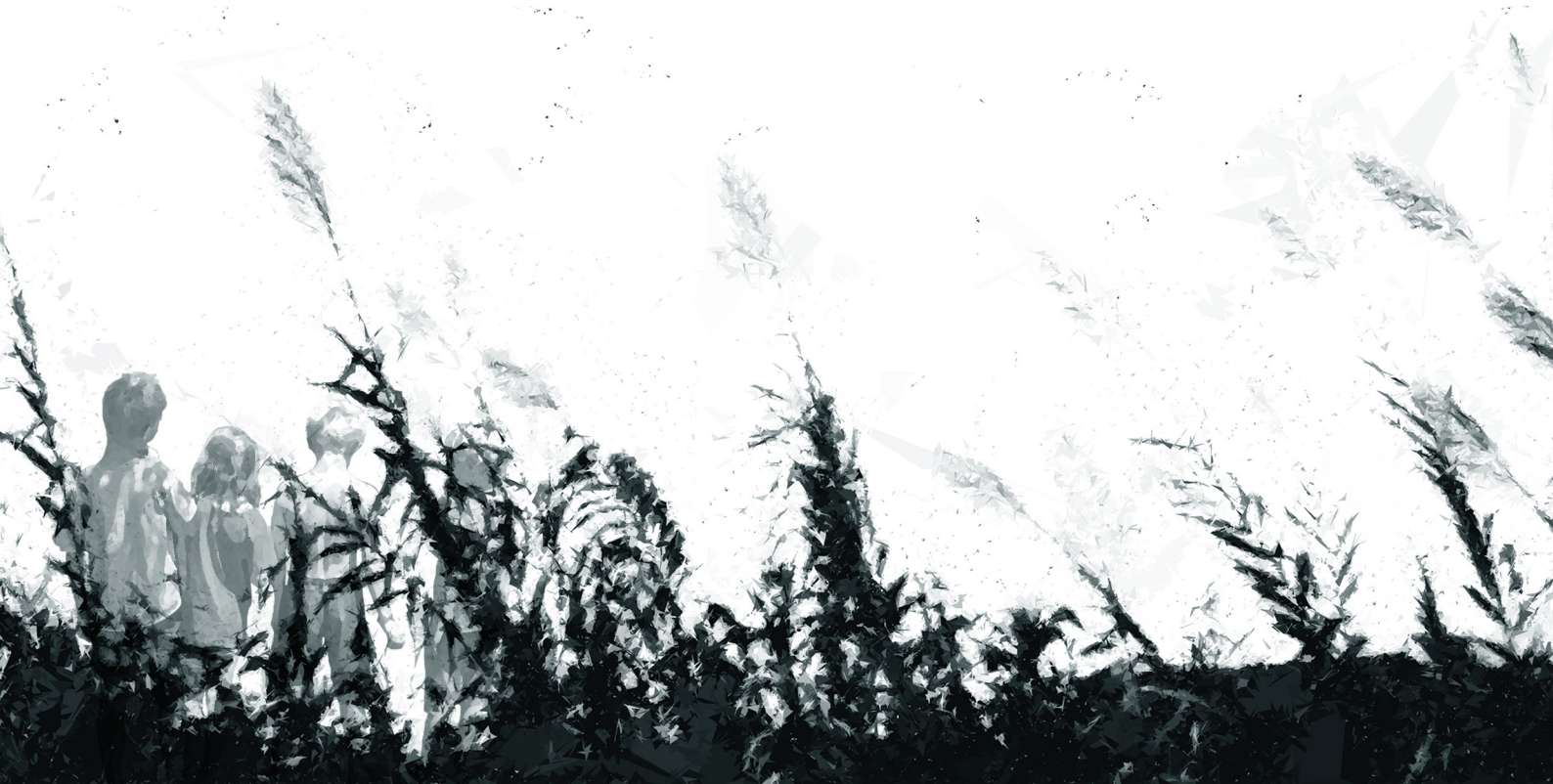
CHILDHOOD AND WILDNESS

Exploring the way to combine wildness with playfulness for children in their immediate living environment

Rujia Yu



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PREFACE

This study is fascinated by personal interest in urban wildscapes. Wild spaces are always representing symbols of secret, mystery, and indeterminacy. To research its significance for people from landscape architecture perspective, I finally determine children as my target group.

It is undeniable that children, play and wildness share many similarities, they all are disorder and free. Moreover, it is also the problem that children's play spaces are highly restricted nowadays. Because of these, I would like to explore the way to combine wildness with playfulness for children in their immediate environment to optimise their everyday play experiences.

I would like to particularly thank my supervisor Rudi van Etteger for his patient guiding during the whole thesis process. Furthermore, I would also like to thank Sven Stremke for his helpful input in greenlight presentation. Finally, I want to thank my family and friends for their support.

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SUMMARY

Children are ought to be wild.

However, nowadays children's play spaces are highly standard and similar in different neighbourhoods, even in different cities, consisting of play quipments chosen from perhaps the same catalogue. There are continuous appeals for nature play in academic research field, but nature is a relatively vague and broad term. On the one hand, the real nature environment is rare in urban or suburban realm. On the other hand, the vulnerability of nature actually against children's transforming or disordering play activities. At the same time, the common managed nature environment is relatively monotonous for children and again prevents or at least disencourages any kind of disordering. In this regard, instead of play in nature, play in wildness could be a solution. And the truth is wildness brings a further dimension of "natural environment".

This study therefore aims to look for the wild and instinct relationship between children and the natural world and explore the way to combine wildness with playful qualities to facilitate children's play in their immediate environment.

The purpose of this study is achieved by research and design process. The research consists of two parts. By understanding the notion of play, qualitative elements of playfulness are extracted and a typology of play space types are generated. At the same time, the understanding of wildness together with reference studies offers many implications about designing wild play space. The research result is tested in Dukenburg, Nijmegen. As one of the representative post-war district planned by functionalism concept, the result of this study is also applicable for other comparable residential areas. In the end, a vision plan of play is generated and detailed design of two selected sub-sites offer two main ways to facilitate children's play with wildness.

Key words:

Children, play, wildness, middle childhood, Dukenburg, suburban neighbourhood

CONTENTS

INTRODUCTION

"Play is the highest expression of human development in childhood for it alone is the free expression of what is in a child's soul."

- Friedrich Froebel

1

1.1 Research context

Play has long been described as the most important work of being a child (Piaget, in Glenn *et al.*, 2012). The child is born for joy, and at the same time, play is more than just about fun and enjoyment; play provides children with opportunities for developing a range of physical, emotional and social skills (Woolley, 2012) Children's primary mechanism for perceiving and behaving within their immediate environments is through play (Matthews, 1992). There is evidence that a lack of play is detrimental to individual children and even for the whole society as well (NPFA, 2000). However, many children today especially those live in cities spend less time playing outdoors and in nature. It is mainly driven by increasing dependence on digital media and parents' concerns about crime and safety (Clements, 2004). The real, physical, sensual and direct bodily engagement with the natural world is increasingly replaced by the secondary, dual-sensory (vision and sound) and distorted experience derived from television and other electronic media (Ward Thompson, 2012). As Louv (2005) points out in his seminal work, today's young people suffer from "nature deficit disorder", which is resulted from the alienation of children from the natural world and will result in a wide range of behavioural problems.

1.1.1 Play, playful...what?

We all play and we all know what playing feels like (Sutton-Smith, 1997), but what is play? What can offer playfulness for children? The notion of play itself is an ambiguous concept. There have been many definitions of play from different disciplines. As Sutton-Smith points out, when it comes to making the theoretical statements of the play concept, we fall into silliness (ibid.). Nevertheless, this foremost scholar of children's play suggests seven rhetoric's of play in the Ambiguity of Play: progress; fate; power; identity; imaginary; self and frivolous (ibid.). Apart from those general theories on play, dominant notions of play have foregrounded its relationship with childhood (Edensor et al., 2012). For example, play is defined as "a process that is freely chosen, personally directed and intrinsically motivated" and children determine the content and intent of their play, following their own instincts, ideas and interests (Lester and Maudsley, 2006). However, it is worth noting that play is complex and no single statement will be capable of defining it integrally. Therefore, instead of defining play, others try to categorize it. For instance, Hughes (2002) categorised children's play into 16 types: symbolic; rough and tumble; socio-dramatic; social; creative; communication; dramatic, locomotor; deep; exploratory; fantasy; imaginative; mastery; object; role; recapitulative.

Placing children in the environment, play is also seen as a way enable children engage with their world. From this, it has been pointed out that where the environment is complex and offer limitless possibilities for engagement invites more opportunities for play (Cobb, in Lester and Maudsley, 2006). However, from the landscape architecture perspective, the notion of play is still remains abstract while we are intending to create playful spaces for children and this concept is normally oversimplified into playgrounds in current conditions.

1.1.2 Shifts from playgrounds to wildness

I. Critiques on playgrounds

The term 'playscape' is a loose notion that can be used to describe any environment that children choose to play in (Woolley and Lowe, 2013). But with the trend of urbanization, this concept is gradually simplified into playgrounds. The need to keep children off the streets, safe from traffic and unpredictable influences led to a trend of designing specific play spaces, playground, for children's outdoor activity (Hart, 2002). The design of playgrounds has been summarized into three categories: traditional, contemporary and adventure (Mergen, 2003). The traditional playgrounds are dominated by the fixed kit of iron play equipments which provide opportunities for physical activities while neglecting other exploratory, moveable and imaginative play (Woolley and Lowe,

2013). Based upon the traditional approach, the design of contemporary playgrounds showed the concern for texture and more natural setting (Mergen, 2003). The last type, adventure playgrounds consist of vacant lots and other materials of which children are capable of constructing their own structures (ibid.). As Moore's points out the general failure of many of the planned children's spaces to meet children's diverse play needs (Moore, in Lester and Maudsley, 2006), the truth is only a small percentage of children play in playgrounds (Hart, 1982; Zeijlet et al., in van den Berg, 2013). They are primarily used by younger children accompanied with adults (Hayward, in Matthews, 1992). Even with adventurous or natural facilities, but under supervision in segregated play spaces, "adventure playgrounds" still seem a poor substitute for the everyday landscape (Porteous, 1990). In fact, children use the total landscape accessible for them and so it is necessary to think of them in the design of the entire outdoor physical landscape of residential areas (Hart, 2002).

Figure 1.1: Typical playground in Dutch neighbourhood

II. Children, play and wildness

** Defining children in this study*

Children itself is a relatively broad concept and in different age periods they experience and use the space in different ways, and have the different place and playfulness preferences. It is therefore of significance to specifically define the target group in this study with the considering of how do children experience and use outdoor environment at different ages.

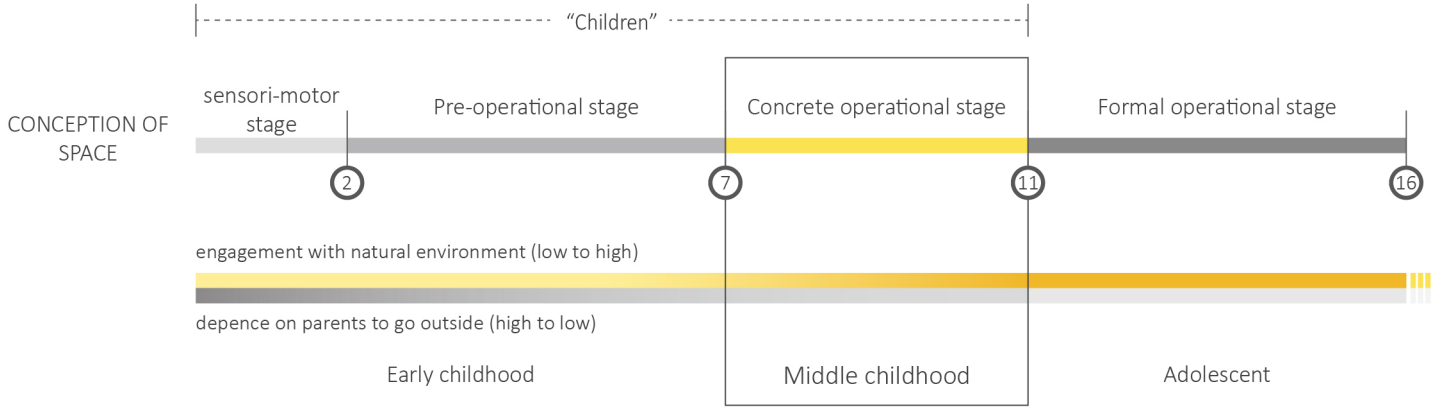


Figure 1.2: Middle childhood and characteristics of this period

Piaget's theory (1972) theory remains a dominant force in the developmental theory of the child's conception of space. He describes four stages of cognitive development: sensorimotor stage (0-2 years old), preoperational stage (2-7 years old), concrete operational stage (7-11 years old) and formal operational stage (11+ years old). According to his research, children's cognitive ability are acquired and prompted to actively explore the world around them, seeking out what they do not yet know in the concrete operational stage (7-11 years old), which is normally understood as

middle childhood (Piaget, 1972; Koomen, 2014). Other theories concerning children's relationships with nature further point out children in middle childhood, which has also been referred to "earth period", have the greatest urges to engage with the natural world and attracted more by green environment (Moore, 1986; Sobel, 1993). During this period, children's direct dependence on adults begins to fade, and they start to have the chance to go outside alone or with peers (Sobel, 1993). Children begin to explore the physical world from about 4 years old and generate the sense of wonder during this process while this sense of wonder transmuted in middle childhood to a sense of exploration (ibid.). Children are therefore likely to venture into the natural world, even the unfamiliar and wild settings to try things they haven't tried before in search of new experiences, adventures and the sense of competence (Moore, 1986; Kellert, 2002).

Taking practical conditions into account, it is, unfortunately, an extreme awkward age period concerning play. On the one hand, playgrounds, with limited play potentials, are mainly suitable for and used by the younger but seem too unchallenging to attract children in middle childhood. On the other hand, they are still too young to play in adult-oriented play spaces like sport courts. In the light of research backgrounds, children in this study refer to those in the period of middle childhood, about 7 to 11 years old.

** Children and wildness*

The nature instinct of children

"Climbing rocks is more fun than climbing trees - but climbing trees is more fun than the boring playground equipment."

From a kindergarten child, Fjørtoft and Sageie, 2000, p.83

The general failure of all kind of playgrounds points out that there is a need of an attractive alternative that encourage homo ludens (Lefaivre and Döll, 2007). Research with children continually points out the special relationship between children and nature and highlights its importance (Hart, 1979; Moore, 1986; Fjørtoft and Sageie, 2000; Fjørtoft, 2004). Children have an instinctive affiliation towards nature (Moore and Young, 1997), and it has been supported by classic empirical studies by Hart (1979) and Moore (1986), which have documented children's preference of seeking for natural areas for play through extensive observations and interviews with children. Especially during middle childhood, children's interaction with nature is extremely vital (Acar, 2003).

Why wildness?

"The peaks of a child's experience are ...occasions when he escapes into places that are disused and overgrown and silent. To a child there is more joy in a rubbish tip than a flowery rockery, in a fallen tree than a piece of statuary, in a muddy track than a gravel path"

Opie and Opie, 1969, p.15

The issue of children's interaction with natural environments has continually been a primary concern; however, the term "nature" or "natural environment" is relatively vague. It can be understood as a continuum ranging from total human designed space to pure wilderness (Carve, in Lester and Maudsley, 2006). Within the context of contemporary urban or suburban realm, the real nature normally does not exist on the one hand. On the other hand, even we can find some real nature; its vulnerability is against any disordering and disturbing activities. Thus, in urban or suburban context, nature is closer to the managed, formal natural space which is not very stimulating from a child's perspective. These nature environments neither are designed with the playfulness for children in mind, for example, watercourses are not accessible and plain grass field remains too monotonous to invite any children to play in, nor allow children's modifying or even disordering activities like making or transforming things. Although the theme of playing nature is also promoted by Louv (2005), his nature actually refers to "natural wildness" (p.9).

Compared with the conventional managed natural environments, all the features of wild and rough settings indicate opportunities to fulfil the need of play, adventures and imaginations (Jorgensen and Tylecote, 2007). Firstly, wildness represents an ambivalent feature of the landscape, both scary and mysterious, as the title of Mugford's (2013, p.80) article "Nature, Nurture; Danger, Adventure; Junkyard, Paradise" implies (McGee and Slutsky, in Roncken and Convery, forthcoming). It is the place full of the unexpected and the unpredictable and can conjure excitement, mystery and a sense of adventure (Tovey, 2007). These risky and challenging features are especially appealing to children in middle age periods discussed above for exploration activities. Besides, secret and secluded are inherent in wild spaces. At the same time, wildness is appreciated by children for its openness to being reinterpreted. Because of this shared associations with disorder and freedom, play, childhood and wild spaces are interlinked (Edensor et al., 2012). It is the place where "the fabric of the adult world has become scrambled or torn'' (Cloke and Jones, 2005, p.312). Adults normally see wild spaces as unkempt and uncontrolled while children perceive the utility of wild spaces as offering freedom to control their own play to create, construct, deconstruct and transform, which are not allowed in manicured and tidy natural spaces. The relationship between landscape and play is thus mutual and dynamic (Tovey, 2007).

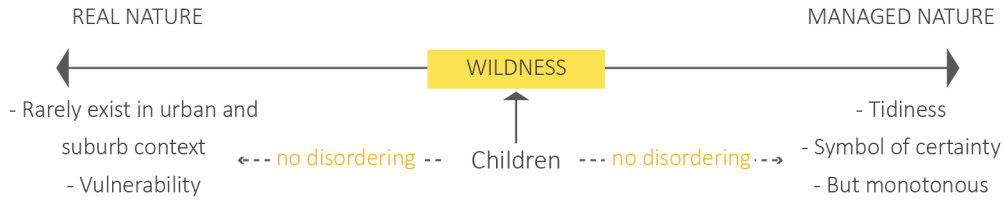


Figure 1.3: Position of wildness

Defining wildness

To conclude, the term wildness will be the focus of this study. It refers to urban wildness and can be understood as green outdoor places "where natural as opposed to human agency appears to be shaping the land, especially where there is spontaneous growth of vegetation through natural succession " (Jorgensen, 2012, p.1). It can be understood as "rough ground", where is unkempt, unordered, unmanicured appearance (Moore, 1986). It includes complete nature such as woodland, but also more urban landscapes such as unused allotment, river corridors and derelict or brownfield sites (Maudsley and Smith, 2004; Jorgensen, 2008). Considering its significance on children, the term wildness brings a further dimension of "natural environment" (Lester and Maudsley, 2006).

1.2 Problem Statement

1.2.1 Restricted play and segregated places for children

When people talk about play, it is easily associated with children's playgrounds immediately. This statement, however, oversimplifies play into instrumental play. Much public play spaces are relying on the installation of manufactured play equipments which are based on a rather narrow view of how children play (Shackell et al., 2008) and actually not appreciated by children in middle childhood discussed above.

Additionally, today's children's life spaces can be seen as characterized by insularisation - urban island, which reflects the segregation of places for children (Zeiher, 2003). Commonly play equipments have their own design language which hard to be integrated with the larger surrounding environment. No matter how exciting and creative these playful-looking child-specific places are designed, such solution contributes to the process of childhood ghettoization in essence, as it removes children from other available play opportunities in the surroundings and isolates them from the large-scale environment (Matthews, 1992).

1.2.2 Childhood in an adult world - conflicts in using green spaces

The everyday world inhabited by both adults and children is actually ordered and structured on adult terms and scales (Cloke and Jones, 2005). From interiors to the entire cities, it is mostly designed to meet adult's requirements concerning the shaping and patterning of environments (ibid.). Children, as a diverse but marginalized and neglected group, are seemingly invisible on the landscape (Tunstall et al., 2004), and at best they are provided with some so-called playgrounds (Matthews, 1992). For children, they can only to fit in to the alien environment of adult world as best they can while growing up (Cloke and Jones, 2005). Additionally, children's disordering instinct is strongly opposed by adults in the way treating in green spaces, like parks (Moore, 1986).

1.2.3 Inaccessible to wildness

Children are told stories of enchanted forests, wonderful briar patches and mystical places "where the wild things are", however places children actually have to play in are totally different nowadays.

I. Erosion of wildness - design-orientated natural environment

On the one hand, middle childhood ought to be the great original adventure, a tale of privation, courage, constant vigilance, danger, and sometimes calamity (Chabon, 2009). On the other hand, today's "designerification" attitudes towards urban and suburb landscapes seem provide little scope for children's play and experience the environment (Tovey, 2007). The result is the erosion of wild spaces, with the replacement of more formal green spaces. These well managed natural spaces are perceived by adults aesthetically but not by children. They represent a sense of mild and beauty, but also a symbol of certainty which contradict to children's requirements of the ever-changing and the unpredictable.

II. Potential risks in wildness and independent mobility of children

Despite all the attractiveness and potential play features of wildness, it is noticeable that the sense of scary or risk is actually higher than mystery in some wild spaces which prevent children's access as a result. These spaces possess a high degree of wildness but relatively low play potentials for children, however, can be improved.

At the same time, influenced by the prevailing risk-averse culture, children today are allowed to go to fewer places and freely chose their own way of play than in the past (Malone, 2011; Rupprecht et al., 2015). Wildness like woodland or vacant lots is even less available by the parental fear of possible injury. However, evidence reveals that children actively seek out risk-taking opportunities and enjoy playing in perceived "dangerous" locations (Gleave, 2008). Therefore, it can be argued that instead of shielding children from risks, providing challenges and risks in specially designed wild spaces can be an effective way of managing risks (ibid.). Therefore, there is the need to know more on how children understand potential risks and how to allow for unstructured and challenging play in the wild environment in ways that parents are prepared to accept, rather than avoiding playful engagement between children and wildness (Ward Thompson, 2002).

1.3 Philosophical worldview

As Creswell (2014) states, although the philosophical worldview remains largely hidden, it still have strong influences on the practice of research. Creswell highlights four worldviews: postpositivism, constructivism, transformative and pragmatism. Within these four types of issues, constructivist research is based on the understanding and seen as an approach to qualitative research (ibid.).

According to it, this study, which is based on the theoretical understanding of the notion of play and wildness as playscape respectively by qualitative research strategies, can be seen as the constructivism dominated. Lenzholzer et al, (2013) suggest that the knowledge to be produced

within this knowledge claim revolves around generating something new, either mental or physical constructs, such as theory, concepts and new forms of landscapes. This is also the case for this study. Based upon understanding of the two notions mentioned above, this research aims to seeking for spatial arrangements of playfulness and combining those new physical constructs with wild features.

1.4 Knowledge gap

There is some literature available on the concept of wildness or urban wildness, but much of them focus on ecology and aesthetics perspective (Woodward, 2012). In terms of children's relationship with wildness, many literature discusses its importance for children and thus advocating children's positive engagement with wildness (Edensor et al., 2012, Moore, 1986, Ward Thompson, 2012). However, from the perspective of landscape architecture, how to stimulate children's play with wildness is still unclear. From a wider scope about children's play within outdoor environment, many empirical studies identify the basic natural elements children like in their play environments (White and Stoeklin, in Lester and Maudsley, 2006; Fjørtoft and Sageie, 2000) or suggest that the diversity of landscape, related to structure of topography and physiognomy of vegetation, can afford children's play (Frost, 1992; Fjørtoft and Sageie, 2000). However, it is either far too detailed, only focusing on the materiality of landscape, and neglects the consideration of spatial structures or too implicitly in terms of spatial characteristics. Due to these limitations, an integral understanding of the notion of play and what spatial characteristics can stimulate play can be done. Besides, considerations between the typology of play forms and corresponding requirements of space will offer an integral understanding towards children's play.

Moreover, wildness itself easily represents a poor image while designed wildness might remove some critical qualities of wildness and mystery (Urban Wildscapes, 2007). Due to this dilemma, approaches to balance it from children's play perspective are necessary. Further, how to include certain wildness into urban or suburban green network is needed.

** Previous studies from Wageningen - NOP (Network of Play) model*

Two previous Master thesis discussed children's play spaces until now. Bakker and Fähnrich (2008) propose the NOP (Network of Play) model as the appraisal and design guidelines to improve the outdoor play environments for children in the deprived neighbourhoods. Based upon their research, van den Berg (2013) examines its validity and further proposed an adjusted NOP model in a dense prosperous neighbourhood. NOP-model focuses on the overall spatial characteristics of neighbourhoods and has emphasis on the general structural of play including quantity, accessibility and locations of play. Although they also describe quality of play and the importance of natural elements, the spatial elements about playful environment regards these two points still remain quite general and incomplete. Additionally, both of them focus on urban situations where there are limited spaces for children's play. However, the question of how to arouse the potential playfulness of existing green spaces when the context is suburban and there is already much open spaces still

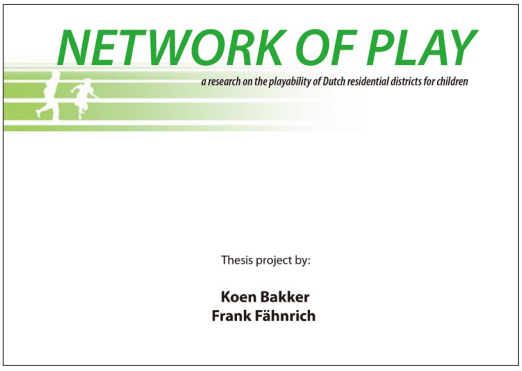


Figure 1.4: Previous thesis related to play

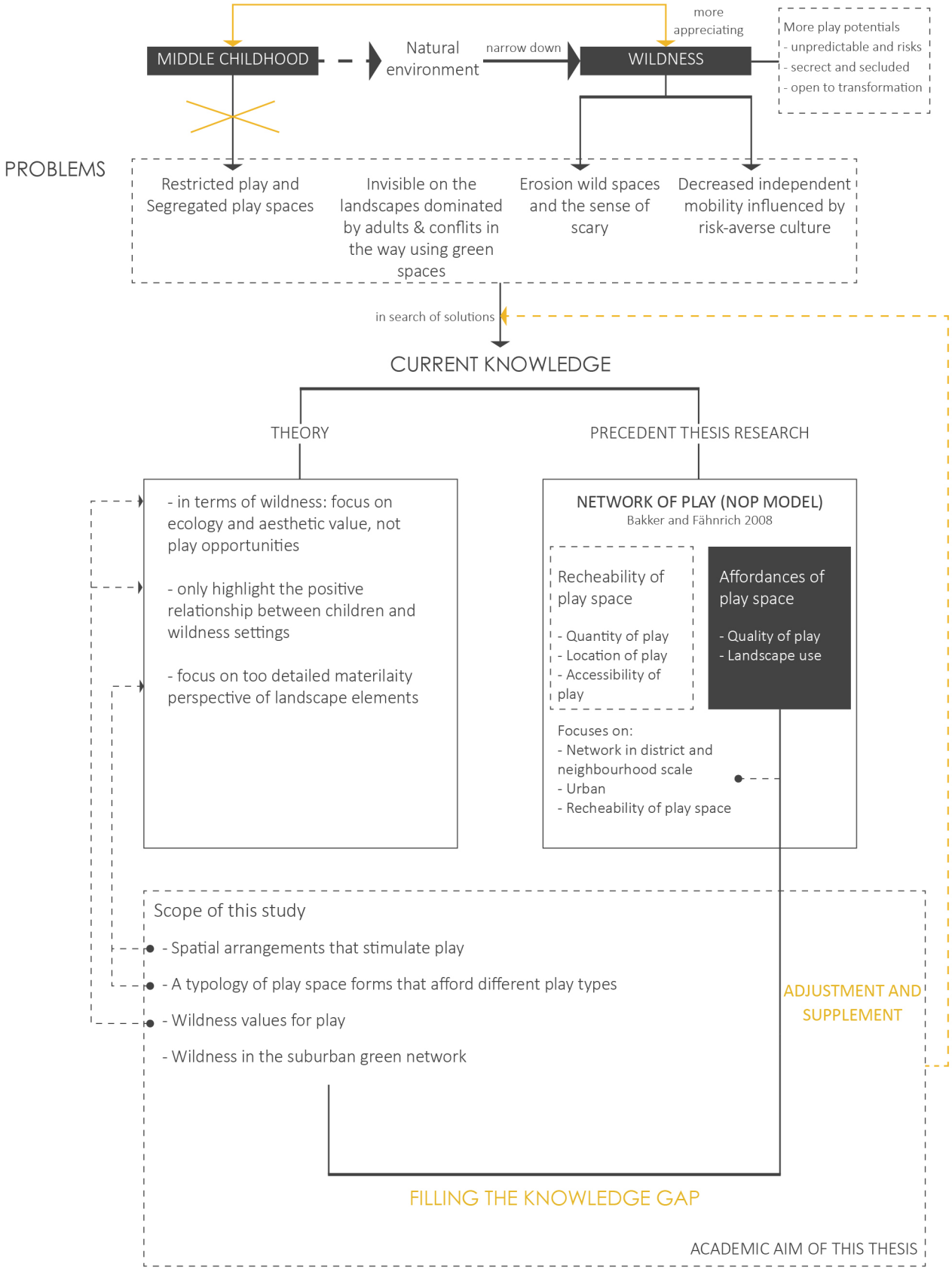


Chart 1.1: Overview of problem statement and knowledge gap

need to be answered.

1.5 Research purpose

In brief, this study is seeking for a recognition of the potential wildness with playful qualities within everyday suburban neighbourhoods. With the knowledge gap mentioned above, this study aims to bridge it by emphasizing “playfulness” and enhancing children’s playful contact with nature in the suburban context by introducing the appropriate level of wildness. By adding a new structure of wild play to the existing green structure, the enormous potential of public open spaces can be stimulated. The expected result is that children can achieve both physical and psychological pleasure through playing within wildness.

1.6 Research objects and questions

1.6.1 Research objects

This research aims to explore the way to combine wildness into suburb context and investigate spatial elements to enhance its playful ambience in order to stimulate children’s informal play. Therefore, two important subjects will be studied which create the conceptual framework for this study.

** Theory of the notion of play*

The objective of this section is to understand the concept of play and what stimulate play in a deeper way. By theorizing the notion of play and children’s play more specifically, characteristics and extern stimulus of play can be extracted and regulated as the essential qualitative elements of play, which can be regarded as the criteria as well as the basis of design language of designing playful space.

** The design of wildness as playscape*

Additionally, it is important to understand what wildness can do for children’s play. It is related to understanding how children perceive natural environment/wildness and use them for play.

1.6.2 Research questions

In order to fulfil the stated research purpose described above, the following research and design questions are formulated. First is the main research question that structures the whole research. The first two sub-research questions are elaborated according to research objects and the third sub-question is relevant to the combination of results from the former two sub-questions.

Main research question

What characteristics of green spaces can be combined with playfulness and wildness and would facilitate playful experience for children?

** Sub-research questions*

(1) What qualitative elements of playfulness can be extracted based on the nature of play?

(2) What attributes of wildness would afford and promote children’s play in their middle childhood?

(3) How these qualitative elements can be interpreted into spatial elements to afford different forms of play combined with wildness?

** Design question*

How to facilitate children’s playful engagement with wildness in suburban neighbourhoods?

1.7 Research relevance

1.7.1 Social relevance

The issue of children's accessibility to natural environments has always been a vital concern because children's play in such contexts offers many benefits for their growth and development (CERG). From the social point of view, this study is therefore contributes to the integral developing children's playful contact with nature by introducing wildness into the day-to-day lives in neighbourhoods. It creates more stimulating invitations to children's play in green spaces by combining wildness with playfulness into current green structures in the neighbourhoods. Moreover, many cities in the Netherlands share comparable neighbourhoods, therefore the outcomes of this research and design can be applicable to other neighbourhoods to create better living qualities of children by adding a new layer of playful experiences on the existing neighbourhood structure.

1.7.2 Academic relevance

The academic significance of this study is related to the extending perspective on the children's playscape. At its core, this study aims to support the playful nature of children by developing natural and wild landscapes of the neighbourhood scale and excavating playful possibilities of spatial arrangements rather than stereotypically improving playgrounds' quantities and qualities. This contributes to create bridges between current trends on improving children's natural play and environmental requirements for play.

1.7.3 Landscape architecture relevance

The landscape architecture significance of this study is related to supplement current theories regarding "play" from a design-centric and landscape spatial perspective which is currently not completed yet. This study is seeking for the ways in which the types of spatial elements and their organization give shape to playful possibilities for children. These spatial arrangements can perform as the toolkit for the design languages of playfulness, and further contribute to filling gaps between theoretical understanding of play concept and practical designing playfulness of public spaces for children. Besides, this study also explores the possibilities of wildness as playscape, which conduces to understand what environmental features can afford playfulness.

1.8 The case: Dukenburg, Nijmegen

The result from the research is mainly built on literature research, which needs to be placed in the real context to test its validity. Therefore, a case study is necessary. Because this study aims to combine wildness with playfulness, a primary aspect is that this wildness is accessible in children's day-to-day life. Considering this perspective and children's limited mobility and smaller social network, the site should be the immediate environment, residential areas, rather than the specific wild spaces like forests or adventure parks which are away from daily life. At the same time, the site should have existing wild spaces or potentials to be rewilded, which means there is need of more natural elements in the study area. Based upon these conditions, Dukenburg in Nijmegen will serve as the testing ground of the theory and knowledge generated, and also provides holistic input for the design process.

Dukenburg is a post-war district sandwiched between the Maas-Waalkanaal to the east and the A73 highway to the west. It was built in the 1960s and 1970s in accordance with the English New Towns concept in which garden city and functionalism are combined. Garden city is characterized by its independent and green satellite neighbourhoods while functionalism is reflected in that work, live and recreation functions are spatially planned separately in the district. Playing has been reduced to the restricted zones. Dukenburg has the largest acreage of green spaces per habitant (approximately 100 m2) in Nijmegen and is characterized by its spacious green spaces. The indigenous, fast-growing

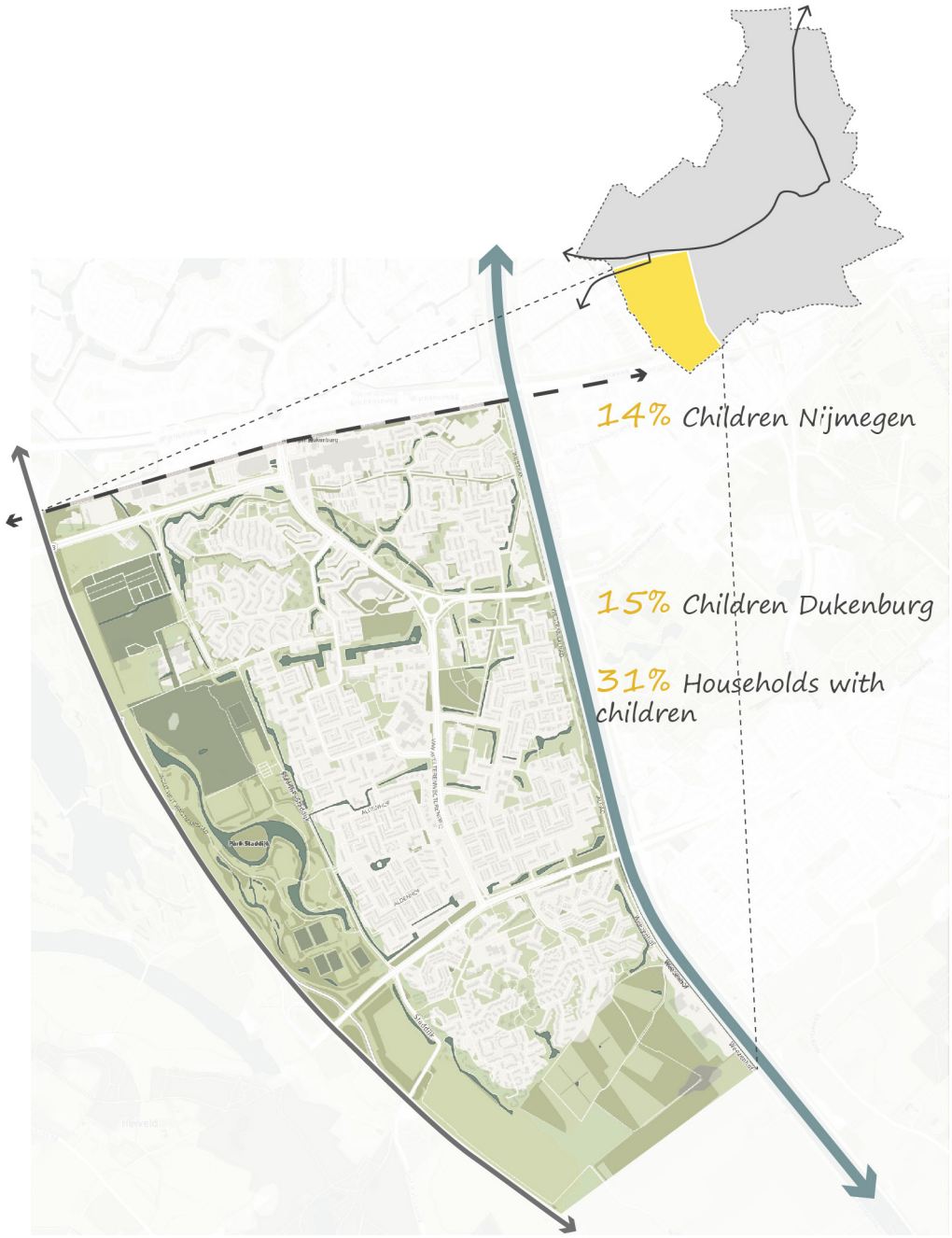


Figure 1.5: A map of case Dukenburg

greenery has contributed to the specific living environments for local residents. However, those green spaces are gradually presenting as spatial and social problems. All the green spaces lack of differentiation and characteristics, as well as consistency throughout the neighbourhood. The low maintenance of the greenery also intensifies the feeling of insecurity and degradation. Facing these problems, the government therefore suggests that the greenery is now in need of replacement (Gemeente Nijmegen, 2010).

In terms of current play possibilities in Dukenburg, the number of formal play areas remains high while the informal and natural play opportunities are quite low (Gemeente Nijmegen, 2010). As mentioned above, this research is seeking for recognition of the potential wildness and playfulness within everyday neighbourhood areas. From the perspective of landscape architecture, I would argue that Dukenburg does however lack playful ambience especially for children, but also possesses potentials and opportunities to enhance the playfulness because of the abundant greenery and its wild side. What's more, since Dukenburg is also regarded as a representative suburban residential district in the Netherland, the results of this research and design are might applicable to comparable suburb neighbourhoods or districts.

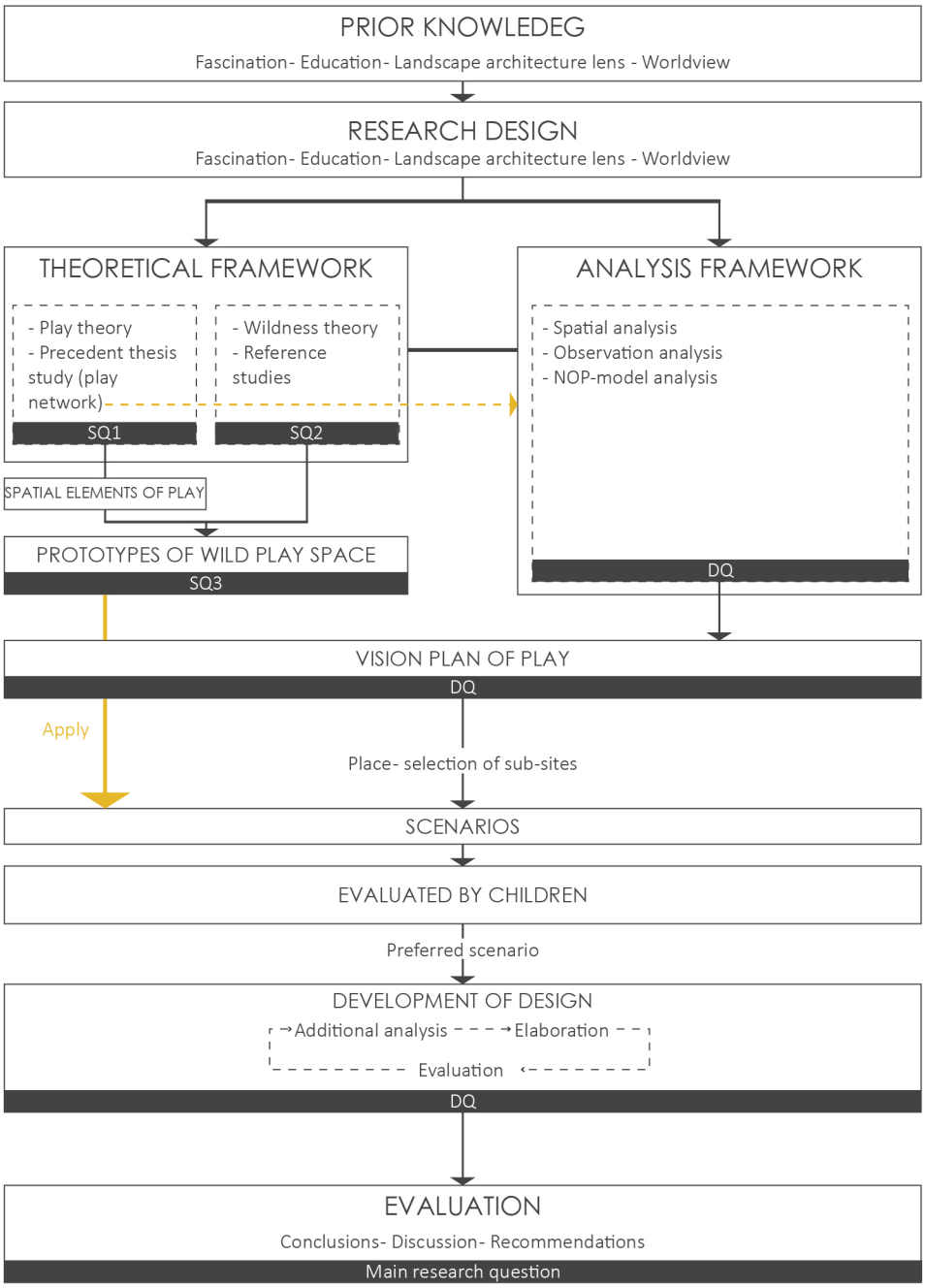


Chart 1.2: Overview of methodology

1.9 Research Methodology

I. Understanding

** Theoretical framework*

This study will start by understanding two important notions: play and wildness mainly by literature studies.

Understanding the notion of play and spatial elements of playfulness

The drive for diverse and dynamic play promotes children to seek optimal environments (Lester and Maudsley, 2006), but what types of spatial elements can offer possibilities for playfulness? Playfulness has the potential to become an empty jargon similar to the concept like "sustainability", thus it becomes vital to dig deeper into the understanding of this notion. Although there are many theories tell us something about play, a more design-centric understanding of the concept is omitted and needed to be developed. By studying characteristics or stimulation of play and nature of children's play, qualitative elements of playfulness can be distilled from a more integral and overarching perspective. These qualitative elements of children's play will be further interpreted into spatial languages by certain design interventions extracted from the research. The expected result of this section is to develop spatial elements that define the notion of children's play and serve as the toolkit for the further study. What's more, since different play activities have different requirements and interaction with spatial environment, the specific relationship between play and play space will be established.

Precedent researches- NOP model

The NOP criteria formulated can be used to examine the current playability of residential district. Since the NOP model is based on the consideration of all ages of children, some of the criteria are perhaps needed specific adjustment. NOP model was used as the framework for designing in deprived neighbourhoods but adjusted when used in a more prosperous urban context by van den Berg (2013). Again, the selection district has different characteristics, therefore, if it is usable as forming a structural plan of play will be critically discussed and further adjustments will be formulated if needed. Nevertheless, since NOP-model is an integral approach in terms of examining and improving playability of residential areas, it will further be used during analysis phase.

Understanding attributes of wildness for play

This section contains explorations of theoretical aspects of wildness and its relationship with children. Children have instinct affiliation with nature which can be activated through playful interactions with spaces, but which environmental features afford play and how wildness can be utilized as play places for children? These questions can be answered by literature review of the theory of wildness, Gibson's theory of affordances (1979) and related theories on wildness. In this theoretical context, we can understand the significance of wildness to children's play, and further summarize what types of wildness attributes can afford play. Additionally, adaptation and resilience of landscapes are also of great importance for children's playful contact with nature. In this case, there's need of review of literature regarding this aspect to make the wildness be able to absorb possible messy results resulted from children's play. Furthermore, theory related to risk management is necessary to ensure a certain acceptable risk during play in wild spaces. Apart from literature studies, precedent practical references about wild play spaces will be studied. By analysing these projects, corresponding implications will concluded and would be used in design part.

Synthesis: combining wildness with playfulness

The last part of research focuses on combining wildness with playfulness, to be more specific, introducing wildness in neighbourhood by integrating playful spatial prototypes within it to invite children playing in these "wild" spaces.

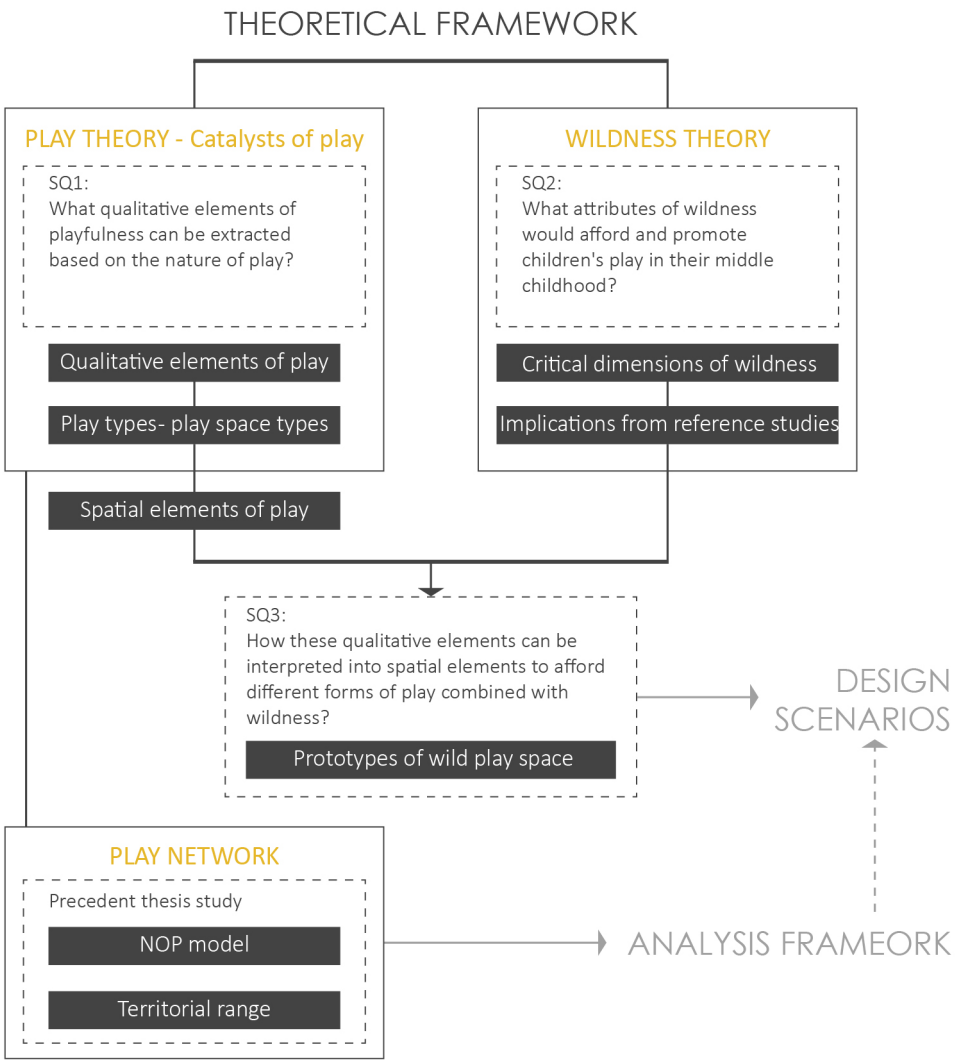


Chart 1.3: Introduction of theoretical framework

** Analysis framework*

The aim of analysis is to have a comprehensive understanding of current playability of Dukenburg and its potentials. It contains spatial analysis and observation analysis. Current playability is related to both designated play spaces by musicality and potential green spaces. In this study, wild spaces includes wild natural environment but also wasteland, water edge are included. By doing the spatial analysis by NOP-model, the suitability of these wild play spaces will be analysed. Apart from the spatial analysis, observational research will be conducted at the study location during several site visits and it could provide a deeper and more comprehensive image of the site. Direct observation is very useful in providing additional information about the topic being studied (Yin, 1984). It can contribute to the understanding on the manner children using spaces in Dukenburg. Apart from analysing the playability, other analysis related to the entire spatial and social situations of the neighbourhood will be done as well as we assume that children utilize the total residential spaces as play places if these spaces offer playful ambience.

II. Design research

** Vision plan of play*

An overall play network of Dukenburg, including play spaces and connected pathway system will be created. Play spaces are decided by its distinct wildness features as well as criteria of NOP-model.

** Design*

Vision plan of play offers an integral insight of wild play spaces and possible connection between each other at district level while design phase will zoom in and focus on place scale. Obtained insight from prototypes of wild play space will be tested in the selection site(s) and different design scenarios will be created. These design results will be further evaluated quantitatively by children fitted in target group as well as evaluated by quality elements extracted and distinct characteristics of sites, which provides inputs on which scenario can be established on selected sites. The final designs product will be improved on the basis of selected sites.

THEORIZING THE NOTION OF PLAY

This chapter aims to theorize the notion of play while answering SQ1: *what qualitative elements of playfulness can be extracted based on the nature of play?* Incorporation with the understanding of characteristics of play and catalysts of play, the answer of this question is related to the essential elements that stimulate play or play experience. These derived qualitative elements of play will be further understood from spatial perspective and interpreted by design tools in Chapter 4. In addition, in this chapter, a typology of play space types is developed on the basis of analysing play types and relationships between physical play activities and certain landscapes.

2

2.1 Understanding the notion of play

2.1.1 Exploring qualitative elements of play - a design-centric understanding

I. Distilling characteristics of play

Play has been conceptualized in many different but overlapping ways. Among them, the earliest and most fundamental definition of play comes from Huizinga (1949). He defines play as follows:

It is a free activity standing quite consciously outside "ordinary" life as being "not serious", but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings which tend to surround themselves with secrecy and to stress their difference from the common world by disguise or other means. (p.13)

According to this definition, essential characteristics are extracted by Huizinga (*ibid.*):

- *Freedom: the premise of play; a relatively free and voluntary activity (p.8)*
- *Disinterestedness: not ordinary or real life (p.9)*
- *Secludedness and limitedness: within certain boundaries of time and space (p.9)*
- *Order and disorder: both honours rules and encourages transgression and disorder (p.10)*
- *Differentness and secrecy: surrounded with an air of secrecy (p.12)*

Partially in response to Huizinga's theory, Caillois (1961) emphasizes on the forms of play. In his seminar work, Caillois starts by expressing disagreement towards Huizinga's understanding of play. The greatest criticism is reflected on the understanding of the secret aspect. Caillois points out that although there is affinity exists between play and the secret or the mysterious, but this relationship cannot be part of the definition of play. And he further presents that revealing the secret is part of the intention of play (*ibid.*). This viewpoint parallels with Benjamin's (Gilloch, 1996) understanding of children's play which will be discussed explicitly later. In this regard, Huizinga's secrecy will be better transferred into secrecy and demystifying. However, in general, Caillois's characteristics of play are still in parallel with Huizinga's. In short, Caillois asserts that play is:

- *Freedom: the attraction and joyous quality of play are resulted from its freedom*
- *Separation: circumscribed within limits of space and time*
- *Uncertainty: the outcome is unknown and cannot be determined in advance*
- *Unproductivity: creating neither goods, nor wealth, nor new elements of any kind*
- *Governed by rules: under conventions that suspend ordinary laws and for the moment establish new legislation*
- *Make-believe: accompanied by a awareness of second reality to against real life*

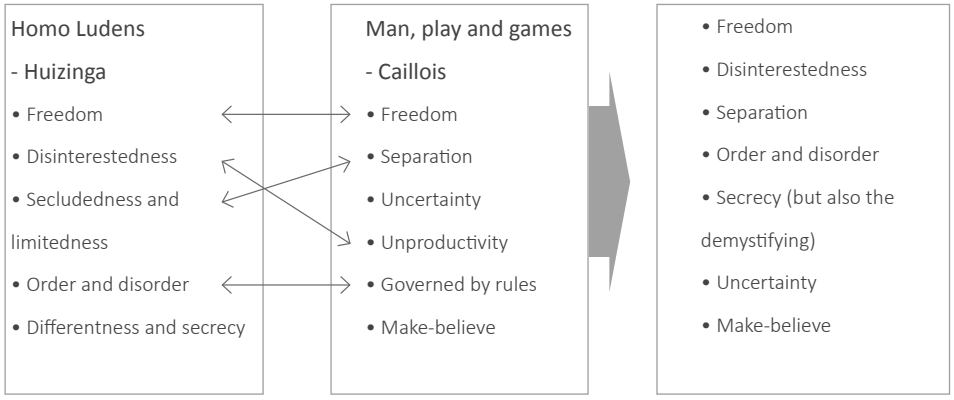


Figure 2.1: An understanding of characteristics of play

Considering both understanding of play from Huizinga and Caillois, we can therefore sum up seven essential elements of play: freedom, disinterestedness, separation, order and disorder, secrecy but also demystifying, uncertainty and make-believe. The comparison of these two fundamental works offers a deeper understanding of the play concept from definition perspective. Further, as mentioned in introduction, the intention of this chapter is seeking for qualitative elements of play that can be further applied in design to optimize children's playful engagement with the environment. In this case, the pure understanding of play concept itself is not enough. What attributes or catalysts that stimulate play or playful experiences are needed to be further explored.

II. Exploring stimulations of play

The fun-element characterizes the essence of play (Huizinga, 1949). Emotional element of pleasure is what the player achieves from play (Beach, 1945; Salen and Zimmerman, 2003). In this regard, we can say that stimulations of play are related to elements that stimulate pleasure or enjoyment emotions. Following is the exploring of the typologies of stimulations of pleasure derived from play from theoretical understanding.

** Berlyne (1960)*

Focusing on the arousal of play, Berlyne (1960) develops five categories that he describes as discrepancies by stimulating play interest from a behaviour psychologist's view (Costello and Edmonds, 2009). These factors are *novelty, complexity, conflict, surprise* and *uncertainty*, which can be understood as determinants that evoke pleasure feelings and further playfulness (*ibid.*). In addition, it appears that Berlyne's categories actually go further beyond psychological filed and are influential in the design of architecture and urban planning where the significance of complexity, incongruity, conflict and ambiguity are stressed valuable (Wohlwill and Kohn, 1976). For example, Lynch (1991) states that "*our delight ... in ambiguity, mystery ... surprise and disorder*" (p.250-252, in Stevens, 2007).

** Apter(1991)*

Another perspective that also focuses on stimulus dimension of play like Berlyne comes from the psychologist Apter (1991). He indentifies a list of seven strategies that cause play below, with brief paraphrasing summed up by Salen and Zimmerman (2003) and Costello and Edmonds (2009).

-Exposure to arousing stimulation: intense and overwhelming sensation

-Fiction and narrative: emotional arousal from imaginative play

-Challenge: difficulty and even frustrations arising from play

-Exploration: facing the unknown and uncertainty

-Negativism: pleasures from transgression activities

-Cognitive synergy: dissonances or ambiguities

-Facing danger: experiencing dangers in play within the safe frame

In some ways, Apter's category shares similarities with Berlyne's. Exposure to arousing stimulation is related to the novelty and complexity of the environment. Similar, the degree of uncertainty and surprise contribute to the desire for exploration. Besides, both negativism and conflict emphasize the pleasure derived from disorder and transgressive activities. One of the significant differences between these two categories lies in Apter's appreciation of risks. The importance of risk-taking activities is put forward while the clear distinction difference between risks and danger is still underlined (Costello and Edmonds, 2009). The comparison will be discussed in greater detail in Table 2.1.

III. Identifying characteristics of child's play behaviours

In terms of children's play, Benjamin has a distinct theorization of the relationship between

children's play in urban context (Stevens, 2007). Play in his study refers to the more spontaneous playful behaviours rather than the narrowed definition. According to Benjamin, children's play is characterized by its relationship with myth: the playful child both participates in and presents the desire for revealing myth (Gilloch, 1996), which is in line with Caillois' critic on Huizinga's understanding of mystery. Besides, play is also related to the desire for transgression (*ibid.*). As originally described, play is inspired by the appealing of crossing thresholds created by different classes (*ibid.*). Correspondingly, in contemporary context, researches (Tapsell et al., 2001; Shields, 1991) point out that boundary, like the place between land and water, and known and unknown, can be seen as the places that offer play experience in more challenging forms. Imitation is another fundamental dimension of play according to Benjamin (Gilloch, 1996). Lastly, play is also seen as collecting. Through the play activities, the unwanted and discarded objects found in the urban landscapes are transformed into something valued from a child's perspective. To sum up, children's play is characterized by ***myth and the demythifying, transgression, mimesis*** and ***transforming***.

2.1.2 Distilling qualitative elements of play

These six groups of qualitative elements listed in Table 2.1 are derived from theories of play by a comprehensive comparative analysis of both essence of play, stimulation of play and theoretical understanding of children's play. The results therefore can be understood as the essential elements that stimulate playful experiences of children. At the same time, these qualitative elements can be seen as appraising criteria of the degree of playfulness.

Qualitative elements of play	Characteristics of play (Huizinga and Caillois)	Play catalysts		Children's play
		Arousal of interest (Berlyne)	Play cues (Apter)	
Freedom and open-endedness	Freedom			
Secrecy and demystifying	Separation (spatial) Secrecy		Exploration	Exploration
Surprise and unexpectedness	Separation (time) Uncertainty	Novelty Uncertainty Surprise	Cognitive synergy	
Transgression and risks	Disorder	Conflict	Challenge Facing danger Negativism	Transgression
Fantasy	Make-believe	Complexity	Fiction and narrative	Imitation
Multi-senses			Exposure to arousing stimulation	Transforming

Table 2.1: Comparative analysis of qualitative elements of play

I. Understandings of qualitative elements from spatial perspective

The brief description and its implication on the spatial environment are given below. In chapter 4, an exploration of interpreting these elements into spatial elements will be further developed. The aim is to imbue the physical space with same qualitative elements found in play thus create the space of the playful qualities. An explanation of these elements follows.

** Freedom and open-endedness*

Huizinga (1949) regards freedom as the premise of any forms of play. It actually extends from the voluntary desire for play to the flexible and open-ended uses provided by space. When the environment is open to multiple interpretations and uses, the child is left with the power to tell it what it is to be, rather than given preconceived correct way to perceive or act (Frost and Talbot, 1989). From the district or neighbourhood scale, this group of elements can be understood that the function of space is open to be interpreted by children rather than predefined, which can

be regarded as an approach to offset functionalism concept. Instead of defining specific area for children, the whole residential area is playable (Verwer, 1980). Narrowing down into place scale, it also refers to the complexity and flexibility of environment that children can use and play in their own ways (Jones, 1997).

** Secrecy and demystifying*

The charm of play is enhanced when it is secret (Huizinga, 1949). Secrecy is reflected on the spatial separation of space, for example the creation of hidden places. According to Sobel (1993), although children are more engaged with outer environment, they are still fragile and express the desire to be protected during middle childhood period. In this regard, hidden places and intimate scale is needed for solitude play (Herrington, 2007). On the other hand, the demystifying expresses children's appreciation of exploring and discovering the unknown realm (Caillois, 1961; Gilloch, 1996). Thus, it asks for the space to offer either physical accessibility or visual permeability towards secret places to obscure boundaries and create the sense of curiosity.

** Surprise and unexpectedness*

As stated by Lefebvre (1987), everything mustn't be foreseen and functional in the city. At the district or neighbourhood level, the ordering of different spaces should include uncertainty and surprise through movement (Walz, 2010). It is distinctly reflected on the planning of pathways. Without knowing everything on a conceptual level, there is always a unique place with play stimulations. Besides, time separation as another dimension that contribute to unexpectedness (Huizinga, 1949), which can be understood as temporality and changing of the space, is also inherent.

** Transgression and risks*

Children are instinctively fascinated by prohibitions and attracted by risks. Transgression is reflected on children's affinity to "liminal zones" and border seeking activities (Tunstall et al., 2004). These liminal zones in the residential areas refer to the water edge, woodland border or some other spaces between the known and the known. Taking the spatial element of risks into consideration, it includes height but also scale or speed (Stevens, 2007).

** Fantasy*

Fantasy is reflected on the children's instinct imaginative capability. This qualitative element is related to the novelty and specialness of space on the one hand (Frost and Talbot, 1989). By increasing the degree of strangeness of spaces, imagination can easily inspired (*ibid.*).

** Sensation*

Spaces are more arresting and remain profoundly in children's memories if engaging multi senses (Frost and Talbot, 1989). The senses of children are much sharper than those of adults (Porteous, 1990). Children do not censor experience; they enjoy the sheer multisensory joy and pays attention to everything (*ibid.*). What's more, many literatures have indicated that non-visual sense, smell, touch and taste, have a much greater importance to stimulate children, which is different from the most adults (*ibid*). For instance, in a survey conducted by MacNaghten and Urry (2000), various groups of people spoke of the contribution of the different bodily sense, particularly smell, in their earliest childhood memories of playing in wildness.

These derived six groups of qualitative elements of play can be regarded as spatial criteria of playfulness as well as guiding principles to design play space.

2.2 What play space would be needed - theorizing play in the spatial context

2.2.1 Linking types of play and landscape space

It is undeniable that play is linked to space (Hacker, 2005). From the perspective of landscape architecture, the intention of this study is to design play space for children by seek answers of question ***what play space would be needed to stimulate free play?*** While adults perceive landscape forms, children actually perceive the functions of landscape and possibilities offered for different play forms (Fjørtoft and Sageie, 2000). This argument is in line with Gibson's theory of affordances (1979), which is explained as:

The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or for evil.

Further, Fjørtoft's study (2004) has approved that particular types of play are linked to special places and landscape elements. Therefore, it is necessary to consider connections between particular types of play and corresponding play space. In this regard, in order to answer the question mentioned above, the abstract types of play can be defined first with the consideration of ***what play types are needed?*** Based on characteristics and requirements of each play types, corresponding spatial elements of play space will be considered by answering the question ***what kind of spaces can afford certain type of free play activities?***

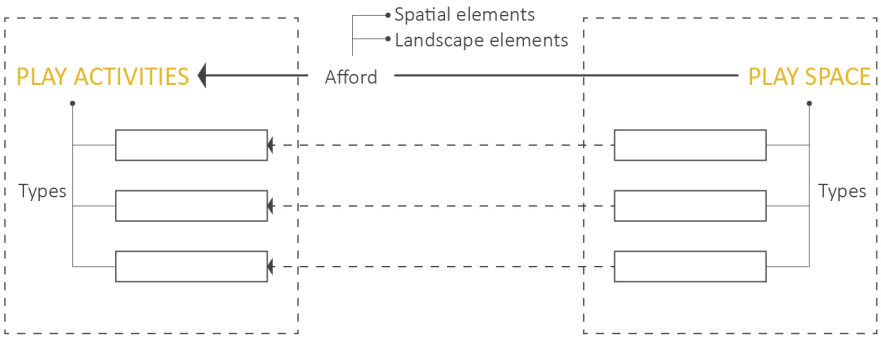


Figure 2.2: Connection between designing play space and identifying play types

I. Defining a typology of play types

** Caillois's play typology (1961)*

Caillois differentiated four fundamental categories of play: competition (agôn), chance (alea), simulation (mimicry) and vertigo (ilinx), which suggests different body or mental engagement with spaces. This typology provides insight of what characteristics make the certain form of play enjoyable (Stevens, 2007). Firstly, competition is mainly implemented in athletics contests either regulated or not. In competitive play people look for ways to utilize their skills (*ibid.*). In opposition to competition, chance play dismisses any kind of skills or efforts and it becomes fun when people accept unpredictable results (*ibid.*).Further, simulation can be regarded as a representational way of the imagined. Lastly, vertigo play is that forms of play represents people's desires for new and extraordinary sensation through intense bodily experience with environment (*ibid.*).

Furthermore, in general play in each form can be placed in a continuum from paidia- unstructured and spontaneous to ludus- structured play with explicit rules (Caillois, 1961). And the paidia form is in essence related to the play of children and immediate joy created through play (*ibid.*).

Caillois's category provides a comprehensive understanding of play and covers a wide range of play activities; however, this typology is constructed based on the overall aspect, including adult's play as well. In this regard, to narrow down to children's play types to refine or supplement if necessary is

needed.

** Frost's classification (1992)*

In this regard, Frost (1992) classifies play activities into three categories. Functional play contains gross-motor activities and other games involving basic movements. Construction play is the manipulation of objects for the purpose of constructing or creating something, which is supported by landscape structures and loose parts. Lastly, symbolic play includes such as role play and fantasy play (Frost, 1992, in Fjørtoft and Sageie, 2000). However, Frost's categories still represent too broad. In particular, it does not take into account the emphasis that many theories place on discovery or exploratory.

** Hughes' categories (2002)*

Based on the playworker background, Hughes (1996) however expands and subdivides these groupings into 15 categories of play and later to 16 (Hughes, 2002). These 16 are symbolic, rough and tumble, socio-dramatic, social, creative, communication, dramatic, locomotor, deep, exploratory, fantasy, imaginative, mastery, object, role and recapitulative. However, it is considered that the discussion of 16 play types and corresponding landscape elements would be too cumbersome as some of types do share characteristics (Woolley and Lowe, 2013).

As mentioned above, the previous defined play types are either too general or too verbose. This study therefore redefining the typology into 5 groups using categories of play of Caillois, three classification of Frost with the 16 play types of Hughes embedded. The new categorized play typologies and relationship between them is shown in Table 2.2.

Caillois (1961)	Frost (1992)	Hughes (2002)	Play types	
Competition	Functional play	Rough and tumble play Locomotor play	Flowing play	Physical/ concrete play types
Vertigo		Deep play Recapitulative play	Vertigo play	
Chance		Exploratory play	Chance play	
	Construction play	Mastery play Object play Creative play Symbolic play	Creation play	
Simulation	Symbolic play	Role play Dramatic play Fantasy play Imaginative play	Simulation play	Psychological/ intangible play type
	Social-dramatic play	Social play Communication play Social-dramatic play		

Table 2.2: Comparative analysis of play types

2.2.2 Relationship between play types and play space types

As discussed above, certain play space affords certain play types. Based on the essence of defined play types and their relationship with space, the characteristics and requirements of each type of play space are therefore concluded.

The first four types of play, flowing play, vertigo play, chance play and creation play are regarded as physical play while simulation play is related to the social and imaginative dimension. In order to answer the former proposed question: what kind of spaces can afford certain type of free play activities; corresponding play space types will be established. However, since simulation

play which is symbolic and intangible, and actually can be overlapped with physical ones, in this study only flowing, vertigo, chance and creation play types will be transcribed into concrete play space. Simulation play is however still infiltrated and considered in other four play space types. These four types of play and corresponding relationship with different physical play activities are briefly discussed in following text. A closer look into these four play spaces types with specific consideration of the qualitative elements derived above will be in Chapter 4.

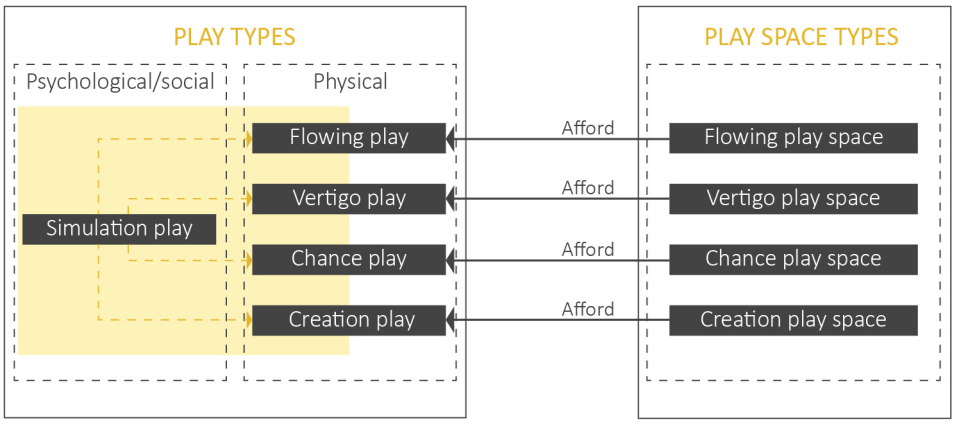


Figure 2.3: corresponding relationship between play types and play space types

I. Flowing play - Flowing play space

Flowing play mainly includes gross-motor activities with basic physical skills, which is relatively gentle compared with the vertigo play. Flowing play space should therefore afford basic locomotor play as well as more intense rough and tumble play. The main characteristic of this type of play is that children ***follow the space***, which means children's movements are choreographed by the landscapes as their bodies responded to its every opportunities offered by the landscapes (Moore, 1986). This statement highlights that the flowing space should offer diverse, free and fluid movement opportunities. Moreover, flowing play space can be more active to offer scopes for children to discover new forms of movements creatively.

II. Vertigo play - Vertigo play space

Vertigo play contains deep play forms which stimulate children to escape from normal bodily experiences, and express children's desires for testing their body against physical limits, encountering risks and even a certain degree of scariness (Stevens, 2007). This play space therefore needs to offer opportunities to let children ***competing with the space***. Besides, it also appears to be important that experience of vertigo remains pleasurable when the risks are managed in limited range (Apter, 1991; Stevens, 2007). Therefore, it is much important to balance risks and danger in this space type.

Much of the opportunity for vertigo play for children has been replaced by adult managed theme park rides (Tovey, 2007). However, vertigo play and vertigo space are not equal to the play forms that entertainment space provides. Someone else is in control and the risks are virtually non-existent. Risk taking in play allows children to demonstrate their competences; it requires instant judgements about danger and about safety.

III. Chance play - Chance play space

Chance play consists of exploratory play activities. Children's relationship with play space is reflected on the ***exploring and discovering space***. Chance is in essence related to uncertainty, correspondingly, chance play space contains the unplanned and unfamiliar (Stevens, 2007). All these unpredictable encounters, like found spaces or objects bring possibilities and initiate unexpected play (Mugford, 2012).

IV. Creation play - Creation play space

Creation play includes mastery play, object play, creative play and symbolic play. The main characteristic of this play types is that children keep ***constructing, reconstructing and changing*** the current play environment, which demonstrate that play space is open to be transformed and allow these disordering activities. The creation space is thus in accordance with the statement that the outdoor environment for children is dynamic living space constantly changing as children transforming it (Tovey, 2007). Creation play space is thus not a static predetermined layout to which children have to adapt, or just a scenic backdrop for a series of activities, but an ever-changing and dynamic space.

2.3 Zooming out: play network for children in middle childhood

2.3.1 The importance of an integrated strategy about play

Looking back to the above derived typology of play space forms, it is closer to the place destination concept, while there is still in need of the network to connect all these secluded play spaces in an integrated and playful way. In order to improve the playfulness at the whole district level, the territorial range proposed by Moore and Young (1978) will be looked into firstly. This concept has been regarded as a useful way to describe the geography of children socially and spatially (Moore, 1986). The NOP-model, as a method that has been used in previous research in examining playability of neighborhoods will be reviewed then.

2.3.2 Territorial range of children

Closely related to children's play and exploration is range behaviour (Matthews, 1992). Among different territorial range model, Moore and Young's (1978) concept is more valued (ibid.). They define the territorial range as being collective spatial realm of experience, encompassing children's leisure and play spaces, and the pathways connecting them. In this way, the territorial range embraces the totality of a child's space-time domain.

I. Place

According to territorial range, place is the locus of play experiences. In this regard, place can be understood as play spaces or play destinations, and divided into four categories according to differences of ranges (Moore and Young, 1978).

- Habitual terrain: more or less contiguous space which extends around child's home, which is from the domestic domain to the extension of play into contiguous public spaces, such as streets, alleyways, mews, fronts, backs, odds and ends of lawn, and other leftovers. Since it is the immediate space from children's home, habitual terrain is especially satisfy the needs of small children.

- Frequented terrain: less accessible extensions of habitual range and is bounded by physical constraints. Sometimes children need using bicycles to access the frequented terrain. Frequented terrain is also seen as more related to the daily play range for children in middle ages.

- Occasional terrain: more distant places, visited once in a while. Occasional terrain for children is normally accessed accompany by parents.

- None terrain: not in the original classification of territorial range defined by Moore and Young. The adding of this terrain is that there are still many spaces children will not access to. However, the boundary of no terrain might attract children.

II. Pathway

Pathway is regarded as the conjoining network of access and has the function as mere channels or the linear places (Moore and Young, 1978). Research has shown that pathways are heavily used by

children than by adults in neighbourhoods (Moore, 1986). In this regard, opportunities to wander in the more intimate and attractive ways should be built into residential areas to fulfil children's daily movements (ibid.).

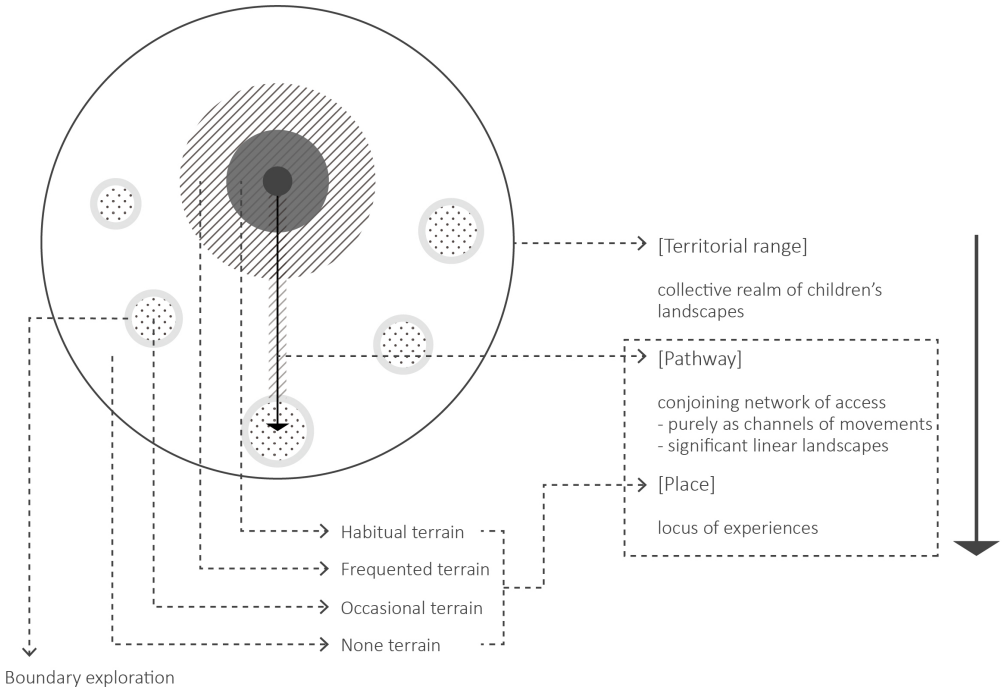


Figure 2.4: Territorial range of children's daily life, adapted from Moore and Young, 1978 and Moore, 1986

2.3.3 NOP-model as the basis of play network

The concrete units, place and pathway of children's entire territorial range are researched and corporate in the NOP (Network of play) model defined by Bakker and Fähnrich (2008). By analysing the advantages and missing points of existing methodologies and play models, they propose a more systematic and integrated model. Although the starting point is to increase physical activity to prevent overweight problems of children, this model is developed thoroughly and can be used to appraise the playability of selected case while whether this model is usable as the framework for designing overall wild play network will be discussed in the case analysis phase.

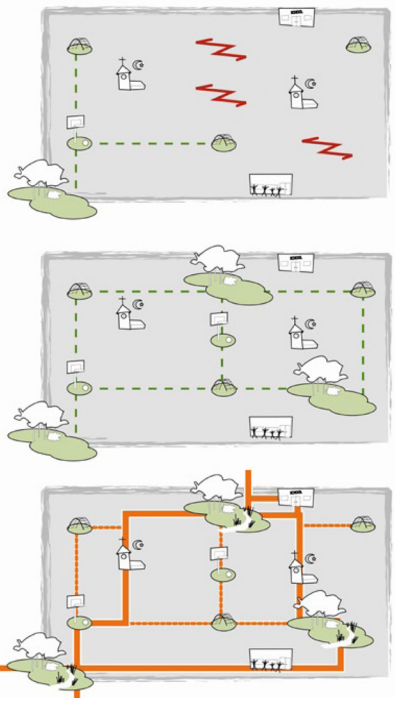


Figure 2.5: Essence of NOP-model, from Bakker and Fähnrich, 2008

Figure 2.5 shows the solutions that NOP-model proposed to design a playable neighbourhood or district. After identifying essential problems of current play spaces on the district level, primary play spaces are located within 400 meters apart from each other and secondary play spaces are assigned within 100 meters from children's home. These play spaces will then be connected to other child facilities (school, community centres ...) by safe child routes. Apart from it, design criteria and guidelines of NOP model are also differentiated:

- Quantity of play: distance between play/ amount of play
- Location of play: amount of social control/ amount of disturbance/ environmental conditions
- Accessibility of play: child-friendly connections/ separation from motorized traffic
- Quality of play: complexity/ environmental manipulation opportunity/ Plural target groups/ physical stimulation/ mental stimulation/ social stimulation
- Landscape use: the use of landscape elements

I. NOP-model for children in middle childhood

** Is it necessary to modify minimum distances between play spaces?*

NOP-model is defined based on the independent mobility of wider range of children while this study takes children in middle ages as the target group. The difference is therefore might reflected in the

action radius.

The action radius of 6-12 years old can differ between 300-1000 meters (CROW, 2000, in Bakker and Fähnrich, 2008), and the original NOP-model chose 400 meters as the appropriate distance based on the consideration that the primary play space can be reached by children starting from 6 years old (ibid.,). Although the middle childhood is normally starting from 7 or 8 years old, this slight difference can be ignored here. Hence, 400-meter will be still seen as basic action radius of primary play space. Secondary play spaces are less valued in terms of level of playfulness and do not need to have significant sizes. The original NOP-model states the 100-meter action radius of secondary play space to fulfil the need of children under 6 (ibid.). Since this study specifically focuses on middle aged children and wilder spaces, it is therefore not necessary to guarantee a sufficient spread of secondary play spaces within 100-meter action radius throughout whole district for those younger children. Nevertheless, the identification of secondary play spaces is still needed as they offer the immediate wild play potentials for children. Since the target group is not changed for secondary play spaces, the 400-meter action radius is also suitable for secondary ones.

** The importance of attaching playfulness to pathways*

As emphasized above, pathways should provide more inviting opportunities through children's movements apart from the safety considerations. For now, the essence of NOP-model focuses on the connecting and safe aspects. In this regards, the possibility of combining pathways as linear play spaces can be taken into consideration and as the alternative for childweb of NOP-model.

2.4 Conclusions of theory of play

Extracted from theory of play based on researching catalysts of play or playful experience, freedom and open-endedness, secrecy and demystifying, strangeness and unexpectedness, transgression and risks, fantasy, and sensation are derived as six groups of qualitative elements of play. These qualitative elements will be further interpreted into spatial elements of play in chapter 4. These elements focus on spatial quality of play space can be regarded as criteria that considered when designing play space or aiming to increase the degree of playfulness for certain spaces.

At the same time, we also found that particular forms of play are linked to special landscape space. In this regard, an abstract typology of play space forms is derived that afford correspondent four general types of physical play activities. Each play space represents and focuses on different interaction between children and environment, thus afford different play forms. Also, above extracted qualitative elements express themselves in specific emphasis and combination through four different play space types.

A PLAY OF WILDNESS

This chapter is going to seek for the characteristics of wildness, and their relationships with certain play space while answering the SQ2: *What attributes of wildness would afford and promote children's play in their middle childhood?* Apart from advantages of wildness, negativeness of wildness like potential risks and dirtiness are discussed as well. In addition, references study offers implications on the using of wildness and how the fundamental elements applied for play, which could transferred to the design of wildness in the selected case.

3

As mentioned in Chapter 1, wildness in this study refers to urban wildness and can be understood as wild natural areas that are less managed or out of people's frequent interferences, and disused and rough areas which are conquered by spontaneous growing plants and represent unkempt and disordered appearances. On the basis of this definition, places such as urban forest, wasteland, and vacant lot can be regarded as wildness settings. As discussed above, these wild spaces possess more potential for play because of three essential qualities: unpredictable and risky, secret and secluded, and open for transformation. In this part, the essence of wildness that attracts children will be discussed from these three aspects in a deeper way.

3.1 Critical dimensions of child's play with wildness

** Children's desire for transgression*

It represents children's affinity for wild spaces

Children have affinity for disorder spaces because of their desires for transgression, irresponsibility and freedom (Cloke and Jones, 2005; Edensor, 2012). They need some spaces without the ordered surveillance and caution of how they should be from adults (Cloke and Jones, 2005). Looking back to the definition of wildness in this study, it is understood as wild nature spaces like woodland and other unkempt and unmanicured green spaces. Therefore, from children's perspective, wildness is seen as a place outside of adults' supervision and control, which is different from the formal forms of playground (Ward Thompson et al., 2004). These unofficial spaces actually afford greater freedoms and surprises for playful engagement of the environment (Ross, 2004, in Travlou, 2006). Transgression is not only reflected on where to play but also how to play. In wildness context, children have more opportunities to conduct "transgressive" and disordering activities, which will be discussed in the following text.

** Open for transformation*

It represents children's essential capacity during play

Wildness is open for transformation and it represents children's essence capacity during play. One of the distinct differences between play activities that take place in wildness and in conventional green spaces lies in the permission of modification or not (Jorgensen, 2012). Children are normally not allowed or at least discouraged to change the physical fabric and the way of using the space is highly restricted by social norms in normal green spaces (ibid.). However, on the other hand, disorder spaces, including wild places, provide potentials for playful rebuilding and transformation to create smoother spaces - free characterized spaces (Deleuze and Guattari, 1988). Cloke and Jones (2005) have approved the affinity between childhood and disorder, and pointed out that transformation represents children's essence capacity through play. Children have the desire to metamorphose and disordering the spaces materially and symbolically (ibid.). As Phillips argued,

> *This capacity for transformation, the imaginative and often bizarre refashioning of everyday experience, was originally the child's unerring, ineluctable talent for making something of his own from whatever he finds (Phillips, 1998, p.6).*

Moreover, modification and manipulation of natural environment provides a feeling of control for children (Hough, 1984). In this way, children transform space into place and gain a sense of place (Tovey, 2007). To conclude, wildness leaves children free zones to disorder and thus extends children's manner of interacting with the natural world.

** Ever-changing*

Essential requirement of play environment

Different from standardized and static playgrounds, wildness is ever-changing. Wild spaces therefore expose children to the unexpected and surprises, and always stimulate excitement, mystery and a sense of adventure (Tovey, 2007). At the same time, the indeterminacy resulted from the ever-changing quality of wild spaces make it more like the play-partner that can offer dynamic interaction with children (Moore, 1986).

It is the product of free play and can be withstood by resilient wildness

** Dirt and chaos*

Compared with managed green spaces and vulnerable real nature, it is wild spaces that allow dirt and can absorb the messy results and dirtiness (Moore, 1986). Children's play always ends up with a certain degree of chaos. Although their interaction with environment is normally gentle instead of vandalism, exploration and experimentation still result in some messes (Hart, 1982). In this regards, wildness has much higher carry capacity with its ability to withstand children's play with minimal need of maintenance while conventional landscape need constant care and attention (Hart, 1982; Moore, 1986.).

In addition, wildness is prone to be linked with vandalism because of the shared characteristics like disorder and dirtiness. However, according to Moore's observations (1986), the idea of vandalising actually does not arise in wild spaces. Due to the high diversity of wildness, the desire to break the place up therefore is never considered (ibid.).

3.2 Nature values - wildness values

Nature values refer to the different ways children can engage and experience nature (Margadant-van Arcken, 1990 in Postma, 2016). Though wildness is the specific setting in this study, it is undeniable that wildness still part of the general concept of nature. Therefore, it can be understood that the term "wildness values" can be used for the different ways of children's engagement with wildness. In term of natural values, Kellert (1997) has formulated a typology of nine fundamental values.

Value	Definition
Aesthetic	Physical attraction and appeal of natural
Dominionistic	Mastery and control of nature
Humanistic	Affection and emotional attachment for nature
Moralistic	Ethical and spiritual affinity for nature
Naturalistic	Exploration and discovery of nature
Negativistic	Fear and rejection of nature
Scientific	Empirical and systematic study and understanding of nature
Symbolic	Communicating and imagery role of nature
Utilitarian	Material and commodity attraction of nature

Table 3.1: Values of nature, from, Kellert, 1997

According to Kellert (2002), middle childhood is a period when negativistic perspective diminishes its importance while children cultivate greater affection and curiosity for the natural environment. It means that nature's values do not emphasize on simply meeting children's material and physical needs or offering feelings of comfort and security any more (ibid.). Rather, naturalistic and dominionistic values become more evident with children's increasingly desires to explore, imagine, take risks and discover (ibid.). In this regards, wildness offers further values because of its essence mentioned above.

Figure 3.1: The mystery of wildness- both fascination and fear

3.2.1 Relationship between wildness values and play space

The aim of this section is to seek for what characteristics of wildness are related to certain play space that can afford varied play activities for children in their middle childhood.

** The mystery of wildness*

The ambivalence between fascination on the one hand and fear on the other determines people's relationship with wildness (Konijnendijk, 2012). Many urban wild places like forests, disused areas, especially those less managed spaces, can encourage exploration and adventure, but also evoke feelings of fear (*ibid.*). In brief, wildness is mysterious while this mystery can be understood as the co-existence of preference and danger (Herzog and Kutzli, 2002). It is highly related to ***vertigo***

space. As mentioned above, except for intense physical play activities, vertigo play also refers to the pleasure of being surprised and even afraid by the unknown or scare their peers in the darkness. For instance, it is always happened in dark forest areas (Figure 3.1) where covered by dense and thick vegetation and dead branches are intertwined. In general, wild settings highlight the excitement and adventure aspects of outdoor environment, which is normally absent in conventional green spaces.

** The secrecy of wildness*

Wildness is normally secret and secluded out of people's frequent interferences. According to Sobel (1993), child "the self is fragile and ... needs to be protected" during middle childhood period, which highlights the significance of secretive nature of hiding place. In spite of their inclination of hidden spaces, the opportunities to seek for or make secret places are restricted by rigidity green spaces while can be enhanced by wild environment (Bell et al., 2003; Ward Thompson, 2012). Because of the abundant and thick vegetation, children can easily secrete in the foliage of trees and bushes in wilder places. This characteristic of wildness is related to the distinctiveness of ***chance space*** in which children's desires for exploration and discovery activities are afforded.

Apart from exploring secrecy, wildness also contributes to children's desires to create secret places by themselves. Researches with children point out that it appears to be a universal experience of childhood of creating intimate and private special places (Lester and Maudsley, 2006; Tovey, 2007).

Figure 3.2: The secrecy of wildness- children can conceal themselves, De speeldernis, Rotterdam

** Material attraction of wildness*

Evidences show that children love to interact with all the variables (Nicholson, 1972). On the basis of this fact, Nicholson further points out the theory of loose parts and indicates that the "degree of inventiveness and creativity ... are directly proportional to the number and kind of variables in it" (*ibid.*, p.6). However, conventional green spaces offer limited interaction for children, normally restricted in visual way. In this case, the distinctiveness of wildness just lies in its variable loose parts. Along with the lack of close supervision, wild spaces provide great potentials for creative play freely (Lester and Maudsley, 2006). With abundant found objects, children use their interpretive skills to translate these objects into tools for play in their found places (Mugford, 2012). This material freedom and attraction of wildness is related to children's construction activities and characteristics of ***creation space***.

Not only visible wildness elements, natural processes within the creation of organic landscapes, such as hydrological cycles of water, the growth of plants, and the erosion and deposition of soil, can be brought into play in many creative ways as well (Herrington, 2005). In brief, we can say that wildness settings contribute to a laboratory-type environment (Nicholson, 1972) where children can play, experiment and learn from the natural world.

Figure 3.3: Transforming and material attraction of wildness

[Create, construct, reconstruct and transform]

The relationship between landscape and play is reciprocal and dynamic

** Roughness of wildness*

Compared with smooth ground, wildness offers a more rough but provocative terrain which can afford varied forms of movements. Roughness of terrain affords children to, for example, "crawl under low branches, climb over fallen tree trunks, balance on or jump off tree stumps, jump in puddles, clamber through fallen leaves, negotiate a muddy track or slide down a grassy bank" (Tovey, 2007, p.77). The highly diversity of terrain thus encourages children to create new and special movements inspired by the environment. This characteristic of wildness can be understood as the basis of creating the more exciting ***flowing space*** for children.

3.3 Implications from practical designed wildness

In the following part, several practical references related to designed wild playscape are selected and analyzed how the fundamental wildness features are used and combined for children's free play. Some of the selected projects are not designed as play spaces initially; however, they contribute to stimulate children's spontaneous play activities after construction. These projects include varied wild situations like forest, wasteland, and vacant lots. For each project, six groups of qualitative elements derived in Chapter 1 are also used as criteria to exam its playfulness.

The results of reference studies could provide me a better understanding of combining playfulness with wildness settings and implications that can transfer to the design of wild play spaces in test case.

Figure 3.3: Children try to make balance on narrow bridges

Figure 3.4: The ground is covered by a thick layer of tree bark

Figure 3.5: Forest of vines constituted by hanging ropes

** Looking for Jane, Makelblijde, the Netherlands*

Designed by Bureau B+B Urbanism and Landscape Architecture, in 2000

Description

Looking for Jane is a fenced garden designed on an abandoned schoolyard site. Instead of removing wild vegetations, the mysterious atmosphere created by existing spontaneous growing plants is the starting point of the design. The air of mystery is strengthened in the design that invites people to explore. New wild plants and wild flowers are seeded but were then left to fend for themselves without dedicated maintenance. Thus, when people are inside, they can make their way through this jungle-like place with dense plants over the soft ground covered by thick tree bark (Figure 3.4). This garden is divided into two parts and connected by several rather narrow tree trunks (Figure 3.3).

An interesting aspect of this wild garden is that the sense of exploration is created, but not with pathways. It contributes to a more free exploration of the garden. People designed their own journey rather than leaded by defined paths. The sense of exploration is also reflected on the design of entrance. Seen from distance, the garden seems like a black box constituted by rugged wooden fence. The entrance is secret that people need to beats around the bush literally to finally find a swivelling piece of fence from which he can enter in. In this regard, the whole visits in the garden can be seen as an exploration.

Expect for these spatial elements and wild plants, designers also apply fog, light and some other artificial elements to create illusion to increase mystery.

Qualitative elements of playfulness

Freedom and open-endedness/ secrecy and demystifying/ surprise and unexpectedness/ fantasy/ multi-senses

Implications for design

- Remaining wild plants to strengthen an air of mystery

Overgrown plants which are normally regarded as the result of weak maintenance, however, they can also be the starting point of playful wildness. Such kind of places conquered by plants is not rare in Dukenburg and it will be explored in Chapter 5. What's more, the application of tree trunks as bridges or tree bark as ground cover would also contribute to further design.

- Combining exploration of paths with thick plants

No defined or loosely defined path way can provide children with more freedom to explore and to design their own journey through spaces rather than just following given "correct" way to move and play.

Combined with vegetation, the paths can be better integrated into play spaces or even hidden through vegetation.

The implications from this project are quite related to **chance play space**.

Figure 3.6: Children explore the “underworlds“ of concrete clods

Figure 3.7: Children try to make balance on uneven ground surface

Figure 3.8: Children try to make balance on unstable ground surface

** Alter Flugplatz Kalbach Frankfurt am Main, Germany*

Designed by GTL (Gnüchtel Triebswetter Landschaftsarchitekten), in 2004

Description

After the abandonment, this former helicopter airfield seemed to remain as the relic of the Cold War in the natural space of Nidda. The main concept of this project is to melt the former terrain together with the nature in a gentle way while the new designed area will be open to public and offer recreation uses. For this purpose, more than half of the existing hardscape was demolished, fractionated and built in varied grain sizes, from concrete clods to fine gravel. Together with reinstalling, wide amplitude of habitats and a series of nature succession processes are created at the same time, which represents a second nature by utilizing nature’s re-conquering power.

These re-installed hardscapes are placed in a more random way in order to give room for plants’ growing, thus creating relative uneven ground surfaces that stimulates people’s active movements. As can be seen from Figure 3.7, children try to make balance on top of these concrete clods, which express an intense but creative and playful interaction with their environment.

This project highlights the power of nature and allows plants growing spontaneously in-between former hardscapes without careful maintenance, which represents the characteristics of wild nature as well. With a certain secrecy, children are driven by their curiosity to explore the nature under or in-between the concrete and always find something novel. In this case, it has been regarded as the nature laboratory for surrounding kindergartens and schools.

Qualitative elements of playfulness

Secrecy and demystifying/ surprise and unexpectedness/transgression and risks/ fantasy/ multi-senses

Implications for design

This project is neither designed as play space nor only for children, but attracts many forms of spontaneous free play from children.

- Reuse of construction materials

In this project, previous construction materials are reused into the site in a creative and natural way.

- Involving natural process

The nature’s re-conquering power is highly appreciated, which also contribute an ever-changing environment. It not only meets children’s requirement of novelty in their play spaces, but also improve natural learning.

The implications from this project are quite related to **vertigo play space**.

3.4 Negativeness of wildness

Although wildness is regarded as ideal free play spaces for children's play, it is undeniable there are some negative aspects inherent. However, if the environment is negatively perceived, activities that occur within it may also be hindered (Bixler and Floyd, 1997). The purpose of this part is therefore to discuss these negativeness in order to avoid them to a large extend in later design part. In general, potential risks and "dirtiness" are two dominant influential factors (ibid.).

3.4.1 Fears and risks

** Benefits of risks*

The theme of risks has long been explored and attached significance for children's development (Fjørtoft and Sageie, 2000; Gill, 2007). Moreover, Hughes states that prevent children from risky experiences is "deliberately disabling and ethically unacceptable" (Hughes, 2001, p.53). At the same time, with the highest level of security, this play space also tends to be dull with the lowest affordances for play activities (Fjørtoft and Sageie, 2000).

Children highly appreciate risks. A bit of risks contribute to the interest of space because children actually don't know what's going to happen (Ward Thompson, 2012). Evidences reveal that children actively seek out risk-taking opportunities and enjoy risk-taking in perceived "dangerous" locations (Gleave, 2008). As a protagonist of children's literature says:

> *Most of the really exciting things we do in our lives scare us to death. They wouldn't be exciting if they didn't.*
> *Dahl, 1975 in Mugford, 2012*

Further, children can gain experiences to cope with the unpredictable adulthood by learning through risk-taking play (Gill, 2007). It is therefore argued that instead of shielding children from risks, providing challenges and risks in specially designed spaces can be an effective way of managing risks (ibid.).

** Risks inherent in wildness*

Even the children in their middle childhood prefer risk-taking activities, many empirical studies also indicate that these children still need of safe feelings (Ward Thompson, 2012). Potential risks are critical obstacles to children's use of nature or wild spaces (Travlou, 2006). Children like to go to risky and even dangerous places and the question is how much risk should be tolerated (ibid). It is undeniable that the disordered and unregulated qualities of wildness easily to make them represent fearful and dangerous images that restrict children's access (Edensor et al., 2012).

Lack of direct experiences with wildness is related to the fear of wildness (Bixler and Floyd, 1997). In this regard, introducing the appropriate degree of wildness in children's immediate environment is reasonable and necessary. At the same time, according to Ward Thompson (2012), combining adventurous and challenging play activities in wild spaces can actually decrease the fear of wildness, which also offers a solution to manage possible fearful attitudes towards wildness.

3.4.2 Dirtiness of wildness

Apart from fears resulted from potential risks, wildness might create some uncomfortable tactile, olfactory and visual senses for children from contacting unpleasant stimuli (Angyal, 1941 in Bixler and Floyd, 1997).

3.5 Conclusions of wildness as playscape

In general, wildness meets children's desire for transgression with its open for transformation characteristics. Moreover, wild spaces are ever-changing compared with traditional green spaces or standardized playgrounds which offer indeterminacy for play. Most importantly, wildness is more adaptable and resilient that can absorb chaos and dirtiness resulted from free play. More specifically, what is also found is the direct connection between wildness values and certain types of play it can afford. The mystery of wildness, the secrecy of wildness, its material attraction and roughness contribute to certain play space.

In spite of these characteristics of wildness that afford play, the negativeness of wildness is taken into account. It comes from two aspects, inherent risks and dirtiness. It is therefore to make balance between challenges and dangers and between disorder and dirtiness.

3.6 Conclusions of theoretical framework

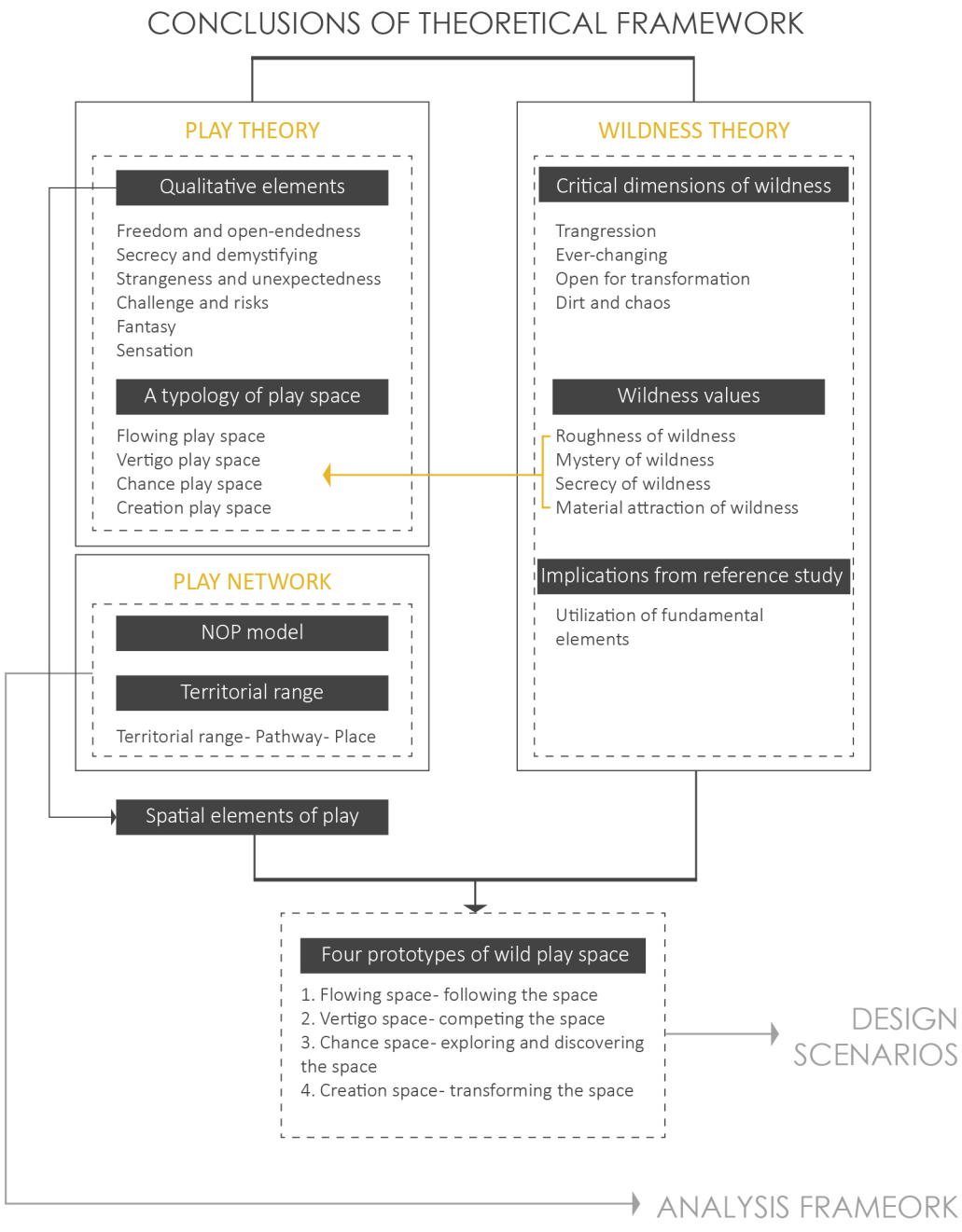


Chart 3.1: Overview of conclusions of theoretical framework

SYNTHESIS

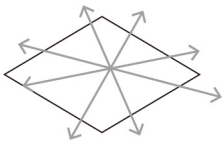
The aim of is chapter is to combine spatial elements of playfulness with critical aspects of wildness to afford different types of play while answering the SQ3: *how these qualitative elements can be interpreted into spatial elements to afford different forms of play combined with wildness?* Results of this chapter are illustrated four wild play space which can perform as the prototypes for further design.

4

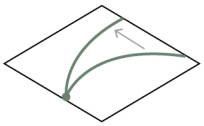
5.1 Exploring the spatial language of playfulness

The intention of this part is to imbue the space with same notion of essential elements found on the theoretical basis of play while contributing to an understanding of playfulness from spatial perspective. Certain design interventions are extracted from the research and illustrated below, which will perform as the basis of design languages for the following design part.

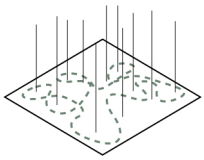
Freedom and open-endedness



[No defined directions and boundaries]
Without defined directions or boundaries, the whole landscape is accessible.

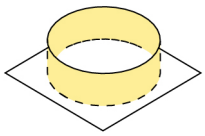


[Mutability]
Moveable and flexible landscape structures contribute to the ever-changing play environment.

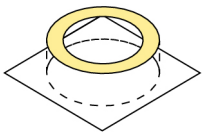


[No defined path]
Without defined path or with loosely defined paths, children can move freely and plan their own journey. It can be combined with some “landmarks“, therefore, children have clearer destination but the moving process is totally free. It also represents a kind of disorder in the order frame.

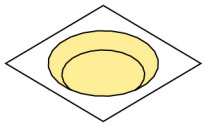
Secrecy and demystifying



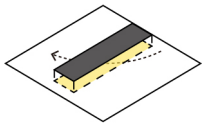
[Enclosure]
Hidden space is secret. It can be created from different levels: elevated, sunken and ground level. At ground level, enclosed space can stimulate secret atmosphere.



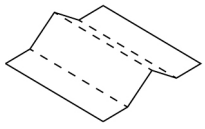
[Elevated space]
Elevated space is secret because children are not seen from ground level.



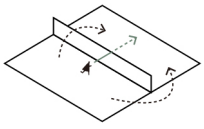
[Sunken space]
Sunken space is secret because children are not seen from ground level.



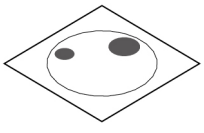
[Floating]
Floating pathway or platform can create intimate “underworld“ for children to hide or solitude play activities.



[Topography]
Topography can be used to block sight thus increases secrecy.

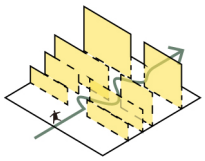


[Permeability]
The secret of space should be unfolded by children. It needs either physical accessibility (hidden tracks) or visual permeability (transparency).



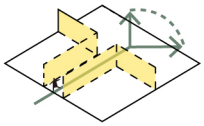
[Intimate space]
Intimate space means a series of sub-spaces in outdoor environment. It provides private room for children’s solitude play.

Surprise and unexpectedness



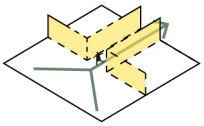
[Layering]

Looking through things at other things.
Layering can increase mystery and encourage children to explore through movement to discover something behind.



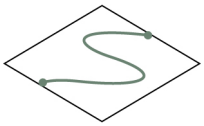
[Enclosure and sudden openness]

From restricted view and secrecy to open view suddenly.



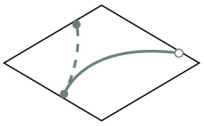
[Openness and sudden enclosure]

From open space to secret space suddenly.



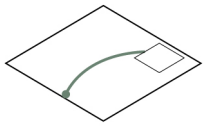
[Winding path]

Winding path create many unpredictable encounters during children's movements.



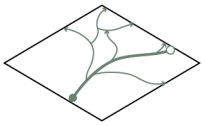
[Misleading and confusion]

Through the play of path, children will be leaded to surprise destinations.



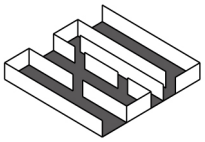
[Dead end]

Dead ends or suddenly finished path can stimulate surprise. Dead ends can be combined with novel objects to form the special places.



[Multi choices]

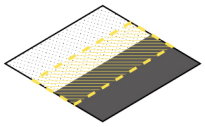
Many branches of the main path create much opportunities for children to explore unknown.



[Disorientation]

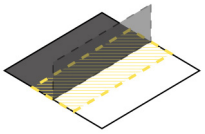
Labyrinthine-like space constantly creates confusion, surprise, curiosity and stimulates exploration.

Transgression and risks



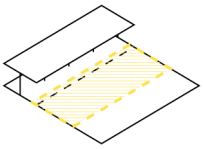
[Water-land]

The boundary zone between water and land is challenging, for example, canal edge.



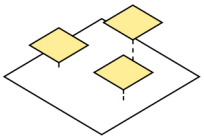
[Dark-light]

The boundary zone between dark and light is challenging, for example, unknown and thick forest edge



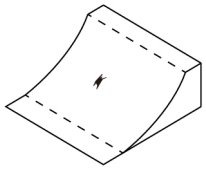
[Danger-safety]

The boundary zone between danger and safe is challenging, for example, spaces along rapid transit corridors.



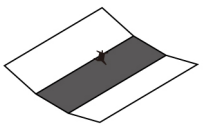
[Height]

Height create feelings of excitement, pleasure and even a certain degree of scariness.



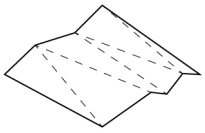
[Oblique plane]

Oblique plane affords many forms of vertical related movements: climbing, sliding, jumping, rolling.



[Distance]

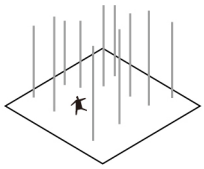
Distance changes horizontal movements, for example, jump across a small stream.



[Instability]

Children's perception of movements can be challenged by uneven surface.

Fantasy



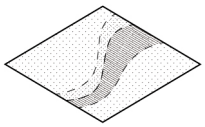
[Heroic scale]

Alteration of scale contribute to the novel responses in the imagination of children. The heroic scale includes huge scaled objects but also vastness.

[Miniature scale]

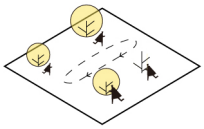
Miniature scale create a sense of being in control.

Multi-senses



[Richness and abundance]

Sensuousness is related to the materiality of space. Diversity of material stimulate creative play activities.



[Time-spaces]

The play space should be more dynamic as children grow and develop.

4.2 Wild play space types

In Chapter 2, essential elements related to spatial aspect of each play space are already discussed. Incorporating with the understanding of landscape attributes of wildness and their affordances of different play types in Chapter 3, a typology of play space types derived has been further completed and explained with the support of collages. Corresponding to different play types, these four wild play space types have different emphasizes with respect to spatial characteristics and dominant spatial experiences. Together with collages, these wild play space types constitute a comprehensive design prototypes for wild play on the place scale.

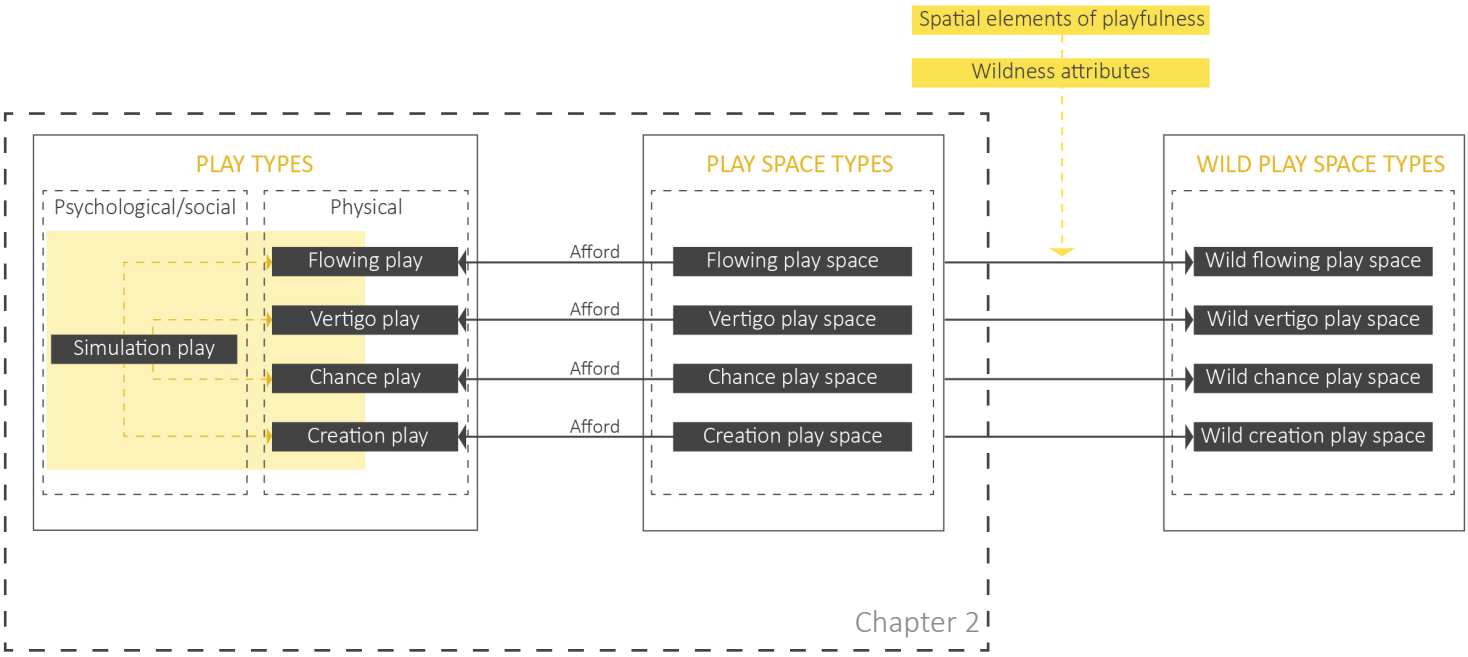
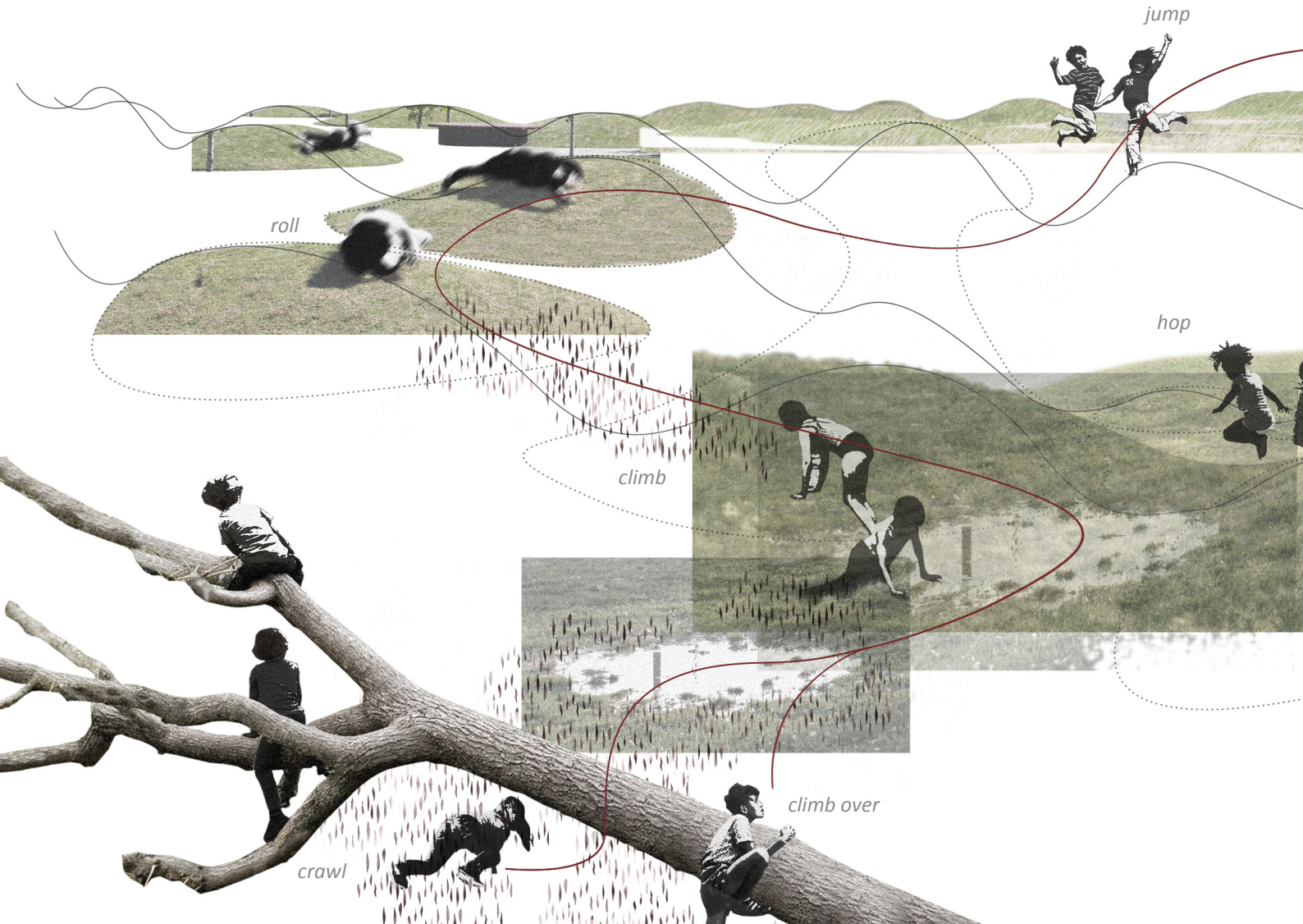


Figure 4.1: Relationship between play types, play space types and wild play space types

Following the space



4.2.1 Flowing play space

Flowing play space affords basic locomotor play activities such as running, jumping, climbing, hopping, crawling as well as more intense rough and tumble play. It appears that children's movement are responded to every opportunities offered by the landscape (Moore, 1986). In this regard, flowing play space offers diverse movements opportunities. In the context of the conventional green spaces, flowing normally refers to relatively smooth topography with gentle and quiet moving rhythm. In accordance with the essential elements of wildness, the flowing space refers to the more provocative ground plane- a rough terrain.

Imaging a child crawls under the low branches of the trees or climb over it, jumps into puddles, and then climbs or slides down following the up and down of the topography. The whole process is continuous and fluid. As illustrated as lines in the collage, this image actually implies one of the essences of flowing space: it allows for activities to flow and more actively and continuously. It means the succession of a range of movements: there is always more to do for children after they finish one kind of play activity.

In addition, the flowing space highlights the importance of freedom and open-endedness atmosphere. Neither defined path nor play areas will be settled in flowing space, rather, the whole landscape is available for play that children can choose freely. Moreover, the space is capable of inspiring new movement opportunities created by children. Children therefore do not just following the landscape passively but also more creatively and actively.

movement and rhythm
rough terrain
continuity
digression
open-ended
free choices
gymnast behaviours
body-scale
child-scaled
repetition

Competing with the space

physiology vertigo

psychological vertigo

instability

distorted perceptions

height

scale

speed

traction

wonder/ scary

mystery/ danger

control/ risk

light/ dark

transgression

adventurous

play with water

wild swimming

transgression

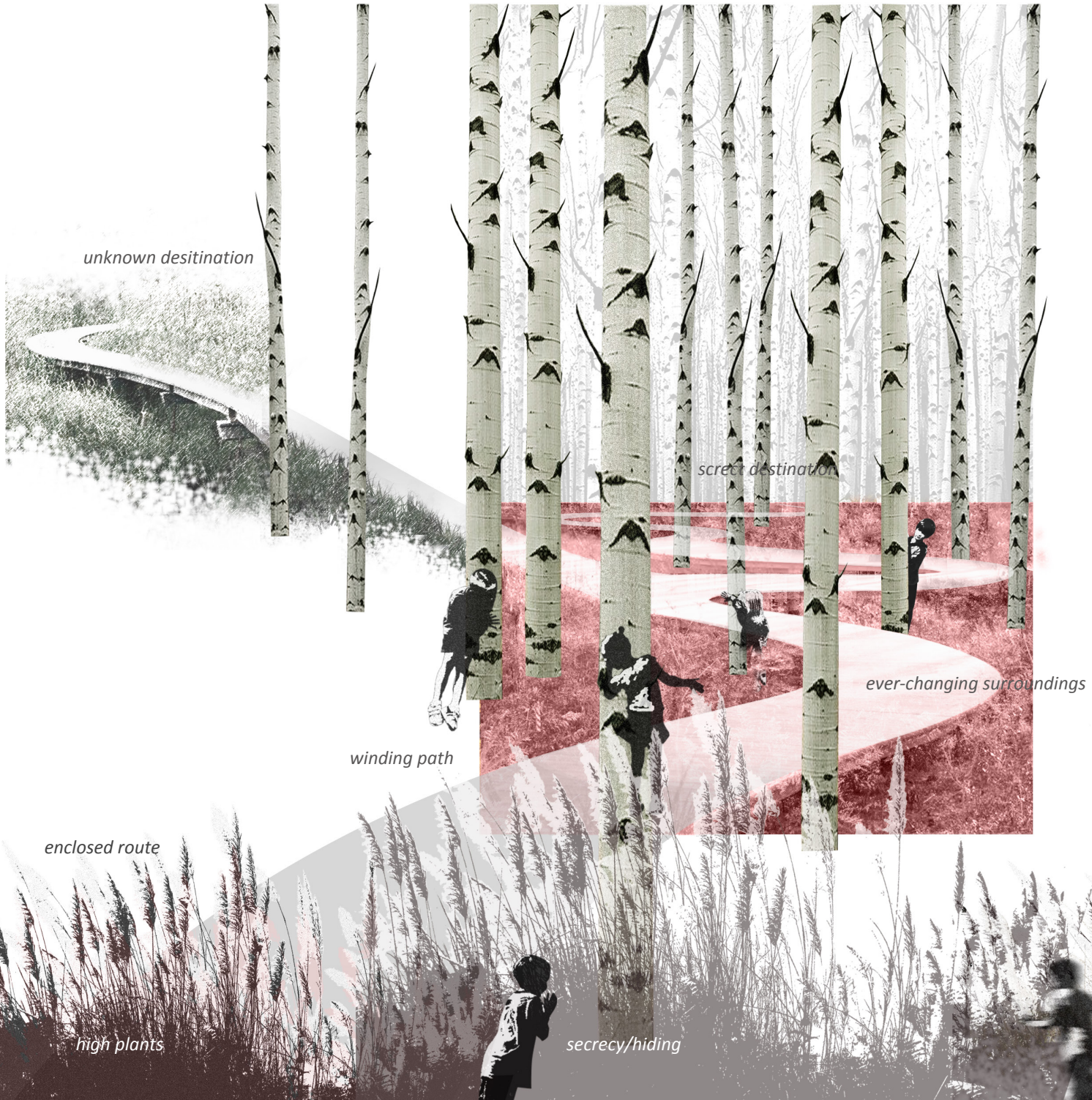
4.2.2 Vertigo play space

Vertigo play can be regarded as the intensified type of flowing play which focuses on encouraging the more kinetic, risky and transgressive forms of play (Stevens, 2007). Vertiginous experience is divided into physiological and psychological categories (ibid.). The first classification physiological vertigo embraces a wide range of direct or indirect confrontations with the physical environment. It challenges children's body limits and offers an escape from normal bodily experience. The vertigo play space therefore includes spatial forms that can generate exciting physical sensations such as height and the over-scaled. Moreover, vertiginous experiences can also resulted from the indirect way, for example, the excitement of getting lost or facing darkness. An ambivalent feeling of both scary and attractive are derived from vertigo play space. In brief, the psychological vertigo is "linked to the desire for disorder and destruction" (Caillois, 1961, p.24). In this case, the feeling of vertigo and excitement is often achieved by "wild behaviours" which can be understood as transgression, such as normal forbidden activities like playing with fire, making loud noises in public spaces. Transgression also implies the close relationship between vertigo play space with liminal zones like the water edge or border of dark places. In general, play as vertigo in this study illustrates an emphasis on the more intense forms of playful engagement with the wild environment.

dark forest

play with fire

Exploring and discovering the space



4.2.3 Chance play space

wandering/ wonder
unpredictable encounters
unpredictable destinations
orientation/disorientation
the pleasure of getting lost
novelty
otherness
strangeness
layered
enclosure/ sudden openness
continuous/ discontinuous
repetition/ difference
linear/ cyclic
ever-changing

The whole atmosphere of chance play space is mysterious, which encourages and stimulates exploration and discovery of the outdoor environment. Found spaces are much more highly valued for children (Titman, 1994) On the one hand, it highlights one of the essences of play that it likes to surround itself an air of secrecy (Huizinga, 1949) achieved by the forming function of thick vegetation. On the other hand, it includes either physical accessibility or visual permeability to encourage any activities to discover secrets, and it can be achieved by the interplay of winding paths and multiple branches and alternatives (Moore and Cohen, 1978), which offers kind of promises for children that there would be “more to come” but without clear perception “what is it”. Such interventions evoke children’s increasingly curiosity about the landscape.

In addition, chance play space emphasizes the movement and rhythm of space. Children are surprised or shocked by the unpredictable encounters, and reveal secrets during their moving thanks to materiality and ordering of a range of different situations. Apart from creating the sense of exploration, the dense and layering spatial characteristic of chance play space can afford quiet and solitude play as well.

Transforming the space

4.2.4 Creation play space

Creation play space is connected tightly with the transforming attributes of wildness. Creation play space is open for interpretation and reconfiguration. It can be regarded as an ever-ending construction site which dominated by children themselves. In this regard, a combination of different loose parts is necessary. Taking target group into consideration, children in middle childhood are not attracted by simply manipulation of loose parts in restricted spaces. Therefore, the variables in creation play space are more intense. For example, instead of sand pits, over-scaled sand piles can be more attractive from children's perspective.

constrcution

reconstruction

order/ disorder

reinterpretation

dirtiness/ freedom

ever-changing

open-plan

materality

loose parts

CASE: DUKENBURG

This chapter aims to offer a comprehensive understanding of current playability of Dukenburg and its play potentials. In addition, on the basis of NOP-model and distinct wildness features of the case, an overall wild play network of Dukenburg including wild play spaces and connected pathway system will be proposed.

5

5.1 Context of Dukenburg

As mentioned in Chapter 1, Dukenburg was built during 60s to 70s based on the English New Towns concept which aimed at providing light, air and space for residents. In the light of this concept, garden city and functionalism are combined. Garden city is characterized by its independent and green satellite neighbourhoods while functionalism is reflected in that work, live and recreation functions are carefully split up in the district. This planning concept is influential in designing play spaces in Dukenburg and thus play has been reduced to the restricted zones.

In general, the district includes nine neighbourhoods: Zwanenveld, Tolhuis, Lankforst, Meijhorst, Aldenhof, Malvert, Weezenhof, Vogelzang and Staddijk (Figure 5.2). Among these neighbourhoods, Aldenhof, Malvert, Lankforst and Meijhorst are characterized as stamp neighbourhoods, built in accordance with the post-war reconstruction principle. Building structures in these neighbourhoods represent a high degree of repetition. However, Zwanenveld, Tolhuis and Weezenhof were built on the basis of human scale concept in the 70s. Their structures are freer and also left many green swathe spaces in-between buildings. Vogelzang and Staddijk are designed as green spaces and mainly for recreational and ecological uses.

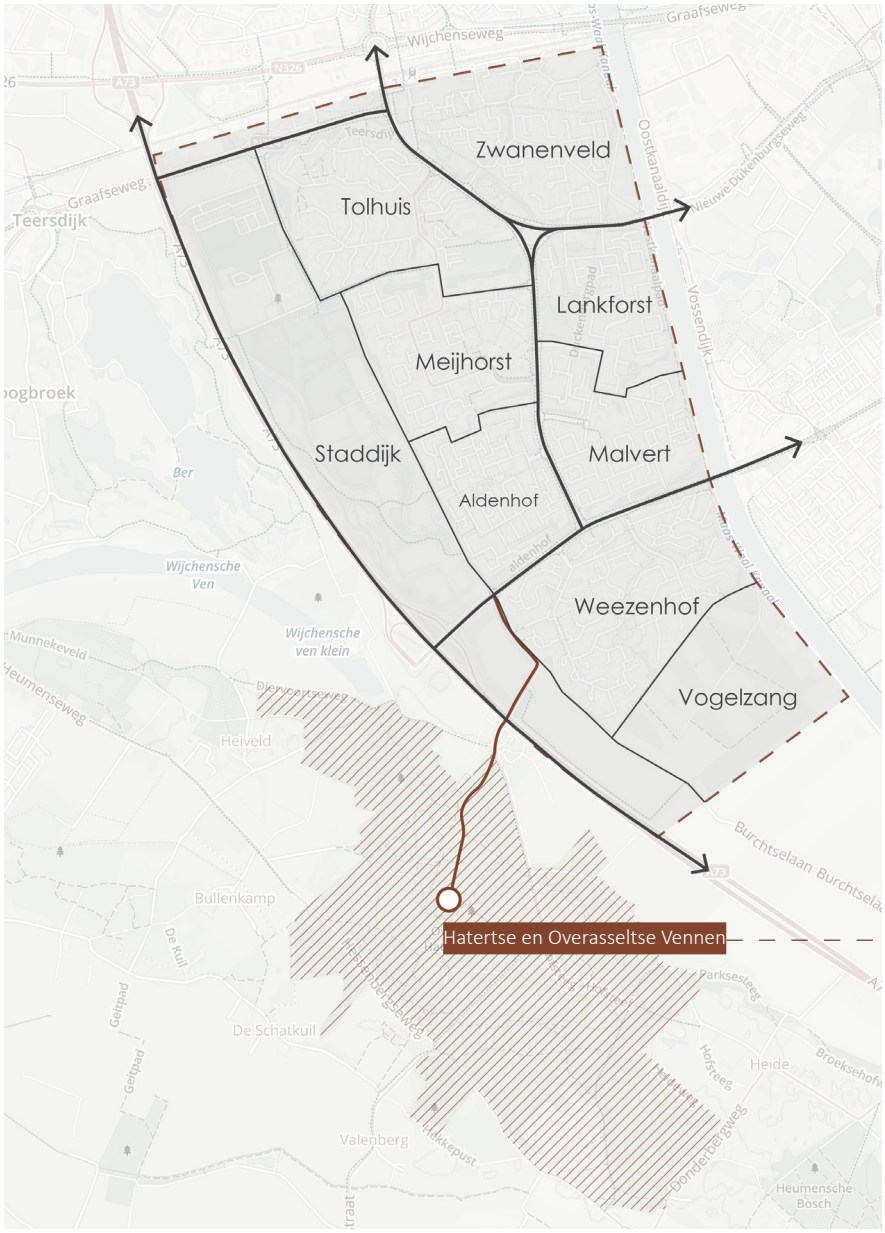


Figure 5.1: Hatertse en Overasseltse Vennen

Figure 5.2: Neighbourhoods in Dukenburg, main roads, and relation of surrounding natural environment

Figure 5.3: Dukenburg Greenplan, city of Nijmegen, 2010

5.1.1 Municipal document: Dukenburg; Groen in beweging.

Renovating green spaces is put forward in municipality's green plan for Dukenburg (Figure 5.3). In this vision, all public green spaces are divided into three categories with different characters and functions. These three functions are: Historie and Allure, Rust and Ecologie, and Leven and Ontspanning.

1. Historie and Allure is related to linear green spaces, like avenues and lanes and left fragments of historical planting along. It also focuses on activating gardens around remnants of the estate.

2. Rust and Ecologie is about strengthening the network of natural areas, which is constituted by green ribbons and fields, such as forests and meadows.

3. Leven and Ontspanning vision has an emphasis on the utility of green spaces and adding ornamental values. It is reflected in semi-open and accessible grasslands with rare trees and plants.

It is the last part of the vision related to play opportunities in Dukenburg, however, this vision still restricts play in conventional green spaces which has been approved less valued in the earlier discussion. What's more, this green plan continues the functionalism concept that attaches separated functions to green spaces.

5.1.2 Zoom out: surrounding nature environment

If we zoom out and take a look at Dukenburg from a larger scale, we can notice that the district is adjacent to a large field of nature environment to the west. Among them, Hatertse en Overasseltse Vennen (Figure 5.1 and 5.2) is most valued from nature perspective. It is a fen area consists of many different nature features, like pool, woodland and heath. Again, as discussed in Chapter 1, in spite of these values, the vulnerability of such real nature actually contradict to children's disordering and transforming activities. In this regard, we can say that surrounding nature environment of Dukenburg represents symbols of tranquillity and beauty, therefore, no wonder that children's "free" engagements with such real nature will disturbing it. However, if we zoom in we will then find many standardized play spaces with play equipments placed here and there on the flat and monotonous grasslands. So, where should children play and how to facilitate their play in Dukenburg?

5.2 Zoom in: spatial analysis

5.2.1 Designated play spaces and typologies

As mentioned in Chapter 1, if we take a look at the current designated play spaces, we can say that there is no lack of playgrounds in Dukenburg. Each neighbourhood has its own several small play areas. These designated play spaces contain formal playgrounds, soccer fields either fenced or open, schoolyards and a natural playground in Staddijk (Figure 5.5- 5.7). Although placed in different neighbourhoods, these play spaces are in essence similar, with several plastic, colourful equipments composed and placed here and there on the grassland. Moreover, play quality in schoolyards are not ideal as well. Especially in terms of target group in this study, these designated places play spaces are small-scaled and mono-functional, without any stimuli of playfulness for the middle-aged child.

A nature playground (Figure 5.5) is designed and placed in Staddijk, surrounded by natural environment. It is still composed of play equipments, but made of natural elements like wood instead of plastic. What's more, there is a small water play space surrounded by reeds. In spite of all the advantages compared with those boring playgrounds in other neighbourhoods, this nature playground is still restricted. On the one hand, it is fenced and only accessible during specific time. Also, if we use 400-meter action radius criteria to examine, it is shown few children can access and play in this natural playground in their daily life independently. On the other hand, the play types it can afford are still limited and determined mainly by standardized equipments.

Figure 5.4: Designated play spaces and typologies

Figure 5.5:
Restricted natural playground
Space/time limitations

Figure 5.6:
Soccer field
Monofunctional play/ traget limitations

Figure 5.7:
Typical playscape
Colourful, plastic equipments

5.2.2 Unpaved public spaces

Dukenburg is an exceptionally green area and with the Lindeholt district, they share almost 50 percentage of public green in Nijmegen (Gemeente Nijmegen, 2010). At present, green space per inhabitant in Dukenburg is approximate 111 square meters while the average number of the whole Nijmegen is 40 (ibid.). Considering children's intimate affinity to the green environment, the green Dukenburg resembles a large play space as a whole. Despite these seemed play spaces, we can question the play potentials. First and foremost, much greenery possesses little distinctiveness and represents boring appearance. Most of this is composed of monotonous mowed grass and shrub border with several trees place here and there (Figure 5.11). These green spaces do provide a sense of tidiness and mild suburban atmosphere; however they offer limited opportunities for children's play at the same time. It means although children see the green, the nature, they cannot do anything with these greenery. Apart from the monotonous, some additional problems are point out by the municipality. Firstly, the public green are lack of differentiation in different neighbourhoods as well as good consistency. What's more, the weak maintenance of plants results in kind of degradation and insecurity. This last point again implies the importance to balance the pleasure and fear in urban wild settings.

From the district level, the green structure (Figure 5.9) as a whole is connected by green borders, patches and ribbons. Green borders contain the small green canal edge to the east, park Staddijk to the west and Vogelenzang to the south. The green ribbons consist of strips, belts and swathes that organize and differentiate different neighbourhood, with ponds and ditches. Those patches include parks, forests and public gardens.

Looking at the current green map of Dukenburg, reader may question ***why not taking Staddijk,***

Figure 5.8: Unpaved spaces in Dukenburg

Figure 5.9: Green structure of Dukenburg

which is already have a combination of water, woodland and open fields with a significant size as play space? Firstly, it is not immediate play space for most of children within 400-meter action radius (Figure 5.10). Staddijk can be regarded as a distinct product of functionalism concept. As the zone for recreation function, it is planned separated from living areas. Further, large proportion of Staddijk is constituted by different sport courts mainly for adults play. Considering these two points, it is quite necessary to seek suitable spaces for wild play closer to children's daily life in living areas.

** Exploring the "unknown" green spaces - wild side of Dukenburg*

Except for all the managed forms of green spaces, there are many wild nature spaces that are surrounded the thick vegetation and represent a sense of secrecy. It includes several forest areas, for example, Uilenbosje, Grand Canal and Douglasbos and larger woodland area in Vogelzang. These forest areas normally exist before the construction of the district. With abundant trees and shrubs, these suburban forests provide mysterious and imaginary spaces from children's perspective. Moreover, as discussed above, liminal zone is also perceived as challenging and potential play space. In Dukenburg, many mysterious boundaries can be founded, for example, edge of Maas-Waal canal and many slopes along the bridges. These slopes are normally covered with thick vegetation and connected with a certain width of open spaces on the ground, thus provide significant size for possible challenging play activities from vertical direction. Some wastelands in the district are equally significant in terms of their potential play qualities. Conquered by spontaneous growing wild plants, these spaces represent symbols of roughness and disorder, but also mean more freedom for children's free play.

It is mentioned in the municipal's green plan that many green spaces are too "wild" because of the weak maintenance. It creates the ambivalence feelings. On the one side, these disordered spaces are unsafe because people not know what is there, on the other hand, they offer great play spaces

Figure 5.10: Analysis of Staddijk

Despite the significant size and abundant green spaces, Staddijk is not suitable as the primary play space because:
1. Far away from children's immediate environment
2. Product of functionalism concept
2. Used mainly for adult's play: sports courts

Figure 5.11
Grassland
Managed, flat, vast, monotonous

Figure 5.12
Forest
Wild, secret, dense, a little bit dark

Figure 5.13
Thick vegetation
Secret, concealment

for children and it is not rare to see children conceal themselves in the shrubs and play secretly.

5.3 Observation analysis

Several times field work in Dukenburg offers a lot of information regarding the way children use public spaces. Based on the observations, two points regarding to green environment of Dukenburg are concluded.

A. Children do prefer natural environment.

That natural playground as well as the whole Staddijk is seen as the representative result of functionalism concept and criticized for their separation from living function in the above text. Nevertheless, several times observations still imply that this is still children's favourite play space currently. Compared with empty playgrounds in the neighbourhoods, there are always full of children in the natural playground (Figure 5.14). It demonstrates children's desire for more natural manners of play. However, it is worth noting that these children are accompanied by adults and most of them are younger than the target group in this study.

B. Children do play in wild spaces in Dukenburg

If we zoom out and take all the unpaved public spaces as potential play spaces rather than focus on designated playgrounds, we can notice that children in Dukenburg do play in those informal or even disorder spaces. Many of them regard wild nature spaces as secret place and play hind and seek in the thick vegetation, which is mentioned above. Moreover, forest is seen as the "magical" space that children were observed hide and seek Easter eggs under the trees on Easter Day.

Compared with Figure 5.11
These two photos were taken in the same day. It is obvious that nearly no child played in those standardized play equipments while the natural playground in Staddijk gathered many children

Figure 5.14: Natural playground in Staddijk

5.4 Exploring wildness in Dukenburg

5.4.1 Wild spaces with potentials for play

Finally, among all unpaved public spaces, 15 potential wild play spaces (Figure 5.18) are differentiated and further divided into five categories according to their shared characteristics. These five categories are woodland, wasteland, canal edge, slopes along rapid transit corridor and wild natural space.

However, these wild spaces are selected only according to their spatial qualities without considering surrounding context and most importantly, the reachability of these spaces by children independently. Therefore, ***are these wild spaces suitable for play*** is still under discussion. To answer this question, specific analysis criteria are therefore needed. As discussed in Chapter 2.3, NOP-model will be put forward as the examining tool.

Figure 5.15
Slope along rapid corridor
Thick vegetation, wild, secret

Figure 5.16
Canal edge
Margin, risks, challenging

Figure 5.17
Wasteland
Nature conquering, wild grasses, disorder, unkempt

Figure 5.18: Differentiated 15 potential wild play spaces

5.4.2 Examining suitability of play based on NOP model

To determine which wild spaces are suitable to become play spaces, every differentiated space has been analyzed individually according to NOP-model design criteria. Among five spatial criteria, location of play and accessibility of play are crucial aspects of the suitability of each wild space because location and accessibility are often difficult to be changed without the transformation of the urban structure. Qualities of play and landscape use are also analysed but less critical in this stage as they can be improved to a large extent by further design. However, they do provide an indication about the playability of current condition. Box 5.1 shows an example of how this analysis has been noted down and the whole analysis results can be seen in Table 5.1.

** Example Douglasbos and Grand Canal (woodland space no.2)*

Since the quantity of play is based on the whole district scale, only later four criteria will be

Box: Example of the criteria analysis of selected wild spaces - woodland No.2

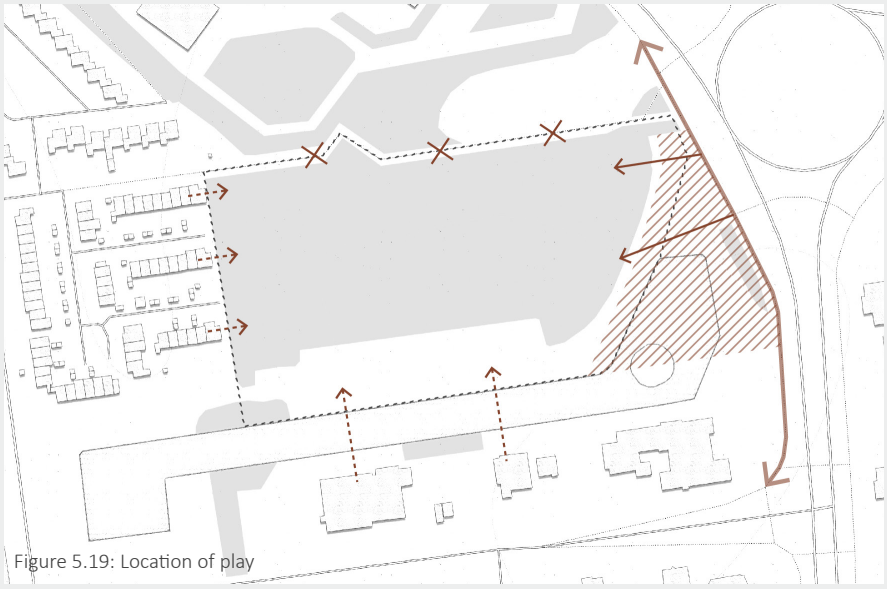


Figure 5.19: Location of play

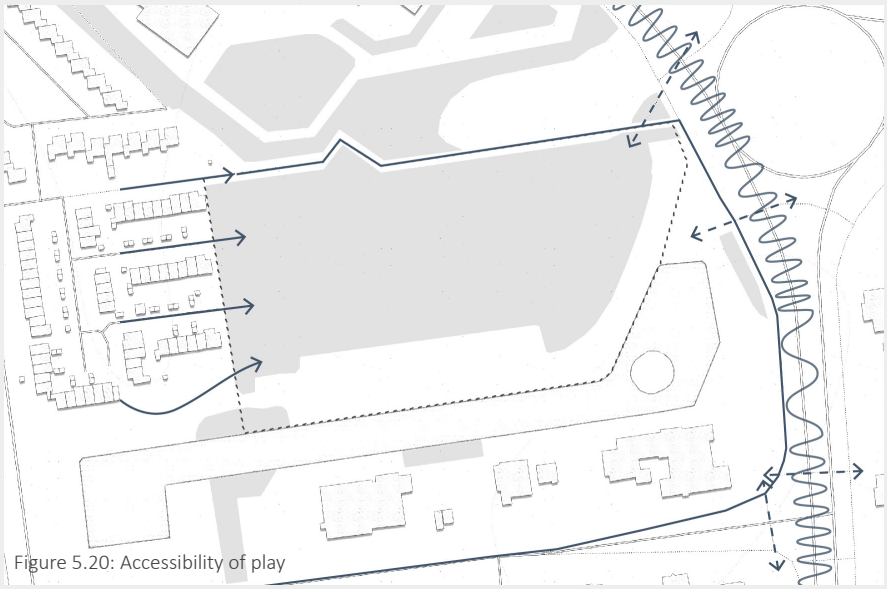
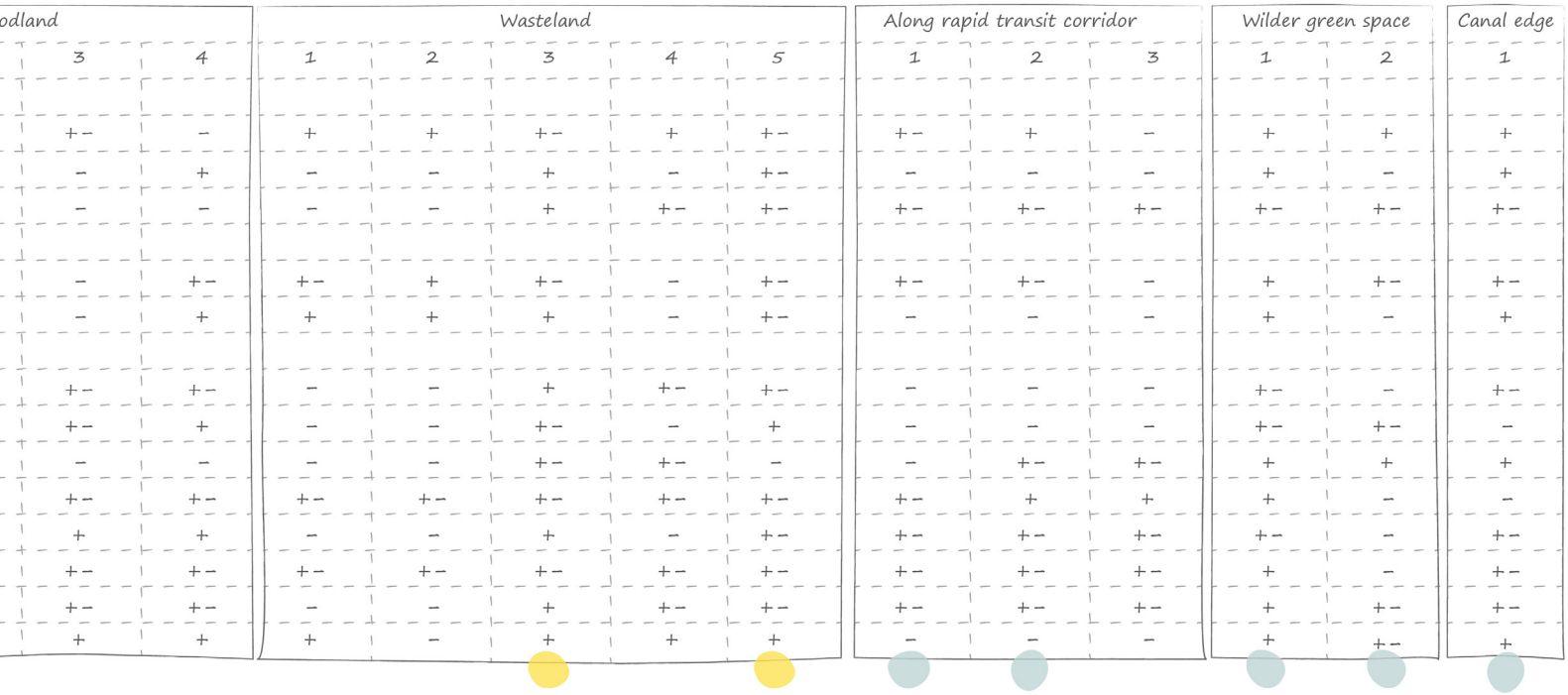


Figure 5.20: Accessibility of play

Figure 5.21: Qualities of play and landscape use

	Wo	
	1	2
Location of play		
Social control	+	+–
Disturbance	+–	+–
Environmental conditions	+–	+–
Accessibility of play		
Child-friendly connections	+–	+–
Seperation from motorized traffic	–	–
Quality of play		
Complexity	+–	+–
Environmental manipulation	+	+–
Plural target groups	–	–
Physical stimulation	+–	+–
Mental stimulation	+	+
Social stimulation	+–	+–
Landscape use	+	+
Size	+	+

Table 5.1: Outcome NOP-model analysis



analysed. According to NOP-model, location of play is related to the amount of social control, the amount of disturbance and environmental conditions. As shown in Figure 5.19, this space is adjacent to row houses to the west and a busy traffic road to the east, which offers a certain social control to keep safety of play space. At the same time, since the dense characteristics of wood, children will not feel that they are supervised during play. It scores neutral in terms of disturbance. Although the motorized traffic creates some noises and pollution, these bad results are absorbed by dense woods more or less. Moreover, the forest context provides relatively good environment conditions itself.

In terms of accessibility of this space (Figure 5.20), it scores neutral. Children can access from west and south direction via child-friendly routes. However, the eastern traffic road may become the obstacle for children although there are well planned traffic lights.

Furthermore, I will say this woodland space score relatively good in the criteria quality of play and landscape use. The woodland context offers more environment manipulation opportunities with its abundant trees and shrubs. At the same time, since this woodland is mainly used for production before, the complexity of environment concerning tree species is not quite high if compared with other forests. However, since the whole forest is more secret and even challenging, young children may feel fearful towards it. It explains why this space scores low in terms of plural target groups. Nevertheless, this study focuses on the middle childhood, therefore, the plural target groups is not quite important here.

To conclude, according to NOP-model, Douglasbos and Grand Canal is suitable for play.

5.4.3 Vision of play for Dukenburg

I. Suitable wild play spaces

As can be seen in Table 5.1, forest areas Uilenbosje, Douglasbos and Grand Canal are appraised valuable as primary wild play spaces, together with two pieces of wasteland next to Douglasbos and Maas-Waal canal respectively. All these spaces have significant size and quite accessible from children's perspective. Although some of them do not have varied wildness features that afford different play activities currently, it can be improved in the further design. Apart from primary play

Figure 5.22: Suitable wild play spaces with action-radius and leftover spaces

spaces, many linear green spaces along the bridges and canal edge are regarded as secondary play spaces. Compared with primary play spaces, these secondary spaces have limited size which resulted in limited play space. However, they still suitable on most points in terms of NOP-model criteria.

Figure 5.22 shows the position of all the suitable primary and secondary wild play spaces. As discussed in Chapter 2.3, in this study, I will still use 400-meter action radius to examine the quantity of play spaces in the district. It shows that there are still many leftovers in the east and south side.

II. Adding play spaces to fill up leftovers

According to the essence of NOP-model, the district should be covered within the action-radius of play spaces in order to ensure the playability of the whole district. In this regard, there is need of

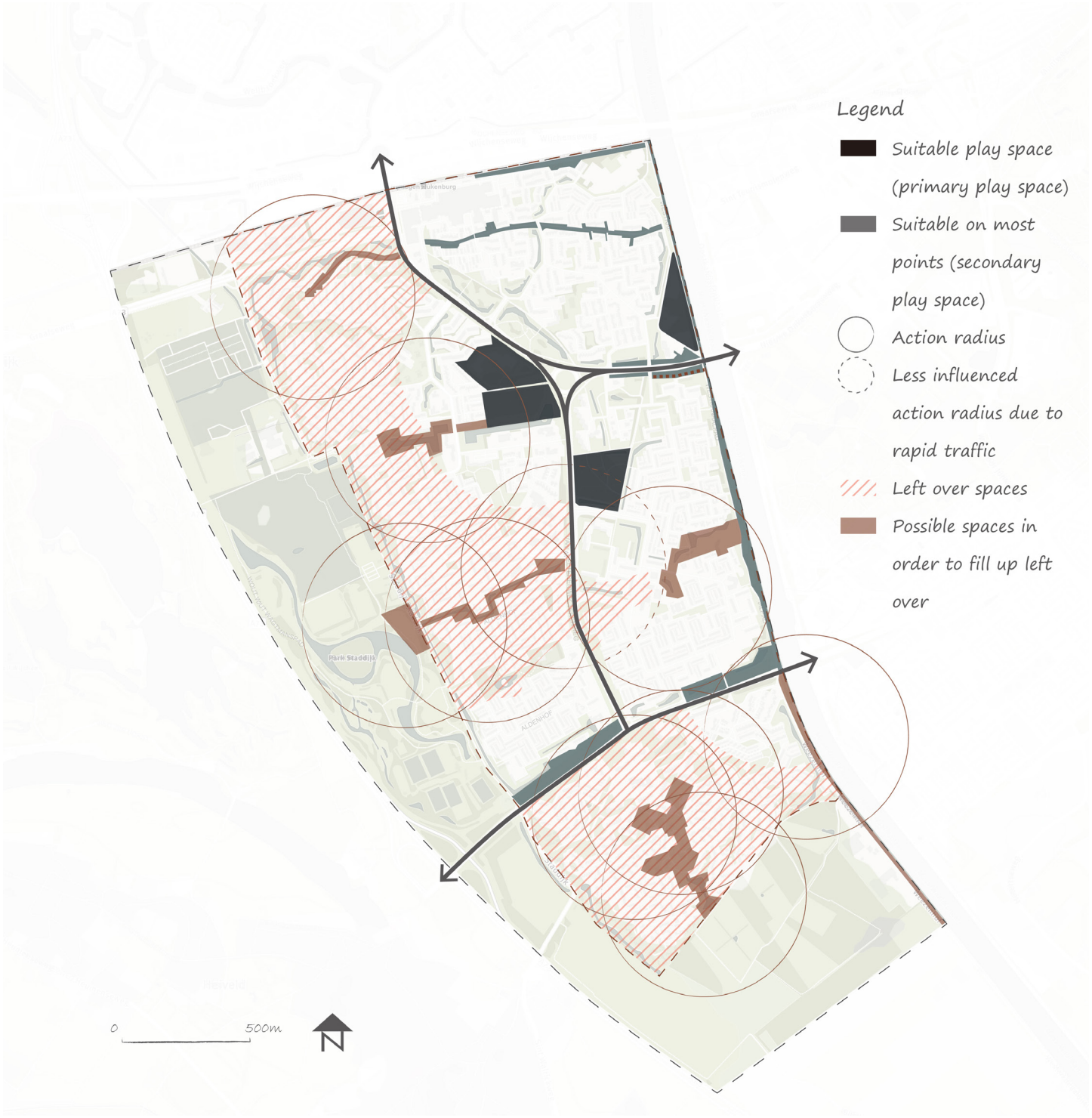


Figure 5.23: Filling up leftovers

seeking for suitable play spaces in the leftovers. Figure 5.23 shows the possible solutions. These potential play spaces are selected on the basis of green structure and water structure map, which means there is already a good combination of green and water on the selected areas. Although not accessible currently, it is undeniable that the existing of water contributes to much more play potentials than the managed grasslands. And in accordance with the intention of this study, certain wildness attributes would be introduced in these spaces.

III. Linear play spaces as playful path

After all suitable wild play spaces are positioned and the action-radius rule is checked, it is necessary to create fluid connection between each other according to NOP model and territory range concept. The pathways are determined on the basis of safety consideration but also needed to be playful.

Figure 5.24: Structure of play pathways

As mentioned above, one of the distinct characteristics of green structure in Dukenburg lies in its green ribbons. As is shown in Figure 5.24, all the secondary places present linear forms. These linear spaces are therefore can be regarded as playful and attractive playful pathways except for mere secondary play destinations.

IV. Vision plan of play

Besides all the potential unpaved public spaces, other children institutions like primary schools are considered and involved in the final vision plan. In the light of it, many additional paths are shaped to link the play spaces and children institutions. In addition, it can be seen that parts of the linear secondary play spaces function as the pathway in the play network which contribute to playful experiences when children move through the district.

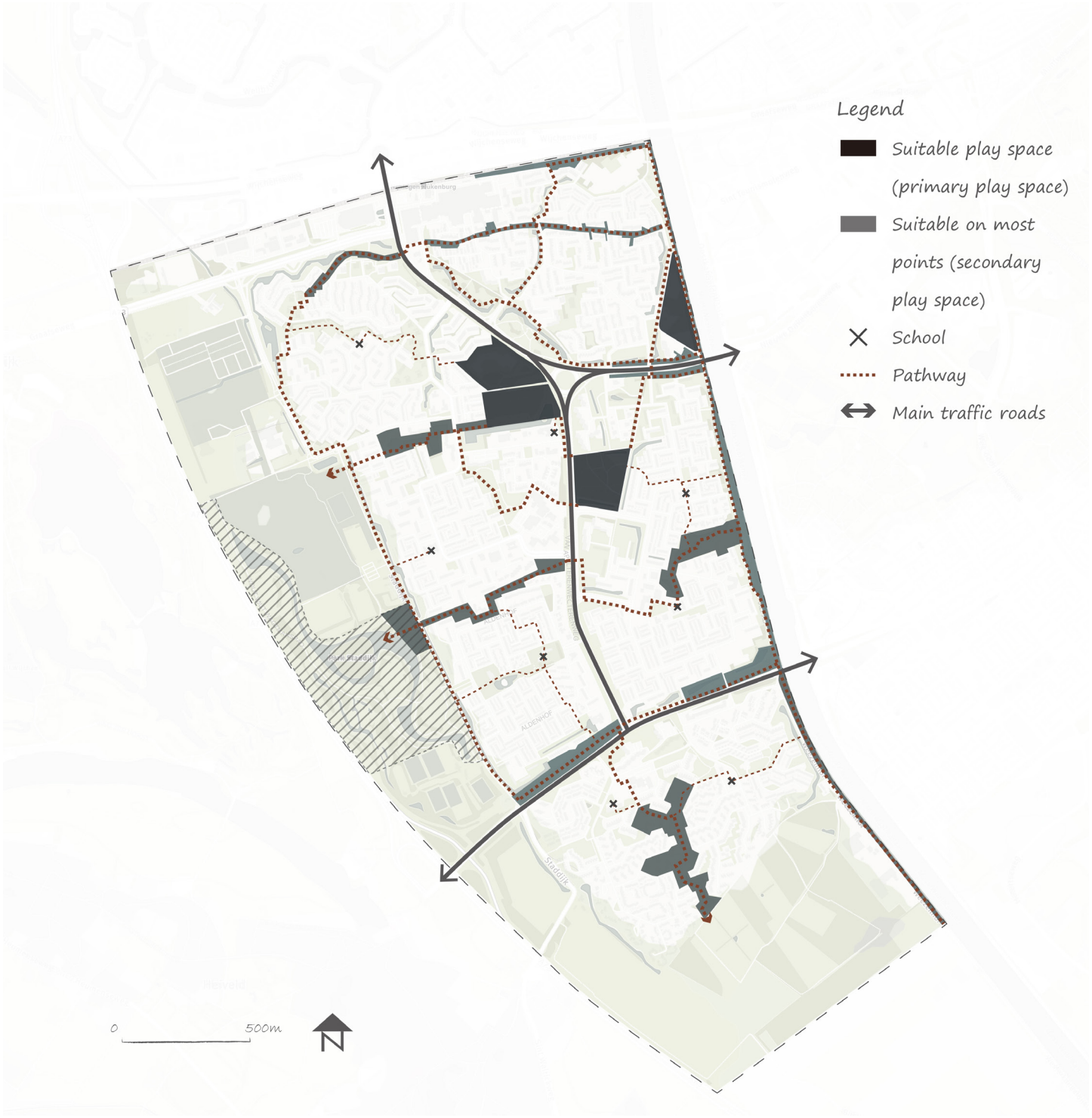


Figure 5.25: Vision plan of play

V. From vision plan of play to the design of wild play space

Above indentified play spaces are focused on the basic playability of the district scale while the degree of playfulness is still needed to be improved by specific design at the place scale. Chapter 6 will go into deeper to implement defined spatial elements of play and test play space types in analysed wild play space to improve the playfulness of the case. At the same time, by the incorporation with the design of children's pathway extends from the selected site(s), the results will offer representative detail design interventions for the vision plan of wild play network.

DESIGN

This chapter is going to test research results on the case Dukenburg and provides detail design for wild play space on the place scale, while answering the design question: *how to facilitate children's playful engagement with wildness in suburban neighbourhoods?* Specifically, design sites are selected from the wild play network in the last chapter. By integrating wild play prototypes on the selection sites, corresponding ways to optimize children's playful engagement with wildness is concluded in this chapter.

6

6.1 Selection of sites

In total, two sites are selected for detail design. Both of them are examined by NOP-model as suitable play spaces especially in terms of their appropriate locations and accessibility. Site one is an urban forest, which can be regarded as the representative type of wild nature. Moreover, a primary school is situated between this forest and canal edge. Site two is a collective place constituted by a piece of wasteland, canal edge and linear spaces along the rapid transit corridor, which mainly represents the disordered and rough aspect of wildness.

In addition, these two sites just cover different types of wildness. The selection of two sites with different wildness features is therefore possible to affect different design scenarios and evaluation results, which provides a more comprehensive perspective for combining playfulness in different situations of wildness. By comparing the design results of these two sites, different insights can be provided as well. Besides, these two play spaces are planned to be connected with child-friendly pathway according to the vision plan. The consideration of connecting these two sites, together with connection between forest and primary school, also contributes to the design interventions for playful pathways.

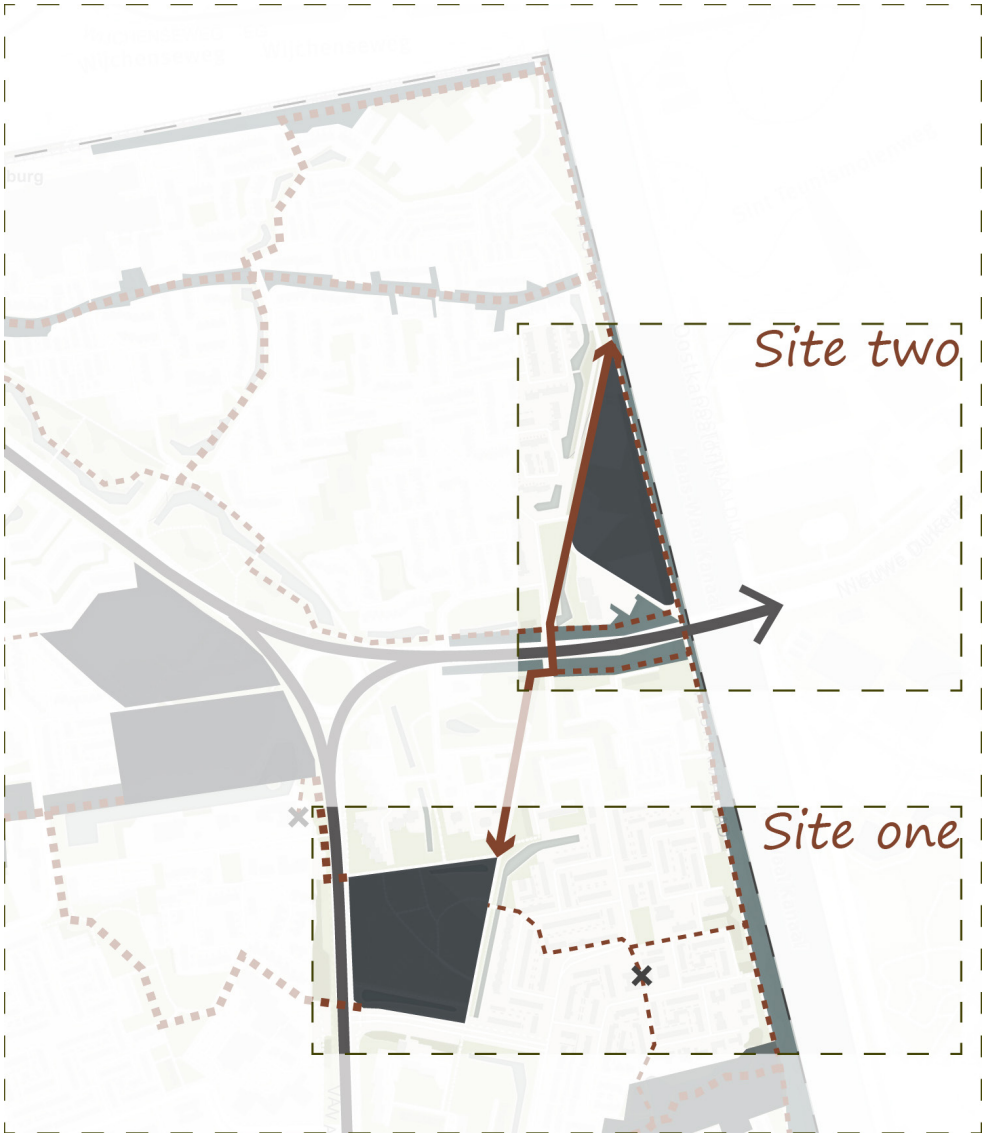


Figure 6.1: Position of design sites and their connection

6.2 Design process

6.2.1 Testing and evaluating design scenarios

In the light of four wild play space typologies derived from the research, corresponding design scenarios will be illustrated according to current condition of the site. However, the new question ***which scenario is the most suitable one that can be established on selection site*** arises accordingly. It is therefore necessary to formulate appropriate criteria to evaluate these initial design results.

The scenarios will be evaluated through both quantitative and qualitative evaluation. The quantitative evaluation is based on children's selection. Due to the inflexibility of study programmes and organization of schools in Dukenburg, chosen evaluators are come from cns-basisschool Juliana in Bennekom. Since these children do not live in case site, it is true that the validity of result of their votes will decreased. Nevertheless, it is undeniable that there are many similarities between live and play conditions in Dukenburg and Bennekom. Besides, these selected children are among 10-12 years old, which conforms to the target group in this study. Thus we can assume that these children's favours of play spaces are more or less similar in such similar residence context.

In addition, another qualitative evaluation will be conducted at the same time to increase validity of selection results. Apart from spatially focused six groups of qualitative elements, other criteria in terms of social aspect and connection with the site context are also considered. Therefore, qualitative criteria contain freedom and open-endedness, secrecy and demystifying, surprise and unexpectedness, transgression and risks, fantasy, multi-senses, the relation with distinctiveness of the site and degree of safety by assuming possible injuries.

6.2.2 Developing selected design scenario

Selected design scenario will be developed and further elaborated. During this process, I will look back to all the qualitative elements of playfulness again in order to stimulate more playful experiences. Moreover, children's comments received from the evaluation period will be considered as well.

6.3 Site one: Uilenbosje

6.3.1 Current conditions

The Uilenbosje is a forest area with approximate 200 meters square situated in neighbourhood Lankforst. It is adjacent to the rapid motorized way to the west (Figure 6.2.1) and linked to many walking tracks to the north and east side (Figure 6.2.3). The forest was once part of the estate Dukenburg and remained during the construction of district. With abundant trees, shrubs, and varied species, it has long been home of many animals. Apart from trees, there is a pond out of the woods on the north-east corner (Figure 6.2.5) and a ditch on the south (Figure 6.2.2). Despite all these natural advantages, the forest is still boring, with hardly any attractive spaces for longer staying. Some parts of the forest are too wild that plants are growing in confusion. What's more, the whole forest presents a dark or even fearful image during overcast or rainy days. Recreational and play is considered in the development of forest. It is reflected on the designed new walking paths. In addition, the pond was attached recreational uses. It originally consisted of swampy areas with reeds, stepping stones in shallow water, wooden scaffolding, and a pier. Nevertheless, it is underused by people in reality while wooden pier is only used by birds as resting point.

In short we can say that the Uilenbosje has a high degree of wildness but low play qualities. Currently, it is not regarded as play space for children. However, it does have much opportunity to attract children and not only children if with proper renewal. The exploration of play potentials of woods for varied activities may let the forest thought to be better than just trees.

Besides, as mentioned above, this forest is close to a primary school to the east with about

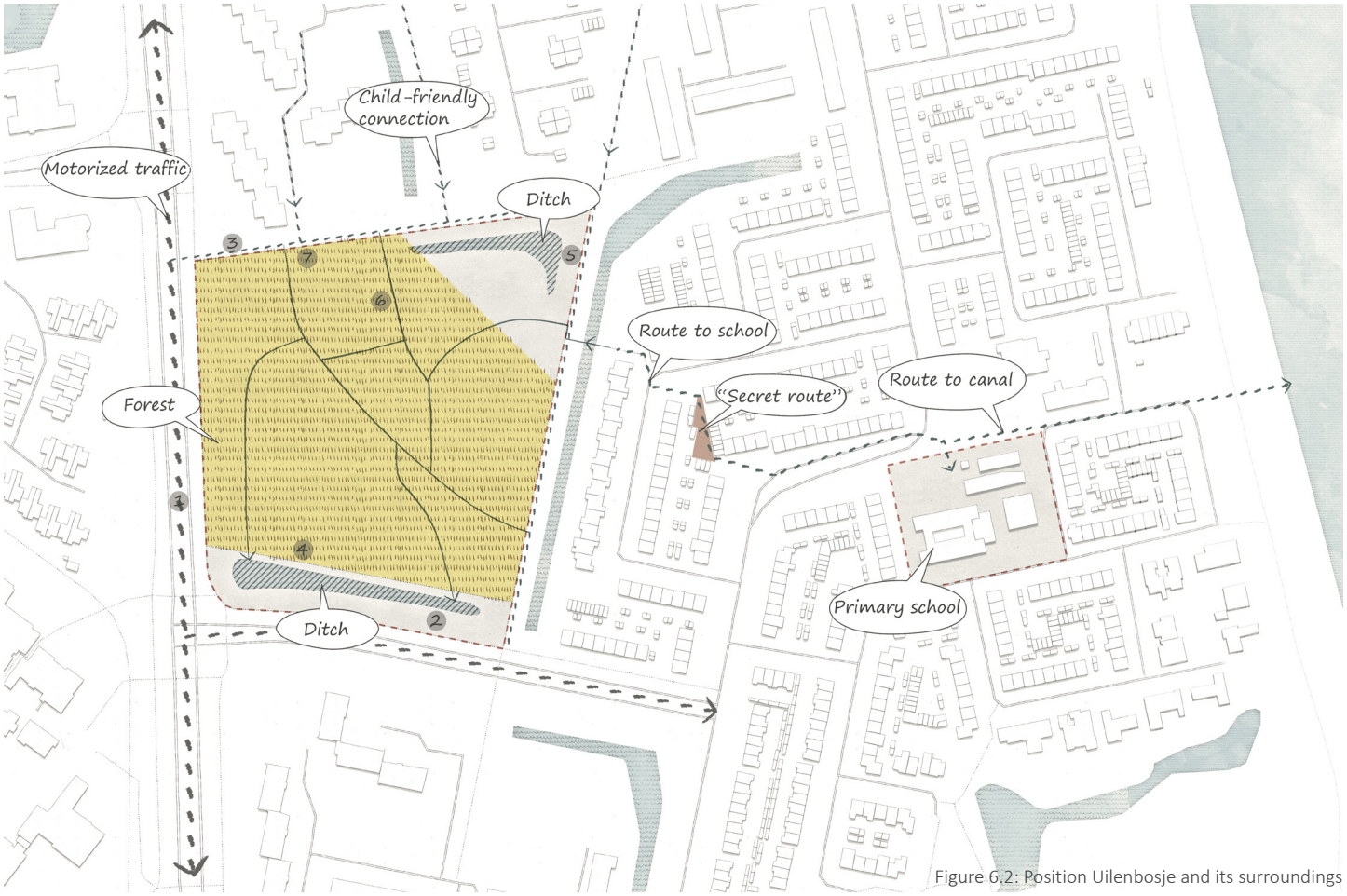


Figure 6.2: Position Uilenbosje and its surroundings

6.2.1

6.2.2

6.2.3

6.2.4


6.2.5


6.2.6


6.2.7

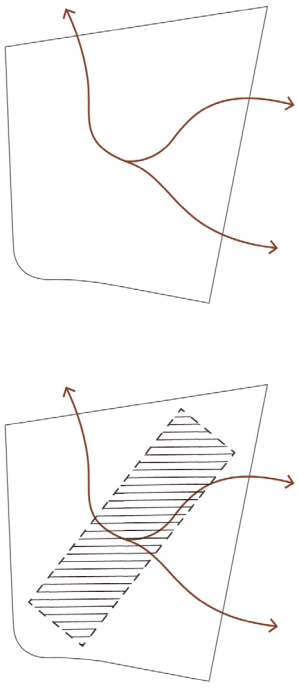


Figure 6.3: Overall layout of the forest

230-meter linear distance. Apart from normal sidewalks, the direst connection between them includes a more enclosed walking routes surrounded by walls of garages (Figure 6.2), which can be regarded as the child path by integrating recognizable elements and playfulness qualities.

6.3.2 Exploring Uilenbosje scenarios

** Overall layout of forest*

In general, accesses on the north and east sides and main paths that link to walking tracks to surrounding neighbourhoods are remained, which contributes to the reachability of the forest and stimulates daily uses, for example strolling, for all ages rather than only for children. At the same time, play spaces are considered to be placed perpendicular to the direction of main paths (Figure 6.3). By doing it, children's activity areas are detached from strolling and passing-by areas, which resulted in more freedoms and secrecy of play behaviours.

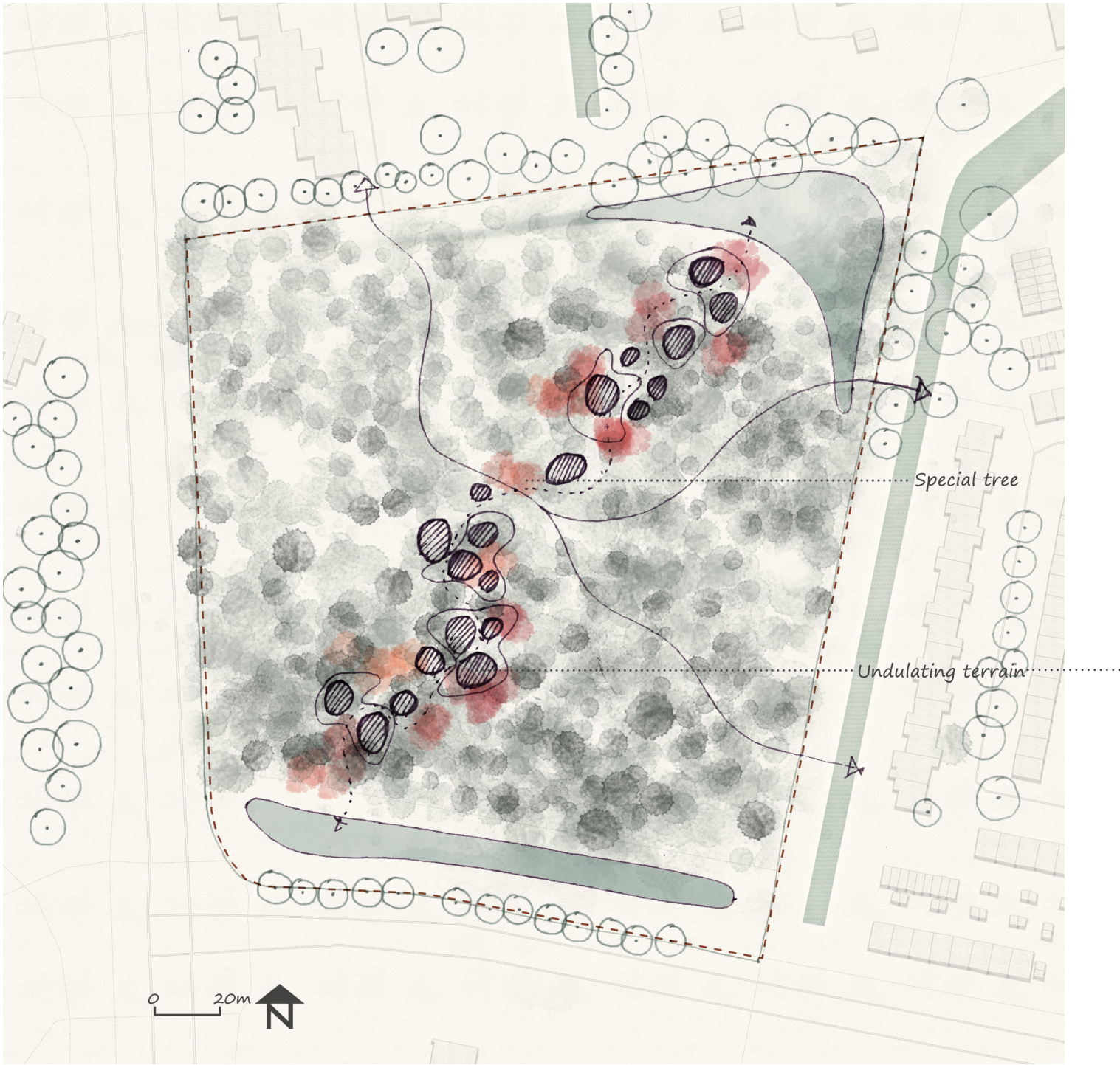


Figure 6.4: Masterplan flowing play space

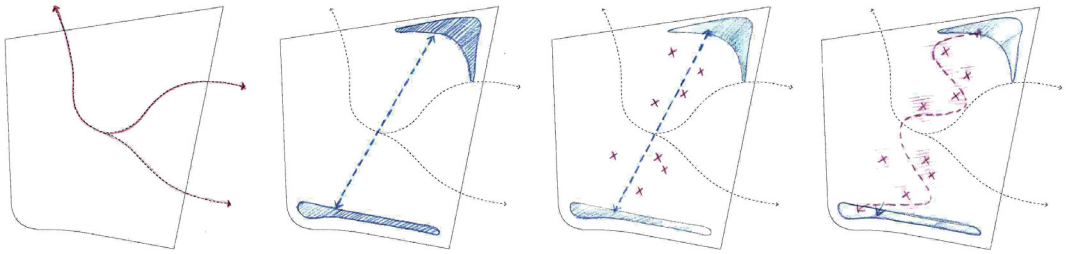
I. Flowing play space

The intention of this scenario is to contribute to more diverse and fluid movement opportunities for children. A linear flowing landscape is considered designed perpendicular to the main path. On the one hand, it separate children with strolling people, which contributes to more free and unsupervised activities. On the other hand, current water spaces on the two sides can be regarded as play destinations of flowing space if with appropriate improvements.

In order to encourage children flowing freely and actively in the forest, several modifications are conducted in the linear flowing space (Figure 6.5). Firstly, a series of special places and elements are identified in this direction, such as climbable trees, fallen tree trunks, stumps, low branches and so on. All these identified elements facilitate children's direct physical interactions with wildness features. Further, current condition restricts children's free moving through trees because some

parts of the forest is growing in confusion and seems too chaotic to access by children. Therefore, a certain degree of clearing is necessary then. Finally, these defined special places are connected by the loosely defined “path” constituted by a series of naturally shaped mounds and puddles with varied sizes. It forms a lightly undulating terrain with some rough places along and functions as a thick connection between two water spaces. It can be regarded as the step to further rough the terrain in an order manner (Figure 6.6).

Studies and process sketches



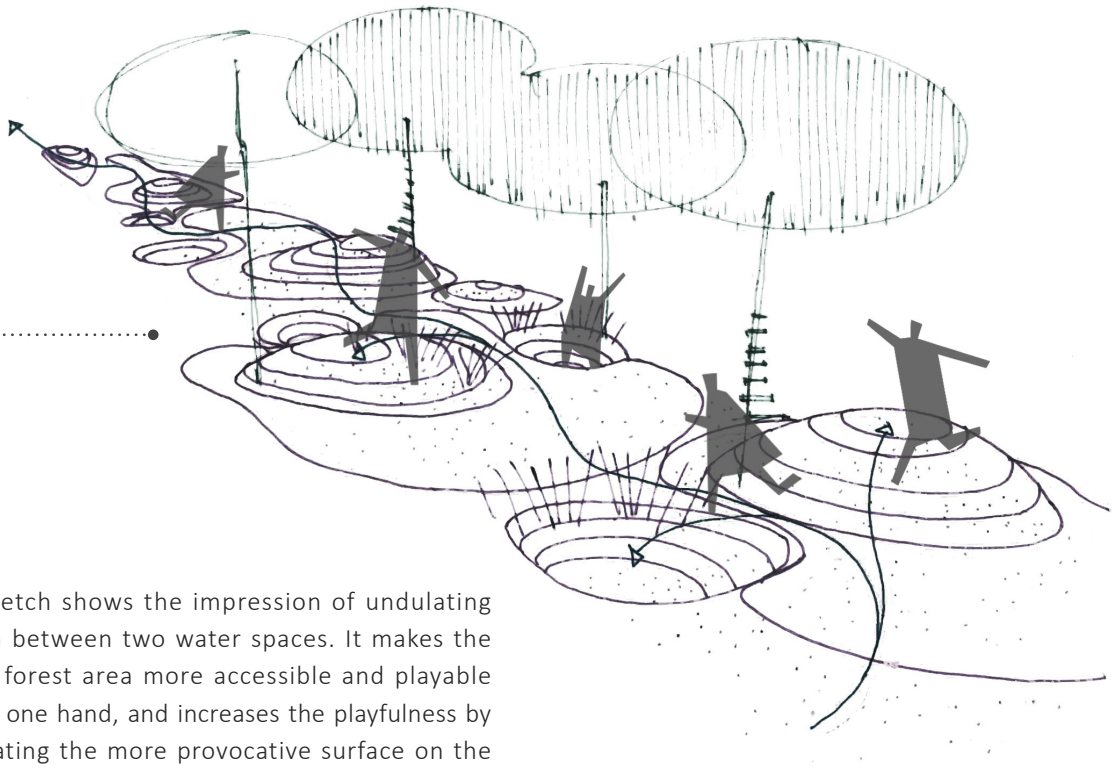
Accessibility

Play “axis“
- connect water spaces

Mapping special places and elements* around play axis

Further rough the terrain and connect by loosely defined paths

Figure 6.5: Design process of flowing space



The sketch shows the impression of undulating terrain between two water spaces. It makes the whole forest area more accessible and playable on the one hand, and increases the playfulness by integrating the more provocative surface on the other hand.

Figure 6.6: Sketch of play "axis"

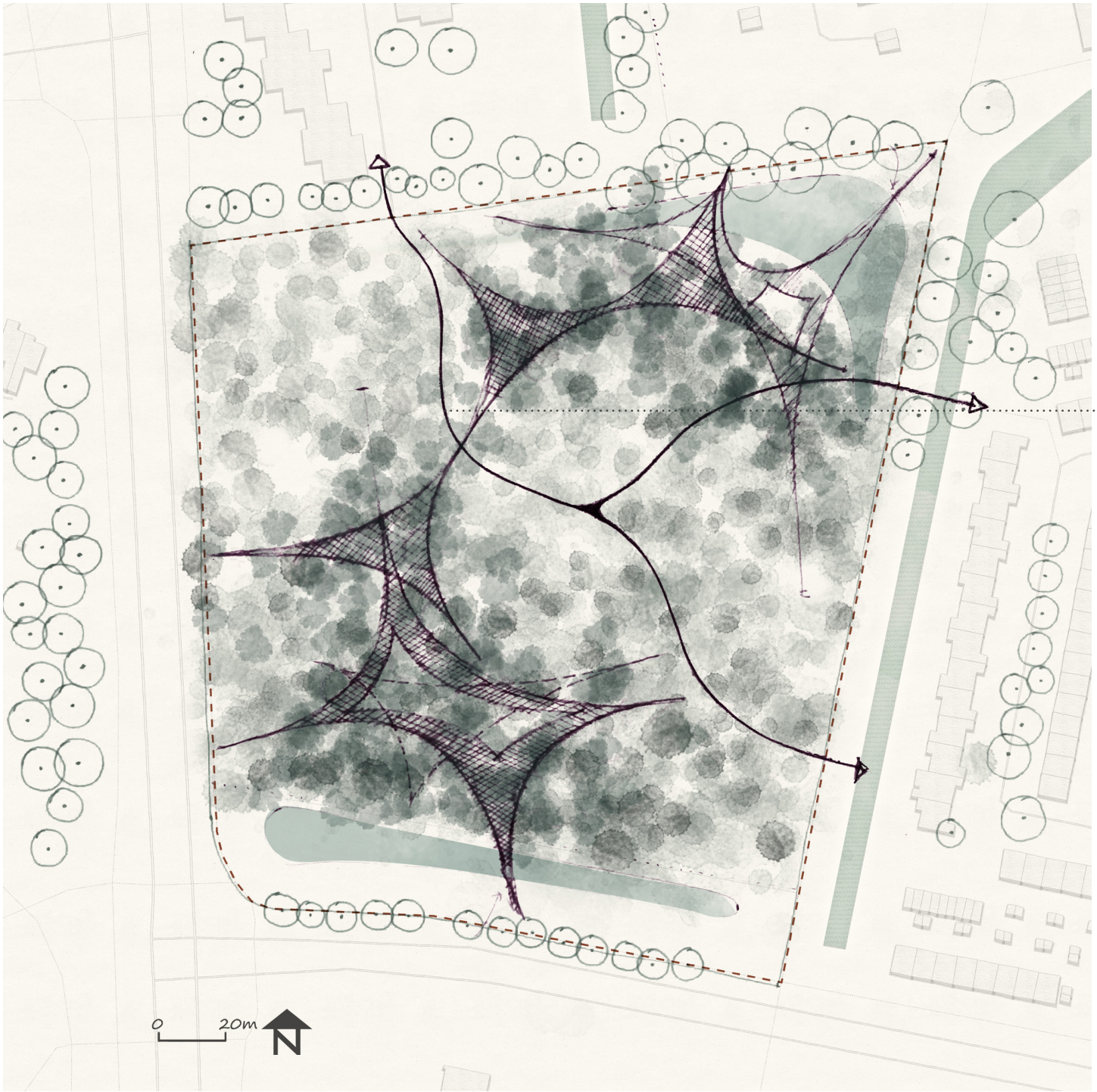


Figure 6.7: Masterplan vertigo play space

II. Vertigo play space

As discussed above, height brings excitements and challenges if within a reasonable range. As the featuring perception of vertigo, in this forest context, height is designed into play spaces on the basis of existing high and solid trees. A series of elevated spaces in-between trees are created to stimulate physical vertiginous experiences. Instead of typical canopy path, the use of net material creates the more flexible form and thus provides better interaction between body and nature. The nets do not exceed the height of 3m to fulfil the safety requirements however still challenging enough for children. Rather than looking up at the woods from the ground, children are carried upward, into the canopy of trees with a different perspective to observe plants in the forest, and get closer to feel the leaves and branches. Due to the transparency character of net, underlying plants can still grow through inter-spaces of nets freely, which easily to let children feel just like walking on top of trees and gain a sense of levitation (Figure 6.9).

In addition to vertiginous experiences, these suspending spaces also contribute to an air of secrecy. Height itself is secret because children don't know what is happening overhead at ground level while the richness and thickness of foliage adds this wonder feeling. Therefore, this height landscape in Uilenbosje also provides rather intimate environment for children to conceal themselves or to watch others. Further, height also contributes to an interesting underworld at ground level.

Studies and process sketches

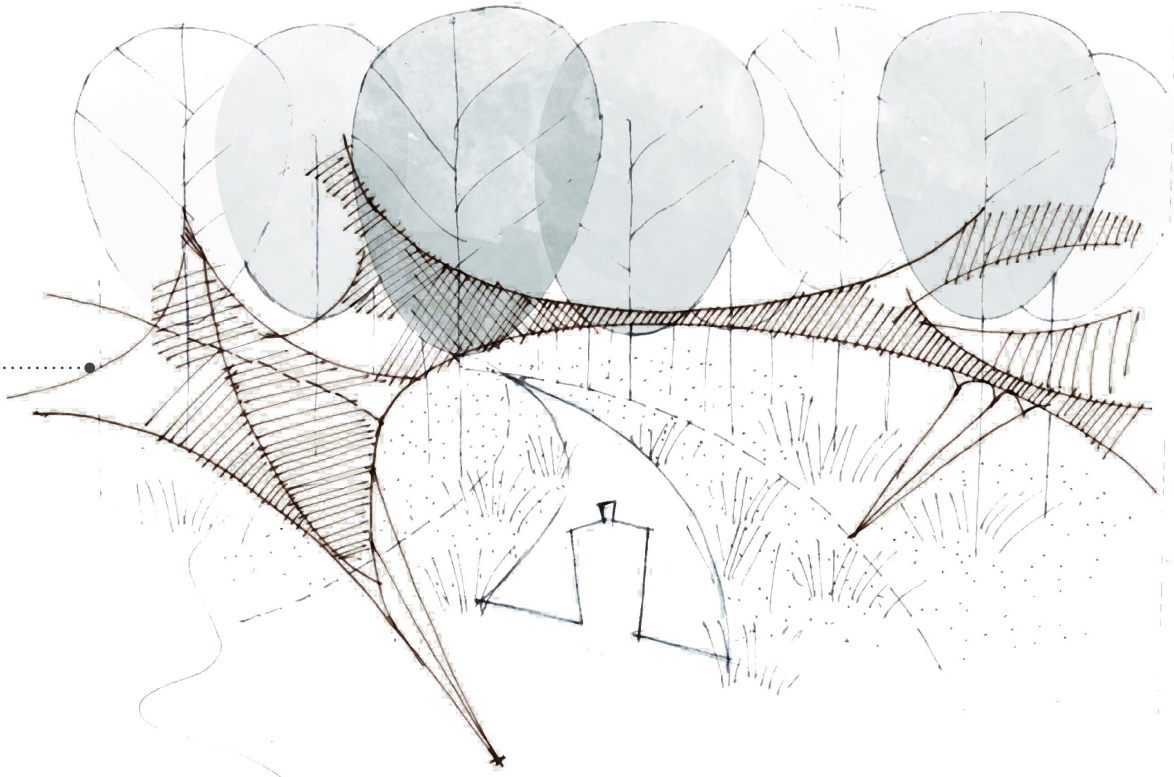


Figure 6.8: Sketch of the net

Figure 6.9: Section of the net

As mentioned above, the current forest is prone to present a fearful wildness sometimes. The adding of height landscape, which offers physical challenging and adventurous activities, can actually decrease its darkness. At the same time, we can also say that trees are not only trees but play partner in this scenario.

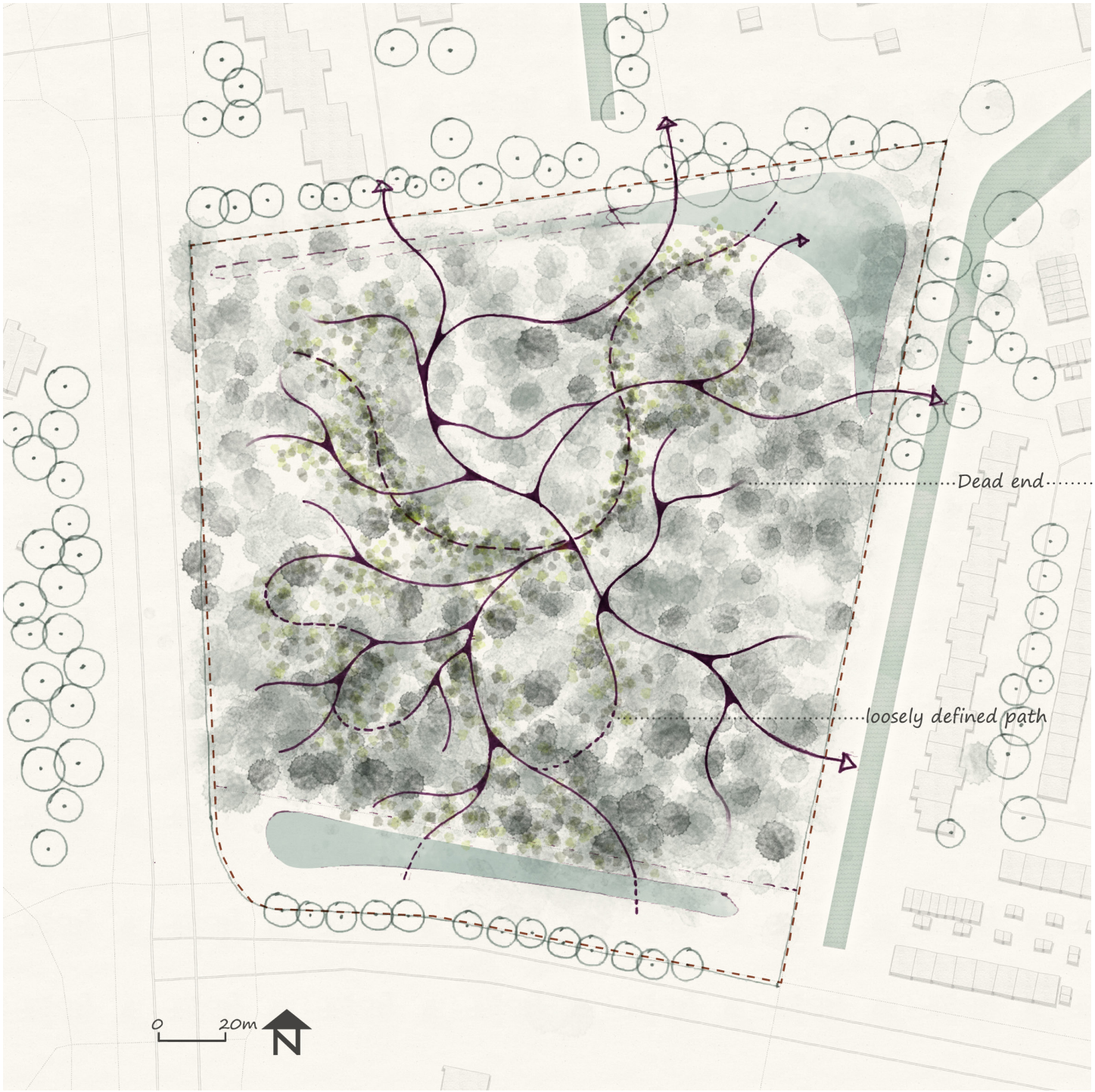


Figure 6.10: Masterplan chance play space

III. Chance play space

The distinct atmosphere of mystery in forest context is the starting point of this scenario. In the light of this distinctiveness of forest, uncertainty and curiosity will be highlighted in the chance space to invite exploratory and discovery activities. With this intention in mind, the main intervention is to replace current paths with a denser network of new paths woven into the forest. As mentioned above, all play is executed through movements. The new paths aim to integrate play experiences through movement instead of only playing in several defined play spaces.

The new path system is complex, with many branches and intersections for children to choose and plan their own journeys. Normally, the destinations of paths are concealed in the dense shrubs and trees. The followed path might lead children to a dead end: a thicket of trees (Figure 6.11 & 6.12), or disorient children by suddenly branching off into more tangled network of paths. In addition,

apart from defined paths, some paths are loosely defined which highlights the freedom and open-endedness quality again. For example, the path may end abruptly while there are still spaces ahead to continue. In this case, children are left totally freedom to explore their own way. With the support of plants along paths, which are used to create secrecy both visually and auditory, children always feel confusion about what is there and further this sense of curiosity invites exploration. In general, the new paths run through the whole forest and create varied spatial experiences from openness to enclosure, light to darkness, shared to secrecy and intimacy through movements. However, since the north and east sides of the forest are adjacent to living houses with traffic-free routes, it could be assumed that most of the children would come from these two directions. Therefore, the denser and even more complex paths will be placed on western and southern part of the forest. It means more branches, dead ends and thus more efforts to explore the paths and surrounding landscapes.

Moreover, the ever-changing natural rhythm is integrated into this scenario. For example, the current secret place surrounded by thick vegetation might become totally open in another season while other secret places will show up and waiting for children's exploration.

Studies and process sketches

Figure 6.11: Example of place in the Uilenbosje that can be created as the "dead end" of path. A hidden space under the shrub.

Figure 6.12: Another example of "dea end". The enclosed path suddenly brings children to a thicket, a secret place that they can hide themselves here.

Figure 6.13: Sketch of floating path

Defined path:
Floating path is woven into the forest. The floating form allows plants growing underneath while creating more diverse ground cover environment along path.

Figure 6.14: Sketch of none-defined path

Loosely defined path:
The path blends into surroundings.

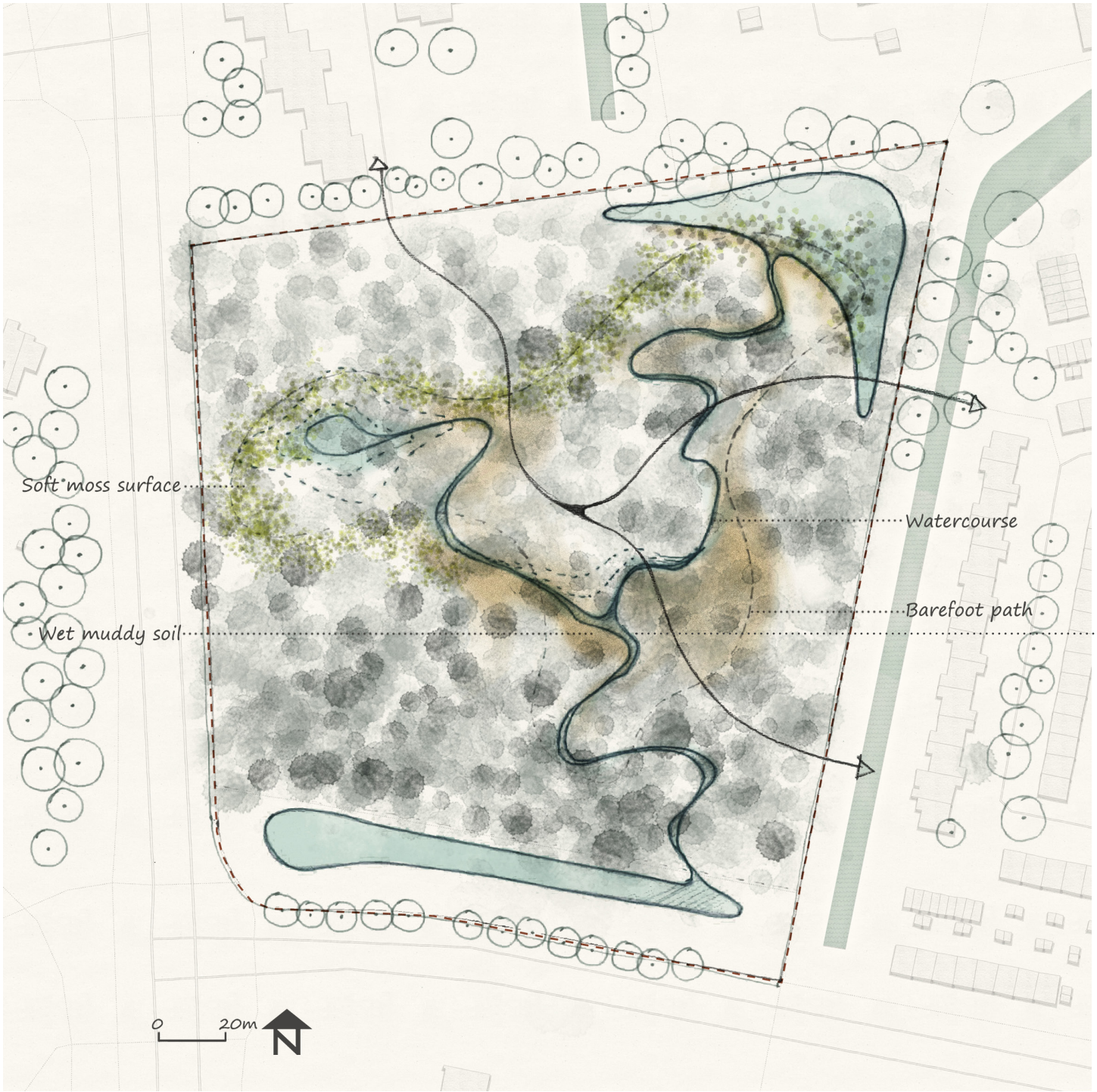


Figure 6.15: Masterplan creation play space

IV. Creation play space

The creation forest scenario has an emphasis on the interplay of the fundamental wild materials, like water, mud, flora, and highlights sensual and tactile qualities of them. Therefore, children are free to construct and reconstruct their own special places out of wildness features and interpret the forest with their imagination and creativity. And it will be supported by enriching the diversity of the manipulate-able elements in the forest. With it in mind, the main modification is to introduce a ribbon of watercourse woven into the woods and connect currently separated water spaces on the northeast corner and south, while creating a series of spaces along the water for creation activities. The watercourse could offer varied play opportunities in different seasons. It collects water and stimulates water-related activities during rainy months while could be used as sunken and secret path during dry months.

Along water spaces, a new loop path is considered as the barefoot walk path in order to highlight the multi-senses feeling. Walking through different surfaces in the forest, for example, sand, moss, water, mud, tree trunks, and thick tree bark chips, this path conduces to stimulate rich tactile experiences from smooth to rough, wet to dry, soft to hard for children. Together with varied loose elements, children can stop in any moment and throw themselves into transforming activities.

Studies and process sketches

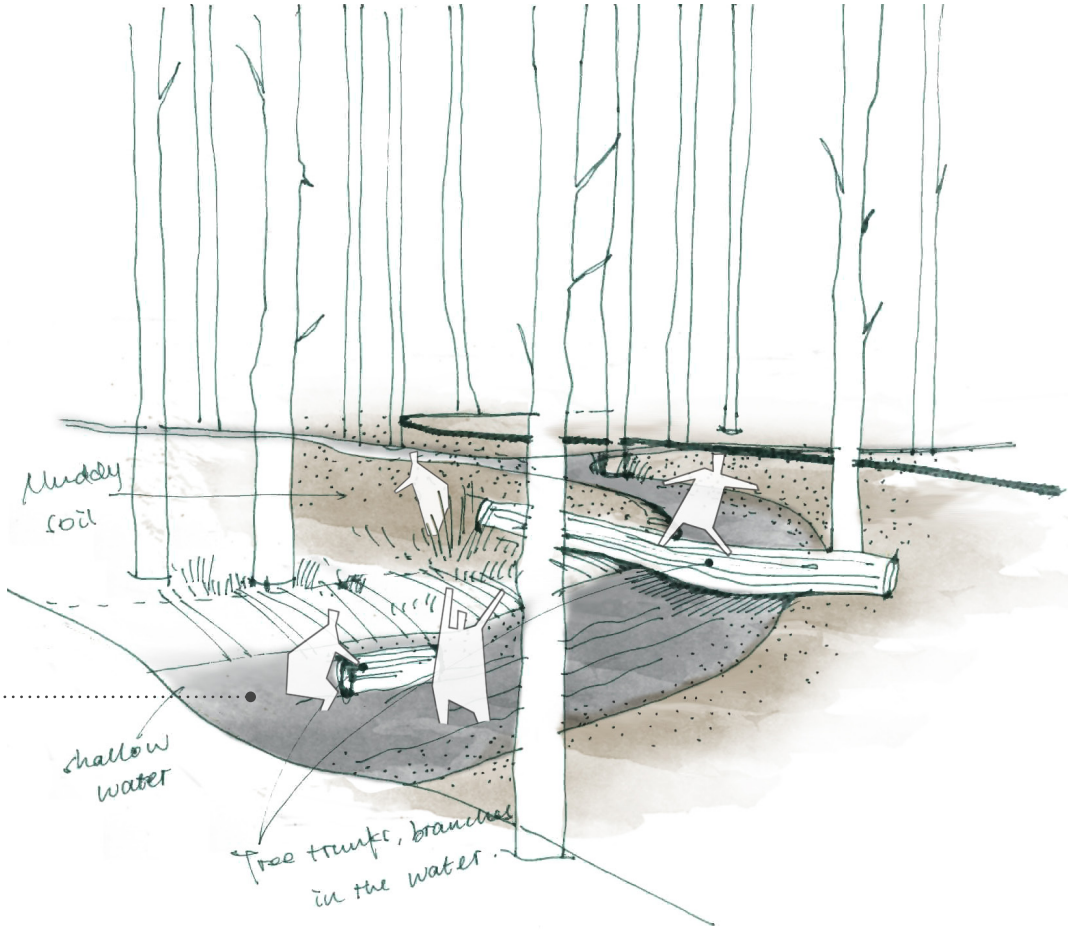


Figure 6.16: Sketch of watercourse and surroundings

As can be seen from sketch, the introduced watercourse is relatively shallow which means that children can jump into the water safely. Along the water, ground plane mainly consists of muddy-soil. In addition, existing dead trunks in the forest can be created as bridge or freely used by children as floating boat in the water according to their own ideas. In brief, in this scenario, diverse ingredients will be offered while final product is constructed by children.

Quantitative evaluation

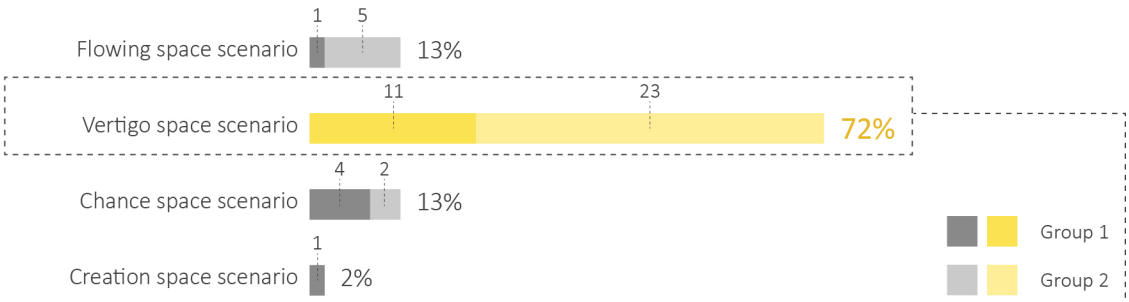


Figure 6.17: Quantitative result from children

Qualitative evaluation

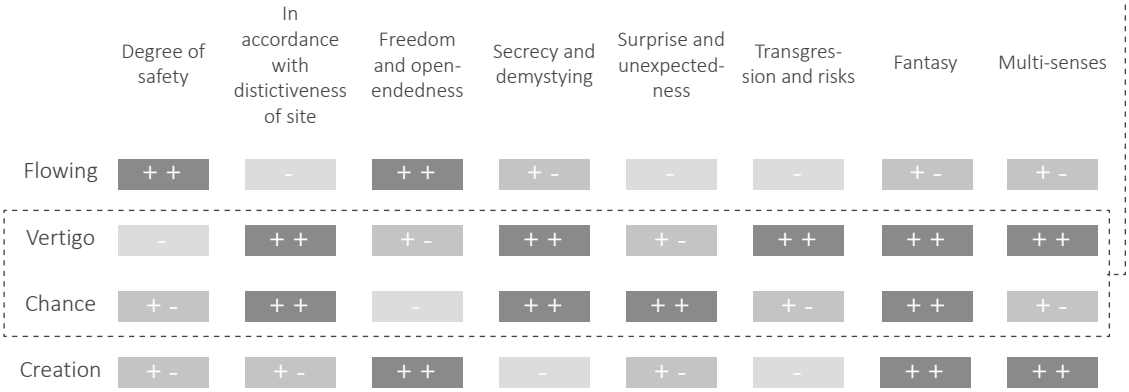


Figure 6.18: Qualitative criteria

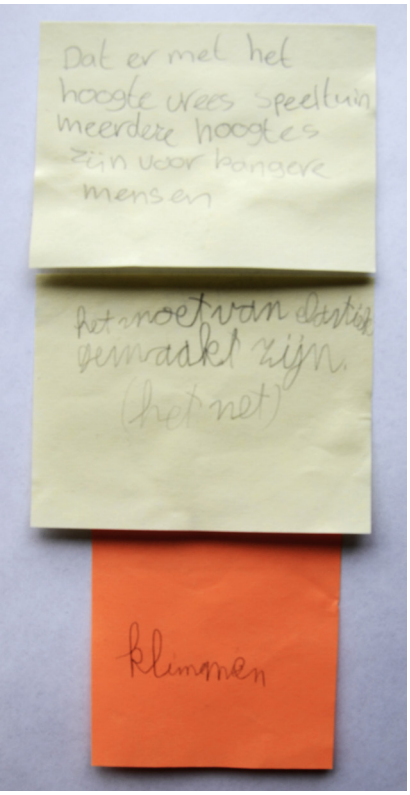


Figure 6.19: Some comments from children shows their suggestions about height landscape

6.3.3 Evaluation

Evaluators consist of two groups of children with three girls and fourteen boys in group one, and eleven girls and nineteen boys in group two. All the children are among 10 to 12 years old. The result of quantitative evaluation points out that the ***vertigo scenario*** is the preferred scenario as a large proportion (approximate 72%) of children chose it as their favourite (Figure 6.17). It is also reflected in their comments; many children wrote down the advice about height landscape and expressed their appreciation of challenges and risks (Figure 6.19). Risk-taking is the playful aim of this selected scenario which especially satisfies these overexcited children in middle childhood.

Flowing scenario is in accordance with open atmosphere which is actually not quite fit with the distinct nature of the forest while the other three scenarios are more appropriate considering their relationships with forest characteristics. It is also reflected on the result of qualitative evaluation in which flowing scenario is scored lowest. Another interesting aspect of the result is that although there are many loose parts in the forest which can be manipulated, only one child vote for creation scenario in two groups. It can be assumed to a large extent related to the distinctiveness of their middle childhood period and can explain their recognition of vertigo scenario. As discussed above, children in this age period better appreciate risk-taking interaction with the natural world. Vertigo scenario and chance scenario shares the same score according to qualitative evaluation in general. In this design, the uses of net material in vertigo scenario actually increase its secrecy and unexpectedness as described above. In this regard, it can be assumed that vertigo scenario will be more interesting if with proper risk management. Since children are the target group in this study, the final selection will be in the light of children's vote. It is therefore more reasonable to develop vertigo scenario for the final design.

6.3.4 Development of design

The final design is developed on the basis of vertigo play scenario. It remains the overall existing path layout and entrances. As can be seen in Masterplan, the main paths connect north and east entrances toward surrounding residential areas while many sinuous tracks branch off and woven into the thick vegetation. The net system is positioned in the deeper and denser part of the forest as discussed in Figure 6.20. At the same time, accesses of nets are normally settled behind the foliage or the end of paths, which inspire exploring activities. Apart from spaces inside, the current open but boring north and south border will be lit up by adding blooming wild plants. In addition, the new water play space consists of narrow elevated walks made of trunks. Children need to balance on them which moving forward.

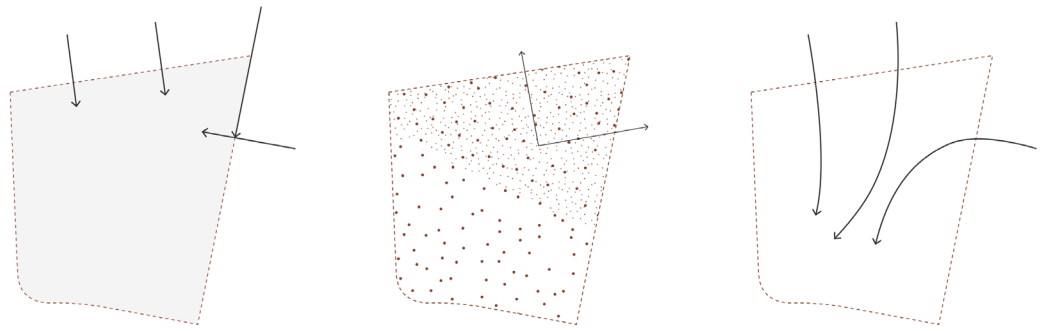


Figure 6.20: Position of nets

I. The choose of net as construction material

Instead of solid and concrete canopy path, this design aims to create a more intense and interactive vertigo play space for children in the forest context. In this regard, the material that has been chosen for increasing playfulness of the Uilenbosje is the net. The choice of net is crucial because:

Transparency - camouflage

- The transparency of the net makes the possibility of looking at plants or other people underneath while walking, staying or playing on the net. It also contributes to illusion of levitation in-between canopies, which is both scary and exciting. In addition, the net is easily to integrate itself into the surroundings that makes play spaces part of the integral environment. The play space is thus more like an invisible space suspending among foliage. By doing so, children perhaps get closer to the leaves through branches and feel themselves immersing into the wildness.

Flexibility - dynamic

- Flexibility of net creates a dynamic space for the interaction between children's body and wildness features. The net is not static; rather, it is elastic and reflects children's every movement in its forms. It is also related to a sense of instability.

Layered

- As is shown in the masterplan, in some part of the forest the net is layered. Such multiple layers of nets create labyrinth-like spaces which increase the secrecy and mystery of the forest.

As mentioned above, considering children's capability, nets are constructed at different height levels with different way to access. Some are lower and function closer to the huge hammock while some are placed higher attached to trees, and children need to climb trees first and then access to the net (Figure 6.22). The safety issue are also considered during the design process. On the one hand, all the nets do not exceed the height of 3 meters to fulfil the safety requirements however still challenging enough for children. Besides, multiple layers of net in certain places also decrease the possible injury if falling down. On the other hand, the underground spaces of nets will be covered

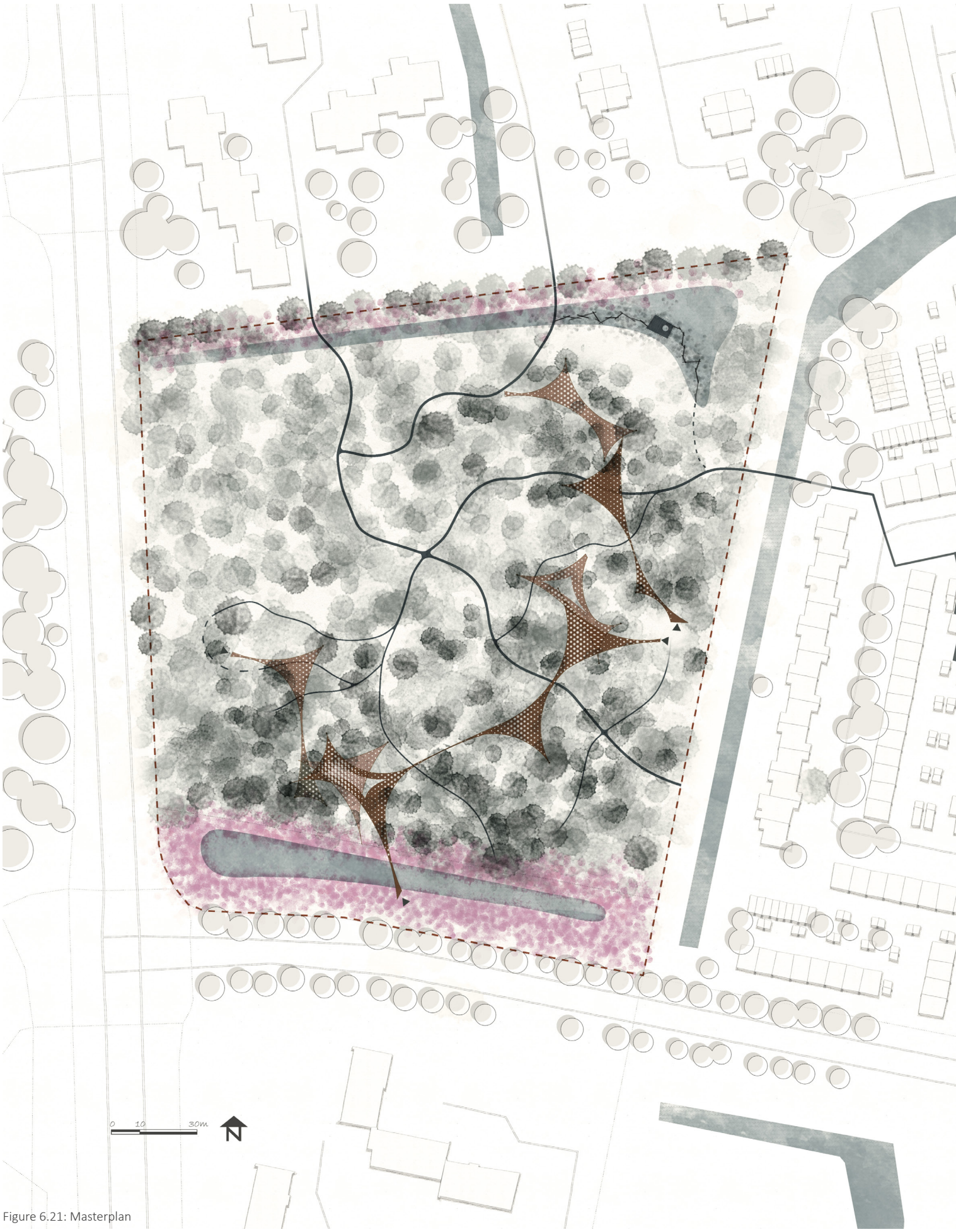


Figure 6.21: Masterplan

with a thick layer of tree bark chip to provide a softer surface.

II. Renewal of water play space

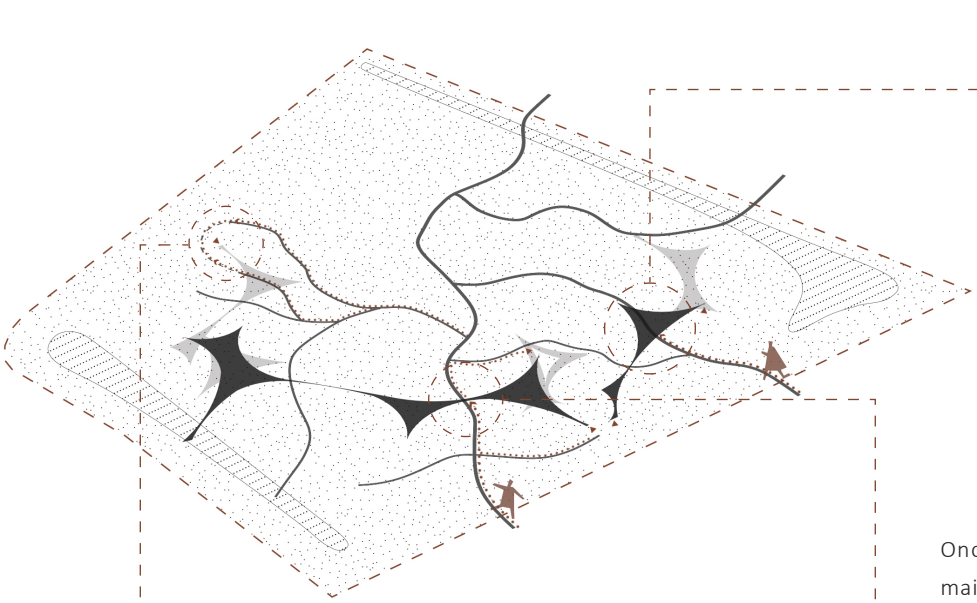
The new designed water play space (Figure 6.23) on the north-east corner again emphasizes on creating vertiginous experiences. The new walkway above the pond includes various more challenging constructions, like narrow trunks and rope bridges. The walkway is lined with poles which stimulates excited children to climb as well. A platform is placed in the middle of walkway to provide resting area. In addition, the circular void inside the platform invites children sit around it which creates a meeting point.

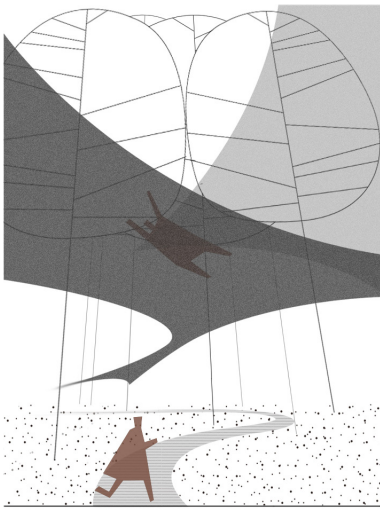
III. Creating exploring experience at ground level

Nets contribute to vertiginous experiences at high level. At the same time, in order to increase the playful experiences at ground level, the accesses of nets, especially high nets, are normally placed more secretly. It means that once children are inside in the forest, they may see the net overhead but they still need to look for the way to get on the net. These accesses are not seen immediately from the main paths; rather, children need to follow the small tracks to explore. Maybe they will find the entrance of the net behind a thicket or maybe nothing is there. This discovering process indeed increases the play qualities under the nets. The examples of spatial experience of ground level are illustrated in Figure 6.24.

Figure 6.22: Impression of nets

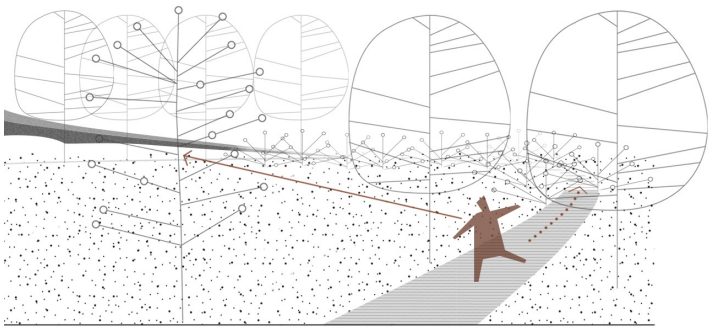
Figure 6.23: Water play space





Once children enter into the forest following main paths, they will see the overhead net or net pathway immediately. But how to access? It remains their own exploration.

Children see the net, however, the access is hidden behind the thick vegetation. In addition, the clearly defined route end abruptly. Children need to explore their own way to access the net.



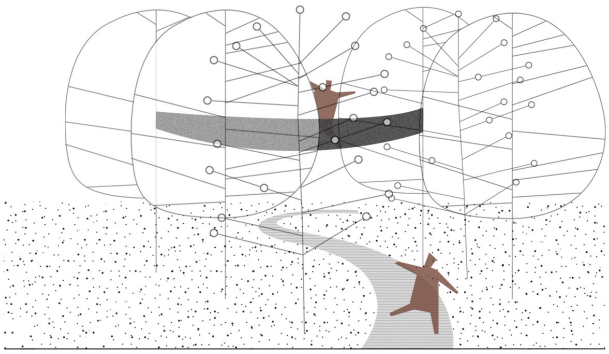


Figure 6.24: Spatial experiences on ground level

Figure 6.25: South border (looking from outside to inside)

IV. Borders of the forest

What's more, borders of the forest are taken into consideration. The activated borders thus provide invitations for children. Children can be immediately curious about the play possibilities in the forest when passing by. It is achieved by two main interventions. Firstly, the south and north border is covered with native colourful blooming plants, which can light up the whole space while contradict to the dark forest (Figure 6.25). At the same time, as can be seen from the masterplan, some part of the net is extended out of the woods on the south side. The incompleteness of net together with dark forest background raises a question where does this net lead to in children's minds. It therefore asks for children's willingness and courage to explore the destination of this net and contributes to the both attractive and fearful attributes of this wild play space.

Apart from inviting more children from surrounding neighbourhoods to go into the forest, the lightened border also increases the sense of mystery for those already inside and on their way to leave (Figure 6.26). The immediate foreground is shaded and even with an air of darkness while an area further is brightly lit. Such scene raises question for children what is it out of the forest?

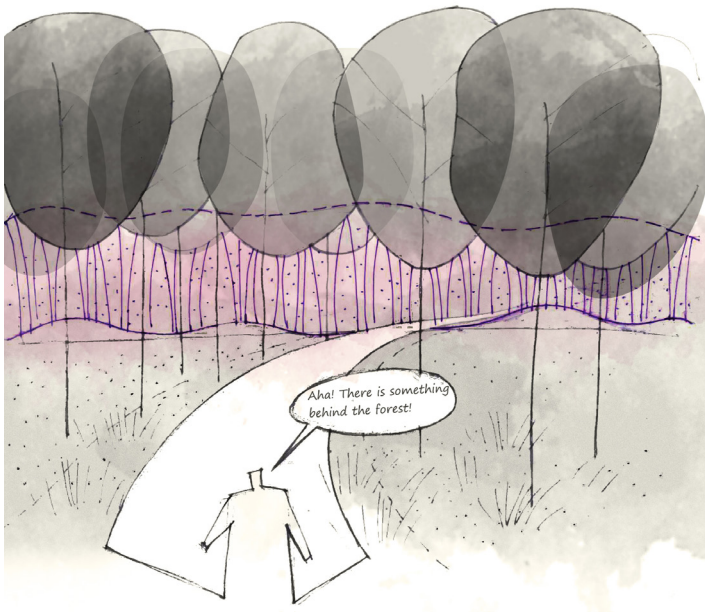


Figure 6.26: South border (looking from inside to outside)

6.4 Site two: wasteland by the Maas-Waalkanaal

6.4.1 Current condition

Site two is a piece of triangular wasteland by the Maas-Waal canal and currently conquered by spontaneous growing wild plants after the demolition of buildings. It is approximately 500 meters long and 150 meters wide at its widest part. The whole rough ground represents an unkempt and disordered atmosphere. Without any fences, the northern part is accessible, and covered by unmown wild grasses with a trodden track to Westkanaaldijk (Figure 6.27.1 and 6.27.2), while the southern part is taken over by thick shrubs and small trees and inaccessible (Figure 6.27.5). There are still few houses gathering in the north and west corner, separated with the site by thick hedges. Currently, this site is used by surrounding residents as a shortcut to Westkanaaldijk. Next to the motorized way to the west side of the site is a historical lane, originally connected to the castle Dukenburg. Lined with old trees, this lane provides people with quiet and peaceful walking atmosphere (Figure 6.27.3). In addition, as mentioned above, it is also part of the pathway in wild play network connected to site one.

To the south of wasteland is a motorized bridge way with slopes covered by thick vegetation on both sides (Figure 6.27.6). In addition, these slopes are connected with open spaces on the ground. In this regard, are these slopes can be regarded as oblique play spaces is an interesting question. Since such kind of vertical or oblique play experiences is absent in the whole district, the appropriate use of slopes might be appreciated.

As discussed above, researches show that water edges offer scope for meeting children's desires for challenges and opportunities to test themselves and taking risks (Tunstall et al., 2004). From the children's perspective, it seems their interaction with canal is important. However, the current steeply sloping

Figure 6.27: Position site two and its surroundings


6.27.1


6.27.2


6.27.3


6.27.4


6.27.5


6.27.6

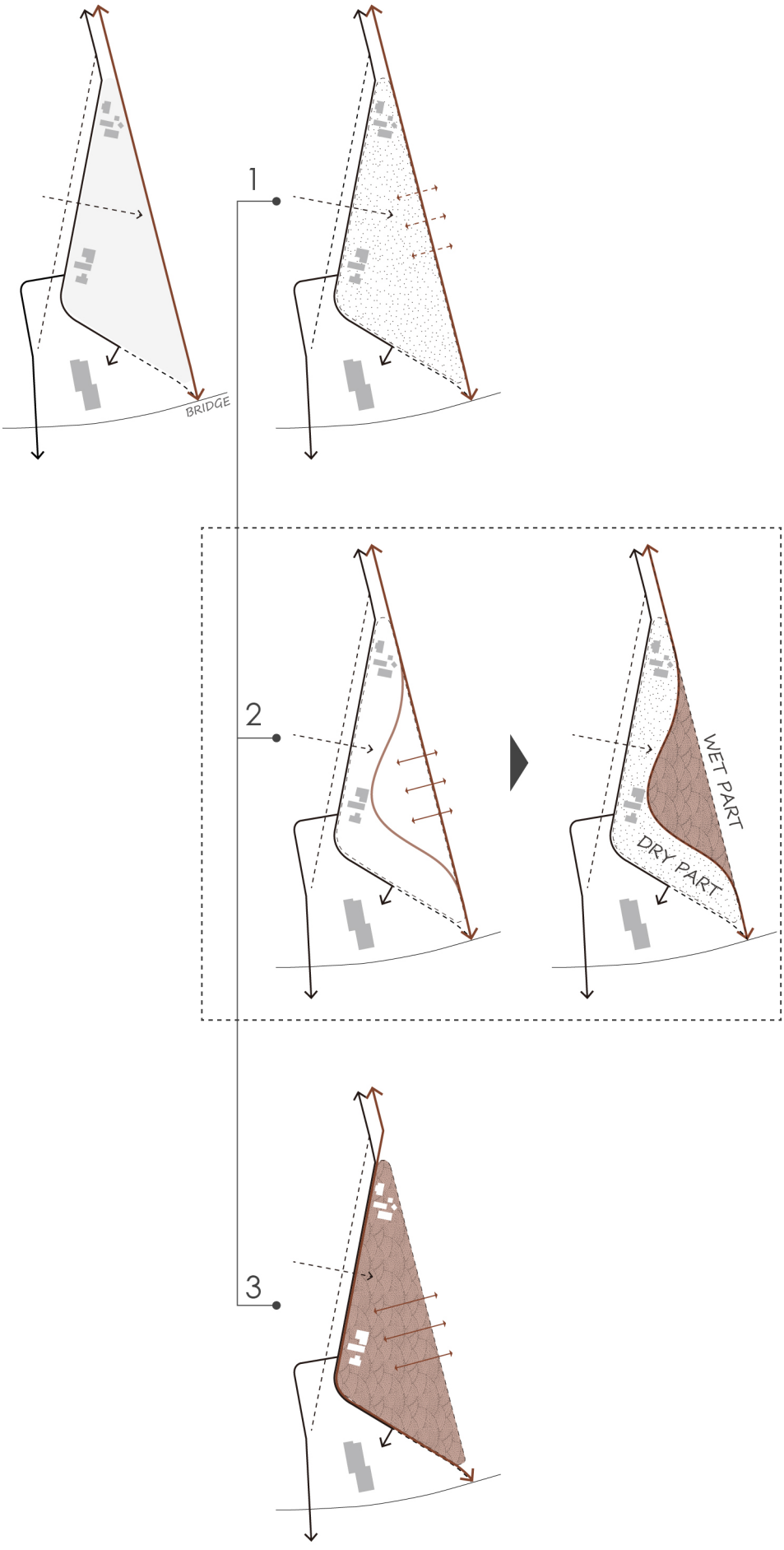


Figure 6.28: Three models of connecting

bank and deeper canal water indicate the limited access to the water. In this regard, how to interlink children with canal in a safer but still challenging enough way should be discussed.

6.4.2 General design intention and solution

From the general perspective, the aim is to improve interactions between people and canal. In order to connect site two with canal, three different models are proposed and compared (Figure 6.28):

1. Keeping the current configuration of Westkannaldijk and site

2. Changing the configuration of Westkannaldijk and place it in-between the site

3. Changing the configuration of Westkannaldijk and place it next to Oude Dukenburgseweg (motorized way)

The first model needs the minimalist intervention upon current plan. In order to improve the interaction between people and canal, the boundary between bike lane and site should be blurred by clearing current thick vegetation between these two places. However, it does not contribute to create any more possibilities for playing with water. Although model three provides a significant size of space in terms of interacting with canal, the quality of cycling experiences is decreased to a large extent. In the light of balance between these two aspects: cycling experience and play experience, model two is more appropriate. In the second model, the new bike lane is woven into the site and divides it into two parts. Eastern part is directly faced with canal while western part remains current relation to the surroundings. Considering characteristics of these two parts, I will call them wet part and dry part respectively in the following text. In brief, as can been seen from section (Figure 6.29), this model expands the interaction

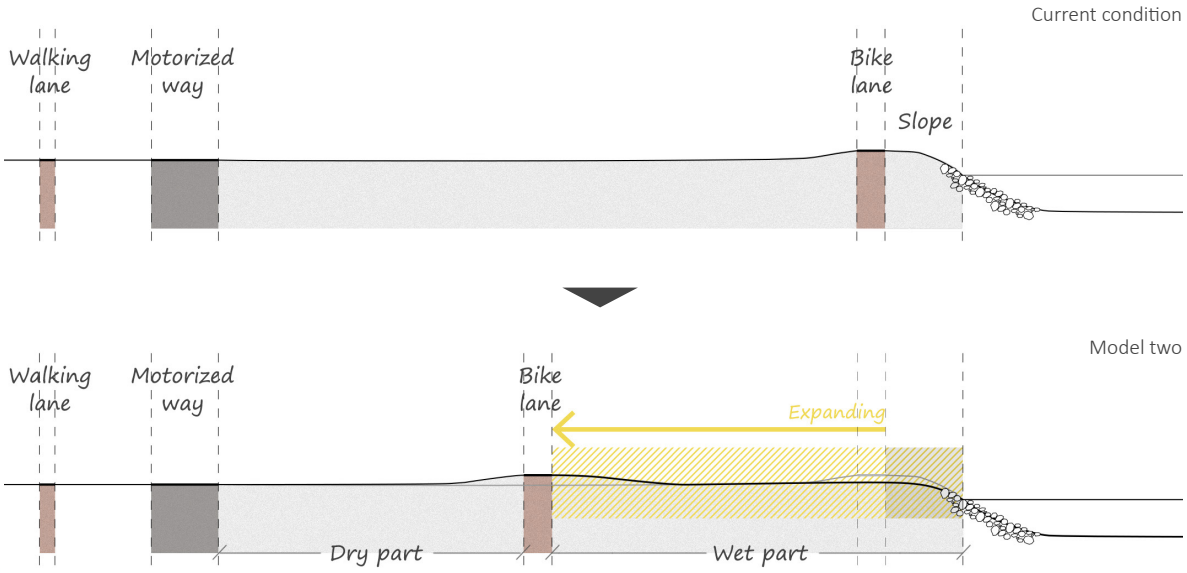


Figure 6.29: Section of model two

area with water and offers undisturbed interaction feeling on the one hand, and remains separated cycling path on the other hand.

Current unkempt and rough atmosphere is remained in dry part. Apart from existing plants, wild grasses and vibrant wild flowers are added that could enrich colour and texture throughout seasons. At the same time, for the wet part, four wild play space typologies will be tested to see which one is the most suitable for the site.

If we zoom out and consider increasing playability and playfulness of whole canal edge, some other spaces along Westkannaldijk can be involved. The current canal edge is dominated by the bike lane but used by cyclists and pedestrians together in reality. Together with open and scenic canal view, it offers relatively nice cycling experiences. However, its role is also restricted in moving channel and there are few places for people to slow down and stay. As illustrated above in vision plan of play, the canal should not only function as the play pathway, but also linear play space in its own right. In this regard, the canal edge should be thickened by connecting adjacent green spaces, wasteland, vacant lots or other spaces apart from site two (Figure 6.30). By doing so, we can look forward to a series of living spaces along the canal, and residents, include not only children, can stop in any moment and involve in activities afforded by dynamic spaces.

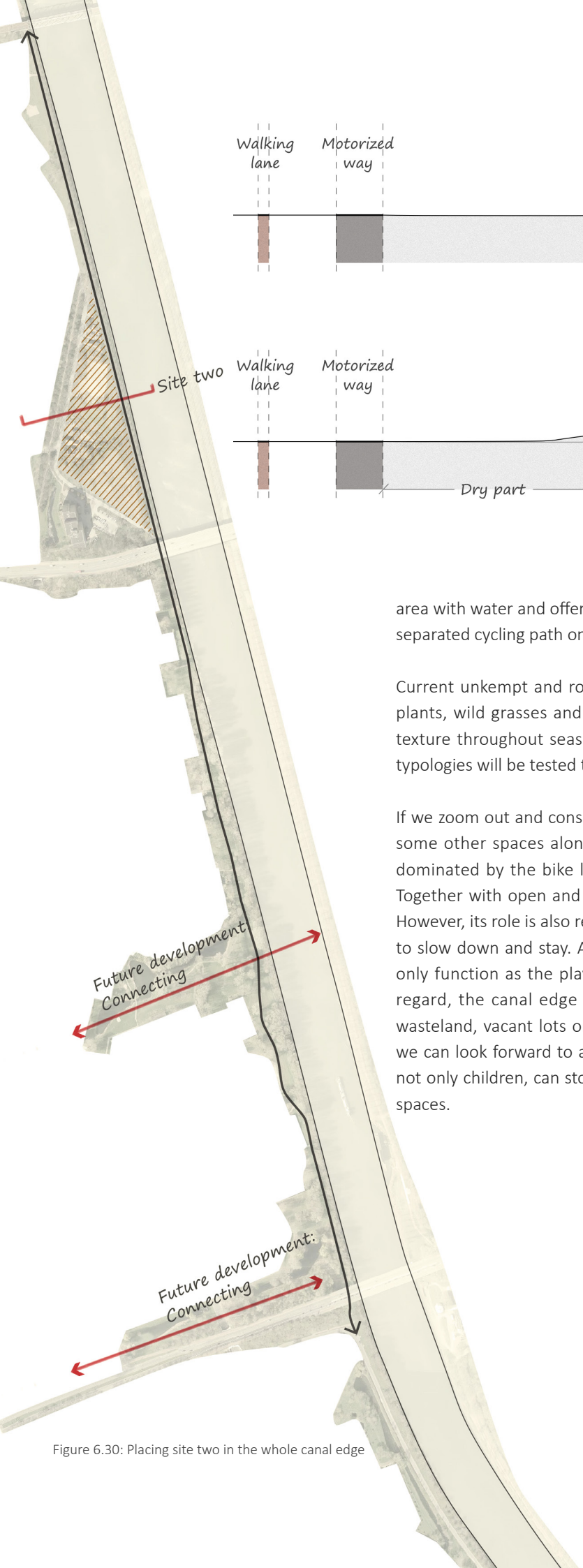


Figure 6.30: Placing site two in the whole canal edge

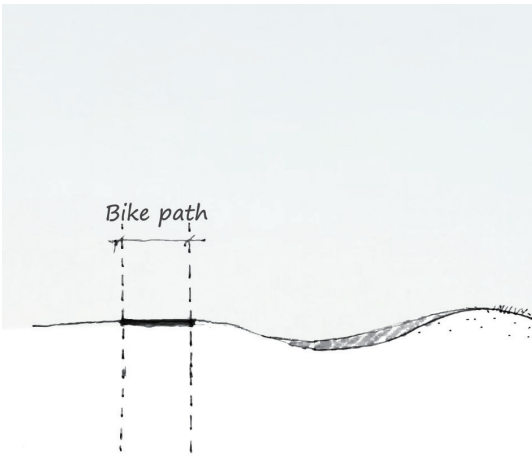
6.4.3 Exploring wasteland and its surroundings scenarios

I. Flowing play space

The flowing space scenario is developed on the basis of the topographic strategy in order to create a more provocative ground plane which makes the whole landscape playable. As discussed above, the main characteristics of flowing play space are freedom, openness and fluidity, which will be interpreted into a piece of gentle and free-form land, characterized by the alteration of mounds, flat parts and pits with varied size. The result is an open and waving terrain available for unstructured play. The undulation of ground is obvious but not intense. Moreover, no defined path or defined play space will be determined; instead, children decide their own direction to move or manner of interacting with the environment. Not only this provocative terrain is possible to afford basic movements and play, but additionally children are offered scopes to discover new forms of movements creatively.

In addition, different forms of terrain (Figure 6.34) will contribute to various experiences. Mounds offer vantage points in the site with open view while pits and spaces in-between mounds are more enclosed and intimate which support

◀ Figure 6.31: Masterplan flowing play space
▼ Figure 6.32: Section



solitary play. Further, natural process prompt different opportunities, for example, pits will collect water after rainy days. Therefore, children could jump into or more excitedly, slide from adjacent mounds into puddles or just observe the reflected sky in puddles solitarily.

Studies and process sketches

The terrain is fluid and continued: there is always more to come ahead.

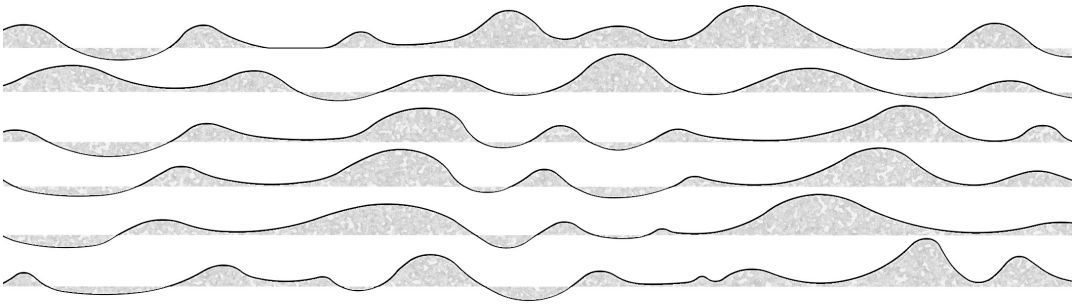


Figure 6.33: Conceptual drawing of flowing terrain

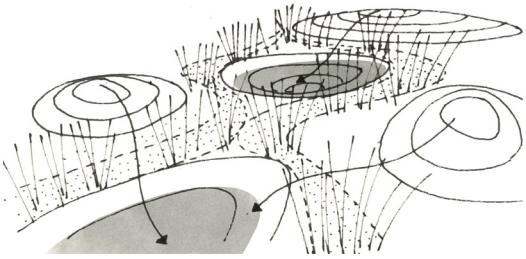


Figure 6.34a: Fluid movements from mounds to puddles

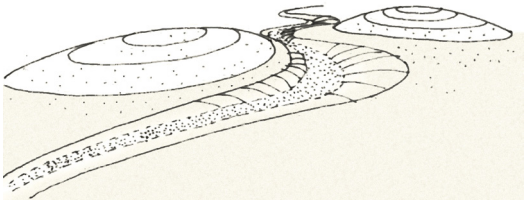


Figure 6.34b: Small channels between mounds

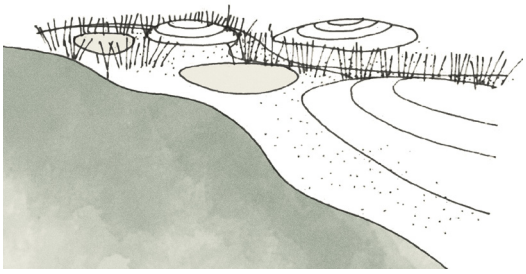


Figure 6.34c: Enclosed platforms are secretly placed in-between mounds

Figure 6.34d: Children climb over “ridge“ and then find a intimate puddle

Figure 6.34: Multi terrain forms in the flowing space

II. Vertigo play space

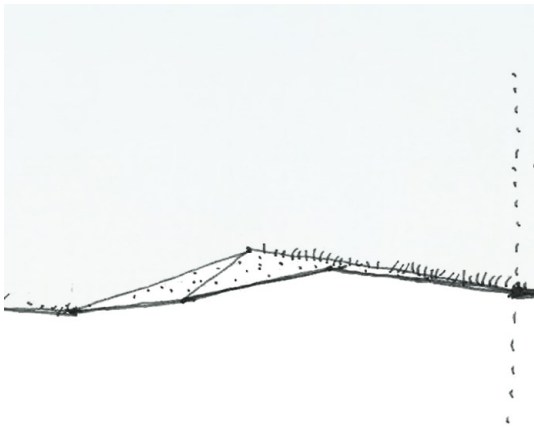
Instead of creating height landscape relying on high trees of forest, vertiginous experiences will be interpreted by intense design language in this site. Although also focuses on children's physical movement which is in line with flowing play, vertigo play shows an exaggerated way to interact or even confront with the environment. In addition to the wild and rough nature features, this scenario emphasizes on stimulating "wild behaviours" of children. Inspired by teenagers' "wild behaviours" like skating and parkour, the main idea is to transform the flat, monotonous ground plane into faceted and oblique ones. Various intense planes could attract different challenging play opportunities.

In terms of the material aspects, the surface of ground will be transformed into an extreme tough form as well. Since current bike lane will be removed, those demolished paving materials can be split up into smaller pieces and remain in the site but in the fragmented way (Figure 6.37). The uneven ground contributes to play experiences as children need to change their movements constantly to cope with the instability. What's more, vegetation could be planted in these interstices.

As discussed above, vertigo play always

◀ Figure 6.35: Masterplan vertigo play space

▼ Figure 6.36: Section



happens near boundaries. In this case, slope along the motorized bridge is the boundary, both fearful and attractive. It is on the one hand seen as a safe zone separating people from fast traffic, but dark and covered by thick vegetation on the other hand. Therefore, a significant concept in this scenario is that slopes along the bridge will be altered into faceted slopes and therefore more accessible (Figure 6.39).

Studies and process sketches

Figure 6.37: Examples of surface material. Unstable surface constantly stimulate children's movements. The walking itself is not conventional but interesting and challenging.

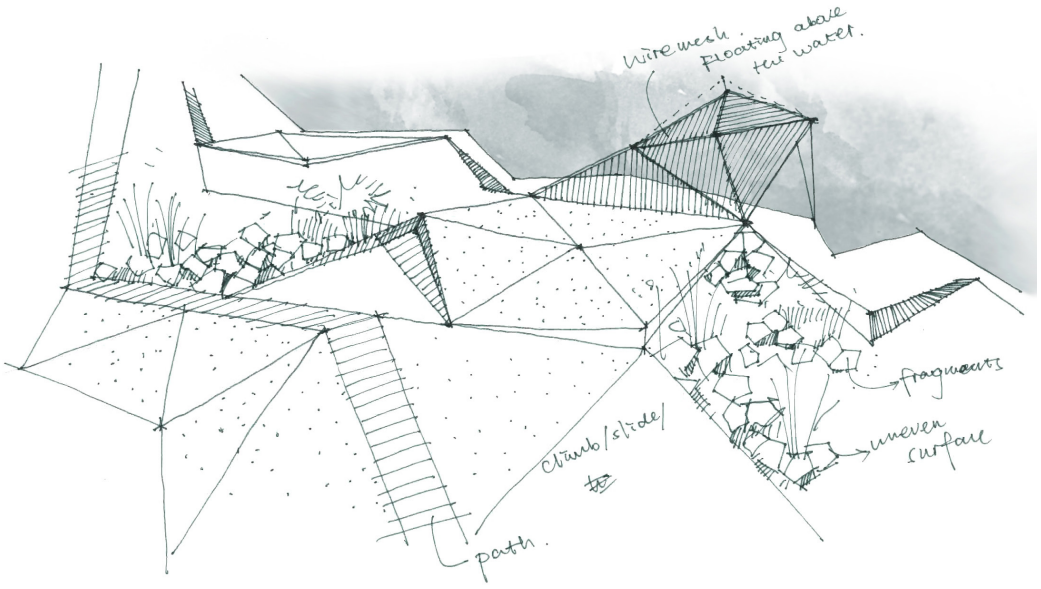


Figure 6.38: Sketch

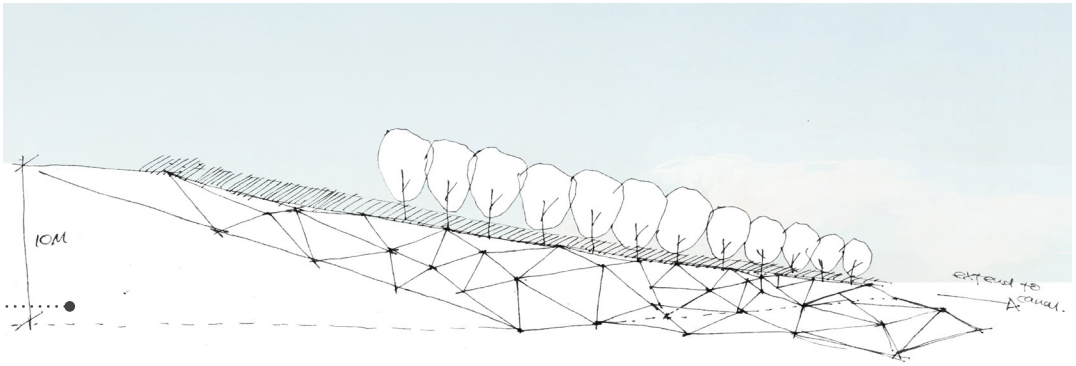
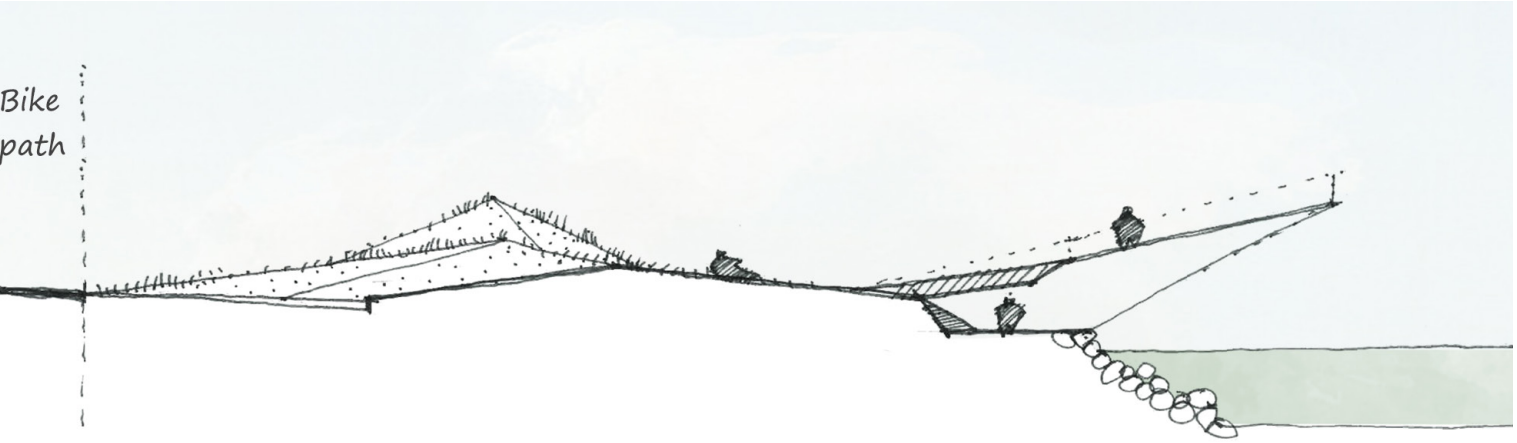


Figure 6.39: Slopes along the bridge

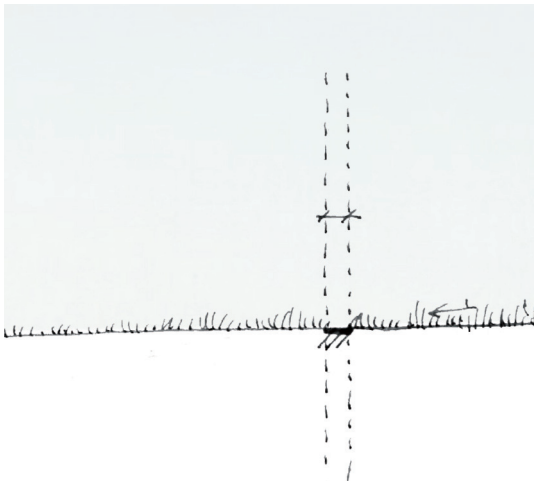


III. Chance play space

The chance play space can be regarded as a water jungle dominated by long and thick grasses. Taking child-scale into consideration, moving through long grasses and bushes that reach above their heights is not different from adults navigating in the jungle. Immersed themselves in such grassy-like sea, children will experience an air of secrecy. Further, grasses can contribute to a more mysterious atmosphere because of their thickness, enclosure but still visual permeability, which means that children can see through something behind but not completely know what it is. Such incomplete images thus invite children to explore and discover more. Again, this scenario highlights the secrecy and demystifying, and surprise play qualities. Another distinctiveness is that the current south thick groups of small trees will be remained with certain clearing. In this regard, this small grove will become more accessible and contribute to the "chance" experience.

Similar to forest chance space, exploring through moving is also the topic in this scenario. This will be achieved by establishing an exploration path meandering through "islands" along canal edge. Many small paths branch off from the exploration path but without giving

◀ Figure 6.40: Masterplan chance play space
▼ Figure 6.41: Section



clear clues where this path will lead to. The destinations of the path include “chambers” enclosed by wild plants in dry part, view platforms along the canal edge and some climbing poles. However, destinations fade away in long wild grasses; therefore, it is totally a journey full of uncertainty and surprises.

In addition, a floating swimming pool is proposed next to the floating path in this design proposal. Riparian plants will fringe the swimming pool and increase its degree of secrecy. Again, it can be regarded as a “surprise” destination during children’s exploring movements.

Studies and process sketches

Figure 6.42a: Enclosed path, destination is unknown

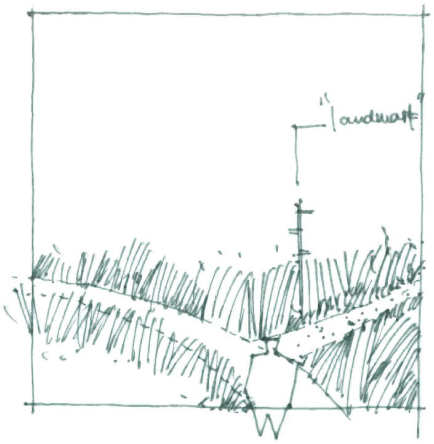


Figure 6.42b: Be careful! The path seems right to lead you to the “landmark“, but might lead to another place. It is always fun to make choice.

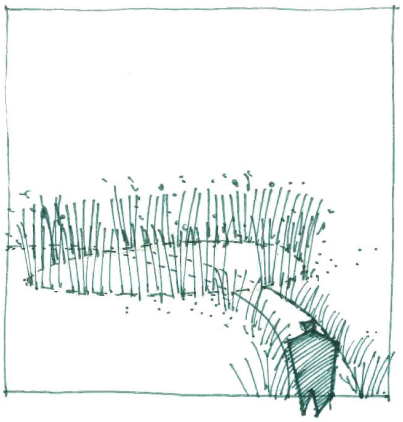


Figure 6.42c: “Chamber“ in wild grass meadow

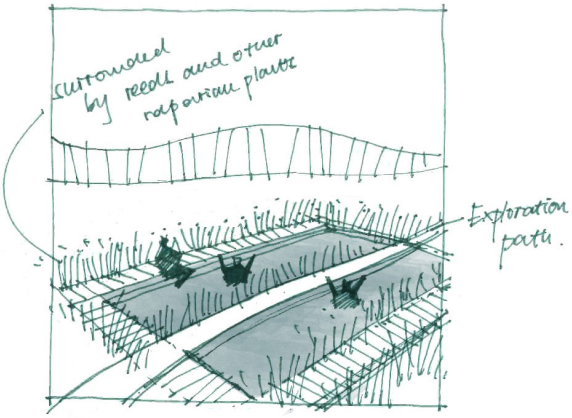
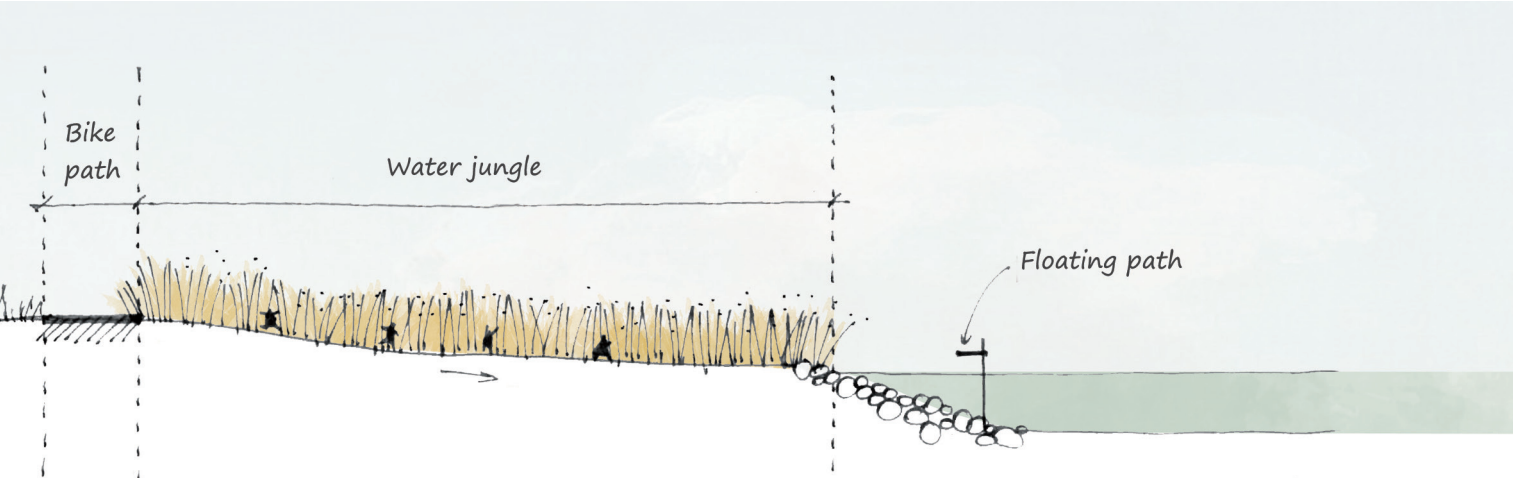


Figure 6.42d: Wild swimming pool

Figure 6.42: Spatial experience of chance scenario

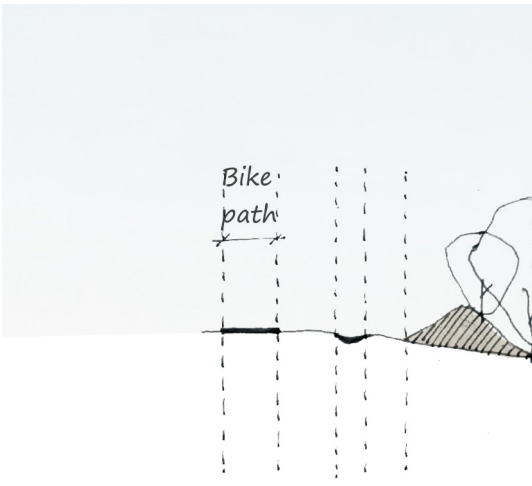


IV. Creation play space

Different from the forest creation scenario illustrated above, canal space further highlights children's desires of disordering and metamorphosing the space. The creation space scenario can be regarded as an ever-ending construction site, echoes the current atmosphere of the rough and unkempt. It asserts disordering activities, construction, reconstruction, and transforming as primary elements of play and absorbs messy and chaos results from children's interaction with dirt.

Chance space encourages children's exploration by the ever-changing natural rhythm while creation space actively creates a dynamic rhythm by flexible moving and changing of materials by children themselves. Different forms of earth, such as grit, sand, or mud, are used as surfaces of the site. Other significant elements in this construction site are sand piles, which offers more opportunities in vertical dimension and increase excitement from climbing activities (Figure 6.45). While the land is designed for the interplay between fundamental landscape elements, one of the physical concerns is combining water with the soft flexible surface. This is achieved by introducing canal water into the site, and further adding another shallow sinuous water weave through sand piles. These soft

◀ Figure 6.43: Masterplan creation play space
▼ Figure 6.44: Section



surfaces and sand piles are shaped, transformed, and then perhaps wetted by children and offer another play stimulus. Apart from mutable materials, some existing trees are remained, which offers rich loose parts, like dead trunks or branches as well. It is therefore possible to use these tree trunks as bridges to connect sand piles. In short, creation play space is liberating and offers significant opportunities for children to interact with dirt.

Studies and process sketches

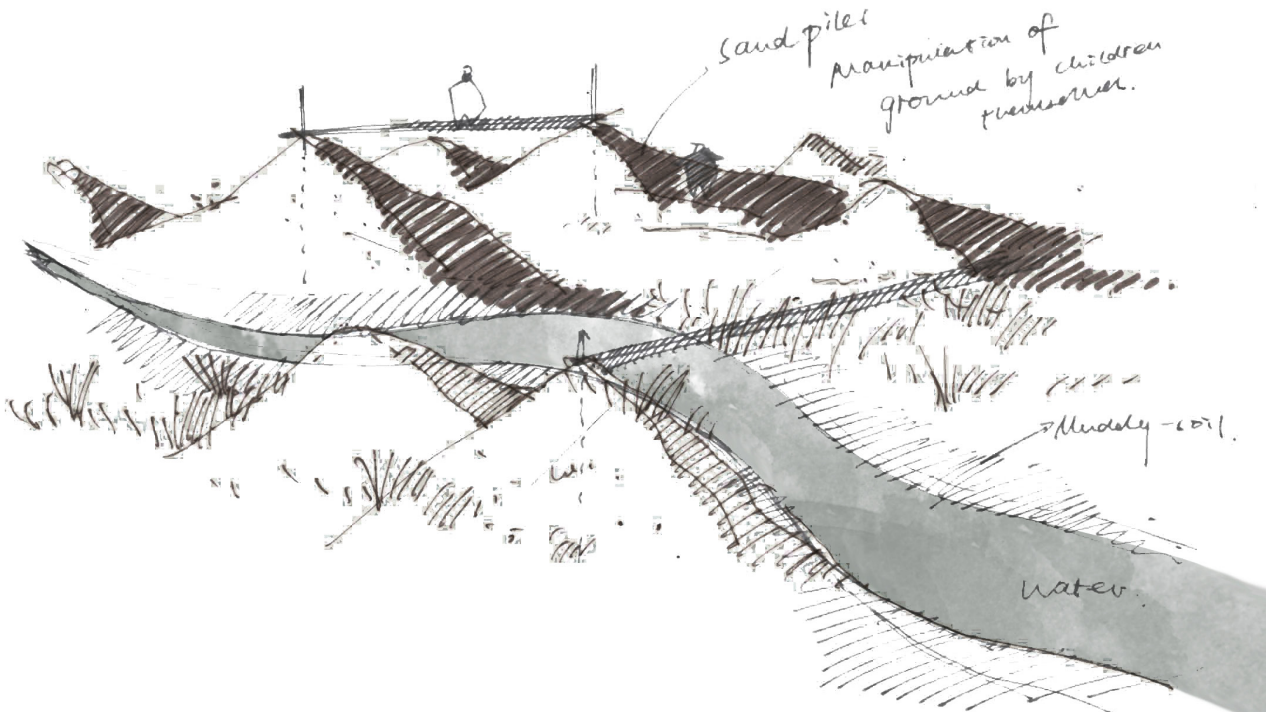
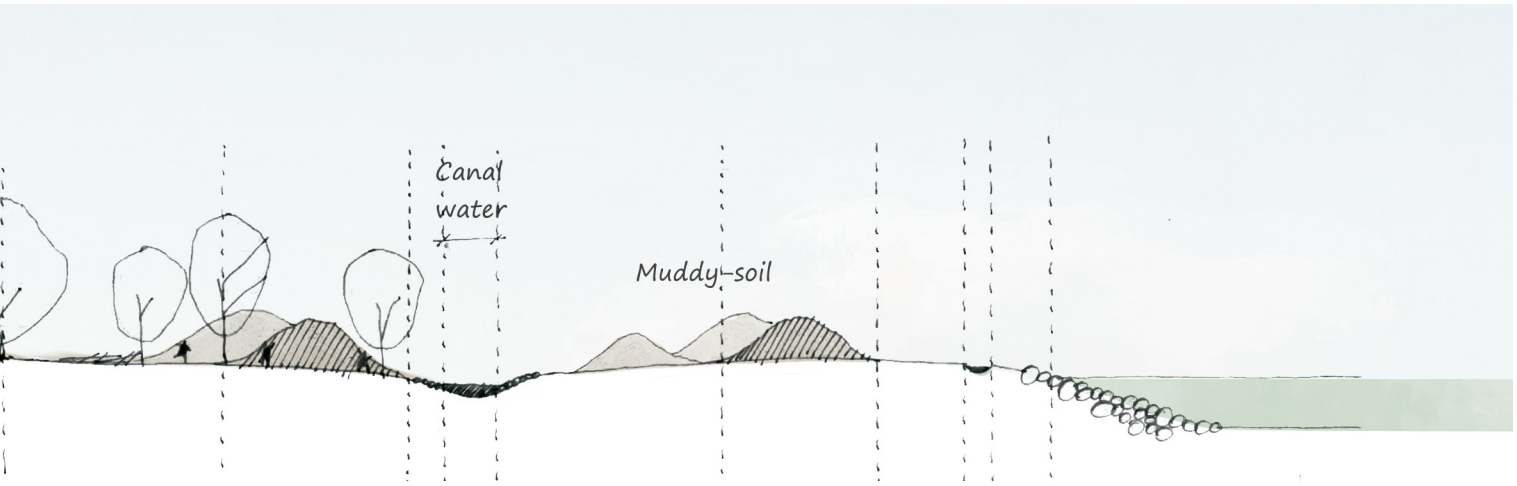


Figure 6.45: Sketch of “construction site“- sand piles, mud, water



Quantitative evaluation

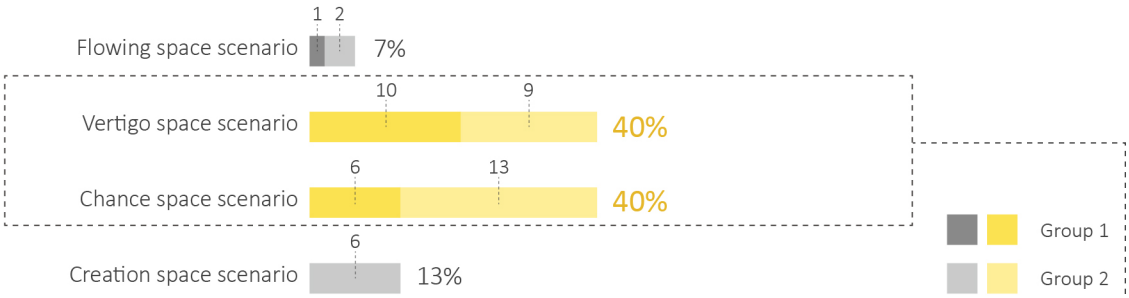


Figure 6.46: Quantitative result from children

Qualitative evaluation

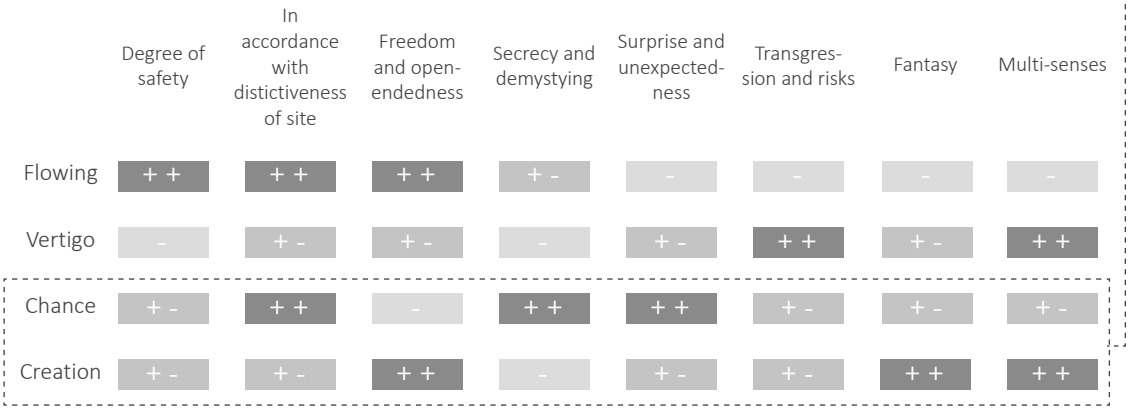


Figure 6.47: Qualitative criteria

6.4.4 Evaluation

The quantitative evaluation indicates a different result from site one Uilenbosje. Apart from the still preferred ***vertigo scenario***, an equal percentage of children (about 40%) chose ***chance scenario*** as their favourite one. Children also expressed their excitements when they hearing climb slopes along the bridge.

Creation scenario shares the same score with chance scenario according to qualitative evaluation, and they are both considered relatively safe and in line with the rough ground characteristics. However, children show totally different attitudes towards these two scenarios. In group one even no child vote for creation space and there are also only 6 children select it in group two. It can be assumed to a large extent related to the distinctiveness of middle childhood. Vertigo scenario has higher score in terms of risks and challenge criterion, but also assumed easily to lead to some dangers. However, in this regard, children's enjoy of risk-taking is reflected on their high appreciation of vertigo scenario.

Again, the target group of this study is children. Therefore, it makes sense that the final selection should reflect children's favours firstly. Accordingly, vertigo and chance scenario will be selected. Considering the results of qualitative evaluation at the same time, the final design will mainly improved based on the chance scenario while vertigo scenario is also remained but applied only to slopes along the bridges.

6.4.5 Development of design

The final design is developed mainly on the basis of chance space scenario. Compared with the original scenario, it further emphasizes on the planning of paths combined with uses of wild plants to emphasize the secret atmosphere to stimulate children's free exploration. In addition, slopes along the bridge are combined into the final design in the light of vertigo scenario to offer vertiginous play experiences.

As is shown in the masterplan, the edge of canal is softened and divided into several "islands". In terms of the ships on the canal, the bank is still constituted by stones. These "islands" are interlinked by a winding exploration path woven into the site. Together with many branches and intersections, the whole path system is seemed more like a labyrinth. And these new network of paths contributes to integrate play experiences through movement and exploration.

I. Integration of wild plants

As mentioned in the description of chance scenarios. The play of wild plants is one of the distinctiveness in this design. The purpose is to create a grassy-like sea space. Wild long grasses cover the space with an air of mystery due to its perfect camouflage capacity. It is possible to create pleasures of getting lost in the site since children might suddenly don't know where they are when enclosed by long plants. However, these plants are still visually permeable, which means that children can see through something behind but not completely know what it is. Such incomplete images thus invite children to explore and discover more. In addition, since site two is situated in a relatively open field, with the support of wind, the sound of plants as well as smells contribute to children's curiosity of their surroundings and finally the exploring willing. Further, from the perspective of aesthetics and ecology, the selection of native wild grasses and flowers create a colourful blooming area with low maintenance, and we can imagine the diverse wildlife flourish here. In brief, this design optimizes both play experience and ecology (Figure 6.49).

II. Exploration of paths

Play though movement is the main concept in this design. It is reflected on the design of diverse pathways and creation of corresponding spatial experiences (Figure 6.50). High meadow grasses works in concert with winding paths and creates a constant alteration of concealing and revealing. The main exploration path is designed in the floating form while small tracks that branch off are defined with varied forms:

Floating path: The design of main exploration path is developed as floating form. As can be seen in the masterplan, part of the exploration path is placed on the canal. In this regard, the floating construction makes the path more flexible to the changing level of canal water. In addition, in other dry part, the exploration path is still placed above the ground. On the one hand, it keeps path still accessible when the "wet part" is flooded. On the other hand, it does not disturb the plants underneath and also create possible intimate "underworlds" for solitude play.

Wire mesh path: Similar to the net material in the forest design, the transparent wire mesh on the one hand allows plants grow through the path, on the other hand increase the enclosure and secrecy. At the same time, it stimulates children to focus on the ground environment, such as tiny creatures, ground cover plants, while moving forward.

Sunken path: Taking advantage of the height difference between Westkannaldijk and the site, sunken paths are designed and contribute to create secrecy and surprise atmosphere. It creates a relatively high degree of concealment. Concerning child-scale and height difference, the sunken path is not deeper than 1 meter. In this regard, it offers different perspective for children to perceive and engage with the environment. For example, children can then see and hear at ground level.

Figure 6.48: Masterplan

Play and ecology

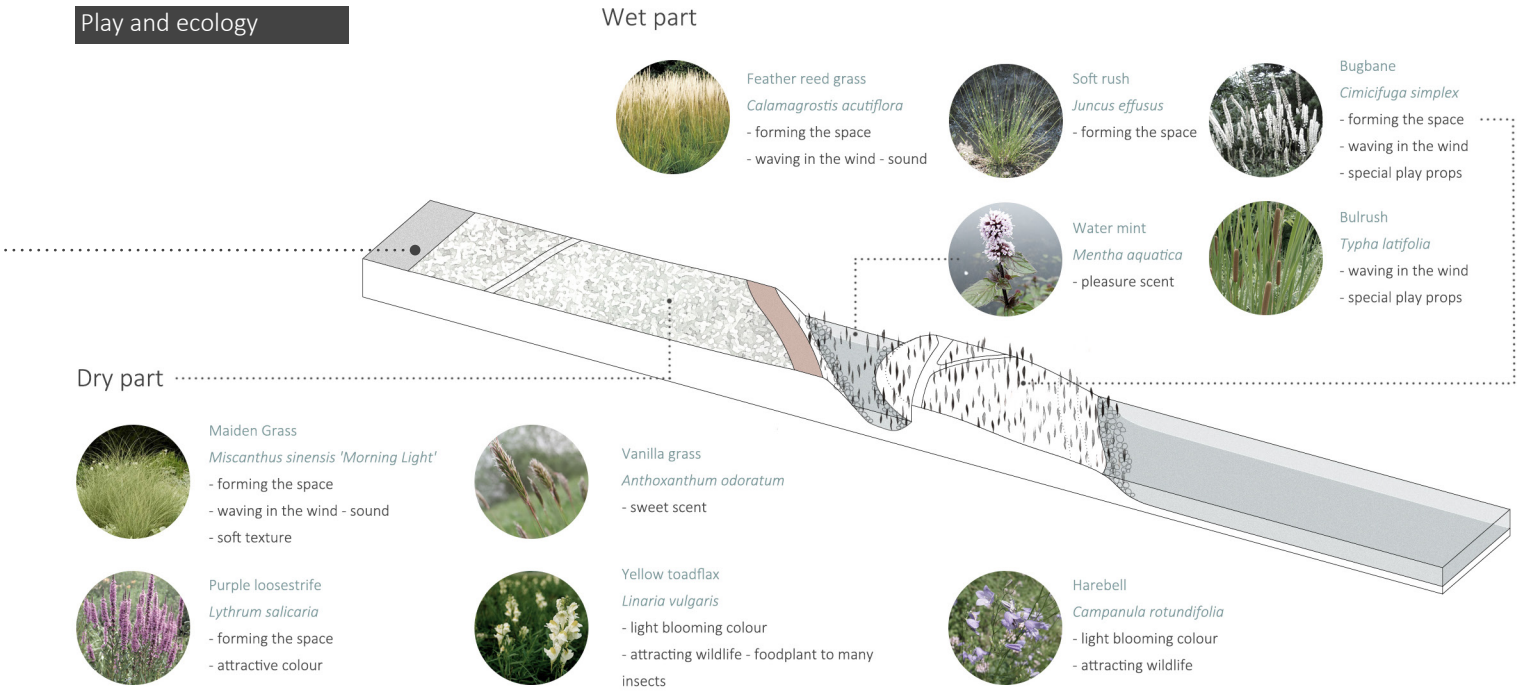


Figure 6.49: Incorporating play and ecology- possible plants

Exploration of path

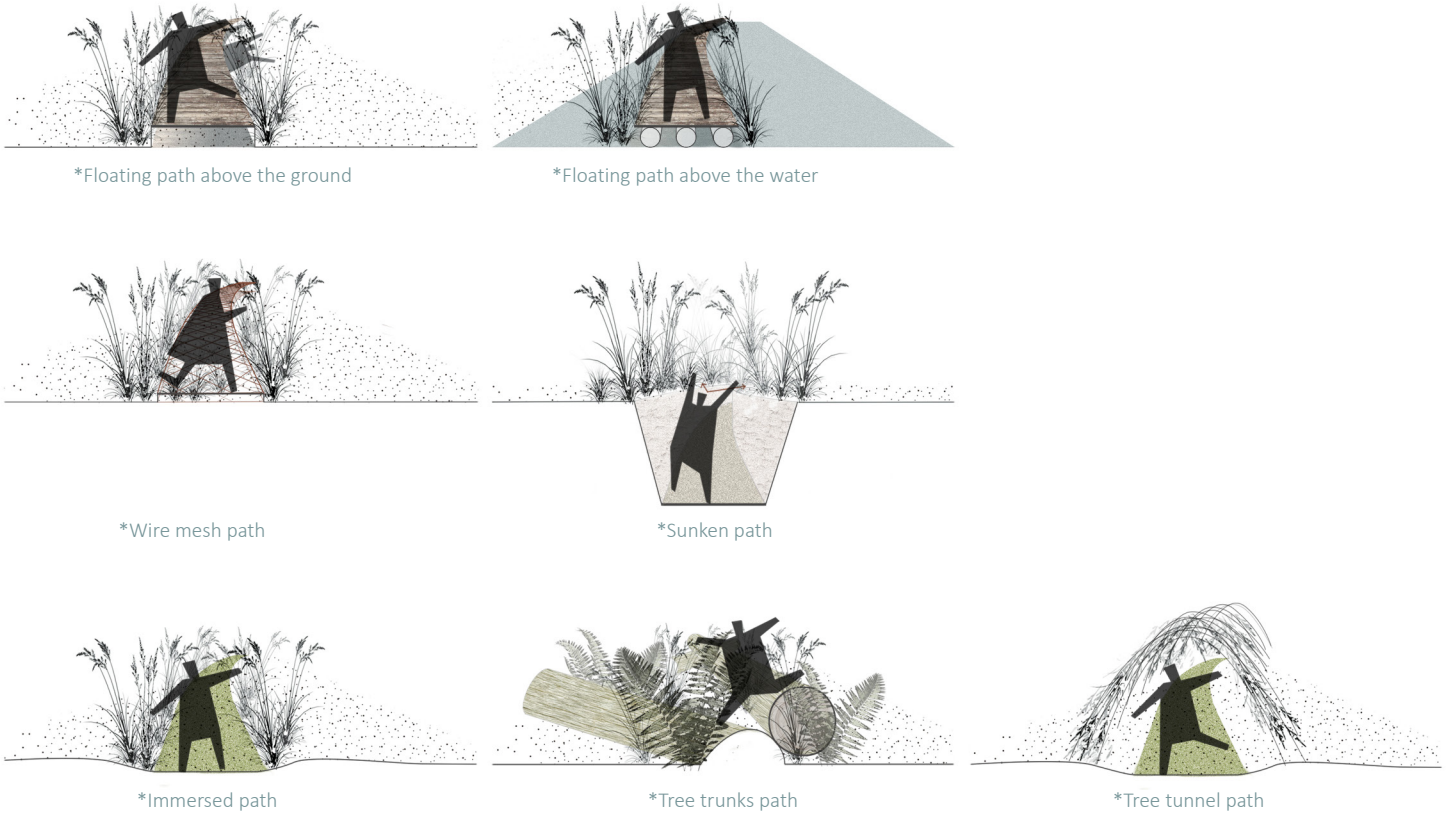


Figure 6.50: Different forms of path

Immersed path:- Immersed path: The path is separated just with different natural surface materials like low grasses, which means such kind of path is loosely defined and merged with surroundings. It again contributes to the freedom and open-endedness requirements of play space. The edges of path are blurred, therefore, it provides the hints for children that they can get over edges and

immerse themselves into surrounding long grasses. We can imagine that children conceal next to the path and wait to encounter unexpectedness or surprise other people.

Tree trunks path: Tree trunk path is integrated with other wildness features. As mentioned above, the small grove will be developed with a certain degree of clearing to make it more accessible. In this regard, many tree trunks are produced and reused as raw material of paths. The use of tree trunks increases the direct physical playfulness as children need to balance themselves during walking. In addition, such path is relatively loosely defined which means it can function both path and play space.

Tree tunnel path: Tunnel paths are designed on the southern part of the wasteland in which the existing small grove is remained. Taking advantage of dense trees and bushes, enclosed tunnels are settled in-between. Again, this kind of path highlights secrecy, unexpectedness as well as challenge in terms of play qualitative elements. Once inside, children have no idea where they are. Followed by sinuous path, they are finally leaded to the canal with suddenly open view. In addition, one tunnel path extends to the access of the site, toward the entrance of the apartment building to the

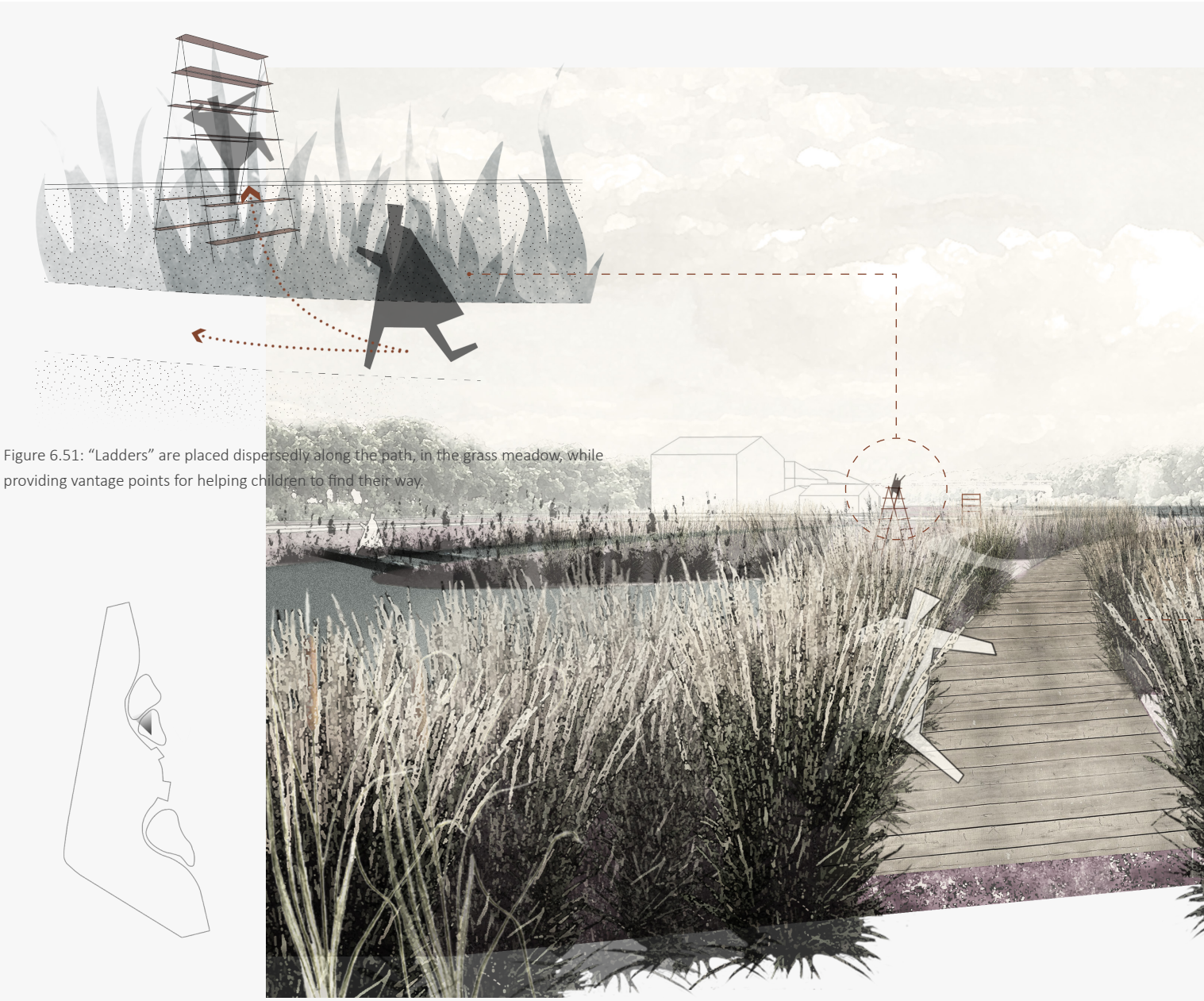


Figure 6.51: “Ladders” are placed dispersedly along the path, in the grass meadow, while providing vantage points for helping children to find their way.

south. The secrecy and unexpected destination provides invitations for children when passing by.

Besides, as can be seen from the masterplan, some of the paths are not continued. It means that this path can end abruptly and start somewhere else so that children are left to their own volition to find the connections and thus plan their own journey through landscapes. It is therefore increase the freedom and open-endedness of this play space.

III. Setting landmarks

Integrated with diverse path forms, a series of "landmarks" are designed in the site in order to contribute to the exploring and discovering atmosphere (Figure 6.51 and 6.52). The landmarks include varied forms: stairs along canal edge, ladders placed next to the path, and some pallets that children can adjust the height according to their own thoughts. In this regard, children will have their clear destinations during the movements and thus plan their own open-ended journey freely. Further, imagine if a child wants to access the "stair" (Figure 6.52) and selects his own route seemly leading to this landmark. However, after the sinuous moving with exploring, he might be taken to another landmark unexpectedly because of choosing the wrong path in the last intersection. Such

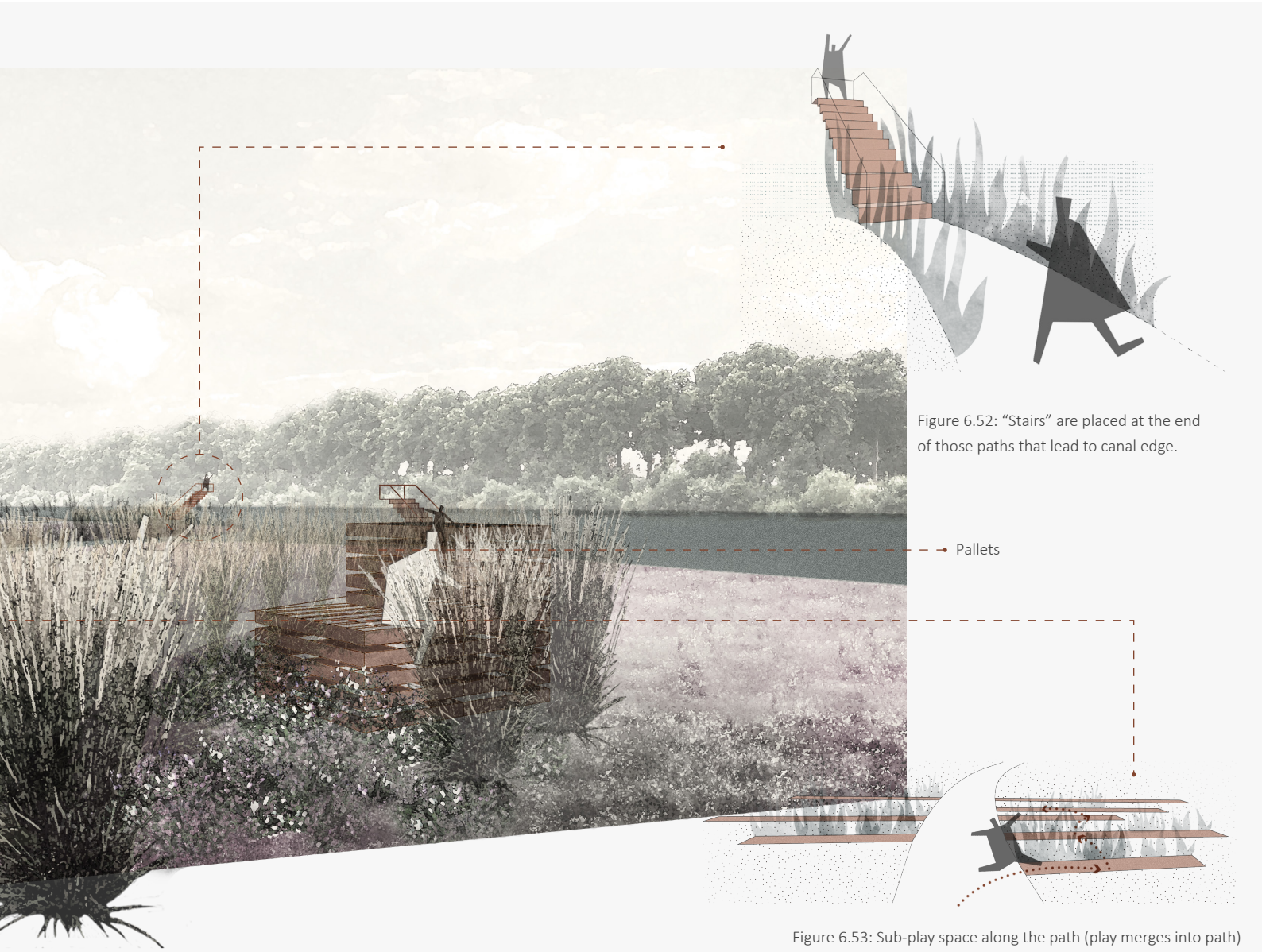


Figure 6.52: "Stairs" are placed at the end of those paths that lead to canal edge.

Figure 6.53: Sub-play space along the path (play merges into path)

Figure 6.54: Children follow the exploration path and immerse themselves in grassy sea

kind of experience again highlights the surprise and uncertainty quality of playfulness. At the same time, these landmarks provide vertical play spaces and offer vantage points for children, and help children retrieve their way when they really get lost.

IV. Floating swimming pool

The swimming pool (Figure 6.57) allows the possibility of indulging in wild swimming but in a safer manner. From eye level, it is also concealed behind reeds, which offers a special point during the exploratory movements. In addition, it is worth mentioning that many children also express their appreciation of swimming opportunities in play space (Figure 6.58).

V. Safety concern: intersections

From the masterplan, we can notice that many small tracks that connect wet and dry part actually across the new planned bike lane (Figure 6.55). Considering the use of high plants in this design, it may arise some safety problems if children suddenly rush out from thick grasses while cyclists do not notice them. In order to avoid such accidents, spaces around intersections are left relatively open, without any high vegetation (Figure 6.56).

Figure 6.55: Intersections that are considered in terms of safety

Figure 6.56: Panorama of intersection of bike lane and play path

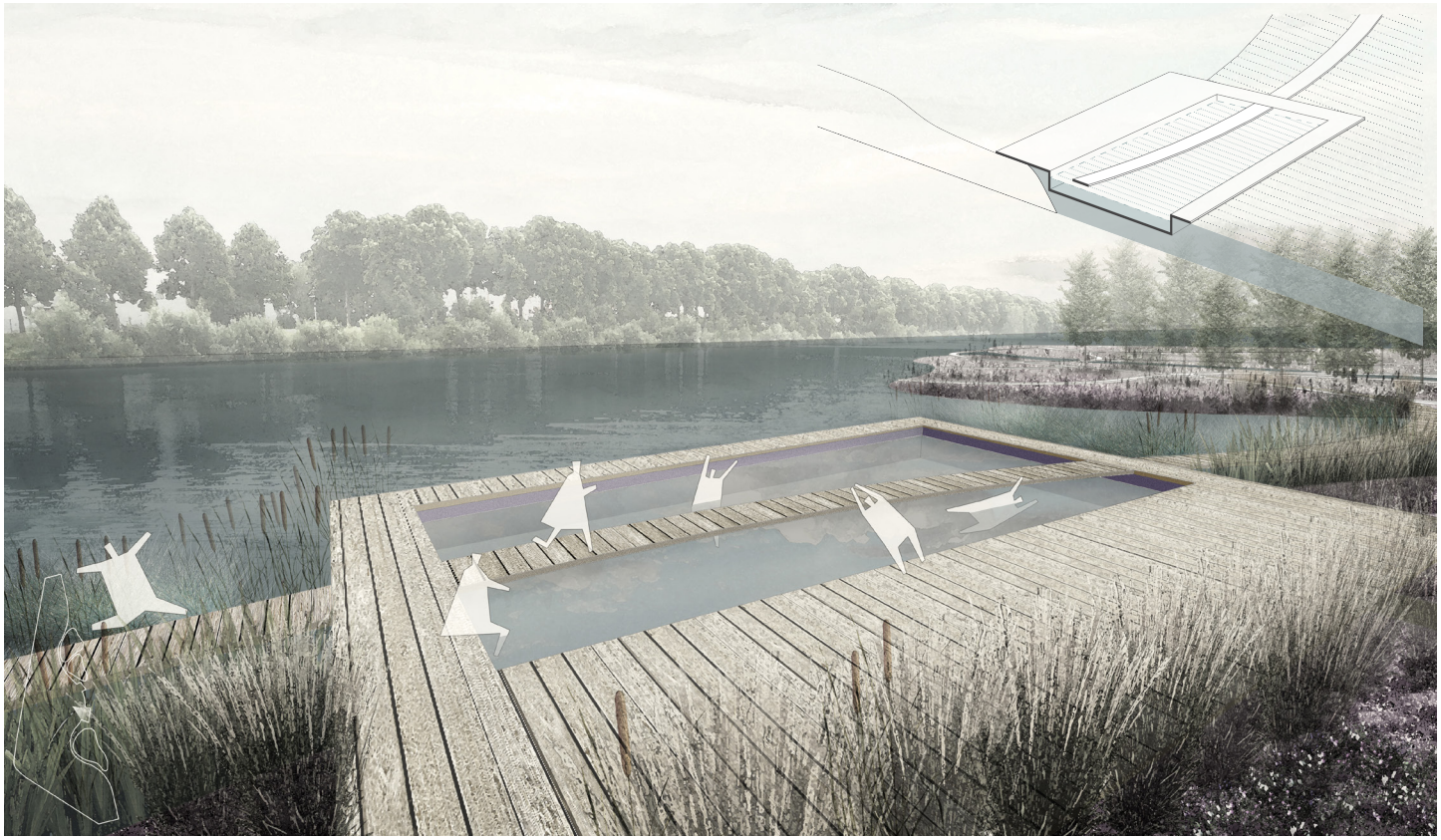


Figure 6.57: Wild swimming platform

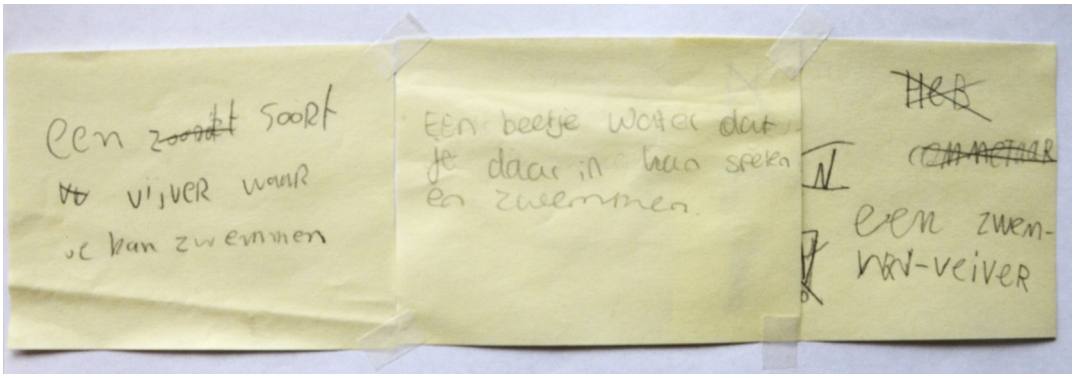


Figure 6.58: Examples of children's desires for swimming possibilities in play space

* Landscape features along the proposed pathway

Figure 6.59.1

Figure 6.59.2

Figure 6.59.3

Figure 6.59.4

* Design interventions that can enhance the safety, playfulness and recognisability of pathway

Figure 6.59.5

Figure 6.59.6

Linear elements could enhance the continuity of pathway.

Enclosed pathway next to the water. Design interventions resulted from 6.4 (chance play space) can be applied.

Figure 6.59.7
Provocative ground forms can be regarded as “obstacles“ along the path and increase playfulness (challenges).

Figure 6.59.8
Striking pavement patterns in crossroads could contribute to a safer waking environment.

Figure 6.59.9
Special play elements repeats along the path.

Figure 6.59: Proposed children’s pathway connecting site one and site two

6.5 Children's pathway: connecting site one and site two

*Freedom and open-endedness/

*Secrecy and demystifying/

*Surprise and unexpectedness/

*Transgression and risks/

*Fantasy/

*Multi-senses

As mentioned in 6.1, the designs of sites Uilenbosje and a piece of wasteland by the canal will be incorporated with the design of children's pathway, in order to represent the detailed design of vision plan of wild play network. The vital requirements of the children's pathway are recognisability, safety and playfulness. In the light of these requirements, the planned pathway between two sites overlaps with the historical lane that uses as pedestrian route now, which separates children from cars and bicycles (Figure 6.59). The proposed pathway is flanked by row of trees which are regarded as the most characteristic and continuous elements define the pathway. The high historical trees possess wide crowns that form a closed canopy over the pathway (Figure 6.59.1 and Figure 6.59.3). These tall and straight trees emphasize the sense of verticality and will be remained as the dominant elements while additional consideration is going to be placed along the path under the canopy to emphasize the continuity at horizontal level.

As shown in Figure 6.59.5 and 6.59.6, linear elements such as a small ribbon of water waving along or across the pathway and narrow trail that implies the direction are possible interventions to make children's pathway more recognizable. At the same time, as can be seen from plan, part of the pathway is next to water spaces. In this regard, children's interactions with water are considered. Banks along the pathway is softer and more accessible while the pathway itself is enclosed by riparian vegetation that stimulate secrecy and the sense of exploration related to chance play space designed in detail in 6.4. In addition, striking pavement pattern like Figure 6.59.8 can be applied in intersections to warn and slow down drivers to create safer rambling environment.

6.6 Conclusions of design

To sum up, by utilising and testing different play space typologies derived from research in case Dukenburg, children's playful engagement with wildness is facilitated in two following ways: (1) highlighting the sense of adventurous and exaggerating bodily experience with the wild nature; (2) increasing the sense of secrecy and mystery in children's immediate landscape. On the one hand, from the design of site one, we can assume that integrating adventurous and challenging play activities into wild nature spaces could decrease the fear of wildness and thus attract children's involvements. Wild nature space like forest or other overgrown nature space is prone to present a dark image because of its extremely dense vegetation and high unpredictability. However, the incorporating physically vertigo activities on the basis of existing landscape could activate the whole space and decrease possible fears.

On the other hand, site two which represents different wildness offers the other way to facilitate children's play activities with the natural world. Instead of erasing, such kind of disused wasteland can be kept with its rough characteristics. In this regard, the chance space prototype is tested as the most suitable one. By introducing various wild grasses and flowers, together with interventions to create secret and mysterious feelings of the landscape, children are stimulated to explore and

	Site one: Uilenbosje	Site two: wasteland by the canal
Current condition	Forest/wild nature	Disused and rough ground
Implemented wild space type	Vertigo play space	Chance play space
Dominant experience created by design	The sense of exaggerated bodily experience	The sense of secrecy and mystery
Relationship with the landscape	Competing with the landscape to challenge oneself	Exploring and discovering the landscape

Table 6.1: Comparative analysis of design results of two sites

discovery the outdoor environment. Further, ecological diversity will be enhanced at the same time. In brief, the design solution of site two is a sustainable way in terms of both recreation and ecology aspects.

It can be imagined that many critics that would be pointed out by parents are safety issues. Particularly in the design one, the main design intervention is related to creating vertiginous experiences. Such challenging and risk-taking activities are accompanied by dangers without doubt. However, again they are also regarded as effective ways for children to learn and manage dangers. At the same time, some ways to mitigate risks are considered, for example, nets are layered to avoid children falling down from high net while material of ground surface under the net is softer.

EVALUATION

This chapter is aims to review this study by reflecting upon research and design process, including significance as well as limitations. In the end, research and design questions will be answered.

7.1 Discussion

7.2 Recommendations

7.3 Conclusions

7

7.1 Discussion

7.1.1 Significance of this study

Although the importance of children's play with wildness or nature is continuously highlighted, most of them are in the form of theme park, which is relatively far away from children's immediate environment. Children still play in traditional - standardized and separated playgrounds in their neighbourhoods. In order to optimise children's playful engagement with outdoor environment and offset the functionalism concept concerning the design of recreational functions of much suburban residential areas, this study provides approaches to regard wildness and rough up suburban green spaces as play spaces to return children to play in a larger scale and more natural world without many spatial or social restrictions. Academically, this study contributes to respond to current trends on improving children's play spaces by developing wildness landscapes in the neighbourhood and excavating playful possibilities of spatial arrangements rather than stereotypically improving playgrounds' quantities and qualities. What's more, the research results are tested in Dukenburg, one of the representative post-war suburban districts. Since there are many cities in the Netherlands share comparable neighbourhoods, the outcomes of this study can be applicable to other neighbourhoods to enhance better play qualities as well.

7.1.2 Reflections upon the research process and methods

I. Literature review and landscape analysis

For the research part, it mainly consists of two sections: theoretical understanding of the notion of play and wildness, and landscape analysis of test case. The literature research about play, especially stimulations of play experience from fundamental theories provides me with comprehensive insight regarding this topic and basis for the spatial visualizing play in the later stage. Moreover, by comparatively analysing all the essential elements and stimulations of play extracted from different theories in a range of fields including psychological behaviour and cultural study, the final distilled qualitative elements of play offer more integral result. Similar comparative analysis has also been used to categorise abstract play types. In this way, a better understanding of the abstract typologies of physical play activities was acknowledged. In terms of wildness, not only literature review was conducted, but also reference projects were discussed which offers more helpful implications for this design assignment. Besides, the landscape analysis is focused on the current playability of test case by using NOP-model as examining tool. And before the use of this model, the suitability of it has been already discussed. To conclude, the most useful information in this study was gained from literature, precedent studies, and spatial analysis of the site, which developed a comprehensive theoretical basis for further design research part.

II. Qualitative elements of playfulness

Play is quite abstract and hard to be given a definition. In this study, by theorizing the notion of play and children's play more specifically, characteristics and external stimulus dimensions of play has been extracted and regulated as the essential qualitative elements of play by the comparative analysis of different results from different researches. These qualitative elements answer the question of what are essential aspects to say a place is playful. Therefore, they can be regarded as qualitative evaluation tool to examine the playfulness of certain place. Based on these qualitative elements of play, certain design tools and spatial arrangements were extracted, which has been applied as basis of design language for design play spaces or stimulate playful experiences in this study.

III. A typology of play space forms

It is already proved that certain play types are linked to corresponding play space. Therefore, in order to design play space it is necessary to acknowledge children's play types. However, the previous defined play types are either too broad or too cumbersome. In this regard, this study re-

categorised the play types into a more systematic and comprehensive way firstly. With this new category in mind, a typology of play space types is created and imbued corresponding characteristics of certain play types. In this study, wildness is taken as the precise of play space, by the combination of wildness features that afford and stimulate play, certain wild play space types are categorised and used as the spatial prototypes for design part.

7.1.3 Reflections upon the design process and results

I. Reflection on the project

Dukenburg is a typical post-war suburban neighbourhood dominated by functionalism concept, in which live, work and recreation (play) functions are clearly split up into different zones. Since the current green spaces is planned to be renovated, it seems there is much potential to make existing green spaces more multifunctional. In this study, play is regarded as the catalyst to be taken into consideration to activate all these mono-functional and monotonous green spaces and offset functionalism. At the same time, the current municipality green plan turned out to separate recreation and ecology into different zone, while this study provides possible integration of recreation with ecology. The integration of play with wildness (ecology perspective) seems to provide a more child-sustainable and ecology-sustainable solution. As mentioned above, the general problems of green spaces in Dukenburg are related to two aspects: lack of differentiation and lack of consistency. And the new wild play space network (Chapater 5.4) indeed offers solutions to deal with these two problems. On the one hand, abundant greenery is accentuated by attaching the green more active and varied role (different wild space types in relation to distinctiveness of the place). On the other hand, wild play network and the combination of children's pathway and play destinations link the whole green structure in the district consistently.

Currently, Dukenburg has the intention to increase informal, free play opportunities for its young citizens. Although not conducted by the practical design assignment proposed by Dukenburg, the results of this study however turned out to be informative for future development. Moreover, Dukenburg is not a special case, many comparable post-war suburban districts in the Netherlands planned by the modernism approach can be found. The similarities among them are expansive greenery but useless and children have nothing to do with these green spaces. The outcomes are therefore also applicable to these neighbourhoods.

II. Comparing with the original NOP-model

Looking at the vision plan of play (Chapter 5.4), the proposed wild play network is planned based on the NOP-model. NOP-model, as the approach to appraise the playability of certain district and neighbourhood has been developed thoroughly by previous studies (Bakker and Fähnrich, 2008; van den Berg, 2013). However, because of different neighbourhood characteristics, target group and specific wildness setting in this study, some adjustments are conducted when using this model as the framework for design at the district level. And these adjustments can be regarded as the supplement of NOP-model for creating wild play opportunities.

If we use NOP-model criteria to analyse, we can say this study focuses mainly on the quality of play and landscape use of the play space. In this study, the quality of play can be regarded as the qualitative elements of playfulness while landscape use is seen as wildness attributes. At the same time, if we review the vision plan of play, this study attach the importance of pathway in-between play spaces and points out the merging of pathway and secondary play places. In this regard, pathway is not only functioning as channels but also linear places in such suburb context with abundant of green spaces. To sum up, this study provides a further dimension on the basis of NOP-model.

III. Taking safety issues into consideration

Risks and safety are equally weighted in this study. For the vision plan of play, children's pathway is considered to be separated from cyclist route. Further, the way of treating linear green spaces as the path to a large extend decreases the possible problems caused by motorized traffic or other cyclists.

In terms of the design at place scale in two sites, safety has also been taken into account. In the design of Uilenbosje, by over-layering different height levels of nets and covering ground with thick layer of soft tree bark chip, the possible injuries from falling down can be decreased. At the same time, in the design of wasteland by the canal, in order to avoid possible accidents, spaces around intersections between play paths and bike lane are left relatively open, without any high plants. By doing so, cyclist has more open view and is able to aware of the suddenly rushed out children from play path.

IV. Life-cycle of district and specific age group

Long-term maintenance and sustainability are also important considering aspects in the design process. In this regard, compared with standardized and restricted playgrounds, wildness play spaces are more child-sustainable and ecology-sustainable concerning life-cycle of the district. Children are developing but instrumental playgrounds are fixed, thus play objects will be easily out of style and abandoned by children. However, wildness play spaces are dynamic, ever-changing and always providing different possibilities. Even not used by children, they can still function well in terms of ecological perspective.

V. Age related preference of play space

As mentioned in design evaluation part, result of children's selection of design scenarios (Chapter 6.3.3 and 6.4.4) specifically represents the play preferences of children in middle childhood. It was assumed that creation space scenario would be appreciated by children while the truth is that it is the last choice from children's perspective in both sites. Compared with flowing space and creation space, children in this age period show greater excitement towards vertigo space and chance space particularly. It can be explained by the distinctiveness of middle childhood period, when they are fond of in search of new experiences they have not tried before, taking adventures and showing competences while flowing play space and creation emphasize on creating more mild and comfort play experiences.

VI. Limitation

The final designs of two sites are developed on the basis of children's selection. As discussed above, the limitation is reflected on the different living environment of evaluators. Although there are many similarities, play culture may differ in these two districts thus influence the reliability of selecting results. At the same time, young children's limited on understanding of different play space scenarios is another aspect.

7.2 Recommendations

7.2.1 Play with wildness goes beyond direct interaction

This study researches the way to optimize children's engagement with nature by direct and physical play activities. Further study can be done to explore indirect or vicarious interaction with wildness. Also the possible results will contribute to a comprehensive understanding of interaction between children and wildness.

7.2.2 Play goes beyond children

Play is not only child stuff. In this regard, the six groups of qualitative elements extracted not only

from theories of children play, but more integral perspective. The results therefore include more comprehensive insight about play, it could be also applicable for different groups of people or different contexts as quality evaluation tool and guiding principles.

7.3 Conclusions

The purpose of this study is to provide the possible ways in which wildness can be combined with playful qualities and integrated into the green structure of the residential areas to optimize children's play experiences in everyday environment. In order to achieve this purpose, the concept of play and wildness create the theoretical framework while Dukenburg as a representative post-war suburb district is used as the example to test research findings.

SRQ1: What qualitative elements of playfulness can be extracted based on the nature of play?
By comparative analysing characteristics of play and stimulations of playful experiences from fundamental theories of play, freedom and open-endedness, secrecy and demystifying, surprise and unexpectedness, transgression and risks, fantasy, and sensation are six groups of qualitative elements extracted and emphasize on stimulating playful experiences (Chapter 2.1). These concluded qualitative elements can function as both design criteria to increase the degree of playfulness and qualitative evaluation tool for designs.

SRQ2: What attributes of wildness would afford and promote children's play in their middle childhood?
In general, wildness meets children's desire for transgression with its open for transformation characteristics. Moreover, wild spaces are ever-changing compared with traditional green spaces or standardized playgrounds which offer indeterminacy for play. Most importantly, wildness is more adaptable and resilient that can absorb chaos and dirtiness resulted from free play. More specifically, the mystery of wildness, the secrecy of wildness, its material attraction and roughness contribute to certain play space types.

SRQ3: How these qualitative elements can be interpreted into spatial elements to afford different forms of play combined with wildness?
Those six groups of qualitative elements are further interpreted into spatial elements of play via certain design tools. The results imbue the physical spaces with the same notion of these essential elements found in theory and can perform as the basis for designing play spaces from landscape and architectonic perspective. These spatial arrangements focus on the place scale and can be regarded as the complement of current study of play space which focuses on the landscape use from a smaller scale perspective. It is also possible to add these spatial elements to NOP-model as extra principles or criteria to check the playability of designed play spaces. Also, these qualitative elements express themselves in specific emphasis and combination through four different play space types.

It has been approved that particular types of play are linked to special places and landscape elements. Therefore, in this study the connection between particular types of play and corresponding play space are further established. A typology of play space forms includes flowing play space, vertigo play space, chance play space and creation play space. Corresponding to different physical play activity types, these four wild play space types have different emphasis with respect to spatial characteristics, dominant spatial experiences and use of wild features. Together with collages illustrated (Chapter 4.2), these wild play space types constitute comprehensive design prototypes for wild play on the place scale. In short, flowing play space expresses children following the space but also inspire new movement opportunities. Vertigo play space offer children place to compete with the space and test their body limits and thus fulfil their desires for risks and challenges. Chance

play space mainly inspires exploration and discovery of space by increasing the sense of secrecy and mystery of the landscape. Lastly, creation play space emphasizes on the materiality aspect while encouraging children to transform spaces to create their own special places. Design tools and spatial elements extracted are utilized in each type. Although abstract, the typology of play space types perform as the prototypes for designing.

DQ: How to facilitate children's playful engagement with the wildness in suburban neighbourhoods?

By utilising and testing these different landscape spaces in the selection sites in Dukenburg at the place scale, children's playful engagement with wildness is facilitated in two following ways: (1) highlighting the sense of adventurous and exaggerating bodily experience with the wild nature; (2) increasing the sense of secrecy and mystery in children's immediate landscape. On the one hand, wild nature space like forest or other overgrown nature space is prone to present a dark image because of its extremely dense vegetation and high unpredictability. However, the introduction of physically vertigo activities on the basis of existing landscape could activate the whole space and decrease possible fears. On the other hand, disused wasteland like site two which represents different wildness offers the other way to optimize children's play activities with the natural world. Its rough characteristics ought to be remained and regarded as the starting point of creating playful atmosphere. By introducing various wild grasses and flowers, together with interventions to create secret and mysterious feelings of the landscape, children are stimulated to explore and discovery the outdoor environment.

Further, from the perspective of whole district, a wild play network is connected based on the exiting green structure. As a district planned by the functionalism concept, live and play (recreation) functions are split up into different zones. The result is current more natural play experiences is secluded in Staddijk while other part of the district only offer standardized play opportunities for children. By building up a new wild play network based on existing green structure, previously separated placements of functions are integrated. Play becomes the primary language for the engagement of children in remaking public landscapes.

MRQ: What characteristics of green spaces can be combined with playfulness and wildness and would facilitate playful experience for children?

To sum up, the inclusion of a certain wildness in planning and designing green spaces of neighbourhood is influential, combining with careful consideration of spatial elements from play perspective, it will provides more opportunities for children's engagement with outdoor environment.

A space that can stimulate play experiences should includes essential elements include freedom and open-endedness, secrecy and demystifying, surprise and unexpectedness, transgression and risks, fantasy, and multi-senses. Different emphasis of these essential qualities of play would comprise different types of play space, which afford different physical play types. Taking into wildness context into consideration, children's playful experiences can be facilitated mainly in two ways: (1) highlighting the sense of adventurous and exaggerating bodily experience with the wild nature; (2) increasing the sense of secrecy and mystery in children's immediate landscape. Corresponding to different wildness characteristics and affordances of different play activities, these two approaches are influential on facilitating children's playful interaction with the natural world.

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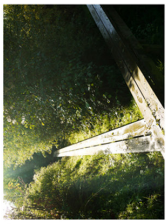
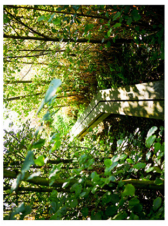
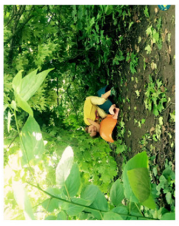
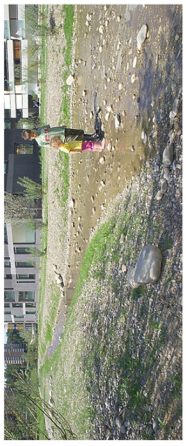
List of figures

APPENDIX

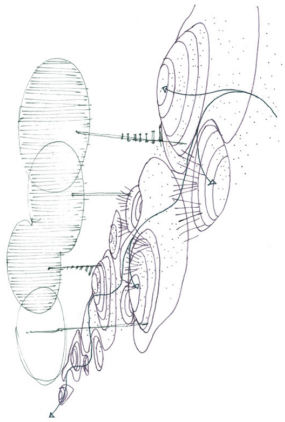
Scenarios package (masterplan, sketches and reference images) for vote by children

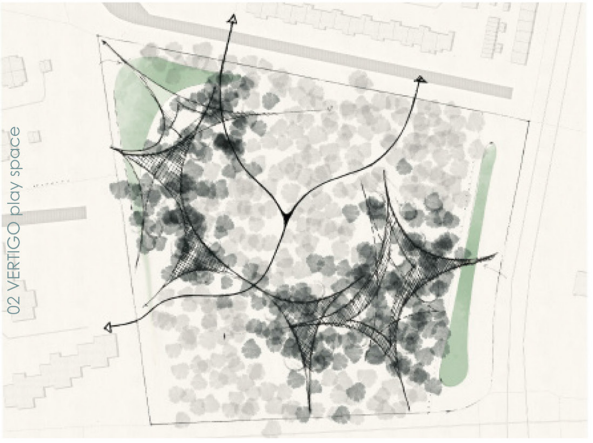






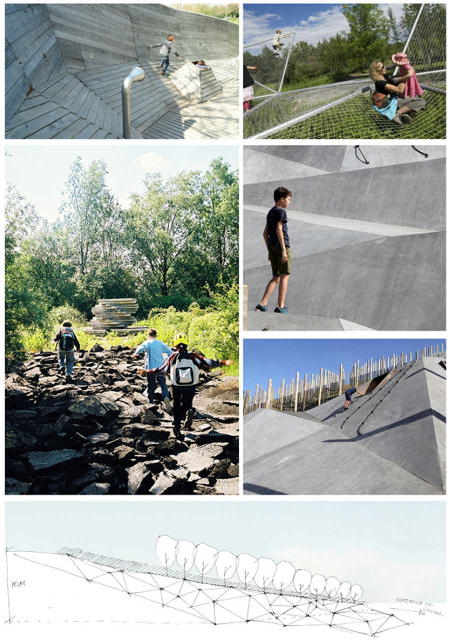







01 FLOWING play space
Platforms
Puddles
Mounds


02 VERTIGO play space




03 CHANGE play space
Floating pool (wild swimming)
Floating path


04 CREATION play space
Stones
Watercourse
Sand/mud piles

Children are ought to be wild ...