Construction project (site and environment)

Engineering

PROJECT SITE AND ENVIROMENT ANALYSIS 0 Introduction The proposed context study will be in 2 categories mainly: micro site and macro site. The macro site includes the neighboring suburbs of the site proposed. In analyzing the Macro site, the site proposed site as a whole where analysis of micro site will be involve individual part analysis of the site proposed. Micro means the small scale things while Macro means the things on a large scale. For instance, a micro climate is particular to area that is small. Micro site will involve in detail study of the immediate context and proposed project.

2. 0 Overview of the project

The project is by the side of the architecture building inside the Catholic University of America. The project will then discuss more on the location of the architecture building. Next to the Edward M. Crough Center for Architectural Studies, for example there is a flower bed, cobblestone walkway and flagstone (Carthy, 2007). In addition, there is an easy to maintain field of grasses planted on someplace that was once a dry stream bed with boulders, and plantings that replace what was one time a lawn and sidewalk. In the flower bed that is dry, a series of misters produce an effect of fog-like that develops a cooling microclimate that can go all through the summer.

Landscape showing the bed of maintainable grass

3. 0 Site Analysis of CUA

3. 1 Micro Site

The CUA campus is located in the Brook land in Northeast Washington which is a residential community; 620 Michigan Ave., NE.; is its main entrance. The campus is bound by John McCormick Road to the east, Hawaii Avenue to the north, North Capitol Street to the west, Michigan Avenue to the south. It is 5

km or 3 miles to the north of the Capitol building.

The campus is tree-lined and is which 193 acres is. Modern design and Romanesque are applicable in the major 55 buildings of the university. Between Gibbons and McMahon halls and alongside the National Shrine Basilica of the Immaculate Conception runs are the mall. The Mall is a large grass that is mostly the place of sunbathers and Ultimate Frisbee games. In the middle of Centennial Village is Conte Circle, which is a cluster consisting of 8 residential houses.

Pryzbyla Plaza, with the Shrine in the

3. 2 Macro site

The site can be accessed from all main roads in Washington dc.

Physical context

Topography and geology

The Catholic University of America is a private university in Washington, D. C. in the US (United States).

Washington, D. C. from space

Earthquakes

Earthquake activity in the District of Columbia is negligible. No cases earthquakes have been centred within the District, nor are there any faults. Nevertheless it has experienced earthquakes centred in Maryland, Virginia, and other surrounding states.

Climate

The climate of the site can be summarized in the following diagrams

Climate chart (explanation)

J

F

M

A

M

J

J

A

S

O

N

D

2. 8

43

29

2. 6

47

31

3. 5

56

38

3. 1

67

47

4

75

57

3. 8

84

66

3. 7

88

71

2. 9

87

70

3. 7

80

62

3. 4

68

51

3. 2

58

41

3. 1

47

33

Average max. and min. temperatures in °F

Precipitation totals in inches

Source: NOAA

Climate data for Washington, D. C.

Month

Jan

Feb

Mar

Apr

May

Jun

Jul

Aug

Sep

Oct

Nov

Dec

Year

Record high °F (°C)

79

(26)

84

(29)

93

(34)

95

(35)

99

(37)

104

(40)

106

(41)

106

(41)

104

(40)

96

(36)

86

(30)

79

(26)

106

(41)

Average high °F (°C)

43. 4

(6. 3)

47. 1

(8. 4)

55. 9

(13. 3)

66. 6

(19. 2)

75. 4

(24. 1)

84. 2

(29)

88. 4

(31. 3)

86. 5

(30. 3)

79. 5

(26. 4)

68. 4

(20. 2)

57. 9

(14. 4)

46. 8

(8. 2)

66. 7

(19. 3)

Average low °F (°C)

28. 6

(−1. 9)

30. 9

(−0. 6)

37. 6

(3. 1)

47. 0

(8. 3)

56. 5

(13. 6)

66. 3

(19. 1)

71. 1

(21. 7)

69. 7

(20. 9)

62. 4

(16. 9)

50. 6

(10. 3)

41. 2

(5. 1)

32. 5

(0. 3)

49. 5

(9. 7)

Record low °F (°C)

−14

(−26)

−15

(−26)

4

(−16)

15

(−9)

33

(1)

43

(6)

52

(11)

49

(9)

36

(2)

26

(−3)

11

(−12)

−13

(−25)

−15

(−26)

Precipitation inches (mm)

2. 81

(71. 4)

2. 62

(66. 5)

3. 48

(88. 4)

3. 06

(77. 7)

3. 99

(101. 3)

3. 78

(96)

3. 73

(94. 7)

2. 93

(74. 4)

3. 72

(94. 5)

3. 40

(86. 4)

3. 17

(80. 5)

3. 05

(77. 5)

39. 74

(1, 009. 4)

Snowfall inches (cm)

5. 6

(14. 2)

5. 7

(14. 5)

1. 3

(3. 3)

trace

0

(0)

0

(0)

0

(0)

0

(0)

0

(0)

0

(0)

. 5

(1. 3)

2. 3

(5. 8)

15. 4

(39. 1)

Avg. precipitation days (≥ 0. 01 in)

9. 6

9. 0

10. 5

10. 4

11. 1

10. 7

10. 3

8. 2

8. 3

7. 7

8. 6

9. 7

114. 1

Avg. snowy days (≥ 0. 1 in)

3. 1

2. 5

. 9

. 1

0

0

0

0

0

0

. 2

1. 5

8. 3

Mean monthly sunshine hours

145. 7

152. 6

204. 6

228. 0

260. 4

282. 0

279. 0

263. 5

225. 0

204. 6

150. 0

133. 3

2, 528. 7

Source: NOAA (1981−2010 normal at Reagan National, extremes 1872−present),[11]Hong Kong Observatory (sun only, 1961−1990)[21]

Climate data for Washington, D. C. (Reagan National, 1945-07-01–present)

Climate data for Washington, D. C. (Reagan National, 1945-07-01–present)

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Record high °F (°C)

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(26)

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(28)

89

(32)

95

(35)

99

(37)

104

(40)

105

(41)

105

(41)

101

(38)

94

(34)

86

(30)

79

(26)

105

(41)

Record low °F (°C)

−5

(−21)

4

(−16)

14

(−10)

24

(−4)

34

(1)

47

(8)

54

(12)

49

(9)

39

(4)

29

(−2)

16

(−9)

3

(−16)

−5

(−21)

The District of Columbia topography is the same as the physical geography of Maryland. The District has 3 major natural flowing water bodies; the Anacostia River, the Potomac River and its tributaries and Rock Creek. The convergence the Anacostia and Potomac forms the historic peninsula identified as Arsenal Point. The District is inclusive of Washington Channel, which flows into the intersection of the Potomac and Anacostia rivers. There are also 3 man-made reservoirs:, McMillan Reservoir near Howard University, Dalecarlia Reservoir, which runs over the northwest border of the District from Maryland and Georgetown Reservoir upstream of Georgetown. A fourth, minor reservoir is at Fort Reno in Taneytown.

3. 2 Soil Analysis

The soil from the site is peat highly organic meaning that the soil is unsuitable for the construction since it cannot support a foundation. This is because the highly organic soils like these exhibit huge settlement weight

and their bearing capacity is poor. The location of the building foundations in regards to the soil, require awareness of the foundation hydrostatic pressure and its walls (Carthy, 2007). This soil is not confined and lack the safe bearing capacity required in the laying of the foundation. Pile foundations might solve this problem since the soil is highly organic. The best economical solution to this problem is to remove or excavate this soil since it’s a hindrance to the construction; this way removing the compact and then importing other suitable soils. The best soils are for instance bedrock which is suitable due to it being safe and having the right bearing capacity (Carthy, 2007). Ultimately result to the series of small gardens formation that cover the path length of Edward J. Pryzbyla University Center.

4. 0 Site water tank Analysis

The CUA rain project team, by the help of the benefactors and Catholic University Community, will provide funds and construct twelve customized water tank with the appropriate design. These 12 tanks will be put up on the Crough Architecture building.

4. 1 Design process of the tanks

The 12 tanks have a beam structure coupled with a simple post. The external shell consists of 2×45 faced by 4×45, ground by a footings of 3 feet deep. The tanks themselves are put in this shell and then interconnected to the irrigation system and downspouts of the building.

The paper has analyzed the site environment for the construction. Also, the paper has discussed the soil and climate of the site the site project analysis of the site has covered both the macro site plan as well as the micro site plan.

Work Cited

References

Carthy, M. (2007). Inside CUA. Retrieved on 13th March 2014 from: inside. cua. edu/071003/story5. cfm

Project Analysis. Retrieved on 12th March 2014 from: www. cuarain. com.