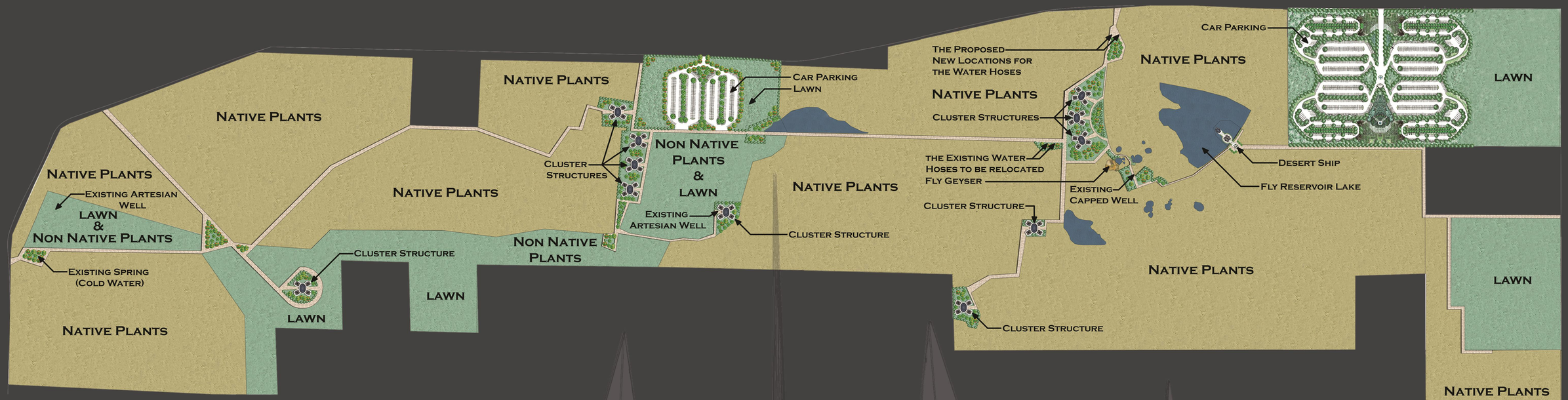


Fly Ranch Botanical Garden

Most people think Fly Ranch is a barren desert, but it is one of the largest water reservoirs in northern Nevada and home to dozens of hot and cold springs, three geysers, and hundreds of wetlands acres. It also has 107 identified different plant species, with quite a few more still unidentified. To make Fly Ranch's nature and plant diversity known to the public, comes the idea of designing a botanical garden, which also plays a central role in meeting human needs, and providing well-being.

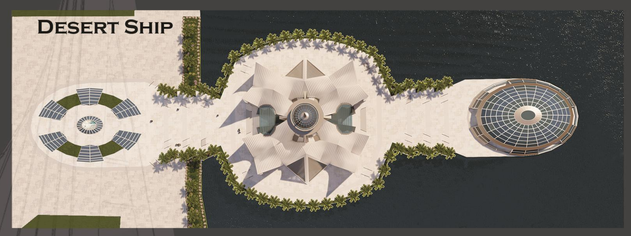
There are three distinct area types that define Fly Ranch's site boundary:

- Primary Site Boundary: Contains Desert Ship and the Cluster Structure buildings.The remaining areas can be used for landscaping, non-native agriculture, and site routes.
- Low-Impact Site Boundary: Contains low-impact landscaping areas, non-native gardens, and car parking areas.
- Conservation Area: Contains natural native plants and springs for Fly Ranch. No construction will take place in this area.

TECHNOLOGY USED

1. SOLAR PANEL SYSTEM (POWER): With over 250 sunny days a year in Fly Ranch, a solar panel system becomes a great investment that can provide on-site renewable energy sources for the next 25 years or more.
The solar panels in this system are paired with a hybrid inverter and a battery to save more energy for future use. The hybrid inverter combines two separate components, a solar inverter, and a battery inverter, into a single piece of equipment, so that it can function as both an inverter for electricity from the solar panels and a solar battery.
Solar panels require very little maintenance to function; the only thing they need is a periodic light cleaning to make sure dirt, leaves, and other debris are not obstructing sunrays.
This system achieves a net-zero energy state annually; the collected energy will be used for all project needs. LED and Laser lights are recommended for the interior and exterior lighting systems to save energy.
The total energy harvested by the solar panel systems used in this project is 2,844,309.1Kwh per year.

2. WATER HARVESTING SYSTEMS (WATER): With several hot and cold springs, many pools, and artesian wells, water is the lifeblood of Fly Ranch. It rains every year in Fly Ranch, but the rains are typically short and dry out quickly, although, in 2014, a full day of rain was observed. Two water harvesting systems are used in this project, one to collect rainwater and the other is to collect groundwater. Both systems are used to efficiently capture, store, treat, filter, and deliver non-potable water for a variety of end uses, including irrigation, restrooms, and more. The collected rainwater will go through a tube to an underground rainwater storage tank. The groundwater is extracted through a well drilled into the aquifer and brought to an underground groundwater storage tank by a pump. In addition to the collected water, the buildings, gardens, and landscaping can be connected to the site's existing water line to draw water when needed. The trucks currently fill up with water to supply Black Rock City from the existing water hoses location. These need to be relocated to prevent trucks from accessing deep into the project.



3. GLASSHOUSES (FOOD): Glasshouses are high tech production facilities for vegetables, fruits, and flowers, which can be used as a food source. It is made chiefly of transparent glass, which contains plants that require regulated climatic conditions. The interior of a glasshouse becomes significantly warmer than the external temperature when exposed to sunlight, thus protecting its contents in cold weather. These glasshouses are filled with equipment, including screening installations, heating, cooling, and lighting, which are controlled by a computer to optimize conditions for plant growth. Different techniques such as air temperature, relative humidity, and vapor-pressure deficit are then used to evaluate optimality degrees and comfort ratio of glasshouses in order to reduce production risk before cultivating a specific crop.

4. SUSTAINABLE ARCHITECTURE AND ENTERTAINMENT COVERED SPACES (SHELTER):

Desert Ship

and

Cluster Structure