

# Geodesign as a Teaching Method for Design Studio: The Case of First World War Landscape of the Battle of Passchendaele

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Heritage landscape, Alternative Futures, Geodesign, studio teaching, First World War.

## 1 Introduction

Hypothesis:

- If the thinking process of the designer (student) is not documented, it doesn't exist.
- Geodesign is not a priori GIS-based.

In the design studio, using geodesign as a method, alternatives are given for a certain design/planning problem. By making the alternatives, all students can participate in a common design (STEINITZ 2012). There is no discussion about whose design is the best, as often occurs when students give different individual solutions for the same problem, and then start discussing which design is the best. They seldom solve the problem this way. In this case, there is no discussion about the thinking process, because this process is not documented. The discussion ends up in a clash of individuals. The experienced designer thinks about a problem and draws a result of this thinking process (black box design: creativity), he often doesn't need to document the thinking process unless in offices discussion and internal questioning are used as methods (glass box design: rational methods) to strengthen the design and arm the designer before presenting for the commissioner (JONES 1992, LAWSON 2006).

Documentation of the thinking process makes possible the discussion even between disciplines. The documentation doesn't require high drawing skills (either manual or digital). It is a great method to be used in participatory design, because every participant can easily add his or her ideas.

## 2 The Case Study

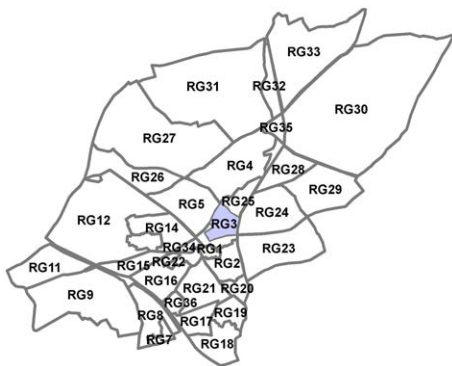
The case study on the protection of the First World War landscapes of the battle of Passchendaele (1917) in Zonnebeke was worked out in a geodesign project. The tension between spatial development and protection of the heritage landscape has been taken into account. Different alternatives (STEINITZ 2003) were worked out by a multi-disciplinary

group of students, teachers were collaborating as equals. Carl STEINITZ was leading the process.

## 2.1 Valuing the First World War Landscape

From the research project ‘from remembrance to vision’ arose a side-project in collaboration with the Flemish Government Heritage Institute (VIOE), the community of Zonnebeke and University College Ghent, to define the most important relic zones testifying the battle of Passchendaele (third battle of Ypres) (BOSTYN s. d.).

- A detailed inventory of the local First World War heritage was made.
- A visual analysis of the landscape was made. The hilly landscape was divided into spatial landscape compartments (LYNCH 1976) (Fig. 1-3). Important views were added. Image defining, positive or negative elements were added (Fig. 4).



**Fig. 1:**  
Spatial landscape compartments in the communities Zonnebeke Passchendaele



**Fig. 2:** Visual crest RG18 (BOSTYN s. d.)



## 2.2 Alternative Futures to Prepare the New Community Spatial Execution Plan (GRUP)

In a three days intensive student exercise alternatives were investigated following the method designed by Carl STEINITZ.

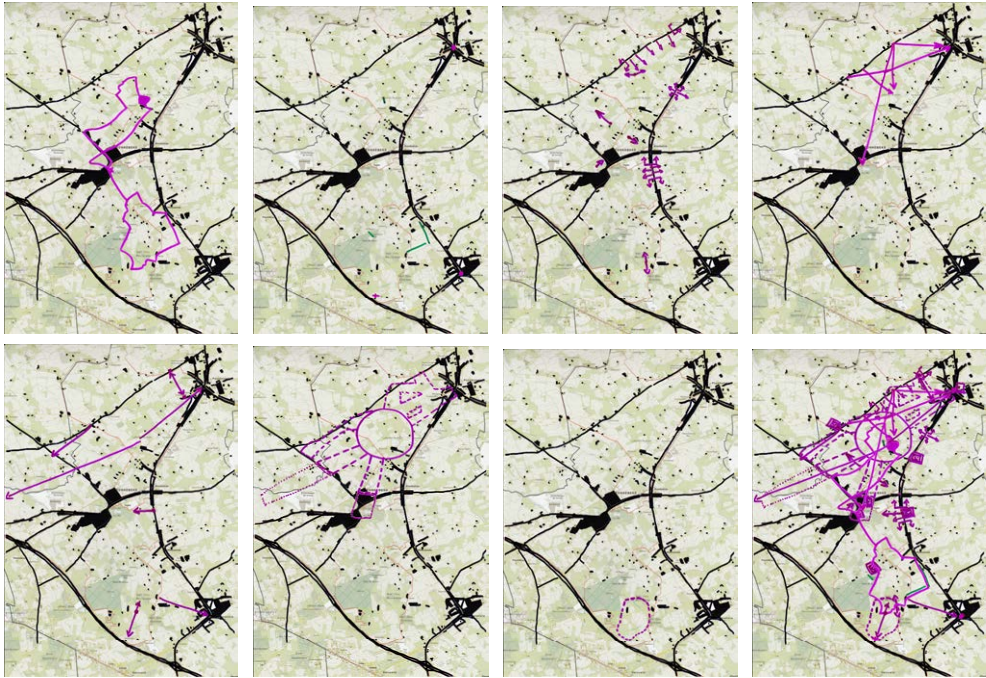
- Field study guided by the local expert historian Franky BOSTYN.
- Defining the stakeholder groups: farmers, local government, Flemish government, ecologists, tourism agencies and heritage experts (museum management, War Graves Commission, UNESCO...).
- Starting hypothesis was to double housing and industry and make agriculture more sustainable for the period 2030
- Visitor's infrastructure is ameliorated for the commemoration of the Battle of Passchendaele in 2017, where a large number of visitors are expected.
- Working fields are: economy, agriculture, mobility, heritage, ecological network, sustainability and trends: each field is colour coded.
- Designing the different alternatives in a collaborative way, the teachers assisted in the process on an equal basis.
- Checking the design propositions within the current legal framework.
- Communicate alternatives to the people of the place and discuss the possibilities in the real world.

The communication to the local government has taken place, one reaction of one of the participants that: 'normally people get the impression of what they cannot do, a planning of restrictions, where now they look at a way of planning offering opportunities. 'The next step will be to repeat the exercise based on the existing documents with the people of the place and all other stakeholders.

## 2.3 Alternatives: The Example of the Heritage Proposals

The heritage aspect in the spatial execution plan is crucial, because the First World War heritage is one of the main drivers for the tourism dynamics in the community of Zonnebeke- Passchendaele. The reason for the large number of international visitors mainly from the ANZAC-countries is that Australia and New Zealand (together with Canada) became independent countries on the battlefield of the battle of Passchendaele. The military staff found out that the soldiers performed better fighting for 'their' country... This is in my opinion the main reason why this particular place could become UNESCO World Heritage. A management plan for a World Heritage site is required. The concentric circles around Tyne Cot Cemetery represent different planning directions (Fig. 5.6)

Views from and towards the heritage sites and/or landscapes were taken into account (Fig. 5.4; 5.5) Planting structures were added to guide the view into a favoured direction (Fig. 5.2) To stop the trend of closing the view from the road by line structured housing, the proposition was made not to continue this type of building. The few open views should remain open (Fig. 5.3).



**Fig. 5:** Different heritage design proposals and synthesis

For every other field of investigation a number of proposals was designed, because the focus of this paper is not to explain the entire spatial planning study, one example should be sufficient to illustrate the idea of working with alternatives.

### 3 Alternatives and Teaching

In the book *Lateral Thinking* the idea is expressed that there are two ways of thinking, vertical thinking and lateral thinking. ‘The very word ‘lateral’ suggests the movement sideways to generate alternative patterns instead of moving straight ahead with the development of one particular pattern [...] In the natural search for alternatives one is looking for the best possible approach, in the lateral search for alternatives one is trying to produce as many alternatives as possible. One is not looking for the best approach but for as many different approaches as possible (DE BONO 1970, 58-59). As noticed in the example of the heritage approaches, ideas can be combined as necessary.

In *Generating Alternatives* the authors formulate it in this way: ‘The process (of generating alternatives, own addition) [...] needs to be rooted in what becomes a very systematic process of investigations of options and selection.’ (LAWSON & DORST 2009, 199) Complex situations need to be framed (SCHÖN 1987) to make them workable. The frames are views on the problem, focussing on selected issues as if through a frame that temporarily blanks out other matters. (LAWSON & DORST 2009)

In our case study we acted as stakeholder groups (see higher) focussing on our needs from the new upcoming spatial execution plan and we focussed on different working fields of the design problem as a starting point (ibid., 202). By working in this way the different participants were able to think in a selective way on one part of the complex design task. The act of collaborative thinking has proven fruitful.

### 3.1 Documenting the Student's Design Process

The hypothesis posed at the beginning of the paper that the design process if not documented doesn't exist can be coped by making alternatives for different frames of a design. The student's thinking is not the same as the practitioner's. Practitioners normally have a 'backpack' full of references from former design projects to which they can refer. This is not the case for students who are actually building up their reference framework. In literature student's projects are often compared to the real world and the thinking process of the practitioner. As a teacher we need to be aware of the fact that the reference framework of the student is rather limited and has to be built up for every new design task. Therefore the method of generating alternatives needs to be taught. Every step taken by the student is then documented, it is easy for a student to say: 'I thought about this or that...' for me as a teacher this is only real if it is documented.

### 3.2 What About GIS?

The different design proposals could be documented as different layers either on transparent slides or in the GIS-system. There we have the practical problem that the student in the undergraduate level is still being initiated in the GIS-world, and not in the possibility to work out projects in the GIS-environment. A bizarre problem occurring to me is, that students who are able to work in GIS rather work presentations out in Photoshop (Adobe) than they would do it in GIS. To me there is a problem of accessibility to the program taught in their education, ARC-GIS (ESRI). In Flanders there are only forty days trial version student licenses available that make it not easy to practise the program as in the case of Autocad (Autodesk) and the Adobe-suite.

In my opinion this does not mean that we are unable to start the Geo-design thinking process as shown in the case study above. Working with transparent slides (MCHARG 1971) has in my opinion also advantages for communication and participation. When the slides are spread out on a large table most participants either students or the people of the place, have the impression: 'I can participate in a process like this'. When the same process is presented in a GIS-format, participants experience more often a threshold.

### 3.3 What I Would Expect of the GIS-Environment?

Students working out a design process in Photoshop are not able to make calculations, so the necessity to teach them from an early phase in their education to work with GIS is obvious.

#### **Towards a Landscape Engine?**

From the case study some ideas on what is needed from the GIS-environment are occurring. Is it possible referring to City-Engine (ESRI) to think about a *Landscape Engine* that can make the link between design proposals and the GIS-data in a user friendly way? In the

following part I would like to develop some thoughts on the issue. I go over the case study and look at possibilities where GIS could become a design partner.

### **Economy**

- Wind turbines: according to the provincial wind plan, there are no possibilities in the area. In the meantime new information is available, where a research project is looking for possibilities for small wind turbines (<http://www.windkracht13.be/news-page/>)
- Industry: a conflict occurred in the design of one of the locations for further development for the industry where the intention was to double the surface of industry parcels. One industry zone (brickworks with clay excavation) is planned in the current spatial plan as nature development. It becomes impossible to develop the zone as industry. The GIS-data could warn the designer for conflicts with current planning documents. The visualisation of the future evolution could be predicted (see next).

### **Agriculture, ecological network and sustainability**

One of the goals of the study was to make the agriculture more sustainable as required by the EU.

- Visualisation  
Is it possible to visualise the evolution of the brook banks in the current proposal. Good plant visualisations are needed to illustrate the succession according to the proposed maintenance.
- Prediction of the evolution based on existing data  
Can the evolution be predicted in relation to the soil-type, hydrology, topography etc. planted or by spontaneous development? Maps of Potential Natural Vegetation are available however these are rather general. Are there enough monitored cases of spontaneous plant evolution available to build the data?
- Erosion measures  
Can the effect of plantings on erosion by water and/or by wind be calculated?  
What would the ideal scale of agriculture be to make it workable in balance with bearing capacity of the soils? Will there be a loss of production by shading effects of the coppiced plantings? Current studies are available on root mass in relation to erosion...
- Profit  
Can the production value of biomass be calculated, to prove to the farmer that loss of field surface is not necessarily loss of income?  
What is the profit from the biomass production of the coppiced plantings (9-12 years cycles)?
- Views  
How will the views be influenced when planting occurs?

### **Mobility**

Proposed ring road: street sections and the influence on the landscape: topography, and what will be the cost to implement the road according to different street sections (alternatives)? Who is influenced by the design proposals? Here we need a direct link to the owners and users structure.

## Heritage

If a Historic Landscape Characterisation dataset is available, plans can be assessed against historic values. In our case study the landscape and heritage values were studied locally. Preferable zones of interest were selected in collaboration with the Flemish and the local Government.

## 4 Conclusion

The process of Alternative Futures provided the necessary output for linking the heritage landscape of the First World War with the local spatial execution plan. The communication has started with the people of the place using the proposals made during the student's workshop.

From the didactical point of view, the method working with alternatives can be used in any collaborative trans-disciplinary design process in an easy way.

To develop the GIS possibilities as a design tool, further research on the Flemish level is needed.

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