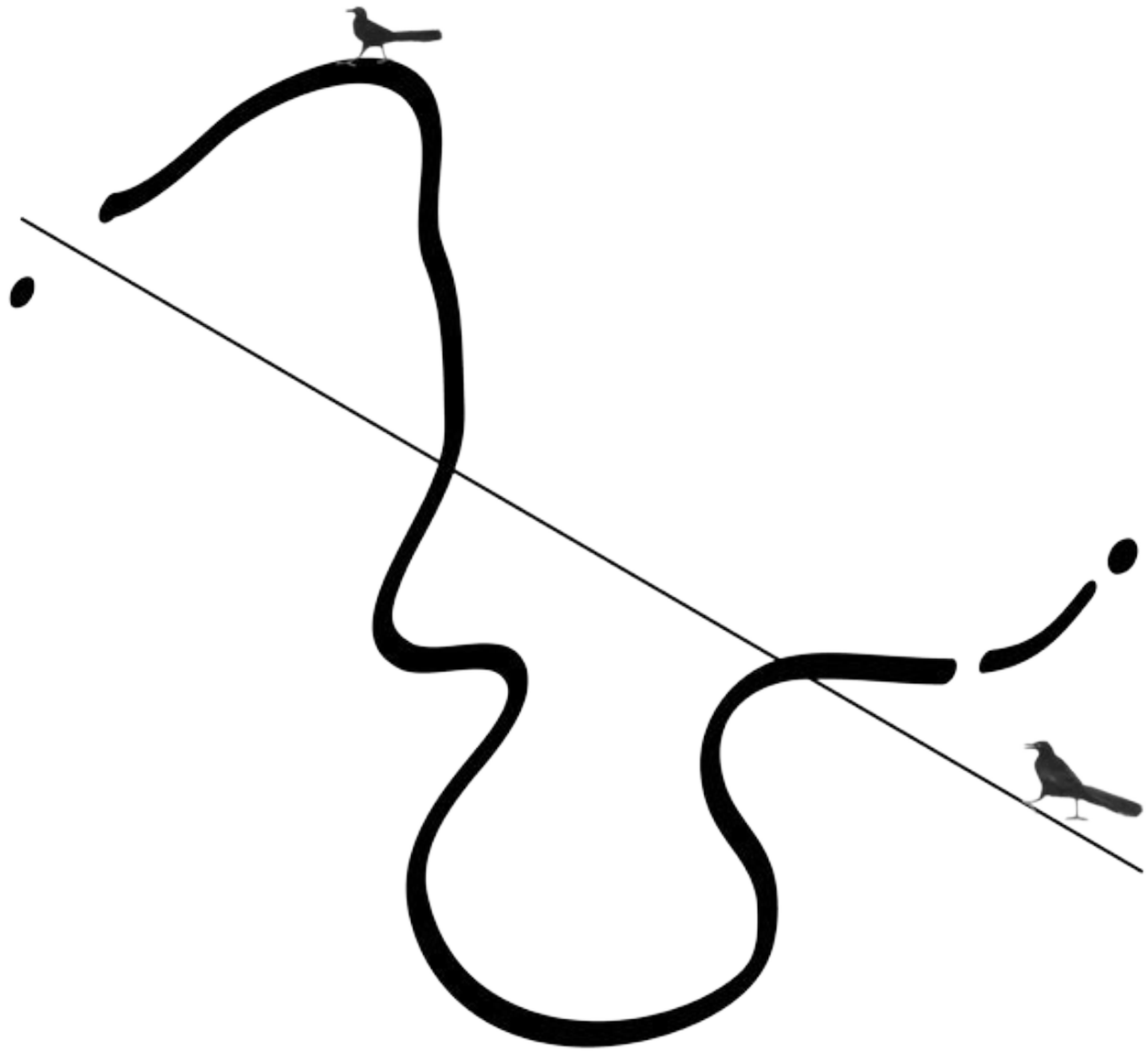
The Institute of Bioeconomy

Campus Development - Stage 2/C Feasibility Report -rev.0

Autumn 2014

Issue Status DRAFT



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II CONTENTS

INTRODUCTION

1 CONTEXT

SECTION 1 SITE

1 INTRODUCTION

This Section; Site, will be explored as a generator for design strategies first as a series of observations from 'character of area & location' to 'context', from 'climate &environment' to 'topography' and 'access'. This information will be utilised in subsequent sections to the report.

Further more this section will reflect the character of built environment, its history and the current policy frameworks that impact upon the site.

2 SITE CHARACTER

AREA

The Proposed Site Location is situated near to the area of Saarijärvi and forms the historical connection from jyväskylä to Saarijärvi. It is a site of prime siginifance.

From North to South; the site is situated on a gently sloping gradient towards the water. From this axis the site occupies an obscured and sheltered position.

From East to West; the historic Old road from the Blue House, heading westwrads been masked over time. From this axis the site area is glimpsed from a limited but primary position upon the main road itself.

2 SITE CHARACTER

LOCATION

The Site forms the Northwestern segment of the active Bio Economy Campus, that houses POKE, and JAMK's BTI instittute.

A number of site locations for the development were tested in terms of; 1) their Ability to meet the needs of the Brief, 2) the Suitability to mitigate adverse impacts and appropriate scale and relationship to the existing context. 3) the potential to develop a sensitive and high quality Environmentally diverse Landscape and Architectural Ambition, and 4) the potential to maximise orientation, prospect, aspect and organisation.

The developments siting has therefore been split with some develpoments positioned on the southerly boundary to the applicants land ownership addressing the existing water reserve and other develpments developing a compact centre critical for the success of the Campus and its culture and finally more specialised environments located on the Northwesterly part of the site for logisitical reasons. The siting also benefits from existing topographical landforms

Site ownership boundaries (blue)

Application Boundary (red)

Location of Building Siting

Site Area Hectares

Site Area . . . Hectares (. . . m2)

CLIMATE

Given that the design and its strategies for the Proposal will need to be 'Innovative' and, consideration to the climatic conditions will be required, that facilitates the appropriate design mix of Passive and Active design strategies.

SOLAR GAIN

In terms of Solar Orientation, the site and its location provide for the opportunity of utilising solar gain, with some 60-80% of solar radiation across the sun path being accessible throughout the Day.

WIND & ENCLOSURE

In terms of wind direction and pattern, there is potential to utilise Southwesterly directions. While acknowledging that an appropriate and sensitive design approach may limit the use of wind as a renewable resource, wind and its prevailing directions will require careful consideration to the Building form more generally.

WATER

Owing to the provision of a water reserve adjacent and on the site, there is considerable potential to utilise evaporative Cooling to any Design. While any discharge and surface water run off will require Sustainable Drainage Systems to limit contamination.

NOISE

Designs will need to provide natural/artificial acoustic barriers to the surrounding context.

2 SITE CHARACTER

TOPOGRAPHY

The topography of the area forms a gentle gradient generally to the existing site topography. More widely the area's topography forms an inclined gradient moving North-South with the adjacent farm buildings being of higher elevation to the embankments.

Site Gradient 1m Intervals

Site Plateaus Already Formed

The location of the proposed development have been positioned at existing level plateaus to minimise groundwork excavations and fills together with site and area disturbances.

ACCESS

Primary Access Provision

Historic Access point to quarry disused.

VIEWS

Principle Views Onto Site from the Main Access Road.

Limited vantage points onto the site are located at the southern and Northern boundaries to the site. boundaries to the East provide a sheltered views onto or into the site, while Boundaries to the West offer open visual vistas. More widely the area is of open farmland with multiple views.

3 SITE HISTORY

HISTORY

Figure Ground Plan of Built Environment showing build up of building stock from up until the Present time (indicated as Black to Grey)

BUILT ENVIRONMENT

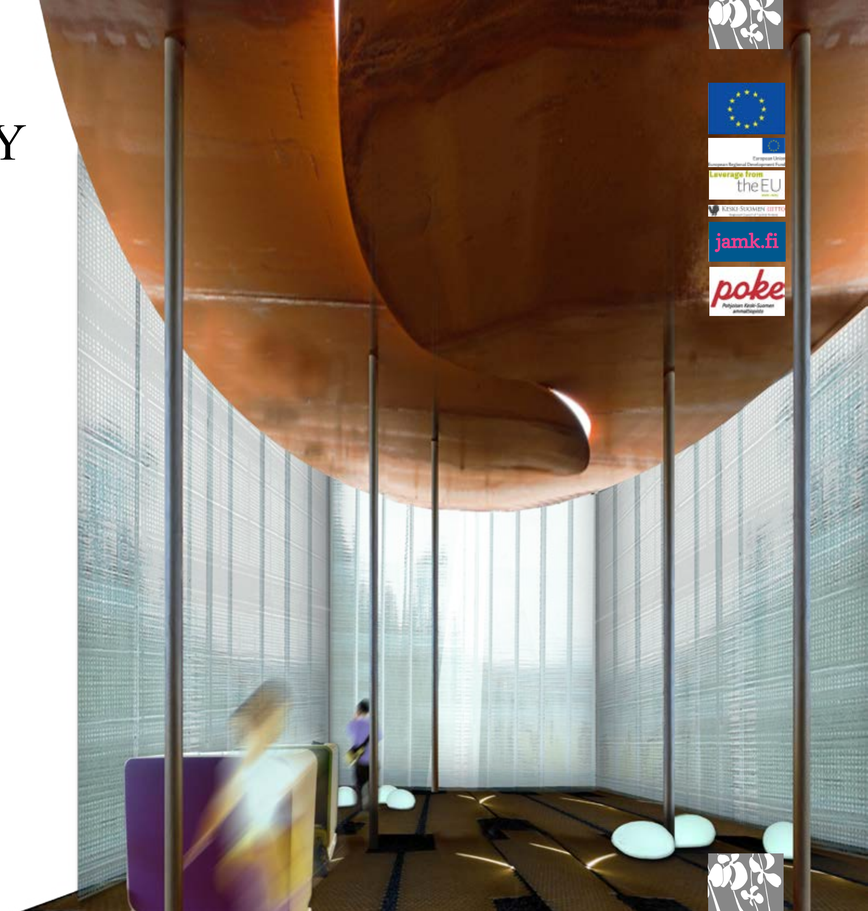
Generally the built environment is of incremental development of one to two storey developments of residencies and teaching facilities.

A principle 'Building Line' and 'Axis' for orientation can be clearly seen from the figure ground plan to the left.

This Axis sets up a contextual and organisaition response to the incremental development. that defines the character of the area.

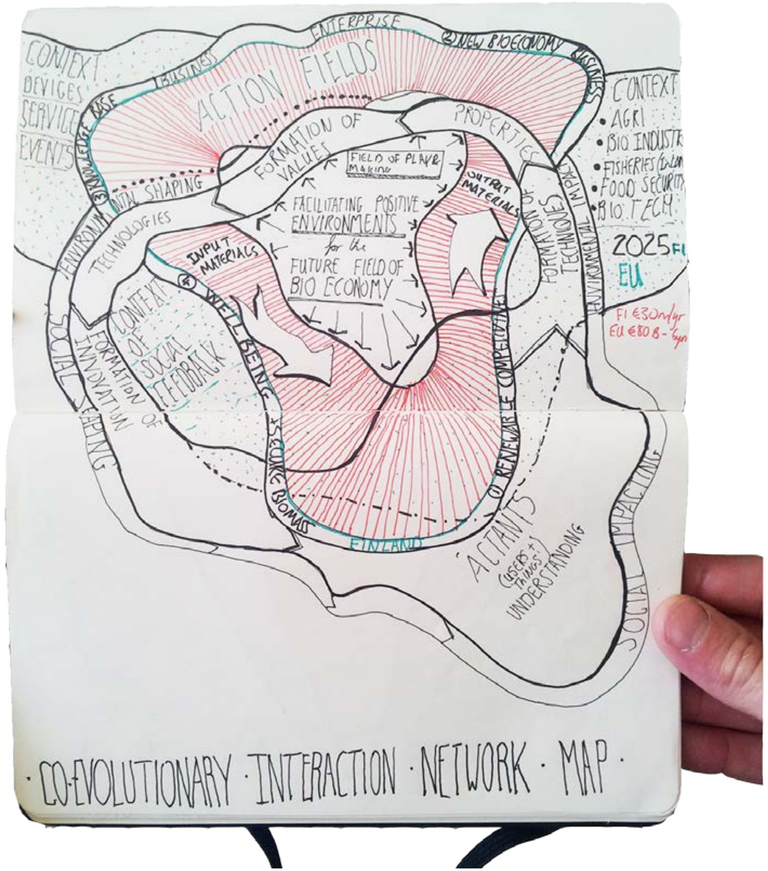

Principle Building Axis/Orientation
KEY
Red line Site
Solar Gain Sun Path
Wind Rose, Seasonal
Topography
Existing Change in Levels
Principle Proposed Access Point
Historic Access point to Site
Principle Building Axis/ Orientation to Context
Principle Views onto the Site
COMPLETE SITE APPRAISAL
Principle Building Line
Leverage from the EU
jamk.fi
poke

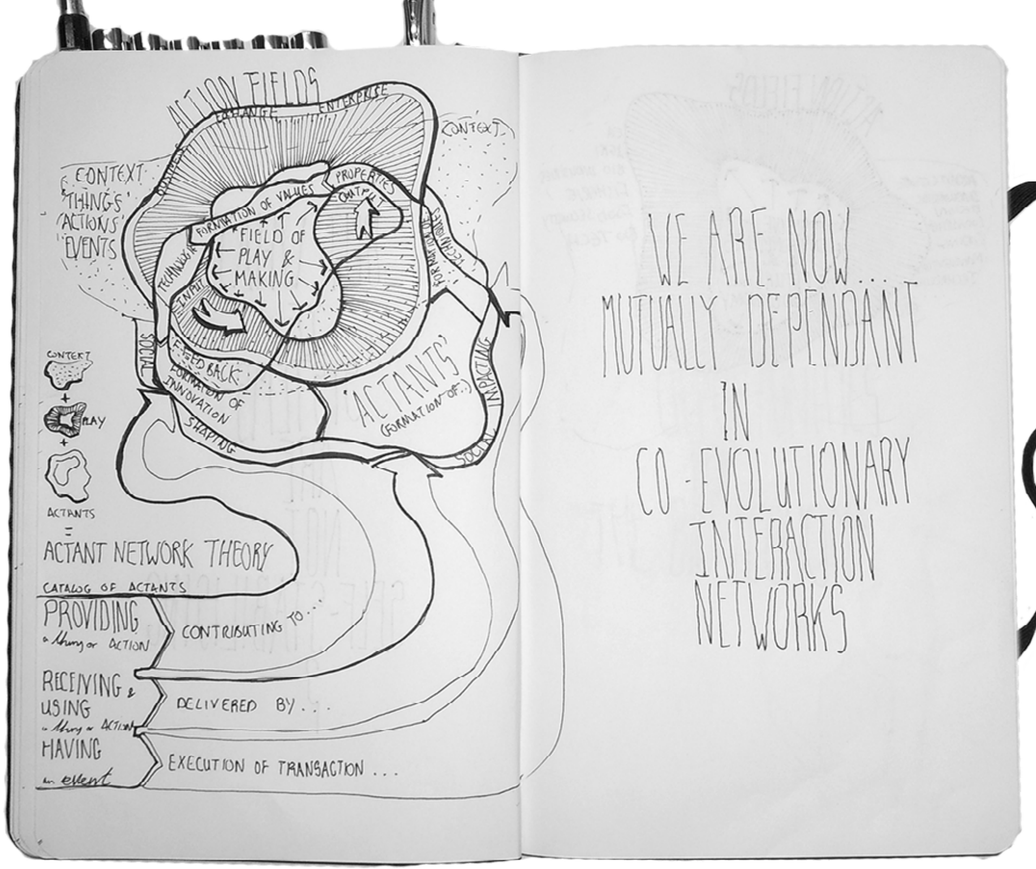
2 STRATEGY



DESIGN STRATEGY 1:
SITE

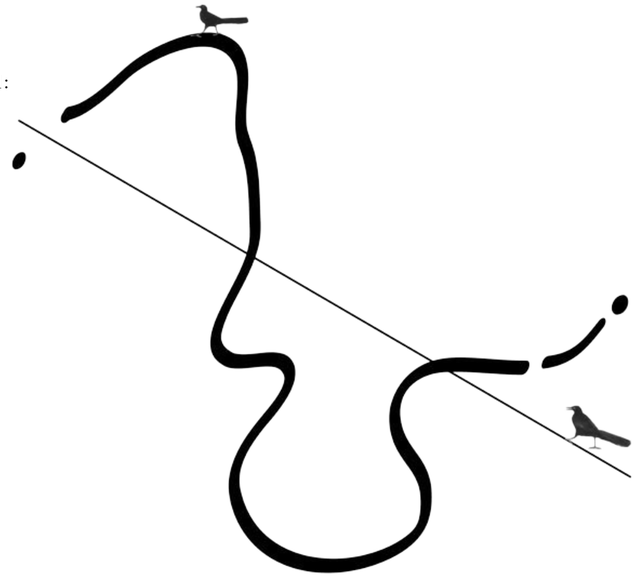
Conceptual Strategy



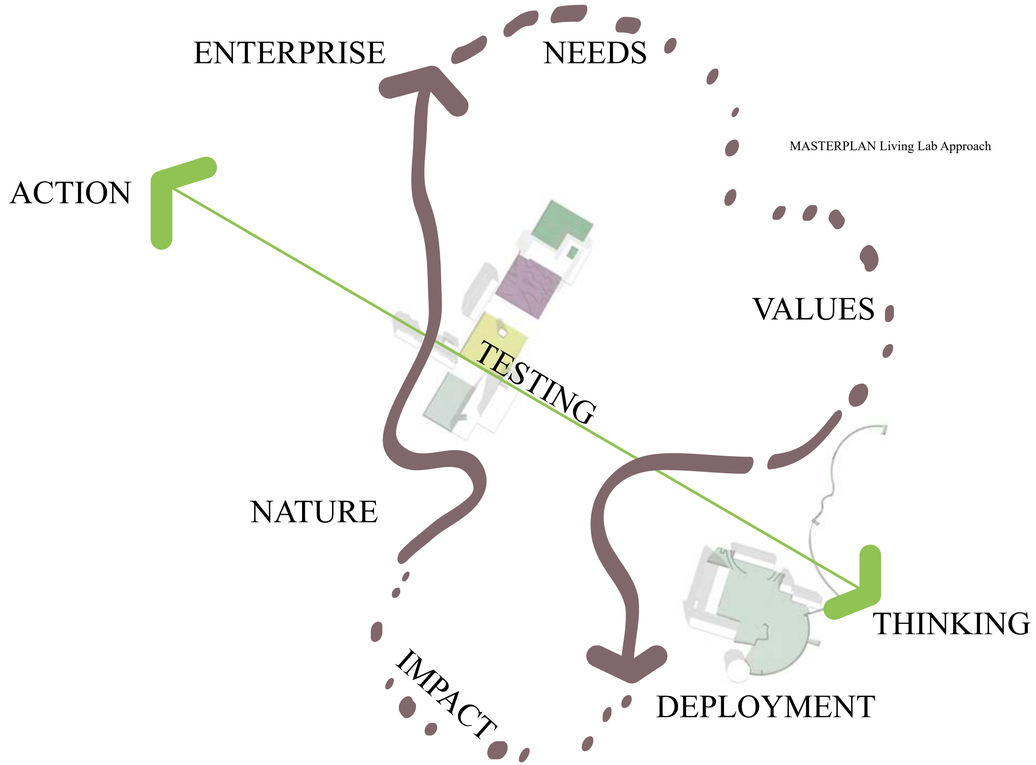


DESIGN STRATEGY 1:
SITE

Site Strategy



MASTERPLAN Living Lab Approach

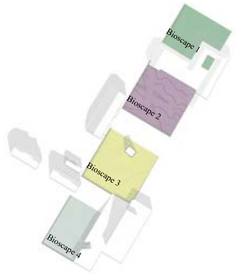


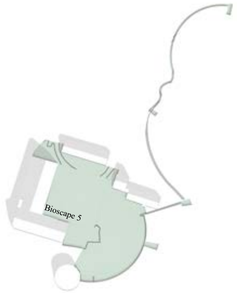
DESIGN STRATEGY 1:
SITE

Site Strategy

DESIGN STRATEGY 1:
SITE

Agrarian Structure in the Town Plan





Agrarian Diagram, (Nollie Plan)

DESIGN STRATEGY 2:
SUSTAINABILITY

STRUCTURE & CONSTRUCTION

DESIGN STRATEGY 2

ENVIRONMENT

Most Sustainable Developments are analysed through environmental assessment methods (BREEAM/LEED) that rate and certify the performance of new developments. The BIOECONOMY CAMPUS is designed to reach 'Outstanding' level rating in the first instance and Zero Carbon/ Carbon Neutral Development status in the second.

Sustainably designed projects are sometimes referred to as a 'Zero Carbon Developments' meaning in broad terms that the energy requirements made by the inhabitants and the building itself, are met;

- Firstly, through the layout, efficiency and performance of the building fabric. This is achieved through the design and specification of the building
We classify this as 'Passive Design Principles'
- And Secondly through the generation of on-site energy, by renewable technologies called Low or Zero Carbon (LZC) Technologies.
We classify this as 'Active Design Principles'

Thus a 'Zero Carbon Development' has 'Zero' Carbon Emissions polluting into the environment and atmosphere during its useful life.

These two factors, 'Passive' and 'Active' both have varying requirement on the shape, layout, and appearance of new developments which, the design team have utilised in accommodating the clients brief to be Light and Airy while bearing in mind the context and impact to the site.

The Design strategy has focused on the long term goal of achieving a Zero Carbon development with earlier-phases, providing the basis to progress. The first phase has concentrated on the 'Passive Design Principles' primarily with the 'Active Design Principles' being able to be included in subsequent phases.

The BIO ECONOMY CAMPUS should be seen in this context of an initial passive design stage with a design strategy set over its useful life of being a 'Zero Carbon Development'.

3 PROPOSAL

DESIGN PROPOSAL

DESIGN IN USE
(PLANNING DRAWINGS)

AL 0 01 Location Plan
(1/2500 A3)

2 DESIGN PROPOSAL

DESIGN IN USE
(PLANNING DRAWINGS)

AL 0 02 Location Plan Proposed
(1/2500 A3)

TARVAALAN BIOTALOUSKAMPUS
Yleissuunnitelma

Tarvaalan kampusalueella toimii Jyväskylän ammattikorkeakoulun Biotalousinstituutti (BTI) ja Pohjoisen Keski-Suomen oppimiskeskuksen (POKE) Luonnonvara-ala. Tämä yleissuunnitelma on visio kampusalueen kehittämisestä.

Koulutusta ja yritystoimintaa tukevia havaintoja kehittämisympäristöjäMaatilan ja kampuksen biomassavirrat hyödynnetään modernin ravinnetalouden havainto- ja kehittämisympäristönä. Vesien käsittelyn koulutukseen ja tutkimukseen on rakennettu oma havaintoympäristönsä. Alueen tarvitsema energia tuotetaan bioterminaalin hakevoimalassa.

Alueen uusi energiajärjestelmä sekä jäteveden ja biomassojen hyödyntämisjärjestelmät mahdollistavat uusien teknologioiden ja järjestelmien havainnollistamisen, kouluttamisen ja tutkimisen.

Koulutusta ja yritystoimintaa tukevia tiloja ja toimintoja

Kampukselle rakennetaan uudisrakennus, johon sijoitetaan moderneja opiskelu- ja T&K -tiloja sekä uudisrakennus työskentelytiloineen aloittaville opiskelijayrityksille. Tarvaalan kampus mahdollistaa opiskeluaikaisen yrittäjyystoiminnan ja oman yrityksen perustamisen tarjoamalla puitteet, esihautomopalvelut sekä mahdollisuuden hyödyntää oppilaitosten tiloja, laitteita ja prosesseja ideoiden testaukseen. Kampusalueen yhteyteen rakentuu yhteistyössä
Saarijärven kaupungin kanssa yrityspuisto, jossa on erinomaiset mahdollisuudet harjoittaa biotalouteen liittyvää liiketoimintaa.

Alueen tunnettavuutta vahvistavia toimintoja
Kampusalueelle rakennetaan perinnekasvimaa, puutarha, puulajipuisto sekä myymälä, jossa myydään kampuksen oman maatilan ja peltojen tuotteita. Alueella vierailevien matkailijoiden käytössä ovat melojien tukikohta, laavu,näkötorni, patikointireitti ja museo. Kampusalueen torilla järjestetään yleisötapahtumia. Kampuksen näkyvyyttä maisemassa vahvistetaan valaistuksella sekä alueelle johdattavalla portilla.

2 DESIGN PROPOSAL

DESIGN IN USE
(PLANNING DRAWINGS)

AL 0 02 Location Plan Proposed
(1/2500 A3)

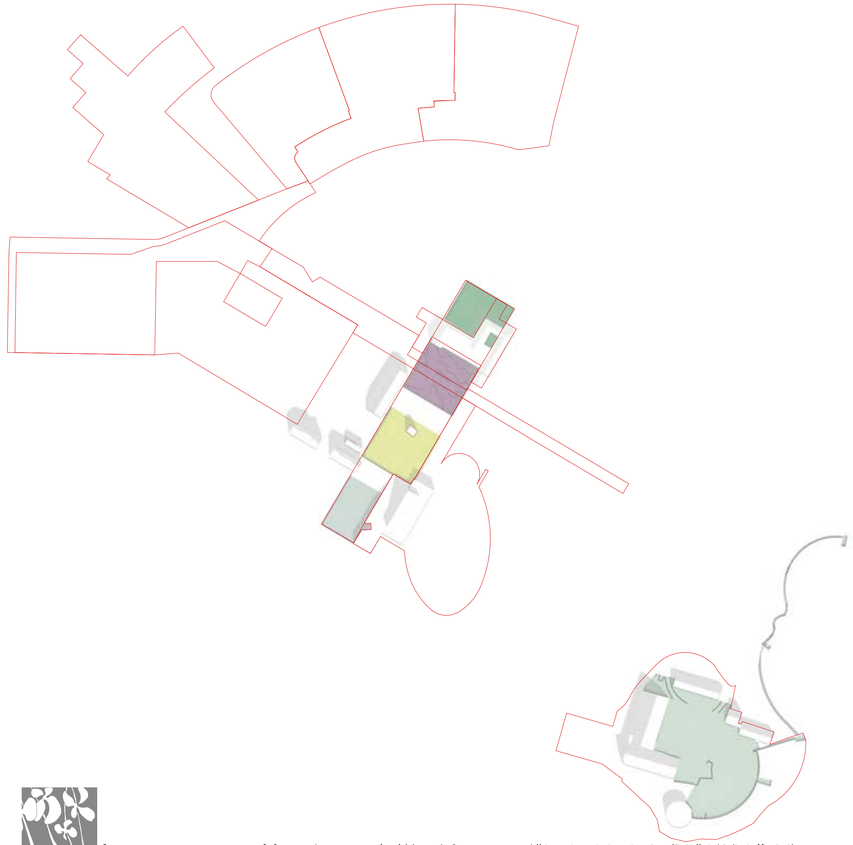
- Olemassa Oleva Opetustoimintaa palvelevat rakennukset
- Uusi Opetustoimintaa palvelevat rakennukset
- Uusi Navetta, ja Kasvishuone
- Olemassa Oleva Asuinrakennukset
- Uusi Asuinrakennukset
- Olemassa Oleva Muut rakennukset
- Yritystoimintaa palvelevat rakennukset
- Olemassa Oleva Varastot,
- Uusi Liikuntahalli
- Uusi yritystontti
- Uusi Bio Terminaali

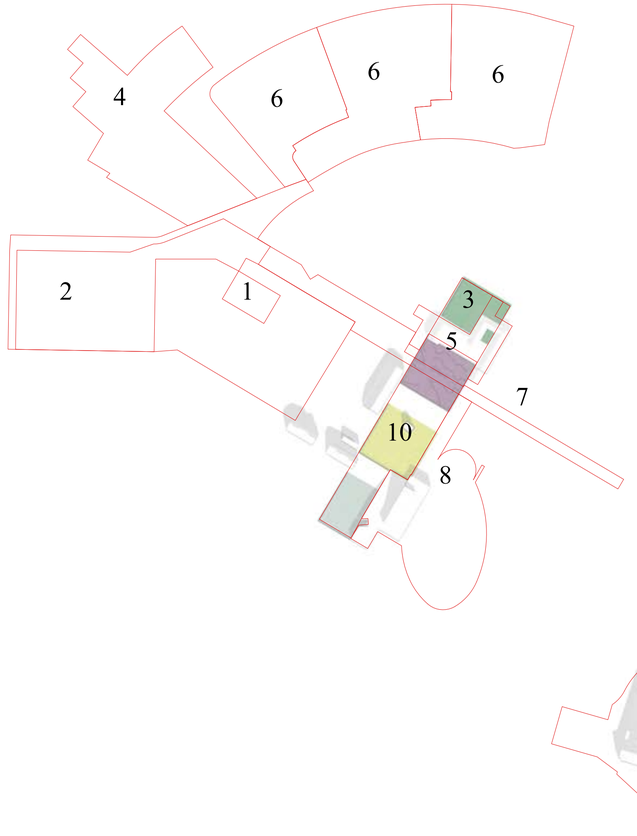
DESIGN PROPOSAL

DESIGN IN USE
(PLANNING DRAWINGS)

AL 0 05 Site Plan Roof Plan

(1/2000 A3)





Development Sub Projects

1. Bioterminaali ja koneopetustila
   (Bioterminal and machine workshop)
2. Hajautetun energiatuotannon koulutus- ja T&K –ympäristö
   (Novel energy system)
3. Vesilaboratorio ja bioympäristöt
   (Environmental lab and bioscapes)
4. Maitokarjatalouden koulutus- ja T&K –ympäristö
   (Milk production environment)
5. Tarvaala-talo ja yrityskehitysprosessit
   (Tarvaala house and business development processes)
6. Tarvaalan Yrityspuisto
   (Tarvaala Business park)
7. Vihreä Tarvaala
   (Green Tarvaala)
8. Kampus hostelli, liikuntatilat,
   (Campus hostel, gym and sport park)
9. Vanhan navetan uusi käyttö
   (Novel use of the old cow-house)
10. Tarvaalan maamerkki
    (Tarvaala landmark)

DESIGN PROPOSAL 3: FACILITIES *and services*

Development Sub Projects

1. Bioterminaali ja koneopetustila
   (Bioterminal and machine workshop)
2. Hajautetun energiatuotannon koulutus- ja T&K –ympäristö
   (Novel energy system)
3. Vesilaboratorio ja bioympäristöt
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10. Tarvaalan maamerkki
    (Tarvaala landmark)

PHOTO 1, The Courtyard

PHOTO 2, Learning Spaces

PHOTO 3 The Dairy Farm Concept

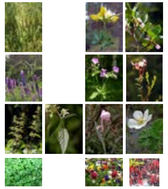


PHOTO 6, The Biodiversity Conference Centre

PHOTO 7, The Saun and Recreation Centre

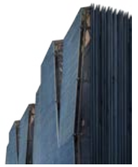


PHOTO 8, The Student Accommodation

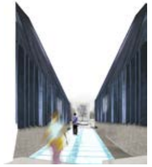
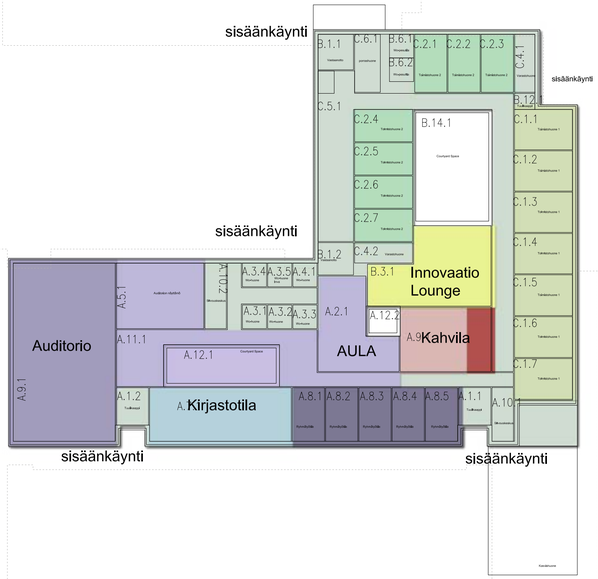


PHOTO 9, The Entrepreneurial Environmets

Sub
Basement
Level

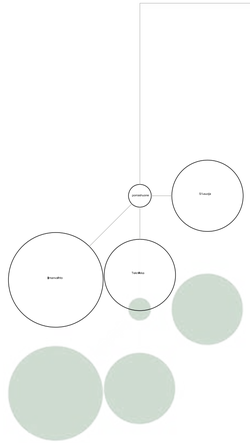
First
Floor
Level

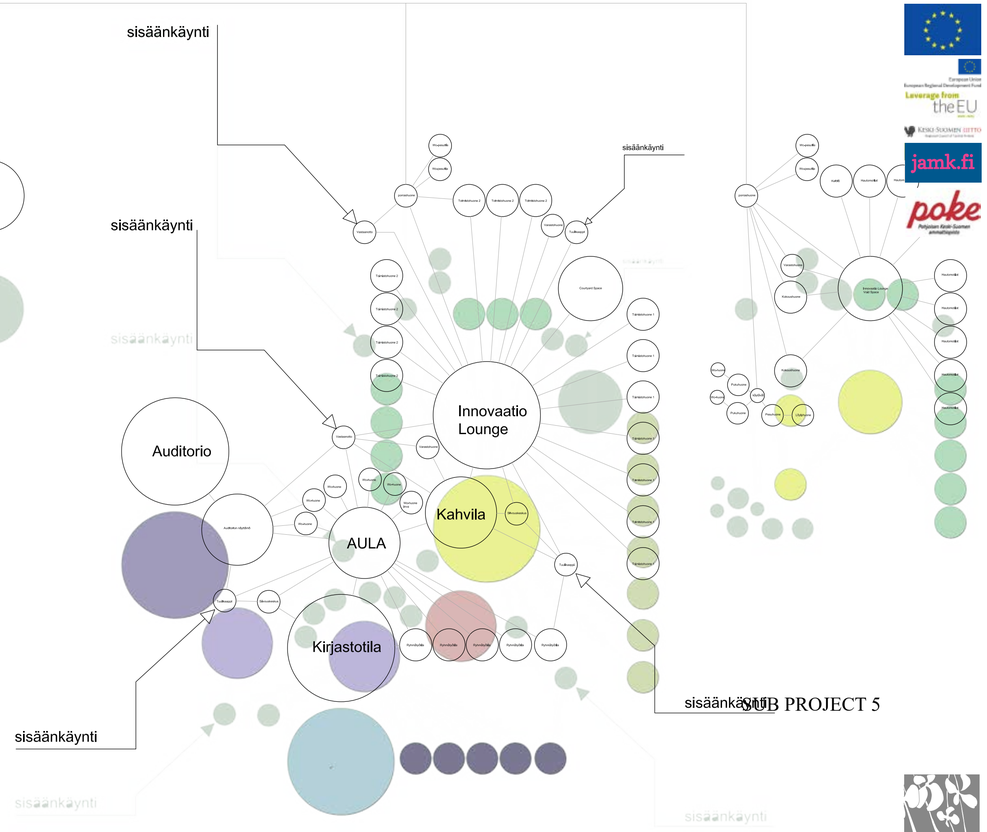


Second
Floor
Level

Original
Masterplan
Footprint of
Building

SUB PROJECT 5





SUB PROJECT 5

SUB PROJECT 5

LEARNING LANDSCAPE
spillout space for auditoriu,
exhibition and info area for main building

AUDITORIUM SPACE

GROUP WORK SPACES INFORMAL

LEARNING LIBRARY

FLOAT SPACE
(including circulation, Toilets, Kitchens, entrances and Lockers)

BUSINESS INCUBATOR SPACES (7 spaces)

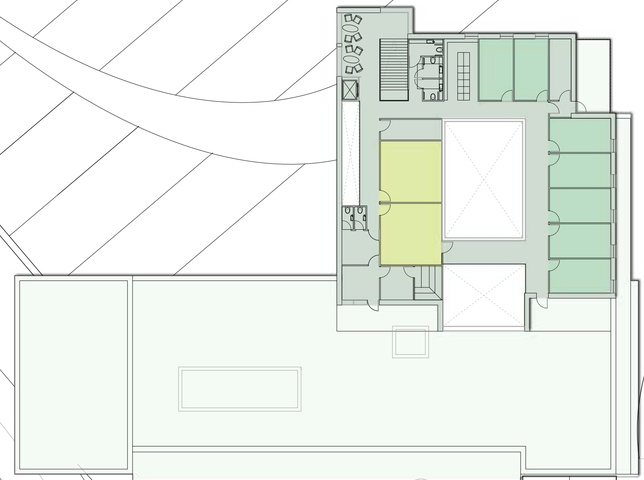
OFFICES (SSYP)

OFFICES (7 spaces)

INCUBATOR SHARED COCREATION LOUNGE

KAHVILA Primary dedicated space

SMALL KITCHEN and Servery



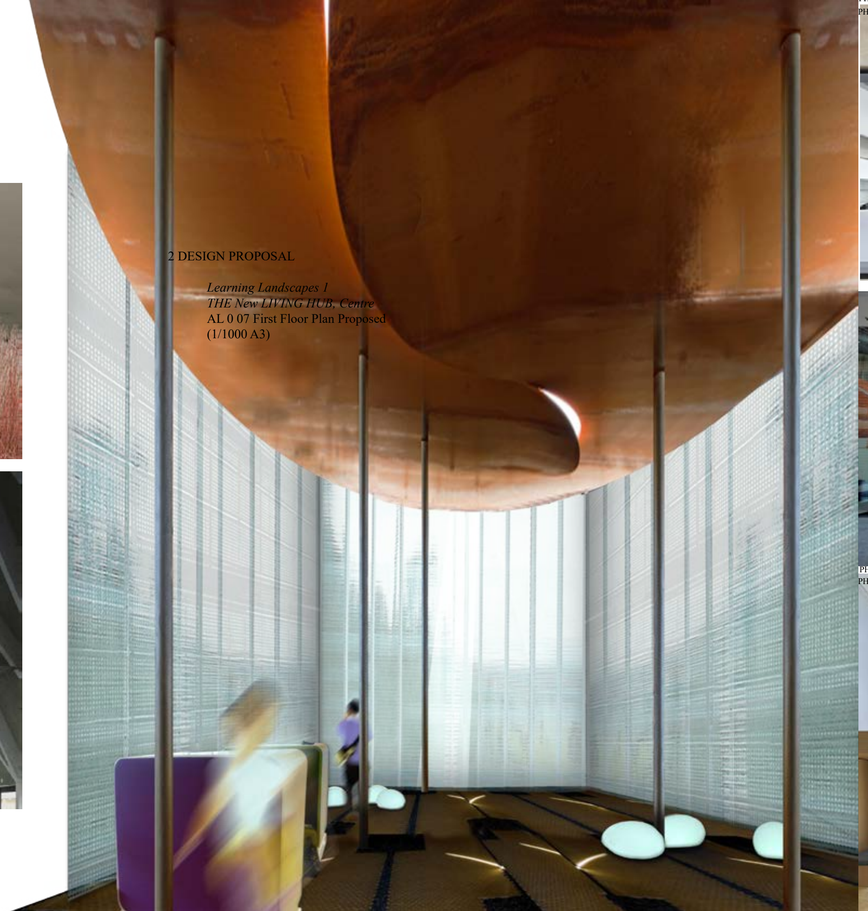
FLOAT SPACE
(including circulation, Toilets, Kitchens, entrances and Lockers and SAUNA)

INCUBATOR SPACES (7 spaces)

INCUBATOR SHARED MEETING LOUNGES

PHOTO 3, Brockholes, Preston, UK. Adam Khan

PHOTO 7, Brockholes, Preston, UK. Adam Khan



2 DESIGN PROPOSAL

Learning Landscapes 1
THE New LIVING HUB. Centre
AL 0 07 First Floor Plan Proposed
(1/1000 A3)

PHOTO5, Sainsburys Laboratories, Cambridge, UK. Stanton Williams

PHOTO 3, ducatorium, Utrecht, Netherlands. Rem Koolhaus

PHOTO 6, Sainsburys Laboratories, Cambridge, UK. Stanton Williams

DESIGN PROPOSAL

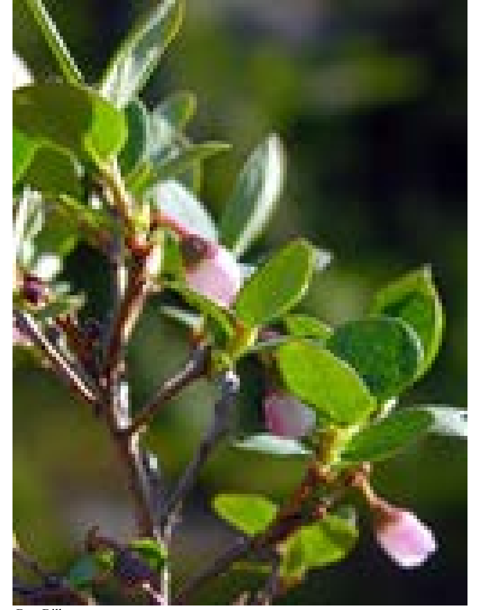
DESIGN IN USE
(PLANNING DRAWINGS)

AL 0 07 First Floor Plan

(1/500 A3)


Poaceae


Pea

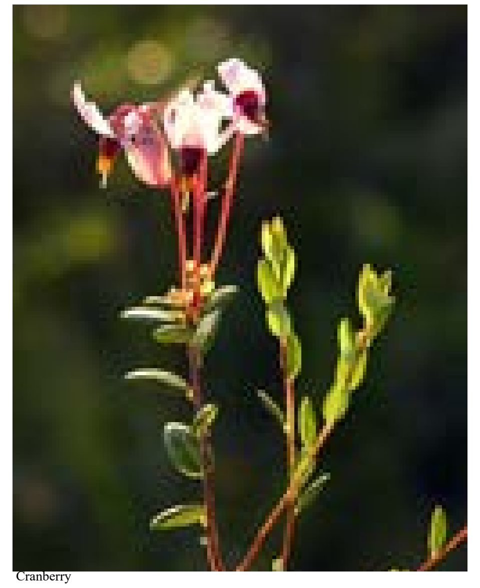

Bog Bilberry

2 DESIGN PROPOSAL

Key External Spaces
AL 0 07 First Floor Plan Proposed
(1/1000 A3)


Tufted Vetch

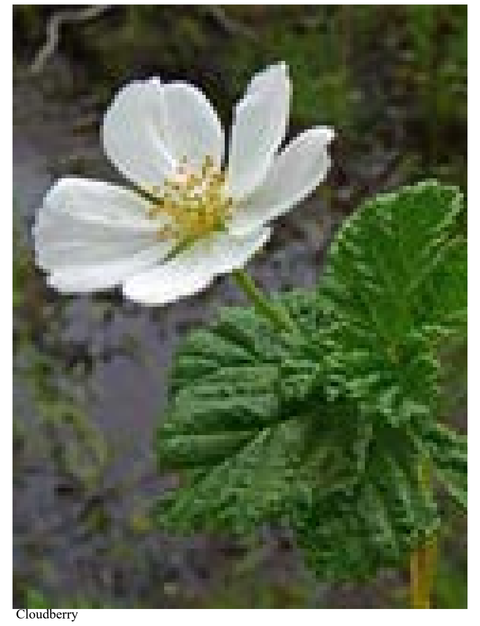

Cranesbill


Cranberry


Stinging Nettle


Raspberry


Bog rosemary

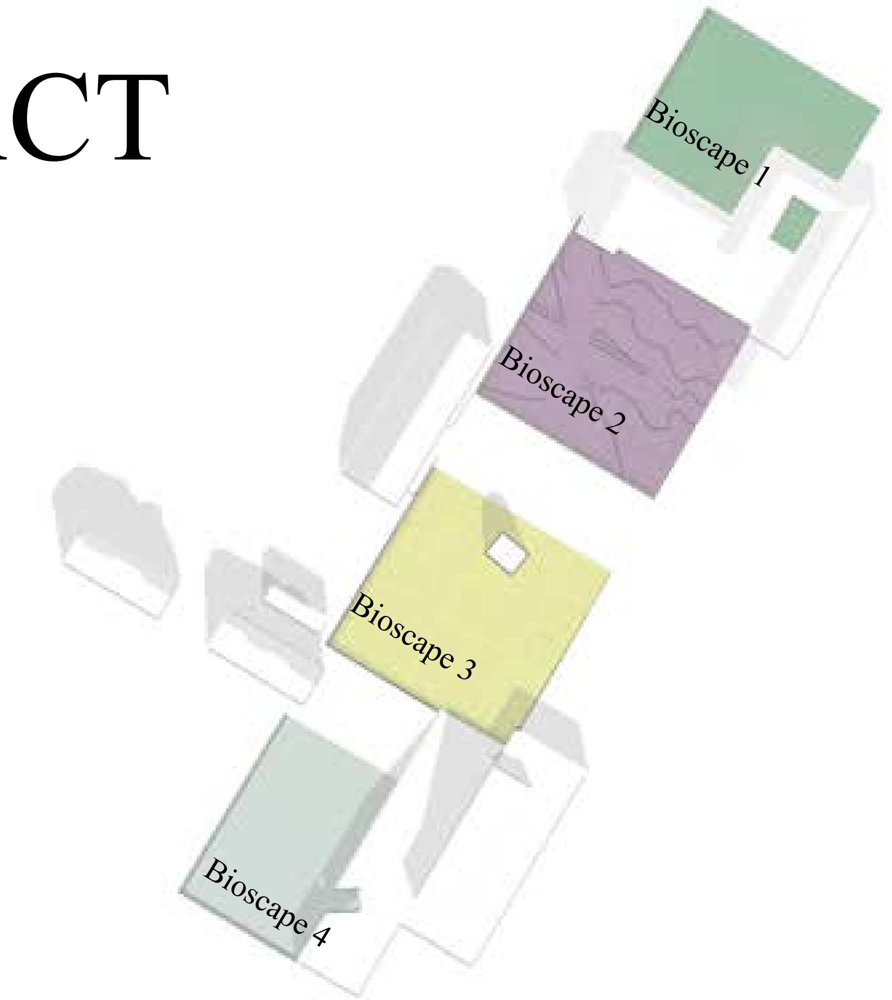

Cloudberry

Clovers


Violets and pansies


Alpine Bearberry


4 IMPACT



DESIGN PROPOSAL

Opportunities for Bio Diversity and Cultural activities could be staged at the various Bioscapes

Collaborations with Greencare could benefit from Bioscape 5 and the designed landscape-ing themes