IFLA ASIA-PAC LA Awards 2023
Award Categories – Cultural and Urban Landscape

PROJECT BINDER

Coexistence with the Nature

North Office Park of Zhejiang University International Campus in Haining

Project Name	:	North Office Park of Zhejiang University International Campus in Haining
Project Address	:	Juanhu Lake International Science Park,Haining,Zhejiang,China
Area (sq.m)	:	102851 sq.m
Year of Completion	:	June,2021

Project Statement

This is an ecological landscape architecture project for the office park located at the north of Zhejiang University International Campus in Haining (hereinafter: ZJU International Campus). It was designed with a focus on creating an excellent ecological office park by the microclimate as the foundation, plant phenology as the guide, and water purification systems as the medium. Through this project, the ecological value of the park has been increased, effectively achieving its positive ecological impact on the surrounding environment and society. It provides an open, inclusive, comfortable and natural working environment for technological talents working here, maximizing the use of natural elements to enhance their creativity, concentration, and innovative abilities. This eco-friendly site is designed for all the people working here to coexist harmoniously with nature.

This best workplace that maximizes ecosystem service value is built on five principles: sustainable development, a connection to nature, outdoor comfort, diverse working environments, and a sense of belonging to the office park.

Project Narrative

Project Background

The project site is located in the core area of Juanhu Lake International Science Park in Haining. With a total area of approximately 10 hectares, it is the first phase of the startup area in the science park, which aims to create a high-end research and development demonstration base in Haining. Juanhu Lake International Science Park is located in the eastern urban cluster of Haining, with a planned area of 23.3 square kilometers and a core area of 7.18 square kilometers. Relying on the scientific and technological innovation advantages of Zhejiang University and ZJU International Campus, the science park aims to create a high-end gathering place for scientific and technological elements that integrates R&D design, intelligent manufacturing, entrepreneurial incubation, S&T finance, and international exchange, in accordance with the overall requirements on "ecological, intelligent, international and high-end" aspects.

The ecological and textural characteristics of the mulberry fish ponds on the site are typical in the Yangtze River Delta region, representing a unique form of agricultural production. Although the existing ecological foundation was relatively good on the site, the ecological attributes of the vegetation needed further improvement. Additionally, its surrounding water quality is poor and the site is adjacent to the Changshan River, which poses a risk of external flooding and internal waterlogging. The positioning of International Wetland Science Innovation Area requires the site to satisfy both the development and construction of scientific innovative land use and the social responsibility for ecological services simultaneously. The main challenge for the designers was to balance these two requirements and make them complementary.

After analyzing and discussing the project background as mentioned above, the designers have decided to create the best workplace that maximizes ecosystem service value through five principles: sustainable development, a close approach to nature, outdoor comfort, diverse working environments, and a sense of belonging to the office park.

Sustainable Development

By the latest related knowledge, the north office park of ZJU International Campus was designed to create a demonstrative base for sustainable development that adapts to climate change and responds to social responsibility.

Low-impact development techniques were employed for rainwater management in the park, combining sunken green spaces, permeable paving and other rainwater collection facilities to effectively collect and control rainwater. This helped to purify water quality, improve the water environment, and alleviate flood pressure. The designers managed the amount of rainwater left on the site by controlling the rainwater that falls on roofs and roads, treating it with pre-treatment devices, a rainwater storage tank, a rainwater treatment system, and a clean water tank. Finally, they were able to achieve the reuse of clean water. This helps prevent flooding and pollution. In addition, the designers dredged and interconnected the fish ponds on the site, enlarging the flow range of the water body, and facilitating the exchange of aquatic life. These minor improvements successfully reconstructed the water ecology system on the entire site and its surrounding area. The construction of wetlands also plays an important role in buffering against the annual flood of Changshan River.

Moreover, the construction of a low-carbon office park was achieved through the use of energy-efficient building materials and lighting, as well as incorporating recycled materials into the landscape furniture.

Approach to Nature

The entire park well integrated the buildings into the nature, providing those whowork here with the opportunity to coexist harmoniously with nature.

The site had a strong foundation of nature, and the designers strictly preserved the existing plants and ecological embankments. Meanwhile, the designers planted water plants with the ability to purify water quality om the wetlands. With respect for the site’s existing condition, boardwalks, pavilions and waterfront platforms were constructed, allowing people to enjoy the fresh and pleasant natural air freely.

Designers preserved the existing ecological base while adopting diverse planting methods for different plots, creating a natural ambience that offers people a variety of experiences.

Outdoor Comfort

The best outdoor comfort of the park is ensured by optimizing the microclimate. This further ensures a pleasant natural environment for year-round team collaboration, outdoor meetings, and stimulates people's creativity and innovative ability.

Haining, located near the 30°N latitude in Yangtze River Delta region, is heavily influenced by the subtropical high-pressure belt in summer, resulting in hot and humid climate; and is controlled by the sub-Arctic continental air mass in winter, bringing dry and cold weather. Overall, the seasons are distinct, with long winters and summers, shorter springs and autumns. Accordingly, the designers needed to consider how to provide a high-quality comfortable outdoor working environment for the technology companies and talents working here, making the park a

platform for these individuals to inspire their creativity and demonstrate their abilities.
According to the UTCI index for microclimate regulation, the on-site conditions are primarily influenced by local weather factors, such as wind direction, temperature, humidity, and solar radiation. A north-south wind corridor was designed to introduce fresh river breeze, enhance air circulation, and stabilize temperature on the site. The water body microclimate contributes to a more stable local temperature and provides more reasonable humidity and negative oxygen ions. Proper management of solar radiation is also crucial to achieving outdoor comfort. Trees with dense shade in summer and deciduous leaves in winter were chosen for the site. They are expected to provide shade for the site during the hot summer and receive as much sunlight as possible during the dry and cold winter. The obvious seasonal changes of the trees are also the best landscaping technique: as the climate changes, the color of the leaves changes from green to yellow and then to red, creating a poetic and romantic ambience for city dwellers. In dry and cold winters, the cool sunshine and umbrella-shaped bare branches highlight the seasonal atmosphere, allowing park users to perceive the differences between the four seasons and seasonal transitions.

Materials and colors are also important factors affecting microclimate. The human body's perceived temperature is jointly determined by the mean radiant temperature (MRT) generated by sky radiation and surface radiation. Hence, paving materials with high reflectivity and low absorptivity should be used in areas with high solar radiation, while in areas with low solar radiation, paving materials with low reflectivity and high absorptivity should be used.

Diverse Working Environments

Diverse outdoor working environments - under the shade of trees, on the grass, by the riverbank, in the garden - have been created for people working in the park. Instead of being confined to indoor offices, the talents here can enjoy thinking, discussing and relaxing in various desired natural settings.

Sense of Belonging

The designers have also fostered a sense of belonging in the park by preserving native trees on the site, designing unique site sculptures, and integrating landscape techniques into the natural environment. The preservation of a large number of trees in the north wetland serves as a reminder and tribute to the people who previously worked in this area. A landmark sculpture, designed using basic forms of circles and squares, has been placed in the center of the Elm Square., becoming a spiritual landmark of the park. The magnificent sunset scenery reflecting onto the waterscape seamlessly integrates with the surrounding landscapes, creating a unique and beautiful memory of the park.

Social Significance

This project well integrates ecological elements into the office park, creating the best workplace that maximizes the ecosystem service value through harmonious interaction between the environment and people. Consequently, the increase in ecological value leads to an increase in production value, ultimately achieving the goal of establishing a science and technology entrepreneurship park on the site.

01 Central Pedestrian Entrance
02 Central Sculpture
03 Juglans Regia Square
04 Wooden Plank Road
05 Aterfront Platform
06 Scenic Pavilion
07 Wetland Garden
08 East Entrance
09 Entrance Waterscape
10 Sophora japonica courtyard
11 The East Office Cluster
12 The West Office Cluster
13 The Northern Office Cluster
14 The Southern Office Cluster
15 Municipal Road

Site plan: With a total area of approximately 10 hectares adjacent to Changshan River, the project site is a part of Juanhu Lake Imternational Science Park. The Science Park is located in the eastern urban cluster of Haining.

SITE CHALLENGES


BIOLOGICAL INVASIONS


FLOODING


POOR WATER QUALITY

OFFICE PARK

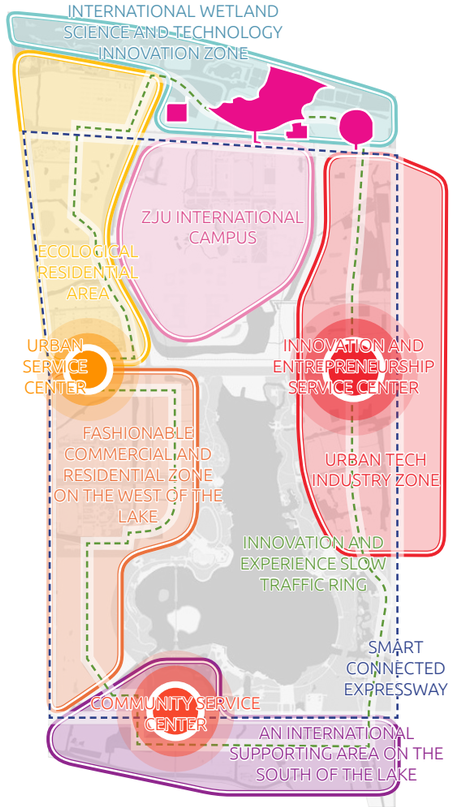
LAND USE IS DOMINATED BY GREENFIELD AND COMMERCIAL SITES

LAND USE PLANNING

NORTH OF ZJU

THE POSITIONING OF INTERNATIONAL SCIENTIFIC RESEARCH WETLANDS

PLANNING FRAMEWORK



BIOINVASIONS

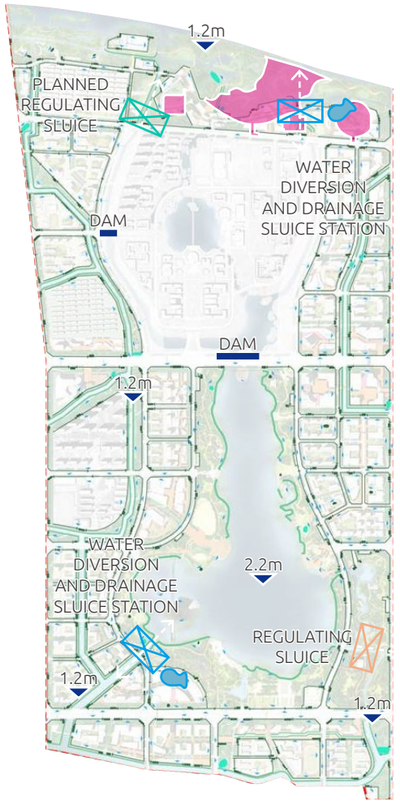
THE ECOLOGICAL NATURE OF THE VEGETATION NEEDS TO BE ENHANCED

VEGETATION

FLOODING RISK

WATER FACILITIES NEED TO BE IMPROVED AND THERE IS A RISK OF FLOODING DURING HEAVY RAINFALL

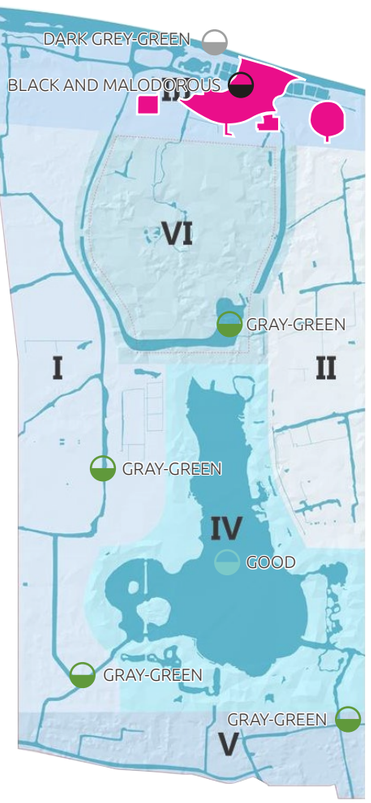
WATER SYSTEM



BAD QUALITY

POOR WATER QUALITY DUE TO THE INDUSTRIAL PARK ON THE NORTH SIDE

HYDROLOGICAL CONDITIONS



High-level planning and current situation: According to the planning, the site was designated as an office park. Due to major risks of external flooding, internal waterlogging and poor water quality, the existing situation calls for vegetation and ecologicalattribute improvement.

Vision: To create the best workplace that maximizes ecosystem service value through five principles: sustainable development, a close approach to nature, outdoor comfort, diverse working environment, and a sense of belonging to the office park.

Sustainable Development: Low-impact development techniques have been employed for rainwater management in the park, in order to purify water quality and improve the water environment on the site.

Sustainable Development: The construction of a low-carbon office park was achieved through the use of low-energy building materials, energy-efficient lighting, and recycled materials for landscape furniture.

Approach to Nature: The site had a strong foundation in nature, and the designers strictly preserved the existing plants and ecological embankments. People can freely enjoy the fresh and pleasant natural air in the park.

SIMPLICITY

PLANT LANDSCAPE IN OFFICE PARK


CELTIS SINENSIS


JUGLANS MANDSHURICA


ECHINOCHLOA CRUS-GALLI

COLORFUL

PLANT LANDSCAPE IN COURTYARD SPACE


STRELITZIA REGINAE


TAGETES ERECTA


IMPATIENS BALSAMINA


MICHAELMAS DAISY

ECOLOGICAL

PLANT LANDSCAPE IN WETLAND AREA


BALD CYPRESS


PHYLLOSTACHYS PRAECOX


POTENTILLA ANSERINA


RHODODENDRON SIMSII


NELUMBO NUCIFERA

Approach to Nature: Native tree species were planted and different planting methods were adopted for different plots to create diverse natural environment and provide people with diverse natural experiences.

Outdoor Comfort: According to UTCI index for microclimate regulation, on-site conditions are affected by local weather factors such as wind direction, temperature, humidity, and solar radiation. Diverse techniques have been adopted to regulate microclimate, so as to enhance outdoor comfort.

Outdoor Comfort: The oxygen produced by plants helps people feel comfortable, while the seasonal reflection of sunlight by plants helps maintain a pleasant temperature. Paving materials are selected by solar radiation to maintain a reasonable ambient temperature.

Diverse Working Environments: Various outdoor spaces provide diverse working environments for individuals working here. Rather than being confined to indoor offices, they can enjoy thinking, discussing and relaxing in various desired natural settings.

Sense of Belonging: An iconic sculpture, resembling a megaphone, symbolizes interaction and communication, making it a spiritual landmark of the park. The magnificent sunset scenery reflected onto the waterscape creates a unique and beautiful memory of the park.