



Graduation thesis defense
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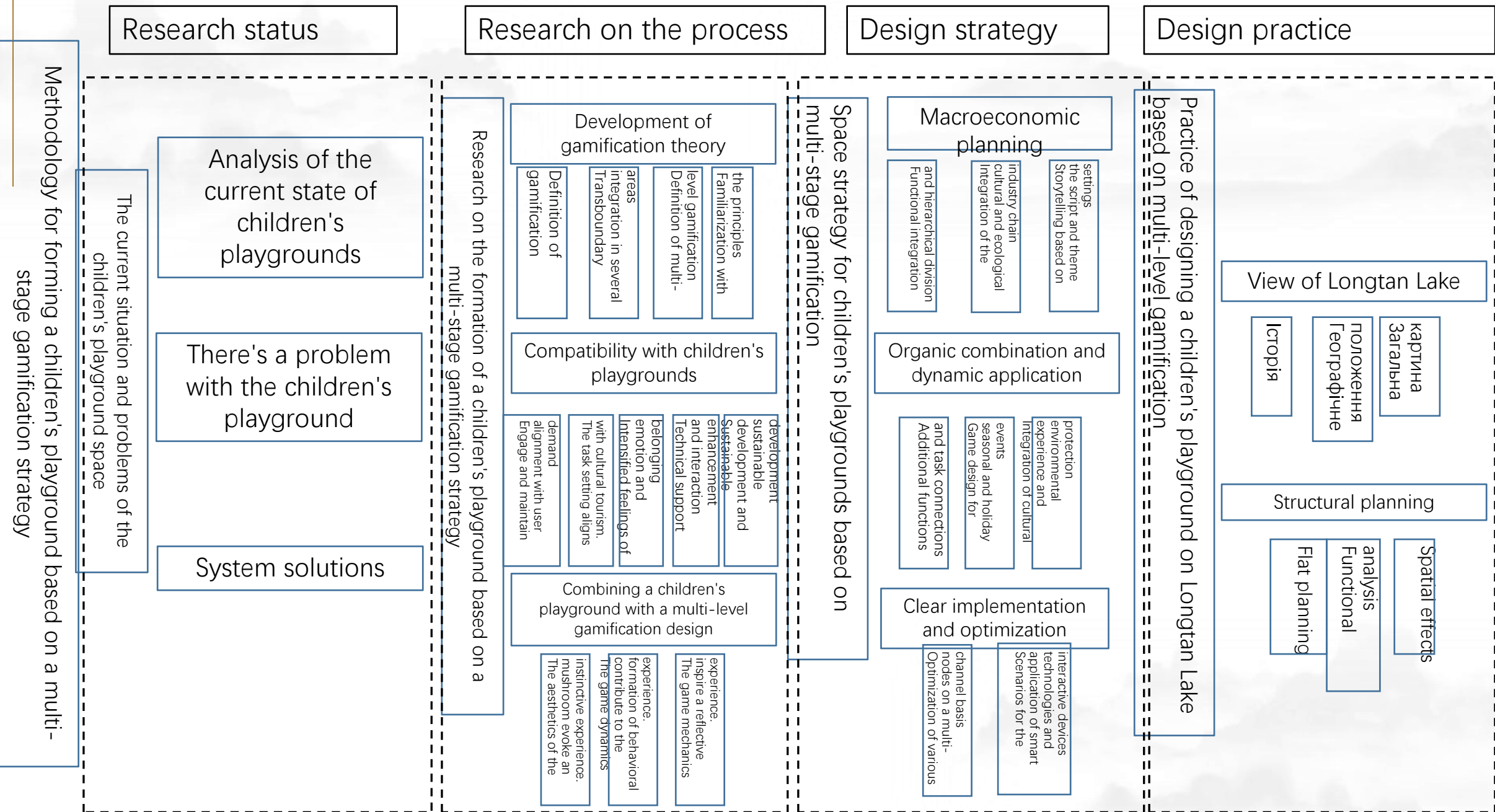
The methodology of forming a children's play area within the framework of a multi-stage gamification strategy — Let's take China as an example

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The background:

One



With the acceleration of urbanization, children's playgrounds, as an important part of urban public space, are gradually attracting attention. However, traditional playground designs often lack innovation and interactivity, making it difficult to meet the diverse needs of modern children. In recent years, gamification strategies have been widely used in the design of public spaces, especially children's playgrounds. Thanks to multi-stage gamification strategies, complex and interactive scenes can be developed according to the cognitive characteristics and needs of children at different developmental stages, promoting their cognitive, emotional, and social development.

With the introduction of policies such as the Child Development Plan (2021-2030) and the Guidelines for Building Child-Friendly Communities in the New Era, China has set clear requirements for the construction of child-friendly public spaces and promoted innovation in the design of children's playgrounds. In particular, the policy encourages the integration of local culture and gamification concepts to create more communal and educational playgrounds.

The purpose of this study is to explore the design method of children's playgrounds based on a multi-stage gamification strategy combined with the characteristics of Chinese society and culture, and to analyze how to enhance the interactivity, education, and cultural aspects of playgrounds through phased design, providing a practical guide for building child-friendly communities.

Two

The purpose and significance of the research



The ultimate goal of this research is to enhance the quality of children's playground design by applying multi-stage gamification strategies, ensuring better alignment with the physical and cognitive development needs of children. By analyzing the characteristics of different developmental stages, we propose interactive and educational designs suitable for each phase, facilitating the transformation of children's playgrounds from traditional recreational spaces into multifunctional, highly interactive educational environments. Simultaneously, in line with China's policy directives, we will explore how to integrate local cultural and social elements into the design to meet national requirements for building child-friendly spaces. Ultimately, the significance of this research lies in providing theoretical support and practical guidance for the innovative design of children's playgrounds in China, fostering the creation of a child-friendly environment, enriching children's growth experiences, and promoting a sense of social responsibility and cultural value in public space design.

The concept of "gamification" was first introduced in 2002 by Nick Pelling, a British programmer who sought to enhance user experience and engagement by applying game elements to non-game scenarios. Later, this concept was widely disseminated and studied by scholars such as Sebastian Deterding. Building on this foundation, the application of multi-level gamification involves introducing gamification elements into project design step by step. This process typically includes developing an experience escalation path, allowing participants to encounter various challenges, rewards, and interactions at different stages, gradually guiding them toward a specific experience or understanding of content or scenario. This approach is widely used in tourism, education, landscape architecture, and public projects to increase interactivity and sustained user engagement.

Gamification theory is an approach that applies game elements and mechanics to non-game contexts to enhance user engagement, motivate behavior change, and create enjoyable experiences. It relies on incentives commonly used in game design, such as points, levels, rewards, challenges, and community interaction, and skillfully integrates these elements into real-world environments and activities to attract and retain users over time. Gamification is not merely about superficial entertainment; it focuses on developing a comprehensive user experience system where users can derive satisfaction and achievement at every stage, encouraging them to stay engaged and motivated.

First, it expands the application scope of gamification design theory, introduces this strategy into the design of children's playgrounds, and enriches the application options of gamification in spatial design. Second, this research offers a fresh perspective on the theory of children's environmental design, emphasizing that design should be based on the cognitive and psychological needs of children of different ages to promote their physical and mental development and social adaptability. The study also contributes to the theoretical exploration of the integration of localized design and culture, investigating how to incorporate Chinese cultural elements into playgrounds to meet the national policy requirements for creating child-friendly environments. Additionally, this research integrates theories from multiple disciplines, such as environmental design, child psychology, and gamification design, fostering interdisciplinary theoretical innovation and practical development. Thus, this study not only provides a new theoretical foundation for the design of children's playgrounds but also contributes to academic progress in the fields of gamification design, children's environment design, and cultural integration design.

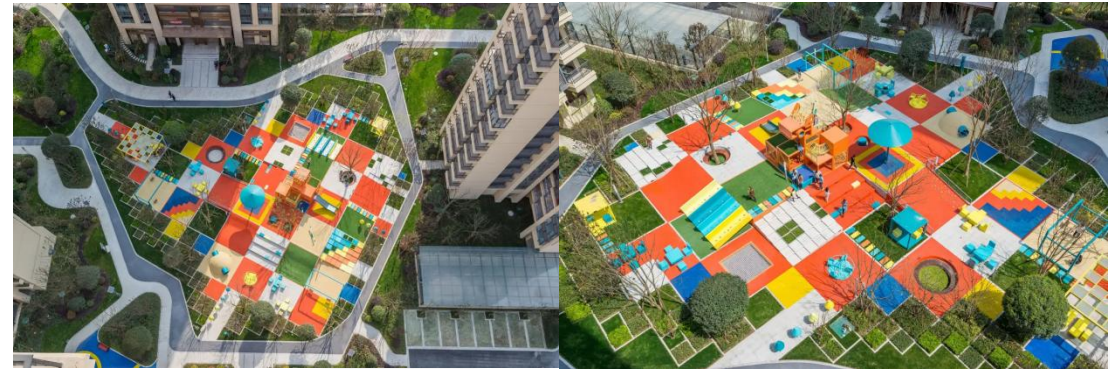
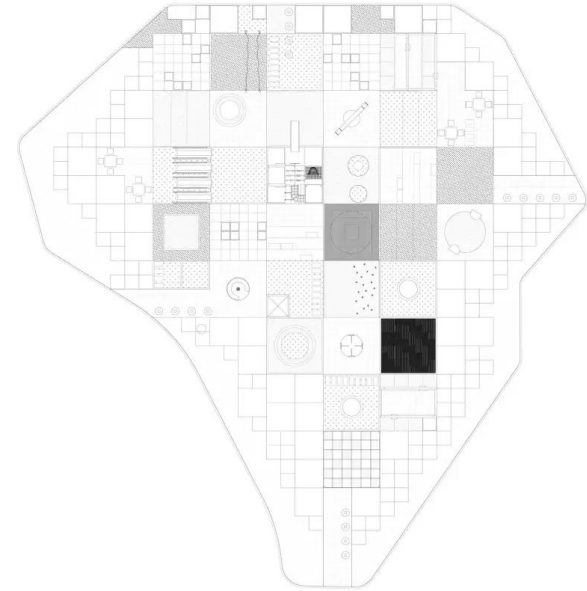
Three

Example from practice



1.Sichuan Mianyang Pixel Park

PIXELAND is a national aesthetic of space, composed of a combination of various external objects in one space, such as landscape opportunities, children's play possibilities, and adult relaxation possibilities. The project is inspired by the digital concept of pixels. Although a pixel is the smallest independent sample of an image with its own information about RGB or CMYK colors, it is the combination of many pixels that results in any digital image. By transferring this idea into the strategy of spatial organization for the project, we envisioned creating a multifunctional public space by adding and combining smaller independent functional pixels. Although each pixel has its own function and characteristics and can be read as an independent object, the combination of all these pixels creates a highly captivating and playful overall multifunctional public space. The main pixel used in the project's core is an ideal 5 x 5 m square, serving as the minimal space for domestic functions, suitable for a group of people. As we approach the boundaries, smaller 2.5 x 2.5 m and 1.25 x 1.25 m pixels are introduced as a modular approach to address access, foot traffic rotation, and the boundary landscape. Surrounded by small greenery pixels as a border solution to provide privacy and safety while confining the playscape, the plaza is also equipped with lounge resting areas, picnic areas with seats and tables, seating box structures to provide shade, sunken communal benches, sloped lawns for lying down, and small amphitheatres for gatherings. Beyond recreational possibilities, Pixeland also considers a wide range of gaming opportunities distributed around, culminating in a voxel gaming spot on horses in the center of the plaza, for the joy and entertainment of younger visitors. The tested plaza was developed on multiple levels, offering an interesting artificial topography that rises in height toward the center, where the voxelated horse is strategically placed on the upper planet.



2. Guangzhou Zhonghai Guanlan, Guangdong Province

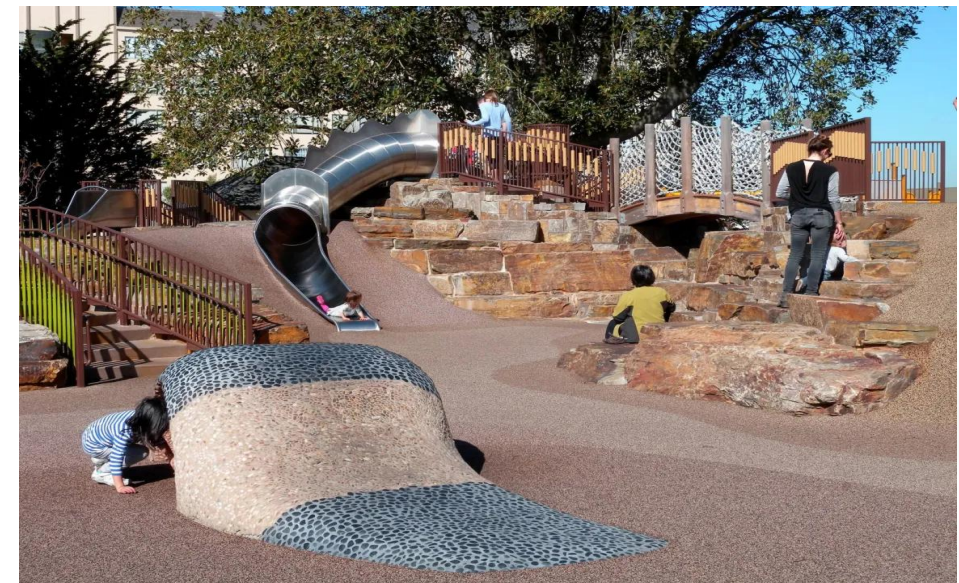
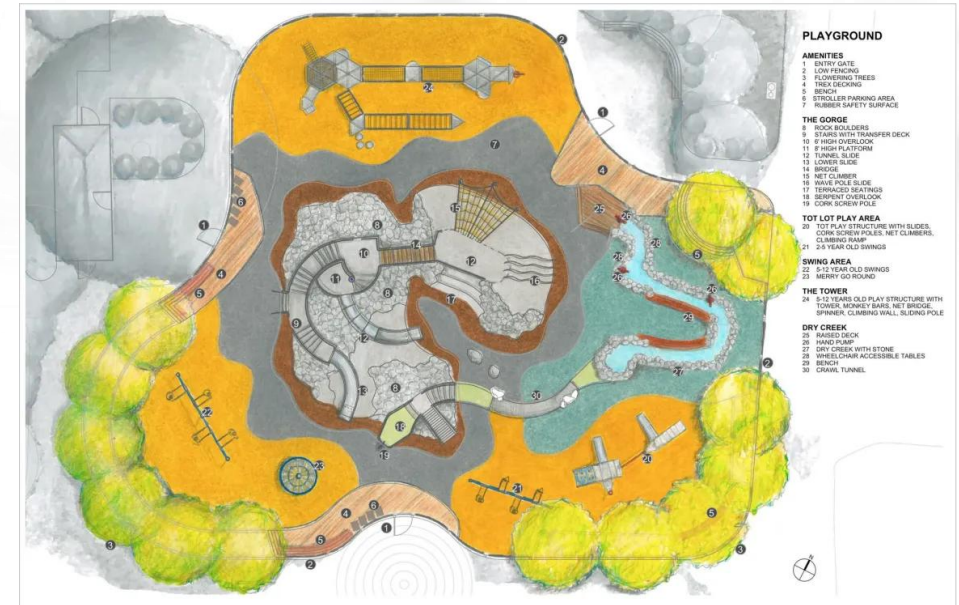
This project is located in Dagangwei, Zhuhai District, Guangzhou, surrounded by numerous old industrial plants, including Guangzhou Paper, and the industrial landscape remains clearly visible. The design team optimized the site's function to breathe new life into the lost space. The initial site was a red-line area, but our design was not about creating a short-term showcase zone for real estate; rather, it was about bringing joy and comfort to the community with a fully open riverside park facing the green path, fulfilling all expectations of life by the Pearl River. In this case, Haibao Land was created not only as a "children's play area" but also as a "theater of life" for all community residents, reflecting on the present and anticipating the future. The project's positioning as an "open urban space in the riverside park" conveys the core values of tolerance, diversity of age, and longevity. How to interpret the romantic life by the Pearl River with an artistic approach and a joyful vision, while catering to everyone? At the beginning of the design process, the designer visited the site multiple times to uncover the site's DNA. By chance, the designer was inspired by the sight of the necessary red brick roofs in the distance. The accumulation of simple elements brings a unique charm to the site. Even a harsh material, such as red bricks, when consistently organized, reveals a soft and smooth line, like the waves of the Pearl River. Therefore, the designers decided to use red bricks to create an earthy art paradise with the necessary topography, preserving the industrial memory of the adjacent area while also connecting with the Pearl River.



3.Lafayette Park

Miller Company Landscape Architects created a new play space in Lafayette Park, located in the heart of San Francisco's Pacific Heights neighborhood. The playground is a child-friendly landscape that connects nature with the sense of childlike exploration, adventure, and fantasy. Two monumental rock mountains, linked by an arched footbridge, form the focal point of Gorge, constructed with 200 tons of russet and ochre-colored rock tiles. The structure of the play area, called the Tower, features a 17-foot-high spire, one of many spots in the playfield that offers observation and vantage points over both the playfield and the larger park beyond. The central knots on the interior of Gorge form a natural amphitheater, expanded into the Snakehead—a large sculptural rock formation that rises above the Open Cave, which has a rugged skin texture and spills into a 60-foot-long, meaningfully elevated rock Howl, cheered on by children at several hand-pump tunnels, walls, ropes, curved slides, and changes provide opportunities for balancing, exploring, bouncing, group play, and solitary fun. The golden tones throughout the play area enhance the joy and sensitivity of a child's contact with the raw beauty of natural elements.

The renovation of the playground is part of the park's redevelopment, which was partially funded by the city's "Clean and Safe Parks for Neighbors" initiative in 2008. Additional support came from the Friends of Lafayette Park group. The playground features Donor Plaza, adorned with bronze medallions and granite benches, inscribed with the names of those who contributed to the playground's renovation. Lafayette Park is a popular destination for residents and visitors alike. The park offers expansive views, opening paths between mature trees, and features a well-attended dog park.

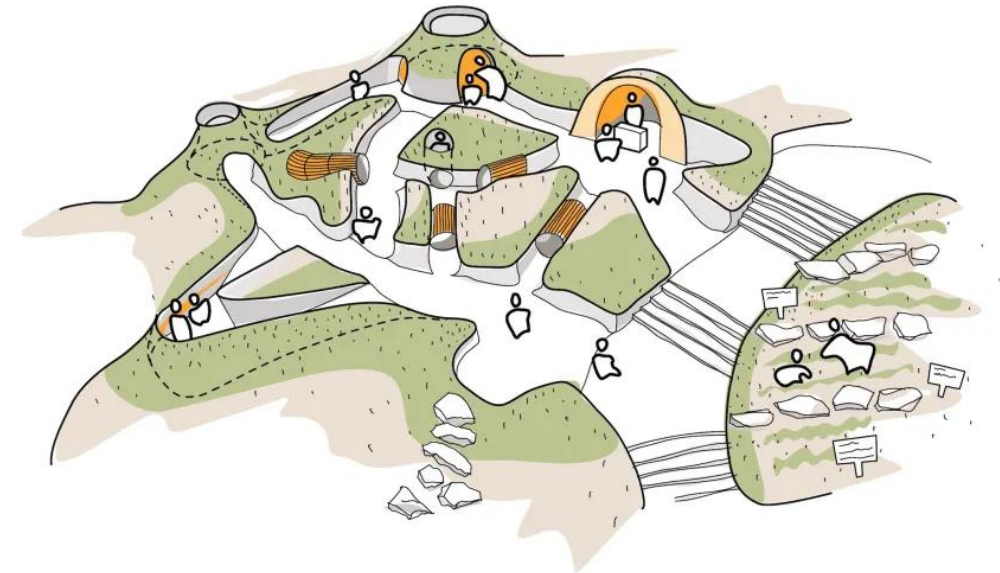


4. Adventure Park in the Afey Forest, Tianfu New District, Sichuan Province

LaForêt AFI Children's Amusement Park is located in Meishan City, Tianfu District, Sichuan Province. It is part of the Fragrance Garden, a zone within the Sino-French Rural Science and Technology Park, covering an area of approximately 7,000 square meters. The developers aim to create a particularly dynamic and popular amusement park for children and their families, themed around agriculture and nature. To embody the concept of "Land of Symbiosis," the design team chose "seeds" as the park's theme—seeds represent the beginning of the agricultural life cycle and even all of existence. Additionally, this theme is familiar, easily understandable for children, and strongly promotes education and popular science.

Under the theme of seeds, to understand the significance of learning through play, the design team established a "growth cycle tour" for seeds, specifically expansion, growth, flowering, expansion, and decline, as a popular science integrated with the method of play to create a unique and influential gaming experience.

After the seeds still sleep in the hot soil, earthworms continue to dig around, the earth loosens, air and water reach the seeds, and the seeds break through the soil, showing small shoots. The red holes are made by irregular burrows dug by earthworms in the submerged part of the site, which has been enlarged 200 times. Children can trace the paths of earthworms in this irregular, semi-covered space; and learn popular scientific knowledge about earthworms and ants that live in the underground part of the expansion node; they can also observe the seeds in a seed-seeking device, obtain live seeds through seed exchange, and sow them independently in the "seed experiment field" of the park, leaving exclusive new hope. Children can gather around the pools, creating curiosity about where the water comes from; then we can move up, experiencing the small dams that control the speed and direction of the flow; after they leave the dam, they can go to the Moon Bay reservoir to observe the full moon and the replacement of the new moon at different water levels caused by the water discharge. When they finally reach the waterfalls, half-buried in the earth, the children can feel the water nearby and find the last answer—Ah! Waterfalls from the sky. Given Chengdu's extreme summer heat, cooling spray has been installed along the road to provide a breezy exit in summer, while also greatly enhancing the atmospheric landscape.



Four

View the project

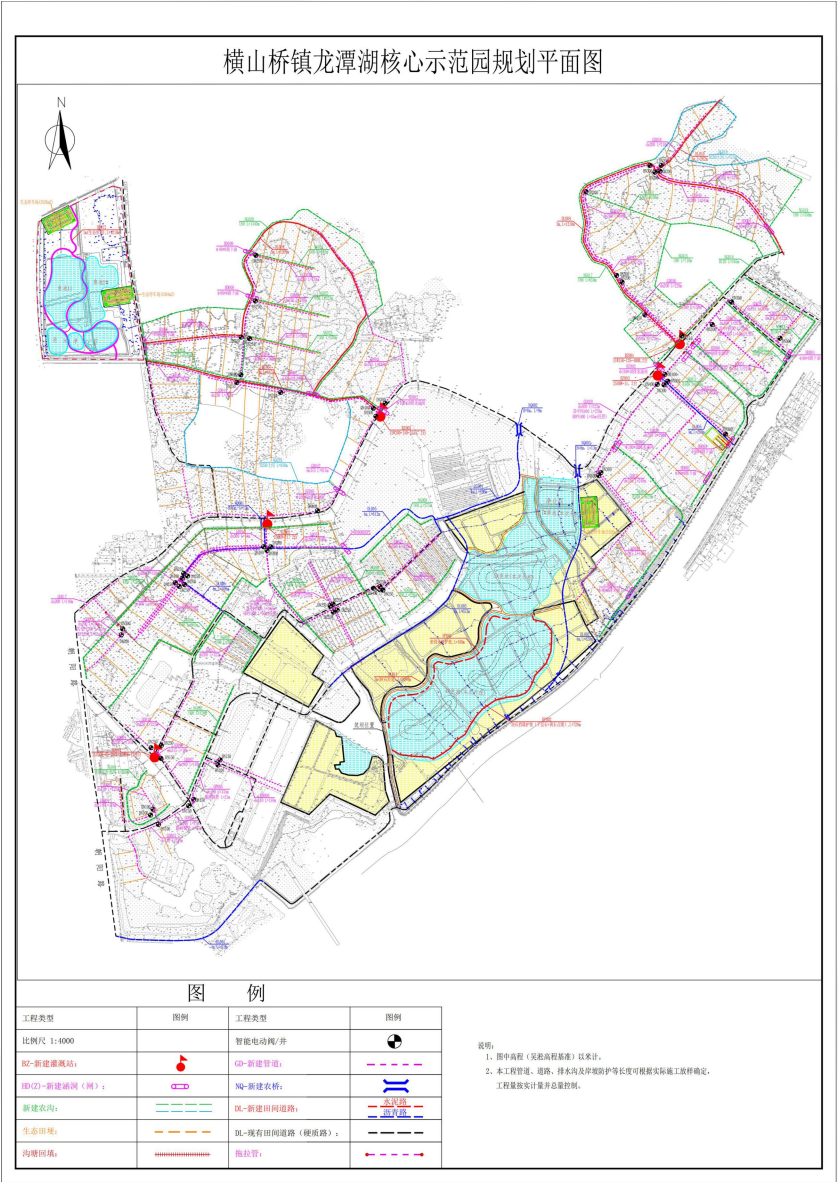




The Longtan Lake Demonstration Park, located in Henshancun Town, Changzhou City, Jiangsu Province, is situated in the northeastern part of the Changzhou Economic Development Zone. It lies west of Chaoyang Road, east of the Xingou River, north of Huangshan Beiyi Road, and south of Hengshan Water Treatment Co., Ltd. The park covers a total area of approximately 5,210 acres, including 1,128 acres of Yunnan.

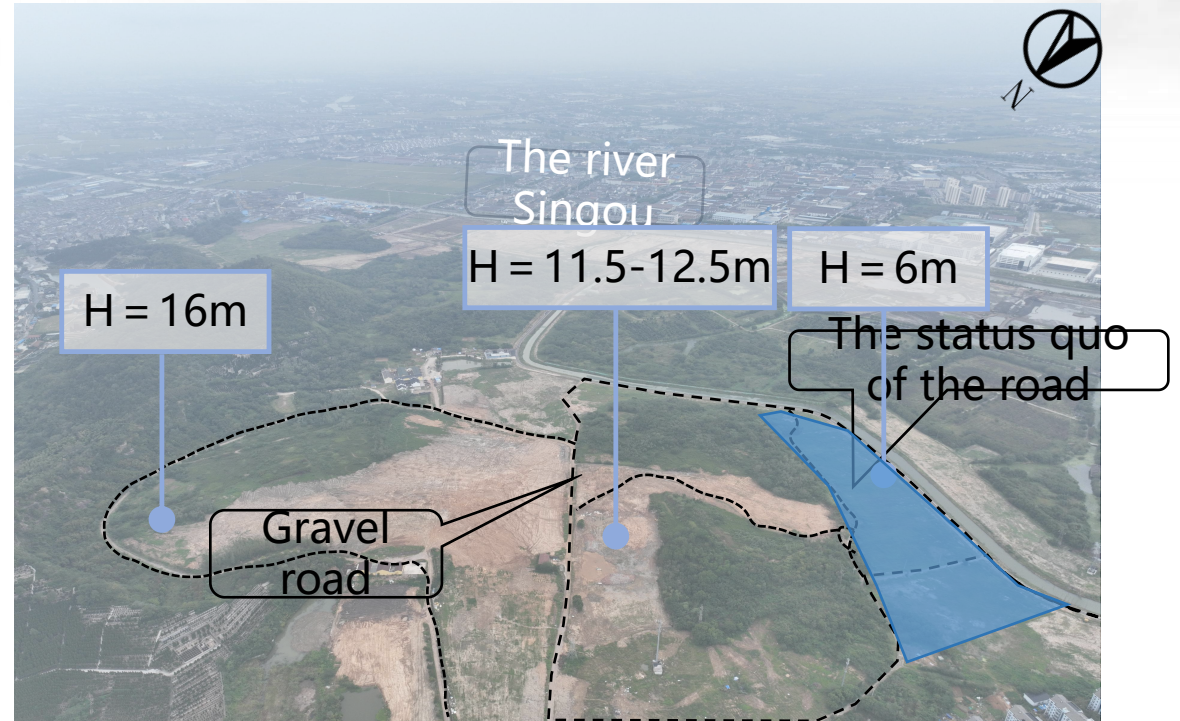


Map of State Planning

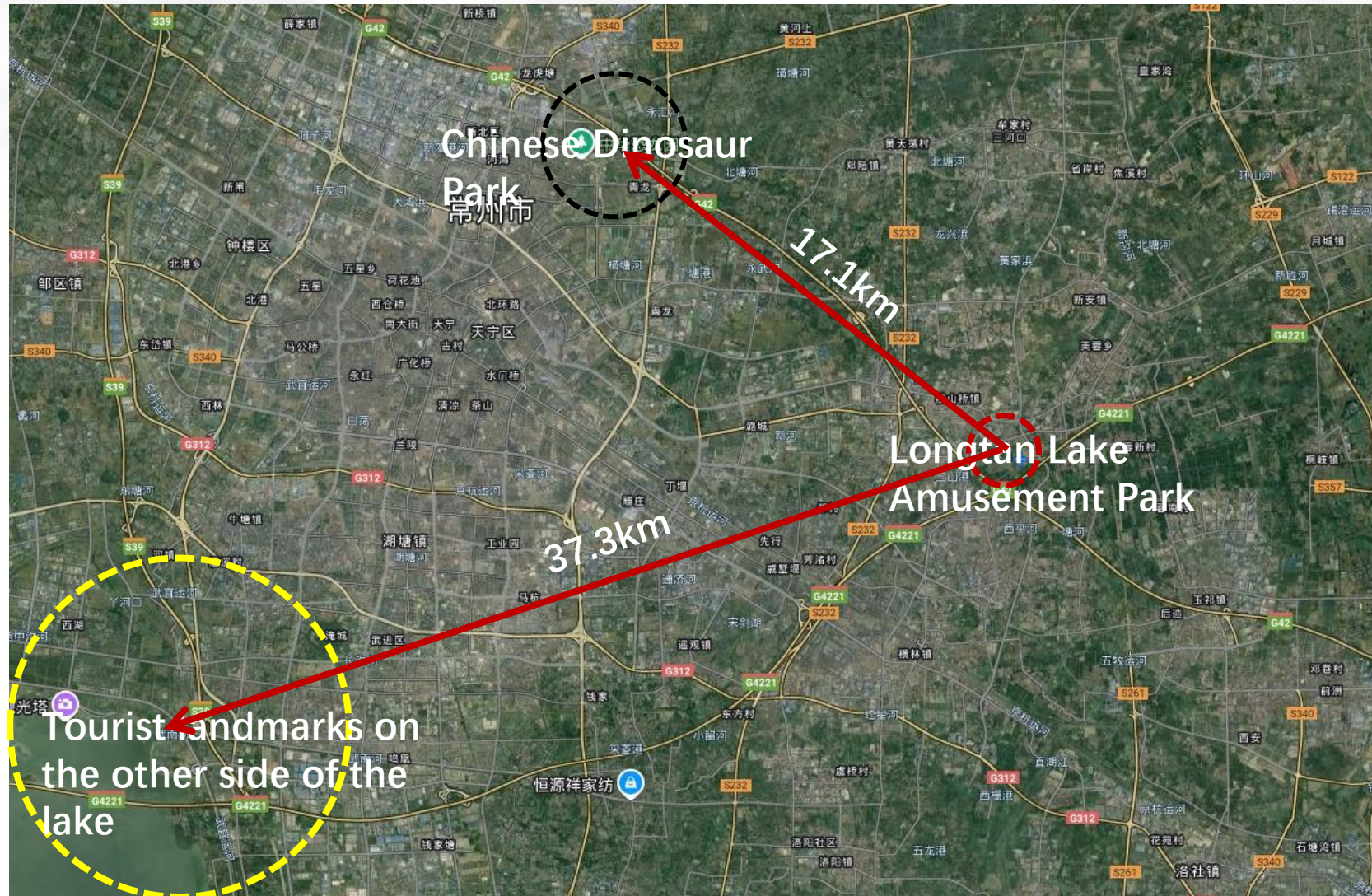




River analysis map



Map of road and elevation analysis



The Longtan Lake Ecological Park is rich in resources, located 17.1 km from the China Dinosaur Park and 37.3 km from major tourist attractions across the lake. Additionally, within a 10-kilometer radius of the Longtan Lake Ecological Park, there are numerous shopping centers, entertainment venues, and residential areas.



Currently, the green plantings on both sides of the road are relatively simple and rare. They mainly consist of low-growing weeds and naturally growing vegetation, which is either uncut or specially developed.



The landscape is dominated by naturally growing vegetation and lacks visual appeal. The facility area has no viewing platforms, directional signs, or explanatory plaques, which complicates the satisfaction of tourists' needs.



The existing river was not properly managed or cleaned, making it dirty, polluted, impoverished, and emitting a certain foul odor.



There is a good open area with a low hill at the back, but it's not very well planned.



The site has a certain relief with elevation changes, being high in the north and low in the south, but it was not smartly designed.



Most gravel roads in the area are muddy on rainy days and are unsuitable for walking or opening to traffic.



Дорожня карта

The total area of the site is approximately 10,000 m². First, the territory will be divided according to a step-by-step process, and NPCs will be offered to interact with children. Parents will also play a certain role and enter the park under the step-by-step guidance of NPCs. Each depth point has certain simple tasks. Unlike traditional gaming facilities, children will receive corresponding hints or rewards after completing the entertainment facility, and these hints and rewards will be accompanied by the difficulty of the entertainment facility for distributing rewards and hints. After completing all the hints, children will focus on obtaining a small potted plant or a small animal on their own, naming it and requiring long-term care to achieve the goal of having the ability to play for an extended period.

The area is spacious, but lacks intelligent planning, and it needs to be wisely divided into functional zones for drainage and advertising.

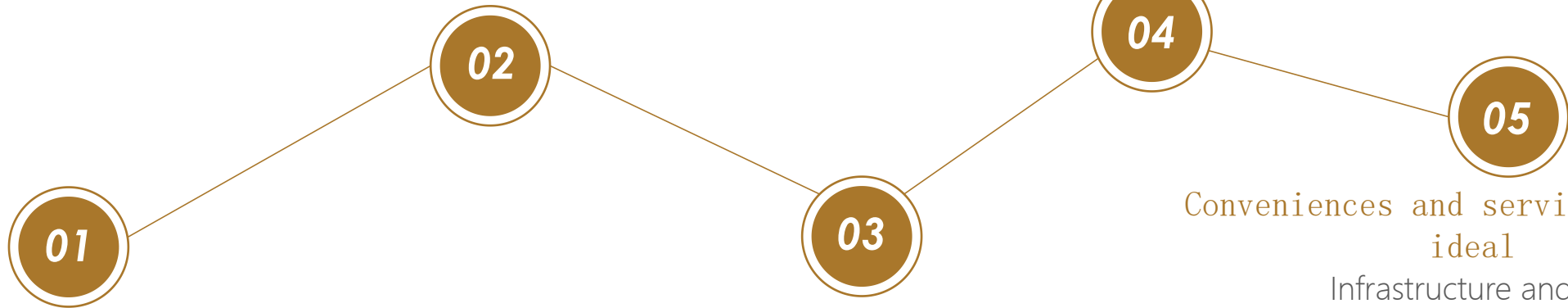
The venue for the event is unattractive.

The greening of the area needs to be significantly improved, and systematic management, maintenance, planting, and other issues must be addressed.

No objects of systematic greening are present.

Conveniences and services are not ideal

Infrastructure and services will be indispensable in the future construction process, and much improvement will be needed to accommodate tourists.



Insufficient engagement of the community

The locals are poorly handling the construction and subsequent operation of the site. Mediums are demanding direct involvement.

Common spaces are not all-encompassing

There is almost no common space on the plot, but future implementations will require common space.

03

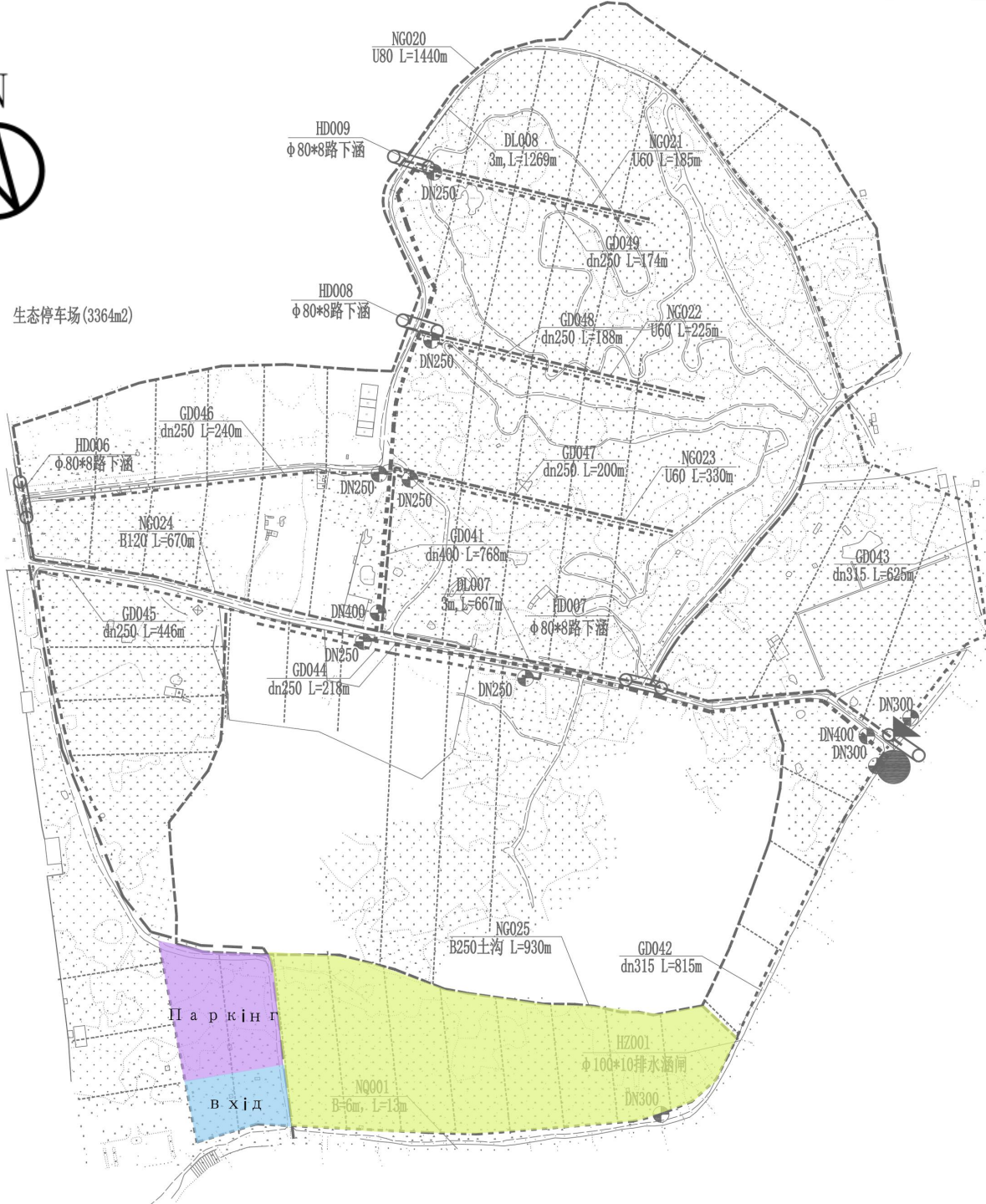
Five

Sketch





生态停车场 (3364m²)



Pre-management zone: Initially, the base was a small village, which was convenient for renovation and could also address local employment issues to a small extent, allowing local residents to be directly employed.

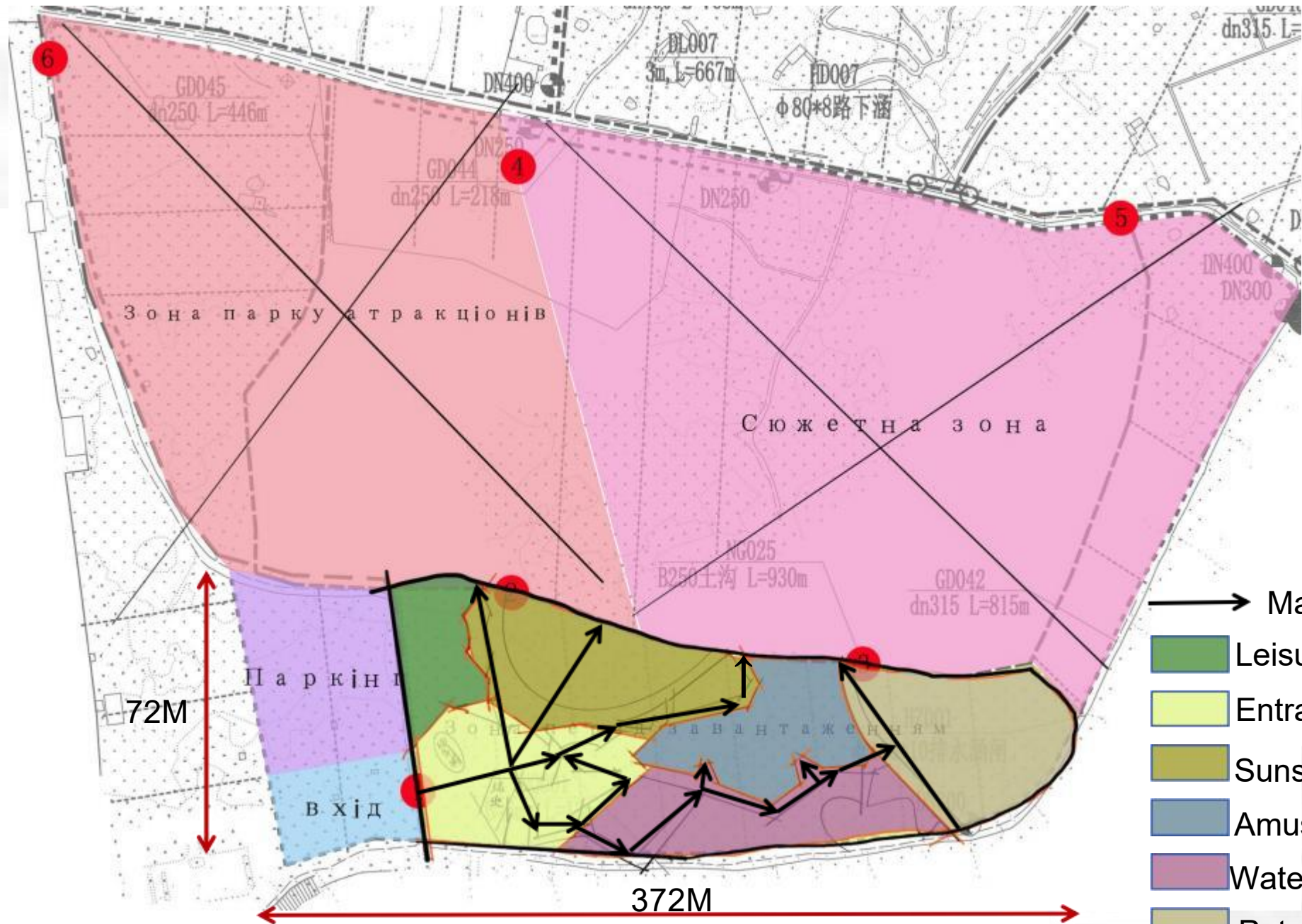
Plot area: This area is primarily designed to advance the entire storyline so that children can deeply experience it, with various games and tasks to achieve the final ending.

Amusement park zone: a standard amusement park zone can be a great way to enhance the entire park and achieve the goal of diversion.

This children's play area can be divided into different tickets. You can simply bring your kids to play at the amusement park, and they can also experience the storyline individually, while you can enjoy both simultaneously.



Option 1



→ Main road

Leisure area 2300m²

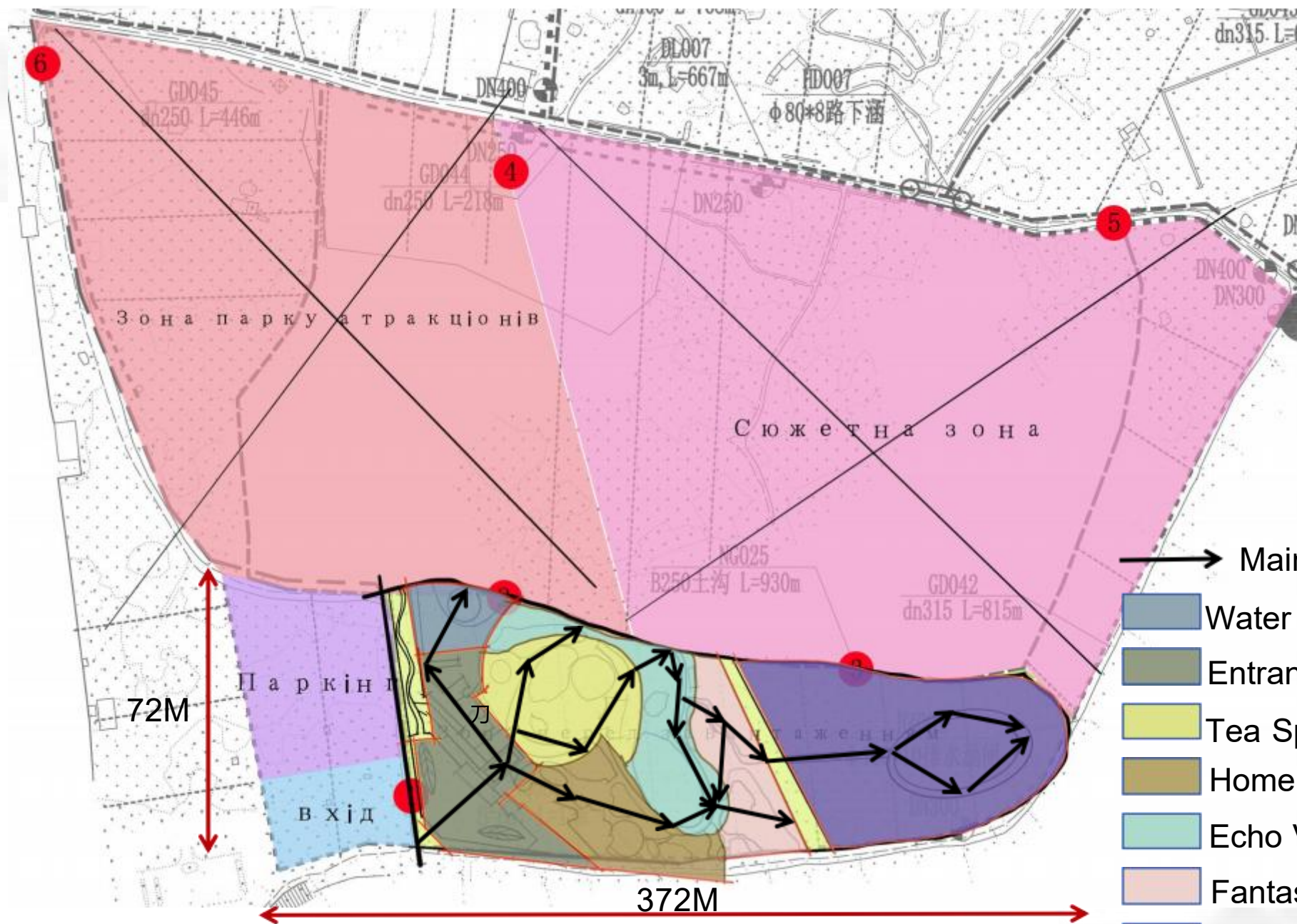
Entrance area 4000m²

Sunshine lawn 3900m²

Amusement facilities 3300m²

Waterfront corridor 3300m²

Pet paradise 3200m²

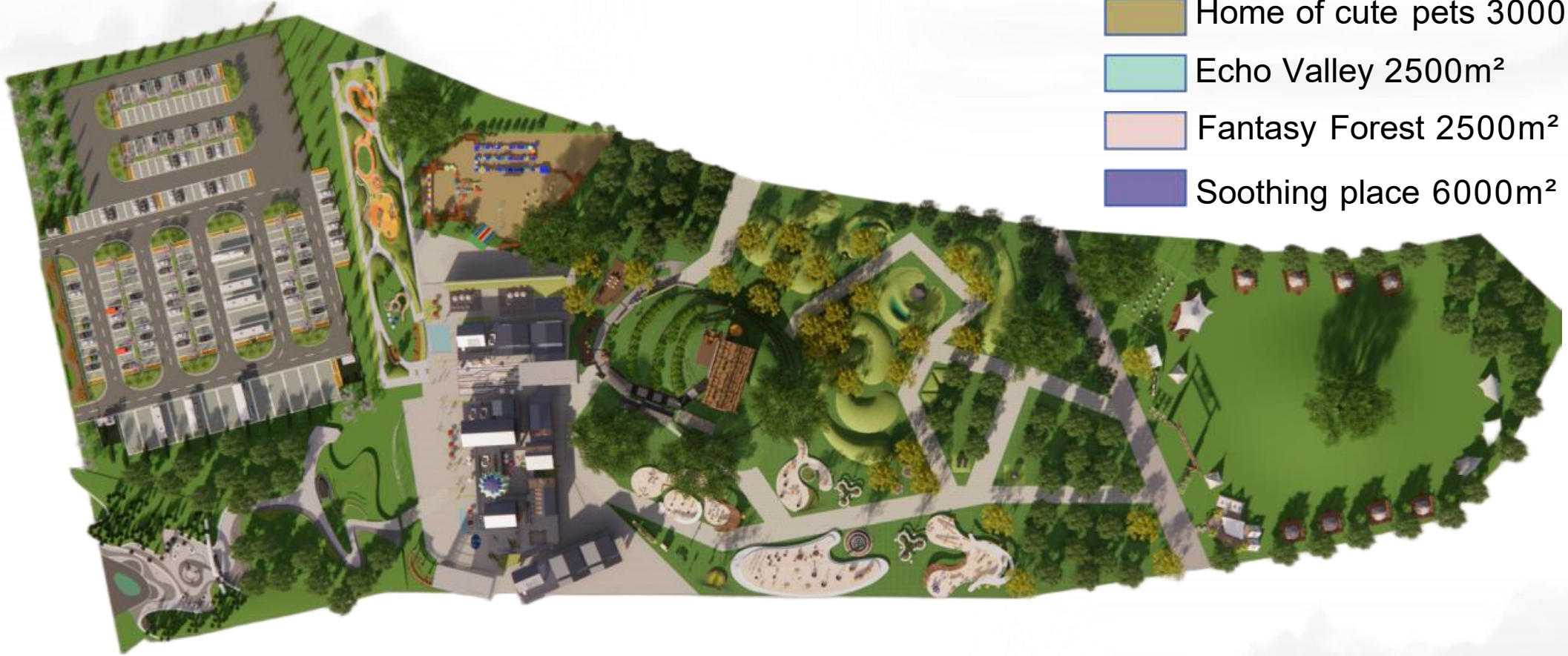


- Main road
- Water Marsh Illusion 1500m²
- Entrance area 3000m²
- Tea Spirits Heart Words 2000m²
- Home of cute pets 3000m²
- Echo Valley 2500m²
- Fantasy Forest 2500m²
- Soothing place 6000m²

six

Rendering





- Water Marsh Illusion 1500m²
- Entrance area 3000m²
- Tea Spirits Heart Words 2000m²
- Home of cute pets 3000m²
- Echo Valley 2500m²
- Fantasy Forest 2500m²
- Soothing place 6000m²

Floor plan



This area is primarily used as the entrance to the park, providing an introduction to the amusement park and its activities for visitors and children, as well as guiding them on how to reach the final challenge.



This area is primarily used for visitor parking, as there are no parking spaces around the park, so a parking lot has been set up next to the park.



This is the first area upon entering the park gate, commonly known as the commercial zone, where visitors can shop, dine, and more. The most important aspect is providing visitors with the park's map and the locations of various hidden quests, as well as serving as a badge collection point, making it convenient for visitors to return for a second visit.



This is a small pocket park and the first task location, where children need to complete various mini-challenges with their parents' accompaniment. Upon finishing tasks, they will receive task item cards to proceed to the next level, enhancing their coordination and bonding with parents.



This level is primarily open during the summer and is a special level unique to the season. Children need to accompany their parents to catch two small fish in the water and then exchange them with an NPC for a prop card. Children who are not strong swimmers can also participate in small water-based tasks to obtain prop cards for the next level. Since it is a special level, special prizes are available.



This area is primarily designed for parents' tasks and can also serve as a rest zone. Parents are required to enjoy tea here, learn tea-growing knowledge from tea farmers, and complete an exam together with their children to proceed to the next level. This level mainly functions as a rest stop, and upon completion, a local specialty tea will be awarded.



This level is mainly about teaching children to pay attention to small animals. Various animals will be arranged here to interact with kids and parents, and taking photos with different small pets will earn different clue cards to search for items.



This area is where visitors exchange their previously obtained task cards and item cards for the props needed in the final stage, as well as food and water for the last stage's rest. The merchant will pose questions, and only those who answer correctly can proceed to the next stage.



This is the small forest maze leading to the final level. Unlike before, there are no signs here, and parents and children must work together to find the door to the last level to complete the task.



This is the final stage, a group camping activity, where participants need to bring their passes from previous stages to attend the celebration ceremony. Both parents and children are welcome to watch the performances, offering a chance to relax and strengthen their bond.

Ask the teacher to criticize
and correct

