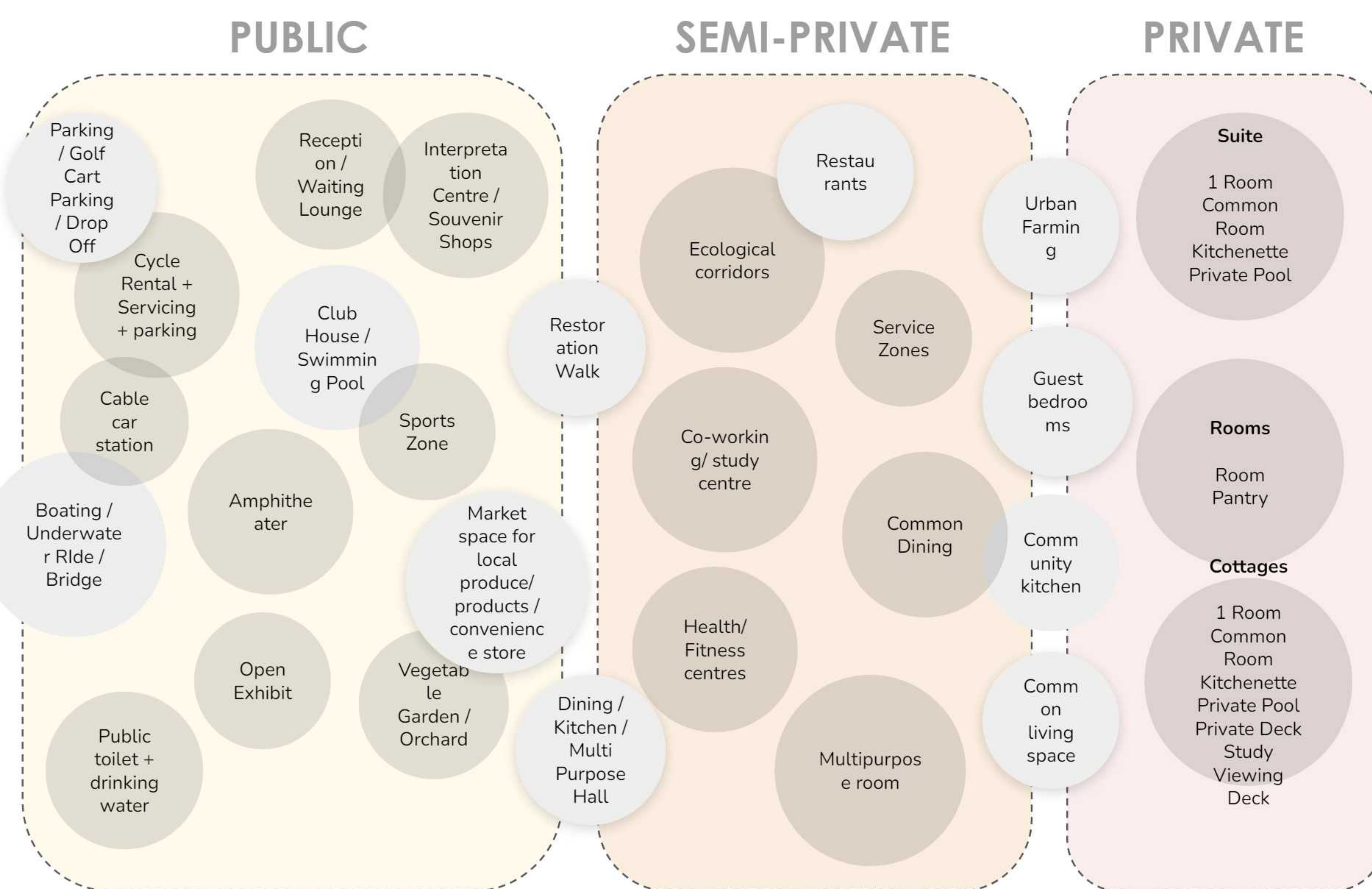
EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

USERS



ZONING



ACTIVITIES



WALKOVER BRIDGE



ROPEWAY



OAT



RESTORATION WALK



MOUNTAIN CLIMBING



OBSERVATION DECK



BOATING



MINE EXPERIENCE

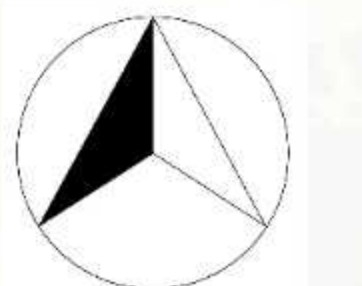
AREA PROGRAM

| S. No. | Program | Capacity | Area in sqm | Nos. of Unit | Total Area | Remark |
|--|-----------------------------------|----------|-------------|--------------|--------------|-------------------------|
| 1 Multi Function Block | | | | | | |
| a | Reception Counter | 10 | 20 | 2 | 40 | |
| b | Lobby/ Waiting | 30 | 60 | 2 | 120 | |
| c | Lounge | 200 | 440 | 0 | 440 | |
| d | General Restaurant | 150 | 205 | | 205 | |
| e | Central kitchen for Restaurant | | 100 | | 100 | |
| f | Dry store | | 15 | | 15 | |
| g | Chilled store | | 15 | | 15 | |
| h | Waste Disposal area | | 15 | | 15 | |
| i | Dish wash area | | 15 | | 15 | |
| j | Staff Toilet | | 4.5 | | 4.5 | |
| k | Visitors Toilet | 4 | 4.5 | 4 | 18 | |
| l | Co-Working Space | | | | | |
| 2 Office Space | | | | | | |
| m | Waiting and reception | 10 | | | 20 | |
| n | Chair Person's Room | 1 | | | 30 | |
| o | General Manager Room | 1 | | | 30 | |
| p | Deputy Managers Room | 1 | | | 20 | |
| q | HR Manager Room | 1 | | | 15 | |
| r | House Keeping Manager | 1 | | | 15 | |
| s | Administrative Staff room | 10 | | | 75 | |
| t | Accounting Staff Room | 3 | | | 20 | |
| u | Meeting/ Presentation Hall | 15 | 50 | 4 | 200 | |
| v | Rest room | 4 | 10 | 4 | 40 | |
| w | Utility room/ Store Room | | 10 | 1 | 10 | |
| x | Store Keeper | 1 | 10 | 1 | 10 | |
| 3 Informative and Learning Block | | | | | | |
| a | Lobby/ Waiting Lounge | 25 | 90 | | 90 | |
| b | Reception Counter | 2 | 10 | | 10 | |
| c | Tourist Information Centre | 50 | 75 | 2 | 150 | |
| d | Library | 20 | 80 | 1 | 80 | |
| e | Museum | 50 | 250 | | 250 | |
| f | Control Office | 1 | 10 | 1 | 10 | |
| g | Staff Toilet | | 4.5 | | 4.5 | |
| h | Visitors Toilet | 4 | 4.5 | 4 | 18 | |
| i | Conference Hall - 1 | 100 | 150 | 1 | 150 | |
| j | Conference Hall - 2 | 100 | 150 | 1 | 150 | |
| k | Toilet for Conference Hall User | 10 | 15 | 10 | 150 | |
| l | Souvenir Shop | | 20 | 2 | 40 | |
| m | Meeting/ Presentation Cabins | 10 | 30 | 2 | 60 | |
| 4 Recreational | | | | | | |
| a | Squash Hall | 2 | 60 | 2 | 120 | |
| b | Gymnasium | 25 | 75 | 2 | 150 | |
| c | Aerobics | 10 | 40 | 2 | 80 | |
| d | Meditation | 50 | 80 | 2 | 160 | |
| e | Shops | 10 | 20 | 15 | 300 | |
| f | Barber/Parlour | 2 | 25 | 1 | 25 | |
| g | Spa | 4 | 40 | 1 | 40 | |
| h | Sauna | 4 | 40 | 1 | 40 | |
| i | Snooker | 4 | 18 | 4 | 72 | |
| j | Locker/ Changing room | 30 | 30 | 1 | 30 | |
| k | Rest Room | 6 | 25 | 1 | 25 | |
| l | Mountain Climbing | | | | | |
| m | Trek for Education Walk | | | | | |
| n | Camping | | | | | |
| o | Cable Car | | | | | |
| p | Jetty | | | | | |
| q | Observation Decks | | | | | |
| 5 Research & Training (Restoration) | | | | | | |
| | Research Lab | | | | 400 | |
| | Testing Center | | | | 100 | |
| | Implementation field | | | | 2000 | |
| | Observatory | | | | 200 | |
| | Open Exhibit | | | | 1000 | |
| | Open Museum | | | | 1000 | |
| 6 Common Accommodation Unit | | | | | | |
| | | 20 | 40 | 20 | 800 | |
| 7 Individual Accommodation Unit | | | | | | |
| a | Group User Block | 10 | 100 | 10 | 1000 | With Common Kitchenette |
| b | Small Family Block | 3 | 50 | 20 | 1000 | With Kitchenette |
| c | Family Block | 5 | 80 | 20 | 800 | With Kitchenette |
| 8 Staff Accommodation and Back House | | | | | | |
| a | Staff Kitchen | 10 | 15 | 1 | 15 | |
| b | Staff Dining | 15 | 20 | 1 | 20 | |
| c | Wash Area | | 5 | 1 | 5 | |
| d | Site Storage | | 30 | 2 | 60 | |
| e | Accommodation Units | | 15 | 10 | 150 | |
| f | Rest Rooms | 2 | 5 | 2 | 10 | |
| g | Family Suite for High Level Staff | 2 | 80 | 2 | 160 | |
| g | Generator and Battery Room | | 30 | 1 | 30 | |
| 9 Educational | | | | | | |
| a | Mining Museum | | 1000 | 1 | 1000 | |
| b | Mining Equipment Exhibition Area | | 2000 | 1 | 2000 | |
| c | Training & Workshop Area | | 500 | 1 | 500 | |
| Grand Total Area: | | | | | 15927 | |

SITE PLAN

EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

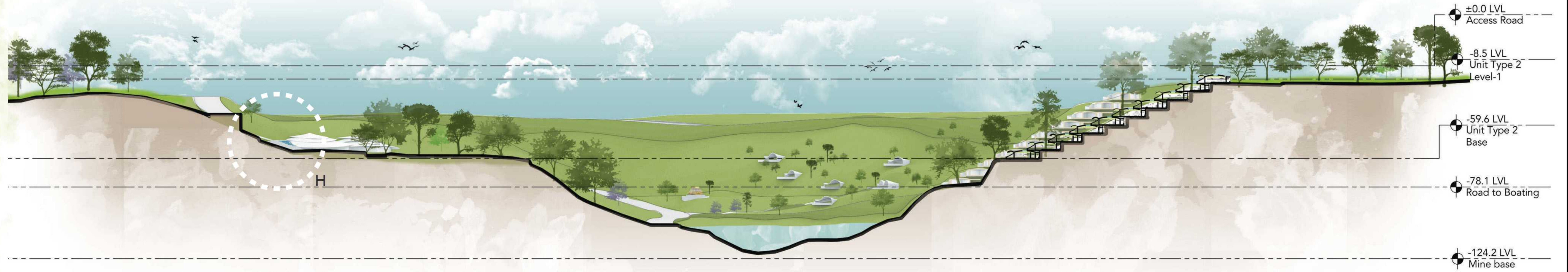


Scale- 1:2000

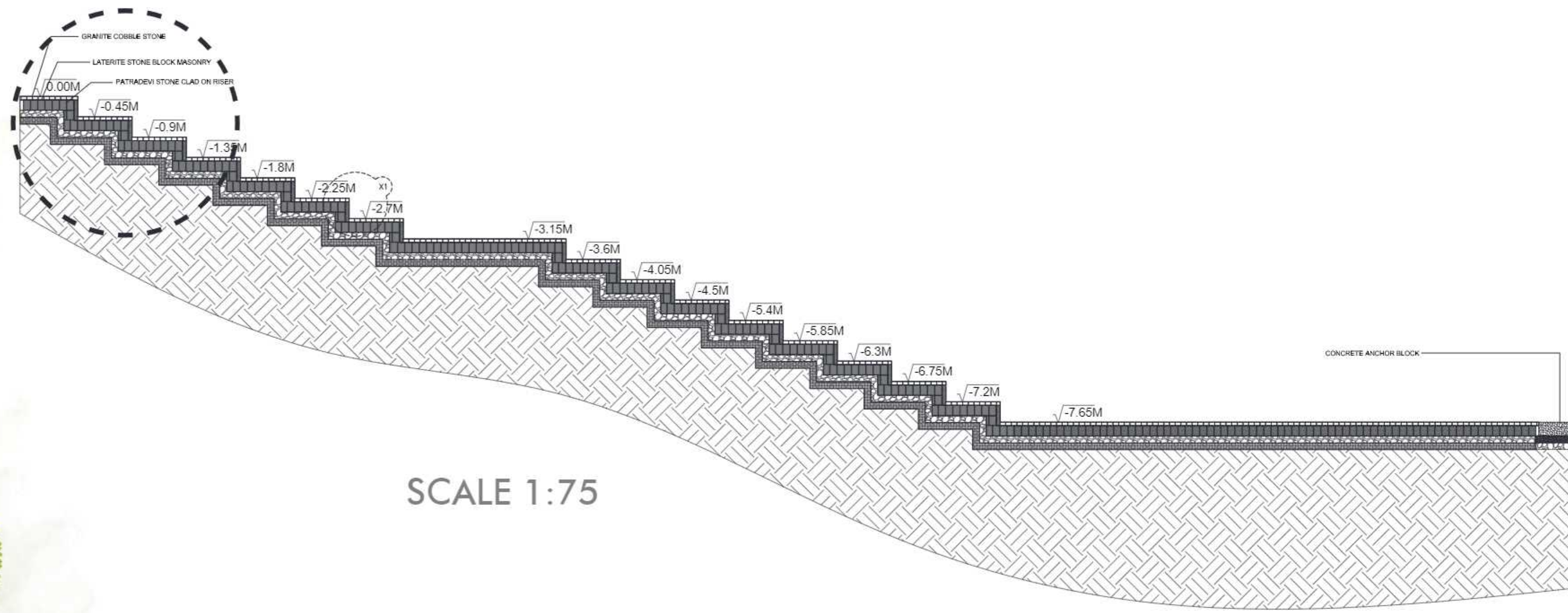
EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

SITE SECTIONS

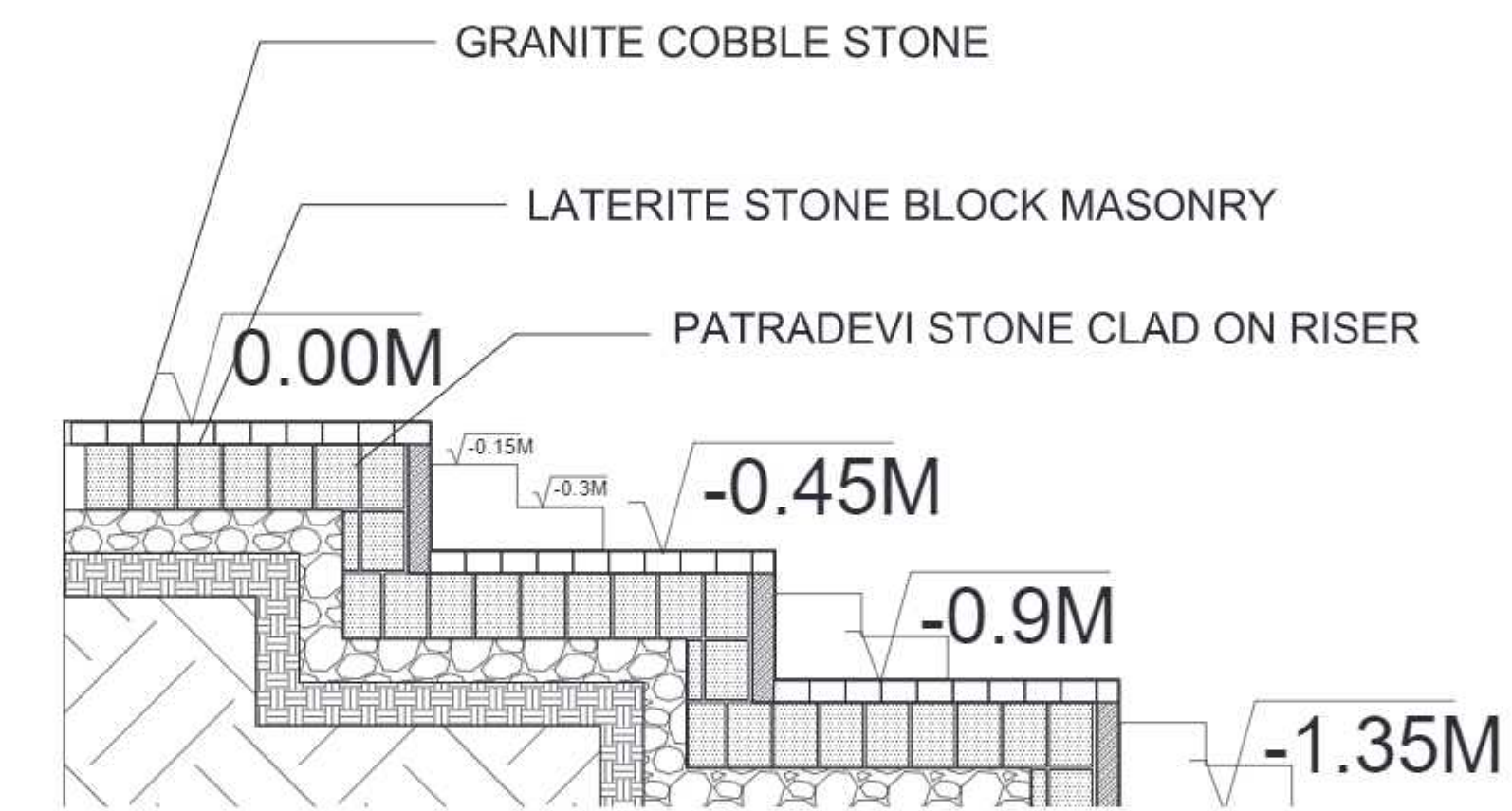


SECTION A SCALE 1:1500



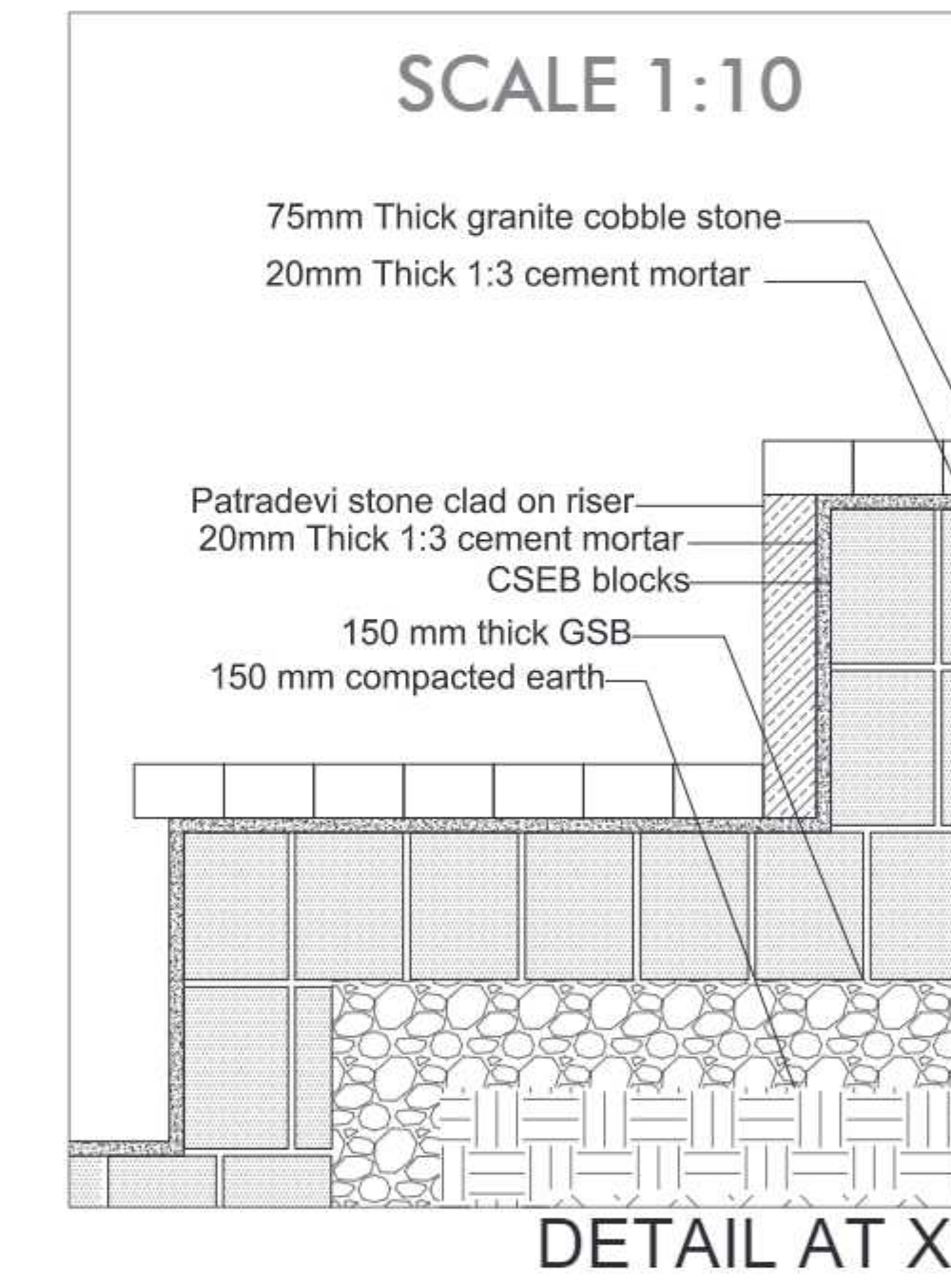
SCALE 1:75

DETAIL H



SCALE 1:25

DETAIL I

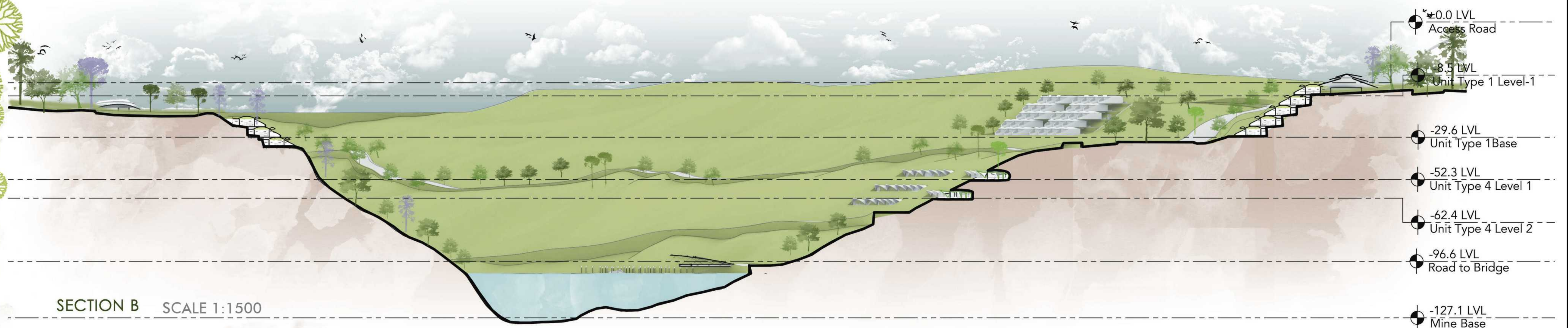


SCALE 1:10

DETAIL AT X1



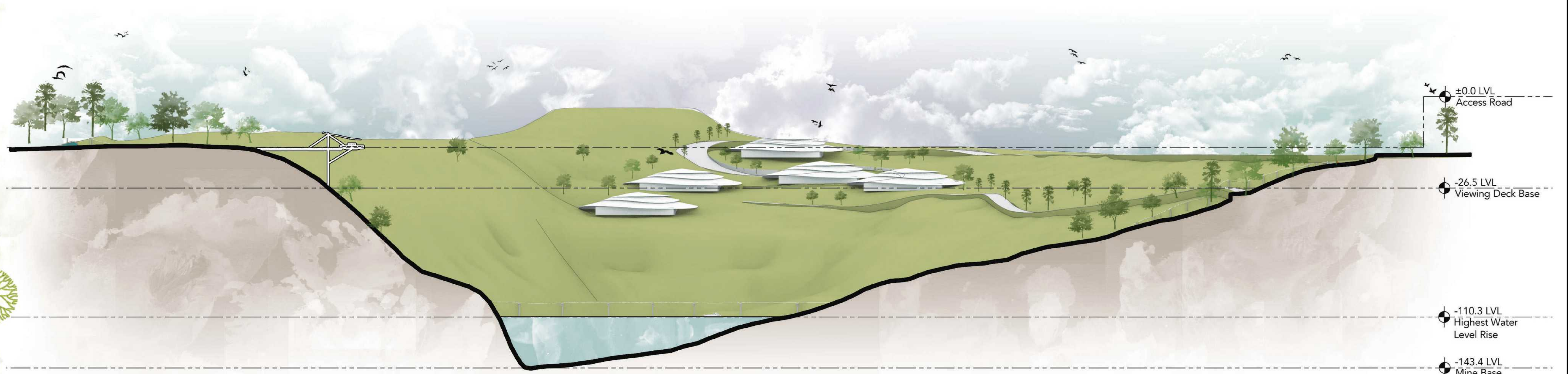
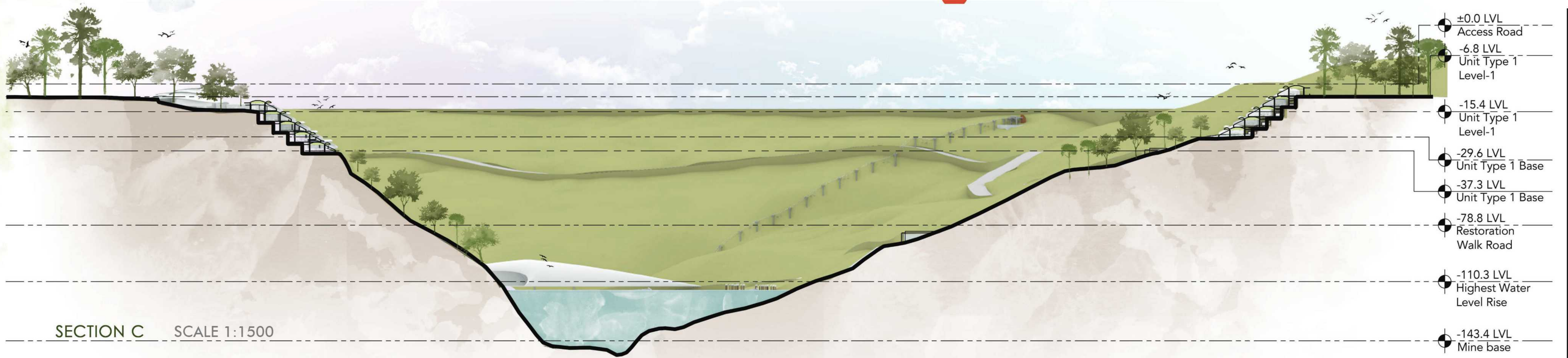
KEY PLAN



SECTION B SCALE 1:1500

EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE



EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

VIEWS



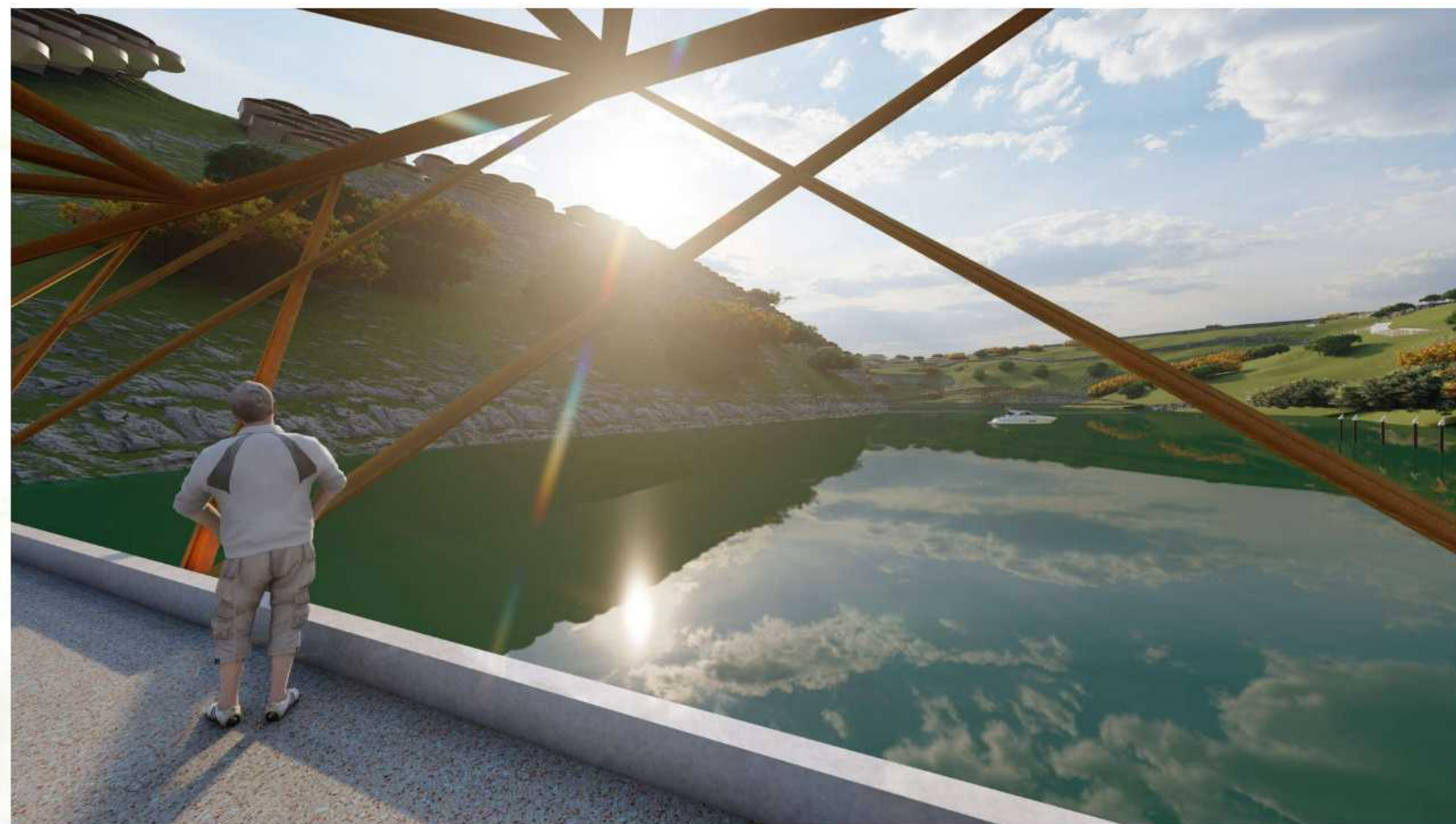
DECK OF THE BOATS



BOATING



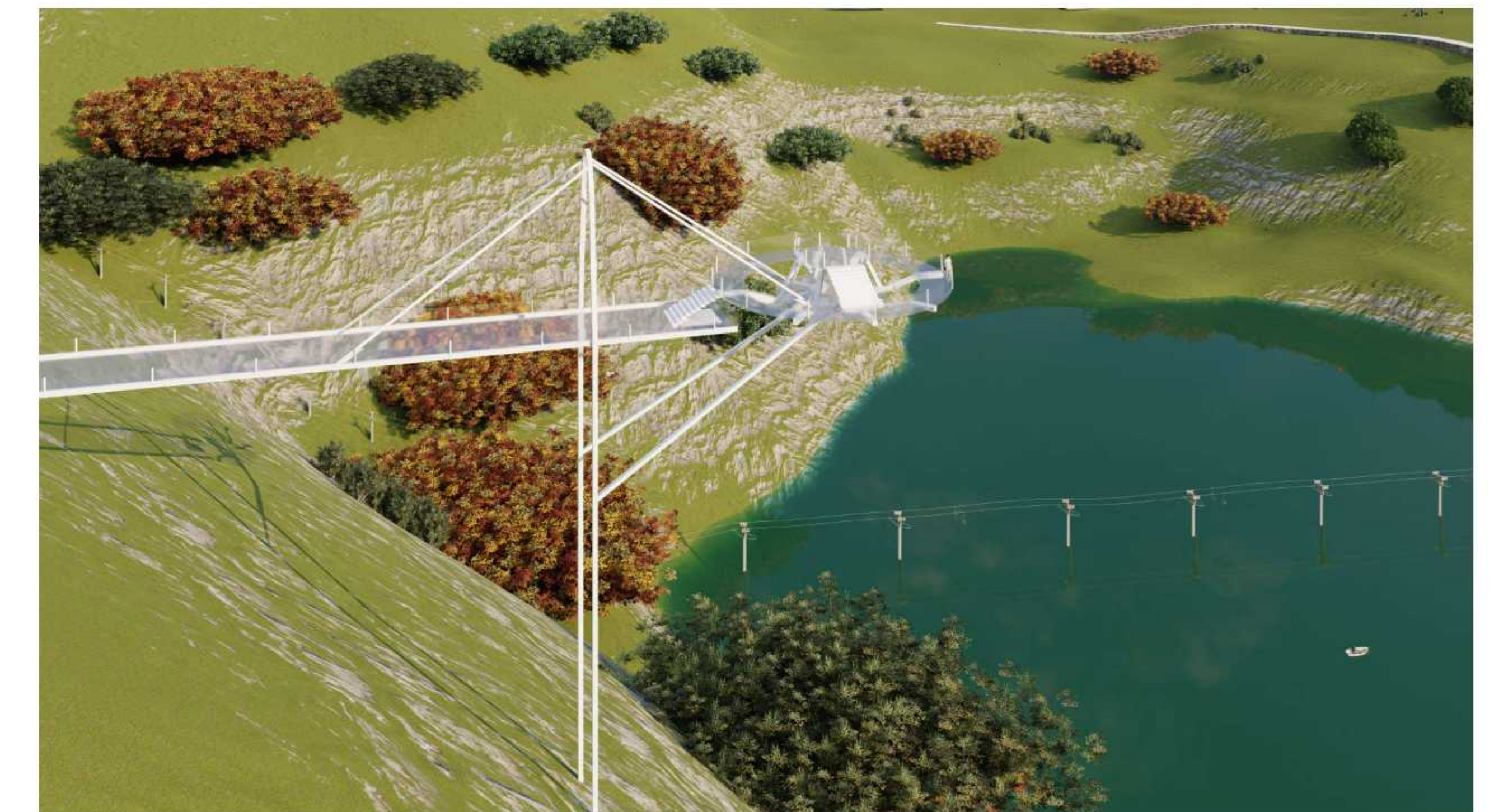
WALKOVER BRIDGE-1



VIEW FROM WALKOVER BRIDGE



MEDITATION POD



OBSERVATION DECK



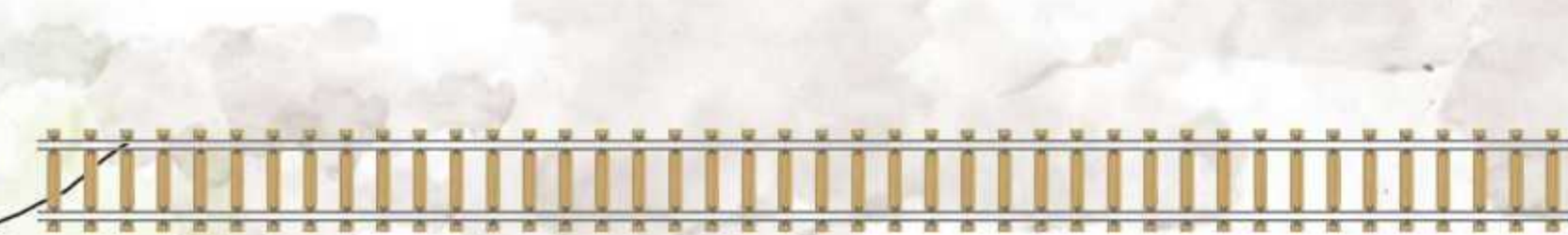
ROPEWAY



WALKOVER BRIDGE TYPE-2



VIEW FROM OBSERVATION DECK



VIEWS

EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE



AERIAL VIEW



AERIAL VIEW



RESEARCH BLOCKS



TYPE-1 AND TYPE-4 UNITS



TYPE-3 UNITS



VIEW FROM RESEARCH BLOCK



TYPE-1 UNITS



TYPE-3 UNITS



TYPE-2 UNITS



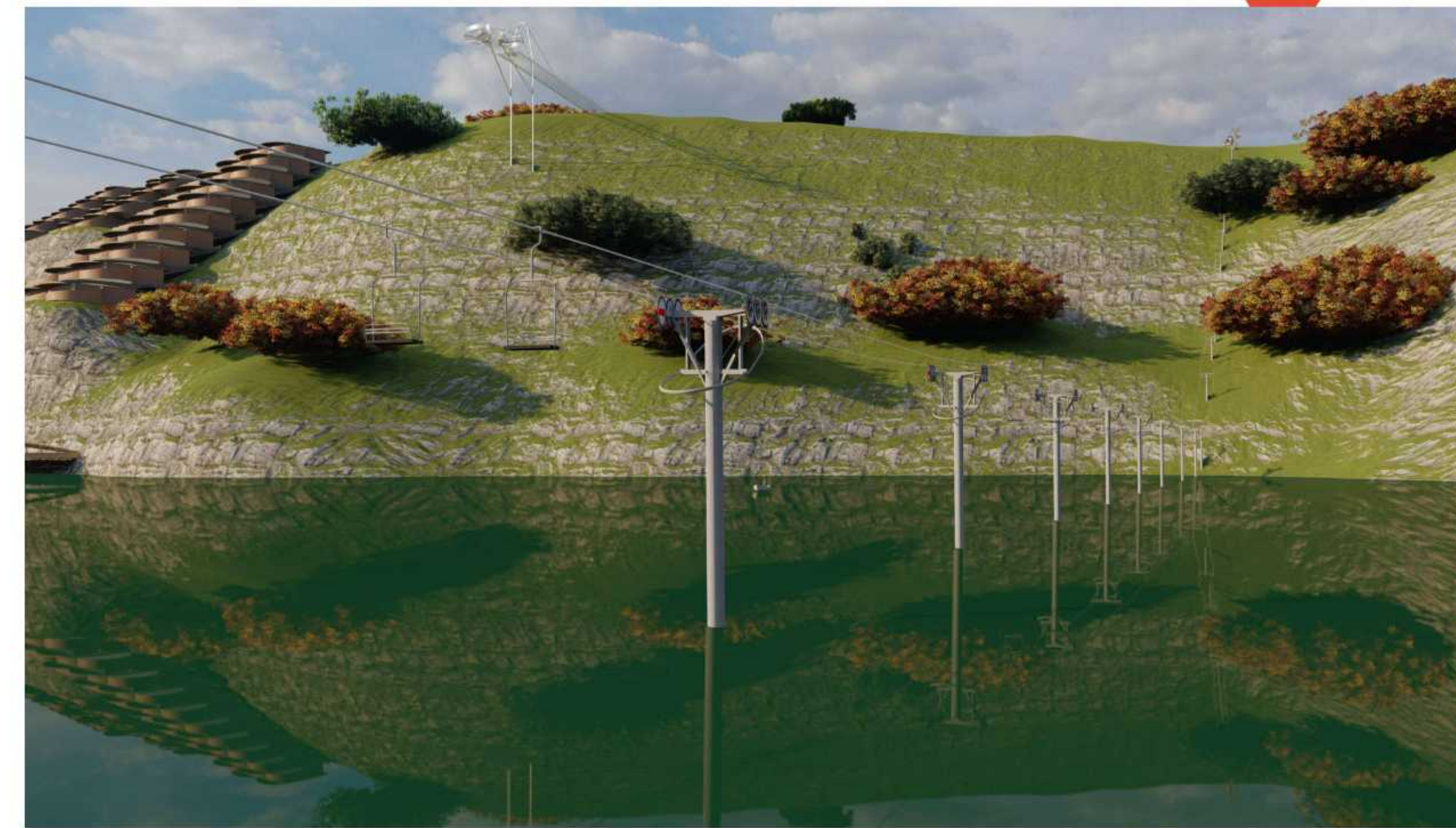
EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

VIEWS



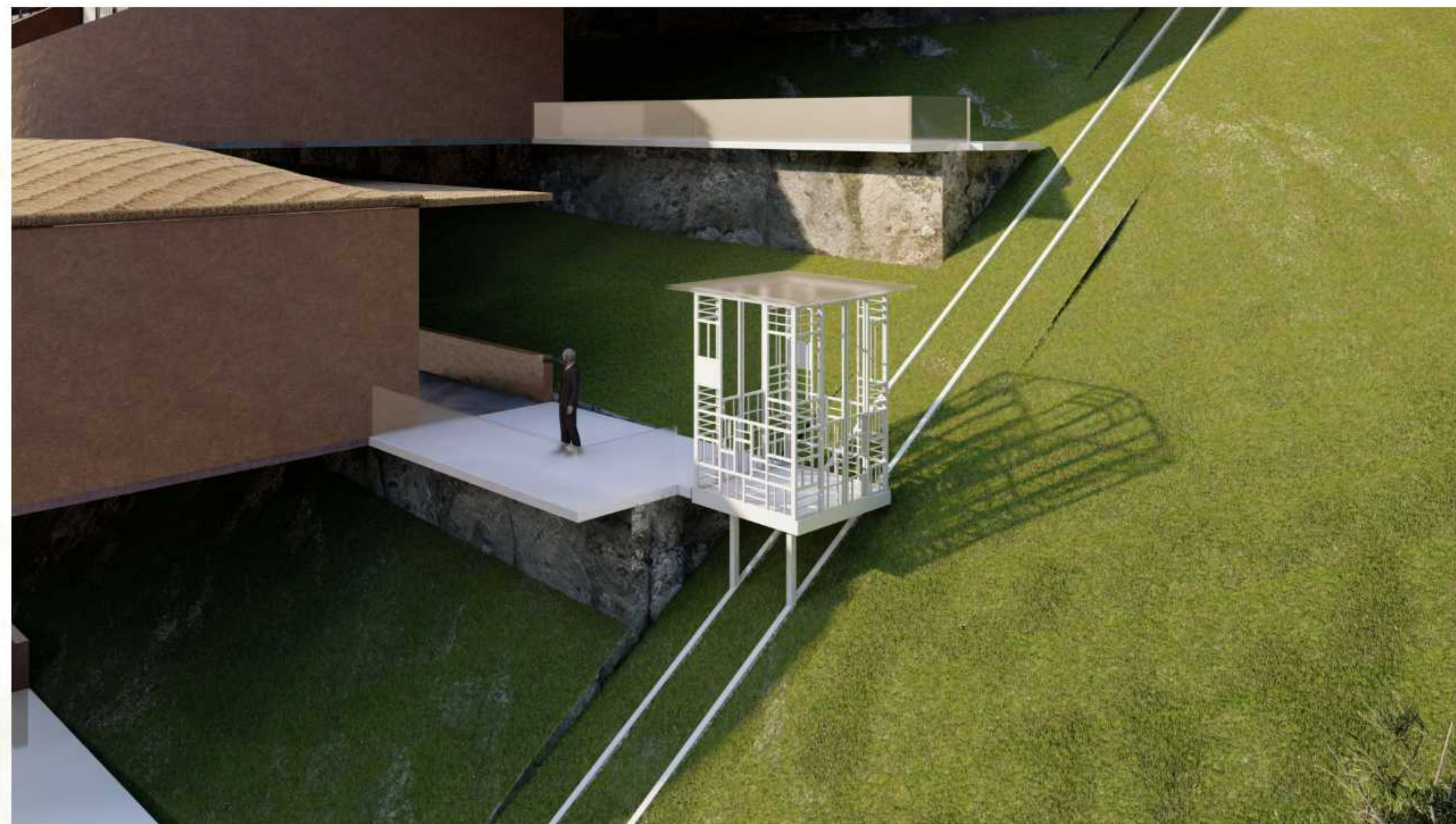
VIEW FROM THE DECK OF TYPE-1 UNIT



ROPEWAY



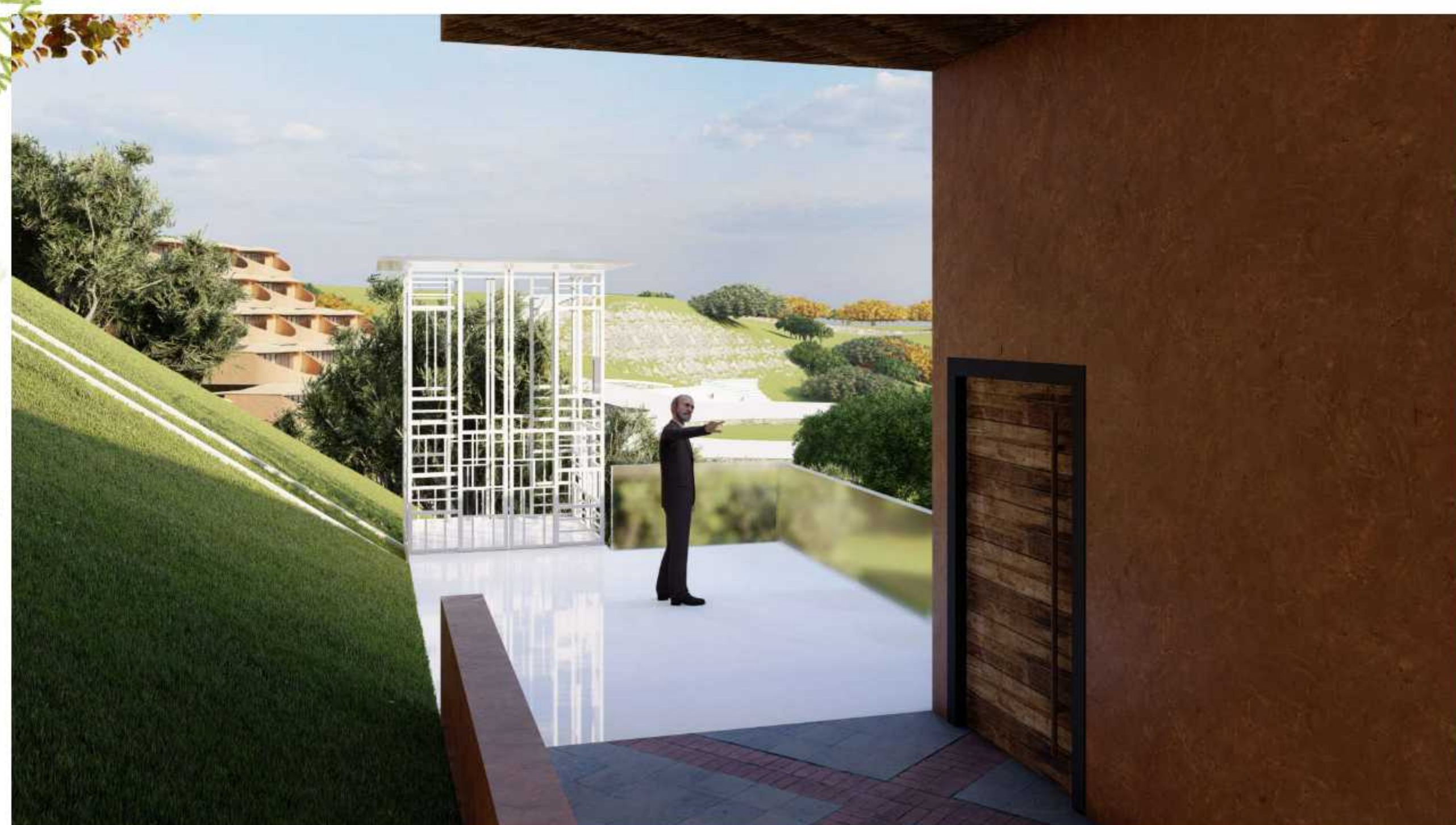
ROPEWAY STATION



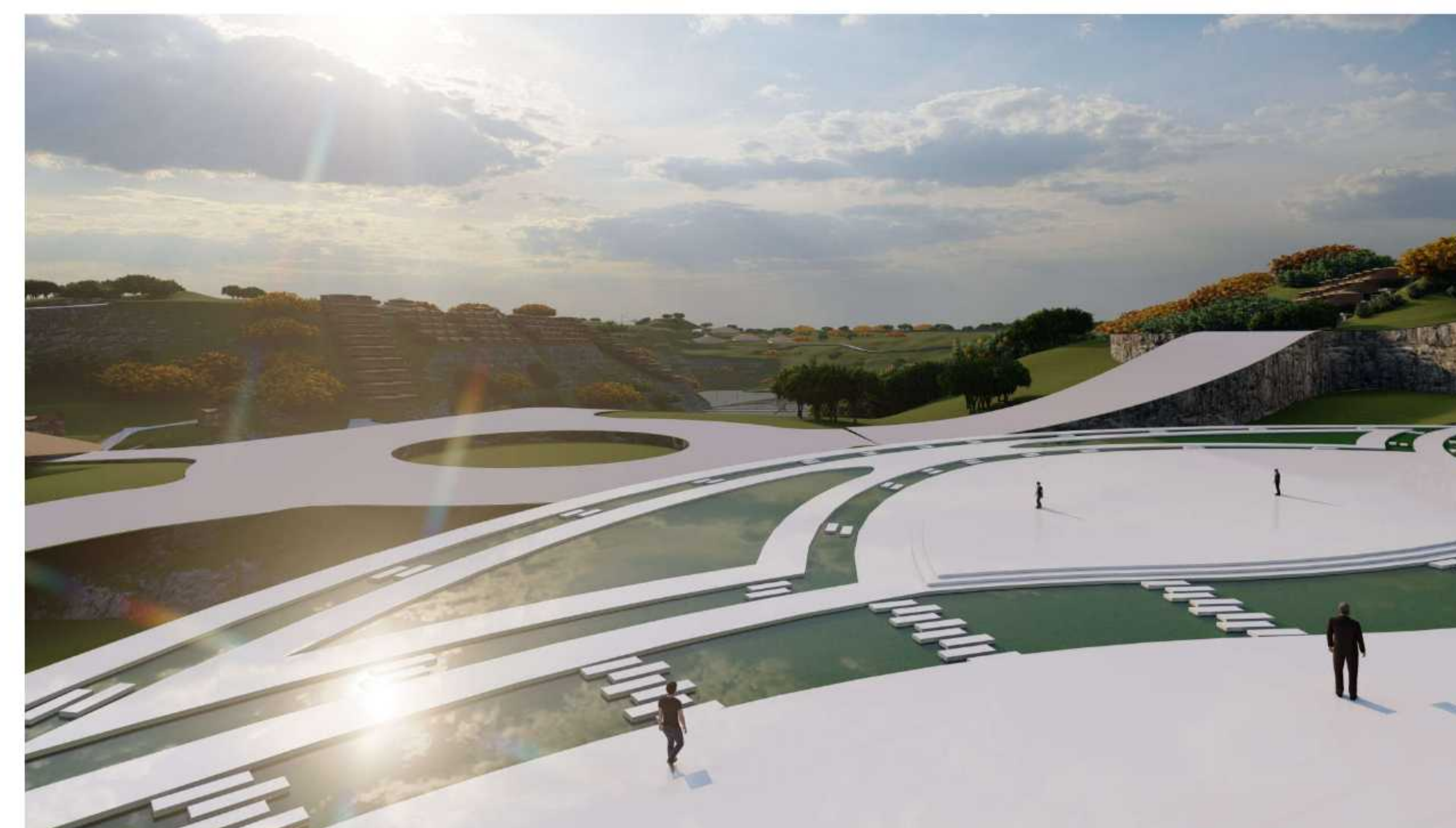
SEMI-OPEN ELEVATOR



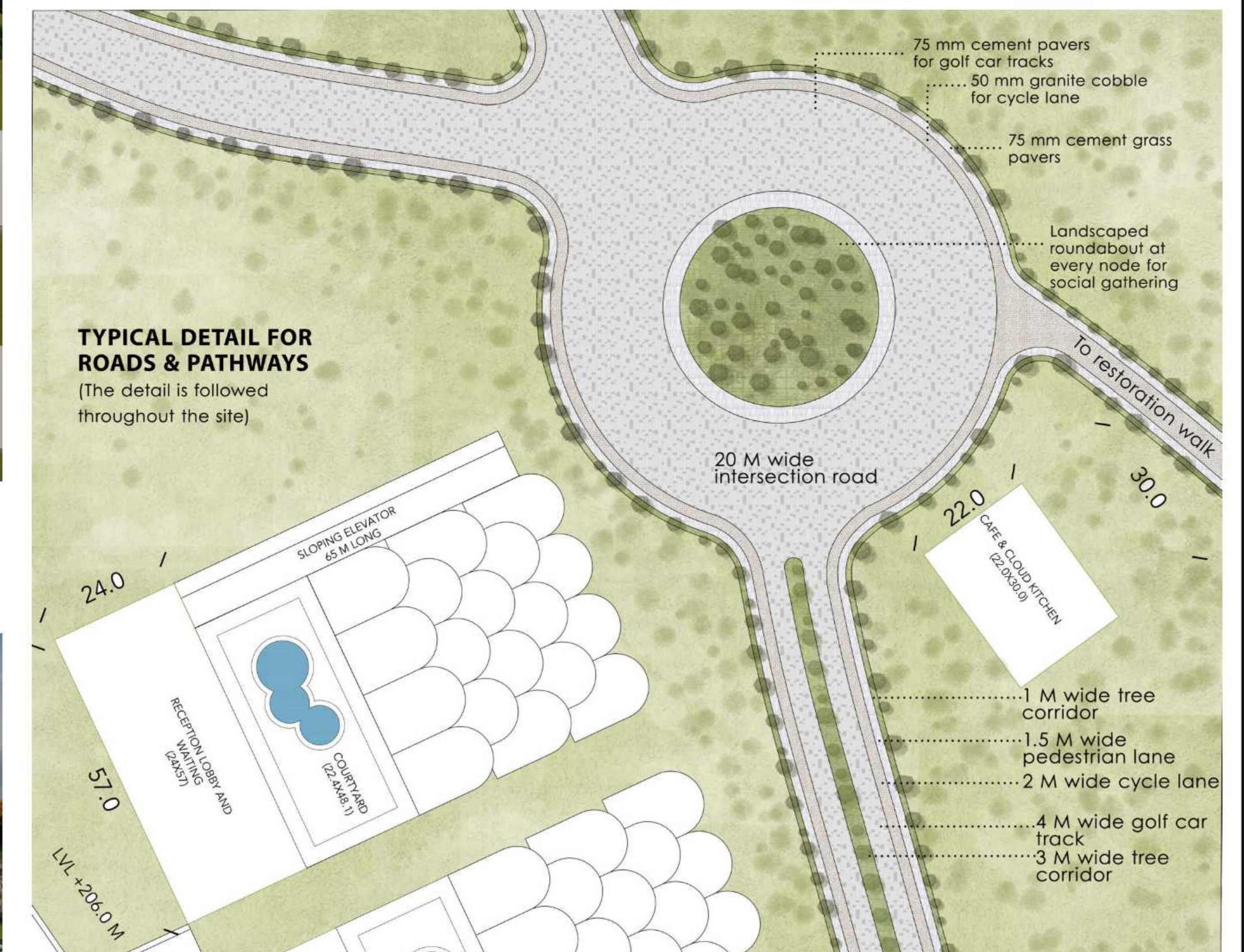
OAT



VIEW FROM THE CORRIDOR



VIEW FROM THE OAT

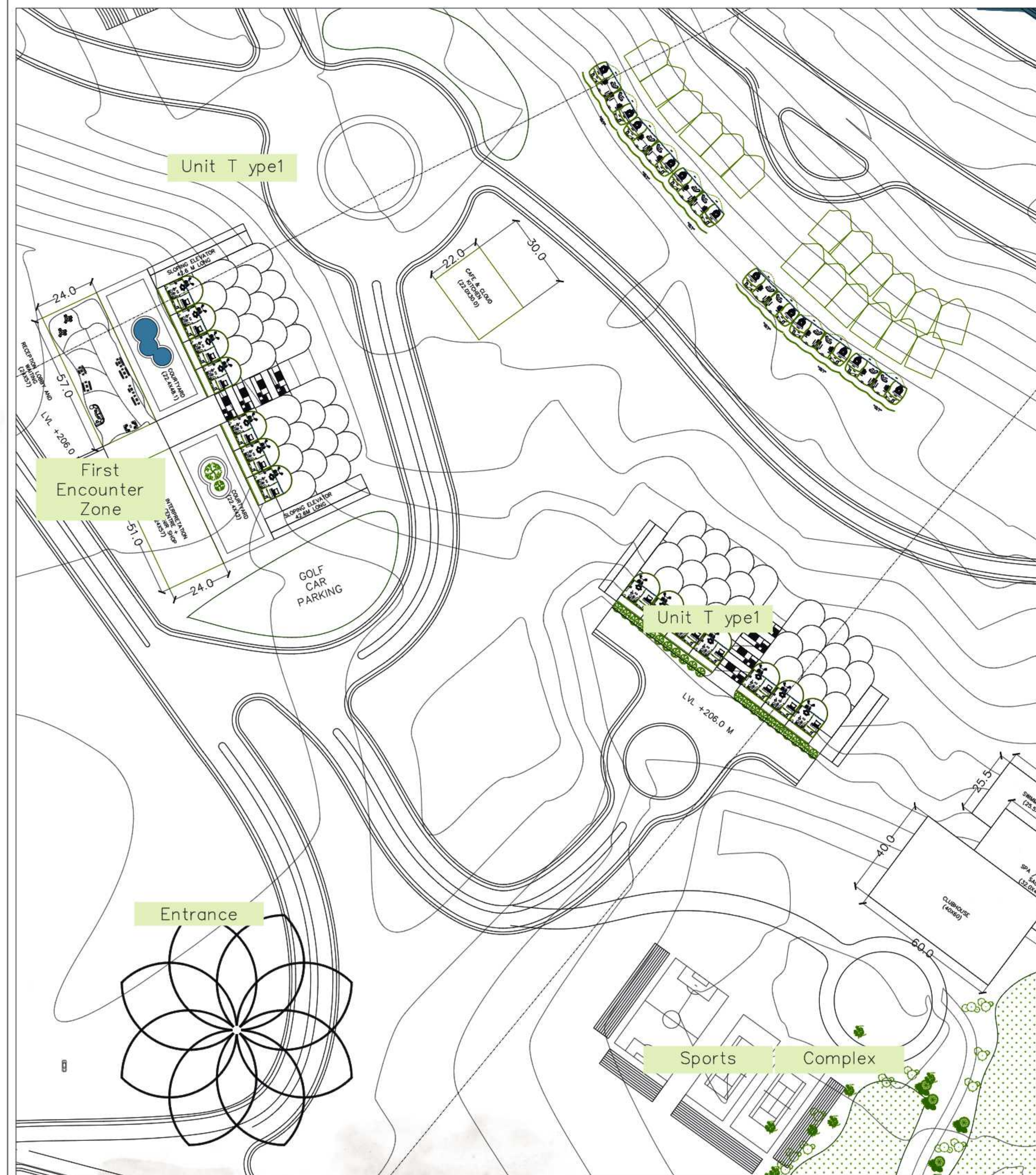


TYPICAL PATHWAY DETAIL

DETAILED PLANS

EXPERIENTIAL MINE RESORT

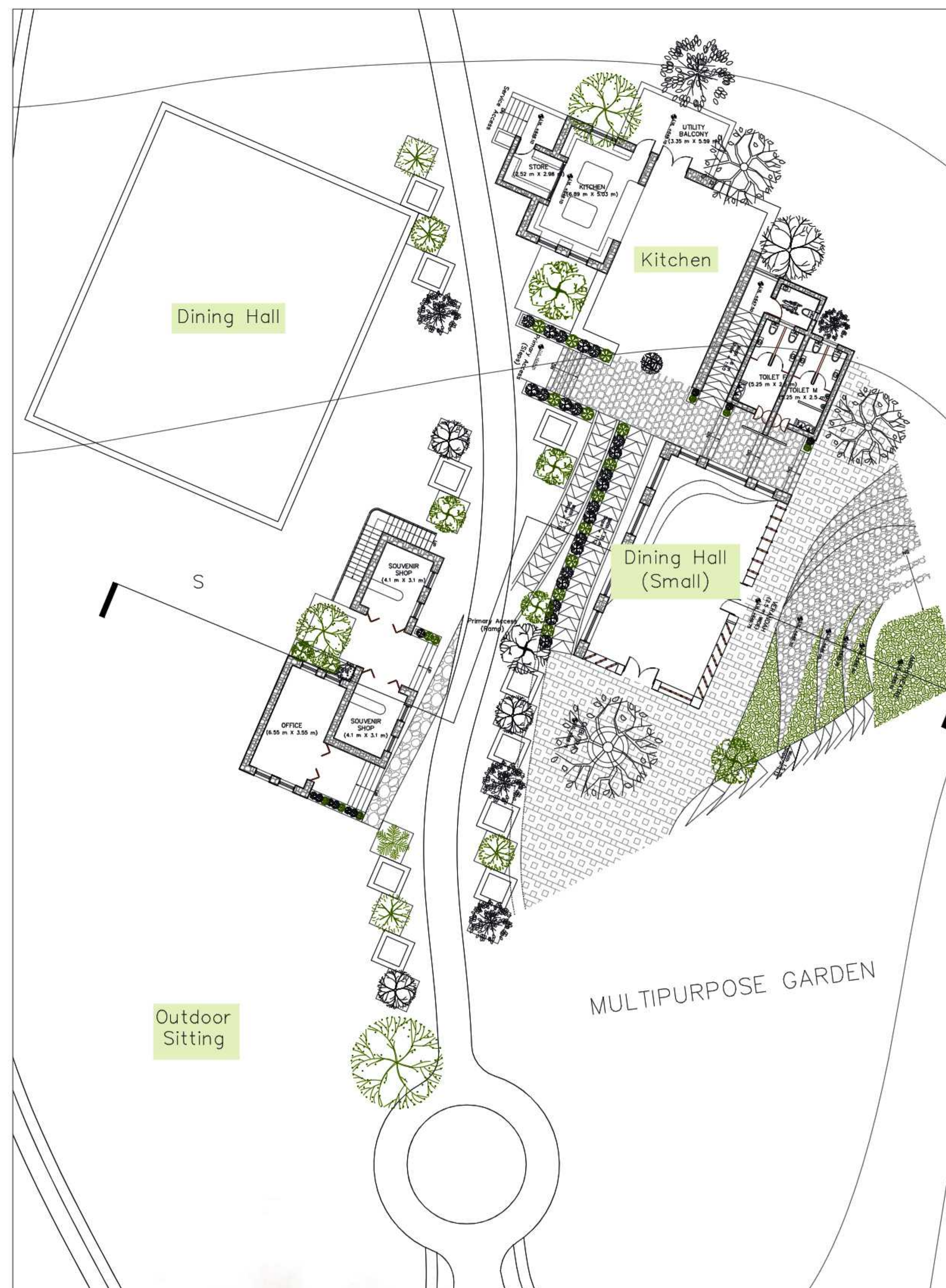
STAY | PLAY | LEARN | EXPERIENCE



DETAILED PLANS

EXPERIENTIAL MINE RESORT

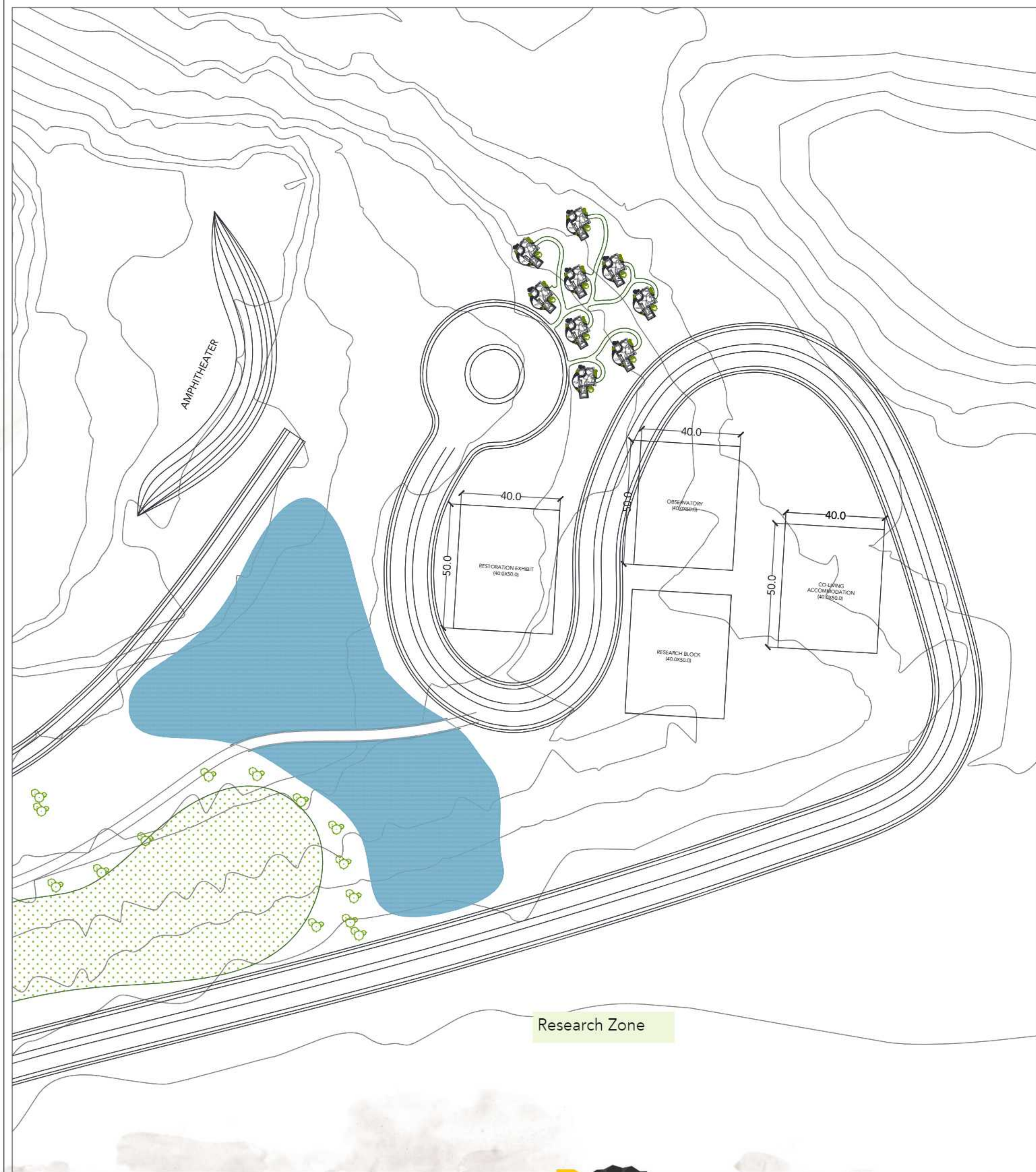
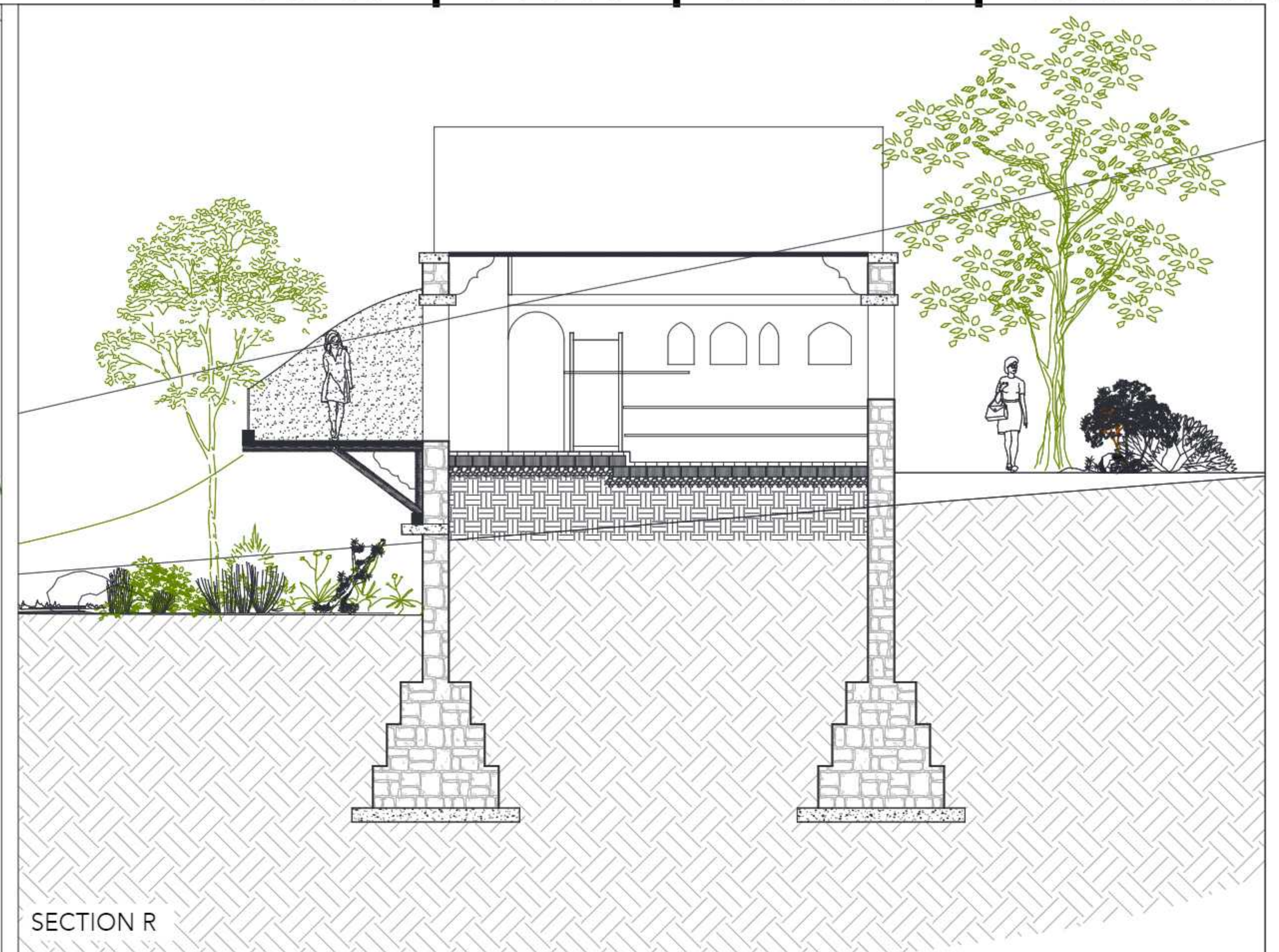
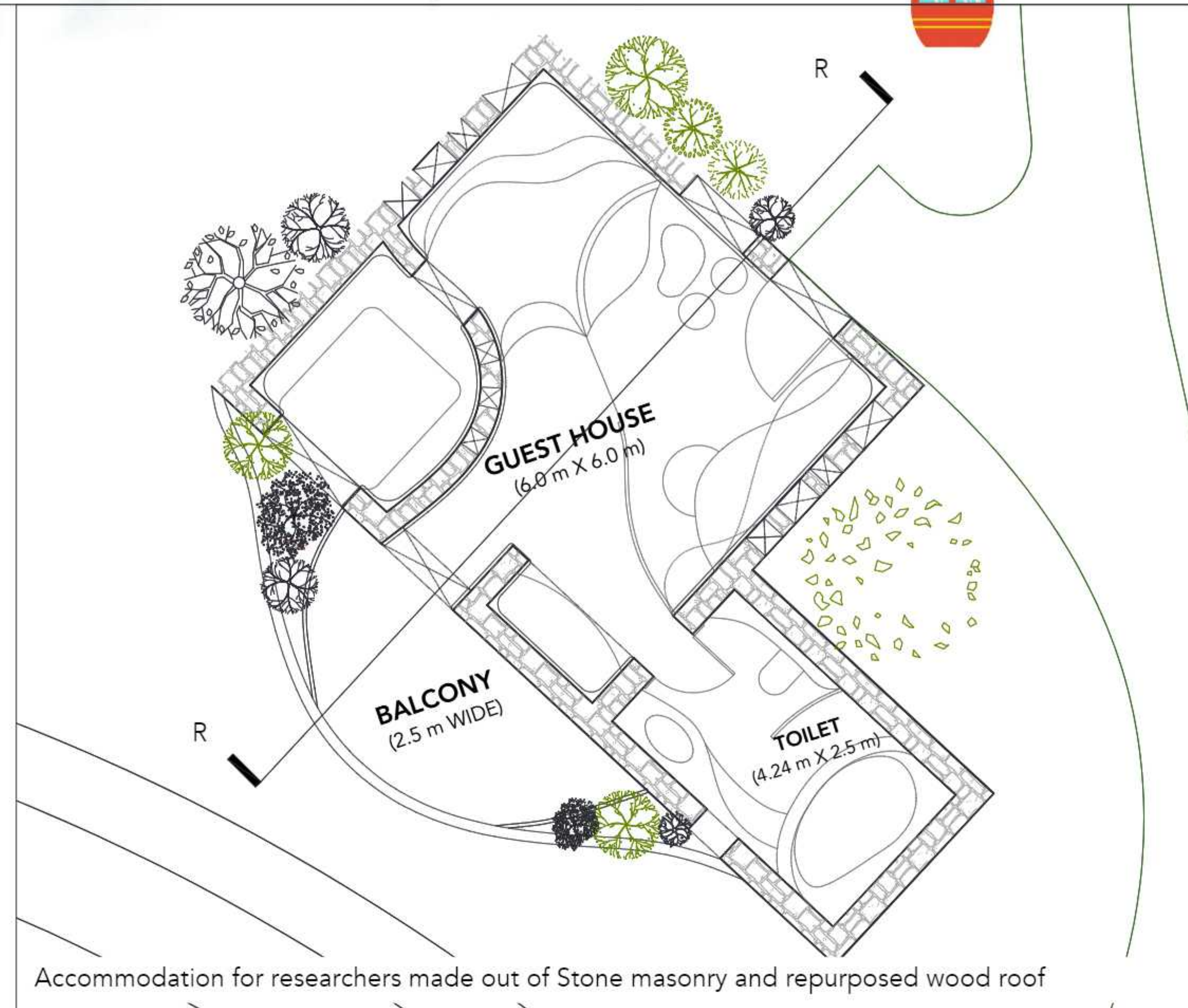
STAY | PLAY | LEARN | EXPERIENCE



EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

DETAILED PLANS



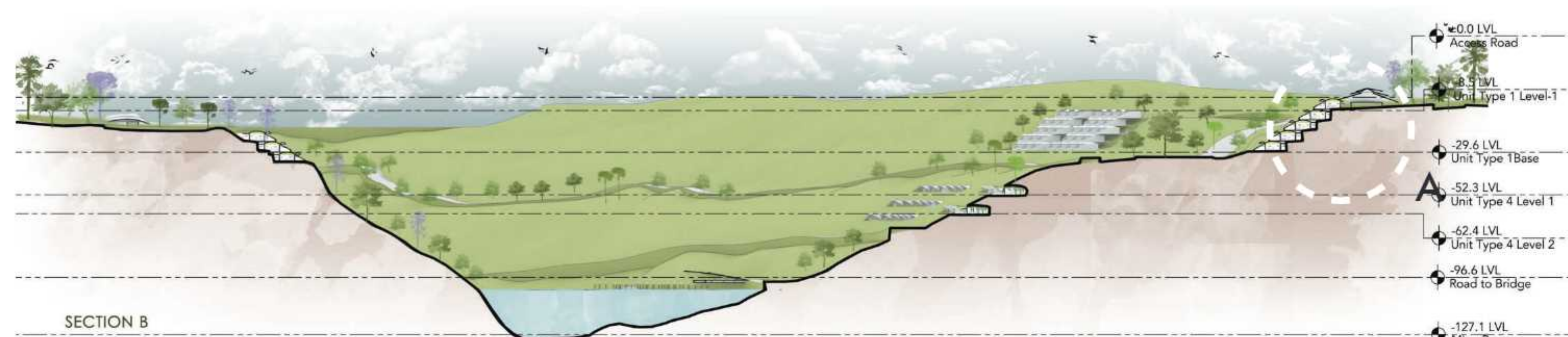
EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

TYPE-1 UNIT



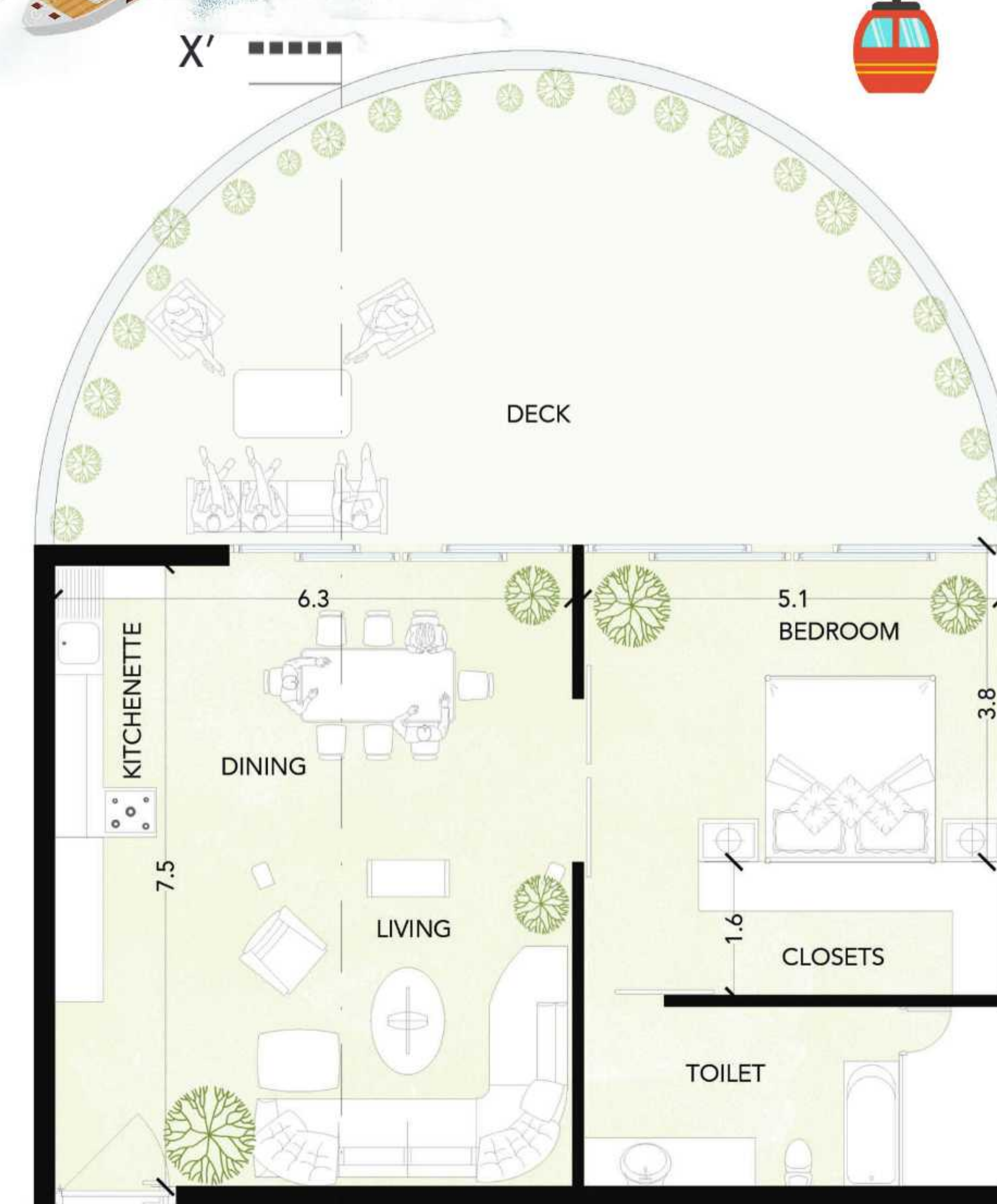
KEY PLAN



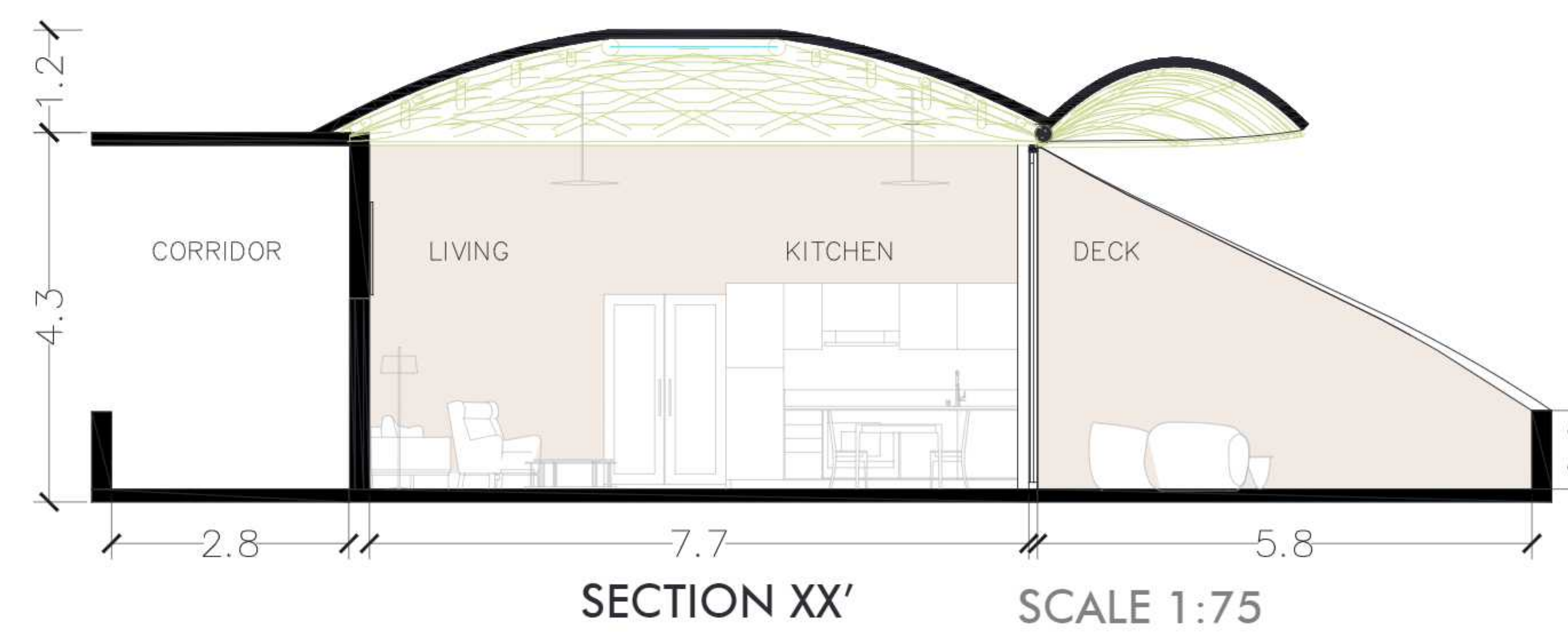
KEY SECTION



DETAIL 'A'



PLAN OF UNIT-



SECTION XX'

SCALE 1:75



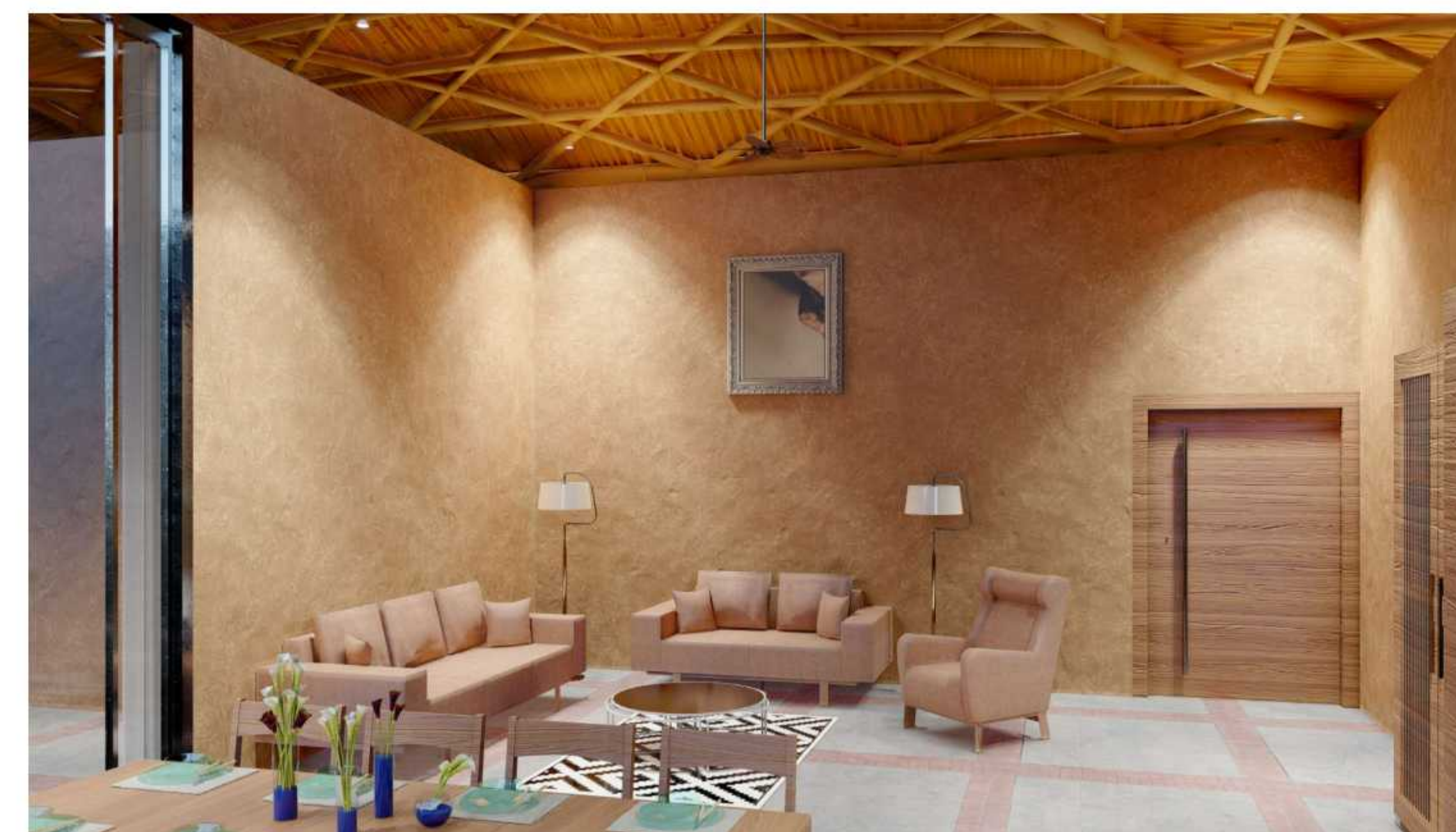
VIEW OF KITCHEN & DINING



VIEW OF TOILET



CLUSTER OF TYPE-1 UNITS



VIEW OF LIVING AREA



VIEW OF BEDROOM

EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

TYPE-2 UNIT

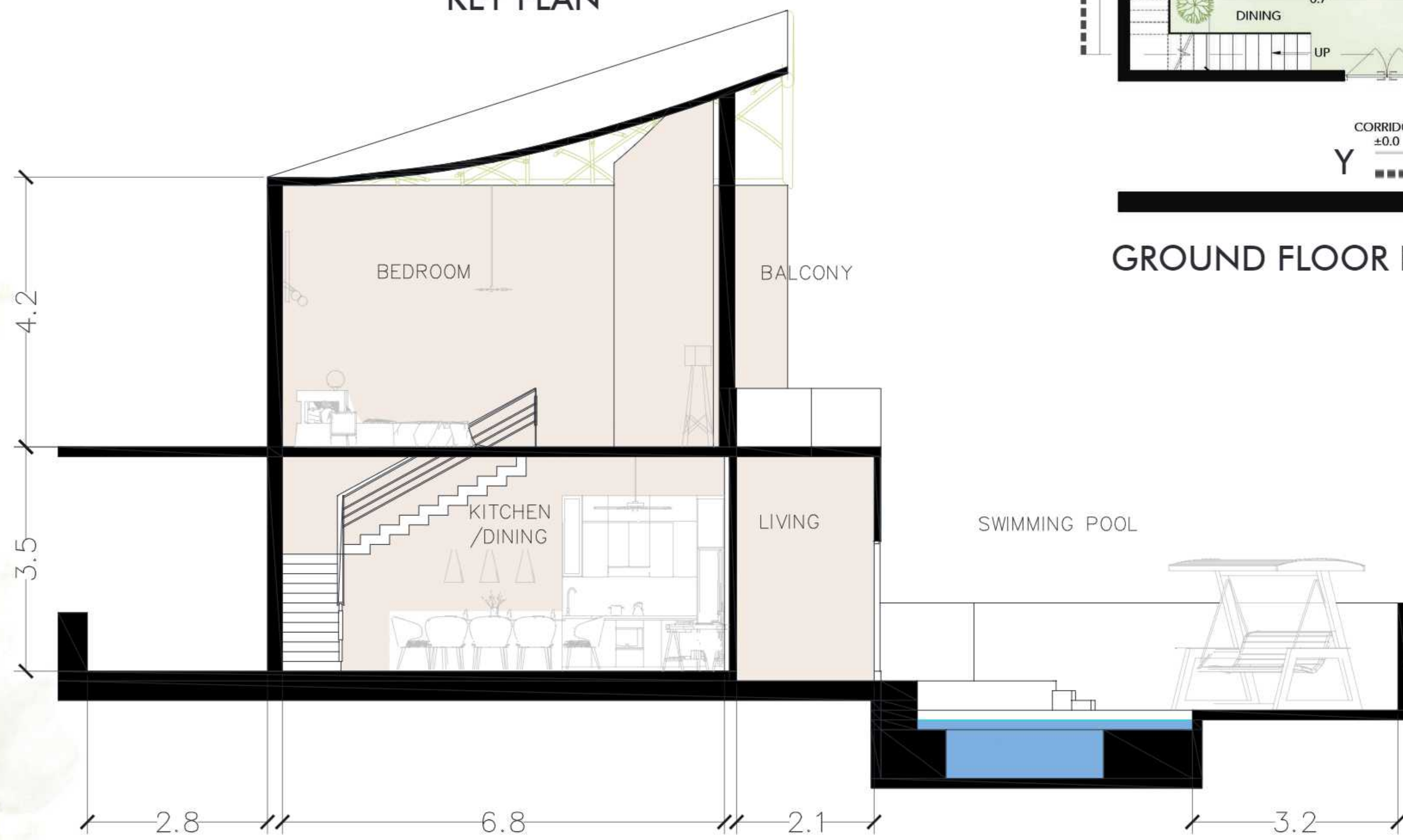


KEY PLAN



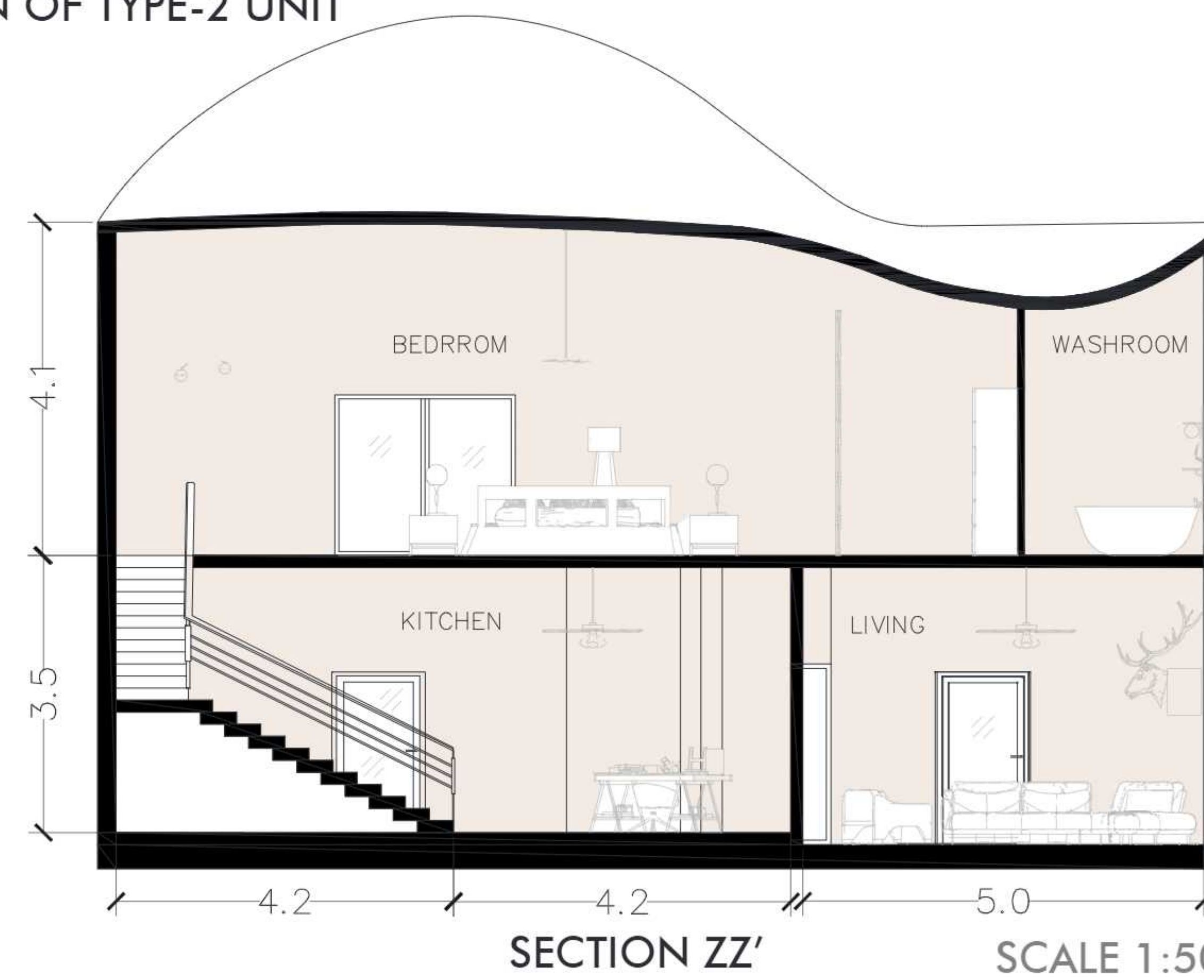
GROUND FLOOR PLAN OF TYPE-2 UNIT

FIRST FLOOR PLAN OF TYPE-2 UNIT
SCALE 1:75



SECTION YY'

SCALE 1:75



SECTION ZZ'

SCALE 1:50



KEY PLAN OF THE CLUSTER



VIEW OF DINING & KITCHEN (GROUND FLOOR)



VIEW OF DINING & KITCHEN (GROUND FLOOR)



VIEW OF LIVING AREA (GROUND FLOOR)



VIEW OF BEDROOM (FIRST FLOOR)

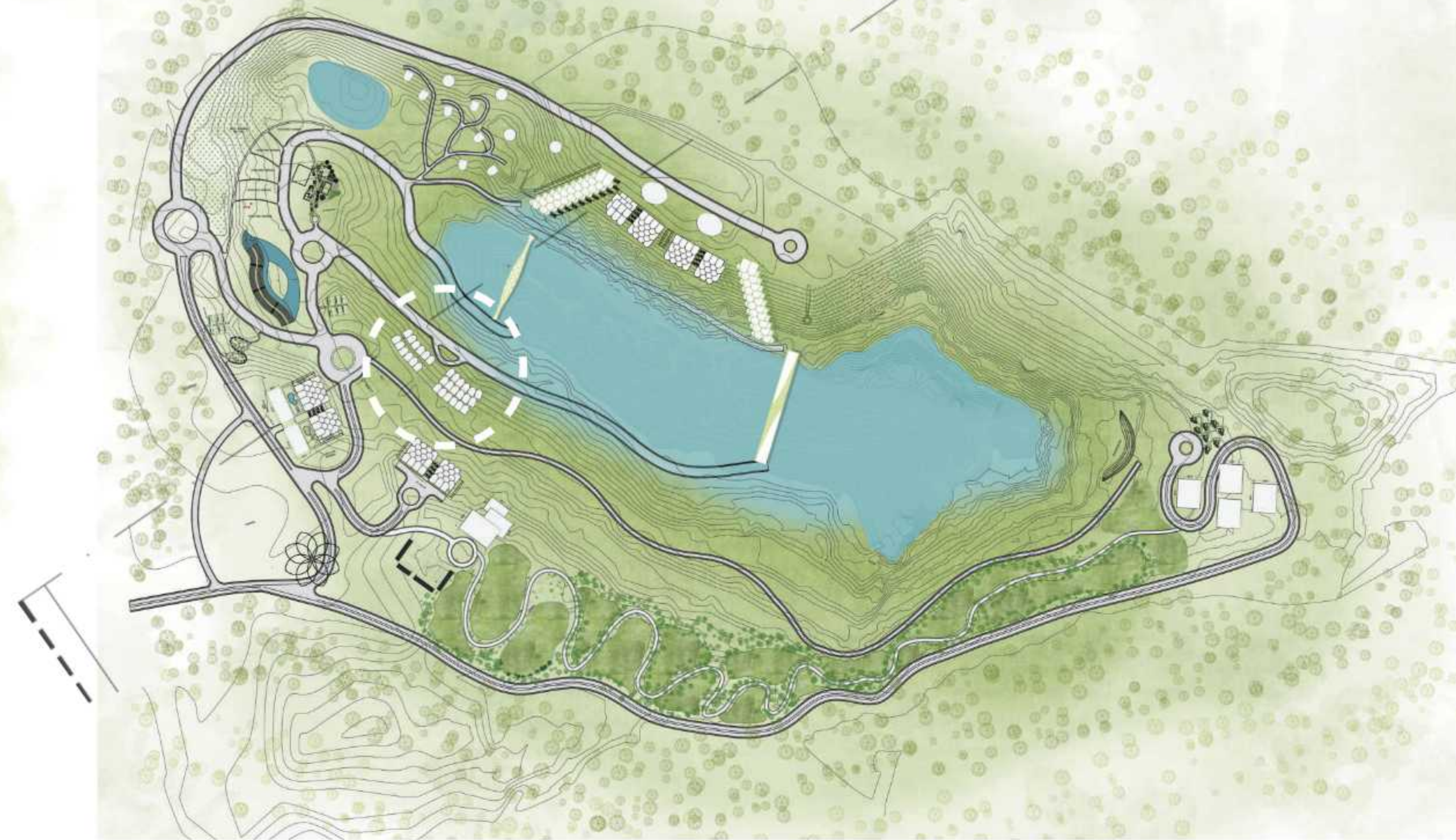


VIEW OF BEDROOM (FIRST FLOOR)

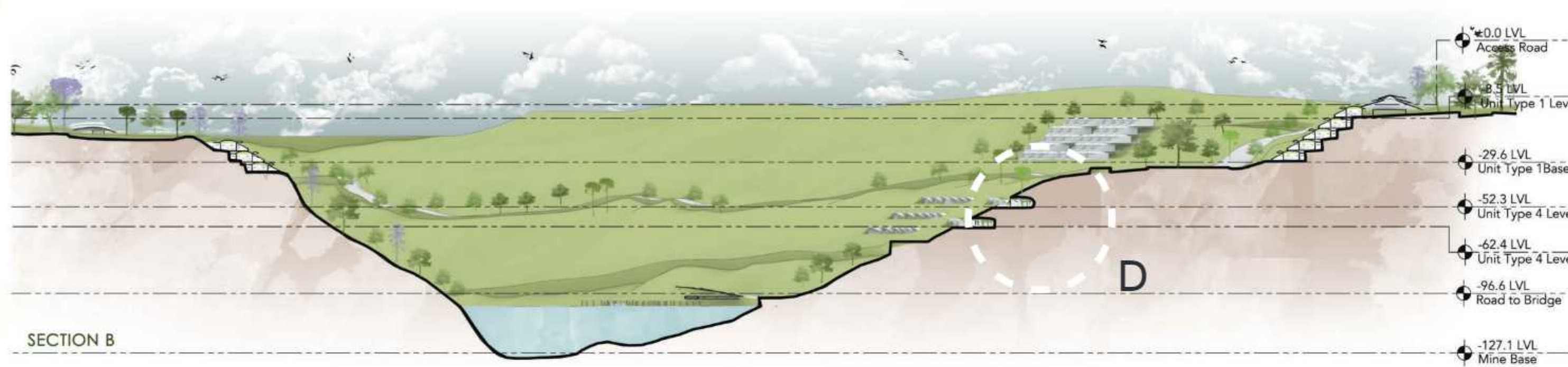
EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

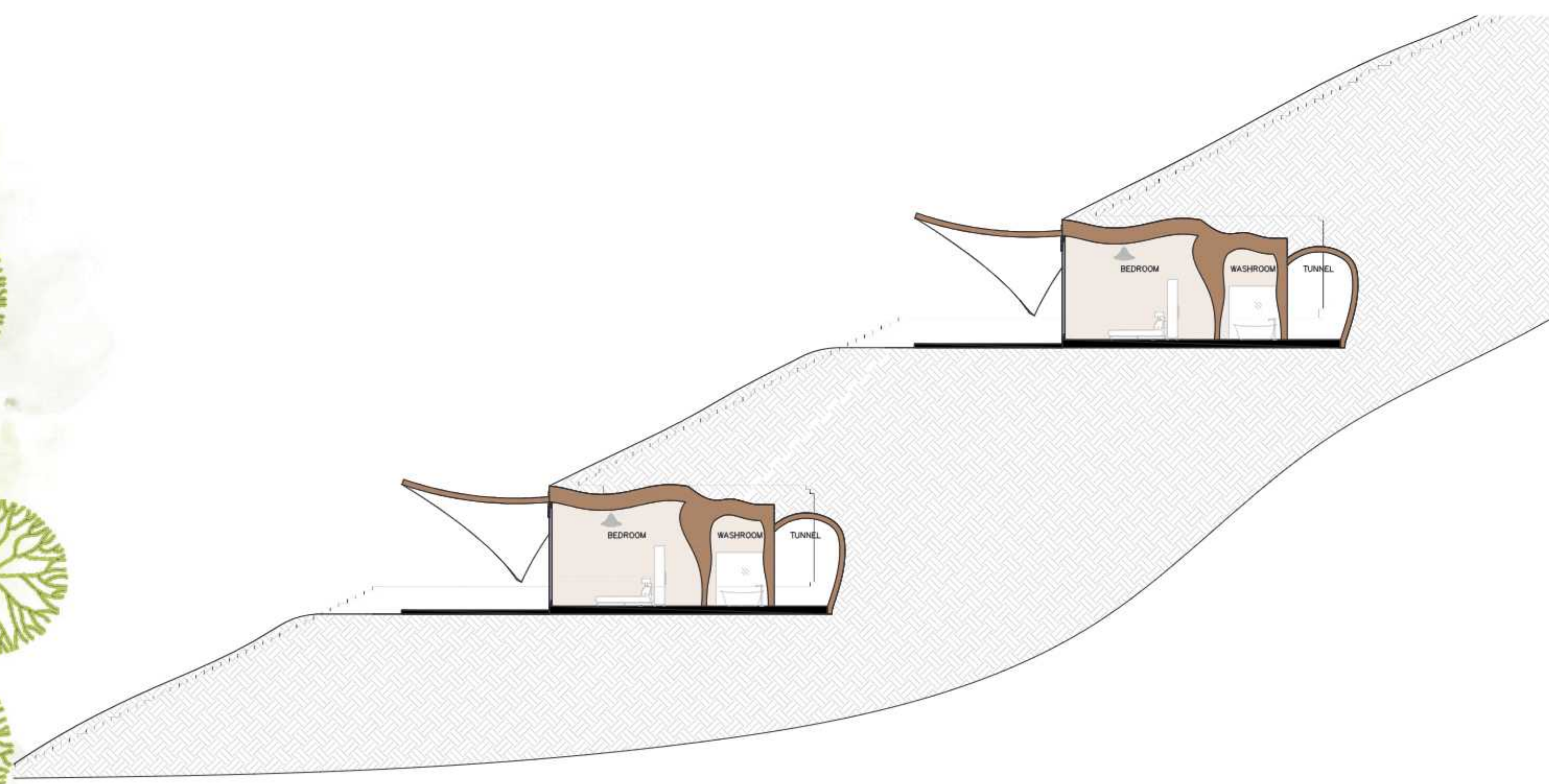
TYPE-3 UNIT



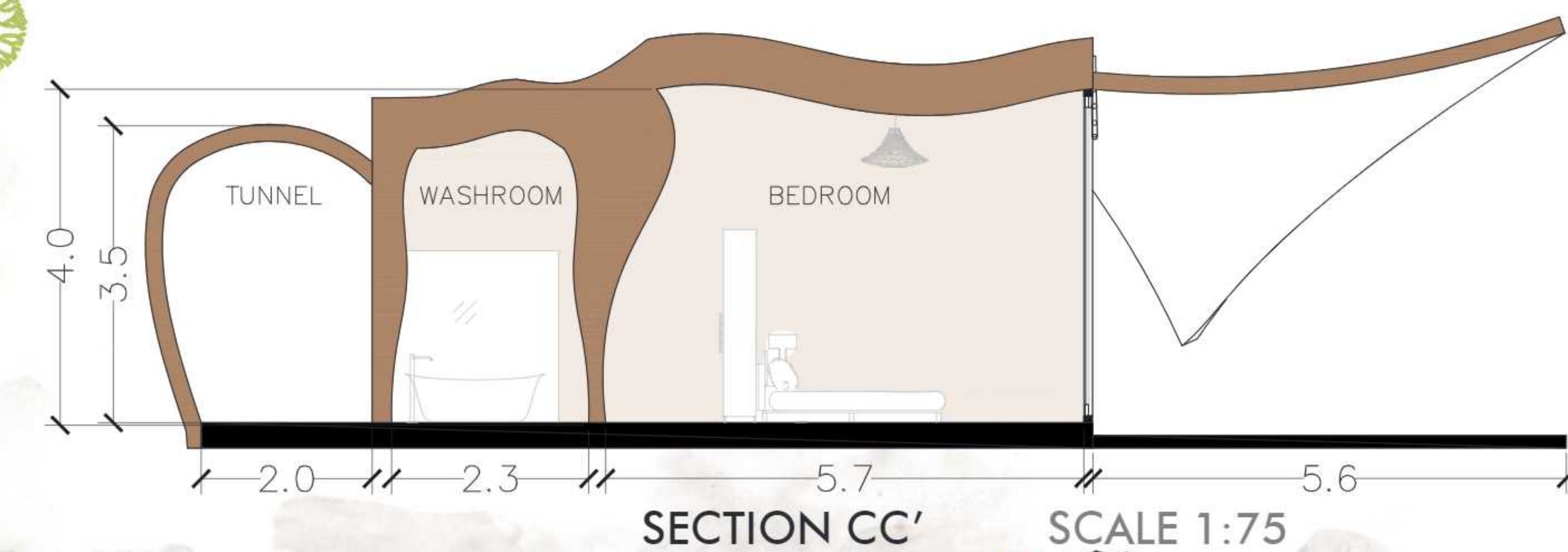
KEY PLAN



KEY SECTION

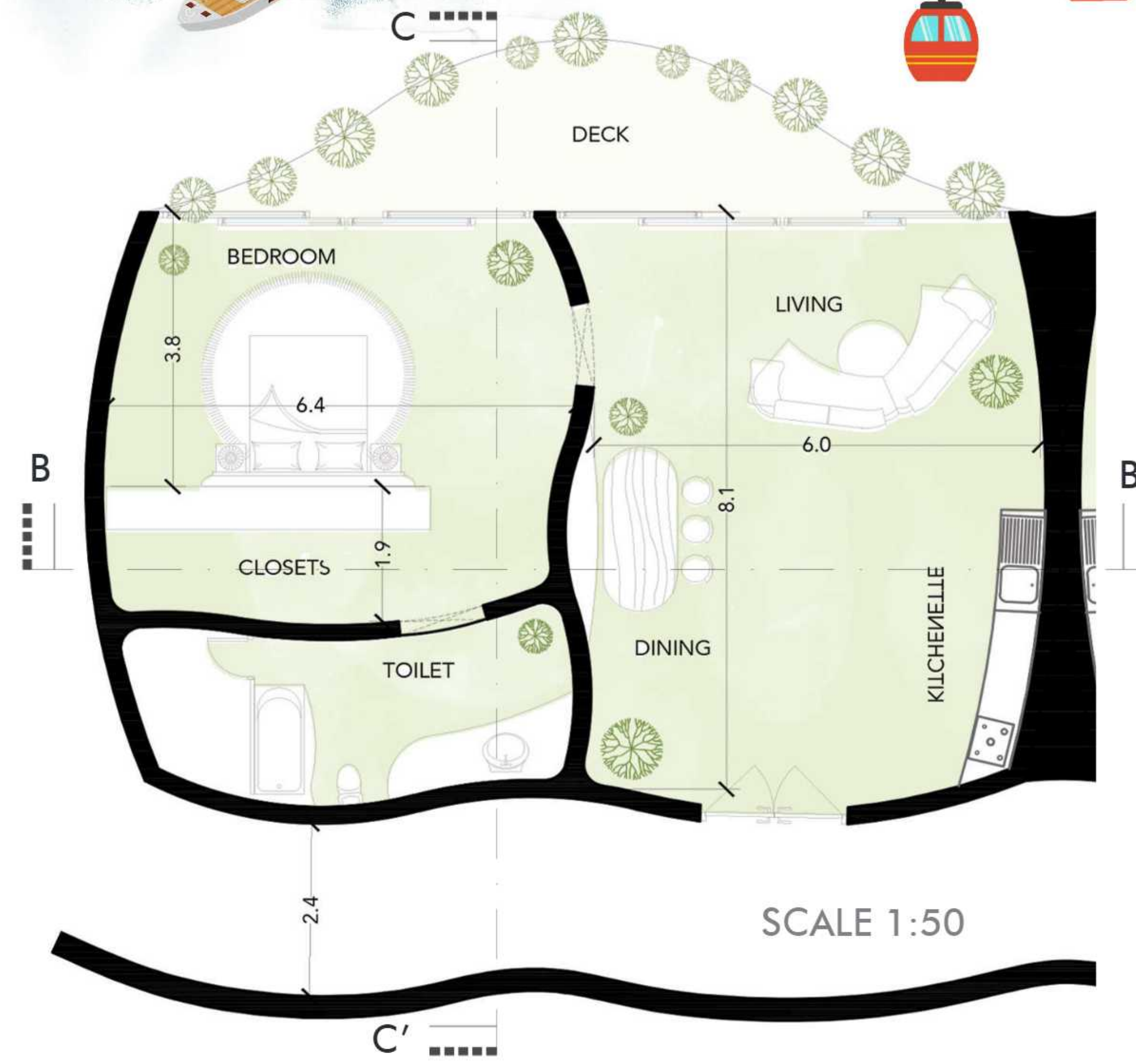


DETAIL D



SECTION CC'

SCALE 1:75



PLAN OF TYPE-3 UNIT

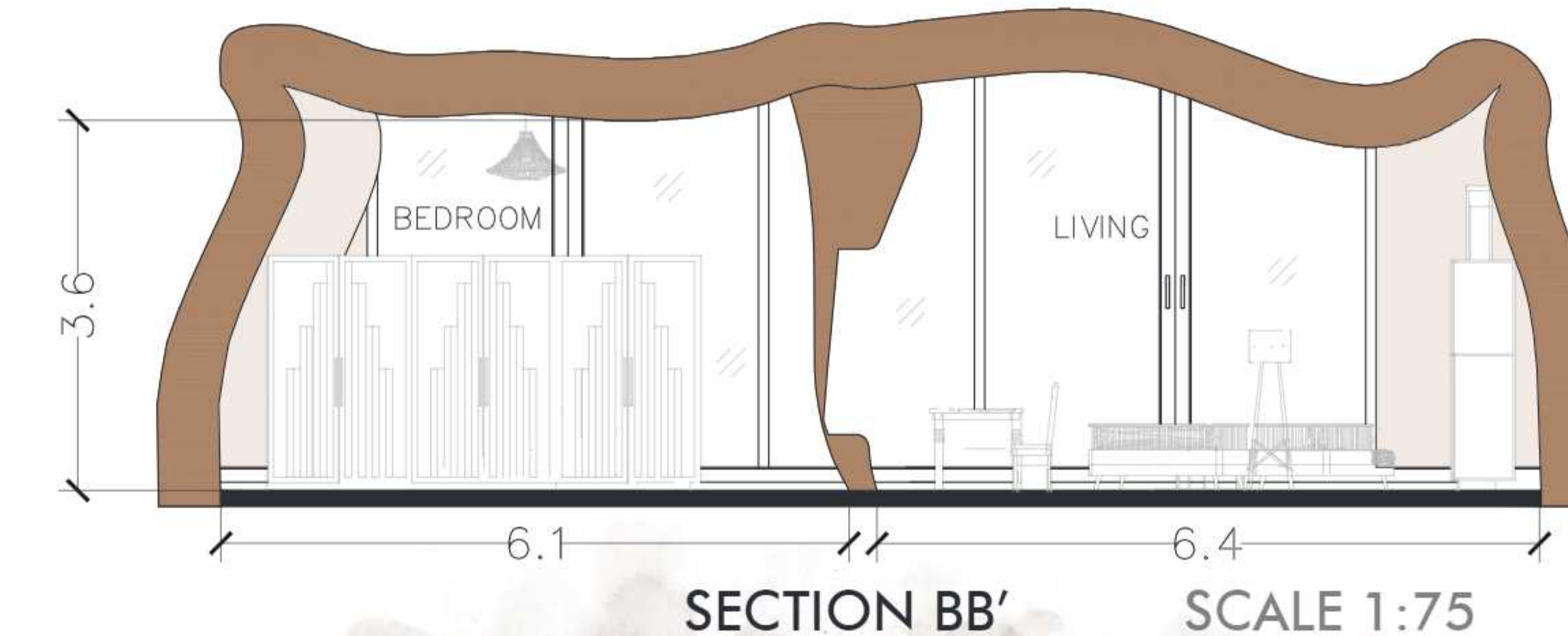
SCALE 1:50



VIEW OF DINING & KITCHEN



VIEW OF DINING SEATING



SECTION BB'

SCALE 1:75



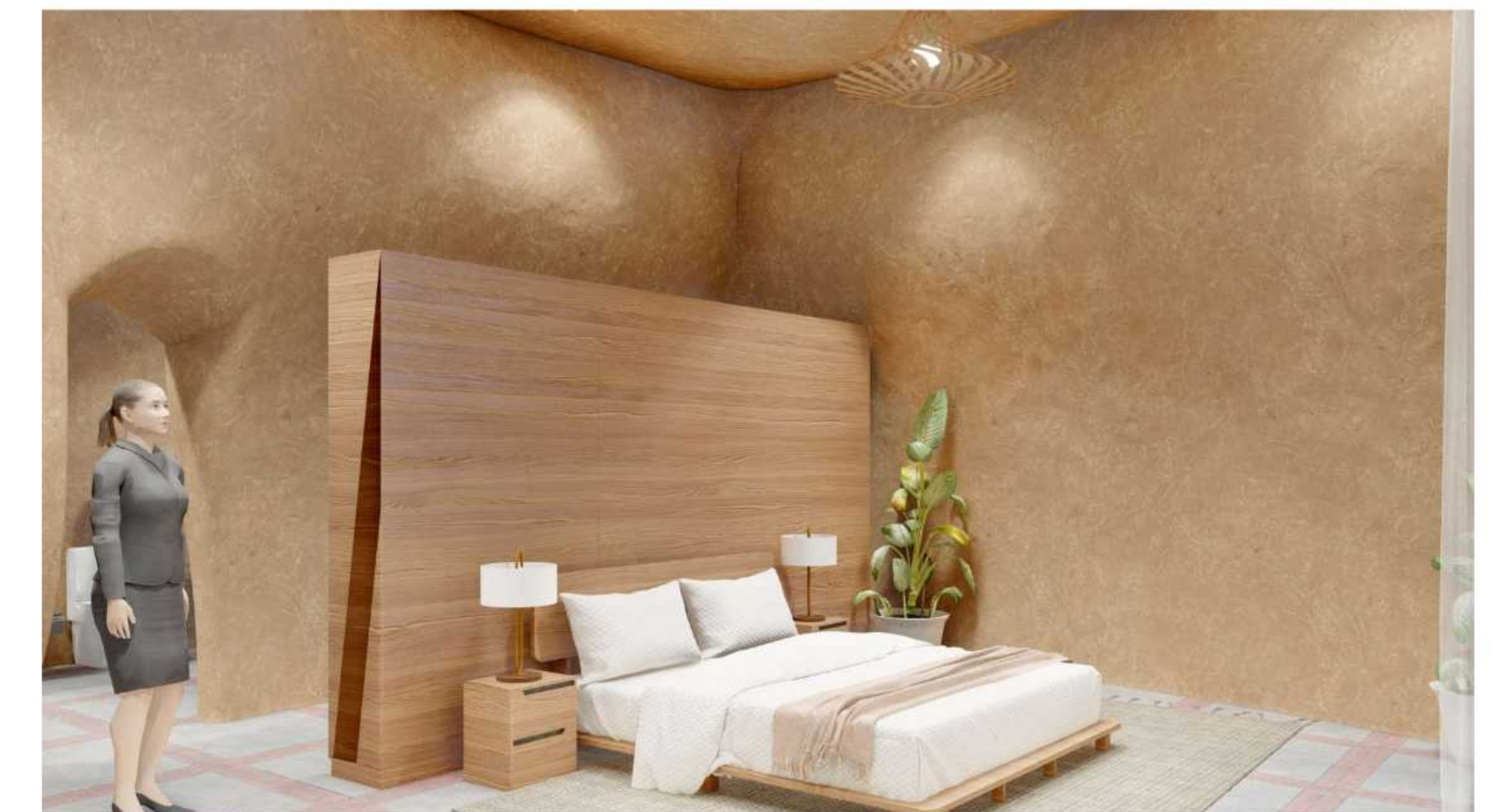
VIEW OF DINING AND LIVING AREA



VIEW OF DINING AND LIVING AREA



VIEW OF TOILET

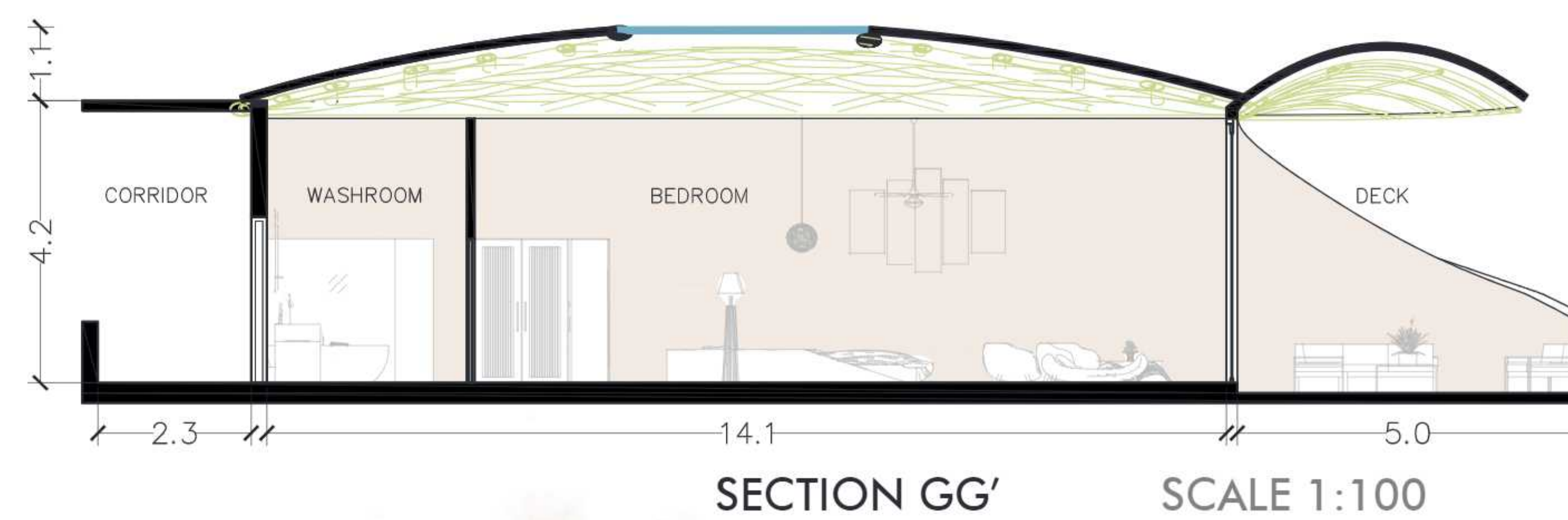
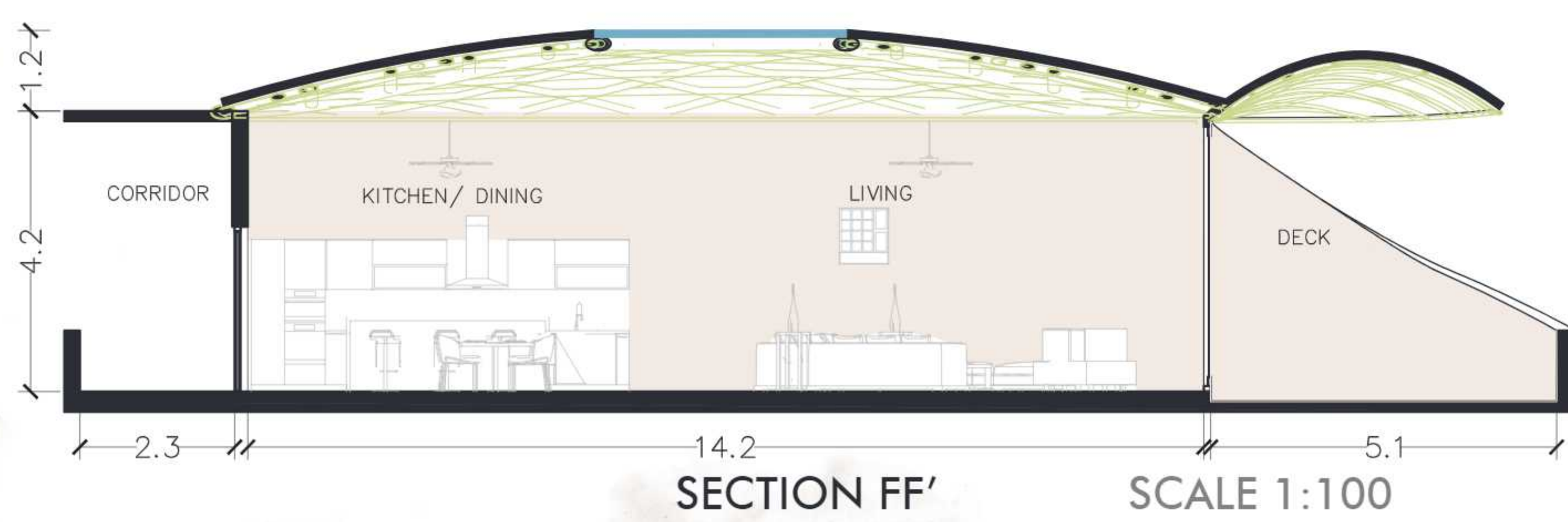
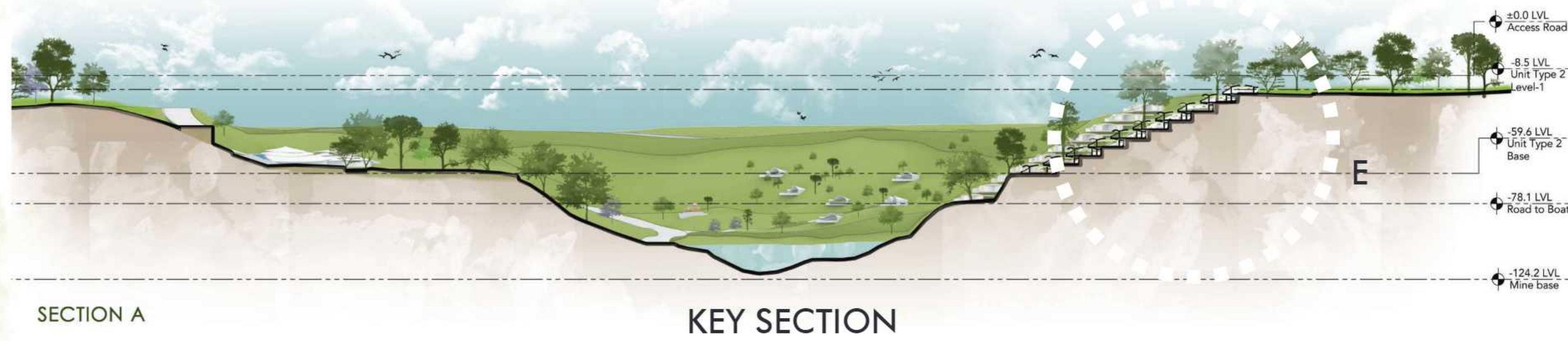


VIEW OF BEDROOM

EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE

TYPE-4 UNIT



LANDSCAPE DESIGN

AIM

The landscape design aims to incorporate elements of the surrounding ecosystem, such as local flora and fauna, natural water bodies, and geological features. The design aims to create a sense of place by highlighting the unique history and character of the site, and showcasing the potential for ecological restoration and regeneration of former mining areas.

The landscape design also incorporates sustainable and low-impact design strategies to minimize the environmental footprint of the resort. For example, the design aims to minimize water use through the use of drought-resistant plants and efficient irrigation systems, and maximize energy efficiency through the use of renewable energy sources, such as solar or wind power.



OBJECTIVES

- **Enhancing the guest experience:** The primary objective of the landscape design is to create an attractive, comfortable, and memorable environment for the guests. The design should incorporate elements that appeal to the senses, such as natural vegetation, water features, and art installations. The landscape should also provide opportunities for recreation and relaxation, such as walking trails, outdoor seating areas, and sports facilities.
- **Complementing the architecture:** The landscape design should complement and enhance the architectural style and character of the resort. The design should incorporate elements that harmonize with the building materials, colors, and textures. The landscape should also provide visual interest and variety that adds to the overall aesthetic appeal of the resort.
- **Promoting sustainability:** The landscape design should promote sustainability by incorporating environmentally friendly practices and materials. The design should incorporate native vegetation that requires minimal water and maintenance, use permeable paving and surfaces to reduce stormwater runoff, and incorporate renewable energy sources such as solar panels and wind turbines.
- **Improving the ecological health of the site:** The landscape design should consider the ecological health of the site and seek to improve it where possible. The design should incorporate measures such as soil remediation, habitat restoration, and erosion control to improve the site's ecological function and resilience.
- **Supporting educational and interpretive programs:** The landscape design should incorporate elements that support educational and interpretive programs about the history and ecology of the site. The design should incorporate signage, exhibits, and interactive displays that help guests understand the significance of the site and its connection to the local community and culture.
- **Enhancing the property value:** The landscape design should enhance the property value of the resort by creating an attractive and functional landscape that appeals. The design should also incorporate elements that improve the property's curb appeal and marketability.

PROBLEMS AND ISSUES

- **Environmental impact:** The site may have been contaminated by pollutants from the coal mining activities, which could affect the environment and human health. Proper remediation measures will have to be taken to mitigate these risks.
- **Topography:** The site has a challenging topography, with steep slopes and unstable soil conditions, which could affect the design and construction of the resort.
- **Accessibility:** The site is located in a remote area, which could pose accessibility issues for tourists and employees.
- **Wildlife:** The site is located near a national park, and tigers are known to enter the site frequently. This could pose safety risks for tourists and employees and may require special measures to be taken to protect them.
- **Water scarcity:** The area may face water scarcity, which could pose a challenge for the resort's water needs.
- **Local community:** The development of the resort may impact the local community and their traditional livelihoods. It is important to involve the local community in the planning process and find ways to mitigate any adverse impacts.
- **Legal and regulatory:** There may be several legal and regulatory hurdles that need to be addressed, such as obtaining necessary approvals from local authorities and obtaining clearances from environmental and wildlife agencies.



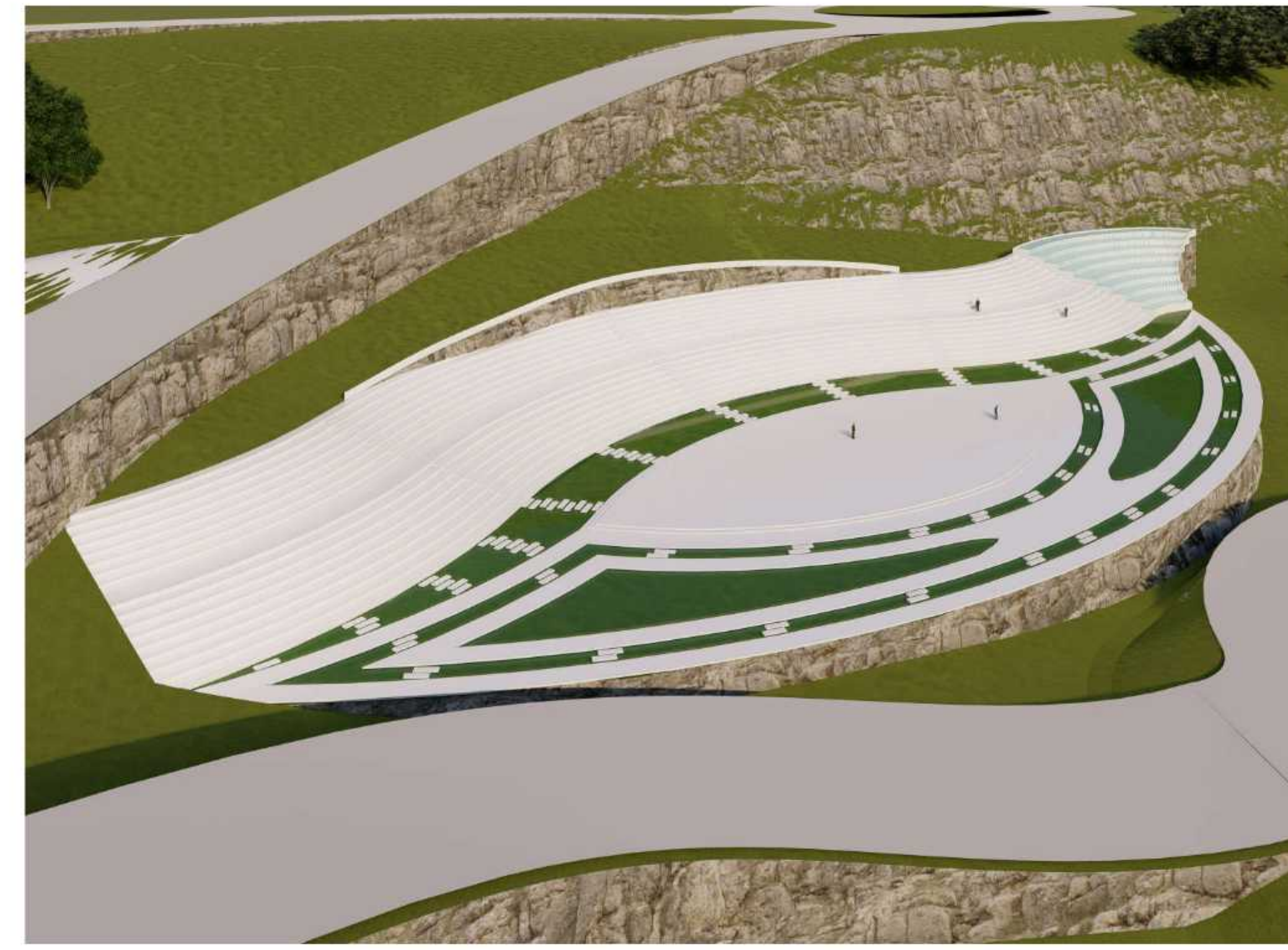
| S. No. | Name | Scientific Name | Picture | Symbol | Description | Location | Note |
|--------|-----------------|---|---------|--------|--|----------|------|
| 1 | Teak | Tectona grandis | | | Teak tree is a large deciduous tree with hard, durable, and termite-resistant wood that is valued for its use in furniture making and shipbuilding. | | |
| 2 | Bamboo | Bambusoideae, or Bambusa | | | Bamboo is a type of fast-growing perennial plant with woody stems, found in various regions of the world, known for its versatility, strength, and environmental benefits. | | |
| 3 | Sal | Shorea robusta | | | The sal tree (Shorea robusta) is a large deciduous tree native to the Indian subcontinent, known for its durable wood and religious significance in Hinduism and Buddhism. | | |
| 4 | Manus | Madhuca longifolia | | | Manus tree (Madhuca longifolia) is a large, tropical evergreen tree that is native to India, valued for its edible flowers, seeds, and oil. | | |
| 5 | Tendu | Diospyros melanoxylon | | | The tendu tree (Diospyros melanoxylon) is a tropical hardwood tree native to India, known for its dark, hard and durable timber, as well as the leaves which are used for rolling Indian beedi cigarettes. | | |
| 6 | Tamarind | Tamarindus indica | | | Tamarind tree is a tropical evergreen tree known for its distinctive, tangy fruit pods that are used in cooking and traditional medicine. | | |
| 7 | Neem | Azadirachta indica | | | Neem tree (Azadirachta indica) is a fast-growing evergreen tree with a wide range of medicinal properties, native to the Indian subcontinent. | | |
| 8 | Lantana camara | Lantana camara | | | Lantana camara is a highly invasive, perennial shrub with colorful flowers that belongs to the family Verbenaceae. | | |
| 9 | Karri | Strobilanthus callosus | | | Karri (Strobilanthus callosus) is a shrub that blooms once in 8 years and is found in the Western Ghats of India. | | |
| 10 | Zizyphus | Zizyphus jujuba | | | Zizyphus shrub (Zizyphus jujuba) is a small deciduous tree or shrub, widely cultivated for its sweet fruit, native to Asia. | | |
| 11 | Beal | Aegle marmelos | | | Beal (Aegle marmelos) is a deciduous fruit-bearing shrub or small tree, native to India and Southeast Asia, with various medicinal uses. | | |
| 12 | Cassia | Cassia fistula, Cassia javanica, Cassia alata | | | Cassia shrub (Cassia fistula) is a flowering plant native to South Asia, known for its bright yellow, pendulous flowers and medicinal properties. | | |
| 13 | Dhama | Grewia tiliaefolia | | | Grewia tiliaefolia is a small, deciduous shrub with oval-shaped leaves and small, yellow flowers, native to India and Southeast Asia. | | |
| 14 | Tulsi | Ocimum tenuiflorum | | | Tulsi shrub, also known as holy basil, is an aromatic herb with green leaves and purple flowers, commonly found in India and other parts of Southeast Asia. | | |
| 15 | Buttercup | Ranunculus acris | | | Buttercup herb is a flowering plant with bright yellow petals and shiny green leaves, known for its medicinal properties and its ability to thrive in damp environments. | | |
| 16 | Lily | Convallaria majalis | | | Lily herb, also known as garlic chives, is a perennial plant with long, slender green leaves and white, star-shaped flowers that have a mild garlic flavor. | | |
| 17 | Moonseed | Menispermum canadense | | | Moonseed climber, also known as Dioscorea cordifolia, is a vine-like climbing plant with heart-shaped leaves and greenish-yellow flowers, commonly used in Ayurvedic medicine. | | |
| 18 | Wild Grape | Vitis rotundifolia | | | Wild grape climber is a woody vine with tendrils that grow in a twisting pattern, producing small green or purple grapes in the late summer and fall. | | |
| 19 | Morning Glory | Ipomoea purpurea | | | Morning glory climber is a fast-growing vine with heart-shaped leaves and trumpet-shaped flowers that bloom in a range of colors, typically seen in tropical and subtropical regions. | | |
| 20 | Trumpet Creeper | Ipomoea tricolor | | | Trumpet creeper, also known as cow itch vine, is a fast-growing woody vine with clusters of trumpet-shaped flowers that are usually red, orange, or yellow. | | |

EXPERIENTIAL MINE RESORT

STAY | PLAY | LEARN | EXPERIENCE



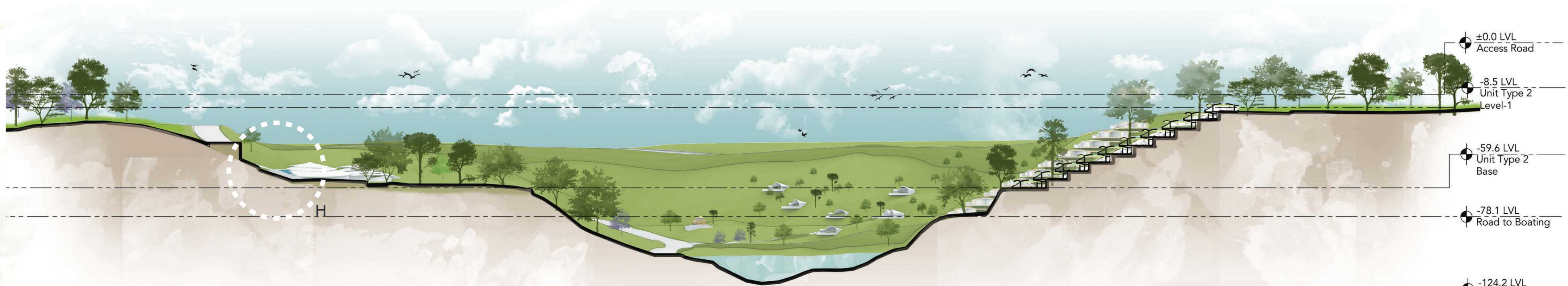
OAT PLAN



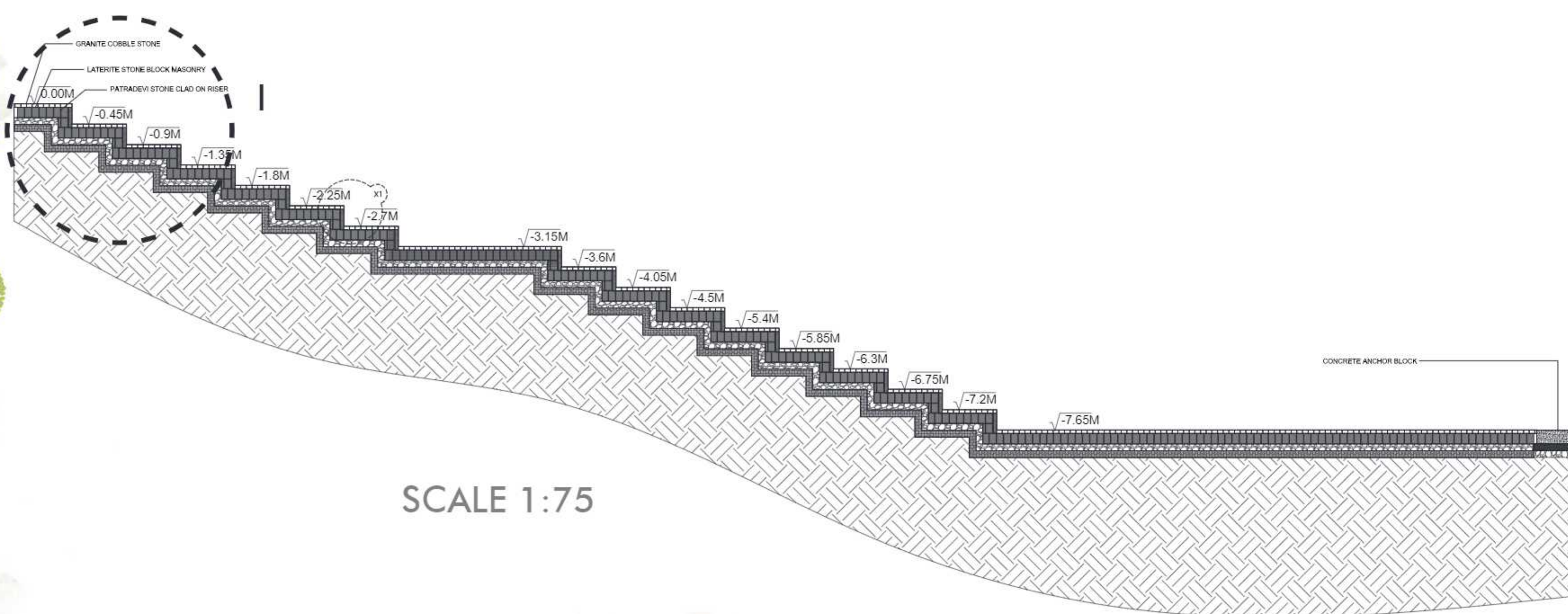
VIEW OF THE OAT



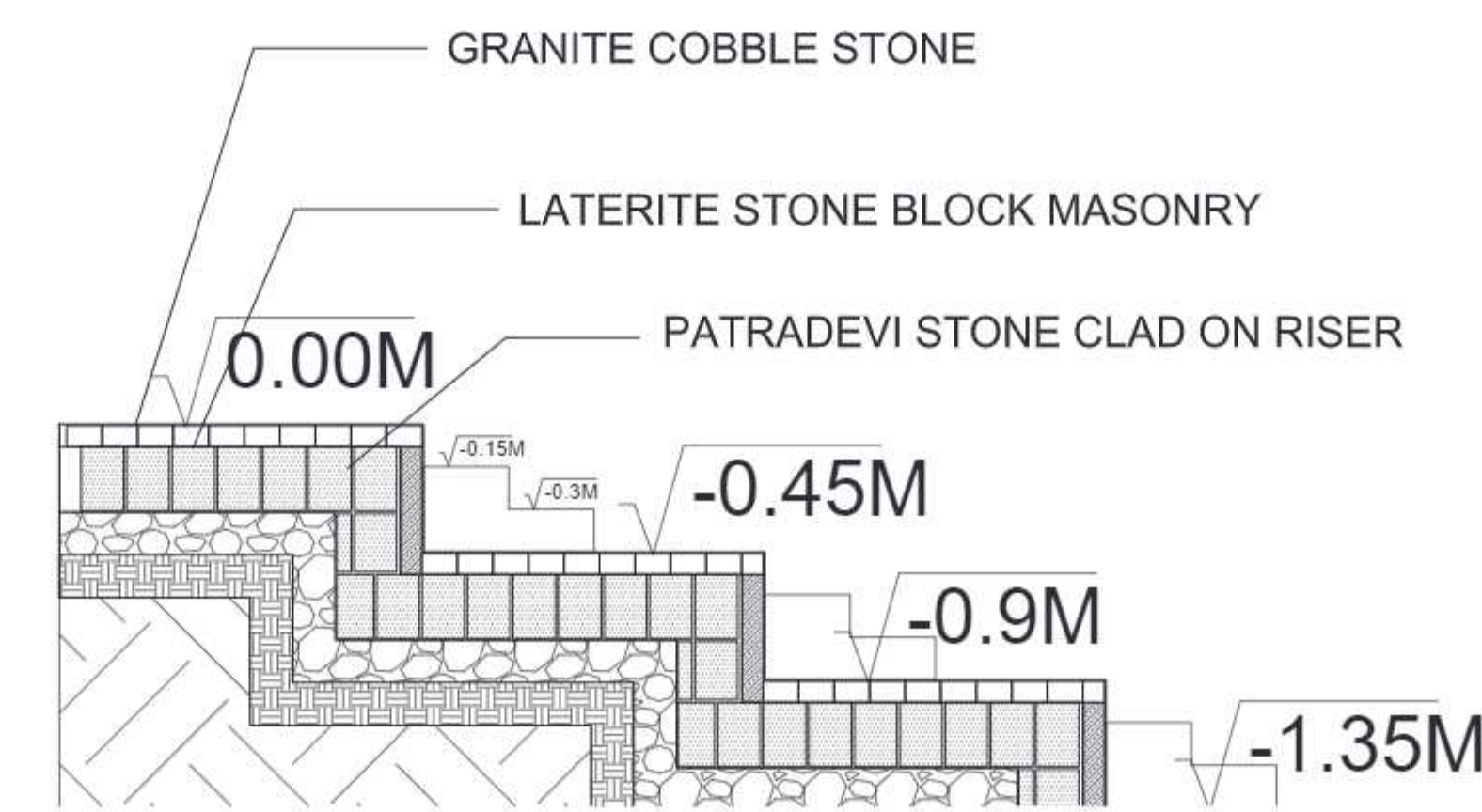
VIEW FROM THE OAT



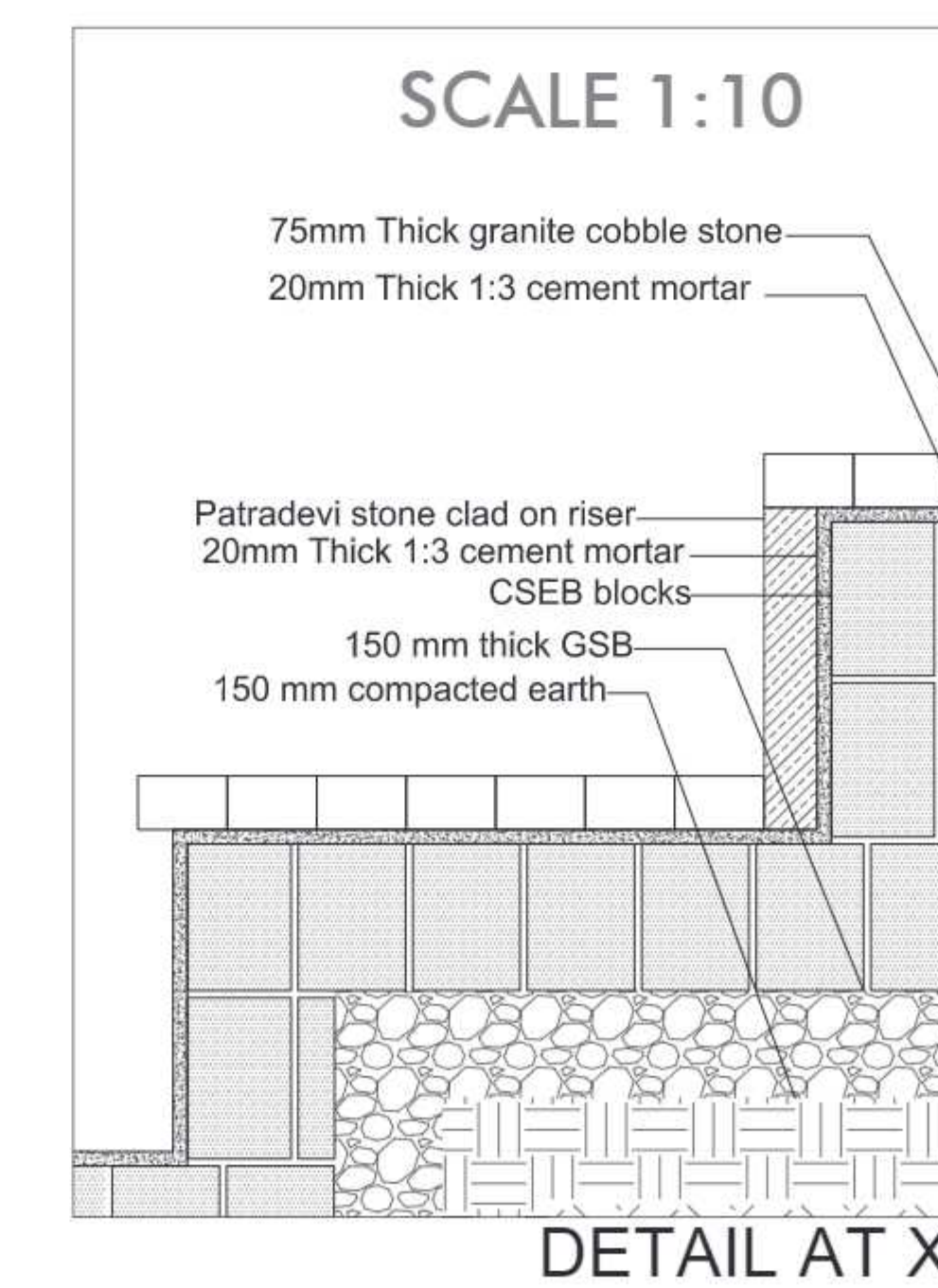
SECTION A SCALE 1:1500



DETAIL H



DETAIL I

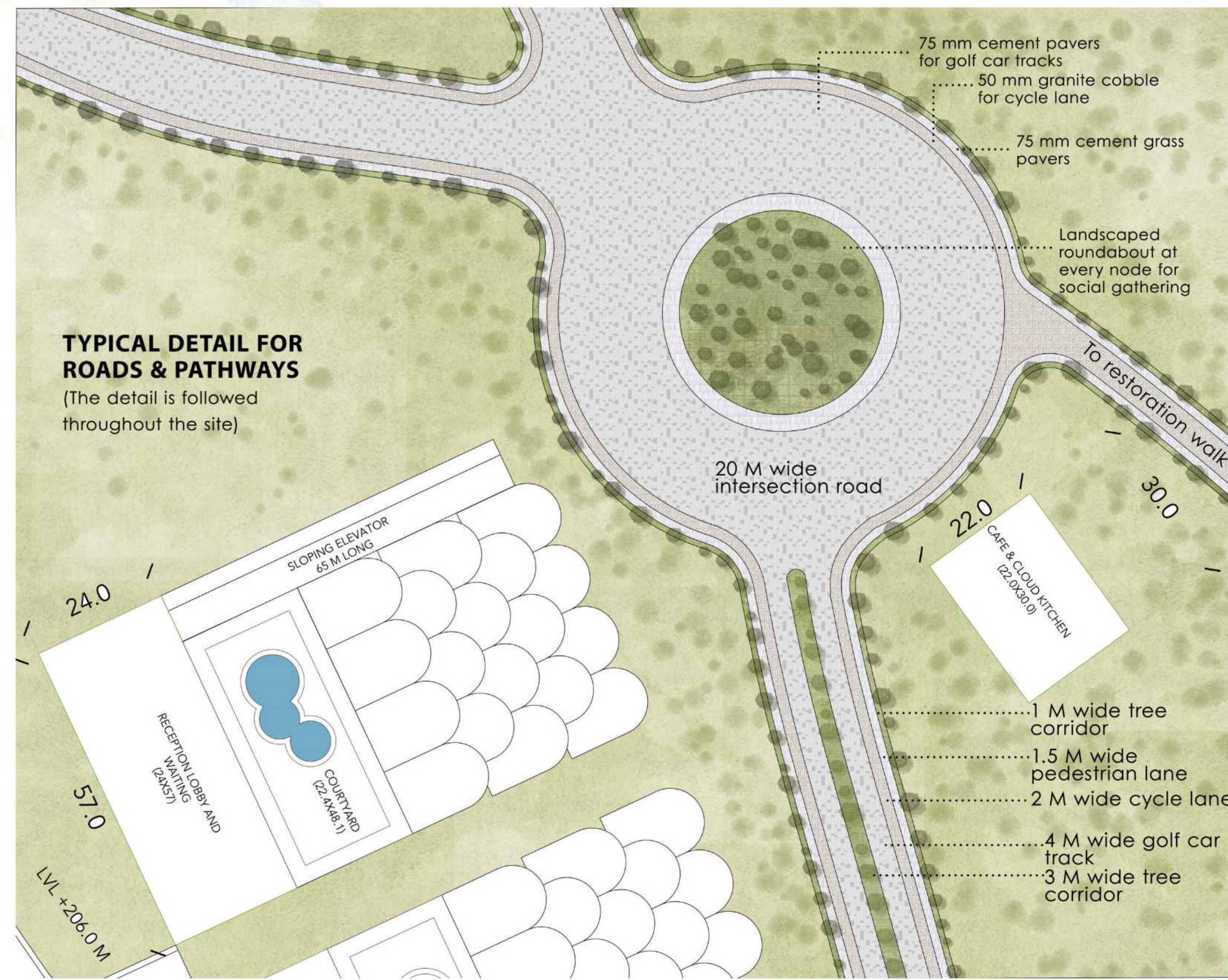


DETAIL AT X1



KEY PLAN





RESTORATION

ADDING MINERALS AND NUTRIENTS

- Soil analysis: Prior to restoration, soil analysis is conducted to determine the nutrient deficiencies and mineral composition.
- Nutrient supplementation: Based on the soil analysis, minerals and nutrients that are lacking in the soil are supplemented through appropriate organic or inorganic amendments.
- Balancing soil fertility: Adding minerals and nutrients helps to improve soil fertility, ensuring optimal conditions for plant growth and overall ecosystem restoration.

COLLECTING SOIL FROM NEARBY PATHS AND SPREADING IT EVENLY ON THE SITE

- Soil collection: Soil is collected from nearby paths or areas with suitable soil quality for vegetation growth.
- Even distribution: The collected soil is spread evenly across the quarry site to provide a substrate for plant growth and improve soil fertility.

INTRODUCING WEEDS FROM SURROUNDING AREAS TO CREATE VEGETATIVE COVER

- Weed selection: Weeds that are native to the surrounding areas and can quickly establish themselves are chosen.
- Vegetative cover establishment: The selected weeds are introduced and planted strategically across the quarry site to create a vegetative cover.
- Weed management: Weeds are managed and controlled to prevent them from overpowering native plant species during the restoration process.

PLANTING NATIVE SHRUBS, TREES, AND OTHER INDIGENOUS SPECIES

- Species selection: Native shrubs, trees, and other indigenous plant species suitable for the site's conditions are carefully selected.
- Planting strategy: The selected plant species are strategically planted across the restored quarry site, considering factors like soil type, sunlight exposure, and water availability.
- Planting techniques: Proper planting techniques, including soil preparation, root ball handling, and appropriate spacing, are employed to maximize plant survival and growth.

DIVERTING A STREAM TO FILL THE BASIN AND POPULATING IT WITH FISH

- Stream diversion: A nearby stream is redirected to flow into the quarry basin, creating a water body.
- Basin filling: The diverted stream water fills the quarry basin, establishing an aquatic habitat.
- Fish population: Fish species native to the region are introduced to the water body, promoting biodiversity and establishing a functioning aquatic ecosystem.

MONITORING AND MAINTAINING THE ECOSYSTEM FOR SEVERAL YEARS

- Regular monitoring: The restored site is regularly monitored to assess the progress of vegetation establishment, wildlife activity, and overall ecosystem health.
- Maintenance activities: Ongoing maintenance tasks such as watering, weeding, pruning, and fertilization are performed to support the growth and survival of planted vegetation.
- Adaptive management: If any challenges or issues arise, adaptive management strategies are implemented to address them and improve the restoration outcomes.



PHASE WISE DEVELOPEMENT



PHASE 1 : INCEPTION

Construction of Type 1 Units for visitors and primarily the research block with accommodation for researchers. Basic supporting amenities are provided for functioning. Recreational activities include boating and golfing. Golf course is the major restoration zone to kick start the process. Planting of fruit orchards and vegetables also begins.



PHASE 2 : PROPAGATION

Construction of Type 3 & 4 Units for visitors. Development of research block with introduction of Amphitheater for educational gatherings. Intensification of supporting amenities and service cottages. Recreational activities include viewing deck, restoration block and mountain climbing. Fruit orchards and vegetable garden are the additions to soil restoration.



PHASE 3 : RESTORATION

Construction of more Units for visitors. Research block is intensified. Introduction of a bigger dining hall, co-working cluster and a general purpose amphitheater with water body.



PHASE 4 : REHABILITATION

Dense living clusters with private cottages for premium experience. Recreational activities include : ropeway, and 2 walking bridges across the water body. Introduction of more co-working spaces.