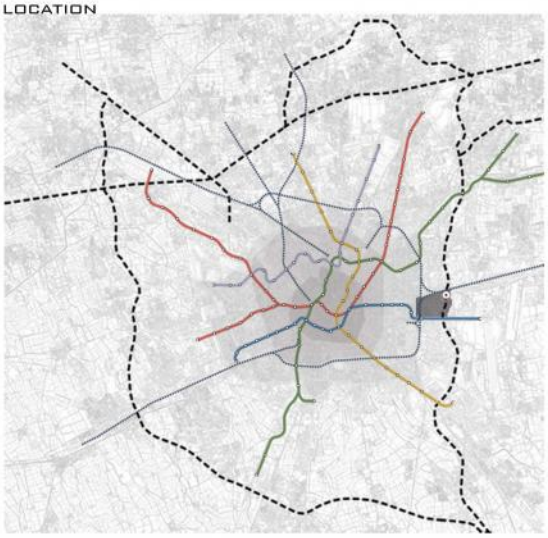
ZEROPLUS
ARCHITECTURAL
MEDYA ASGHARIAN _ 83812
NGOC HUYEN CHU _ 105071868

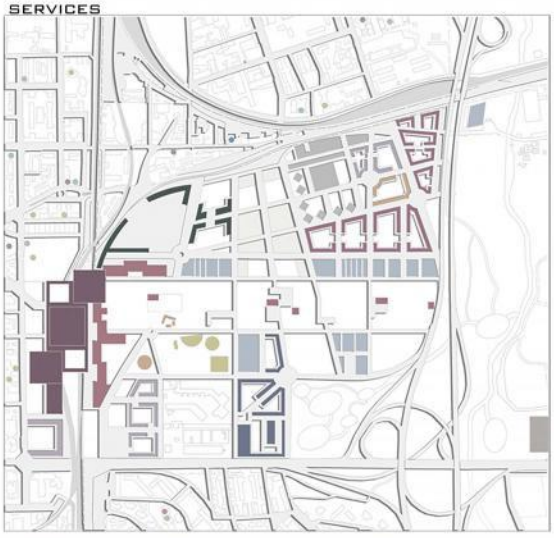
PROF: SIMONE GIOSTRA - DAVIDE FABIO COLACI - PAOLO CAMILLETTI - ARTURO TEDESCHI - MICHELE CALVANO - MAURIZIO A. DEGNI

LOCATION



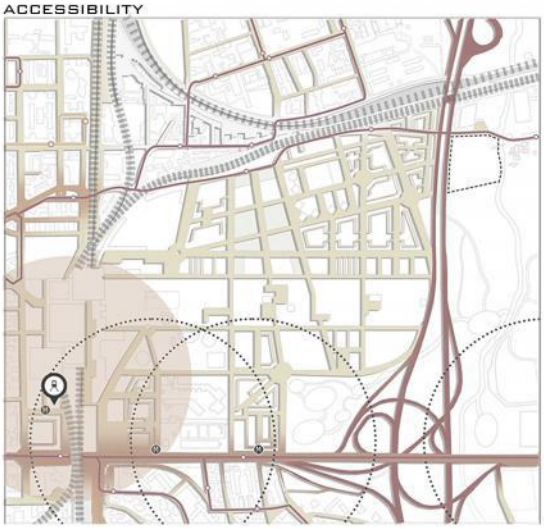
RAILWAY
HIGHWAY
M3
M4
M1
M2
M5
CHOOSEN AREA

SERVICES



CONNECTION HUB
RESIDENTIAL
MIXED USE
OFFICES
MARKET/COMMUNITY GARDENS
EDUCATIONAL/RESEARCH
EXCHANGE POINT
ENTERTAINMENT/LEISURE
SPORT FACILITIES
ENERGY PRODUCTION
SANITARY SERVICES
PUBLIC SERVICES

ACCESSIBILITY

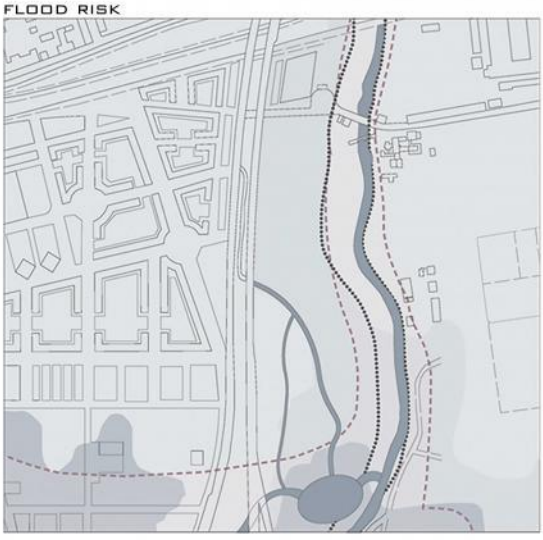


HIGHWAY
SECONDARY ROAD
TERTIARY ROAD
FOURTH LEVEL ROAD
RAILWAY ROUTES & STATIONS
BUS TRANSIT NETWORK AND
TRAMWAY AND STOPS
FUTURE M4 STOPS
400 METERS
RADIUSES

GREENERY

GREEN CORRIDOR
EQUIPPED PUBLIC PARKS AND GARDENS
MITIGATION GREENERY
PRIVATE PERTINENCY GREEN
FORMERLY AGRICULTURAL RENTUALIZING AREAS
ENCLOSED OR MARGINAL GREENERY
SPORTS FIELDS AS COMPLEMENTARY FACILITIES
LAMBRO'S N-S ECOLOGICAL CORRIDOR

FLOOD RISK



EXISTENT WATERSURFACE
R4 - VARY HIGH
R3 - HIGHER RISK
DESIGN LIMIT BETWEEN BAND B AND BAND C
AREA WIH DEPTH LOWER THAN GROUNDWATER
R2 - MEDIUM RISK
R1 - MODERATE RISK

WATER LEVEL CHART TRACKING OF LAMBRO RIVER SOURCED FROM METEO GIORNALE, 21/02/2012

FROM THE CHART ABOVE, WE CAN SPECULATE THAT WATER LEVEL OF THE RIVER FLUCTUATES AROUND 1.8 - 2 METERS IN THE RAINY SEASON

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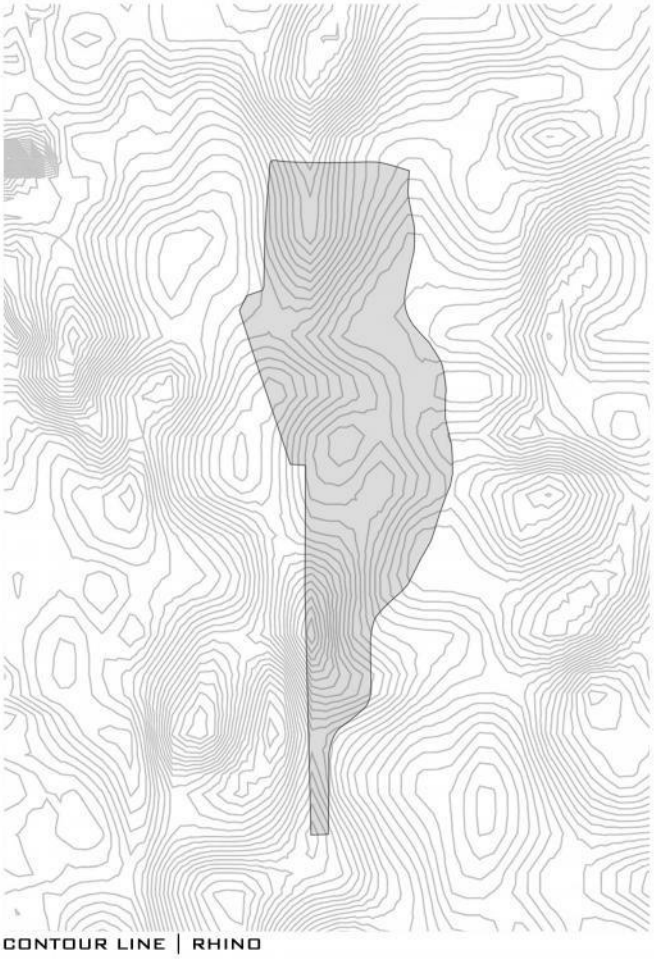
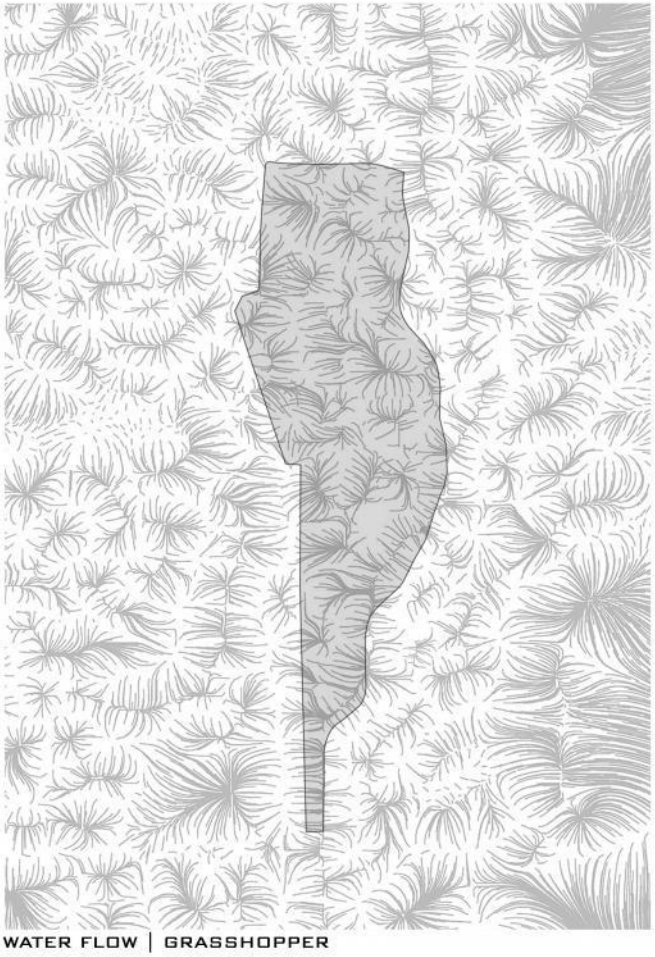
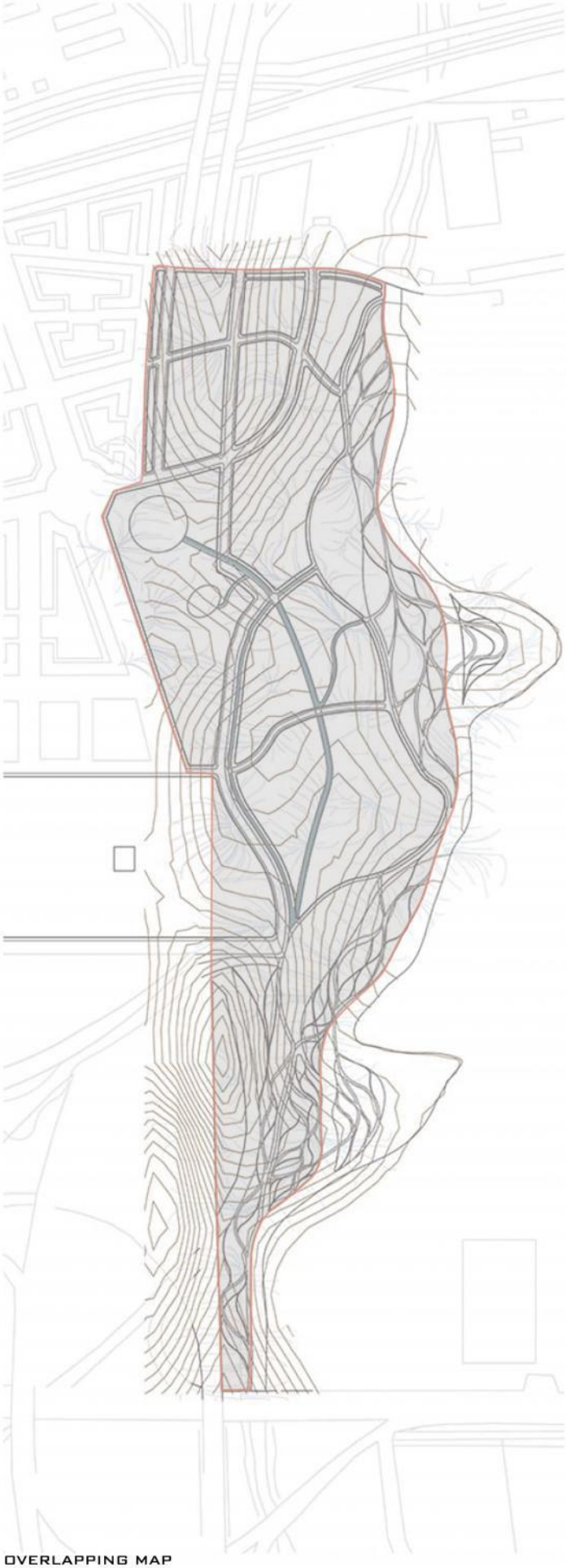


CONTOUR LINE | RHINO



WATER FLOW | GRASSHOPPER



OVERLAPPING MAP

EXISTING CANALS — TOPOGRAPHYT — MASTER PLAN

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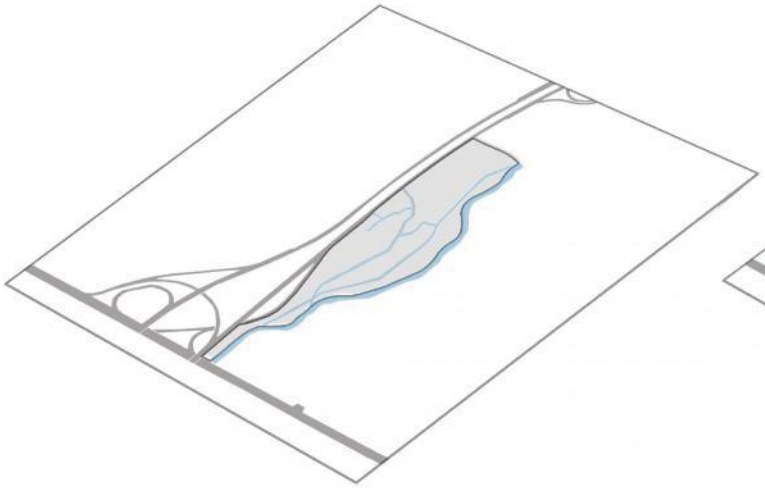
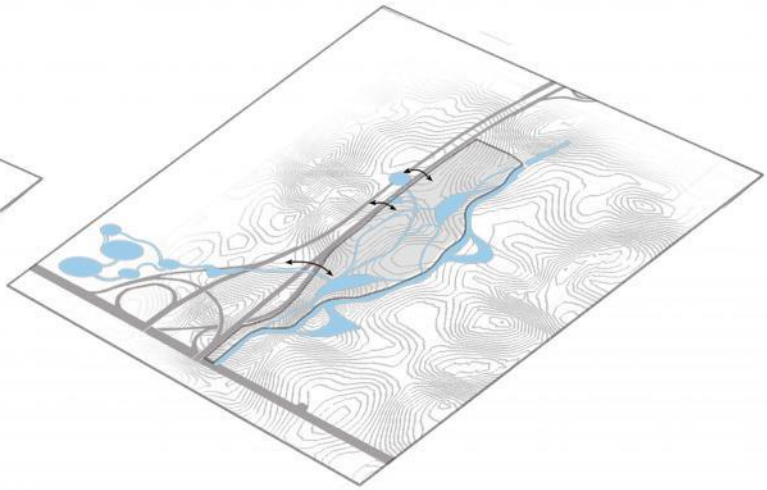
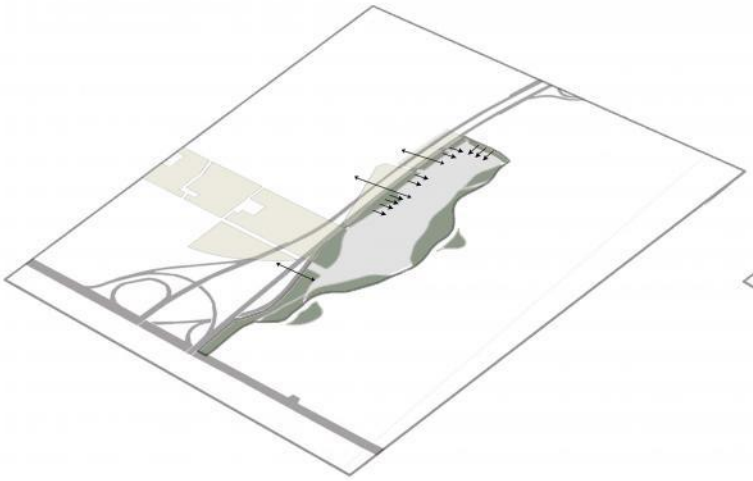


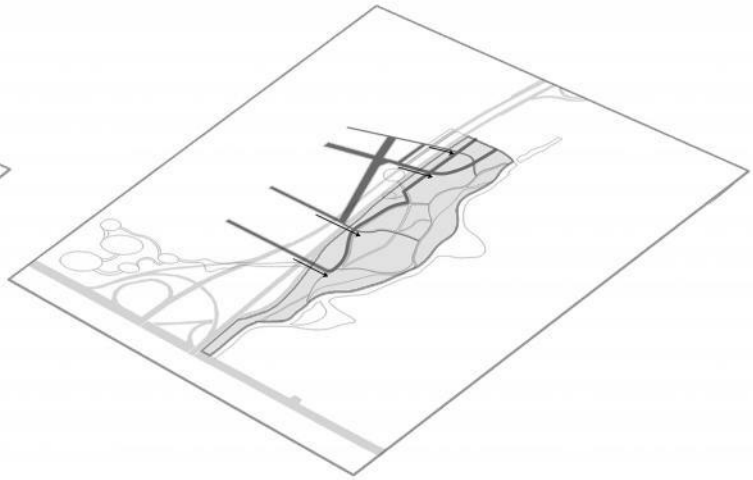
EXISTENCE SITUATION



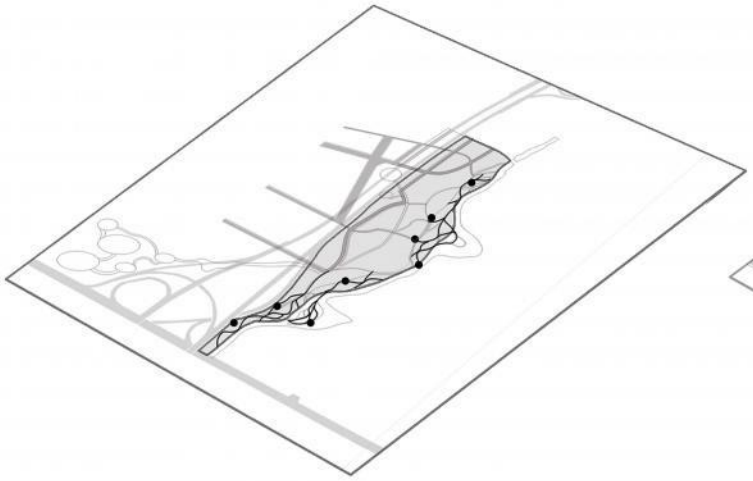
CREAT WATER SYSTEM BASE ON TOPOGRAPHY AND EXISTENCE CHANELS. SOME POOL ARE CREATED, WHICH PLAY A ROLE AS WATER STORAGE IN FLOOD SEASON. SOME CHANELS WILL FLOW TO THE OTHER SITE AND ENHENCE THE CONNECTION UNDER THE HIGHWAY



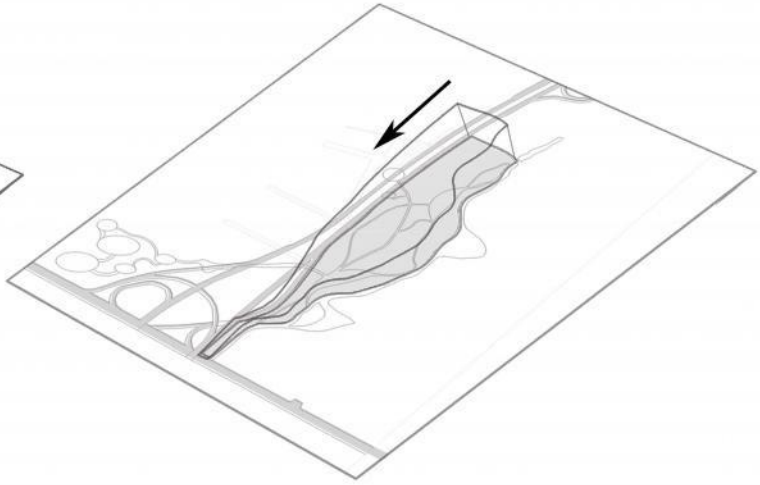
GREENARY SURFACE FROM MASTER PLAN WILL BE EXTENDED TO THE RIVER, SOME GREENARY BOUNDARY ARE CREATED TO BECOME AS BUFFER ZONE AND PREVENT THE NOISE FROM TRANSPORTATION



TRAFFIC SYSTEM WILL BE EXTENDED TO THE RIVER AND ENHANCE THE ACCESSIBILITY OF THE SITE



PATHWAY CONNECT LANDFROM WITH WETLAND AREA, WHICH BRING FRUITFULL EXPERIENCES FOR VISITOR



THE LANGUAGE OF RESIDENTIAL WILL TRANSFORM FROM URBAN TO RURAL

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ARCHITECTURAL

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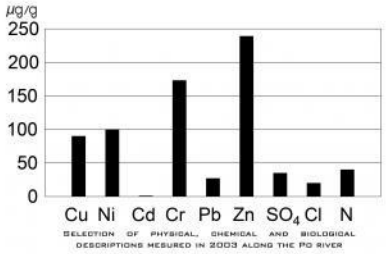
CONTAMINATED WASTE IN THE RIVER PO IS CONTRIBUTING MAINLY BY LAMBRO,GENERALLY THE PROPORTION OF CONTAMINATED WASTES INLAMBRO RIVER ARE 2 - 3 TIMES HIGHER COMPARED TO THE PO RIVER.



SELECTION OF PHYSICAL, CHEMICAL AND BIOLOGICAL DESCRIPTIONS MESURED IN 2003 ALONG THE PO RIVER

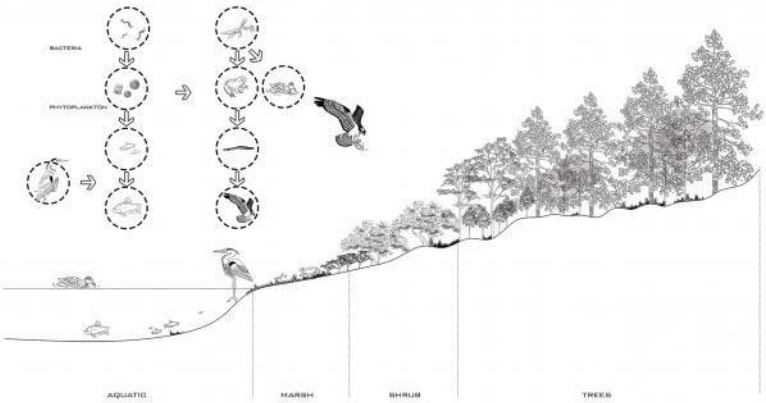
WHY WETLAND?

WATER: WETLANDS CAN DECREASE FLOODING, REMOVE POLLUTANTS FROMWATER, RECHARGE GROUNDWATER, PROTECT SHORELINES, PROVIDE HABITAT FOR WILDLIFE, AND SERVE IMPORTANT RECREATIONAL AND CULTURAL FUNCTIONS.

DELTA SLOW DOWN WATER SPEED

WATER SPREAD THE SEEDS

WILDLIFE: WETLANDS PROVIDE CRITICAL WILDLIFE HABITAT, PREVENT EROSION, AND PROTECT WATER QUALITY.THEY ARE THE MOST BIOLOGICALLY PRODUCTIVE ECOSYSTEMS IN THE GREAT LAKES WATERSHED. WETLANDS ARE CONSIDERED PROVIDING CRITICAL HABITAT FOR FISH AND WILDLIFEWETLANDS ARE AMONG THE MOST PRODUCTIVE ECOSYSTEMS IN THE WORLD,COMPARABLE TO RAIN FORESTS AND CORAL REEFS.

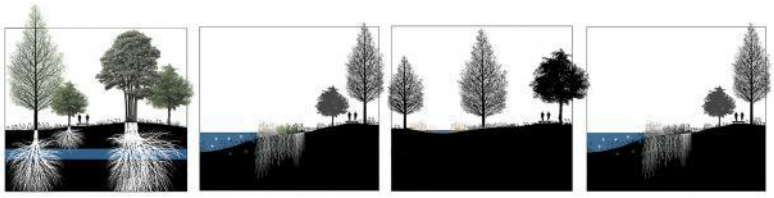


TREES ARE USED FOR STABILIZE THE RIVER BANK WITH ABSORBING WATER

SHRUB PARTLY PLAY A ROULE AS FILTERATION OF SEVERAL TYPE CHEMICAL POLLUTION.

MARSH LAND ENHANCE AEROBIC AND ANAEROBIC NUTRIENT CYCLING.

AQUATIC PLANTS HELP TO HOLD SEDIMENTS AND INMPROVE WATER QUALITY.



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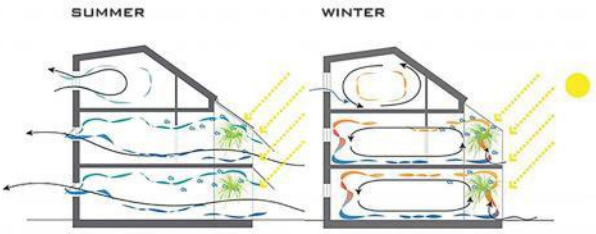
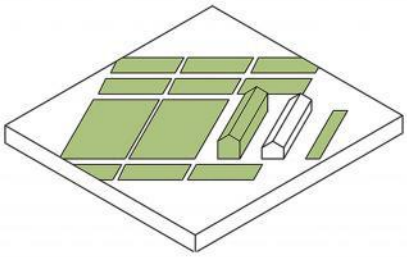
FEWS. FOOD

GREENERY

THE EAST SIDE OF RIVER,COULD BECOME AS HOUSE WITH AGRICULTURE .(CACSINA)

GREEN HOUSE HAS BENEFIT IN BOTH SUMMER AND WINTER ,HAVING GREENERY BESIDE THE HOUSE IS GOOD OPPORTUNITY TO CULTIVATION PLANTS AND USING FRESH VEGETATION .



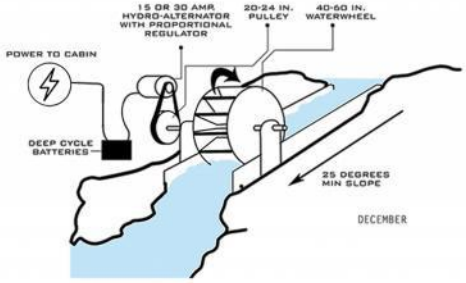


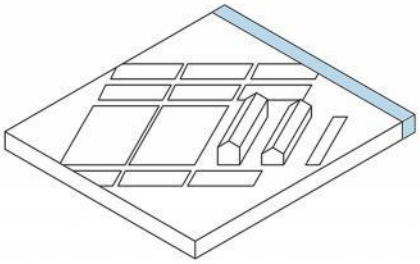
FEWS. ENERGY

WATER

3/4 OF THE SITE LOCATES IN MEDIUM RISK OF FLOOD, THE REST PART LOCATES IN THE AREA WITH DEPTH LOWER THAN GROUNDWTER ,USING WATERMILL AS TRADITIONAL TECHNOLOGY IN MODERN WAY,

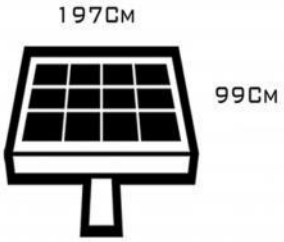
IN OTHER HAND,IN THE PAST IN THIS AREA PEOPLE USED IT TO PRODUCE ENERGY FOR HOUSES AND ALSO RICE FACTORY.
37 KW - 200 KW OF ELECTRICITY
20M³ WATERFLOW
WITH THE HEAD OF TURBIN AROUND 1 TO 3.5 M.
37 KW IS ENOUGH TO POWER 18 LIGHT BULB (100W)FOR 20 HOURS.

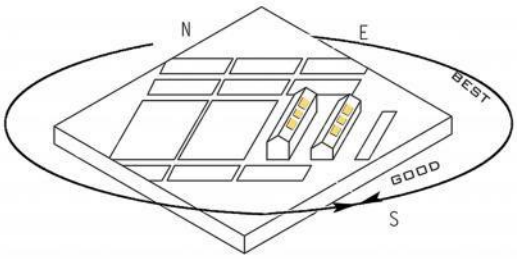




SUN

THE AMOUNT OF ELECTRICITY ENERGY WHICH IS CONSUME IN A FAMILY IS BETWEEN : 700-900KW/MONTH
TO OBTAIN 900KW/MONTH SOLAR PANNELS IS NEDDED IN THE SIZE OF 197*99CM .
ALSO,THE BEST LOCATION FOR SOLAR PANNES ARE SOUTH EAST.

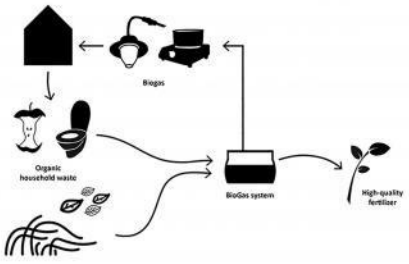


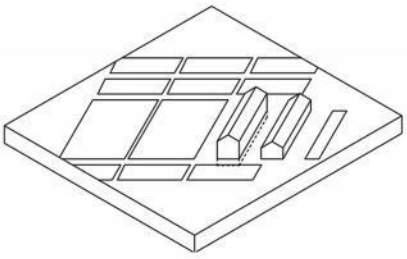


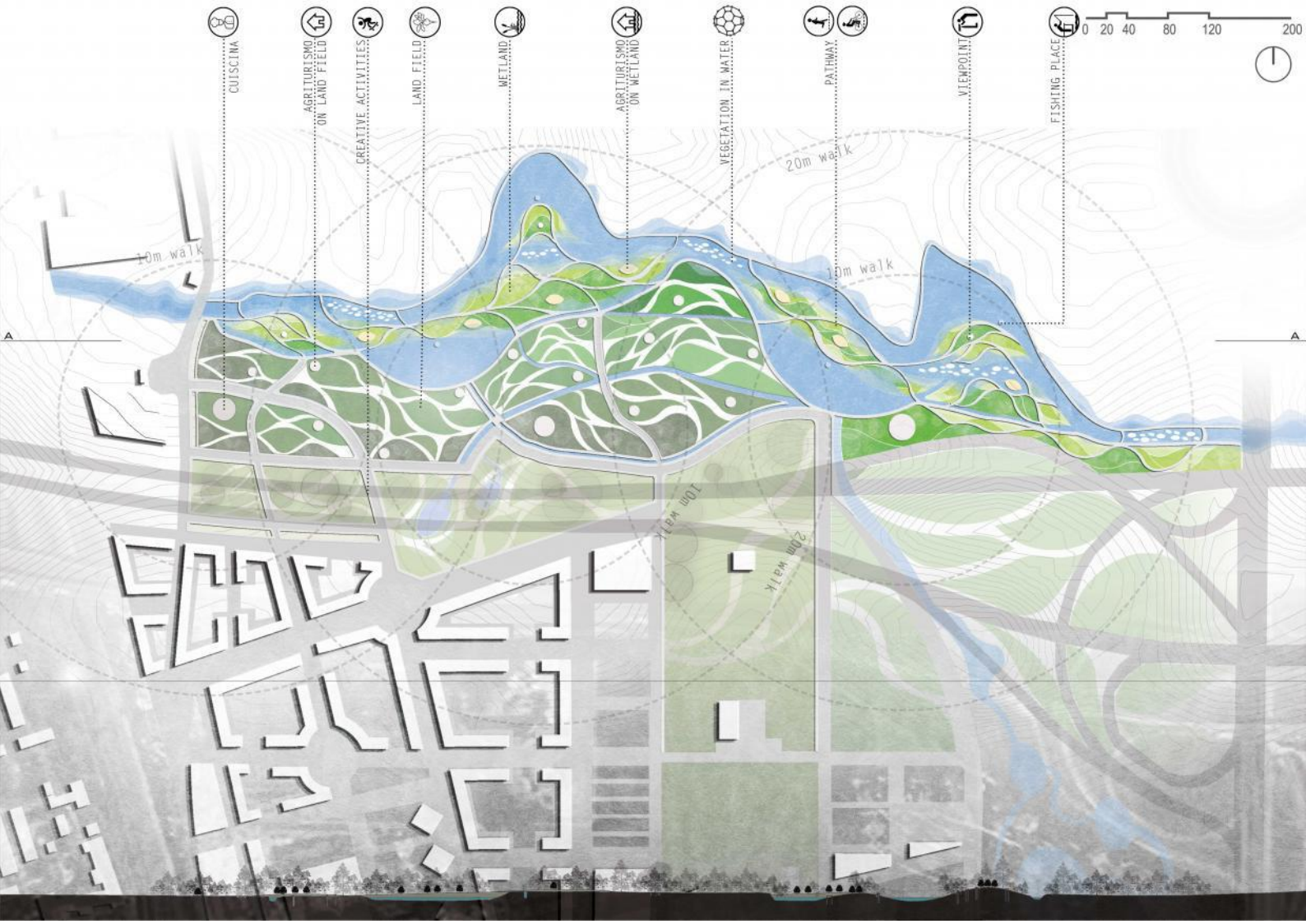
FEWS. WASTE

BIOGAS

EACH CUBIC METER OF BIOGAS CONTAINS THE EQUIVALENT OF 6 KWH OF CALORIFIC ENERGY.
2 KWH ENERGY IS ENOUGHTO POWER A 100 W LIGHT FOR 20 HOURS OR A 2000W HAIR DRYER FOR 1 HOUR
5 KG WASTE OF GRASS
+
5 KG ORGANIC HOUSE HOLD WASTE CAN BE USED INTO COOKING FUEL DAILY.






CUISCINA
AGRITURISMO ON LAND FIELD
CREATIVE ACTIVITIES
LAND FIELD
WETLAND
AGRITURISMO ON WETLAND
VEGETATION IN WATER
PATHWAY
VIEWPOINT
FISHING PLACE
0 20 40 80 120 200
10m walk
20m walk
10m walk
10m walk
20m walk
A
A

ZERO+
HOUSE OF THE FEWS
IN THE WATER

POLITECNICO DI MILANO - AUIC
ARCHITECTURAL DESIGN STUDIO 2
SPRING SEMESTER 2016

STUDENT NUMBER:838128

CRITICS: SIMONE GIOSTRA
DAVIDE COLACI
PAOLO CAMILLETTI

CONSULTANT: ARTURO TEDESCHI
MICHELE CALVANO
MAURIZIO DEGNI

STUDENT:ASGHARIAN.MEDIYA

SECTION B-B
SCALE:1/500

SECTION A-A
SCALE:1/500

ZERO+
HOUSE OF THE FEWS
IN THE WATER

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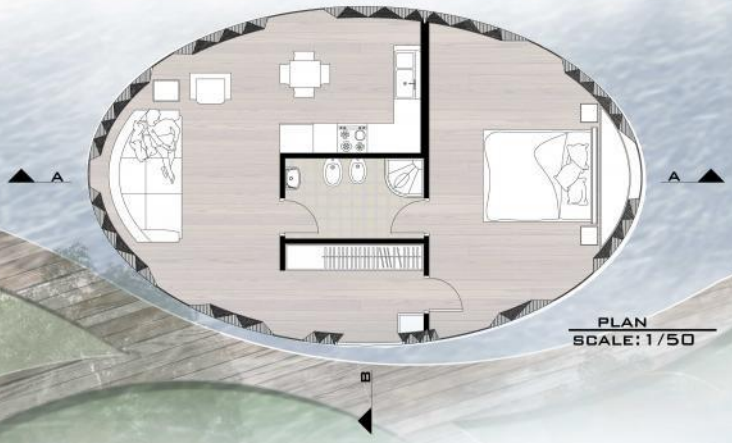
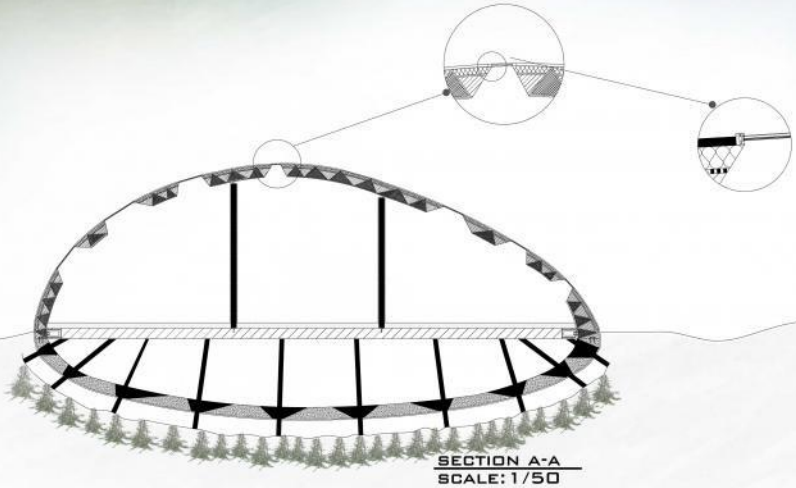
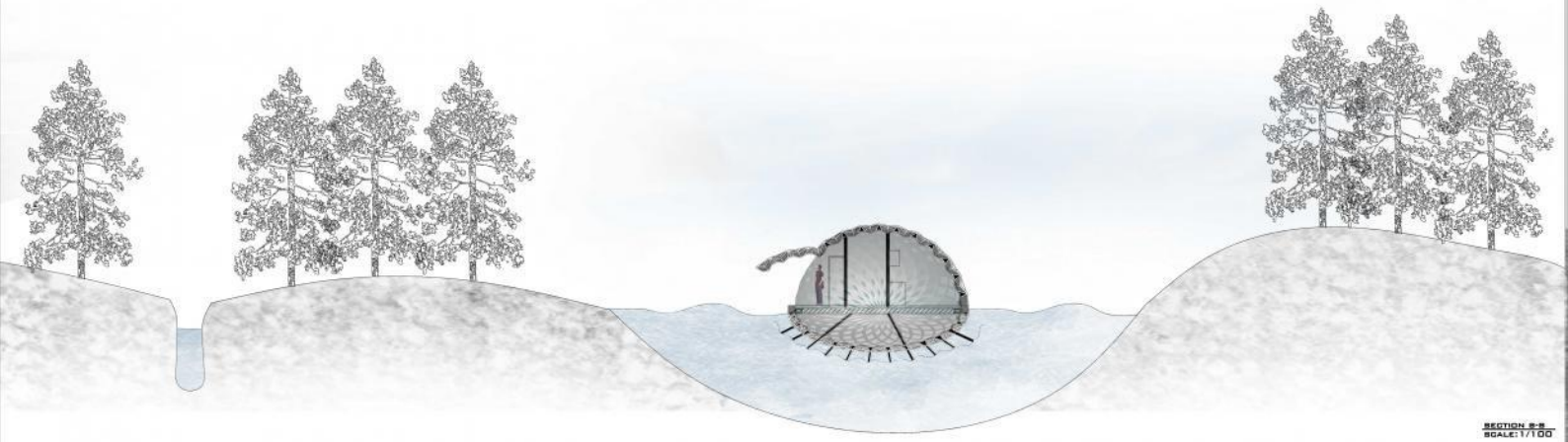


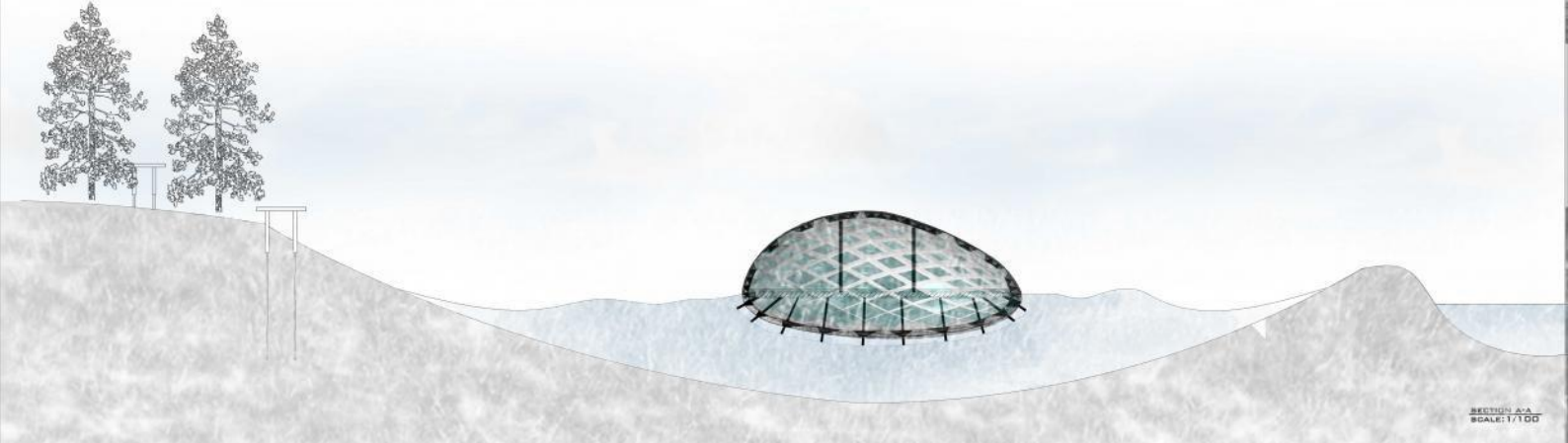
PLAN
SCALE: 1/50



SECTION A-A
SCALE: 1/50



SECTION B-B
SCALE: 1/100



SECTION A-A
SCALE: 1/100

POLITECNICO DI MILANO - AUIC
ARCHITECTURAL DESIGN STUDIO 2
SPRING SEMESTER 2016

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MAURIZIO DEGNI

STUDENT NUMBER:838128

STUDENT:ASGHARIAN.MEDIYA

FEWS. FOOD

GREENERY

FEWS. ENERGY

WATER

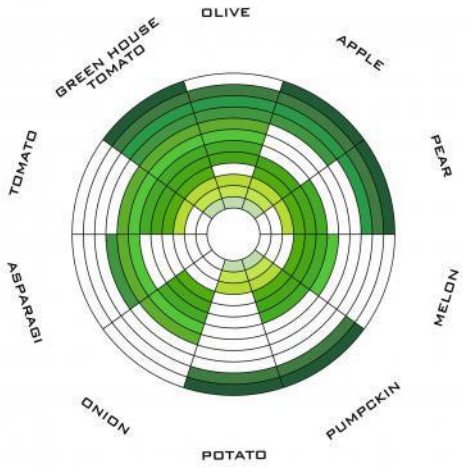
SUN

FEWS. WASTE

BIOGAS

WATER

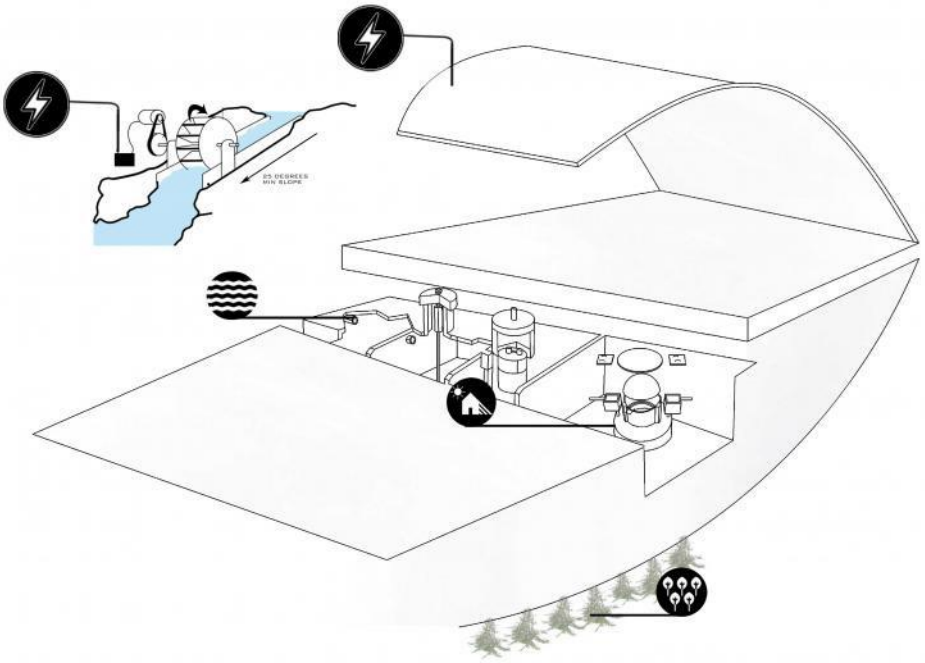
GREENERY IN LAND

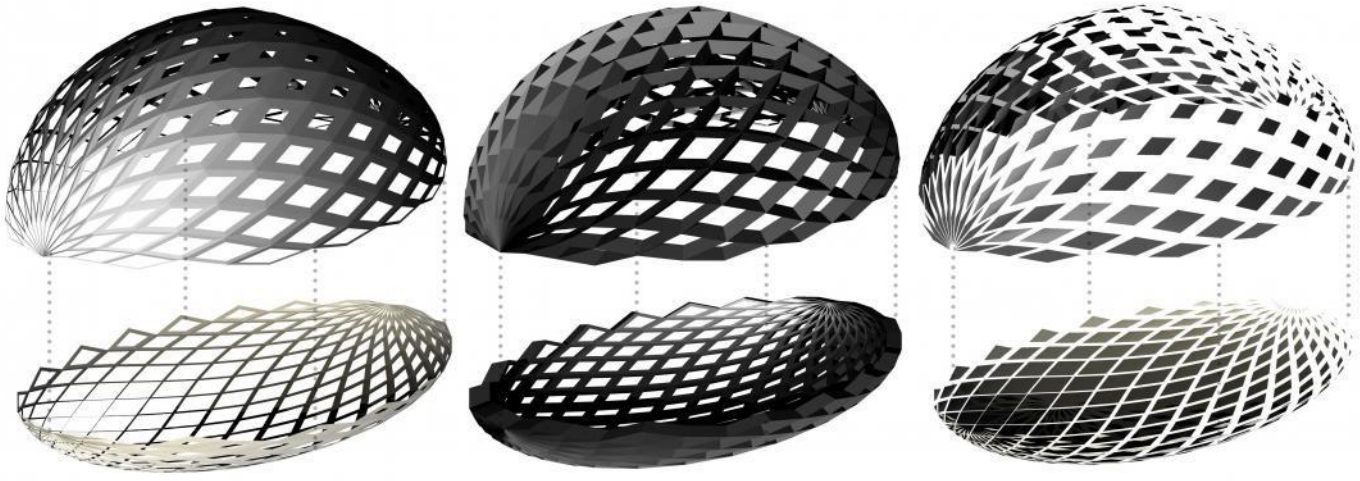


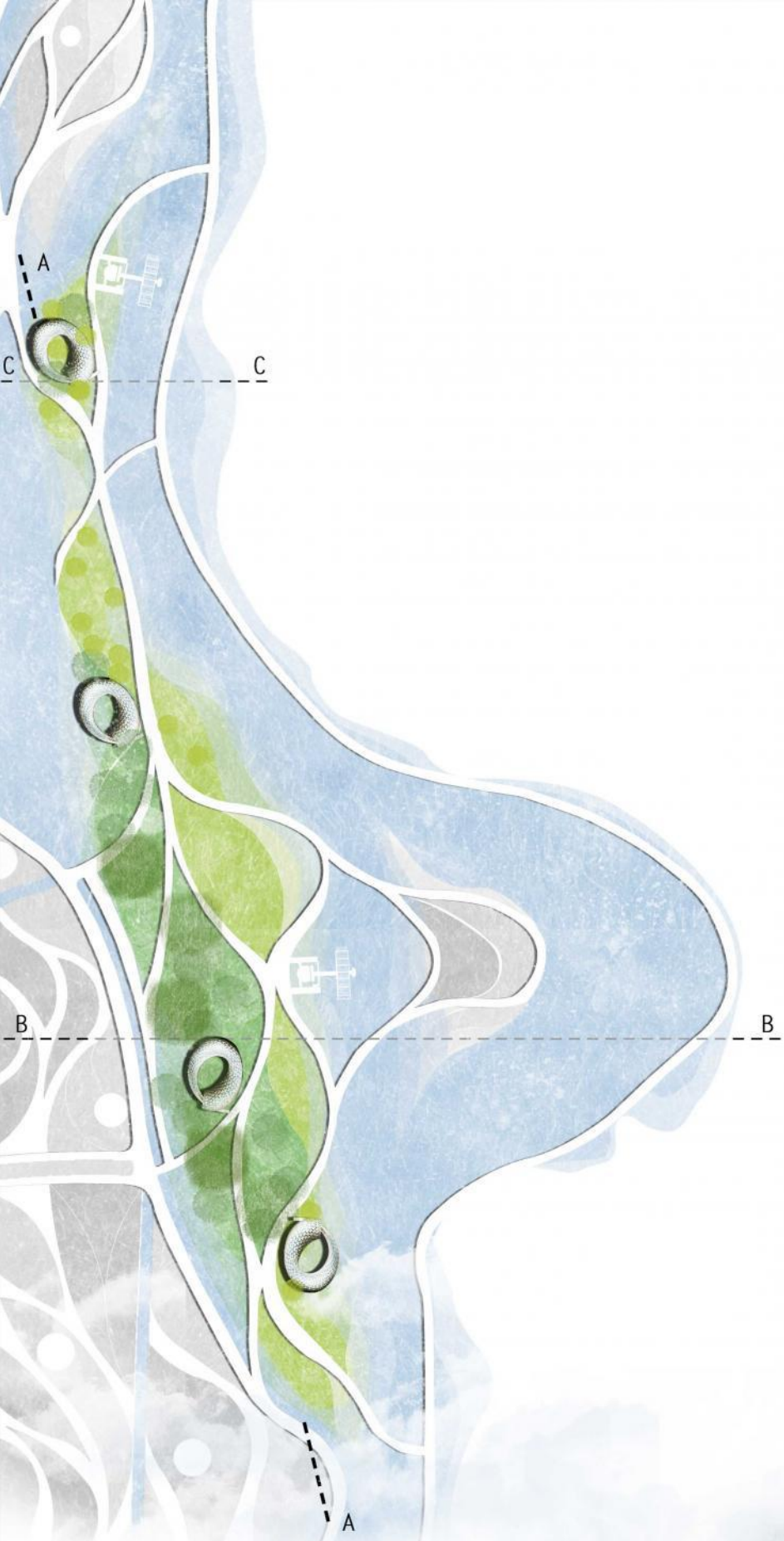
GREENERY IN WATER

UNDER THE HOUSE

IMEC :SEEDS ARE PLSNTED IN THE HYDRO MEMBRANE WHICH ALSO CONTAIN ALL NECESSARY NUTRIENTS.







MASTERPLAN

ACCESSIBILITY

- HIGHWAY
- FOURTH LEVEL ROAD
- INTERNAL PATHWAY
- RAILWAY ROUTES & STATIONS
- BUS TRANSIT NETWORK AND STOPS

FLOOD RISK

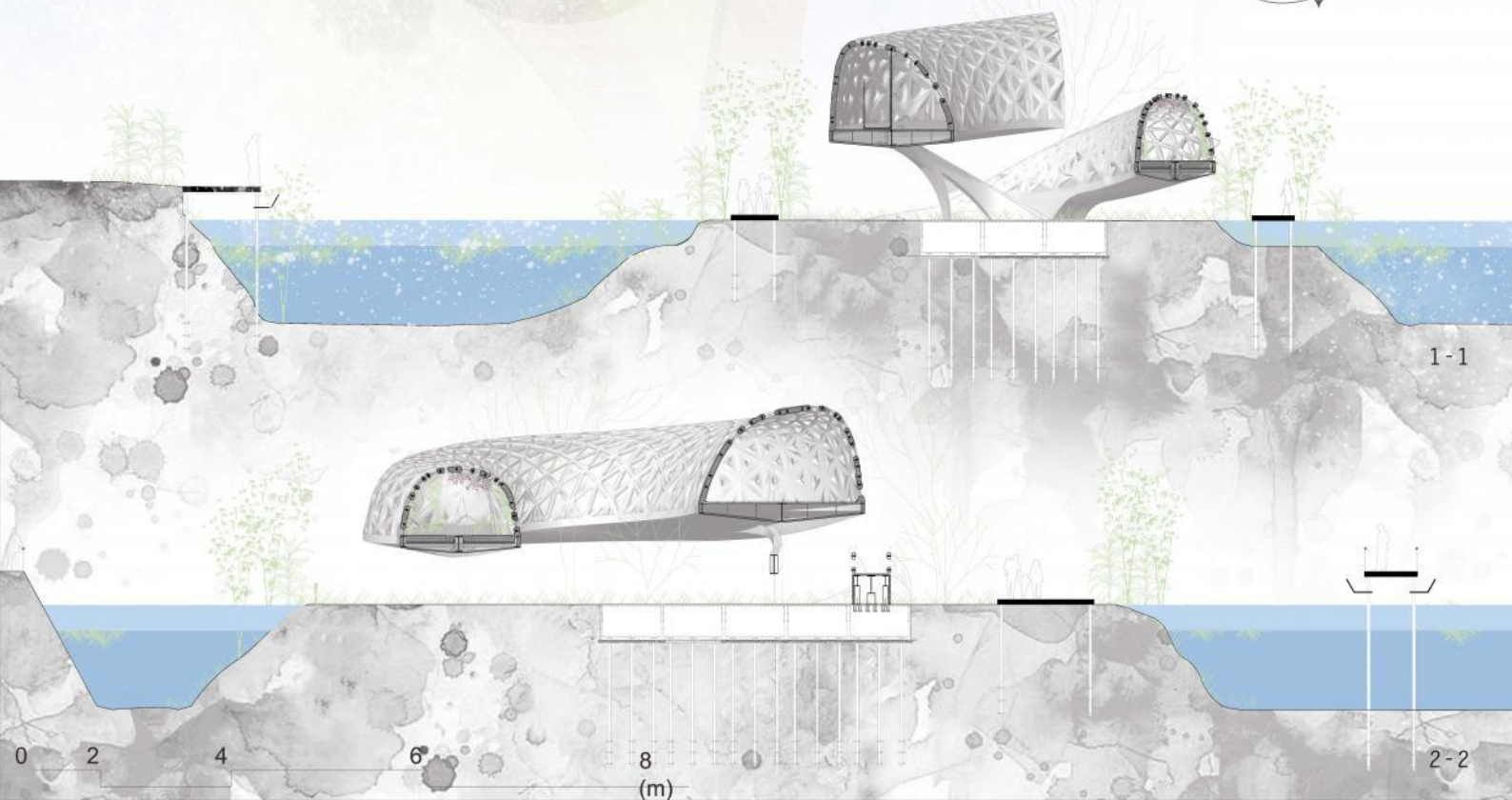
- EXISTENT WATERSURFACE
- R1 - MODERATE RISK
- R2 - MEDIUM RISK
- R3 - HIGHER RISK
- DESIGN LIMIT BETWEEN BAND B AND BAND C
- AREA WIH DEPTH LOWER THAN GROUNDWATER

GREENARY

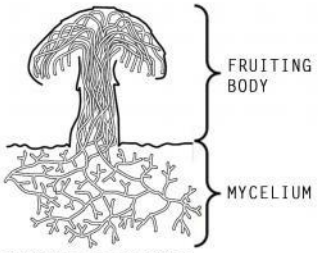
- AQUATIC
- MARSH
- SHRUB
- TREE
- LOW VEGETABLE
- HIGH VEGETABLE
- LOW FRUIT-TREES
- HIGH FRUIT-TREES
- EXISTING GREENARY

FLOOR PLAN

STRUCTURE ANALYSIS



MYCELIUM



FUNGUS STRUCTURE

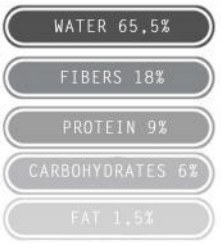
FUNGI'S CHEMICAL COMPOSITION IS A MIXTURE BETWEEN ANIMALS AND PLANTS. THEY HAVE NO CHLOROPHYL INSTEAD THEY DO CELLULAR RESPIRATIONS LIKE PEOPLE. THEY NEED TO EAT, THEY CAN'T CREATE NUTRITION FROM LIGHT.

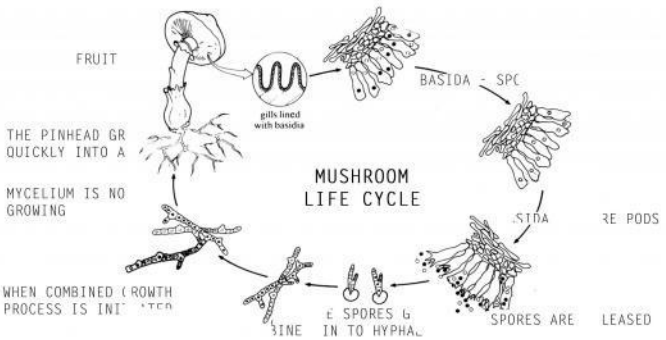
$$C_6H_{12}O_6(S) + 6\ O_2(G) \rightarrow 6CO_2(G) + 6H_2O(L) + \text{HEAT}$$

DEXTROSE + OXYGEN

CACBON DIOXIDE + WATER +HEAT

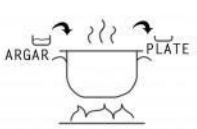
CELLULAR RESPIRATION



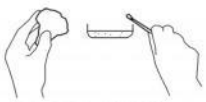


<Mycelium building - Olof Jondelius>

1.COLLECT MUSHROOM SAMPLE

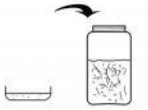


2.PREPARE ARGAR SUBSTAIN ATTAINED FROM SEAWEED

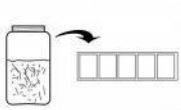


3.TAKE THE MUSHROOM TISSUE INTO THE ARGAR PLATE TO GROW

4.PREPARE THE SUBSTRATE FOR MUSHROOM EXPANSION, A MIXTURE OF AGRICULTURAL WASTE, SUGAR, CAT FOOD AND ENERGY DRINK

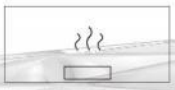


5.PLACE THE MUSHROOM MASS INTO THE SUBSTRATE AND ALLOW IT TO INCREASE IN VOLUMN , THIS WILL TAKE 3-7 DAYS

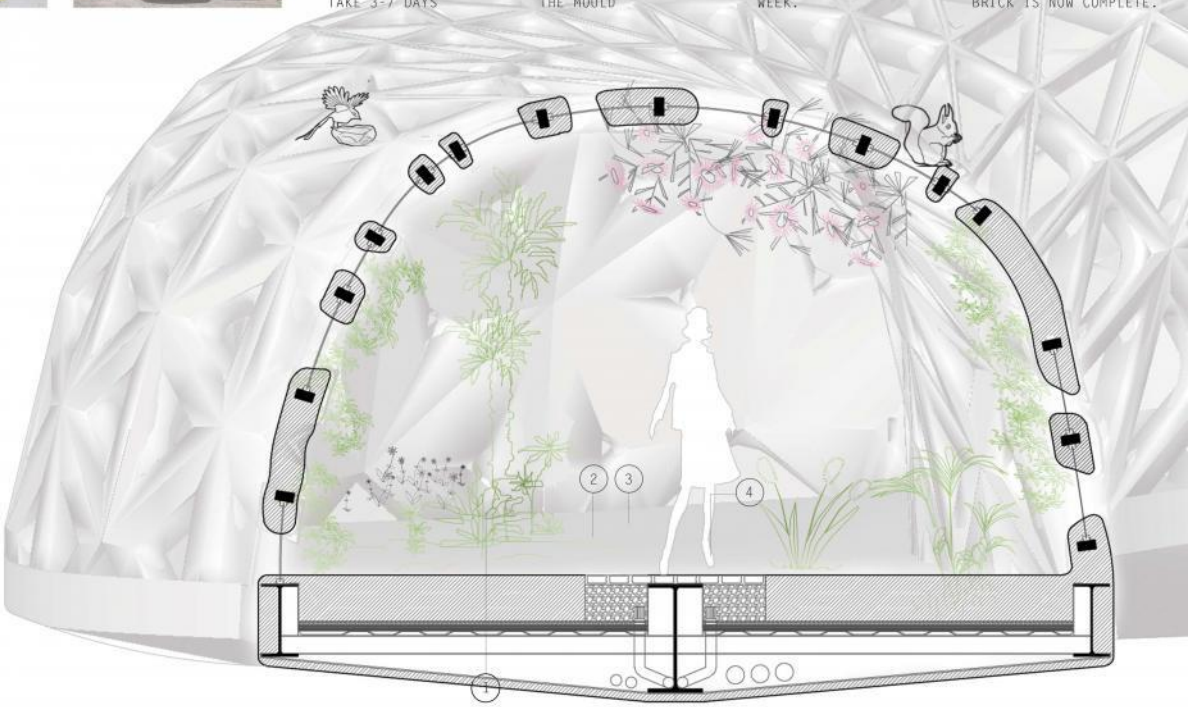


6.REMOVE THE MUSHROOM MASS FROM THE JARS AND BREAK IT UP INTO SMALL PIECES AND PLACE INTO THE MOULD

7.REMOVE THE OBJECT FROM THE MOLD AND WAIT FOR IT TO STRENGTHEN. THIS WILL TAKE APPROXIMATELY ONE WEEK.

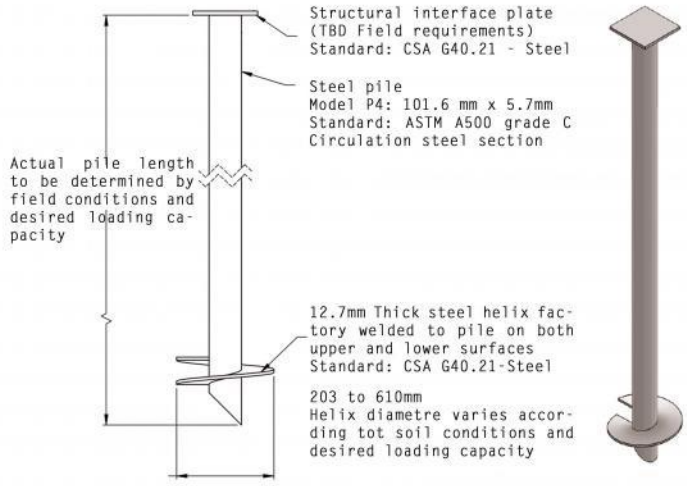


8.ONCE DRY PUT THE BRICK INTO AN OVEN (100-200 °F - 38 - 93 °C) TO KILL ORGANISM. THE MYCELIUM BRICK IS NOW COMPLETE.



DETAIL

HELICAL PILE



Allowable working load		
Compression & tension	Lateral*	Bending moment
29,000 lbs - 129.0 kN	2,698 lbs - 12 kN	10,400 lbs.pi - 14.1 kN.m
*The lateral capacity depends on the density of soil		

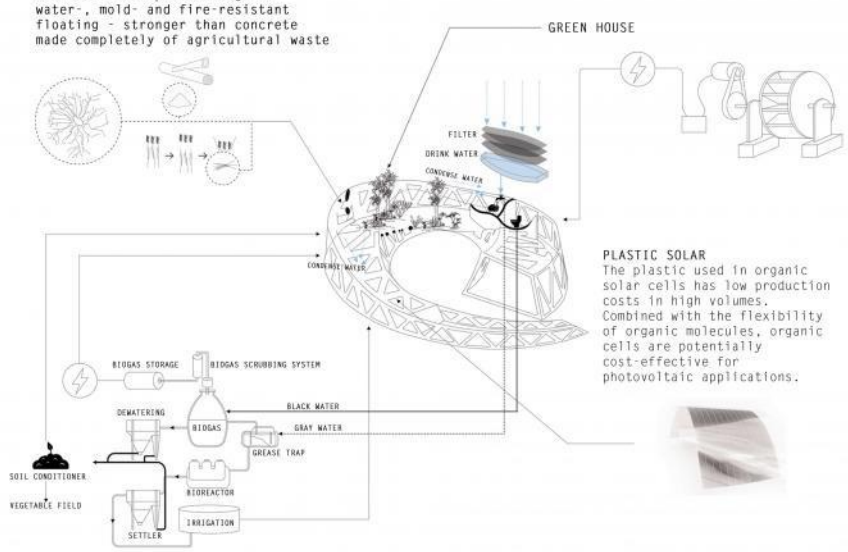
FASTER CLEANER GREENER

ET-1

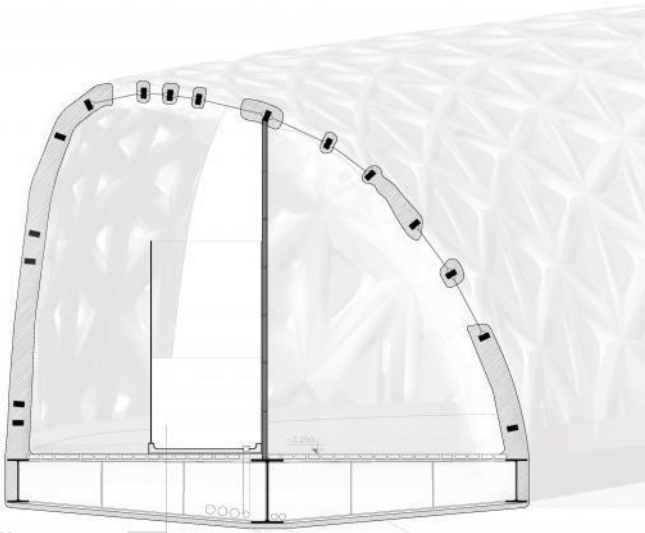
Dimension: 168 in. x 68 in. x 84 in.
Weight: 4037 kg
Maximal height of mast: 180 in.
Mast rotation: 360º
Maximal bearing capacity per installed pier is more than 20 tons

<Techno Metal Post of Albany>

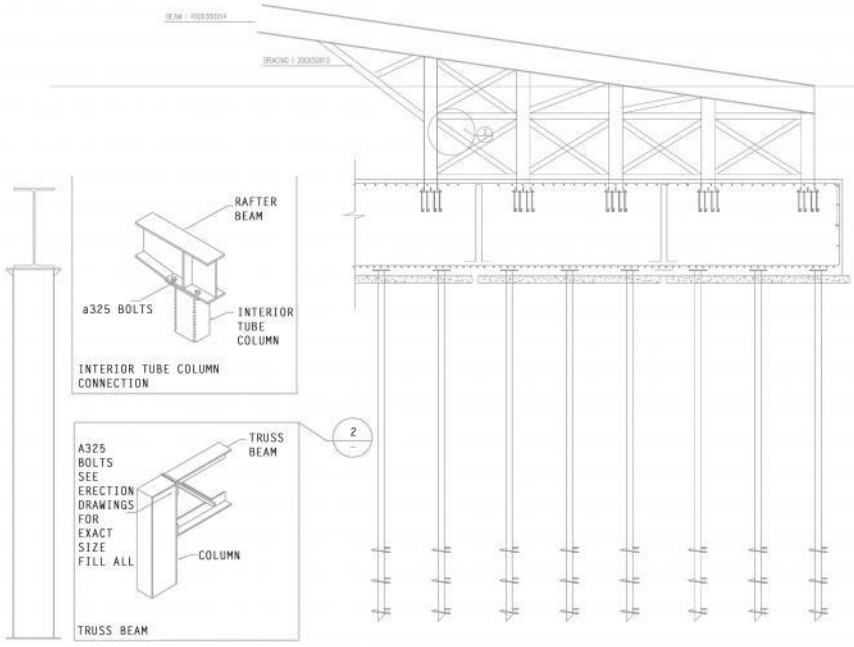
MYCELIUM - 100 percent organic
water-, mold- and fire-resistant
floating - stronger than concrete
made completely of agricultural waste



PLASTIC SOLAR
The plastic used in organic solar cells has low production costs in high volumes. Combined with the flexibility of organic molecules, organic cells are potentially cost-effective for photovoltaic applications.



shower floor
Two coats of flexible waterproofing compound with a fiber glass tape at joinys
Wooden floor Panel
Steel Bracing
Panel cover
Mucelium cover



DETAIL 3