

MoonBathing: A Night Park for Sea Island

by

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Abstract

The public park at night is recognized as a dangerous place in many urban cities in the world. This view overlooks countless opportunities for community development, appreciation of nature within urban context, and enrichment of public space through the phenomenology of night. This project reviews possibilities of introducing night activities to the public park, and rethinks active public space at night. The goal of this project is to introduce night use of a public park that is accessible from an urban setting.

Table of Contents

Abstract	ii
Table of Contents	iii
List of Figures	v
Acknowledgements	vii
Chapter 1 Theoretical Framework	1
1.1 Night Logic	2
1.1.1 Darkness as Origin of Life	2
1.1.2 Cosmic Region	2
1.1.3 Night and Death	3
1.1.4 Sacred Time	4
1.2 Phenomenology of Night	5
1.2.1 Darkness	5
1.2.2 Shadow	5
1.2.3 Light	5
1.2.4 Fire	6
Chapter 2 Site Analysis	7
2.1 Site Criteria	8
2.2 Physical Context	9
2.2.1 Context Map	9
2.2.2 Accessibility	10
2.2.3 Land Ownership	11
2.2.4 Land Use Regulations	12
2.3 Historic Layers	13
2.3.1 Life of Coast Salish	13
2.3.2 European Settlement	15
2.3.3 Geographical Change of Sea Island	17
2.4 Natural Environment	18
2.4.1 Moon and Sun	19
2.4.2 Stars	20
2.4.3 Climate	21
2.4.4 Aquatic Environment	22
2.4.5 Existing Plants and Soil	23
Chapter 3 Design Proposal	25
3.1 Design Overview	26
3.2 Spacial Organization	27
3.2.1 Destinations	27
3.2.2 Connections	28
3.3 Program	30

3.3.1 In the Context of the City	30
3.3.2 Physical Site	33
3.4 Material Selection	34
3.4.1 Hard Material	34
3.4.2 Plant Material	35
3.5 Design Interventions	37
3.5.1 Entrance Transition	37
3.5.2 Festival Area	40
3.5.3 The Walks	43
Chapter 4 Concluding Remarks	46
Bibliography	48
Appendix / Presentation Boards	50
Appendix A Master Plan	51
Appendix B Entrance Transition	52
Appendix C Festival Area	53
Appendix D Festival Area Details	54
Appendix E Firefly Garden to Moon Dew Pond	55
Appendix F Leaf Pergola to North Star Island	56
Appendix G Astral Field to Whispering Pathway	57

List of Figures

Figure 1	Zingu Bosatsu, Kiyomizu Temple	2
Figure 2	William Blake, Jacob's Dream	2
Figure 3	Tsukiyama Jinja, Moon Shrine	2
Figure 4	Moon God, Sin, Harran	2
Figure 5	Moon God, Thoth, Egypt	3
Figure 6	Moon Goddess, Lx Chel, Maya	3
Figure 7	Silver Boots, Chimu Kingdom	3
Figure 8	Mortuary Temple of Queen Hatshepsut, Necropolis	3
Figure 9	Stonehenge, England	4
Figure 10	Chichen Itza, Mexico	4
Figure 11	Shugakuin, Japan	5
Figure 12	Shadows on a Wall, Daitokuji	5
Figure 13	Tadao Ando, Church of Light	5
Figure 14	Van Gogh, Starry Night	6
Figure 15	Daimonji Yaki, Japan	6
Figure 16	Context Map	9
Figure 17	Detailed Context Map	9
Figure 18	Accessibility Map	10
Figure 19	Land Ownership Map	11
Figure 20	Zoning Map	11
Figure 21	Land Use Regulations Map	12
Figure 22	Musqueam Settlement on Sea Island	13
Figure 23	Musqueam House and Canou	13
Figure 24	Musqueam Berry Basket	13
Figure 25	Musqueam Woman Spinning	14
Figure 26	Hugh McRoberts	15
Figure 27	Hugh McRoberts's First House on Sea Island	15
Figure 28	The Sea Island Presbyterian Church	15
Figure 29	Fraser Farm	16
Figure 30	Vancouver Civic Airport	16
Figure 31	Vancouver International Airport Concept Plan	16
Figure 32	Historical Maps	17
Figure 33	Moon Chart	19
Figure 34	Sun Chart	19
Figure 35	Star Chart	20
Figure 36	Temperature	21
Figure 37	Precipitation	21
Figure 38	Wind Diagram	21
Figure 39	Riverine and Estuarine	22
Figure 40	Existing Trees and Shrubs	23
Figure 41	Existing Herbaceous Plants	24
Figure 42	Destinations Diagram	29
Figure 43	Connections Diagram	29
Figure 44	Chinese Lantern Festival, China	30
Figure 45	Parade of Lost Souls, Vancouver	30
Figure 46	Light on Shoes	30

Figure 47	Loy Krathong, Thailand	30
Figure 48	Halloween	30
Figure 49	Night Flowering Evening Primrose	31
Figure 50	Celebration of Light, Vancouver	31
Figure 51	3D Movies on Fog, Finland	31
Figure 52	Chinese Funeral Procession, Vancouver	31
Figure 53	Mass for Tsunami Victims, Thailand	31
Figure 54	Pine Trees at Daitokuji, Japan	32
Figure 55	Snowy Owl	32
Figure 56	Comet Bennet	32
Figure 57	Cai Guo-Qiang, France	32
Figure 58	Ukai, Night Fishing, Japan	32
Figure 59	Lantern Pavilion Program	33
Figure 60	Silver Log	34
Figure 61	White Oyster Shell	34
Figure 62	Glasphalt as Stars in the Sky	34
Figure 63	Black Slate	34
Figure 64	Burnt Log	34
Figure 65	Rusted Corten	34
Figure 66	Vegetation Map	35
Figure 67	Silver Bark of Paper Birch	36
Figure 68	Cedar Forest	36
Figure 69	Mock Orange	36
Figure 70	Pacific Dogwood	36
Figure 71	Field of Clover	36
Figure 72	LED Light on Wire	37
Figure 73	Emily Carr, Forest, British Columbia	37
Figure 74	Trees Casting Shadows on Water	37
Figure 75	Light Through the Woven Basket	40
Figure 76	Layers of Leaves	40
Figure 77	Lantern Pavilion, Closed	40
Figure 78	Lantern Pavilion, Open	40
Figure 79	Torch Pier	42
Figure 80	LED Light as Firefly	44
Figure 81	Leaf Pergola	44
Figure 82	North Pavilion	44
Figure 83	David Nash, Burnt Log Steps	44

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Thank you very much.

Chapter 1 Theoretical Frame Work

1.1 Night Logic

1.1.1 Darkness as Origin of Life

The darkness represents the start and the end of life, just as people are born from a dark womb to a world of light and go back to the dark earth at the end of their life.

In traditional Japanese culture, the transition from darkness to light represents the experience of birth. Kiyomizu Temple provides complete darkness to recreate the experience of death and rebirth. The completely dark underground space refers to the womb of the Zuigu Bosatsu, the Goddess of Mercy (Figure 1). By going into and passing through the dark room, people are said to experience death and being born again.

Life starts from the darkness and comes back to the darkness and restarts from the darkness. It is like night and day. The sunrise is a birth and the sunset a death and one allows the other.

1.1.2 Cosmic Region

Both night and day and their celestial representatives, the sun, the moon, and the stars have been worshipped in some form by all people of the world. (Figure 2) Their absolute power is described by Micea Eliade, who writes "It (the sky) exists absolutely because it is high, infinite, eternal, powerful." (Eliade, 119). The sun and moon were considered as the most important symbols of day and night sky and their transcendent power is believed to control life and death.

Moon Worship

The power of moon is perceived in different ways.

The beautiful shining object in the dark sky was believed to have positive powers. In the city of Harran in Turkey, the Moon God, Sin (Figure 4), was called the Lamp of Heaven who protected human lives from the disease and chaos. The cycle of waxing and waning is compared to people's life and death and resurrection. In the Moon Cult in Japan, (Figure 3) people believe they can receive eternal life by drinking water from the moon, while in African Bushman's mythology, the moon has the power to bring people back to life.

On the other hand, as the word "lunatic" suggests, some have also believed that the moon has negative power over people. Ideas like this are reflected in contemporary representation of werewolves and similar nocturnal monsters that draw their power from the



Figure 1
Zuigu Bosatsu, Kiyomizu Temple

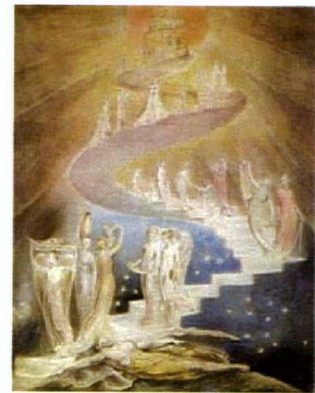


Figure 2
William Blake, Jacob's Dream



Figure 3
Tsukiyama Jinja, Moon Shrine



Figure 4
Moon God, Sin, Harran

moon.

Different cultures around the world associate the moon with different genders. The silver light of the moon was perceived as masculine (Figure 5). Other cultures have imagined the moon to be a female deity (Figure 6). Waxing and waning was compared to female emotions by eastern First Nations like the Delaware, Huron, Iroquois, Lenape and Wyandot. Also the moon's gender changed by its shape. The roundness describes as a pregnant woman and the crescent shape describes male gender.

Lunar symbolism has enabled man to relate and connect such heterogeneous things as birth, becoming death, and resurrection (Eliade, 1956).

Shining materials are believed to capture the power of moon and sun. For the Inca, silver was considered the tears of moon. At Chimú Kingdom in Peru, silver boots (Figure 7) were found that are believed to have been used in the moon-related ceremonies.

Star worship

Stars are also considered important elements at night. The North Star is a special star for many peoples. While North Star stays fixed at the center of the night sky while all the other stars rotate around. This makes the North Star a sacred directional guide, or, for some cultures, the god of the night sky. In China, the North Star was the god that controls night and death. Pawnee also believed night is a place for the dead and the stars are their souls. Instead of burials, they placed their dead on high place to be close to the stars. They believed that at the end of the world, everyone becomes stars. Dark night sky was closely tied to the world after the death.

1.1.3 Night and Death

Night is often used as a metaphor for death. The Necropolis (Figure 8), city of dead, in Egypt, was situated the west of the River Nile, where the sun sets and day ends. The city of living was placed on the east side, where sun rises and night is pushed away.

In many cultures, night festivals are a time to have conversation with the world of dead. North American Native groups, such as Haida, Kwakiutl, Tlingit and Tsimshian enjoyed the night ceremonies in the dark months of the winter. The ceremonies were an



Figure 5
Moon God, Thoth, Egypt

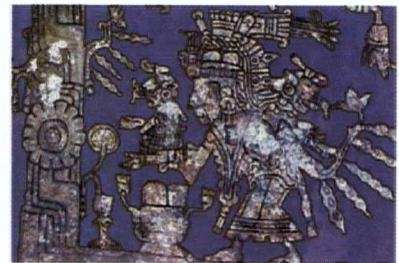


Figure 6
Moon Goddess, Lx Chel, Maya



Figure 7
Silver Boots, Chimú Kingdom



Figure 8
Mortuary Temple of Queen
Hatshepsut, Necropolis

opportunity for the living to visit dead friends and ancestors. During Dia de los Muertes, a holiday tracing back to Mesoamerican native traditions, Mexican families picnic on the graves of their ancestors and celebrate late into the night.

1.1.4 Sacred Time

Concept of time and its measurement started from moon and star symbolism. It is said that the monolithic stones at Stonehenge in England were placed to relate specific time of the year. (Figure 9) Inuit predicted when caribou migrated or fish shoals appeared by the position of the stars. Similar to Inuit, agricultural societies like the Algonkian, Chipewa, and Nascopie analysed stars to know when to sow and harvest crops. Mayan people in Chichen Itza, Mexico (Figure 10) had highly precise technology for observing the cycle of the stars and phases of the moon, with which they measured time. Aztec culture is also well known of their advanced understanding of astronomy. Understanding the cycle of time was very important for their agricultural life. In their calendar, each hour and day had patron deities who were related with agriculture and natural phenomena. The night gods, such as Mictlantecutli (God of Death) and Xiuhtecutli (God of Fire) characterizes their spiritual conversation with the night. A moon calendar was first developed in Mesopotamia, where the Moon God was seen as the Lord of the Month. A lunar calendar is still widely used in Islamic and Asian Countries. The moon is key to the imagination of time everywhere the word "moon" forms the root of the word "month" not only in English, but also in Chinese and Japanese.



Figure 9
Stonehenge, England



Figure 10
Chichen Itza, Mexico

1.2 Phenomenology of Night

1.2.1 Darkness

Darkness is an imaginative opportunity given by the night.

Eighty percent of the information we gather from our senses comes through eyesight. Losing eyesight in the darkness leads to feelings of disorientation, fear, and insecurity. However, when people lose eyesight, the other four senses greatly improve. Dialogue in the Dark was started in 1989 by German doctor, Andreas Heinecke. The exhibition is designed to allow people to experience sound, smell, touch, and taste without sight. People walk in the completely dark exhibition space, direct themselves by listening to the flow of water, cross a bridge using sticks, and drink wine at an invisible bar. In this world, blind people work as guides, navigating the sighted through a blackened field. Most people realize towards the end that they can see without seeing. As Andreas Heinecke says, "Things are beautiful not only when they look beautiful."

1.2.2 Shadow

In fact, night is not complete darkness. It is created by countless layers of shadows. These are where the mystery and beauty of night is created. Junichiro Tanizaki describes his love of shadows. In his book, *In Praise of Shadows*, he writes, "We find beauty not in the thing itself but in the patterns of shadows, the light and the darkness, that one thing against another creates." (Tanizaki, 30) The layers of shadows, such as the corner of the room (Figure 11), the tree shadows against the wall (Figure 12), or in the forest, allows people to see the imaginative beauty of darkness. Henry Plummer also explains the dreaming experience or shaded space. "The lull of shadows evokes the quiet of nighttime, the stillness and coolness of a sleeping body, a nocturnal fatigue, but also an entry into a lost inner world, the world of our own inner blackness to which myth has been relegated today." (Plummer, 104)

1.2.3 Light

Within an ambiguous darkness, light captures imagination in a very powerful and poetic way. Christopher Alexander reads the human draw towards light where he says, "People are by nature phototropic—they move toward light, and when stationary, they orient themselves toward



Figure 11
Shugakuin, Japan



Figure 12
Shadows on a Wall, Daitokuji



Figure 13
Tadao Ando, Church of Light

the light." (Alexander) The church of the light by Tadao Ando (Figure 13) shows the power of light coming into a dark room. Light is a symbol of the relief from insecurity and the provision of warmth. Gaston Bachelard explains the longing after light and the fear of darkness when he writes, "a lamp is waiting in the window, and through it, the house, too, is waiting. The lamp is the symbol of prolonged waiting." (Bachelard, p34, 1958) The light in the darkness gives people the sense of protection and its allure captivates people. (Figure 14)

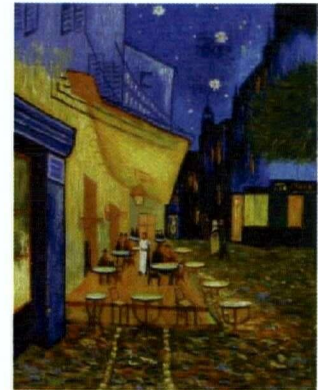


Figure 14
Van Gogh, Starry Night

1.2.4 Fire

Fire was believed to have an extra power that light doesn't have. It purifies souls and conquers the evil spirit that night brings. This makes fire a very common element to many rituals. Daimonji Yaki, in Japan is a giant fire lit to mark the end the week of the dead in summer. (Figure 15) The fire on the mountain guides dead souls back to the other world. At Dewali, Indian New Year's, candles are arranged around the house and fireworks and firecrackers are used to celebrate light and the eradication of evil spirits.

The attraction of fire is not only to its sacred power, but also to its warmth and comfort. It brings people together in the dark. It creates "a kind of extra pleasure" (Bachelard, p15, 1970). It enlivens decorations at festivals, gives extra flavour to barbeques, and creates relaxed atmosphere for conversation at night.



Figure 15
Daimonji Yaki, Japan

Chapter2 Site Analysis

2.1 Site Criteria

Darkness

The darkness is the most critical criteria for the night park to allow people to experience the mystery of the night. The most significant elements; the moon and the stars become powerful and spiritual only against the dark sky.

Location

The site must be accessible within half an hour from an urban centre. This ensures that the park is more convenient for people who may use the site after dinner on a regular basis, and also encourages better turn out to organized events.

Direct access to water

Water is an important part of the experience at night as a dark, reflective and imaginative substance. The site should have a direct access to the water or contain water within.

Existing park

The site should be an existing park to provide day activities and suggest alternative uses of the park.

Natural setting

The site must be adjacent to natural landscape to develop a strong spiritual quality.

Project site

The north tip of Sea Island was chosen as it best matched the above criteria.

2.2 Physical Context

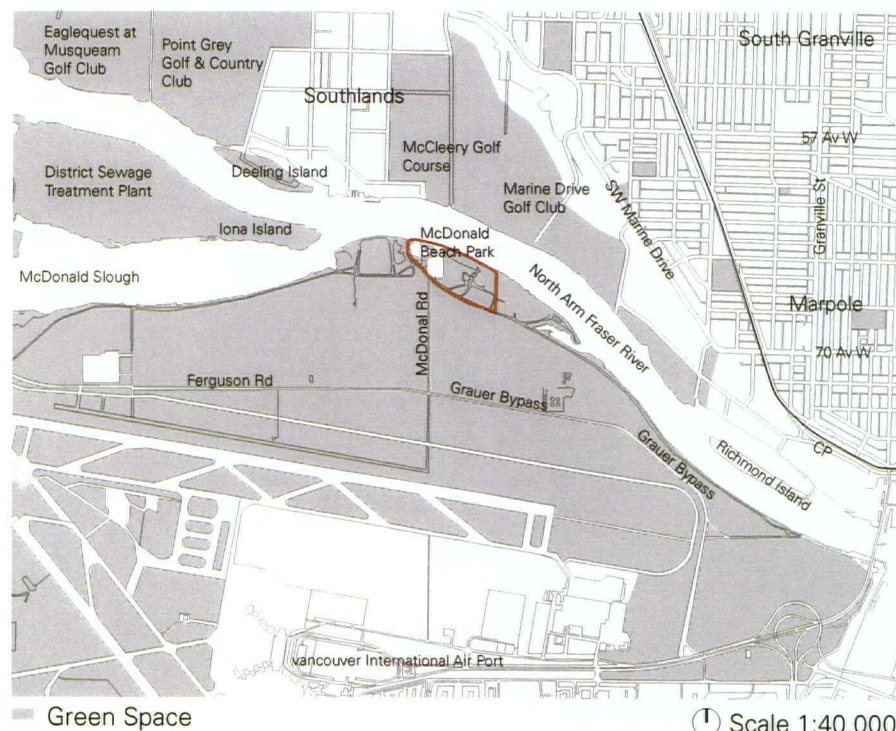
2.2.1 Context Map

McDonald Beach Park is located on the north edge of Sea Island in Richmond. A circle with a ten kilometre centered on the park encompasses most of the City of Vancouver and the City of Richmond. Despite its close proximity to urban centers, the park is bordered by the north arm of the Fraser River to the north and west, protected green space to the south and Iona Island to the west. The existing green spaces around the park make it dark enough to see stars at night. Both the convenient location and the natural context make McDonald Beach Park an ideal site for people to enjoy a dark night experience in a city.



⌚ Scale 1:500,000

Figure 16
Context Map



⌚ Scale 1:40,000

Figure 17
Detailed Context Map

2.2.2 Accessibility

Car is the easiest and most convenient way of coming the McDonald Beach Park in its existing condition. The closest major bus stop is about four kilometres away from the site. The existing trail along the park is only connected to a small parking lot that is two kilometres east to the park and not part of any other trail systems. The Richmond Airport Vancouver Rapid Transit Project (RAV project) may bring new access opportunities to the park, but the closest proposed stop will still be about three kilometres away.

For nighttime use, a car would be the best way of getting to the park for convenience and safety. However the trail system could be connected from Iona Island to the city of Richmond and Vancouver via McDonald Beach Park as a future consideration, which will also allow an immediate expansion of activities both day and night.



2.2.3 Land Ownership

Although most of Sea Island is owned by the Federal Government, McDonald Beach Park is owned by the City of Richmond. It suggests a possibility of adapting localized programmes in this park. The area directly east and west to the park is privately owned.

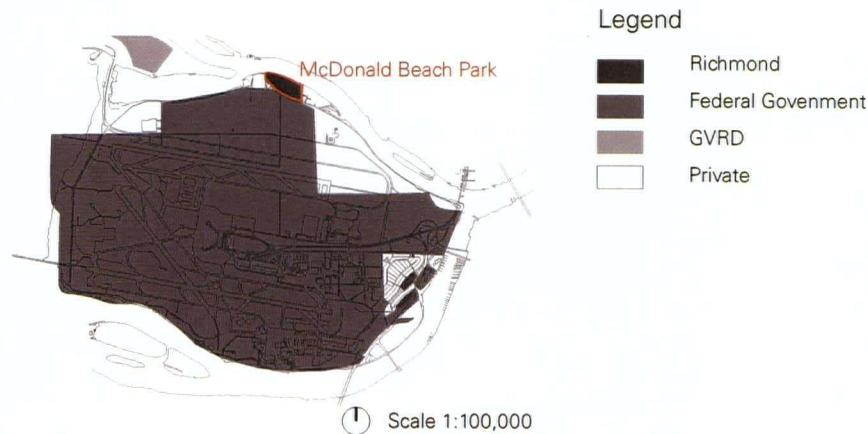


Figure 19 Land Ownership Map

Zoning

The Richmond Official Community Plan designates the McDonald Beach Park as a Public Open Space, which is defined as those areas of the city where the principal use is flexible, such as public or private recreation, parks, schools, religious facilities, public administration and city works, transportation, utilities, health-care facilities, or other institutions. The park is surrounded by a Conservation Area (Richmond Official Community Plan) to the south and a Limited Agriculture District (City of Vancouver Zoning District Plan) to the north. Both areas lessen the impact on noise and pollution from the residential, industrial or commercial areas, as well as from the Vancouver International Airport.

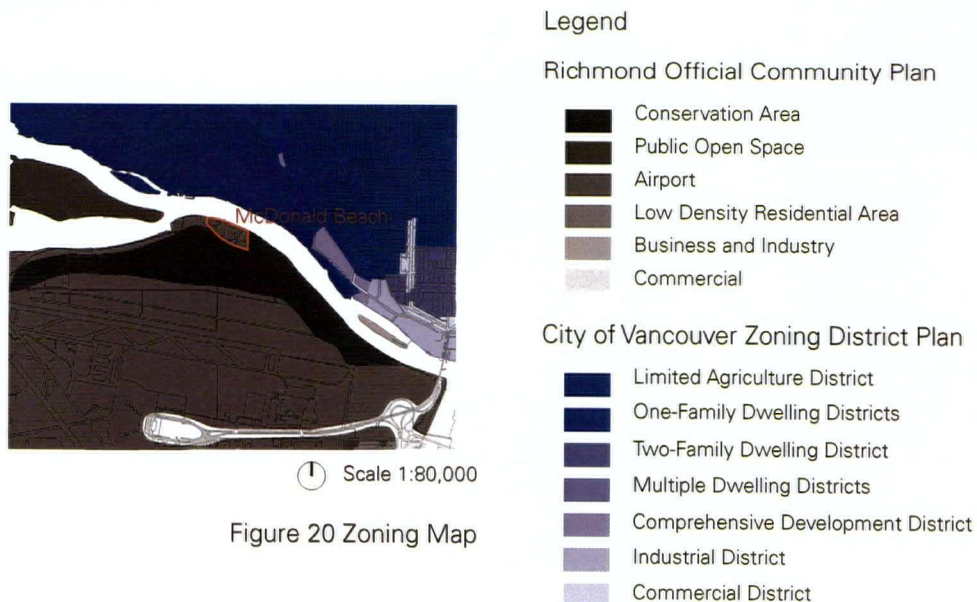


Figure 20 Zoning Map

2.2.4 Land Use Regulations

The site is covered by several regulations that protect the ecosystem and natural beauty. Regulations also protect the site from light pollution and disturbance from development, which will keep the site as an ideal place to enjoy night in a future.

The Environmentally Sensitive Area has a design guideline that this project will adhere to.

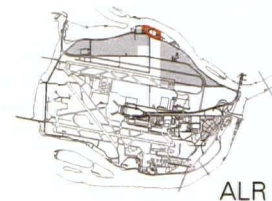
Environmentally Sensitive Area (ESA)

ESA is included in the Official Community Plan (OCP) to improve and protect environmental features that are sensitive to change. A Design Manual of ESA allows new development while protecting natural environment and controlling flooding in Richmond.



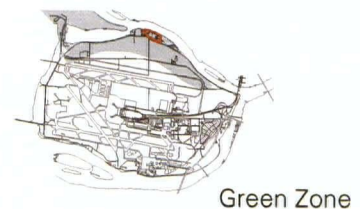
Agricultural Land Reserve (ALR)

ALR encourages the protection of agricultural land and maintains and enhances agricultural viability and productivity in Richmond. The regulation ensures that adjacent land use is compatible with farm uses and regulates its impacts on farmland.



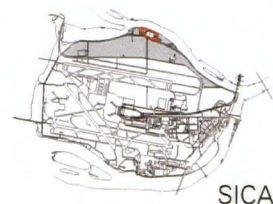
Green Zone

Green Zone is part of The Greater Vancouver Regional District (GVRD) Livable Region Strategic Plan (LRSP). The OCP also supports Green Zone. The focus of Green Zone is to identify and protect different types of natural land assets and resources including renewable resource lands, ecologically important lands and outdoor recreation and scenic lands



Sea Island Conservation Area (SICA)

SICA was applied by the Canadian Wildlife Service to minimize the impact of airport operations and development of the surrounding natural environment and community. The objective is mainly focused on protecting habitat and populations of wildlife from airport operations.



Scale 1:200,000

Figure 21
Land Use Regulations Map

2.3 Historic Layers

2.3.1 Life of Coast Salish

Ethnic Divisions and Their Territory on Sea Island

It is said that Musqueam people used Sea Island as a fishing, hunting, and gathering ground for more than 3000 years. The biggest Masqueam settlement was located on the southern shore of Point Gray, just across from the site. Smaller settlements were located on the west side of Sea Island (Figure 22). The site may have been used as a temporary hunting and gathering ground. The north-west corner of Sea Island was designated as Musqueam land in 1862, but most of the land was exchanged for land in Ladner due to the airport construction.



Figure 22
Musqueam Settlement on
Sea Island

Housing Types

The biggest Musqueam village, LeLt. in Point Gray was arranged in a semi-circular shape around a bay. The second biggest village, Winialts, consisted of a series of dwellings connected to form a linear building. The buildings were shed-like houses built from split cedar planks. They were divided into smaller spaces using woven mats or blankets. The houses were decorated with carved animal heads and human figures. The fronts of the houses were often painted with symbols representing the talent of the person living inside.



Figure 23
Musqueam House and Canoe

Fishing and Hunting

Fish was the staple food for Masqueam. They caught sturgeon, and salmon at north arm of the Fraser River. The northern half of Sea Island consisted of series of sloughs, which may have provided spawning habitat for salmon and transportation routes for canoes. People also hunted sea lion, seal, deer and beaver. Sometimes hunting was done at night using torches to lure game. Songs and ritual played an important role in calling on supernatural help to assist in the hunt.

Gathering

In spring, people harvested young shoots of thimble berries, horse tails and roots of various plants. In fall, berries, crabapples were collected using handcrafted cedar, cherry and birch baskets. The Masqueam called the western part of Sea Island 'blueberry forest'.



Figure 24
Musqueam Berry Basket

Weaving

Weaving and basket-making was traditionally a woman's job. They used mountain goat wool and dog hair to make blankets, robes and other garments. Mats were made from split cedar bark, cattails, and true reeds. They also used cedar roots and wild cherry bark for basket making. Some of the materials are still used by Salish weavers and basket makers. Indigenous material, such as mud, oregon grape root, lichen, and alder may be used for dyeing.

Night Dancing

During winter, ceremonies were held almost every night with singing and dancing. While sometimes these ceremonies held spiritual significance or marked important times in individuals' lives—the Musqueam puberty ceremony lasted three nights with people dancing all night—most of the time people used song and dance simply to fill the long and dark months with joy and activity.



Figure 25
Musqueam Woman Spinning

2.3.2 European Settlement

In 1791 Hugh McRoberts, the first European settler on Sea Island, began constructing dykes, cultivating land and harvesting crops. The population increased and the community developed with the establishment of a school and a church. The construction of bridges, demand for dairy products in Vancouver and new food preservation technologies helped agricultural and industrial practices flourish on Sea Island. While Sea Island was once dominated by farmland, since the first airport was built in 1931 its continuous expansion has slowly replaced previous uses.

Arrival of the European Settlers

- 1781-1782 Small pox epidemic decimated the Coast Salish.
- 1791 The first European found Sea Island. Simon Fraser reached the mouth of the north arm of Sea Island
- 1808 David Thompson (Hudson's Bay Company) named the Fraser River after Simon Fraser.
- 1814 Colony of Vancouver Island established.
- 1849 Captain George Henry Richards surveyed Sea Island.
- 1858 John Trutch surveyed Sea Island.
- 1859 Hugh McRoberts settled on northeast corner of Sea Island. His home was called "Richmond View". He first harvested wheat and first constructed dyke on Sea Island.
- 1861 Sea Island was known as McRoberts Island.



Figure 26
Hugh McRoberts



Figure 27
Hugh McRoberts's First House on Sea Island

Community Development

- 1862 Sea Island formally designated on British Admiralty charts
- 1866 Early settlement on Sea Island by Hugh Boyd and Alexander Kilgour
- 1879 Incorporation of the Municipality of Richmond.
- 1880 First municipal election and the council meeting.
- 1886 The Sea Island Presbyterian church is built. (Destroyed by fire in 1933 and not rebuild).
- 1889 The Marpole bridge, the first bridge connected Marpole, Sea Island and Lulu Island is opened.
- 1890-1900 Many Japanese immigrated and housed on the south of Sea Island
- 1890 The first school opened. (52 students in 1902, closed in 1914).



Figure 28
The Sea Island Presbyterian Church

Industrial and Agricultural Establishment

1890	Alexander Ewan and company started first Sea Island Cannery
1894-1899	Dinsmore Island Cannery, the Canadian Canning company, Acme canning company was built.
1894-1905	Much of dyking system was washed away
1914	Municipality of Richmond improved all the dykes to engineered standard.
1920s	From 1890 to 1954, dairy industry flourished on Sea Island by improvement of drainage system and expanding population in Vancouver.



Figure 29
Fraser Farm

Airport Construction

1931	Vancouver Civic Airport and Sea Plane Harbour Opened. (Previous landing field was located in Lansdowne Park, Lulu Island)
1939	The dairy farm was expropriated by the Federal Government due to the airport expansion.
1946	Cora Brown Subdivision was built due to a great housing shortage following WW2. (Taken over for expansion of the Vancouver International Airport in 1962)
1947	Burkeville became part of municipality of Richmond
1948	The airport was renamed Vancouver International Airport.
1953	The Federal Government funds east-west runway
1961	The new runway was completed.
1963	Sewage Treatment Plant was completed.
1968	Federal Government acquired 4,000 acres of land on Sea Island as an airport preserve. The Arthur Laing Bridge opened
1976	International Terminal Building at Vancouver International Airport opened
1990s	The park was owned by North Fraser Harbour Commission and was used to store sand dredged from the river.
1997	The area to the west of the park was used for landing fill used for the airport.
2009	Proposed operational date for 18 RAV line stations.
2020	Vancouver International Airport Extension slated for completion.



Figure 30
Vancouver Civic Airport



Figure 31
Vancouver International Airport
Concept Plan

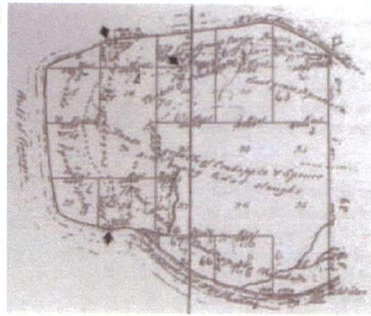
2.3.3 Geographical Change of Sea Island

In addition to the history of Sea Island, maps and aerial photos show change in geography and land use on Sea Island.

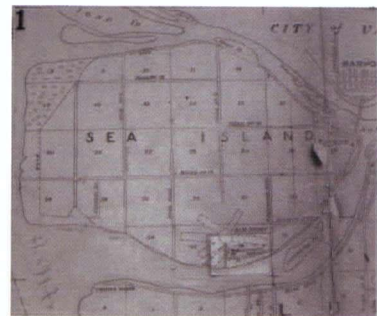
Over time, Sediment deposition from the Fraser River slowly expanded Sea Island while absorbing smaller islands around it. The McDonald Beach Park was once one of them. It used to be an independant island called Woods Island, as indicated in the 1938 map. Around 1940s to 1960s the island became part of Sea Island.

The 1940 map shows that the name McDonald likely came from the family who owned the north tip of Sea Island at the time.

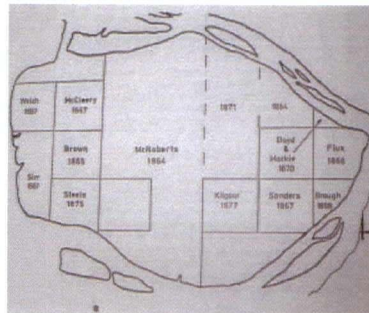
1858



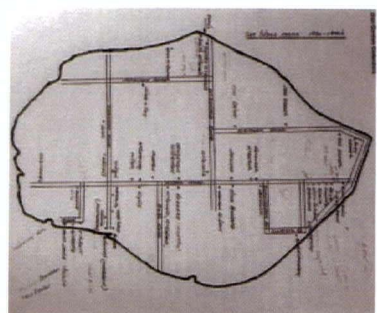
1938



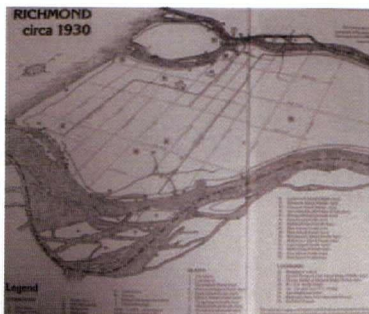
1871



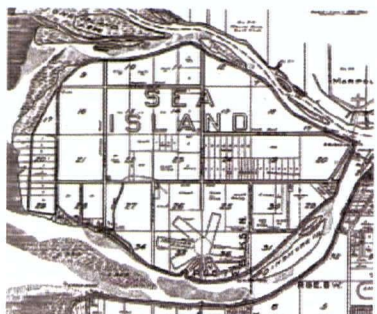
1940



1930



1942



The Major Change in Land Use

Airport expansion can be observed in sequence in the aerial photographs. In 1957 agricultural land dominates Sea Island and small portion of the land is occupied as an airport but by 2003, almost all of Sea Island has been converted to airport facilities.

The 2020 map from the Airport Authority show future northward expansion plans of the airport.

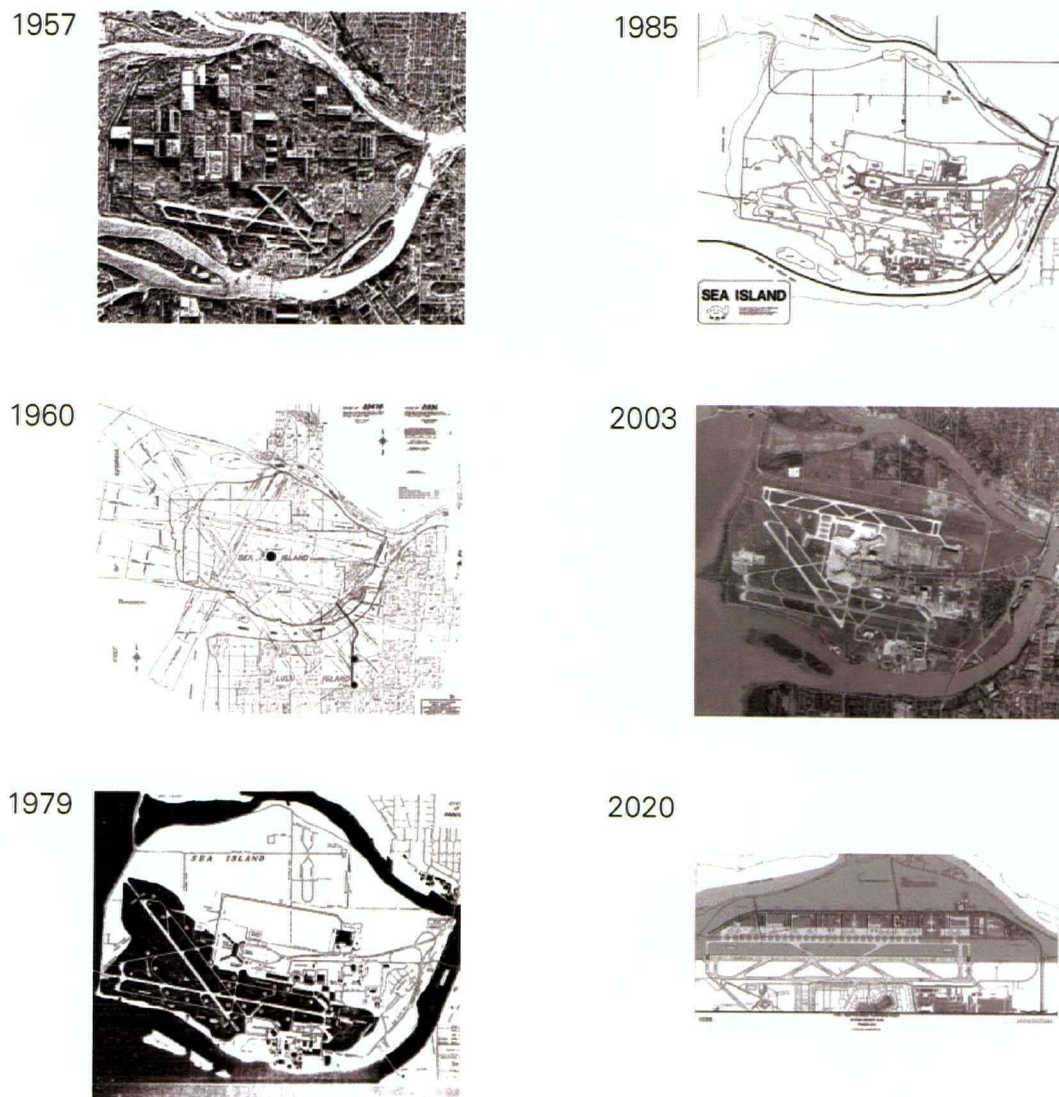


Figure 32 Historical Maps

2.4 Natural Environment

2.4.1 Moon and Sun

Moon

The Moon rises from the east travelling in the same direction as the sun, reaches its zenith in the south and setting in the west. This cycle lags around 51 minutes every day and makes the perfectly with the waxing and waning cycle, which is 29.53 days. Because of the matching of the two cycles, the angle of the specific shape of the moon relative to sun is always the same. For example, the full moon always appears 180 degrees from the sun (Figure 33). The angle of the zenith dramatically changes within one lunar month. At the project site, the highest zenith reaches 69 degrees and the lowest drops to 12 degrees. In Spring and Fall equinox, the full moon rises from true east and sets in the true west. The orbit of the moon from the earth is very close (only 5.1 degree difference) to that of the sun and it fluctuates like a pendulum.

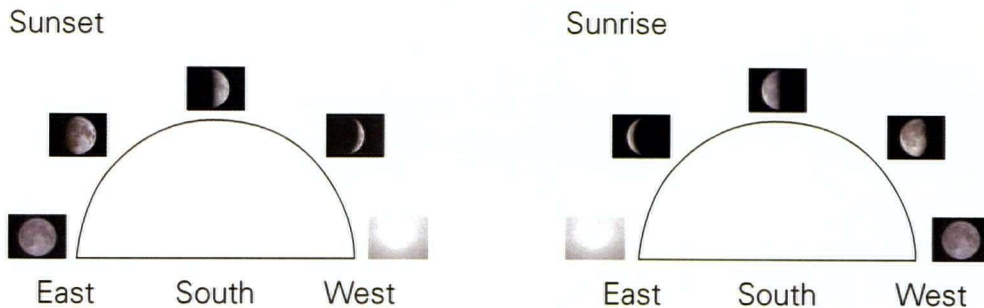
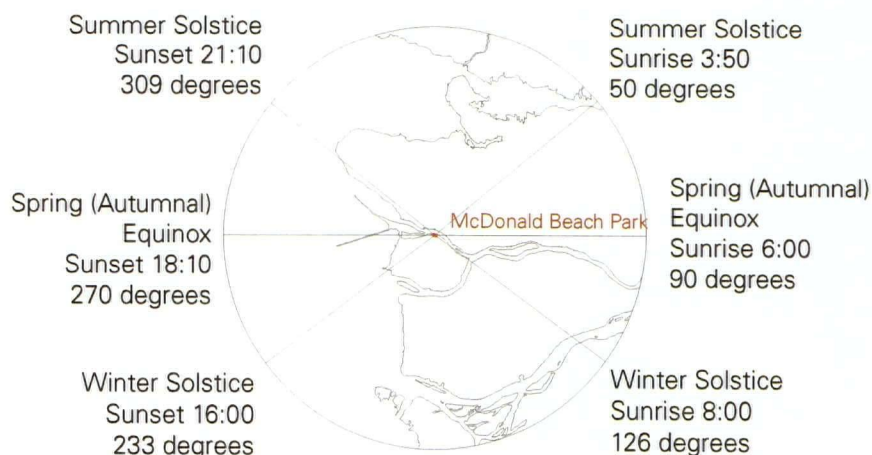


Figure 33 Moon Chart

Sun

In the summer months, the sun sets to the more open northwestern part of the design while in the winter the setting sun creates interesting silhouettes against the trees to the southwest. Beautiful sunsets will occur in the autumn and spring as the sun sinks into the water to the west. Between spring and autumn, the sun rises across from the water, casting light on the water and in the winter the sun rises between trees on the southeast.



*Summer Time is not considered in this chart.

Scale 1:500,000

Figure 34 Sun Chart

2.4.2 Stars

McDonald Beach Park is one of the few places accessible from the city where one is able to see stars. Visible constellations vary slightly different by the season. The angle of the north star is 49 degrees, which is same angle as the latitude of the site. The charts below show constellations visible in spring, summer, fall and winter two hours after the sunset. The year 2005 was chosen for this example.

Location: Richmond (Latitude 49 North Longitude 123 West)

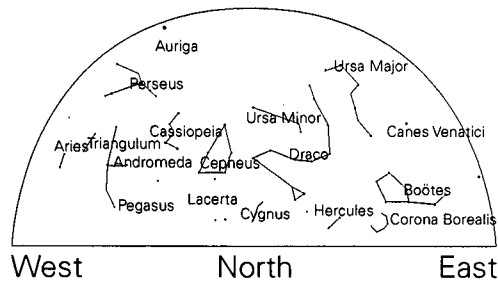
Spring Equinox: March 20 2005 20:36pm

Summer Solstice: June 21 2005 22:21pm

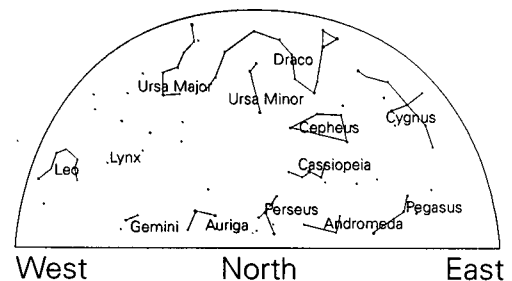
Autumnal Equinox: September 23 2005 20:08pm

Winter Solstice: December 22 2005 18:17pm

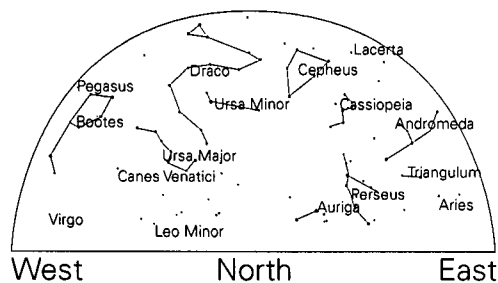
Spring Equinox



Summer Solstice



Autumnal Equinox



Winter Solstice

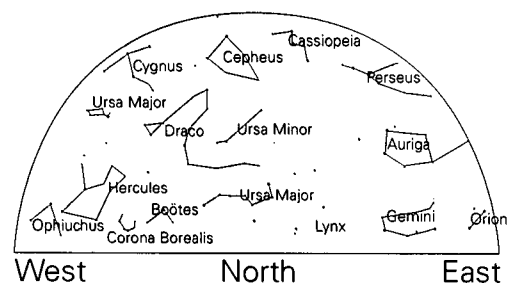


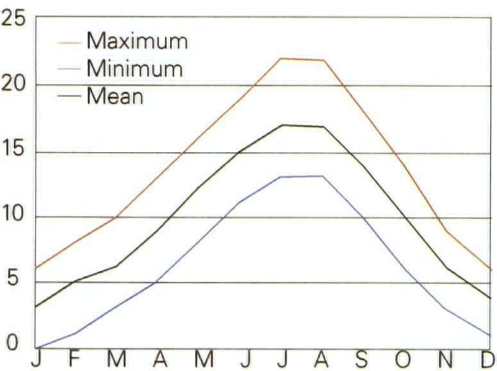
Figure 35 Star Chart

2.4.3 Climate

McDonald Beach Park is located in a Pacific Climate Region, which is characterised by relatively mild rainy winters and relatively cool, dry summers. The climate in Richmond is very similar to that in Vancouver, except the average rainfall is thirty percent less. Average daily temperature does not drop below zero degrees and frost-free days are 160 to 211 days, which is the longest frost-free period of any region in Canada.

Strong wind is one of the characteristics of the site. In summer, sea breeze blows from the northwest in daytime and reverse with offshore breezes towards the Strait of Georgia at night. In Winter, cold arctic air comes through the Fraser River valley to the Strait. Calm periods, which occur less than ten percent of the time are mostly in the fall.

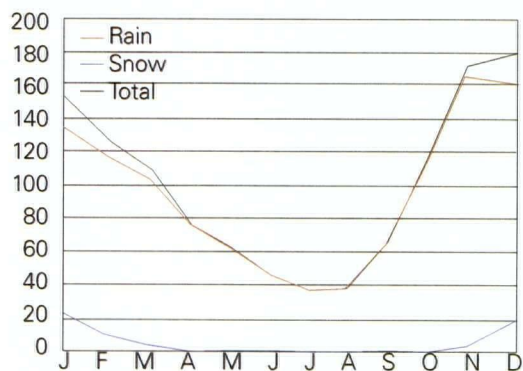
Temperature (°C)



	J	F	M	A	M	J	J	A	S	O	N	D
Maximum	6	8	10	13	16	19	22	22	8	14	9	6
Minimum	0	1	3	5	8	11	13	13	10	6	3	1
Mean	3	5	6	9	12	15	17	17	14	10	6	4

Figure 36 Temperature

Precipitation (mm)

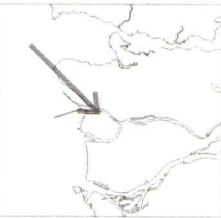


	J	F	M	A	M	J	J	A	S	O	N	D
Rain	132	116	105	75	62	46	36	38	64	115	167	161
Snow	21	9	4	1	0	0	0	0	0	0	0	3
Total	150	124	109	75	62	46	36	38	64	115	167	170

Figure 37 Precipitation

Wind

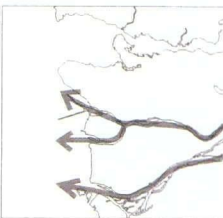
Summer-Day



Summer-Night



Winter



	J	F	M	A	M	J	J	A	S	O	N	D
Wind Speed (km/h)	12	12	13	13	11	11	11	11	10	11	12	12

Scale 1:500,000

Figure 38 Wind Diagram

2.4.4 Aquatic Environment

McDonald Beach Park is located at the mouth of the north arm of the Fraser River, which receives ten percent of total amount of the discharge of the Fraser River. The maximum flow occurs between May and July. The site is affected by the tide. Twice in a lunar day, causing water level changes up to five metres. The salt content of the water is usually very low, but around one hour after high tide the salt water creeps under the fresh water and can reach as far as Annacis Island, New Westminster. Similarly, fresh water travels thirty kilometres to the west of the river mouth during heavy discharge. At the McDonald Beach Park, both riverine and estuarine environment should be considered due to the fluctuation of salt effect.

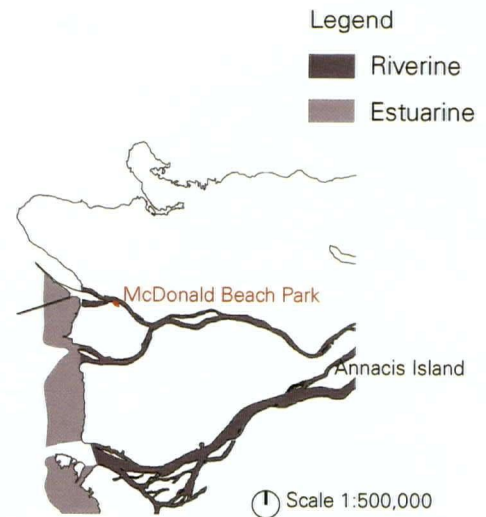


Figure 39 Riverine and Estuarine

Riverine

The European settlement greatly changed the ecological system in Fraser River by diking and cultivating the land. The area around the McDonald Beach Park used to be sloughs. The existing McDonald Slough, which is an artificially created freshwater slough caused by the Iona sewage plant construction, provides important habitat for wildlife. The marshes also support habitat for waterfowl, waders, shore birds, salmonids, and other fish. The water quality tends to be poor because of pollution from nearby farms, industry, and from the Vancouver International Airport. Generally, The area around McDonald Beach Park accumulates sediment from the Fraser River. However, the heavy aquatic traffic erodes the sandy beach area.

Estuarine

The salinity of the area fluctuates by the amount of discharge from the river and tides, but usually the transition of freshwater and salt water (about 1.5% salt) occurs at the estuary. The environmental contribution of this area is enormous.

Wildlife

The Fraser River supports more than two hundred bird species and fifty-two species of fish. Gulls (Mew, Herring, California, Bonaparte's and Ringbilled) and dabbling ducks (American Wigeon, Mallard, Green-winged Teal and Northern Pintail) are the most abundant groups of birds in the river. Five species of salmon, oolichan, and sturgeon are major species of the fish around the site. Commonly found mammals include racoons, coyotes and skunks. There are eighteen species of amphibians and reptiles present, including frogs, snakes and snails. Many wildlives are nocturnal and the effect on their daily activity cycles, and reductions in dispersal, foraging, disorientation, habitat reduction, evolution and reproductive opportunities are reported.

2.4.5 Existing Plants and Soil

Trees and Shrubs

Early stage forest succession trees and shrubs such as Red Alder, Black Cottonwood, Pacific Crab Apple and Pacific Willow successfully dominated most of the site. These native plants, which grow on nitrogen-rich and wet soils are very important trees to support biodiversity. Black Cottonwood, Common Snowberry, Pacific Crab Apple and Pacific Willow are artificially planted as part of the habitat compensation marsh project to protect the area directly east of the site. Green Ash and Pin Oak are introduced trees planted on the existing jetty. Some introduced trees are planted at caretaker's house. They are not invasive plants, however they do not blend well into either the history of the site nor the existing landscape.

Native Species

Alnus rubra (Red Alder)
Betula papyrifera (Paper Birch)
Malus fusca (Pacific Crab Apple)
Populus balsamifera ssp. *Trichocarpa* (Black Cottonwood)
Rosa woodsii (Wood's Rose)
Salix lucida ssp. *Lasiantha* (Pacific Willow)
Sambucus racemosa ssp. *pubens* (Red Elderberry)
Symphoricarpos albus (Common Snowberry)

Introduced Species

Acer pseudoplatanus (Sycamore Maplew)
Betula pendula (European White Birch)
Fraxinus pennsylvanica (Green Ash)
Picea spp. (Spruce)
Prunus spp. (Fruiting Cherry)
Quercus palustris (Pin Oak)
Viburnum Plicatum (Doublefile Viburnum)

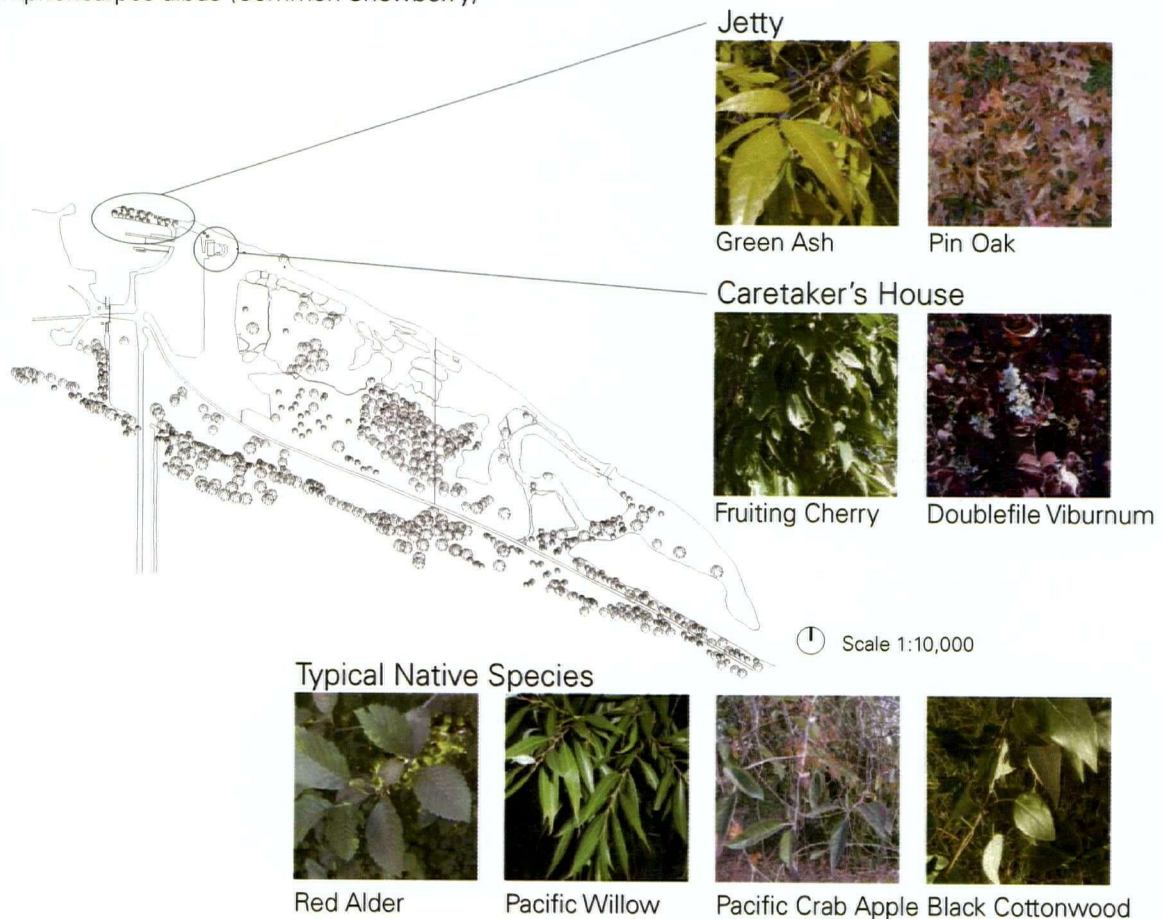


Figure 40 Existing Trees and Shrubs

Herbaceous Plants

Compared to trees and shrubs, invasive herbaceous plants have successfully dominated the site, reflecting the former dredging activity. Scotch Broom and Blackberry are heavily established in the west of the site and have spread through most of the park. The City of Richmond started an annual volunteer program to remove invasive plants—especially Scotch Broom—in 2003. The most effective method to eradicate invasive species at the site is to establish native trees to provide shade, making it harder for invasive plants to get established. The native Large-Headed Sedge and Dune Grass compete with introduced species around the existing sand dunes in the east of the site and along the beach. The habitat compensation marsh project east of the site established the tidal marsh and riparian habitat with Baltic Rush, Dune Grass and Lyngby's Sedge, which start to remediate the park. These areas should be protected and promoted in the design.

Native Species

Agrostis scabra (Hair Bentgrass)
Aster subspicatus (Douglas Aster)
Carex lyngbyei (Lyngby's Sedge)
Carex macrocephala (Large-Headed Sedge)
Conyza canadensis (Horseweed)
Elymus mollis (Dune Grass)
Juncus balticus (Baltic Rush)
Juncus effusus (Common Rush)
Lathyrus japonicus (Beach Pea)
Typha latifolia (Cat Tail)

Introduced Species

Agrostis capillaris (Colonial Bentgrass)
Atropa belladonna (Deadly Nightshade)
Cirsium arvense var. *horridum* (Canada Thistle)
Cytisus scoparius (Scotch Broom)
Hypochaeris radicata (Hairly Cat's-Ear)
Lythrum salicaria (Purple Loosestrife)
Melilotus officinalis (Sweet Clover)
Plantago lanceolata (Ribwort)
Polygonum arenastrum (Common Knotweed)
Polygonum hydropiper (Common Smartweed)
Rubus discolor (Himalayan Blackberry)
Rubus laciniatus (Evergreen Blackberry)
Solanum dulcamara (European Bittersweet)
Solidago canadensis (Canada Golden Rod)
Taraxacum officinale (Common Dandelion)
Trifolium repens (White Clover)
Trifolium pratense (Red Clover)

Typical Introduced Species



Scotch Broom



Hymalayan Blackberry

Typical Native Species



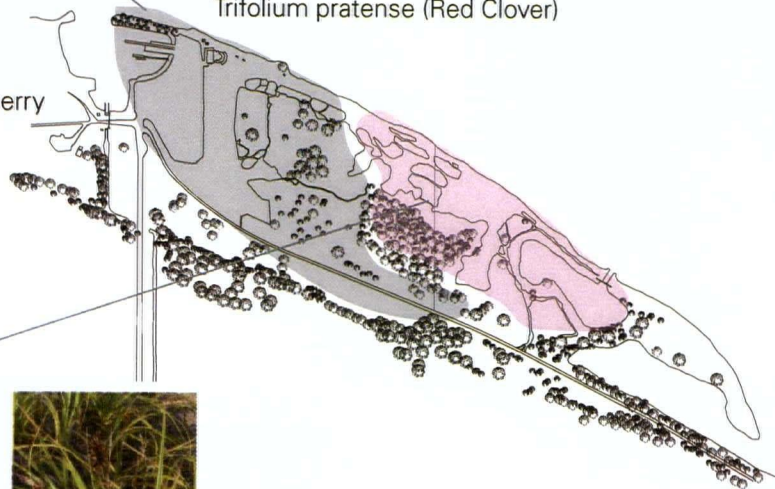
Dune Grass



Baltic Rush



Large-Headed Sedge



① Scale 1:10,000

Figure 41 Existing Herbaceous Plants

Chapter 3 Design Proposal

3.1 Design Overview

Statement of Intent

Traditionally, night was recognized as important part of the communities for ceremonies, festivals, and enjoyment. It connected the living and the dead, created local identities, and developed folk art. As artificial light fills the urban realm, the power of night slowly fades away. People started to stay in the artificial light after dark and public parks became recognized as the dangerous place to be at night. History suggests that the night has a great psychological power effected on people, an affect which can contribute to creating stronger active public park within urban context.

Project Goal

To introduce night use to a public park that is accessible from the city.

Objectives

Explore the possibilities of a public park at night by considering phenomenology, ecology, culture and the public realm.

3.2 Spacial Organization

3.2.1 Destinations

Focal points

This project tries to achieve two seemingly contradicting “nights” for an urban night park. One aspect is a well-lit, safe and comfortable night for community events, festivals, and ceremonies, and the other is to explore dark, delicate, and mysterious night for smaller groups of people or individual person. The two opposing ideas express the nature of an urban park that is seemingly domestic, but could bring the hidden spiritual qualities that come alive at night. To reflect the two ideas, the site is organized in two parts, the main focal point and the walks with secondary focal points. The Harbour, Full Moon Circle and the White Garden define the main focal point and accommodate two thousand to three thousand people for large events. The walks and the smaller focal points along it accommodate another five hundred people strolling in the park.

Transition

To achieve the gentle arrangement between the main focal point and the walks with secondary focal points, the design was imagined as a series of overlapping transition: light to dark, artificial to natural, formal to informal. The existing landscape vegetation, topography, development were also considered. At the existing site, as people move towards the east, the vegetation changes from introduced weedy species to native species. The parking lot with strong light progress to minimum structures and existing forest. To reflect this shift into the design, the heavily developed west side of the site was planted with native plants envisioned with a minimum of structure to guide people where to walk without disturbing the vegetation. As the pathway goes from west to east, the vegetation becomes thicker, are less structure is placed, and less lighting is provided. Two hills, which are exaggerations of existing small hills support the idea of a buffer between the east and west of the site. Consequently the west side of the park becomes well-lit and formal and the east side of the site becomes dark and natural. (See Figure 42 Destinations Diagram)

3.2.2 Connections

The city and the site

The easiest access to the site is by automobile. People enter the park by driving parallel to the airport and turning the world into the Alley of Emily Carr (McDonald Road) by which is the only car access bringing people to the site. The bright light and the sound of airplanes symbolize the urban development. As soon as people turn at the Alley of Emily Carr, it brings people into the agricultural reserve, where quiet and dark night is kept, and the end of the road, the Lantern Pavilion appears in the dark, welcoming arrivals. The Alley of Emily Carr is part of the entering and leaving experience that divides the bright city from the dark park.

Parking is placed on west side of the harbour to make the most of the site. By keeping the parking separate from the main focal area, the site suggests that people to forget about their cars, and concentrate on the experience of being in the night.

It is possible to come to the park on foot, by bus, by bike or combination of these. In these cases, there are two possible approaches to the site. One is the same as by car the Alley of Emily Carr has a 1.8 metre bike lane. The other is the existing trail on the south of the site. The trail is connected to the small parking lot two kilometres east of the site. The trail goes along the north arm of the Fraser River and as it comes close to the park, thick vegetation brings people into the darkness. Then again, the lantern pavilion appears, offering a similar experience as the approach from the Alley of Emily Carr.

Pedestrian Circulation in the site

The site is pedestrian oriented and connected by the walking path and the jogging path, laid out to have minimum conflict. The walking path guides people to stroll slowly and maximize the experience of each focal point. The jogging path brings people for more quiet and private experience yet allows people to recognize their location within the park. Both paths create that lead back to their origins, to reflecting the cycle of the night, the waxing and waning of the moon and the rotation of the stars. It suggests that each visitor a become dweller of the dark sky. (See Figure 43 Connections Diagram)

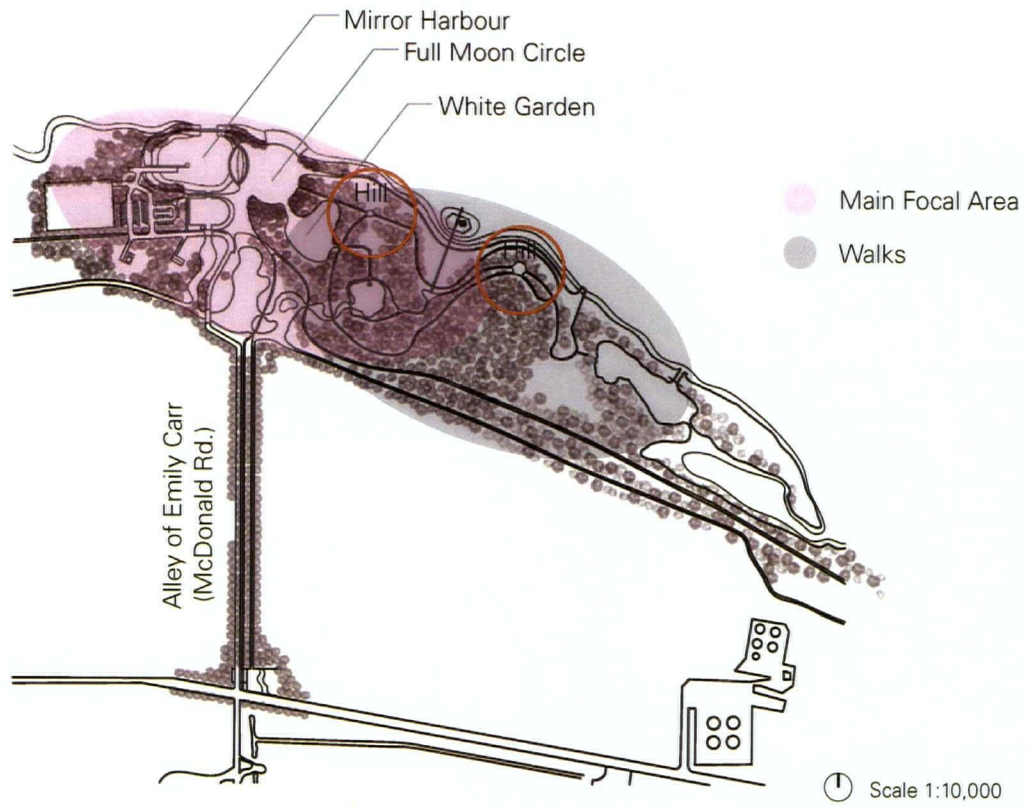


Figure 42 Destinations Diagram

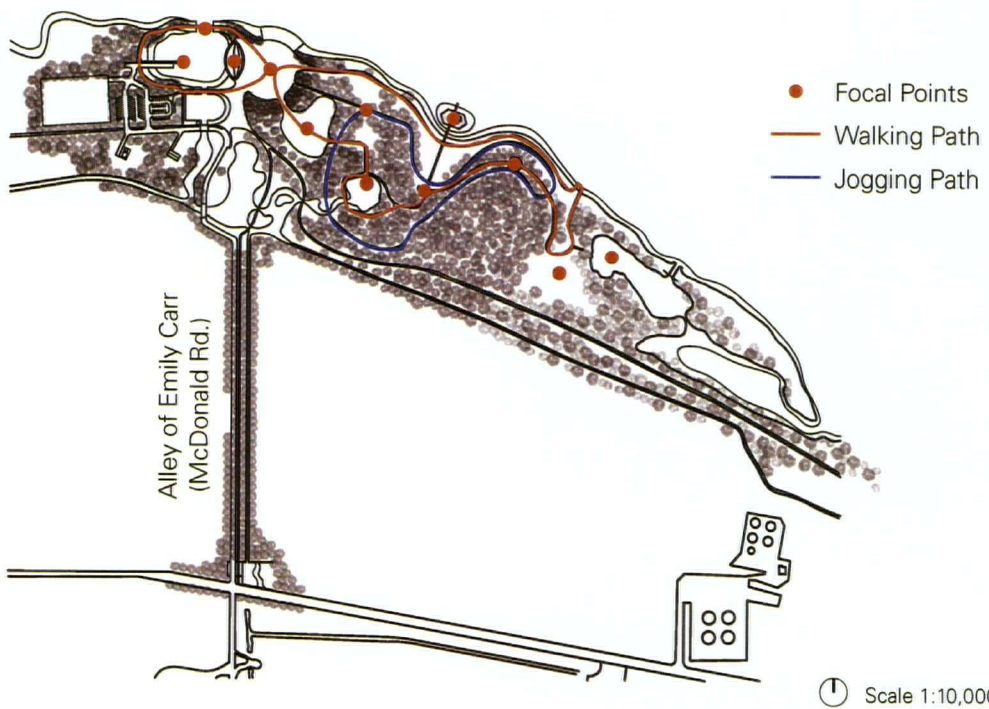


Figure 43 Connections Diagram

3.3 Program

3.3.1 In the Context of the City

Night parks are a neglected part of the design. Most of the parks in the city are designed for daytime activities and closed at night for security reasons. However, Vancouver is known for its low violent crime rate and the wilderness surroundings. Security and darkness are the two fundamental elements available that make a night park possible. In addition to this, multicultural communities provide a range of different night ceremonies, rituals and festivals needed to activate the site.

Protecting dark green space within cities

The site is one of the few places left in the city, where night becomes dark. Siting dark green space protects wildlife habitat, helps environmental health for the cities and also provides a spiritual quality to everyday life for urban dwellers.

Connecting greenways

The fragmented existing greenways could be connected to extend night activities. Night marathon competitions, from Iona Island to the site, night parades or walks from sunset to sunrise, biathlons from Downtown to the site could be among the possible activities. People could disguise themselves in glowing or black dress, carry a torch, play music or sing a song along the greenway. It could accommodate competitions of individuals or events for families.

Promoting multicultural communities

Most of the communities in Lower Mainland are made up of a consisted on variety of different ethnic groups. Some people have distinguished ethnicity and the others have mixed ethnic background. The mixture of different cultures provides an interest in countless night cultural activities, such as Chinese Lantern Festival, Dewali, Full Moon Festival, Star Festival, Hanukah, Loy Krathong, Christmas, Easter, Halloween, Kecak, Firework Festival, Musqueam Fire Dance and Summer Night Dance. It promotes local events and ultimately establishes the identity of community groups.



Figure 44
Chinese Lantern Festival, China



Figure 45
Parade of Lost Souls, Vancouver



Figure 46
Light on Shoes



Figure 47
Loy Krathong, Thailand



Figure 48
Halloween

Developing local identities

The night park supports countless community events such as sunset/moonlight concerts, white/light reflecting dress fashion show, outdoor play, night dance performances, shadow pictures, outdoor movie watching, nocturnal wildlife watch, night flowering plants exhibition, kids summer camp, story telling night. The site also offers localized ceremonies such as weddings and funerals. The events contribute to developing a sense of community.

Celebrating special time

Even the simple cycle of the day is easily forgotten in urban cities. Abundant artificial lights, air-conditioned rooms and imported exotic fruits and vegetable confuse time and place. The site provides opportunity to celebrate time. It could be as simple as viewing changes of the light at sunset and sunrise and enjoying darkness at night. It could be also be used to mark special moments of the year in both solar and lunar calendar: spring and fall equinox, the longest night of summer solstice, the shortest night of winter solstice, the first sunrise of the new year's day, the last night of the new year's eve, the full moon, new moon and blue moon. Lunar eclipses and comets are special astronomical events that could also could be celebrated at the site.

Celebrating life and death

The night is a time of day that makes people sense the cycle of their life. The cycle of the day is often compared to the life of the human. The sun rises, as the newborn baby starts new life, grows to its highest point and then slowly falls down to the horizon, as people get older and go back to the ground. The waxing and waning of the moon suggest a similar concept of life and death. The ceremonies and rituals at night will celebrate the cycle of life and death, which has been separated from urban life.



Figure 49
Night Flowering Evening Primrose



Figure 50
Celebration of Light, Vancouver



Figure 51
3D Movies on Fog, Finland



Figure 52
Chinese Funeral Procession,
Vancouver

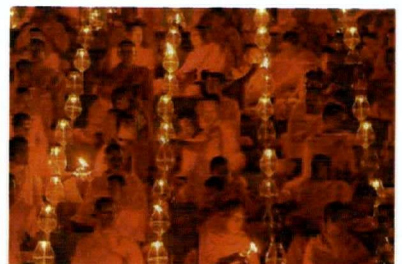


Figure 53
Mass for Tsunami Victims,
Thailand

Creating new opportunities at the public park

Night is a special show, rich with subtle imagery: the shining moon and stars against dark sky, shooting star, ghost in the layers of shadows, multiple shadows under several lights, moon reflecting on water, dim light in a mist, white flowers show off, silver berks shines, black stones disappear, each dew drops shines on spider's net, blinded by a small flashlight and cat's round pupils become long by the light.

As eyesight grows weaker in the dark, the other four senses become more sensitive. Listening to the wind blowing, the river flowing, tug boats going by, coyotes howling, crickets chirp, frogs croaking, owls hooting, sand squeaking as you walk, leaves rustling and people whispering are only possible at night. Flowers in bloom, the bark of the trees, salty air, rain, young leaves in spring, perfume of one's lover, marshmallows at the campfire and sausages on the grill smell better in dim light. Water and sand change their texture in the dark. The smallest noise in a bush, a skunk passing by or a few drops of water from the roof, creates monsters in the darkness.

There are a number of people in the local community involved in professions and field of studies related to night and darkness: such as poi dancers, astronomers, night landscape painters, lighting artists, night photographers, lantern makers, horror story tellers, and glass blowers. Exhibitions, lectures or workshop could happen at the site. The night park provides a place to promote local and international cultures by giving people opportunity to express themselves and teach their skills.

On top of the special activities at night, usual daytime activities like dancing, rowing a boat, fishing, jogging, breathing, meditating, talking, eating and walking become special experiences at night.



Figure 54
Pine Trees at Daitokuji, Japan



Figure 55
Snowy Owl



Figure 56
Comet Bennet



Figure 57
Cai Guo-Qiang, France

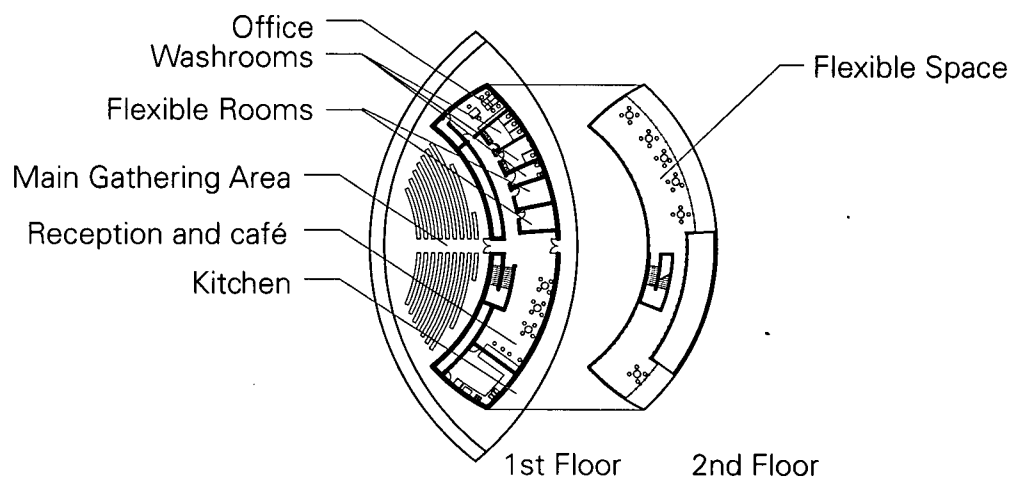


Figure 58
Ukai, Night Fishing, Japan

3.3.2 Physical Site

Lantern Pavilion Program

The lantern pavilion accommodates 300 people for a range of festivals, ceremonies, and community events proposed by the project. The 1000 m² building including 120 m² reception and café area attached to 45 m² kitchen, 350 m² main gathering area with 300 storable chairs, 60 m² storage, 35m² office, two flexible 17 m² rooms for waiting, changing, meeting or storing, total 50 m² for men's women's and handicapped washrooms on the first floor. The second floor is 350 m² of flexible space to support the main gathering area.



⌚ Scale 1:10,000

Figure 59 Lantern Pavilion Program

Outdoor Space Program

The total area of the site is approximately 25ha, which is roughly divided into four parts: entrance area, parking, main gathering area, and strolling area.

The total entrance area is approximately 10ha, which includes McDonald Road, 90m, the area is approximately 7ha and the other entrance trail on the south side of the site, approximately 3ha. The regular parking has 37 car spots and 30 car and boat spots. For large events, 0.7 ha open area adjacent to the regular parking becomes temporary parking that accommodates up to 250 cars. The main gathering area including the Harbour, the Full Moon Circle and the White Garden is approximately 4ha total to accommodate a range of international and local events. The strolling area is approximately 12 ha. The rest of the area is occupied by the caretaker's house and the relocated existing radio tower.

3.4 Material Selection

3.4.1 Hard Materials

The materials are selected to reflect the nature of the night, history of the site, and the passage of the time. The weathered silver logs (Figure 60) shine in the moonlight and celebrate the poetic beauty of silver light. The white concrete with oyster shells (Figure 61) stands out and recalls the middens found at Sea Island. Glasphalt, asphalt made with ten percent glass aggregate, used for the parking area shines like stars in the sky (Figure 62) by reflecting light of the cars. The black slate stepping stones (Figure 63) at the Moon Dew Pond and the burnt log walk (Figure 64) at the Whispering Pathway disappear in the darkness to show the connection to the earth. Corten steel (Figure 65) is used in the Lantern Pavilion, Leaf Pergola, stairs at north of Leaf Pergola. These will be weathered by the wind and the rusty colour and texture will blend into the landscape.



Figure 60
Silver Log



Figure 61
White Oyster Shell



Figure 62
Glasphalt as Stars in the Sky

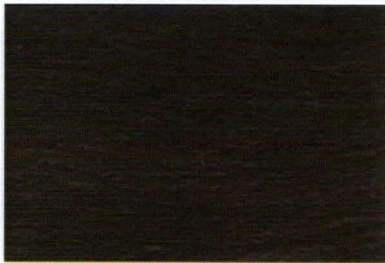


Figure 63
Black Slate



Figure 64
Burnt Log

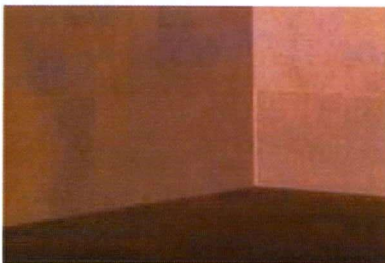


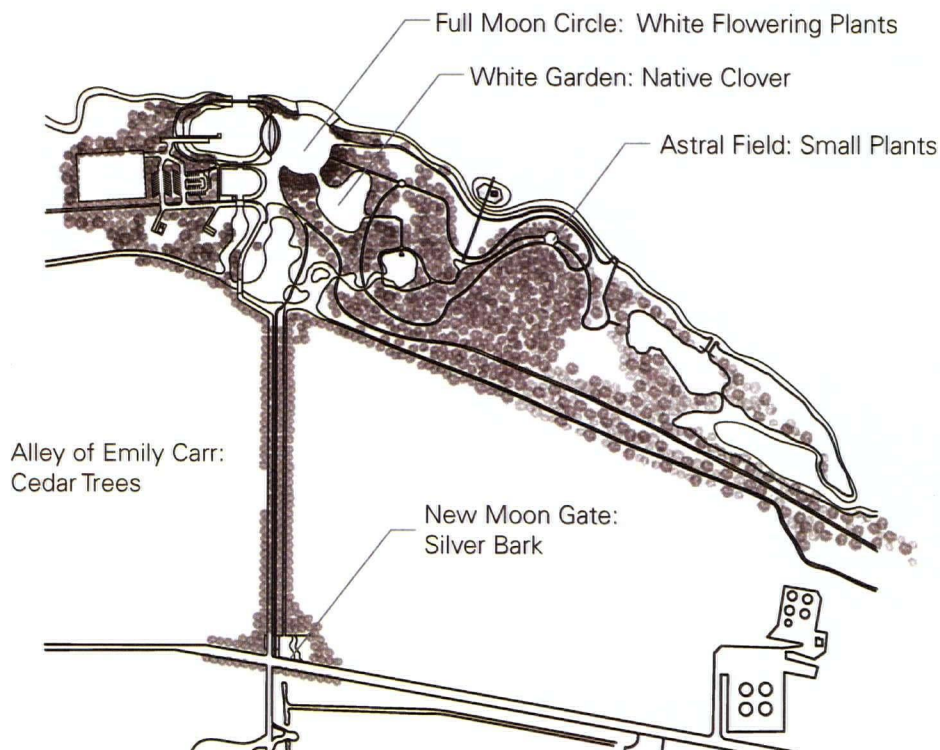
Figure 65
Rusted Corten

3.4.2 Plants

The plant materials are selected to enhance the experience of each space of the site. The silver bark of white birch at the entrance shines in car headlights. *Pseudotsuga menziesii ssp menziesii* (Western Red Cedar) is planted along the Alley of Emily Carr, bring people into a deep dark tunnel. The Circle of Full Moon is surrounded by white flowering plants and the White Garden is filled with native clover to celebrate flowers that glow in the moonlight. The vegetation of the Astral Field becomes smaller to the top of the field to create the experience of seeing stars from the canopies of a forest.

The site is listed as an Environmentally Sensitive Area and more than fifty percent of plant material will be selected from the recommended plant list.

Most of the site is covered by mixed deciduous forest in the proposed design. The plant species meet the plant list and are selected for their appropriateness to the site. Eventually the selected plants will establish and support wildlife habitat and environmental sustainability. Mature trees will create shade to eradicate invasive plants, such as *Cytisus scoparius* (Scotch Broom), *Rubus discolor* (Himalayan Blackberry) and *Rubus laciniatus* (Evergreen Blackberry). The water edge is protected by water-loving plants for erosion control to reduce dependency on retaining walls, thereby contributing to the ecology of the site.



Scale 1:10,000

Figure 66 Vegetation map

Silver Bark at New Moon Gate

Betula papyrifera (Paper Birch)

Cedar Trees along Alley of Emily Carr

Pseudotsuga menziesii ssp *menziesii*
(Western Red Cedar)

White Flowering Plants at Full Moon Circle

Betula papyrifera (Western White Birch)
Cornus nutallii (Pacific Dogwood)
Crataegus douglasii (Black Hawthorn)
Malus fusca (Pacific Crabapple)
Philadelphus lewisii (Mock Orange)
Physocarpus Capitatus (Pacific Ninebark)
Oemleria cerasiformis (Indian Plum)

Native Clovers

Trifolium wormskjoldii, (Springbank Clover)
Trifolium wormskjoldii (Thimble Clover)
Trifolium microcephalum (Small Headed Clover)

Small Plants at Astral Field

Cornus stolonifera (Red-Osier Dogwood)
Philadelphus lewisii (Mock Orange)
Rosa pisacarpa (Swamp Rose)
Rubus parviflorus (Thimbleberry)
Rubus spectabilis (Salmonberry)
Sambucus racemosa (Red Elderberry)
Symphoricarpos albus (Snowberry)

Mixed Forest Plants

Alnus rubra (red alder)
Crataegus douglasii (Black Hawthorn)
Populus balsamifera ssp. *trichocarpa* (Black Cottonwood)
Rhamnus pershiana (Cascara)
Salix lucida spp. *lasiandra* (Pacific Willow)

Water Loving Plants at Water Edge

Cornus stolonifera (Red-Osier Dogwood)
Malus fusca (Pacific Crabapple)
Salix lucida spp. *lasiandra* (Pacific Willow)



Figure 67
Silver Bark of Paper Birch



Figure 68 Cedar Forest



Figure 69 Mock Orange



Figure 70 Pacific Dogwood



Figure 71 Field of Clover

3.5 Design Interventions

3.5.1 Entrance Transition

New Moon Gate (See Appendix B, Entrance Transition, plan and Section bb')

At the intersection of the existing McDonald Road and Grauer Bypass is the very beginning of the journey of the night park. As people come closer to the intersection, the alley of *Betula papyrifera* (Paper Birch) appears on both sides of the Grauer Bypass. The silver bark of the birch would shine by the reflective light of the cars throughout the year, as a part of the excitement of approaching to the site.

The concept of separation is traditionally described as "Hare" and "Ke" in Japanese rituals and "Sacred" and "profane" in Christian and Jewish rituals. As the park suggest unusual experience and opportunity to explore night, the separation from everyday life is critical. "The threshold between two worlds concentrates not only the boundary between outside and inside, but also the possibility of passage from one zone to another" (Eliade, The Sacred and Profane). In this design, the three-metre heavy rusted corten wall provides separation between the unusual and usual experience. It also functions practically as the controlling point of visitors.

The existing McDonald Road goes straight to the site with the existing ditch, which collects water on Sea Island and brings to the harbour at McDonald Beach Park. As the starting place of the site, the water is contained at the intersection in a 1,600 m² rectangular concrete wall, referring the geometrical form of urban structure.

Water is concentrated west of the concrete retaining wall and the topography slopes up towards east. The east of the concrete wall is open and it is covered by marsh plants. The solar powered LED light on a wire (Figure 72) is randomly planted within a marsh to mimic the form of the marsh plants. They catch the wind and waves and match the movement of the marsh plants. These lights indicate of the beginning of the night park.

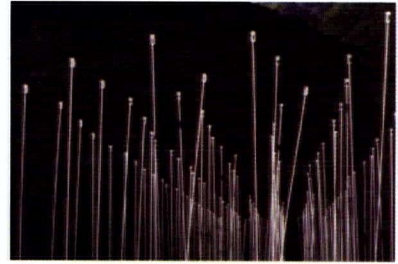


Figure 72
LED Lights on Wire



Figure 73
Emily Carr,
Forest, British Columbia



Figure 74
Trees Casting Shadows on Water

Alley of Emily Carr (See Appendix B, Entrance Transition, section aa')

After passing the gate, the existing McDonald Road plunges people into darkness. *Thuja plicata* (Western Red Cedar) is planted on both sides of the roads and the space between the bike path and the car road. The darkness is meant to evoke the spiritual mysterious night that Emily Carr recorded in her paintings of West Coast Forest (Figure 73) qualities people no longer feel in the urban environments.

After driving or biking two hundred metres in the midway to the site, sixty metres of openings appears to the west of the alley, showing the agricultural field. The first European Settlers started their new life by cultivating the land and from the 1890s to 1950s, most of the Sea Island was cultivated as farmland. By opening the site to the west, the remaining agricultural field tells part of the history of Sea Island.

As people come close to the site, the lantern pavilion appears symbolically in front of the road. After passing the dark forest, the light of the building welcomes people arriving the site.

A two-metre wide bike path is added between the existing car road and the ditch for alternative access to the park and to accommodate new programs, such as bike race at night.

Turning radius and the width is designed to accommodate fire truck and ambulance accessibility.

Pond of Woven Shadows (See Appendix A, Master Plan)

Before the Alley of Emily Carr turns to the left, the water accumulates and expands. It is referring the unique history of the site that the most of the site used to be a separated island until 1940s to 1960s. It contrasts the pond at the gate, which is formal and small. The Pond of Woven Shadows is about 0.8ha, its informal shape suggesting water in the wilderness and proximity to the north arm of Fraser River.

The mixed deciduous trees are planted around the pond to cast shadows (Figure 74). All plant species are native to the site and listed as the recommended plant list on Environmentally Sensitive Area. Also they are selected to meet the requirement of the existing soil, climate, the ability to grow on the disturbed site, and contribution to the established ecology of the site.

The lantern pavilion glows beyond the pond gives the illusion that the lantern is floating on water.

Caretaker's House (See Appendix A, Master Plan and Appendix B, Entrance Transition, section cc')

The Caretaker's House is relocated on a proposed hill in south-west part of the site. The location is decided to the proximity to the main entrance to the park for easy access, the visibility to the main focal areas of the park. The visibility to the park lets visitors see the light of the house, offering a sense of security.

Parking (See Appendix A, Master Plan)

The parking is surrounded by the mixed deciduous trees to maintain ecology and the darkness of the site. The paving material is glasphalt which shines like stars when the light of the cars hits on the surface. The parking creates the excitement and the sense of arrival.

Parking is located on west of the harbour, which is across from the main focal areas to maximize the opportunity and experience of being in the night park. The parking accommodates thirty seven cars and thirty cars with attached boats to accommodate the daytime use of the park. In case of the large events, or large school bus, the 0.7ha open space on west of the parking becomes temporary parking accommodating around 250 cars. The space is filled with structural grass to support ecology of the site. It is also possible to park along the Alley of Emily Carr.

There is drop off area accommodating five cars along the Alley of Emily Carr.

To connect the parking and the main focal areas, both side of the pathway are planted with *Philadelphus lewisii* (Mock Orange), one of the most fragrant of the native plants around the area and very showy white flowers persist through spring to fall.

3.5.2 Festival Area

Lantern Pavilion (See Appendix C, Festival Area and Appendix D, Festival Area Details)

The main building of the site accommodates around three hundred people for festivals, events, ceremonies, weddings and funerals for both international and local communities.

The form of the building derives from the context of the site. Sea Island was occupied by Musqueam people before European settlement. The west part of the island was once called 'blueberry forest' and also middens have been found indicating that the island was used as a site to gather berries and shellfish. The design adopts a language of weaving that recalls Musqueam baskets used for food gathering. The baskets were made primarily from cedar, cherry and birch using weaving patterns reflecting images of the nature around them. The concept of weaving also recalls Musqueam blankets. Woven blankets were used to divide inside spaces of dwellings, and, as with the baskets, the patterns of the blankets expressed the landscape around them.

The second concept guiding the design of the pavilion is the positive phototropic. Positive phototropic describes the tendency to grow toward light. Like many creatures, people are drawn to the warmth and security of light. However, light is more than just a symbol of security and comfort. The power of the light in the dark has strong psychological power. In his book, *Light in Japanese Architecture*, Henry Plummer describes light coming out of darkness as exerting more than just a perceptual allure, arguing that countless poetic images are set off within the subconscious mind. Light functions to concentrate energy at night, thereby creating a strong centre to the site. (Figure 75)

The third reading of the building's design is the layering of leaves. A beautiful aspect of the site are the layers of leaves on the existing deciduous trees. On summer nights, the layers upon layers of leaves create mysterious and beautiful silhouettes. When the wind blows, the leaves make sounds like people whispering in the shadows. In the fall, they dance with the wind and accumulate on the ground, creating again beautiful layered patterns on the ground. As people walk on the leaves, it creates a pleasant sound. In spring new leaves start to create the thick covers on the trunk and branches. The cycle of leaves repeats every year,

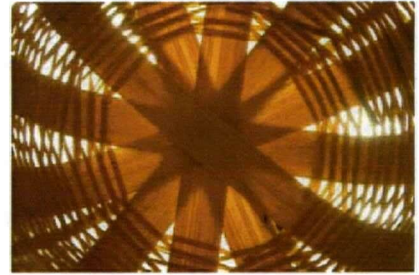


Figure 75
Light Through the Woven Basket



Figure 76
Layers of Leaves



Figure 77
Lantern Pavilion, Closed

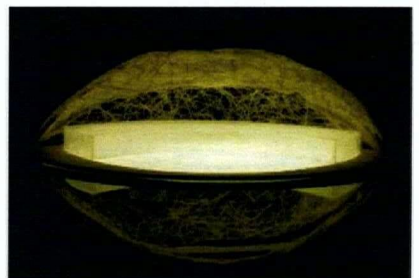


Figure 78
Lantern Pavilion, Open

constantly creating new layers since the site is fully covered by deciduous trees. Being in the layers of the leaves describes the genius loci of the site. (Figure 76)

In combining and elaborating the three ideas, the lantern pavilion was conceptually formed. It looks like a glowing basket lit from an interior light. (Figure 77) Soft light oozes from frosted glass placed within a corten filigree representing structure of the leaf. The lantern pavilion offers a sense of focus to the whole site.

The pavilion is placed at the edge of the water and opens toward the harbour connecting night activities on the water with those inside the pavilion. (Figure 78)

Harbour (See Appendix D, Festival Area Details, section dd')

The harbour is part of the main focal area, where the most dynamic transition from artificial to natural occurs. It becomes a shining mirror reflecting the light of the Lantern Pavilion, floating lanterns, or the light from boats. The water in the daylight is not the mirror that reflects the spirit of the site. As Ivan Illich writes, "the water we seek is the fluid that drenches the inner and outer space of the imagination." (Illich, p24). At night, the still water of the day becomes an enchanting dark mirror. It impresses people with the life-sustaining, infinite, and sacred power of water.

To maximize the experience of the water, the drawbridge completes the pathway around the harbour at night. It opens by day to allow boat traffic to pass. During daylight hours, the site retains its existing function as a public boat launch.

The existing pier is replaced from the east to the west side of the harbour. The covered structure with seating for eight is added at the end of the pier to explore further opportunities of occupying the water surface at night (Figure 3.38). It becomes a romantic spot for lovers on quiet nights, a place to be surrounded by the floating lanterns, or a place to play music for people walking and sitting around the harbour. The pier responds to the five-metre daily tidal change. The fire can be lit in the ceiling structure like a torch or lighthouse on the water. It makes the structure a beacon in the dark night.

Circle of Full Moon (See Appendix C, Festival Area)

The main gathering area is directly connected to the Lantern Pavilion and the north arm of the Fraser River. It is a flexible circular space one hundred metres in diameter designed to accommodate around one thousand people for a range of events, festivals and ceremonies.

White flowering plants are selected to edge the Circle of Full Moon. A variety of species are chosen to support biodiversity on the site and to ensure a lag between each plant's flowering and fruiting season, creating consistent visual and aromatic entertainment in the area throughout the seasons.

Weathered silver logs are placed around the edge of the circle for seating that references naturally found logs that are carried by the flow of water to accumulate around the area. The silver logs shine in the moonlight enhancing the sense of time.

White Garden (See Appendix C, Festival Area)

This area is filled with native clover. The whole surface of the space is filled with white, red, and pink flowers that pick up the moon light. These are native species and chosen for their high adaptability to disturbed sites.

In case of bigger events with more than a thousand people, the White Garden act as a supporting space to the Circle of Full Moon. This gives the flexibility to accommodate another thousand people. The Circle of Full Moon and the White Garden can accommodate events for up to two thousand people.

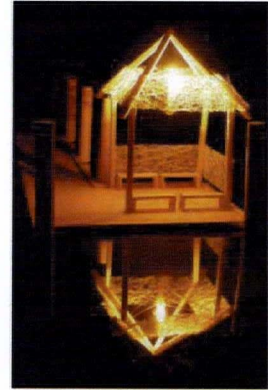


Figure 79
Torch Pier

3.5.3 The walks

Dark Hill (See Appendix E, Firefly Garden to MoonDew Pond, plan and section ee')

If people come to the park to jog, this is the starting and finishing point. Dark Hill raises the existing hill by two metres to create a stronger buffer between the main focal area and the quiet walks. From the hill, a view line directs people to see the Firefly Garden and the Moon Dew Pond to the south and opens onto the north arm of the Fraser River to the north. The Dark Hill and the Lantern Pavilion are connected by a view line as well to let their opposing qualities balance one another. The area is less than eighty square metres, just large enough to have space to warm up and stretch for small group of people and give a sense of enclosure. The trees are tightly planted around it to provide darkness with the specific views toward the key landscape elements. From this point, a precisely one-kilometre jogging path loop starts and ends.

Firefly Garden (See Appendix E, Firefly Garden to MoonDew Pond, plan, section ee' and detail section)

Firefly Garden is next to the White Garden. The trail starts to the southeast of the White Garden with randomly placed LED lights on wires—the same lights as used at the New Moon Gate. A forty-metre diameter clearing with a field filled with tall grass and lights on wires appear after passing the deciduous tree forest pathway. The design is intended to mimic fireflies in the field (Figure 80), but also recalls stars in the sky, and nautilus on a sandy beach. The artificial recreation of the natural phenomena reflects the idea of urban night and the transitional placement between artificial and natural night within the site. The straight two-metre wide boardwalk and complete circle clearing supports the same idea. The design reduces the volume of light compared to the main focal area to respect the ecology of the site and welcome people into the darker part of the site. The silver log benches are placed to offer places to sit and enjoy the small lights swaying in the breeze in the field.

Moon Dew Pond (See Appendix E, Firefly Garden to MoonDew Pond, plan, section ee' and details of stepping stones and deck)

In many mythologies, people believed that water from the moon brought wisdom and eternal life. The brightest natural light in the space and the reflected light on the water are both very powerful experiences that people can still enjoy in an urban context. During festivals, lanterns or white flower petals can be floated on the water, making a space especially well-suited to events like the Chinese Full Moon Festival. The space functions as a moon-viewing pond. Music can be played at the shore or on boats to accompany the eating of moon cakes and other activities. On other days, this area becomes a romantic place to have a dialogue with loved ones.

The board walk turns to the south, where the moon reaches to its zenith and brings people to the pond connected to the Pond of Woven Shadows. At the end of the pathway is a deck floating on the pond. The stepping-stones between the path and the deck are made of black slate, disappearing in the darkness at night. When people walk on the black stone, it is as though they are walking on water. The three-metre by five-metre deck with five chairs was designed to view reflected moonlight on the water or the moon directly. The forty centimetre high chairs are placed at the edge of

the deck to act as handrails as well to encourage people to approach the water without interruption. The pathway goes around the pond and the same stepping-stones appear at the west, where people can see the rising moon beyond the water in east.

Leaf Pergola (See Appendix F, Leaf Pergola to North Star Island, plans, sections)

The pathway disappears into dark forest. The planted forest is next to the existing established forest and uses the same plant species to add layers to existing vegetation. The series of leaf-shaped structures (Figure 81) covers the pathway compressing the space. The structure exaggerates the experience of going through the forest at night. When the structure sways with the wind, its components touch each other and create a metallic chiming sound. The woven patterns of the leaf are similar to that of the Lantern Pavilion to create a connection. The heights differ from 2m 65cm to 3m 45cm to mimic the layering of leaves.

North Star Island (See Appendix F, Leaf Pergola to North Star Island, plans, sections)

The compressed space dramatically opens to the view of the field and island beyond. The steps are made of white concrete with white oyster shells. The path cuts through the middle of the grass field and reaches to the island.

This experience becomes the final part of a procession if people use the site for funerals. The ceremony can take place in the Lantern Pavilion. Then, if people wish, the island is a place to distribute ashes. The corten stairs bring people down to the field and across to the North Star Island following the shining white pathway and bridge.

The pavilion is designed on the island for people to be able to have a conversation with each other. The structure points upward to create a sense of connection to the sky. The angle of the roof was decided by the angle of the North Star, so that people can see the North Star from the chairs at the back. The North Star was thought to be the god of the heavens controlling life and death as all the other stars rotate around it. The bridge comes out to the north arm of the Fraser River and brings people to the water to say good-bye to their loved ones.



Figure 80
LED Light as Firefly

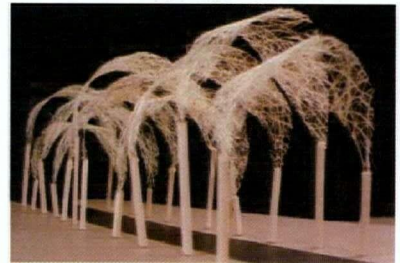


Figure 81
Leaf Pergola

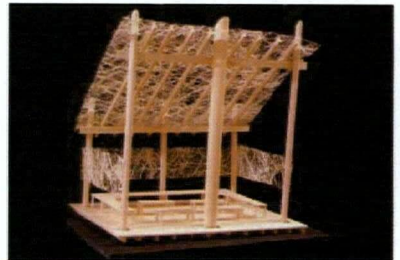


Figure 82
North Pavilion



Figure 83
David Nash, Burnt Log Steps

Astral Field (See Appendix G, Astral Field to Whispering Pathway, plan and section gg')

If people do not go to the island, the path continues to the east after the Leaf Pergola. The vegetation becomes smaller as the path goes towards the Astral Field. It is an artificial ten-metre hill created by the heaping of silt onto the existing five-metre hill. On top of the hill, all the vegetation is lower than the eyeheight of people to create the experience of seeing stars on top of a forest canopy with the river below. The jogging path only comes to this point before returning to the Dark Hill.

Whispering Pathway (See Appendix G, Astral Field to Whispering Pathway, plan and section hh')

As the Astral Field cuts most of the artificial light from the main focal area, the west side of the hill becomes the darkest area in the site. The existing sand dunes and marsh are protected from the light pollution. Consequently, the hill protects existing wildlife and their habitat. The music of crickets around the existing sand dunes is one of the most pleasing experiences on the existing site. To keep and promote the quality of the nature, a 1.5 metre wide burnt log pathway is laid out to direct people to the sand dunes, marsh and then north arm of the Fraser River. Burnt Log Pathway (Figure 83) keep people from stepping on existing native herbaceous plants, such as *Carax macrocephala* (Large Headed Sedge) and *Lathyrus japonicus* (Beach Pea). The black burnt log disappears in the darkness at night. The path eventually opens to the bridge situated at the east end of the site. It allows people to see the blinking lights of arriving planes and the light of the Arthur Laing Bridge in the east. After passing the bridge, the pathway along the north arm of the Fraser River brings people back to the main focal area by the soothing sounds of tug boats, waves and sand.

Chapter 4 Concluding Remarks

Rethinking Public Parks

Contemporary urban life and the supporting infrastructure offer an excess of light at night. Only a few places in the city provide place to go to experience the darkness of night and activities relating these experiences are very limited. The night and its culture will hardly survive without having place to evolve. However, in many traditions, night was very special time in the sequence of a day. Without artificial lights, people saw a great dark sky filled with millions of delicate shining stars, mature cedar trees creating invisibly dark shadows, and felt warmth and joy of fire to celebrate feasts. Based on these rich experiences, people developed folk art, literature, language, rituals, festivals, and stories to appreciate the night.

Current interest in sustainability has started to encourage such experiential consideration through the discussion of light pollution. This consideration is expanding into other areas, such as community development, economic growth, or cultural development of the city. This project offers a new active public space by bringing traditional night appreciation a new opportunity to thrive in the urban context.

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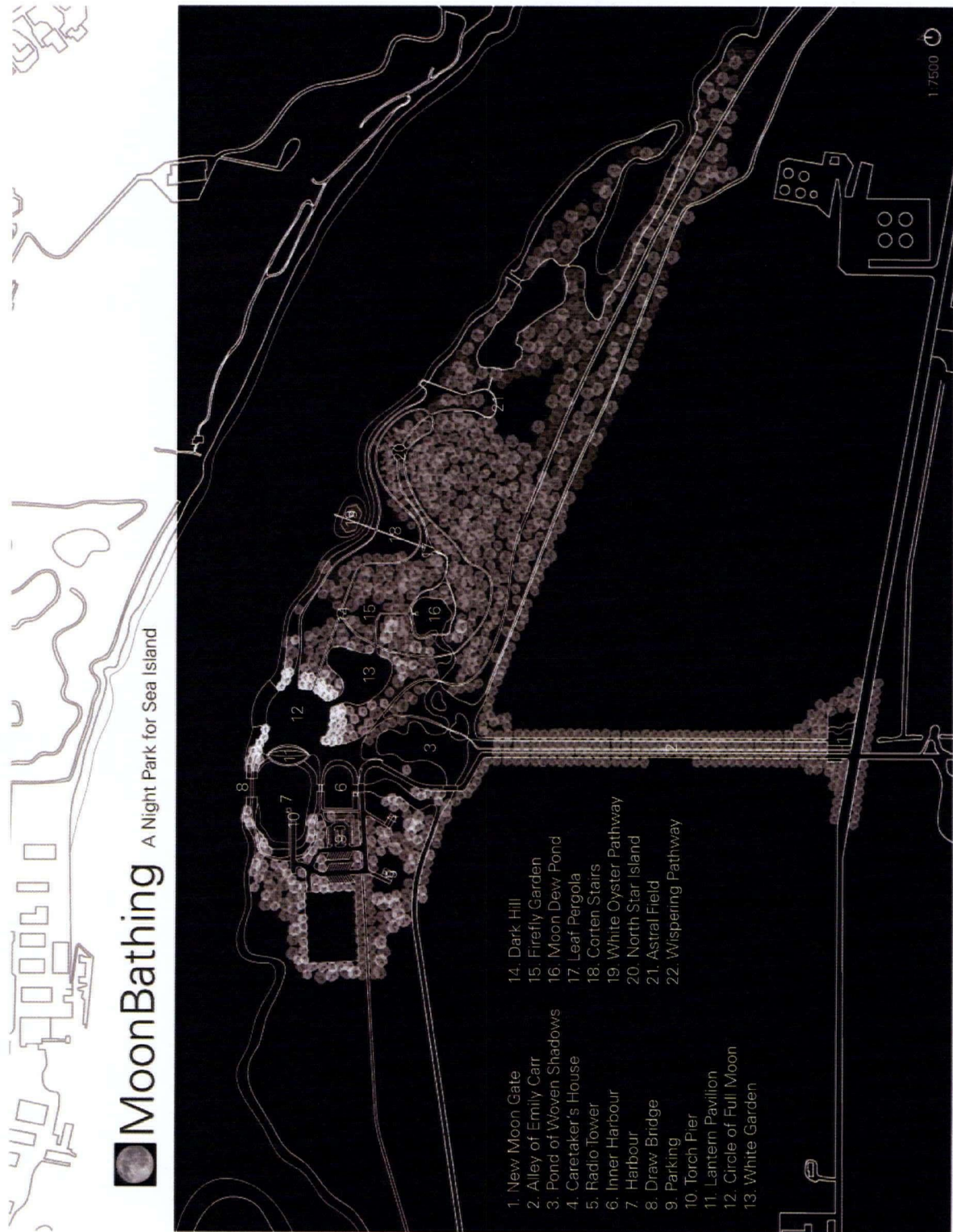
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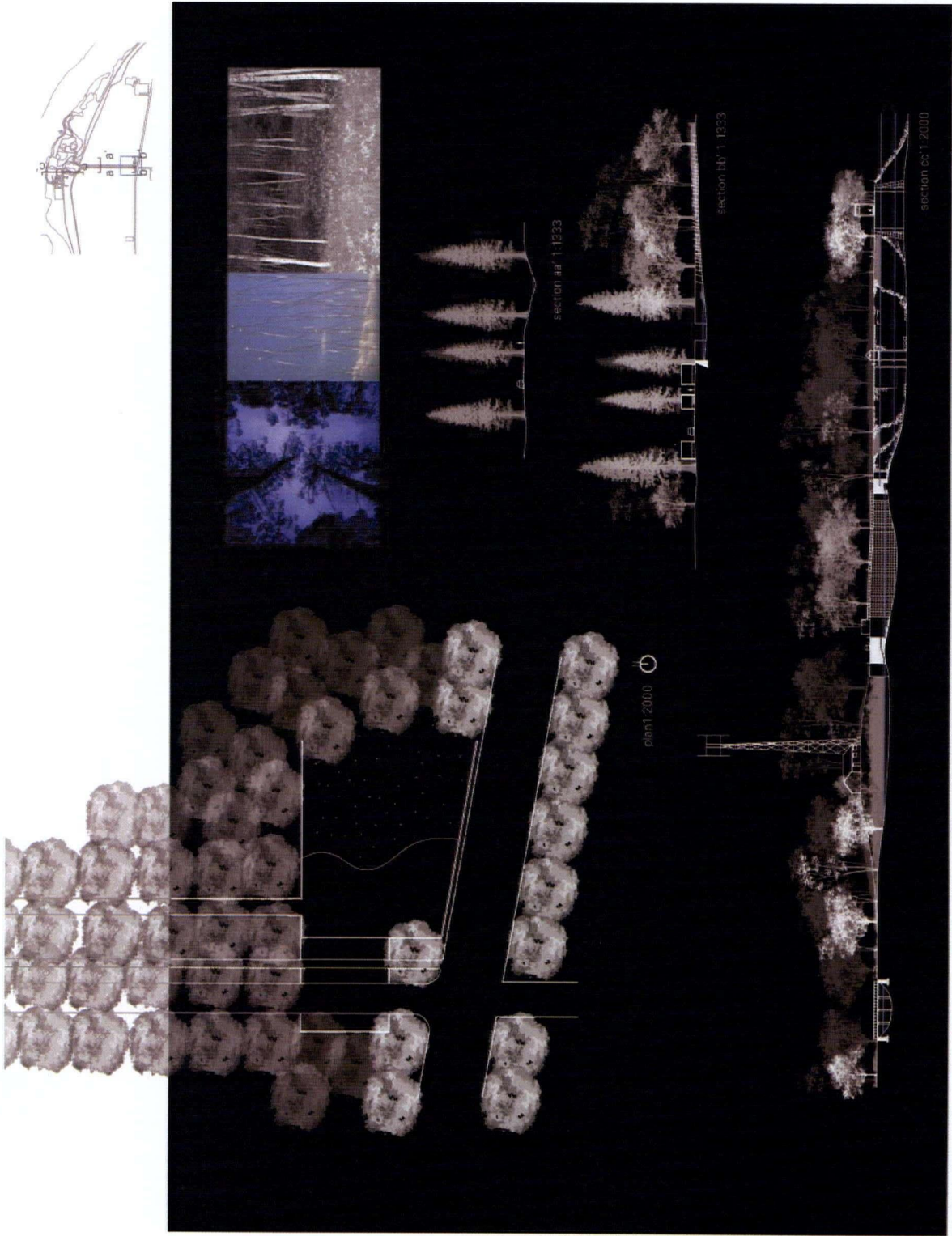
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Appendix / Presentation Boards

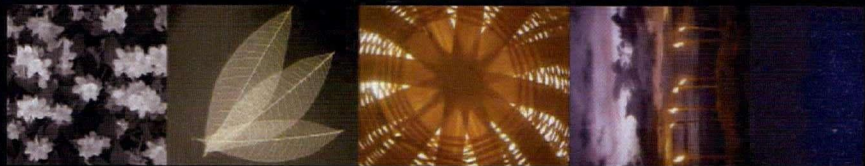
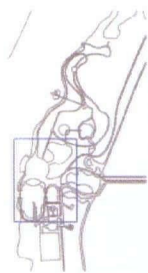
Appendix A Master Plan



Appendix B Entrance Transition

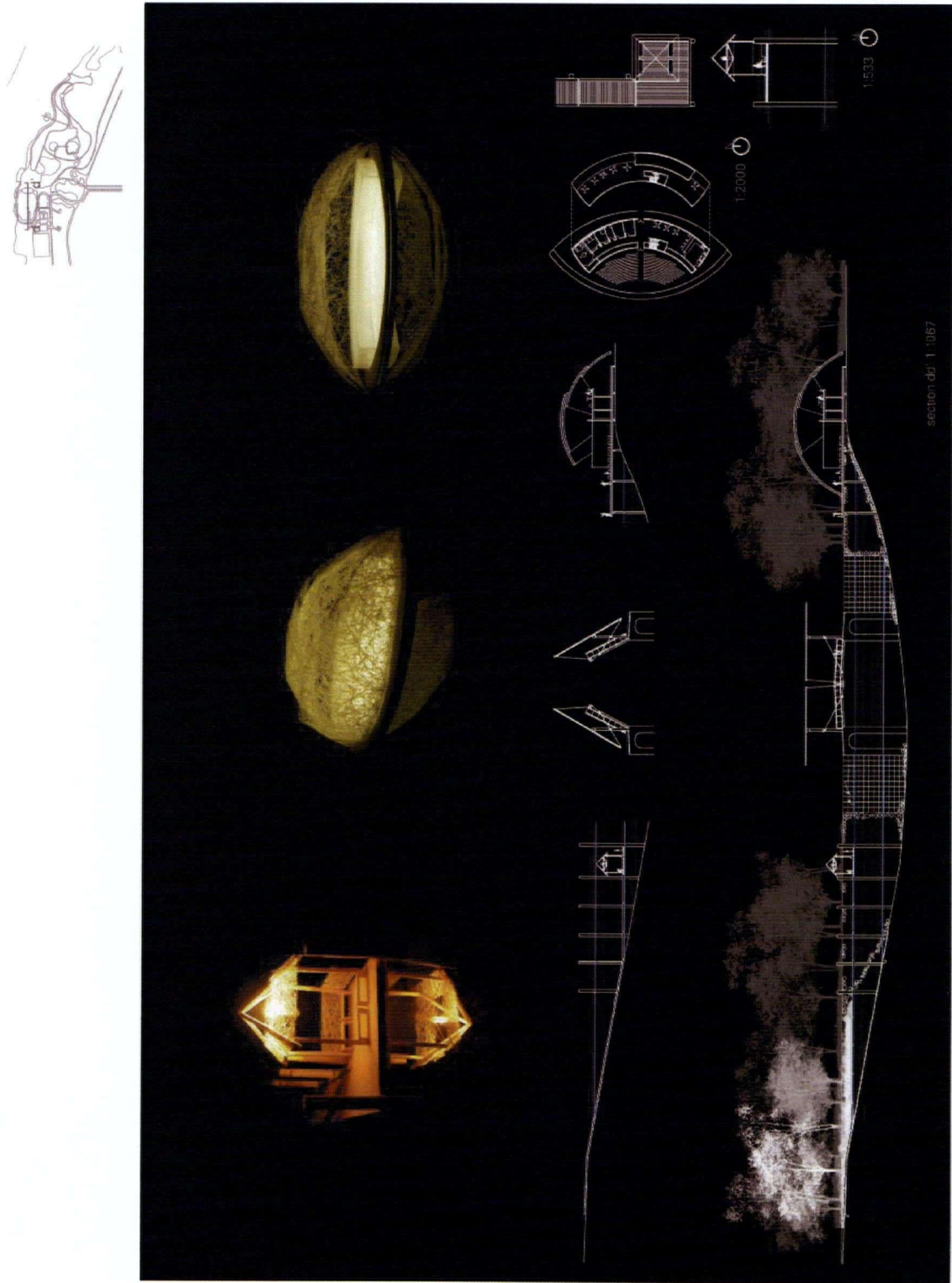


Appendix C Festival Area

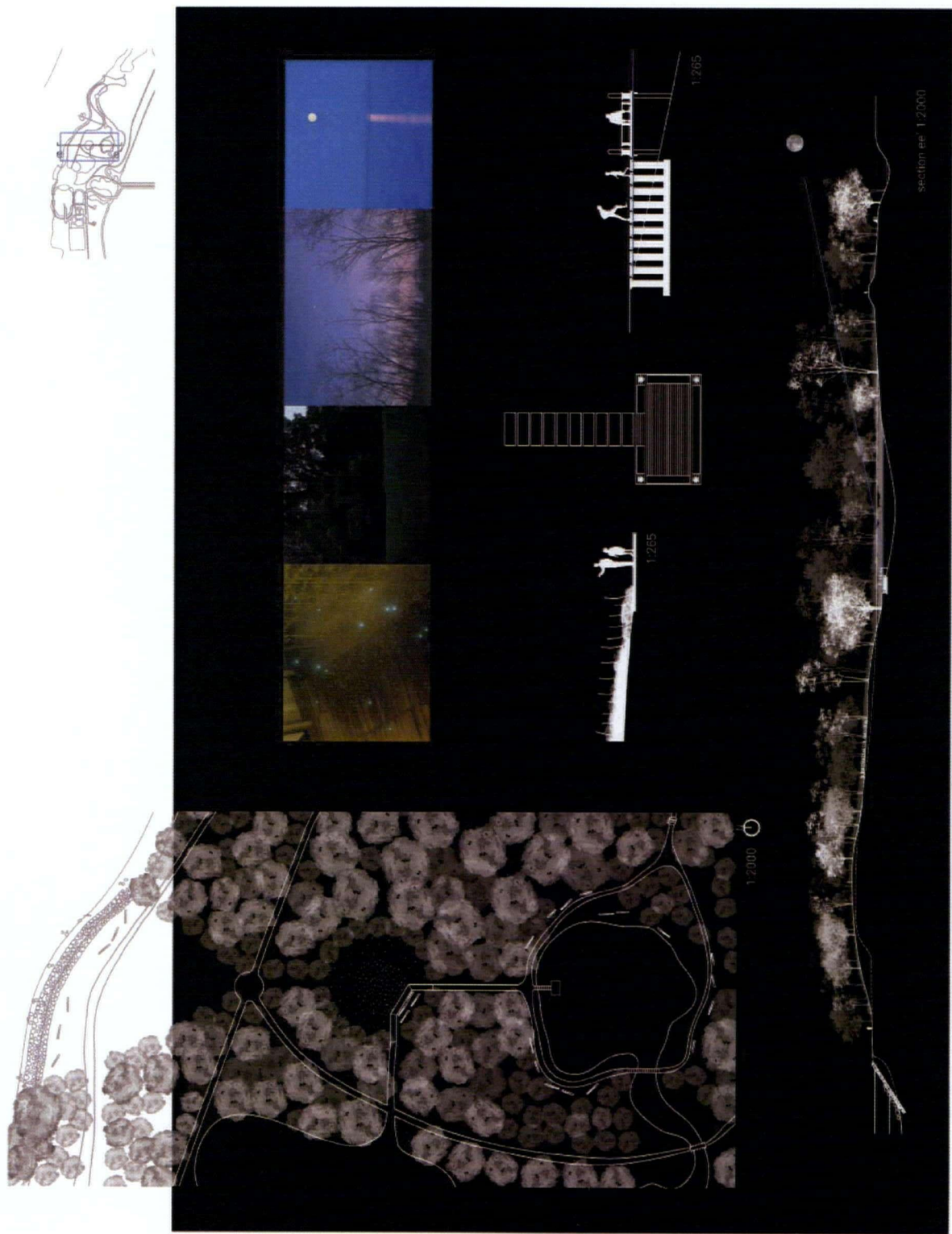


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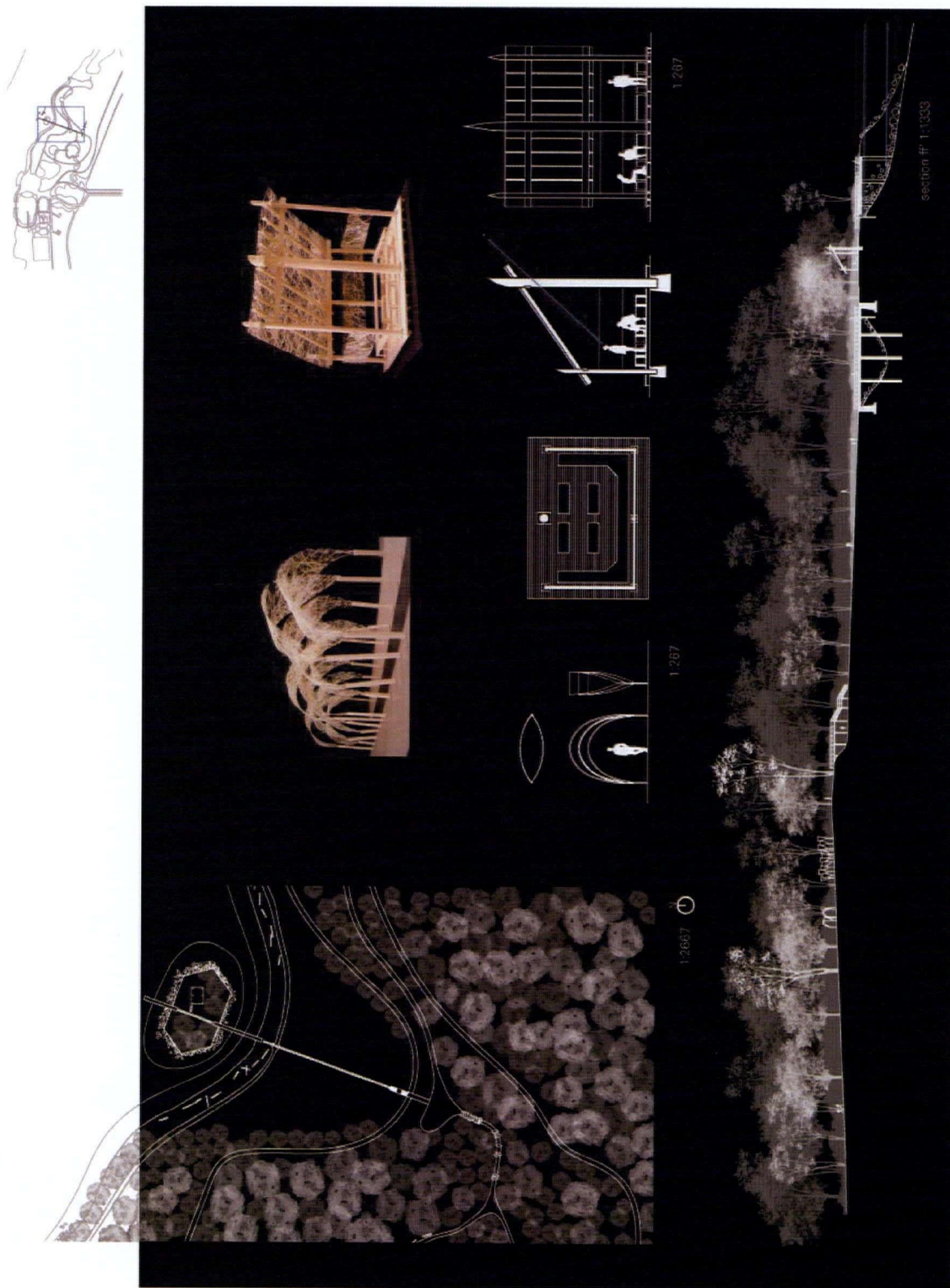
Appendix D Festival Area Deatails



Appendix E Firefly Garden to Moon Dew Pond



Appendix F Leaf Pergola to North Star Island



Appendix G Astral Field to Wispering Pathway

