From Cremation to Co-creation: Archaeology as inspiration for the development of the residential area Berk&Hout, Tilburg

Tenhagen, Maaike

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M. C. A. Tenhagen

Figures frontpage: M. Tenhagen

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Universiteit Leiden

TUDelft
Delft University of Technology

Commissioned by

Archol

Maaike Carlijn Anne-Wil Tenhagen (s1649795)

Graduation Project Master Applied Archaeology (1084VTMAW)

Supervisor: Dr. R. Jansen and Dr. Ir. G.A. Verschuure-Stuip

Leiden University, Faculty of Archaeology and Delft University of Technology,

Faculty of Architecture and the Built Environment

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1. Introduction

1.1. Motivation and hypothesis

Since the Malta Convention (1992), public outreach is slowly becoming an integral part of present-day archaeological research in the Netherlands (De Groot 2017, 10; Jansen 2021, 292-295). It is more and more common to organise activities to involve the public during archaeological excavations such as open days, offering the opportunity to participate in the excavation or to invite school classes. But within public archaeology, the role of the public is often times passive since public outreach generally has a temporary character and consists of an one-way communication where the archaeologist is telling their story (Van den Dries 2012, 211-212). Presently, public archaeology is developing to a more participating and democratic character (Jansen 2021, 293-295). At the same time archaeological heritage has become a part of spatial planning and is expected to improve spatial quality (Teters 2013, 25) so we can ask the question whether the results and resulting stories of archaeological research can become a part of development in a more sustainable manner. "There is, however, still a need to better understand what the public benefits of archaeology exactly are or *can* be, and how to generate such benefits in a development-led daily practice" (Van den Dries 2021). Based on earlier examples, I will explore the possibilities of implementing archaeology within co-creation projects based on the new spatial urban plan for *Berk&Hout* in Tilburg-Udenhout. Based on the scientific results of the excavation and co-creation I will 'design with archaeology'.

The research of this graduation project is based on the hypothesis that co-creation and integration of archaeological heritage in the public space will be relevant for the future of archaeology. A functional approach to the use of heritage as resource and implementation of archaeology in our current landscape. To present, or even confront, people with archaeological heritage in their daily environment. "The public has a great interest in these matters and has had for many years. Nevertheless, the public interest must be nurtured and expanded" (Council of Europe 1992b, 8). I believe heritage has the power to give meaning to a place and transform it into a space.
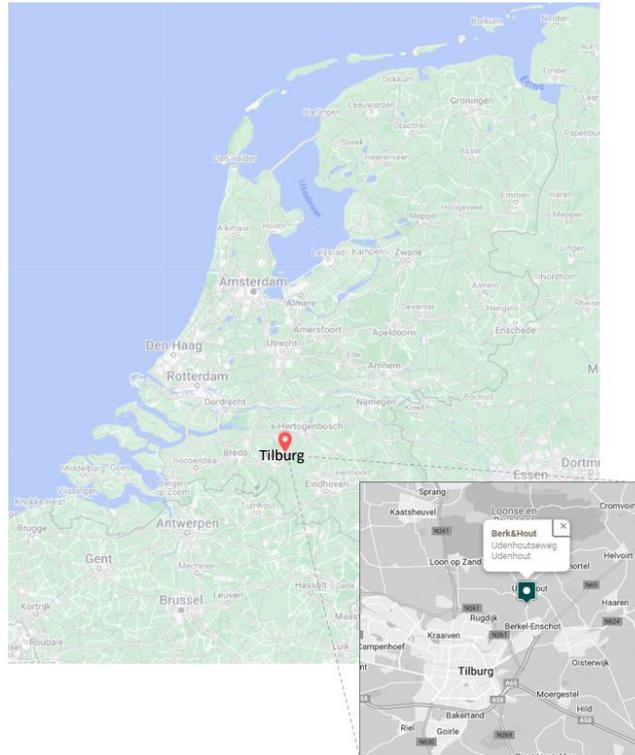
Figure 1. *Location of the Berk&Hout project in the Netherlands (after maps.google.nl).*

1.2. Research aim and questions

The project revolves around the co-creation project '*Berk&Hout*' on the boundary of Tilburg and Udenhout, the Netherlands (fig. 1). There are plans by Triborgh Gebiedsontwikkelingen for this location to develop a new residential area with the name '*Berk&Hout*'. The aim of this project is to carry out research by design to explore the possibilities of co-creation projects for archaeology. By implementing theoretical observations concerning public archaeology and 'archaeological awareness', and applying designing with archaeology to a real case study; the excavation of a Late Bronze Age/ Early Iron Age urnfield and the consequential development of a new housing area. Three different designs will be suggested, which can function as inspiration on how to implement archaeological heritage in the new *Berk&Hout* residential area.

This has led to the following questions:

- How is co-creation defined and what does this signify for citizen participation and archaeological heritage?
- Which treaties are relevant to co-creation and archaeological heritage and what do they mention in their documents in regards to public archaeology, archaeological awareness of a site and (urban) planning and/or development?

- What can be concluded on how archaeological heritage is recently implemented in the public space within the Netherlands and neighbouring countries based on five case studies? How were stakeholders involved in the projects?
- Which opportunities offer the plans for the development of the residential area *Berk&Hout* with regards to the architecture and design?
- What are the results of the archaeological research in Tilburg-Udenhout – *Berk&Hout*?
- Which stakeholders are involved in the *Berk&Hout* project and what are their opinions on the archaeological research and the potential implementation of archaeological heritage in their new neighbourhood?
- Which scenarios can be suggested for the implementation of archaeological heritage in the co-creation project of the residential area in Tilburg-Udenhout – *Berk&Hout*?

1.3. Methodology and reading guide

The methodology will consist of three elements: 1) A literature study of two European legislations related to archaeological heritage and co-creation, 2) the study of five projects where archaeological heritage was implemented in a public space within the Netherlands and neighbouring countries and 3) the analysis of the plans, archaeological research and involvement of the stakeholders within the *Berk&Hout* project. Elements 1 and 2 are discussed in chapters 2 and 3 and form the first part of this project: the framework. Element 3 is addressed in chapters 4, 5 and 6 and form the second part of this paper where the focus is solely on the *Berk&Hout* project. This will lead to the creation of three infographics on possible implementations of archaeological heritage in the *Berk&Hout* area based on the scientific results of the excavation that was executed beforehand. The project thus will be structured in three parts:

Part 1 – Framework (chapter 2 and 3)

In the first chapters the theoretical and methodological framework is defined. After explaining the concepts of co-creation and the ladder of citizen participation, it will include two treaties concerning archaeological heritage in Europe (the Malta convention and the Faro convention) that were drawn up by the Council of Europe. Subsequently, the focus will shift to the application and use in the field of designing with archaeology

by exploring five projects in the Netherlands and neighbouring countries where archaeological heritage was implemented in a public space. This contributes to the study on how public archaeology aspects in both treaties are, and can, be realised in the field.

Part 2 – Co-creation in Berk&Hout (chapter 4, 5 and 6)

In the second part, the paper focusses on the *Berk&Hout* project. The spatial and architectural designs of the new neighbourhood by the developing company and the (preliminary) results of the archaeological research by Archol will be analysed to create insight into the existing plans and possibilities for designing with archaeology. In the addition, the results from a stakeholder analysis that was done as part of an internship previous to this paper will be studied and summarized. It is important that the visions and expectations of the stakeholders are included in the designs for implementation of the archaeological heritage.

Part 3 – Designing with archaeology in Berk&Hout (chapter 7)

In the last part, the emphasis is on *Berk&Hout* and the implementation of its archaeological heritage. Three plans are proposed on how the archaeological heritage can be integrated in the area and these will be visualized in functional drawings (infographics). The three plans can function as inspiration for Archol, Triborgh Gebiedsontwikkelingen and the municipality of Tilburg as to how the results of the archaeological excavation and the archaeological narrative of this location could be implemented in the new residential landscape of Tilburg-Udenhout – *Berk&Hout*: Telling the story about the earlier occupants of this area, some 3000 years earlier, by using the past to give meaning to a place - a new and still characterless residential area - and transform it into a space.

Part 1 - Theoretical framework

2. Theoretical framework

The framework of this project includes the definition of public archaeology and co-creation, including its possibilities for the archaeological field and what this signifies for citizen participation. Then, the focus is shifted towards two treaties concerning archaeological heritage, that were drawn up by the Council of Europe: the Malta convention (1992) and the Faro convention (2005). These two treaties were chosen based on their critical role in the development of aforementioned concepts of participation of the public in heritage and co-creation in projects that involve archaeology.

2.1. Public archaeology, co-creation and the ladder of citizen participation

Co-creation is a phenomenon that, amongst many other fields of expertise, offers opportunities for public archaeology.

2.1.1. Public archaeology

Public archaeology, also known under many other names such as applied archaeology, public outreach and community archaeology, is "any endeavor in which archaeologists interact with the public and any research (practical or theoretical) that examines or analyses the public dimensions of doing archaeology" (McDavid 2012, 12). The term 'public archaeology' was first introduced in the 1970's by American archaeologist McGimsey (1972). In his publication he advocated for communication with the public that was educational in character, to assure engagement and knowledge of the public and in order for them to value archaeological heritage and ensure its protection for future generations (McGimsey 1972). Presently, public archaeology is defined more in general terms as can be seen by the definition of McDavid earlier. It entails a broad spectrum of involvement and participation between the public and the archaeological discipline. This interaction with the public can be differentiated in three ways: *on behalf of the public* where the public's interest is represented by the archaeologists, *for the public* where the public's interest is considered by communicating the results from research to the public or *by the public* where the public's interest is facilitated by including them in the research and interpretation of their 'own' past (Van den Dries 2012, 210).

2.1.2. Co-creation

Co-creation is defined as "programs in which communities work together with institutional staff members from the beginning of the project to define the project's goals and generate the program based on community interests" (Bollwerk *et al*. 2015, 181). This means that in archaeology related projects in which co-creation plays a role, all stakeholders must be given the ability to not only influence but define the process and outcome of that project. It is important in these projects that power is equally shared and that multiple expertise and insights are joined in the project in such a way that the needs of both the community and experts are conveyed (Bollwerk *et al.* 2015, 181). The idea of co-creation within archaeology relates to the decentering process of the authority of the archaeologist when it comes to decision-making; a *by the public* approach. The aim of co-creation in the heritage field is to work together with communities in planning, executing, analyzing, interpreting and presenting archaeological research in order to ensure the protection of archaeological heritage and to establish community building (Bollwerk *et al.* 2015, 183-184).

2.1.3. The Ladder of Citizen Participation

Co-creation is currently seen as one of the highest goals on the adapted *ladder of citizen participation*. In a highly influential article by Arnstein (1969), she suggested that there are different levels of public participation within governance. The involvement of citizens go from nonparticipation like manipulation, to degrees of tokenism such as informing and consultation, to ultimately degrees of citizen power by means of partnership or citizen control (Arnstein 1969). In the latest adaptation of the ladder of citizen participation (July 2022) by URBACT, an European exchange and learning program which focuses on sustainable urban development connected to the European Union, co-creation and co-decision are placed as the highest goals of citizen participation at present (fig. 2) (www.urbact.eu). Co-creation and co-decision are seen as the step in the right direction towards citizen control, the ultimate step in which citizens are in full control of power and decision.

The ladder of citizen participation starts with the lowest step called *information*, in which citizens are being informed on plans without any room for feedback. Decisions were already made and are simply shared. The next step would be that of *consultation*, where the plans are presented to citizens in order to collect their views on the plans. Only in the next step, *concertation*, the views of stakeholders have a potential influence

on the plans and may change the original plans by being incorporated. It is with *co-creation* that citizens are invited to create the plan and make decisions from the start together with all stakeholders. This way, co-creation is a way of ensuring that "policies are made with active participation of multiple voices" (www.urbact.eu). Together with *co-decision*, where stakeholders can also make the final decisions, it is seen as the progress that is needed to go towards the highest level: *citizen control*.
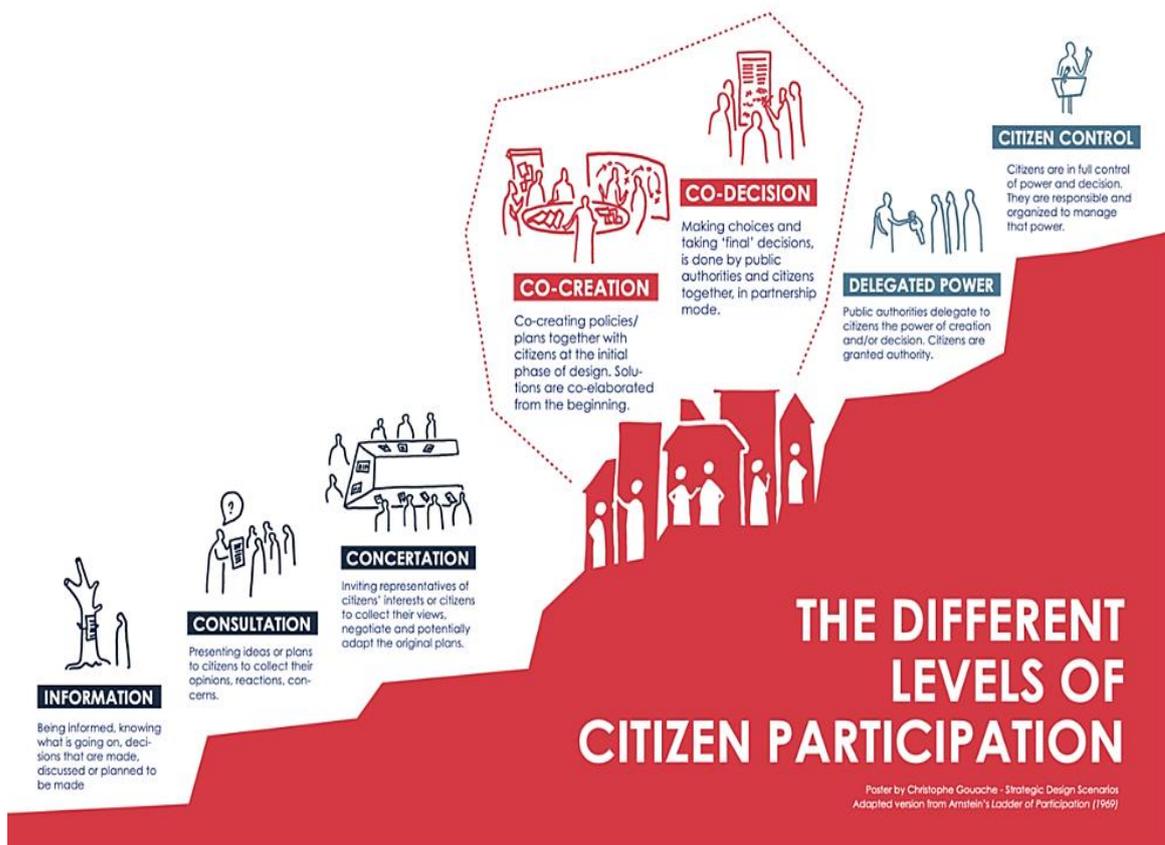
Figure 2. Adapted ladder of citizen participation with co-creation as one of its highest goals (www.urbact.eu).

2.2. The Malta convention

The Malta convention, also known as the Valetta Treaty or Valetta convention, is important for this paper since it regulates the protection of archaeological heritage in Europe. The Malta convention plays an essential role in the development of archaeological heritage and the role of archaeologists within development-led projects. Due to the convention efforts are made to protect, conserve and enhance sites regarding archaeological heritage. It advocates for co-operation among archaeologists and the town and/or regional planners to protect the archaeological heritage as much as

possible. Other goals concern public access to archaeological sites and raising public awareness of the value that archaeological sites encompass (Council of Europe 1992a, 5). The Malta convention became effective in the Dutch legislations in 2007 (wetten.overheid.nl).

2.2.1. Integrated conservation

The first relevant article in the Malta convention, article 5, focuses on the interaction between development projects and the preservation of the archaeological heritage. It is required by law that archaeologists are involved in the planning process and that both the archaeologists and (town and/or regional) planners will work closely together, keeping each other informed of their progress throughout the various stages of development schemes (Council of Europe 1992a, 3-4; Council of Europe 1992b, 5-6). Depending on the circumstances, it is preferred a site is preserved 1) *in situ* as much as achievable. If this is not feasible another option is to excavate a site and thus, by recording it for future research, preserving it 2) *ex situ*. After the excavation the remains can be covered over by a protective layer so that development can take place on top of it. In other instances a site can be 3) public access (Council of Europe 1992a, 4; Council of Europe 1992b, 6). In the Netherlands, the 'disturber' of the archaeological remains has an obligation to examine an area before development. This means that those responsible for the development project are held accountable for the funding of archaeological research that is deemed necessary (wetten.overheid.nl). In practice, the disturber usually does not benefit from this obligation. This leads archaeologists to think about the socially added value of archaeological fieldwork and if the stories resulting from archaeological research can become a part of development in a more sustainable manner (Teters 2013; Willems 2014, 151).

In the fifth paragraph of article 5 it is stated that the Convention recognizes the right of the public to access an archaeological site, as long as it will not intervene with the scientific character of the excavation (Council of Europe 1992a, 4). "Whatever arrangements are made for the public access, they have to take account of that character" (Council of Europe 1992b, 6). These goals for integrated conservation made that archaeological research is now mandatory and thus laid a foundation for the involvement of archaeologists within development projects as well as the establishment of focus on the accessibility of an archaeological site.

2.2.2. Promotion of public awareness

Public awareness and archaeological heritage are linked together in the ninth article. Paragraph *i* of the Malta convention refers to "the crucial problem of public awareness" (Council of Europe 1992b, 8), stating that "Each Party undertakes to conduct educational actions with a view to rousing and developing an awareness in public opinion of the value of the archaeological heritage for understanding the past and of the threats to this heritage" (Council of Europe 1992a, 5). This paragraph acknowledges the idea that all archaeological research is for the benefit of the general public: "Establishing for people an understanding of where they have come from and why they are as they are" (Council of Europe 1992b, 8). The crucial problem of public awareness, according to the Council of Europe, lies in the fact that the public seems to have great interest in the matters of archaeological heritage, but unless this interest is nurtured and expanded it might mean a decline in the degree of preservation of archaeological heritage: "A public aware of the value of this heritage will be less willing to let it be damaged or destroyed" (Council of Europe 1992b, 8). Promoting public awareness is seen here as a great tool to preserve and protect archaeological heritage.

In the next paragraph of article 9, it is stated that "Each party undertakes to promote public access to important elements of its archaeological heritage, especially sites, and encourage the display to the public of suitable selections of archaeological objects" (Council of Europe 1992a, 5). With those words, the Council of Europe hopes to emphasize that in order for the public to fully appreciate the value of the archaeological heritage, they must have access to sites and objects. When the public has access to their archaeological heritage, it is believed by the Council of Europe that it can have an educational function as well as it supports in the process of promoting and understanding the ways in which modern societies have progressed, much like the ideas of McGimsey (1972). It must be noted here that I think this paragraph is a bit twofold, since it is at the same time stated that public access cannot be at the expense of the preservation of archaeology. In such cases, it is important other alternatives are offered to the public to be able to experience an archaeological site (Council of Europe 1992b, 8).

In practice, Article 9 of the treaty meant that the communication with the public in the Netherlands resulted in a transfer of knowledge from the archaeologists to the public by means of public publications, open days or exhibitions. An one-way communication in which the public is simply informed is not enough for archaeological results to be understood (Jansen 2021, 295). Nevertheless, it is this ninth article that had laid the

groundwork for the field of public archaeology and its role in what now is known as co-creation projects. By promoting public awareness, attention is aimed at the involvement of the public within archaeological projects; a crucial step towards public archaeology and public access to archaeological heritage by designing with archaeology.

2.3. The Faro convention

The next treaty relevant to this paper is the Faro convention, which focusses on social added value of cultural heritage such as participation in cultural heritage and the policies that support them. It is a framework that defined the current issues, general objectives and possible measures to be taken in the field of cultural heritage in Europe. It is important to realise that this treaty is a framework that functions to identify the direction for a new era, but it is not a detailed policy. "While previous instruments have concentrated on the need to conserve [Europe's] heritage, and *how* it should be protected, this instrument identifies a range of ways of using the cultural heritage, and concentrates upon *why* it should be accorded value" (Council of Europe 2005b, 4).

The Council of Europe encourages parties in the convention to look for creative ways in which community heritage assets can be developed and managed to establish active civil society involvement. It promotes a bottom-up approach within the organization of public responsibilities for cultural heritage, as well as improving co-operation in follow—up activities and encourages everyone (alone or collectively) to participate in the process of identification, study, interpretation, protection, conservation and presentation of the cultural heritage (Council of Europe 2005a).

Although this document was established in 2005 and since then several countries within Europe have effectively initiated the implementation of the convention (Knoop *et al.* 2021), it is only since the 2010's that the Netherlands is starting to achieve the different goals of the Faro convention. This can be seen as a trend within multiple case studies in the Netherlands such as Oss-Horzak (see Chapter 3) and Tilburg-Udenhout (this research), but also other projects outside of archaeology such as 'Erfgoedlijnen Zuid-Holland' in 2013, 'Kijkdepot museum Schiedam in 2018 and 'WijPetrus' in 2015 (www.cultureelerfgoed.nl). This late enforcement of the Faro convention within the Netherlands is emphasized by the fact that it was in 2021 that the document was officially translated to Dutch (www.cultureelerfgoed.nl).

2.3.1. Cultural heritage and Heritage Communities

The Faro Convention is different compared to previous and UNESCO's cultural conventions in terms of wanting to go further than just the protection of cultural artefacts and cultural landscapes. The Faro Convention aims to attribute different functions to the cultural heritage, in such a way that it is used to create better economic and social conditions in the different European communities (National Heritage Board 2014, 21). The definition of cultural heritage, as stated by the Convention, is that "cultural heritage is a group of resources inherited from the past that is an expression of people's constantly evolving values, beliefs, knowledge and traditions. It includes all aspects of the environment resulting from the interaction between people and places through time" (Council of Europe 2005a, 2). This broad definition, that includes both the tangible and intangible, allows for a new role for cultural heritage. It must be noted here, that the evaluation of cultural heritage is subjected to continued growth. This would mean that the important values can change within a day, hence why it is important to place people instead of the object or practice at the centre of characterizing cultural heritage: *who* defines *what* counts as cultural heritage (National Heritage Board 2014, 8 and 45).

In the Faro Convention, the concept of "Heritage Communities" is introduced: a cooperation model that "highlights that cultural heritage shall not just be defined by the experts, without the public being involved to a greater extent in the cultural heritage process" (National Heritage Board 2014, 8). The purpose of this concept is to create more interaction between citizens and the traditional cultural heritage sector. With this cooperation model, the Council of Europe is indicating that in order to promote heritage participation, it is necessary for the expert community to come together with other relevant parts of the community: A more bottom-up approach where the cultural heritage expert should allow other relevant communities to provide input as well (National Heritage Board 2014, 11). With these aims, what had started with promotion of public awareness and the involvement of the public as a top-down strategy for archaeologists in the Malta convention, the Council of Europe is now encouraging a more bottom-up approach where the general public is in charge of defining their own heritage. With the inclusion of the public in these processes, the foundations of what now is known as co-creation within the cultural sector are introduced.

2.3.2. Environment, heritage and quality of life

In the eight article of the Faro Convention, the Council of Europe identifies that environmental aspects of cultural heritage aspects are a resource that can be used to create a quality of life as well as coherence in an area. Article 8, paragraph *a* states that Parties undertake to "enrich the processes of economic, political, social and cultural development and land-use planning, resorting to cultural heritage impact assessments and adopting mitigation strategies where necessary" (Council of Europe 2005a, 4). In other words, in order to create territorial cohesion the valorisation, the giving value to all aspects (ethical, cultural, ecological, economic, social and political) of a heritage, is applicable here with a focus on the interrelationships between cultural heritage and territory (Council of Europe 2005b, 9). In the next paragraph, the Council explains that this cohesion might come across as restrictive and uniform, but the territory is actually meant to be seen as meeting places between cultures (geographical and historical) (Council of Europe 2005b, 9) by promoting and integrated approach to achieve balance between all the elements (Council of Europe 2005a, 4). This territory as a meeting place is further emphasized in paragraph *c* of article 8, where it is believed that social cohesion can be expanded within a community when there is a sense of shared responsibility towards the places in which people live (Council of Europe 2005a, 4; Council of Europe 2005b, 10; National Heritage Board 2014, 25).

With this article, the convention touches upon the idea of the role of cultural heritage as the factor of inclusiveness and quality of life when it comes to placemaking. This goal underlines that cultural heritage, such as archaeological heritage, can enhance a place and a community; a pillar in what we now could call 'designing with archaeology'.

2.3.3. Public participation

Attention is given to the shared responsibility for cultural heritage and (public) participation in the third section of the Faro Convention.

In article 11, focus is mainly given to the management of cultural heritage. According to the Council, it is the responsibility of the Parties to "develop the legal, financial and professional frameworks which make possible joint action by public authorities, experts, owners, investors, businesses, non-governmental organisations and civil society" (Council of Europe 2005a, 5). Next to that, the Council argues that it should be made possible "for public authorities to co-operate with other actors" (Council of Europe 2005a, 5) and that voluntary initiatives as well as non-governmental organisations that

are concerned with heritage conservation should be encouraged to act in the public interest (Council of Europe 2005a, 5). This is a form of cultural heritage management that resembles co-creation: an approach that includes all stakeholders in the entire process of development.

In the next article, article 12, the Council is concerned with access to, and participation in, cultural heritage. The Council encourages everyone to participate in "the process of identification, study, interpretation, protection, conservation and presentation of the cultural heritage" (Council of Europe 2005a, 5) as well as "public reflection and debate on the opportunities and challenges which the cultural heritage represents" (Council of Europe 2005a, 5). It is important to the Council that every stakeholder is given the opportunity to participate and give their opinion on their cultural heritage. They are to be respected and encouraged to think along. "Public involvement is highly valued in the process of cultural heritage evaluation and of open discussion in determining national priorities for the cultural heritage and for its sustainable use" (Council of Europe 2005b, 11). This means the democratization of heritage, where the preferences of stakeholders are taken into account even when their decisions are not supported by the experts. It supports the public to develop their own interest towards heritage, including archaeology (Holtorf 2007; Boom 2018, 33).

The Council also stresses in their twelfth article that voluntary organisations must not be overlooked and often times provide alternative views which appeals to marginalised groups, as well as the importance of taking steps to include and inspire young people and the disadvantaged to value heritage (Council of Europe 2005a, 5; Council of Europe 2005b, 12). The last point that is made by the Council that is relevant to this paper is in paragraph *c* in article 13, where interdisciplinary research is encouraged on cultural heritage, heritage communities, the environment and their inter-relationship (Council of Europe 2005a, 6).

The aims in these three articles indicate that there is a willingness to progress in the ladder of participation. Instead of informing and consultation, there is a progression towards co-creation. When it comes to co-creation in a new development area, like that of *Berk&Hout*, it is an excellent opportunity to live up to the above-mentioned aims and truly showcase how archaeological cultural heritage is more than some artifacts and stories of times long ago. It is a story of identity, values, knowledge and beliefs.

2.4. Conclusion: From information to co-creation

The attitude of the Council of Europe towards cultural heritage and the role of the general public has made an apparent shift. In the Malta Convention, there is a heavy emphasis on the protection and preservation of cultural heritage. This attitude is now slowly advancing when in the Faro Convention the focus is on how cultural heritage can also be shared and used as a tool to enhance the quality of living (tab. 1). Subsequently, archaeologists in general are changing their attitude towards the public as well and are starting to see the social value of heritage and participation of the public (Jansen 2021, 295).

In article 9 of the Malta Convention it is mentioned that archaeological work is for the benefit of the general public, but that cultural heritage must be established by the expert community *for* the people (Council of Europe 1992b, 8). Experts are to be seen as higher in position to the general public in terms of interpretation. At the time of this convention (1992) it was important to establish a more educated and knowledgeable public in order to improve the safeguarding of the archaeological heritage. With the introduction of Heritage Communities in the Faro Convention, this perception has certainly developed. The Council of Europe acknowledges this: "While previous instruments have concentrated on the need to conserve that heritage, and *how* it should be protected, this instrument identifies a range of ways of using the cultural heritage, and concentrates upon *why* it should be accorded value" (Council of Europe 2005b, 4). With the Heritage Communities the aim is for cultural heritage to be established *by* the people. "By placing people at the centre, and not the object or the practice, it then follows that it is the individual who decides, or at least should influence, what shall be defined as cultural heritage"(National Heritage Board 2014, 8). Therefore, citizen participation is now a frequently used concept in the documents of the Council of Europe.

Overall, the Malta convention was essential for the establishment of archaeology in society. It meant "a drastic change for archaeology and its role in society" (Willems 2014, 151). Due to the protection of heritage, archaeologist were able to take on a more substantial role in informing the public on the values of archaeological heritage. The convention indirectly assured a place for archaeologists within development projects and the involvement of the general public is now ingrained. These undertakings were needed in order for the Faro convention to expand on the publication and sharing of the knowledge that was obtained. But instead of a top-down approach, the aim is now to

actively involve the public and invite them to determine their heritage together. The attention to heritage is expanding from the world of archaeologists to that of society. This is leading to the appreciation and inclusion of other stakeholders beside the experts (Willems 2020, 13). At the same time, due to development and other concepts such as tourism and climate change, there is a growing pressure on the heritage sector to develop and invoke new skills and to have heritage professionals with a different approach (Olivier, 2016; Willems *et al.* 2018). I believe these factors lead to the growing importance and possibilities of co-creation projects for the archaeological field. Co-creation projects provide opportunities for the involvement of stakeholders such as the public, whilst simultaneously addressing the pressure on archaeology due to development.

Table 1. Overview of relevant goals and aims in the Malta convention and Faro convention

	Malta Convention	**Faro Convention**
Influence of the public	Information/Concertation: heritage is defined by professionals	Co-creation: determining heritage together
Involvement of the public	Inactive: the public can observe the work of professionals	Active: the public can work alongside the archaeologist
Role of the stakeholders	Inactive and partial: only certain stakeholders are involved when plans are created	Active and impartial: all stakeholders are considered and should be included in the creation of plans
Role of the archaeologist	Informant	Advisor/Guide
Goal	Protection of heritage and public involvement	Sharing of a heritage that was defined together, inclusiveness

In the Netherlands the Faro Convention has yet to be ratified. Nevertheless, to a certain extent the principle of (public) participation from the convention has been applied in the heritage sector due to the Dutch environmental code (*Nederlandse Omgevingswet*). Heritage professionals use the Faro Convention to defend (local) views on heritage and the convention allowed room for other voices besides those of the heritage experts:

those of the heritage communities. In practice, despite the wish for citizen participation, in general experts see few citizens' initiatives (Willems 2020, 23-24). In the next chapter five case-studies will be explored where archaeology was visualized in a build environment to research the aforementioned principles of Malta and Faro in practice in the Netherlands and two neighbouring countries.

3. *Designing with archaeology*: Five case studies

Many places have a historical past without them being visible in our current land- or cityscapes. This contributes to the archaeological heritage being less known, or even unknown, with the general public. Even within their own life environment. However it is true that their corresponding archaeological stories are connected to the identity of a city or town and should be shared and told. In the Faro Convention it is mentioned that cultural heritage has a potential as a resource for sustainable development and can contribute to the quality of life (Council of Europe 2005a, 1-3). Already, heritage is contributing to our daily and built environment in the way that the quality of a town relies upon the balance between its heritage, its buildings and their open spaces. To infuse an environment with things that have been conserved, it is believed this will reflect the quality and personality of said environment. By introducing heritage to a landscape, a landscape that is already part of daily life where people discover communities and get a chance to reinforce their experiences and explore their values, heritage conservation can improve the quality of daily life and help forge personalities (Greffe 2009, 103-104).

To explore how this can be implemented in practice, five case studies from the Netherlands and its neighbouring countries are analysed in terms of what recently (last 2 to 6 years) is accomplished when archaeological heritage is visualized in a built environment and how the stakeholders are engaged in these projects. Each site is described for its current use and in which ways the archaeology of that location is implemented in its current landscape. For each case study attention is also paid to the level of involvement of the general public and other stakeholders. Eventually, the case studies will function as a source of inspiration for the implementation of archaeological heritage in the *Berk&Hout* project in Tilburg-Udenhout.

3.1. Archaeological Park Matilo, the Netherlands

Park Matilo is an archaeological park situated in Leiden, the Netherlands (fig. 3 and fig. 4). At this heritage site, archaeological research has been conducted as early as 1927 when archaeologist Holwerda identified Roman ditches and pottery (Holwerda 1927, 60-64). Due to the extensive amount of archaeological material that is available at this site because of large-scale archaeological research in the following decades, Matilo was nominated as a national monument in 1976. The park itself was developed by the

municipality of Leiden in 2013, in collaboration with local residents and other stakeholders.

Figure 3. Plan of Park Matilo (www.sleutelstad.nl).

Figure 4. Overview of Park Matilo, facing north (www.beleefarcheologie.nl).

3.1.1 Description of Park Matilo

The park represents the last phase of Roman *castellum Matilone,* a strategic fort along the *Limes*, that was situated at the exact location of the park. The archaeological remains are still present under the park. The park is constructed with earthen walls surrounding a rectangle-shaped open grass field. On top of the earthen walls rows of cypresses were planted, to both accentuate and strengthen the wall. A reconstruction of a watchtower is placed on each side of the three entrances to the park, making it a total of six watchtowers (fig. 5). Central through the park is a *Limes* path made of

cobblestones designated for cyclists and pedestrians. Several of the stones have the word *Limes* inscribed in them, to give an indication to its visitors of the history of this place. Surrounding the central *castellum* are gardens that are part of the park as well. These gardens are a reference to the creeks that were part of the landscape during the time that Matilo was in use. Other vegetation, like the type of trees that are used throughout the park, are also placed with an intent reference to the way of life during Roman times (www.parkmatilo.nl).

Figure 5. Closer view on four of the six watchtowers (www.parkmatilo.nl).

3.1.2. Archaeological heritage at Park Matilo

Throughout the park, several objects with a reference to the archaeological heritage of this location can be found. A ship made of wood, a tree stump pathway and a bridge can be seen near one of the entrances. These are placed there referring to the Canal of *Corbulo*; a canal that used to connect the river Rhine and Maas during Roman times in the Netherlands. The ship (fig. 6) is a replica of a typical Roman flat-bottomed (Dutch: *platbodem*) ship that had been found in 1912 in the canal and was originally used as cargo ship to provide the forts along the Rhine with a supply of food and goods (www.parkmatilo.nl). Next to these objects, several information boards can be found throughout the park. In the middle of the *castellum,* three signs in the shape of a horse, catapult and artillery each tell a different backstory of Matilo and Roman life in the Netherlands. Furthermore, ten archaeological finds are placed in the spotlight with a small sign dedicated to that object. These signs can be found throughout the park on the exact location that they were found.

Figure 6. Treestump pathway and replica of a Roman ship in park Matilo (Buro JP, via www.parkmatilo.nl).

3.1.3. Involvement of stakeholders in Park Matilo

The project took place under the influence of Malta and was inspired by the principles of Faro. Involved in the development of the park were several stakeholders: the *Rijksdienst voor Cultureel Ergoed* (RCE, Cultural Heritage Agency of the Netherlands), the municipality of Leiden, *Camperplaats Portaal* (Camper Location Portaal), the developers and the residents of the surrounding neighbourhoods Roomburg and Meerburg (Kernteam Matilo 2008, 4-5). In this project, there was room for other views beside that of the experts: the local community was involved in the initial phases of planning. Here the influence of Faro can be see, although the project is not yet entirely 'Faro-proof' as the interaction with the local community concerns mainly a consultation where the needs of the residents surrounding the park were identified and considered. The municipality of Leiden together with the RCE and the developers were considered as stakeholders with a bigger influence on the project (Korstanje *et al*. 2020).

3.2. Horzak-Noord, the Netherlands

De Horzak-Noord is the name of a new residential area in Oss in the province of *Noord-Brabant*, that was completed in 2018 (fig. 7). Prior to this, between 1997 and 2017, archaeological research took place in the area which caused the excavation of several yards and clusters of farms dating to the Bronze-, and (Late) Iron age, a small settlement from the Roman period and habitation features from the late Middle Ages (Jansen 2021, 296).

Figure 7. Plan of design for Horzak-Noord (Gemeente Oss 2015, 15).

3.2.1. Description of Horzak-Noord

Horzak-Noord as a residential area is constructed based on four main spatial principles: Avenues, courtyards, pathways and green zones (fig. 8). The avenues determine the structure of the area and connect the community park in the south with the open landscape to the north. There are three avenues in total, which have a wide profile with a roadway, green waysides with trees and a footpath. The semi-detached houses on the side of these avenues give it a stately character. The courtyards, with each their own identity, are located in between the avenues and are the bigger structures within the intricate structure of the neighbourhood. They are a reference to the farm courtyards that were once located here and are situated a little higher in the landscape compared to the houses in its vicinity. The houses of the courtyards surround a central public green space that in some cases includes a playground. The pathways connect the avenues and surrounding roads. They are more narrow and have an informal character based on the arrangement and architecture of the houses. Lastly, the green zones ensure the open structure and rustic and informal character of the neighbourhood (Gemeente Oss 2015, 9-11).

Figure 8. Structure of the buildings, infrastructure and green areas of Horzak-Noord (Gemeente Oss 2015, 10).

3.2.2. Archaeological heritage at Horzak-Noord

In the residential area, references to the heritage based on the archaeological research were implemented. Firstly, the names of the streets all reference to archaeological finds or vernacular (trefhetinoss.nl). The names of the three main avenues are the most obvious: *Laan der Bronstijd* (Avenue of the Bronze Age), *Laan der IJzertijd* (Avenue of the Iron Age) and *Laan der Romeinse Tijd* (Avenue of the Roman period). The pathways that are surrounding these avenues are named after archaeological finds relating to these periods, such as *Fibulapad* (Fibula path), *Bekerpad* (Beaker path), *Radnaaldpad* (Wheel-headed pin path), *Kruikpad* (Amphora path) or *Wagenwielpad* (Wagon wheel path). Each of these streets are situated near the avenue with their corresponding archaeological period. The courtyards are then named after archaeological structures that were found like *Drenkkuil* (Watering pit), *Zwervend Erf* (Shifting settlement)*, Spieker (*Granary)*, Waterput* (Well) or *Hooimijt* (Haystack)*.* Within each of these courtyards, next to an information panel (fig. 9 and fig. 10), elements are implemented that refer to the archaeological structure. For *Spieker* this includes 9 trees that were arranged in a square (fig. 9) as reference to the 9-post granary that was found. *Drenkkuil* refers to the watering pit for cattle and its shape was the inspiration for a children's playground (fig. 10). In the next courtyard, *Zwervend Erf*, square outlines were incorporated in the paving of the street (fig. 11) as reference to the outlines of multiple bedding trenches of Roman period farms. A part of the outline, in the middle of the courtyard, functions as a place to gather (fig. 12). Lastly, a pit with blue artificial grass is used as a children's playground in the courtyard *Waterkuil* and is referring to the feature of a well that was recorded during archeological fieldwork (Jansen 2021, 300-301).

Figure 9. Courtyard Spieker with 9 trees arranged in a square, referring to the plan of a 9-post granary (Google Street View).



Figure 10. Children's playground in the courtyard Drenkkuil (Google Street View).
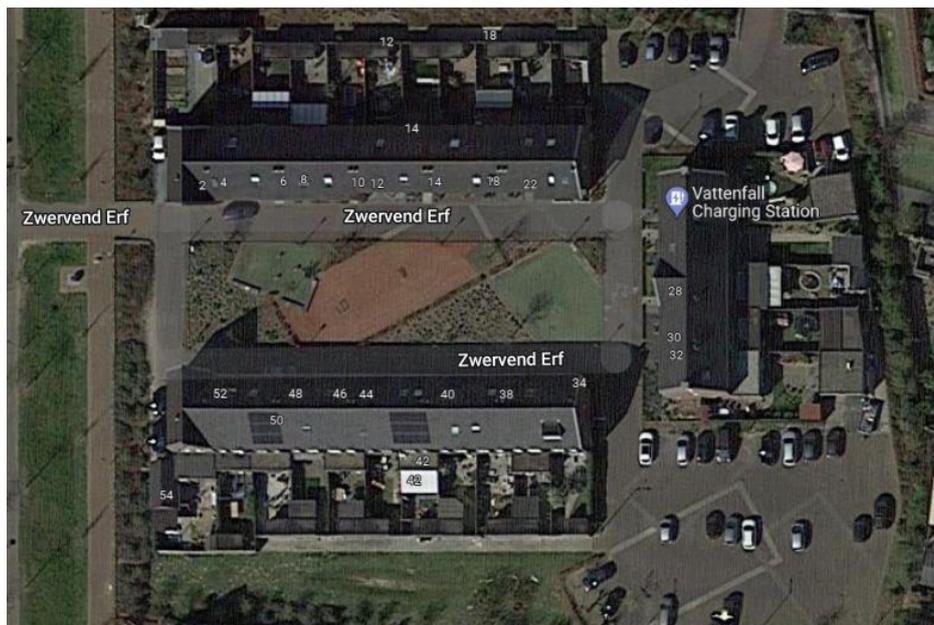
Figure 11. Visible outlines of Roman period farms in the paving in, and surrounding, courtyard Zwervend Erf (after maps.google.nl).

Figure 12. One of the outlines functioning as gathering place in the courtyard Zwervend Erf (Google Street View).
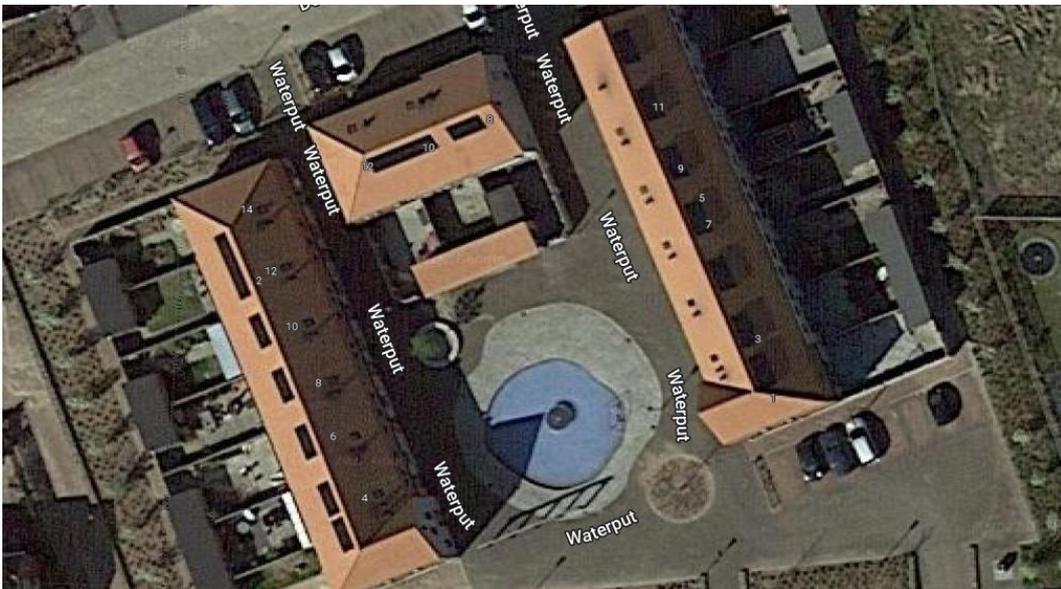
Figure 13. Children's playground of a pit with blue artificial grass in courtyard Waterput (after maps.google.nl).

3.2.3. Involvement of stakeholders in Horzak-Noord

During fieldwork in Oss-Horzak between 1998 and 2008 yearly open days took place that attracted hundreds, and sometimes even thousands, of visitors. In addition to this, exhibitions and publications for a broader public were realised to inform those who are interested in the heritage of Oss (Horzak). When public archaeology became more important within the archaeological field in the 21st century it was decided that a more active involvement of the public was needed. This resulted in *MeeGraafDag* (Dig Along Day) in 2013, 2014 and 2017; days on which the local community was invited to help excavate the archaeological remains (Jansen and van Ginkel 2019, 209-210; Jansen

2021, 298-300). The implementation of the archaeological heritage in the housing development was suggested and commissioned by the municipality of Oss. Only a few consultations took place with the developers, but other stakeholders were not involved in this process (pers. comm. Richard Jansen 2022). After the visualization of the archaeological heritage in the area, a small study in 2016 with 20 participants demonstrated that 95% (n=19) of the respondents from the neighbourhood understood that the elements in their public space correlated with the archaeological heritage. About 80% of those surveyed had read the informational signs. It was concluded that the appreciation towards the implementations increased when the story behind each element were understood and when the elements had a functional purpose such as a playground (De Vries 2016).

3.3. Roman water pipeline in North Rhine-Westphalia, Germany

When the construction of a new road in Hürth-Hermülheim (Germany) was planned in 2005, it became clear that the new bypass would interfere with the ancient water pipeline that had been preserved *in situ* underground. The water pipeline was the one that had supplied water to Roman Cologne between the 1st and 3rd century AD. Since the stone and masonry aqueduct with its 95km is one of the longest water pipelines in the Roman Empire, it was one of the most important archaeological monuments in the Rhineland to preserve. An *in situ* preservation was not possible, thus according to the Malta convention, it was decided to lift segments of the aqueduct and display them on site and on locations nearby after archaeological research so it would be preserved *ex situ*. The entirety of the project was part of a co-creation project between private, public, business and local communities (Claßen and Vollmer-Köning 2021, 1).

3.3.1. Description of the Roman pipeline installation

The final outcome of the project was the re-installation in 2019 of in total six segments that were once part of the Roman aqueduct. One of the pieces, a vault piece with inspection shaft, was placed near its find location in Würselen (fig. 14). With its prominent location on the bicycle and pedestrian bridge that is now crossing the new road, it is accessible to those who are interested. The vault piece is covered by a wooden canopy to protect it from the weather. Another protection measure that was taken was to close off the passage through the vault piece with fencing. The entirety of the segment was placed on a slightly elevated platform made out of stone and gravel. The

other five segments of the pipeline were placed into the embankment on both sides of the new road, illustrating the original route of the Roman aqueduct (fig. 15) (Claßen and Vollmer-Köning 2021).

Figure 14. A section of the Roman pipeline in Würselen (Claßen and Vollmer-Köning 2021, 7).

Figure 15. The installation of 5 pieces of the Roman aqueduct along the new road (Claßen and Vollmer-Köning 2021, 4).

3.3.2. Archaeological heritage at the Roman pipeline installation

For this project, conservation *in situ* was not possible and thus it was decided to display several parts of the pipeline above ground. In order to make this possible, the archaeological feature was divided into several segments after its documentation. Five of these segments were displayed alongside the new road and the sixth segment, a vault

piece with inspection shaft, took its place in a more prominent location. To provide visitors with information, a sign was placed next to the vault piece with a background story of the Roman aqueduct to Cologne and its excavation.

Besides the displayed parts, there were 22 other segments of the Roman aqueduct recovered during excavation. These were restored and offered to interested parties. In order to receive one of the segments, there were several requirements one had to comply with: "those interested had the sections refurbished and that they had to be accessible to the public, accompanied by adequate weather protection and explanatory information boards" (Claßen and Vollmer-Köning 2021, 4). Companies, municipalities, private individuals and others who felt a connection to the aqueduct sent in a submission for one of the segments. In 2020, 21 of the in total 28 parts of the Roman pipeline found a new home (fig. 16).
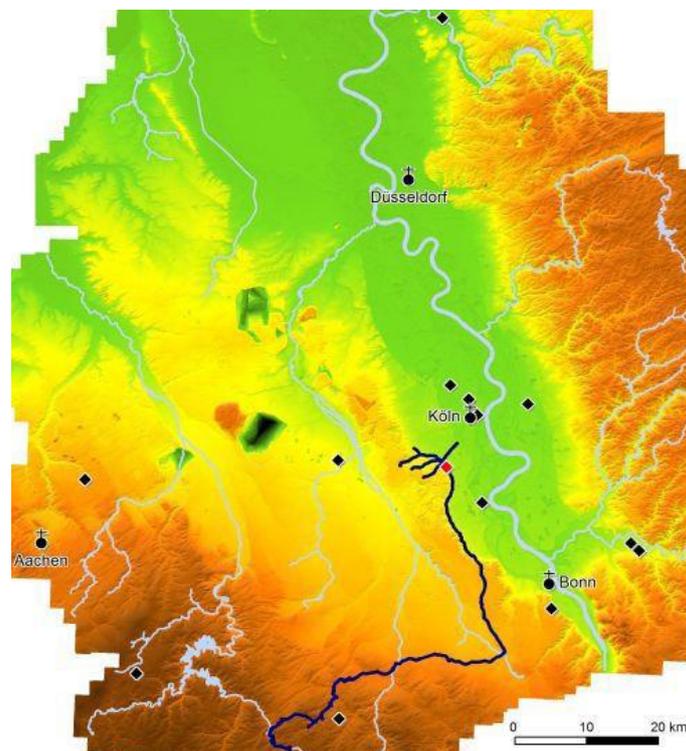
Figure 16. *Locations of the donated segments of the Roman aqueduct from the Eifel to Cologne (Claßen and Vollmer-Köning 2021, 5).*

3.3.3 Public involvement in the Roman pipeline installation

Due to the joint commitment of archaeologists and the state to conserve, preserve and present the segments, the knowledge and archaeological heritage of the Roman aqueduct from the Eifel to Cologne is not only preserved but also used to promote said heritage. Private, public, business and local communities were involved in a unique way

by offering to become a monument owner, this contributed to the feeling of shared heritage (Claßen and Vollmer-Köning 2021, 7). The segments are now spread across the southern part of the Lower Rhine Embayment and are able to continue to spread awareness of the importance of archaeological heritage, not only in its find location. The project is an example of public participation, although co-creation was not reached here due to the top-down approach of the heritage professionals and the state.

3.4. Heerlyckheid van Roost, Belgium.

In 2016 the landscaping project in Haacht, Belgium where a park would be built for its community was completed. The park and its thematic playground include *in situ* reconstructions of the castle of Roost that once was situated at the same exact location. Based on archaeological research and excavation in 2014 by Archeologisch Adviesbureau RAAP, a plan of design (fig. 17) for the park was made to represent the historic castle as well as to provide the local community with authenticity, peace, space and nature (Keijers 2014, 140). The park was constructed on top of the archaeological remains that are protected by a raised layer of 40cm of earth. The name of the park 'Heerlyckheid van Roost' is a reference to the *heerlijkheid* (reign) of the monarch of Roost.
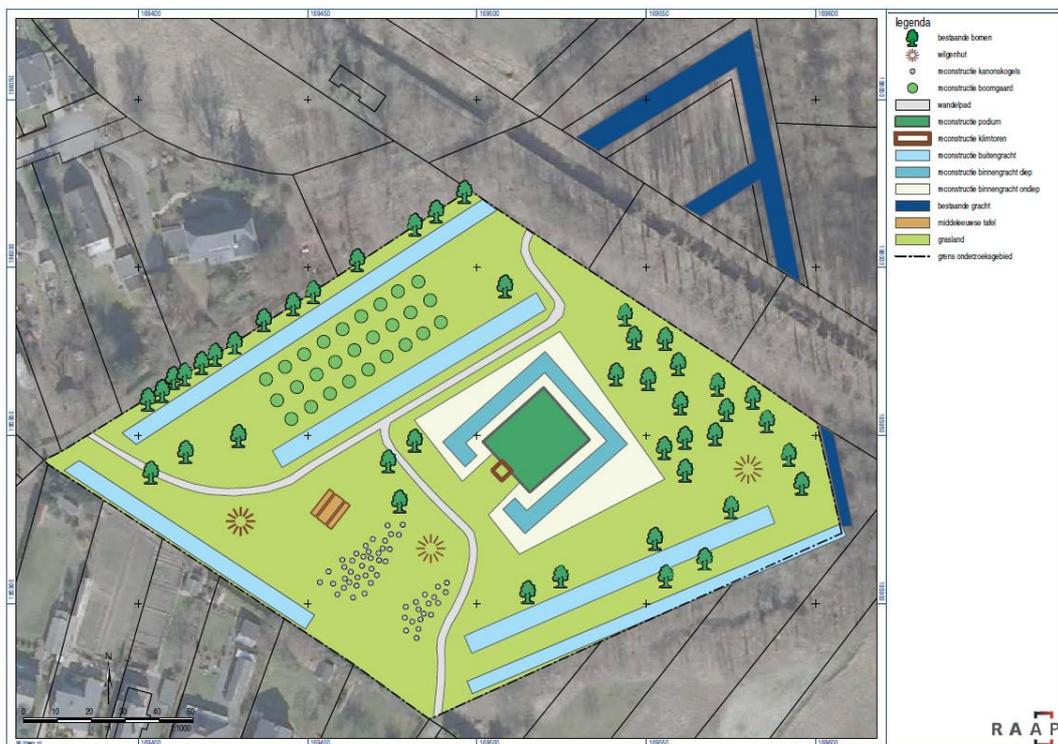
Figure 17. Heerlykheid van Roost, plan of design for the park based on archaeological research (Keijers 2014, 139).

3.4.1. Description of Heerlyckheid van Roost

The open grassland park of 1.7 ha can be entered from multiple directions by its walking paths. Upon entering, a wooden frame resembling a castle tower with its battlements and with the name of the park inscribed in the wood can be seen as 'gate' to the park. In the center of the park, a sandstone outline of the castle was built together with a wooden tower which is a representation of a keep (Dutch: *donjon*) and can be climbed and used by children to play (fig. 18). Surrounding the center, the grass field is slightly lowered to resemble the inner moat. In multiple different locations throughout the park (indicated in light blue, fig. 17), the field is deeply lowered to create a small canal with water. These waterbodies resemble the outer moats of the Castle of Roost. To the west of the castle reconstruction, several trees were planted in a grid-layout as a reference to the orchard of the castle. To the south of the castle outline, around 20 concrete balls (Figure 19) can be seen in the landscape to reference to the cannonballs that were found during archaeological research. Also to the south of the central castle outline, is an area that is designed to convey the feeling of a courtyard (Dutch: *neerhof)* with a wooden (picknick) table (fig. 20), a small wooden hut with an entrance to a slide on its outside and a few wooden poles that resemble a pen for the animals (Figure 21) (www.haacht.be; Keijers 2014, 138-141).

Figure 18. Part of the castle outline with the wooden keep in the park (Joke Roebben, via Google Maps images).

Figure 19. Concrete balls to resemble cannonballs at park Heerlyckheid van Roost (www.haacht.be).

Figure 20. Wooden (picknick) table at park Heerlyckheid van Roost (www.haacht.be).

Figure 21. Wooden hut with slide and pen at park Heerlyckheid van Roost (www.haacht.be).

3.4.2. Archaeological heritage at Heerlyckheid van Roost

Next to the thematic references to the history of the location (castle outline, wooden tower, moats, orchard, cannonballs and courtyard) there are two information panels to inform the visitor on the archaeological heritage of the park. Near the entrance with the wooden gate, a panel with general information on the research history, timeline, archaeological finds (highlights) and the park lay-out can be seen. A second information panel, situated southeast of the central castle, concerns a 3D interpretation of the castle (fig. 22) that was based on a 16th century painting of the Castle of Roost. This helps the visitor to visualize the castle site that once stood in this location.

Figure 22. A 3D interpretation of the Castle of Roost (Manu Sorel, via Google Maps images).

3.4.3. Public involvement at Heerlyckheid van Roost

The park was awarded with the *Forum Archeologieprijs* in 2016 for its sustainable integration of archaeological heritage in the communal park and for its involvement with the public during research in the form of open days (www.f-v-a.be). The current implementations of the archaeological heritage in the park were suggested by Archeologisch Adviesbureau RAAP as feedback to the municipality of Haacht and the Vlaamse Landmaatschappij. Next to the developers there were no other stakeholders involved in the process of creating the park.

3.5. Valkenhorst, the Netherlands

A project that is still under development, is the sustainable residential area *Valkenhorst* together with a business park, social and commercial facilities and recreational possibilities, at a former military airfield in Valkenburg, the Netherlands. In the next ten to fifteen years the area will be developed, with an expected completion of the first residence by 2024 (extra.katwijk.nl). Previous to the urban planning framework that was finalized in 2020, archaeological research by *ADC Archeoprojecten* and *Archol* was executed and a cultural-historical inventory was drawn up by *Lantschap*. It became evident that the landscape has a use-history ranging from the Bronze Age to the Cold War, but for the residential development project it was chosen to focus on the usage of the area as naval airfield for its identity (Fonds *et al.* 2020, 10-19). Based on this information, the Governmental real estate company (Dutch: *Rijksvastgoeddienst*) commissioned The Missing Link, a company that connects the past and present by utilizing heritage, to present an additional risk analysis accompanied by an assessment of the scope of heritage and archaeology. Despite the fact that this project is not yet realized, this case study is included for its example as to how the role of (archaeological) heritage is viewed within, and can be incorporated in, a present-day development project together with the involvement of the public.

3.5.1. Description of Valkenhorst

Valkenhorst at the time of writing, is still a field under development. The plans for the area were published in May of 2020 and included impressions of the area (fig. 23) and a master plan. Valkenhorst will be a residential area with a wide range of types of housing, a navigable creek landscape and a network of foot- and bicycle paths to the recreational areas in the vicinity. The neighbourhood will have a central area that will be suitable for public transport and other facilities and characteristic places will be transformed into orientation points such as the runway of the former airfield (KCAP Architects&Planners 2020).

Figure 23. Impression of Valkenhorst (KCAP Architects&Planners 2020, 18).

3.5.2. Archaeological heritage at Valkenhorst

For this area The Missing Link proposed ten projects, both physical and through media, as inspiration for visualizing (archaeological) heritage in the development area. The first idea that was proposed, is the implementation of a park with a focus on the Roman past of the area. In the park, an archaeological museum and depot, a theater, an educational center with a focus on nature and environment and a restaurant or cafe could be realized. This first project was inspired by the Castellum Hoge Woerd in Utrecht (fig. 24) and Huis van Hilde in Castricum (fig. 25) (Fonds *et al.* 2020, 25).

Figure 24. Castellum Hoge Woerd in Utrecht (www.grotearcheologieprijs.nl).

Figure 25. Huis van Hilde permanent exhibition (www.huisvanhilde.nl).

The second project that was proposed is a park based on the layered landscape of the area. The parts with a refence to the bank deposits are the areas that are higher and which can be used for sports whilst the lower areas, the creeks, can function as the main square with recreational facilities. The inspiration behind this park is the Superkilen park in Copenhagen (fig. 26 and fig. 27) (Fonds *et al.* 2020, 26).

Figure 26. View in Superkilen park in Copenhagen (Naotake Murayama via www.flickr.com).

Figure 27. *Superkilen park in Copenhagen, view from above (www.berloga-workshop.com).*

The Missing Link also proposed to create an icon with a reference to the military airfield for Valkenhorst. Just like Amsterdam is known for its three vertical crosses and Utrecht incorporated an icon of the *Domtoren* in its public space, Valkenhorst could have a figure that will reference to the history of its place. The icon can be used as logo for landmarks, on direction signs or as a mascot (Fonds *et al.* 2020, 27). Another use of media to promote the (archaeological) heritage at Valkenhorst, is the use of virtual reality to provide users with information and (moving) images of the area during the Bronze Age, Iron Age, Roman period and the Second World War airfield. The potential of this project is to show the visitors the continuity and relation between the different time periods and the landscape (Fonds *et al.* 2020, 28).

Still present in the area of Valkenhorst is the control tower from the military airfield (fig. 28). For the fifth project, it was proposed to repurpose the tower and transform it into a cafe or restaurant to re-establish it as a focal point in the neighbourhood. The inspiration for this project was the restaurant WT Urban Kitchen in the water tower of Utrecht (fig. 29) (Fonds *et al.* 2020, 29).

*Figure 28.* Control tower at Valkenburg (Bas Kijzers, via magazines.rijksvastgoedbedrijf.nl).

Figure 29. WT Urban Kitchen in the water tower of Utrecht (www.wturbankitchen.nl).

During the archaeological excavation in 2019, many objects were uncovered. These objects can tell a story individually, but when put together in a timeline they can tell the unique story of the location and add to the experience of historical identity of the residential area. The objects can be displayed in several ways, inspiration can be found in the *Tijdtrap* (time stairs) in Rotterdam (fig. 30) or the display at metro station Rokin in Amsterdam (fig. 31) (Fonds *et al.* 2020, 30).

Figure 30. Tijdtrap in Rotterdam (Bas Czerwinski via www.ad.nl).
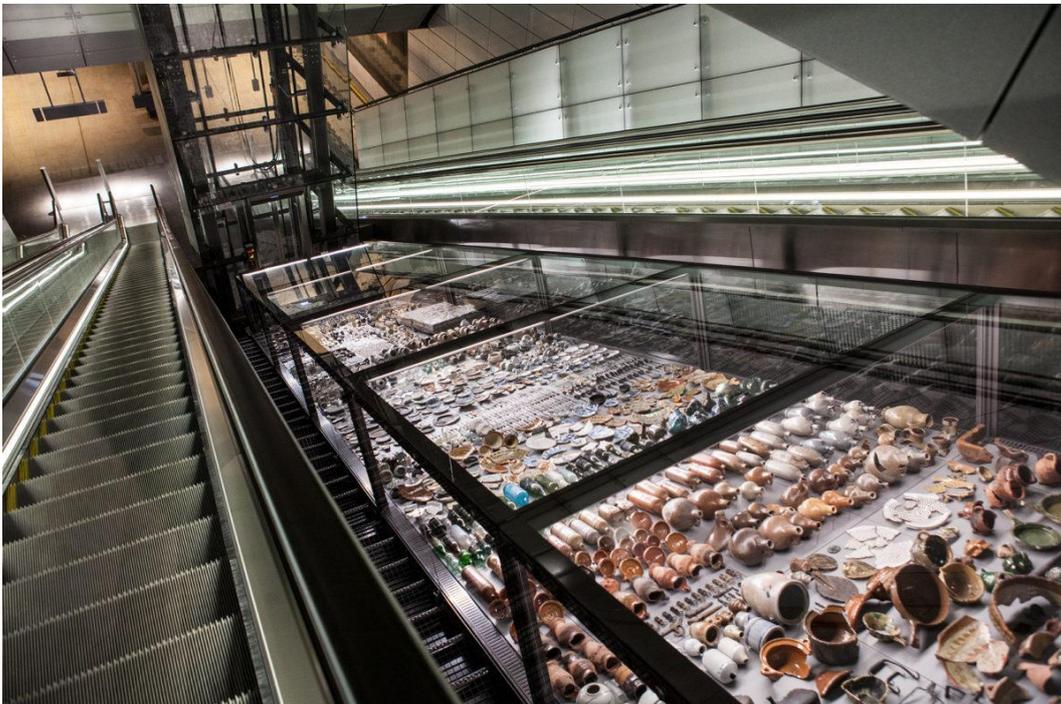
Figure 31. Display of archaeological finds at metro station Rokin in Amsterdam (Jorrit 't Hoen, via www.onh.nl).

The next project that was proposed, is the establishment of a photo contest. The goal of the project is to get the community involved in the creation of an exhibition revolving around the theme connection. Anyone can send in a photograph of their favorite place of the neighbourhood of which 15 will be chosen for the exhibition, this way a new story can be added to the place (Fonds *et al.* 2020, 31). Another way media can enhance the neighbourhood is the installment of art. Different time periods of the Valkenburg location can be highlighted in different murals that, with the involvement of

stakeholders, can enhance the affiliation with the place and encourages connection (Fonds *et al.* 2020, 32). An alternative approach to create affiliation and to create a community is by offering a small booklet to welcome the inhabitants in their new home. This booklet offers them information on the developments that took place in Valkenburg from prehistory till the present moment (Fonds *et al.* 2020, 33).

The last project that was proposed is to create an educative playground with a focus on the military history of Valkenburg. It could demonstrate how an airfield operates and offers entertainment to children. Inspiration for such a park can be seen in Park de Hoge Weide in Utrecht (fig. 32), Museumeiland in Biesbosch (fig. 33) or the Landschaftspark in Emscher (fig. 34) (Fonds *et al.* 2020, 34).

Figure 32. Park de Hoge Weide in Utrecht (www.santenco.nl).

Figure 33. Museumeiland in Biesbosch (www.museum.nl).

Figure 34. Slide at Landschaftspark in Emscher (www.visitandojardines.com).

3.5.4. Public involvement at Valkenhorst

Amongst the ideas that are suggested for the new residential area in Valkenburg, plans are included to involve the public and/or (future) local residents. To organize a photo contest, create murals with the help of stakeholders and the introduction of a small welcome booklet are inactive and active ways for public participation. But when it comes to the development of the area, not all stakeholders have an influence on the project. The Govenmental Real Estate company together with the municipality and the developers have a bigger influence in the plan for the Valkenhorst neighbourhood.

3.6. Conclusion: Public involvement and 'designing with archaeology'

With these five projects, although a small collection of all the possible examples, it can be seen that co-creation is still an upcoming trend and that the combination of archaeological heritage and development can have a wide range of results.

When *in situ* conservation is not possible, it is tried to find a way in which the archaeological finds can be (re)presented at the site or how the story of the place can be incorporated into the new landscape. During research for case studies for this project, it appears that *in situ* visualization of archaeological heritage in a park or an open field is an established concept with multiple successful large-scale examples, whilst visualizing archeological heritage in other public spaces such as within a residential area still seems to be at an early stage; there is more potential to designing with archaeology. Especially when the archaeological heritage is used as foundation for the design of the public

space, I believe the past can be incorporated into a landscape in a sustainable and lasting manner. After excavation, an area that is going to be developed is stripped of its history and can therefore be seen as a *non-place*: a space that does not have enough meaning yet to be considered a place (Augé 1992). It is a place without identity that people do not connect with (Lemaire and Kolen 2005, 17). The challenge is to visualize the invisible past within the framework of a new residential area by a partnership between stakeholders such as the archaeologist, planners, artists and the public. Overall, there are two ways in which (archaeological) heritage can be visualized: physically and through media. Physical ways to do this are by incorporating heritage in the architecture, in the urban planning and in public areas, whilst through (moving) pictures, audio and text other aspects can be highlighted.

The case studies also demonstrated that the goals from Malta are embedded in the archaeological field, but the principles of the Faro convention are still to be integrated in the archaeological field. Public archaeology and the active involvement of the public within co-creation projects and events such as 'Dig Along Days' in accordance with Faro, instead of passive involvement such as open days and installing information signs in accordance with Malta, is a concept that is growing within the Netherlands and its neighboring countries from the 2010's on but it has not reached its full potential as of yet. Most of the projects above were put forward and are commissioned by the municipality for the archaeologists and executed in consultation with the developers. This means that co-creation was not achieved due to the lack of involvement of other stakeholders such as the public. The case study of Valkenhorst can indicate that in newfangled projects thought is put into the active involvement of the public, but time has yet to learn if these ideas will be put into practice. It would be recommendable to explore the combination of the two concepts further in the future of archaeology, due to the potential of co-creation and heritage in a development project as means to establish a community and for the opportunity of place-making.

Part 2 –

Co-creation in

Berk&Hout

4. *Berk&Hout* residential area in Tilburg Udenhout

The basis for this paper is formed by the development of a housing estate in Tilburg (the Netherlands, province of Noord-Brabant). The project that will be realized by urban development company *Triborgh Gebiedsontwikkelingen* was named *Berk&Hout*. The unique aspect of the project is that it is developed by means of co-creation (see Chapter 2.1.2.). The first concepts for the area were introduced to interested stakeholders in 2016 and in 2019 the first urban and architectural plans and designs were presented to the general public. The master plan for *Berk&Hout* (fig. 35) includes the actualization of 70 dwellings that will convey a feeling of a farm estate. A farm estate is created by building three blocks of houses that resemble a 'courtyard' with houses that emit a more sober stable-like look and a row of houses that look more richly decorated like the main house of a farm (fig. 36). During the co-creation process, stakeholders were asked to think along in how the courtyards should be arranged, what types of residences there might be and also the way certain architectural aspects should be implemented.

Figure 35. Design for the Berk&Hout residential area, Tilburg (www.berkenhout.nl).

Figure 36. Vision for one of the courtyard blocks in the Berk&Hout residential area, Tilburg
(www.berkenhout.nl).

During the design of the urban plan, consideration was also given to the coherency of
the estate and its surroundings to ensure a gradual transition into the already existing
and surrounding public space. The courtyards will be placed higher up in the urban
landscape in order for it to stand out and for the three courtyards there will be
coherency created through architecture, use of colour and materials.

4.1. The landscape of Berk&Hout

The landscape surrounding the courtyard estates is planned to be open land with
natural and park-style elements (fig. 37). This includes the use of grasses, organic
materials, foot paths and several trees. It is important that trees are placed
intentionally, in order for the feeling of an open field to remain. In the transition from
the landscape to the properties it is important that the residents have a view of the
open landscape whilst at the same time they are shielded from the view of passers-by.
This is achieved by the elevated position of the houses and the use of plantation that is
both low and high (fig. 38).

Figure 37. Vision board for the Berk&Hout landscape (Triborgh Gebiedsontwikkelingen).


Figure 38. Transition from the landscape to the houses (Triborgh Gebiedsontwikkelingen).

4.2. The courtyards of Berk&Hout

The courtyards are structured in such a way that the car parking is not in sight, whilst the orientation ensures a view of the open landscape (fig. 39). Each of the three courtyards will have their own theme: stone, garden or formal. In the courtyard *Steen* (stone) in the north, included in the architecture will be red stone bricks and wooden beams and the courtyard will have a shared space in the middle that has a (cobble) red stone floor. The *Tuin* (garden) courtyard is generally more green and will have a communal vegetable garden. Parking will be possible in the orchard and a sheep meadow ensures the feeling of a farm estate for this courtyard. The last courtyard, *Formeel* (formal) in the south distinguishes oneself due to its smaller size and seating opportunities along the green isles in the open space between the houses (fig. 40).

Figure 39. Birdseye-view on the Steen courtyard of Berk&Hout with car parking behind the houses (Triborgh Gebiedsontwikkelingen).

Figure 40. Vision board for the three themes of each courtyard (Triborgh Gebiedsontwikkelingen).

The architectural style is according to *Triborgh Gebiedsontwikkelingen* a combination between traditional, contemporary and modern style. The atmosphere of the dwellings refer to farm types (Dutch: *boerentypen*) with either one or two level(s) with a roof, which is type B1 or C1 (fig. 41) and variations on that. To emphasize the farm estate feeling, most of the houses will convey the look of a stable (fig. 42), whilst one block of houses per courtyard will look more richly decorated to convey the look of a main house (fig. 43).
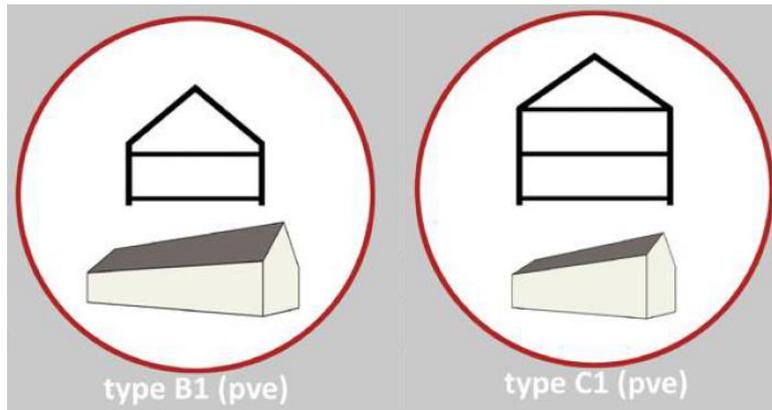
Figure 41. Type B1 and C1 houses (Triborgh Gebiedsontwikkelingen).

Figure 42. Stable-like houses at Berk&Hout (Triborgh Gebiedsontwikkelingen).

Figure 43. 'Main house' style block of houses at Berk&Hout (Triborgh Gebiedsontwikkelingen).

4.3. And what about archaeology?

An important component of the development was an archaeological (prospective) research. The prospective research by means of corings and trenches indicated the presence of an extensive Late Bronze and Early Iron Age urnfield and Roman period settlement traces. Because preservation *in-situ* was not an option, the site was largely excavated. It was during the preparation of the excavation that question arose as to whether the archaeological survey and its results and narratives could be part of the co-creation process. The archaeological research company was interested in the potential of the research for the 'archaeological awareness' of the local community based on a stakeholder analysis (Brattinga 2020, 15). This is discussed in the next chapters starting with the archaeological results.

5. Archaeological results of Tilburg Udenhout

Archaeological research by *Archol* at the location of the Udenhoutseweg in Tilburg-Udenhout started in 2019 due to the aforementioned plans of development for the housing estate *Berk&Hout*. Based on desk-based research and core analyses by Vestigia, it became clear that within the plan area there were two archaeological sites present which were worth of preservation based on their archaeological (scientific) value. The most significant site is a well-preserved prehistoric burial field, in which various round grave structures and cremation graves were already found during the prospective research (Brattinga 2020, 2). The burial field appears to be in the central part of the plan area. To the north and east of it, traces of a settlement from the prehistoric and/or Roman period were found. Due to the development plans of *Berk&Hout*, preservation *in situ* was not possible for these sites. Therefore, the municipality of Tilburg in its role as competent authority determined that the sites should be excavated and thus be preserved *ex situ*.

In the research area with a surface of in total 33.000 m² (3,3 ha), an excavation took place during October and November of 2020. By opening up 25 excavation trenches, using the extensive excavation approach, 21.130 m² (2,1 ha) of the area was covered (fig. 44). The excavation produced 1068 feature numbers and 872 find numbers were assigned, of which 808 are being processed at the moment of writing. Thereof, 125 find numbers are block lifts which could produce more finds in a later stage of processing. In-depth results in accordance with the Program of Requirements (Dutch: Programma van Eisen) and the Quality Norm for Dutch Archaeology (Dutch: Kwaliteitsnorm Nederlandse Archeologie) are expected at the beginning of 2023.[1] In the following paragraphs, however, the preliminary results can be given which are sufficient for the purpose of this research.

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[1] See: Brattinga, J.J., (in prep*.*): *Tilburg - Udenhoutseweg. Een urnenveld uit de late prehistorie, nederzettingen uit de midden-bronstijd en Romeinse tijd en sporen uit de Nieuwe Tijd*. Rapport Archol, Leiden.
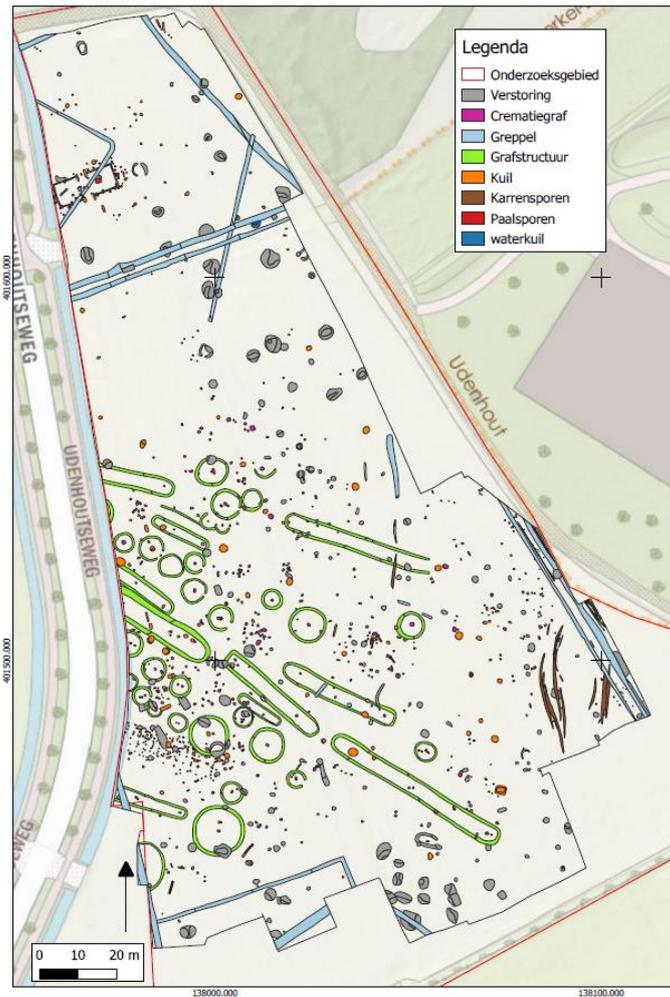
Figure 44. Map of features of the entire excavation site (Brattinga 2021, 18).

5.1. A Late Bronze and Early Iron Age urnfield

The funerary traces and later occupation features and are situated on an extended cover-sand ridge. The cover-sand ridge extends to the east of the excavation area where it is slightly raised (max. 50cm) and within the excavation area there were lower and more wet areas in which few features have been found (Brattinga 2021, 11-12). Based on the cremation graves, the urns and the size and form of the grave structures, the urnfield was dated to the Late Bronze Age and Early Iron Age (Brattinga 2021, 16).

5.1.1. Grave structures and burial pits

The first type of features that were encountered, mainly consist of postholes, (burial)pits and grave monuments (ditches). The numbers of these features exceeded all expectations, as for instance a large number of (or parts of) grave structures have been found (n=41). This concerns 10 long barrows (Dutch: *langbedden*) and 31 ring ditches

(Dutch: *kringgreppels).* These structures can be recognized based on their characteristic round or elongated patterns in the soil (fig. 45). A few of the ring ditches showcased and opening facing south-east and in most cases one or more cremation burial(s) were found in its center (Brattinga 2021, 16). The grave monuments were created by placing the cremation remains in a pit together with the burial gifts. They would then be covered by sods of heather (Dutch: *heideplaggen*) to create an earthen mound that was visible in the landscape. Sometimes the mounds were enclosed by a ditch following the contours of the round or elongated mound. In the course of time, the barrow monuments of the urnfield would have looked like a cluster of small mounds in the landscape that were visible from a large(r) distance (fig. 46). Next to the grave structures, a very high number of individual burial pits (n=230) without surrounding structures have been recorded. Part of the burial pits were found in concentrations in between the features of the grave structures and a few concentrations of burial pits were found on their own to the north and east of the area with grave structures. Within these clusters of burial pits, burials were placed at different depths (Brattinga 2021, 16).

Figure 45. Drone photo of the excavation at Tilburg-Udenhout, the dark archaeological features are clear in contrast to the yellow sand (Archol).

Figure 46. Impression of a concentration of prehistoric burial mounds (after an illustration by R. Timmermans in Jansen and van Ginkel 2019, 215).

5.1.2. Cremation graves

For now, it is apparent that all graves concern cremation graves which were buried in the period between 1100 and 500 BC; The Late Bronze Age and Early Iron Age in the Netherlands. A significant amount of graves was accompanied by grave ceramics, either as grave goods (Dutch: *bijpotje,* n=75) or as container (*urn*) that held the cremation remains (n=30) (fig. 47 and fig. 48). The grave goods usually showed signs of burning, which may indicate that the small ceramic pots, possibly filled with herbs, food or drinks, accompanied the deceased on the funeral pyre. The burnt residues were then placed inside the burial pit and covered by a mound built of sods of heather (Brattinga and Van den Eynde 2021, 56). For the cremation remains that were found without an urn, it is possible that they were held in a container made of organic materials like textile or leather, but in that case the containers themselves would have decayed in the soil by now[2] (Brattinga and Van den Eynde 2021, 55-56).

Urnfields are a common phenomenon in the region. In other western parts of the province of Noord-Brabant, similar urnfields have been observed during archaeological research (Van der Linde 2016). The urnfield at Tilburg Udenhout is one of the bigger urnfields and has been used for a few centuries (Brattinga 2021). It is likely the final resting place of residents from various settlements in the direct vicinity such as the one that was found in Den Bogerd in Udenhout (Van Zon 2018, 129).

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[2] It must be noted here that some grave goods could be included in the aforementioned block lifts and are therefore not yet included in these numbers (Brattinga 2021, 16).

Figure 47. Grave goods accompanying cremation remains recorded in the field at Tilburg (Archol).

Figure 48. Urn recorded in the field at Tilburg (Archol).

5.1.3. Rows of postholes

Another category of structures that were frequently seen in the urnfield were (series of) postholes: short rows of postholes, sometimes in the form of an elongated ditch (fig. 49). The wooden posts were rather robust considering the fact that the postholes could sometimes still be half a meter deep beneath the excavation surface. These rows of postholes are not unique, as they are seen more commonly in the presence of barrow landscapes throughout Northwestern-Europe (Fokkens 2013; Bourgeois 2013; Brattinga 2021, 16). Although their function could not yet be defined, it is thought they could

relate to funerary practices such as the indication of specific routes along the barrows or (visually) connecting certain places and/or features (Bourgeois 2013).

Figure 49. Row of postholes in the south of the excavation area (Archol).

5.1.4. Farmhouse floor plans

Next to the urnfield, to the west, a large concentration of postholes has been identified. In this concentration two, and possibly a third, rather large house plans could be documented. Based on their lay-out, typology and associated finds the plans were dated to the Middle Bronze Age (c. 1800 - 1100 BC). Its relation with the urnfield is yet to be clarified, but it is clear that the funerary features were overbuilt by the habitation features and that the house plans are older than the urnfield. It is possible that the settlement, perhaps in combination with some of the ring ditches, formed the foundation for the urnfield. This would signify that the oldest grave monuments of this excavation are dating to the Middle Bronze Age. Ongoing research will expectedly provide a more detailed dating of the grave structures and therefore make it possible to create an overview of the development and use phases of the urnfield. Analysis of the contents of the burial pits could also provide an outline of the dating, use phases and the grave ritual in relation to the urnfield. These results are expected at the beginning of 2023.

5.2. A Late Prehistoric/ Roman period settlement

The second site of Tilburg Udenhout is situated north and east of the urnfield and consist of habitation features.

5.2.1. Roman farm settlement

During the excavation, a Roman period farm house was uncovered. It concerned a two-aisled (Dutch: *tweeschepig*) plan that is east-west orientated and has an entrance in the middle of both the longitudinal sides (fig. 50 and fig. 51). The farmhouse had deep central postholes and wall ditches. In the east of the plan, there was a deepened level that seemed polluted with waste, which suggests the presence of a deepened stable area (Dutch: *potstal)*. This resulted in the belief that the house plan is to be of the Alphen-Ekeren type (fig. 52), one of the most known house plan types in South-East Netherlands from the Roman period (Van Enckevort and Hendriks 2014, 239). In addition to that, the house plan of a 4-post granary (Dutch: *spieker*) has been found north to the farm (fig. 53) (Brattinga 2021, 16).

Figure 50. Floor plan of a Roman period farmhouse and 4-post granary to the north, detail from the map of features (after Brattinga 2021, 18).

Figure 51. Eastern part of the farmhouse floorplan with the deepened stable area during excavation (Archol).
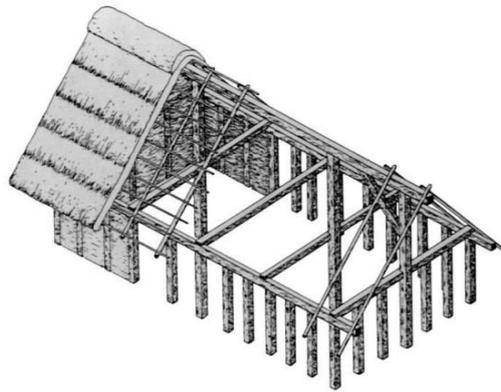
Figure 52. *Reconstruction of an Alphen-Ekeren longhouse (Hoegen 2004, 214).*

Figure 53. *The floorplan of a 4-post granary in the field (Archol).*

5.2.2. Ditches

A remarkable feature is a ditch that intersects the house plan of the farm and then forms a right angle bend to the east of the floor plan (indicated in light blue in fig. 50). The ditch is younger in comparison to the house plan, but also contained Roman find material. On the other side, to the east of the floorplan, two other ditches have been found which also contained material dating to the Roman period (Brattinga 2021, 16). An interpretation for these ditches has not been concluded yet but ditches are a common phenomenon in this period surrounding settlements, fields or other elements in the landscape.

5.2.3. Granary/ small outhouse

A separate set of features was found in the south-east of trench 24, situated on the eastern bounds of the entire excavation plan. Several post holes were recognized, which are possibly part of a granary or small outhouse. Based on a hand-made sherd from one of the features, it is thought this structure dates to the Late Prehistoric or Roman period. An exact date for these features is not determined as of yet (Brattinga 2021, 17).

5.3. Other archaeological features

Apart from the two sites, some other noteworthy features from various time periods were recorded. This concerns a ditch system that served as boundary of several parcels as can be seen on the cadastral field-map (Dutch: *Kadastrale Minuutplan*) from 1811-1821. Find material from these ditches include ceramics and brick fragments from the Modern period. Besides that, multiple cart tracks in the east of the research area could be distinguished (fig. 54). It could have been that these traces indicate remnants of a main road or unpaved path that was south-north oriented (Brattinga 2021, 17).

Figure 54. *Features of cart tracks in the east of the excavation site, detail from the map of features (after Brattinga 2021, 18).*

5.4. Archaeological finds

Whilst the find materials are still being processed, a short overview of the numbers of finds in each category can be given here. These preliminary results provide an insight into the nature of the site.

5.4.1. Ceramics

In total, there were 1817 sherds collected from settlement features and other features nearby. Other than sherds, complete ceramics were also collected. These came from the

context of the cremation graves: 27 (parts of) urns and 45 smaller containers. These numbers can still go up, after the block lifts are processed.

Hand-made Prehistoric ceramics

A 1567 number of sherds of handmade ceramics and around 100 pieces of grave ceramics were uncovered during the excavation. Most of them (n=1503) are directly related to a feature and others (n=44) are related to stratigraphic levels. These sherds are, next to the 14C method, the most important in terms of dating and phasing of the site and its features. Therefore it is the most important find category for the analysis, since the chronology in types of pottery can support the 14C data.

Roman ceramic

Around 200 fragments of Roman ceramics were found. These were subdivided into three categories: hand-made, import and undetermined.

Ceramics from the Middle Ages and Modern period

The ceramics dating to the Middle Ages and the Modern period were uncovered in the context of semi-recent features, like ditches. In total, there were 31 pieces of ceramics.

Burnt loam

A slightly different find material is burnt loam. A number of pieces (n=25) were found and will be browsed for recognizable pieces like hearths, ovens and wall fragments with imprints.

5.4.2. Metal

An amount of 47 pieces of metal were found during the excavation period. Most of them were found with a metal detector in the topsoil and some came from the archaeological levels. Based on stratigraphy and determination in the field, these pieces of metal are dated to the Middle Ages or the Modern period. These fragments will not be determined any further, unless they are more distinctive. One noteworthy piece of metal is a fragment of a bronze needle. The fragment came from one of the prehistoric burials and will be conserved. More pieces could still be uncovered during the further research of the block lifts and urns.

5.4.3. Natural stone / Flint

A total of 60 pieces of natural stone have been uncovered in the field. Most of them were found in the context of a feature (n=55). Of these 60 pieces, 23 were determined as flint. This category of material could be an important indicator for the function and other information of the older phases of habitation at this site.

5.4.4. Physio-Anthropological research

There are 256 samples that were taken from cremation remains (fig. 55). Almost half of these samples (n=116) were part of the block lifts, of which 30 contained urns. Analyzing the cremated human remains could give an indication of the age and sex of the buried person, just as it would be possible in certain circumstances to determine, based on the strontium isotope ratio, their mobility short before their death and in their youth.

Figure 55. One of the cremation graves at the excavation (Archol).

5.4.5. Animal remains

No animal remains were found thus far. However, it is still possible this material will be found between the cremation remains.

5.4.6. Botanical remains

Numbers for this material group are yet to be published. Results within this material group, will be published in three groups based on their context. The first one being the

botanic remains from the grave rituals. This concerns botanic materials like pollen, charcoal and cereals or seeds. These materials could give an indication of the ritual and customs in context of the burials. Besides, it can give an indication of the selection the people made in the past concerning the materials that were used during a burial and if they were local or not. The second theme is that of the landscape and vegetation. Researching the botanical remains from the different features could support giving an indication of the phase and dating. The last theme is that of the land use and food economy.

5.5. Conclusion

Based on the archaeological research it can be concluded that there were settlement and funerary traces in the area during the Bronze Age, an urnfield that was in use till the Early Iron Age and a settlement during the later Roman period (Brattinga 2021). The urnfield is not unique for the region (Van der Linde 2016), but the scale of the urnfield is notably large. Over 230 people were buried here between 1100 and 500 BC. The deceased, usually accompanied by grave goods, were placed on the funeral pyre whereafter the burnt residues were placed inside the burial pit and covered by a mound built of sods of heather (Brattinga and Van den Eynde 2021, 55-56). These sods of heather created an earthen mound that was a visible grave monument in the landscape. In the course of time, the barrow monuments of the urnfield would have looked like a cluster of small mounds in the landscape that were visible from a large(r) distance.

The northern part of the excavation area uncovered settlement traces from the Roman period. The plan of a two-aisled Alphen-Ekeren house type, a very common structure in South-East Netherlands from the Roman period (Van Enckevort and Hendriks 2014, 239) and associated 4-post granary concluded the features of a farm.

The question is how these stories of the past can be included in the public space of *Berk&Hout* in order for it to become a place again. One of the possibilities is to design with archaeology to physically represent elements from the past in the area. But archaeologists are not the only stakeholders in this project. First, it needs to be assessed if other stakeholders such as the local community, the municipality or the urban development company have a need for such an implementation. And if so, what are their visions? In the next chapter it is explored if there is room for archaeology within the co-creation project of *Berk&Hout*.

6. Stakeholders and expectations of Tilburg Udenhout

From the concept of co-creation, both *Archol* and *Triborgh Gebiedsontwikkelingen* are interested in knowing how the outcome of the archaeological research in *Berk&Hout* can contribute to the design, quality and identity of the residential area, as well as the 'archaeological awareness' of the local community. In order to understand how the archaeological research could contribute both aspects, the stakeholders and their values were identified during the excavation period as part of an internship (Dasenaki and Tenhagen 2021). During this internship stakeholders were identified in the field as well as through e-mail, telephone and video contact. Due to Covid-19 restrictions, physical contact was not possible. After identification, each (group of) stakeholder was interviewed through a set of questions concerning their views and opinions.

6.1. Stakeholders

Stakeholders are any (groups of) people, both internal or external, that (can) have an interest in the project or that can either affect or be affected (by) the project. By inviting stakeholders by means of co-creation, the general goal is to make room for their views and opinions on the project. Stakeholders in this project were divided into three categories: (local) residents, heritage- or research-related stakeholders and work-related stakeholders.

6.1.1. Local community

The people that are, and will be, living in the area of project *Berk&Hout* form the local community that will experience every day the changes a new neighbourhood will bring.

Current residents

The current residents of the area are mainly interested in gaining a pleasant new residential area that ensures the continuation of the community and its current standards. This group is interested in the research by Archol since it will generate more knowledge of their land's past. It is therefore important that this group of stakeholders is involved in the process to voice their opinions, expectations and vision for the future residential area (Dasenaki and Tenhagen 2020, 6).

Future residents

The (possible) future residents is the group of people that will be living in the *Berk&Hout* residential area. They will become a part of the present local community. For them it is important that the area becomes a functioning and aesthetic new place, with possibilities to socialize. This stakeholder was involved with the developer *Triborgh Gebiedsontwikkelingen* from the start of the very first ideas and were kept up to date with the archaeological research through blog posts that appeared regularly on the website of the project and through (virtual) newsletters.[3]

For both the current and future inhabitants, a guided tour at the excavation site was planned to take place in November of 2020 but was cancelled due to Covid-19. Its purpose was for interested parties to experience the excavation site and observe the archaeology in the field (Dasenaki and Tenhagen 2020, 6)

Village council

The village council is responsible to represent and give a voice to the opinions of the current local community. They ensure that every resident's opinion on matters is heard and when those opinions are representative of the locals, the village council can approve or dismiss certain aspects of the project. Both the village council of Berkel-Enschot and the village council of Udenhout were involved in the project. An important remark here is that a village council invites people to participate on their own volition. In the case of the *Berk&Hout* project, the interest in the archaeological excavation was really sparked after the publication of an article on the archaeological excavation in the provincial newspaper[4] (Dasenaki and Tenhagen 2020, 7).

Historical societies

Two local historical societies with amateur/local archaeologists were involved in the project. *Heemkundekring De Kleine Meijerij* and *Erfgoedcentrum 't Schoor Udenhout-Biezenmortel* both play a valuable role in the protection and the distribution of knowledge that was gained from the archaeological excavation to the community and visitors of the site. Both historical societies provided their opinion on the excavation results and are important in the process of sharing the story of (pre)historic Tilburg to interested members. One of their members, Rinus van der Loo, presented several plans

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[3] See www.berkenhout.nl.
[4] Article "225 prehistorische graven gevonden in Berkel-Enschot, en dat is waarschijnlijk niet alles" in Brabants Dagblad 10-12-2020.

in November of 2020 that he would like to see incorporated in the area in relation to the archaeological research.

The following plans are suggested by Rinus van der Loo on behalf of the Heemkundekring De Kleine Meijerij and Erfgoedcentrum 't Schoot Udenhout-Biezenmortel:

1. The creation of a visualized longbarrow or ring ditch grave in the common area of *Berk&Hout*. These would preferably be located on the exact location it was found in the field and as close to the bicycle path as possible for it to stand out more.

2. The installation of an information sign near the bicycle path, in the same style of the other touristic signs in Udenhout. The information that will be on display, should be drawn up in collaboration with municipal archaeologist Van den Eynde.

3. The establishment of an outline of a longbarrow in the pavement of the residential area. Inspiration for this can be seen in the Berkelse Akkers neighbourhood in Udenhout (fig. 56) This outline can also be made in the common area with greenery.

4. To base the street names of the new residential area on the excavation.

5. To organize information evenings of the excavations with the presence of the professionals that were part of the process. And for the professionals to write articles that can be used in publications of the quarterly publication of 'De Kleine Meijer' and the annual book 'Unentse sprokkels' (Dasenaki and Tenhagen 2021, 7).

Figure 56. Outlines of barrows in the pavement of the Berkelse Akkers neighbourhood (Erfgoedcentrum 't Schoor Udenhout-Biezenmortel).

A provincial historical society that was involved in the project *Berk&Hout* is *Vereniging van Vrijwilligers in de Archeologie Nederland, afdeling Midden-Brabant* (AWN Midden-Brabant). This is a department of a Dutch association of volunteers in archaeology that is active in twelve municipalities. Their members consist of local volunteers; individuals and/or organizations and anyone who is interested in archaeology of this area can become a member. The volunteers were invited to participate in the archaeological excavation but this was unfortunately cancelled due to Covid-19 restrictions. The management of the association includes members who live in Tilburg or Loon op Zand and the municipal archaeologist Guido van den Eynde provides guidance for their projects (www.awn-archeologie.nl).

6.1.2. Heritage- or research-related stakeholders

Another group of stakeholders, are those that are involved in the project due to their profession in, or general commitment to, the cultural heritage sector.

Archol

Archol (*Archeologisch Onderzoek Leiden)* is the commercial archaeological company that was hired by *Triborgh Gebiedsontwikkelingen* to excavate the site at Tilburg-Udenhout. Due to the development of a new residential area, it is not possible for any archaeology to be preserved *in situ*, which means that the goal of Archol is to ensure conservation *ex situ*. They are responsible for executing the most suitable excavation methods based on their prospective research. Within three years after the last excavation day (the end of 2023), they will provide a critical archaeological report (Dasenaki and Tenhagen 2020, 8-9).

Historical societies

The historical societies *Heemkundekring De Kleine Meijerij, Erfgoedcentrum 't Schoor Udenhout-Biezenmortel* and *AWN Midden-Brabant* portray a dual role in the project as they are part of the local community but can also be seen as heritage related stakeholders, since their goals are related to the preservation and publication of the heritage in the area. The societies keep their members up-to-date through their social media, websites and spoken word. This makes the societies a valuable asset in gaining the response and interaction for the research in Tilburg-Udenhout that is necessary for a successful co-creation project (Dasenaki and Tenhagen 2020, 9).

6.1.3. Work-related stakeholders

The next group of stakeholders are those involved in the project due to their profession outside of the cultural heritage sector.

Triborgh Gebiedsontwikkelingen

Triborgh Gebiedsontwikkelingen is the construction company that has an executive and financial role in the construction of the new residential area and the archaeological research on Udenhoutseweg 5. They are, due to the Malta Convention, responsible by law to involve a licensed archaeologist for prospective research in order to gain authorization over the area. The approach of Triborgh in this project included the vision of co-creation. Their goal is to generate income from this project by creating a pleasant and functioning new living area for the local community to live and socialize (Dasenaki and Tenhagen 2020, 9).

Municipality of Tilburg

Although the municipality of Tilburg can be seen as a heritage- or research-related stakeholder, the municipality is in the first place connected to the project due to its bureaucratic agency over the area. The municipal archaeologists Guido van den Eynde assured that the focus of the municipality of Tilburg for the archaeological research was to preserve the urnfield and other knowledge related to the history of Tilburg. It is hoped that the research can be a source of inspiration for stories that will enhance the quality of life for Tilburg and its residents.

Architects

The architects that are involved in this project are *LA Architecten Ingenieurs* and *Ruimtelijke Denkers Wissing*. They have been asked by Triborgh to create an urban plan for the residential area and are responsible for creating the farm-like feeling of the estates (Dasenaki and Tenhagen 2020, 10).

6.1.4. Attitudes of the stakeholders

Most stakeholders have a positive attitude towards the project due to the demands that are met. This positive attitude is most prominent amongst the local and future community since they have felt included in the process of creating *Berk&Hout*. When

focusing on the archaeological heritage of this place, the stakeholders indicate a desire for the heritage to be incorporated in the new neighbourhood. One of the more extensive plans to do so was presented by the historical societies. They suggested to place an informational sign or incorporating the outlines of archaeological features in the paving. However, it must also be taken into account that certain residents may have mixed feelings towards the reconstruction of certain archaeological features as it concerns a prehistoric urn field where over 200 people were buried. An association with burials on the location of their new home is potentially sensitive (Dasenaki and Tenhagen 2021, 11).

6.2. Expectations and visions

When stakeholders were asked to express their expectations and visions, it became apparent that they are interested in highlighting their local history and other elements that can create cultural affiliation. By doing so, they hope it will establish a sense of a shared history to both the new and current residents. Next to that, the importance of the new residential area to be created as a new place to accommodate socialization was mentioned frequently.

Municipality of Tilburg

The main focus for the municipality of Tilburg was the preservation of the urnfield, since research related to this type of site had not been possible in the last decades. They hoped this excavation would generate a scientific dataset that could also be used for future research and at the same time be a source of inspiration for stories that will enhance the quality of the living environment. They believe that implementing and visualizing the archaeological heritage, as well as making it possible to experience and recognize it, would be of great benefit for Tilburg and its surroundings. They believe there currently is a disconnect between the knowledge of the local heritage among heritage professionals and the local community. Therefore, they hope to communicate the knowledge of this site more and start closing the gap with this project as a starting point (Dasenaki and Tenhagen 2021, 17).

Triborgh Gebiedsontwikkelingen

Triborgh Gebiedsontwikkelingen is hoping the excavation results could generate new insights into the past way of living; how people dealt with their dead and where they

were buried in relation to the domestic domain. The amount of finds that were recovered during the excavation, by far succeeded their expectations. They believe that implementing archaeological heritage into a new residential area could help convey these new insights and how an area was used through time. It is important for them, that when heritage is going to be implemented in the area, it must be done in such a manner that it can be experienced. It could both catch your eye and at the same time be part of the (cultural) landscape but in their eyes it is not inviting enough to merely place an informative sign. Realistically, the archaeological heritage must be implemented in such a way that it is low maintenance, invulnerable to vandalism and time, and ideally will increase in aesthetic value over time (Dasenaki and Tenhagen 2021, 18).

Historical societies

The expectations of *Erfgoedcentrum 't Schoor Udenhout-Biezenmortel* were only formed after they learned of the excavation through the article in the provincial newspaper *Brabants Dagblad*. They got in contact on their own volition and proposed the implementations that were mentioned earlier which included the organization of lectures, the publication of articles and the placement of an informative sign along the road (Dasenaki and Tenhagen 2021, 19).

Village council

The village council of Udenhout is taking on a more neutral role as stakeholder. They feel that the implementation of the archaeological discoveries into the new residential area is relevant, although the way in which it will be visualized is up to the community. Since there is little response from the community, which they had hoped would be higher, the only proposal is coming from the local historical societies. As mentioned before, their wishes include the placement of information signs and references in the street names (Dasenaki and Tenhagen 2021, 19).

6.3. Conclusion

Based on the stakeholder analysis, it became clear that there is room for archaeology within the co-creation project of *Berk&Hout*. Stakeholders indicate that archaeological heritage and the archaeological research at Tilburg Udenhoutseweg is important to them, but it was sometimes challenging to express specific, implementable visions for the archaeological results. I think this is an important moment within the project for the

archaeologists to inform other stakeholders on the possibilities of heritage in their public space. Would this have been done, maybe the proposals from the historical society and other stakeholders would have been more varied, innovative and sustainable. Another question that can be asked is if the low response rate from the local community in this stakeholder analysis could have been different if other stakeholder groups played a role in the involvement of the local residents. I think when more than one stakeholder invites the local community to actively participate, it could have created a feeling of engagement and appreciation. After all, *Berk&Hout* is a co-creation project in which all stakeholders should be included and all should play an active role in doing so.

Within the project, it is apparent that several stakeholders play a larger part in the project due to their financial or authoritative role. *Triborgh Gebiedsontwikkelingen* as financer predominates the decision-making process together with the municipality of Tilburg, who has a bureaucratic agency over the area. Archol, who is involved due to the archaeological research that is required according to Malta, was hired by Triborgh who paid for the excavation. This places Archol in a different position as stakeholder since they are also part of the project for their client. At the same time, as compensation from the expenses of the developer for the archaeological research, it is important that the archaeological results do not end up in an archive but will play a part in increasing the level of spatial quality and the social benefits (Teters 2013, 25-27). Three proposals to establish social benefits and increase the spatial quality of the public space of *Berk&Hout* through implementations of archaeology are proposed in the following chapter.

Part 3 – Designing with archaeology in *Berk&Hout*

7. Archaeological heritage in the new residential area of *Berk&Hout*

With the information regarding the architectural designs, archaeological research and the feedback of stakeholders that are connected to the *Berk&Hout* project in mind, the aim in this chapter is to present three infographics on possible implementations of archaeological heritage in the residential development project *Berk&Hout* that can function as a source of inspiration. The infographics are based on the question of how the outcome of the archaeological research can contribute in the design, quality and identity of the residential area, as well as the archaeological awareness of the local community. This will be done in three different themes with each their own approach based on the ladder of participation:

· Information; informing people on the archaeological results
· Concertation; adapted plans based on stakeholder views
· Co-creation; the potential when plans are created together with all stakeholders

For the implementation of the heritage, there are two main story lines that could be represented: the prehistoric urnfield and the Late Prehistoric/Roman period settlement site. The prehistoric urnfield is the most prominent storyline here due to the extent of the urnfield and large amount of burials that were uncovered; it is one of the largest urnfields of the province Noord-Brabant up to date. Next to this, cart tracks and the presence of a bronze age farm house could be included in the implementation of archaeological heritage in the area.

When the design for the area and the map of features of the archaeological excavation are plotted on top of each other (fig. 57), several aspects can be noticed: the bigger part of the urnfield features are located in an area that is planned to be an open field. Also, the courtyard *Steen* is located on top of the Roman period farm settlement in the north and the courtyard *Tuin* (in the east) will be overlapping parts of the prehistoric urnfield, the granary/small outhouse and the cart tracks. With this in mind, it is chosen to benefit from the open areas and the fact that the majority of archaeological features were present in these locations. Triborgh Gebiedsontwikkelingen is planning to use this open area to install natural and park-style elements by using grasses and organic materials. Therefore the suggested implementations of the archaeological heritage will not interfere with the existing plans of the layout and architecture itself.

The visualizations of the three themes in an infographic can be found in the appendix of this paper.

Figure 57. Map of archaeological features and design plan combined (after Triborgh Gebiedsontwikkelingen and Brattinga 2021, 18).

7.1. Information

In the first step on the ladder of participation, people are provided with information without the opportunity for feedback. When this is applied to the implementation of archaeological heritage in the area of *Berk&Hout*, it would mean that the general public is informed on the excavation results on a general level. Therefore, the placement of two see-through scenery panels with information, a reconstruction of a 4-post granary and a Welcome booklet are suggested here (fig. 61).

Windows to the past

With the installation of the two panels, a glimpse will be given into the cultural landscape during the height of the prehistoric urnfield and of the Roman period farm settlement: The panels are see-though with a depiction of an urnfield and the other one with an Alphen-Ekeren farm settlement whilst the current landscape can still be seen through the panel. The first 'window to the past' will depict what the landscape of the prehistoric urnfield might have looked like and will be placed near the south-western entrance to the *Berk&Hout* area along the main road Udenhoutseweg and the bicycle path. This way, passers-by on their bike or by foot can see at one glance that there is a history to this place. Hopefully, this will spark an interest and make people curious about the story which is provided on the panel as well to offer further information on the archaeological research on the urnfield. In the future, it might even be an option to add a QR-code to the virtual reality visualization of the location with different time settings on the timeline of the landscape. The second panel will depict the Roman period farm settlement with its 4-post granary and can also be placed alongside the Udenhoutseweg, near the original feature of the floor plan of the farm. Due to some similarities in the architecture of *Berk&Hout* and the Alphen-Ekeren type farm, a reference can easily be made to the archaeological heritage and the future/current use of the landscape: it is once again used as a place of settlement. This panel will also include further information on the research and history of the farm settlement.

Figure 58. Example of a window to the past at the Catalina Flying Boat Memorial Wall museum in Australia (mapsus.net).

Reconstruction of the granary

A reconstruction of the 4-post granary (fig. 59) can be placed in the open space in the middle of courtyard *Steen*, the closest accessible location to the place where its features were recorded. The granary can be turned into a small public library (Dutch: *minibieb*). Like the other small libraries in the cities of the Netherlands, books can be placed here by community members that they no longer want. Others can then borrow the book and read it or replace it with another book of their own that they would like to do away with. In due time, publications of the excavation can also be placed in the library so that people can read about the archaeological heritage at the exact place that it was uncovered. In the future it might also be a good location to install several replicas of prominent finds that can be touched, so the granary functions as a small experienceable museum. This way, the granary can become a part of the social life of the community and also inform interested parties on the heritage of *Berk&Hout*. Accompanied with an informational panel, the granary can highlight the Roman period settlement site once more.

Figure 59. Example of a reconstruction of a 4-post granary in the Hunebedcentrum in Borger (variaevenementenfoto.jeanroyen.nl).

Welcome booklet

Lastly, to inform new residents on the history of their neighbourhood, a 'Welcome to the Neighbourhood' booklet can be distributed. A booklet like this is distributed frequently in (new) neighbourhoods in the Netherlands and often explain activities that can be enjoyed in the region or which associations or clubs can be joined (fig. 60). These booklets are the perfect opportunity to incorporate a story in which the most important historical developments of their cultural landscape are explained. This way, the booklet contributes to shaping the identity of their living space.

Figure 60. A page from a welcome booklet for Rijnsburg (ovrijnsburg.nl).
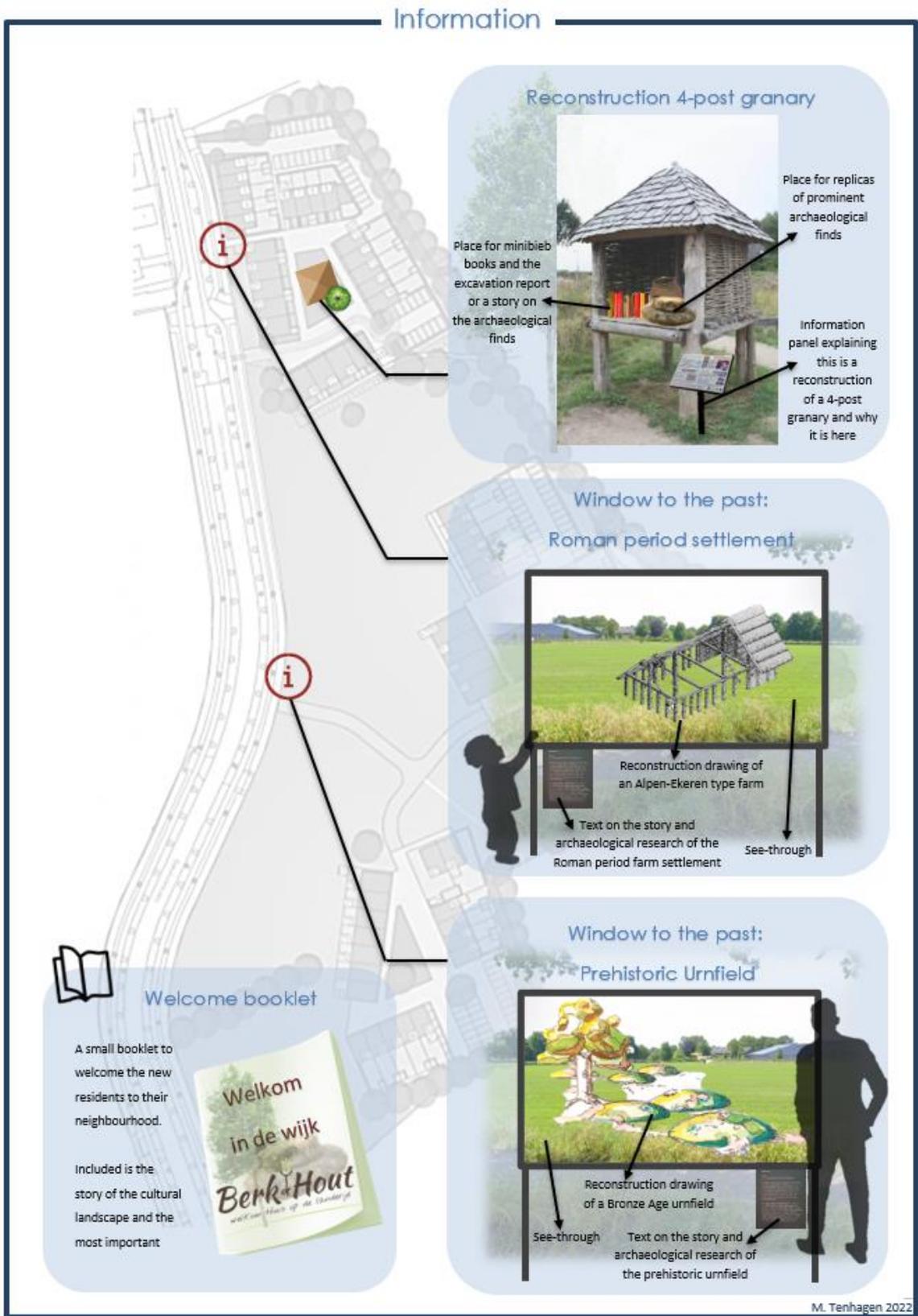
Figure 61. Infographic for the theme Information. For a more high quality version see the appendix of this paper (M. Tenhagen).

7.2. Concertation

A higher step on the ladder of participation concerns concertation. With concertation it is important that people are not only informed of the plans, but their views are collected which then may have an influence on the design. Based on the stakeholder analysis, an assessment was made on the preferences of the stakeholders that are involved in the *Berk&Hout* project. Various ideas were expressed by stakeholders such as the plan to fill the open area with natural and park-style elements, the wish for a place to socialize and the incorporation of a reconstruction of a burial mound and circles in the pavement were suggested. To be able to create cohesion in the ideas, it is chosen to focus on the storyline of the prehistoric urnfield in this scenario and create a sun lawn mound accompanied by an urn fountain and surrounded by circles on the ground, next to the installation of the previously two mentioned windows to the past (fig. 62).

Sun lawn mound

To accommodate to the wish of several stakeholders to create a visualization of one of the grave structures, a sun lawn mound can be established in the open field between the courtyard *Tuin* and the main road (Udenhoutseweg)*,* the location of the urnfield. With inspiration based on the shapes of the ring ditch grave monuments and the appearance of a burial mound, a circular earthen mound can be created that is sloping in its center with several integrated steps (amphitheater-like) which functions as sun lawn and general seating and socializing area. At the same time, this way the shape of a burial mound is brought back into the current landscape as the front/outside of the mound, where the slope is its highest, will face the main road to make it appear for the passer-by like there is a burial mound. The other side/inside, the sun lawn, can than function as place to socialize and relax for the local community, as well as it can be a resting place for cyclists and hikers that were drawn in to the area by the information panels near the road and the look of the burial mound-like hill. The sun lawn mound will consist of natural elements such as grasses, wood and stone.

Urn fountain

Accompanying the sun lawn mound, a small fountain can be installed near the center of the seating area. This fountain can take the shape of an urn on its side as water source, with the water trickling out of the urn. The mound and urn fountain together accentuate the urnfield history of the location and are a playful way of creating a reconstruction of a burial mound whilst at the same time evolving it into a functional and recreational area.

Circles on the ground

Surrounding the mound with urn fountain, circular and elongated figures can be created on the ground on the exact locations that grave structures were found during the archaeological research. This idea was suggested by one of the stakeholders and would amplify the reference to the prehistoric urnfield together with the sun lawn mound. The circles can be incorporated in the landscape by using a different material compared to its surrounding, such as stone or the use of wooden chips but also by using a different type of greenery.
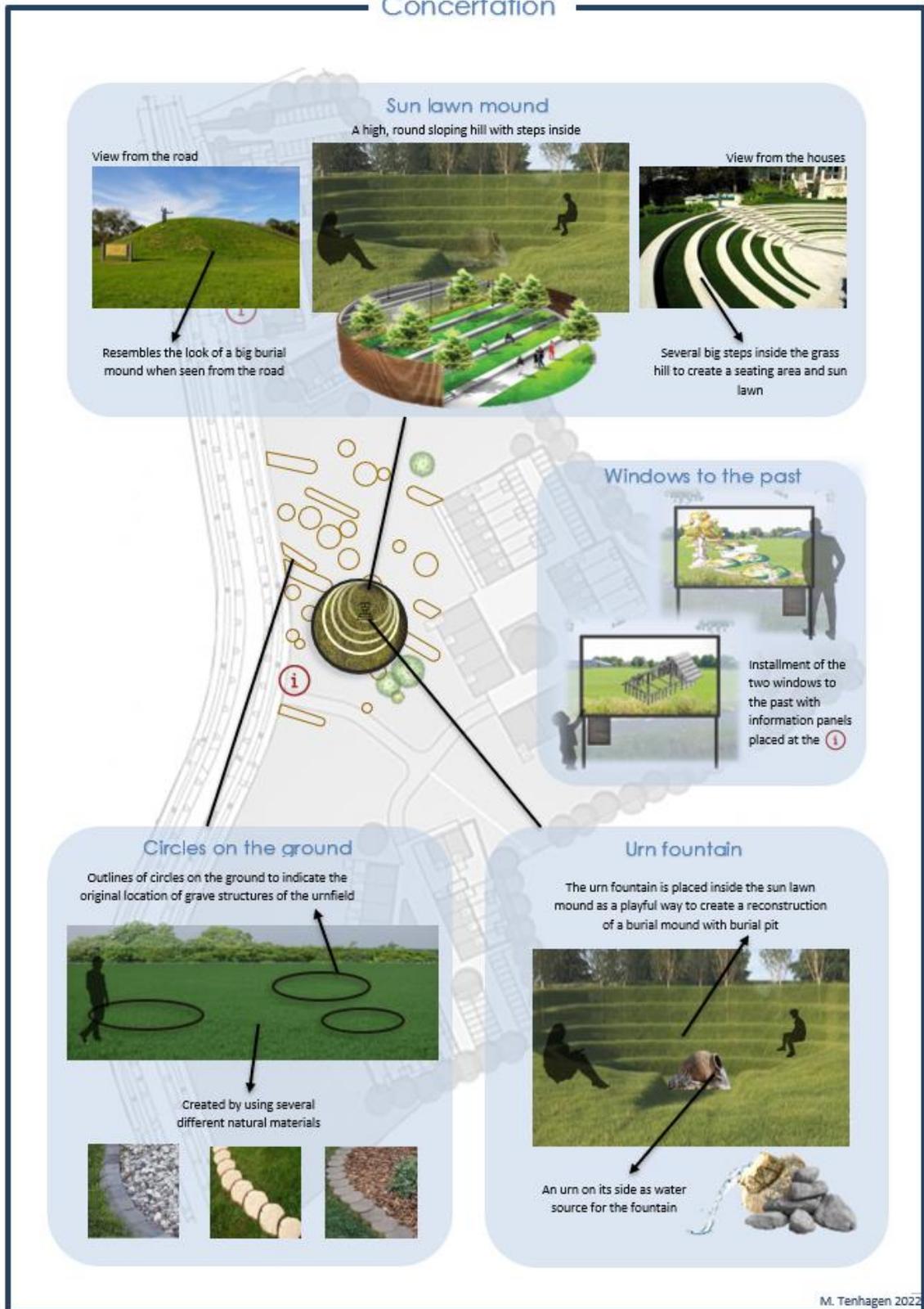
Figure 62. Infographic for the theme Concertation. For a more high quality version see the appendix of this paper (M. Tenhagen).

7.3. Co-creation

When co-creation is reached, plans are created together with all stakeholders from the initial phase of design. With this multi-disciplinary approach an integrated potential of the public space can be achieved, by combining implementation of the heritage as identity along with a sustainable, green environment and functional and social features. These multiple facets can be incorporated in the design of a recreational park that will consist of varying sizes of round fields with each a different purpose (fig. 63). These round fields are inspired by the appearance of a barrow landscape on the map of archaeological features and all the fields together will resemble the round features that are part of a prehistoric urnfield.

Sun lawn mound

The most prominent feature at the main entrance of the park will be that of the circular earthen mound with a sun lawn; the structure that was mentioned in the scenario before. Additionally in this scenario, inside the highest part of the mound, behind a see-through panel, a small exhibition can be created explaining the history of the location with a timeline and display several finds.

Heritage related fields

In the park is room for three other fields that include representations of the archaeological heritage in a playful manner. Two children's play areas are made in the plan. The first is a circular field that will be a small playground with a wooden 4-post granary reconstruction including a slide and a wooden cart to reference to the late Roman period settlement and the cart tracks from the Medieval period. Next to that, a circular frame with swings can be installed on the playground, another reference to the shape of the ring ditches of the prehistoric urnfield. The second field that is a play area will consist of a small mound with wooden poles on which can be climbed. This field is a reference to a burial mound with a palisaded ditch and the rows of postholes that were found during the excavation.

Recreational fields

Fields in the park that will have a recreational function include a field with two long tables with benches, a shape based on the features of the elongated ditches from the grave structures that were recorded amongst the ring ditches. This field can function as a meeting place to work outdoors, play games with friends, read or eat. Two other fields are reserved as lounge lawns. These fields will remain as open grass areas that can be

used in multiple ways by the visitors. One of these grass fields will face the sun lawn/ amphitheater-style seating area of the sloping mound. This way, when it is needed, a platform or stage can be built here for entertainment purposes.

Convenient fields, greenery and pathways

Additional circle fields in the park that are more practical, include a bicycle parking and a dog walking area. Lastly, small fields can be placed in between the bigger fields to commensurate the different areas. These small fields contain different heights of greenery like (fruit)trees, shrubs and flowers. Amongst the green, a few insect hotels can be established. Some of these green fields can be small grass hills, to underline the appearance of an urnfield. The fields will then be connected by pathways in a yellow colour; the colour of the cover-sand ridge that was encountered during excavation. The visitor can walk around the park or meander their way through the park. This way the park will feel larger and more spacious. On the side of these pathways, several benches can be placed to create extra seating. To combine all circle fields in the park, unity is created by the use of natural, sustainable materials such as wood, grasses and stone.
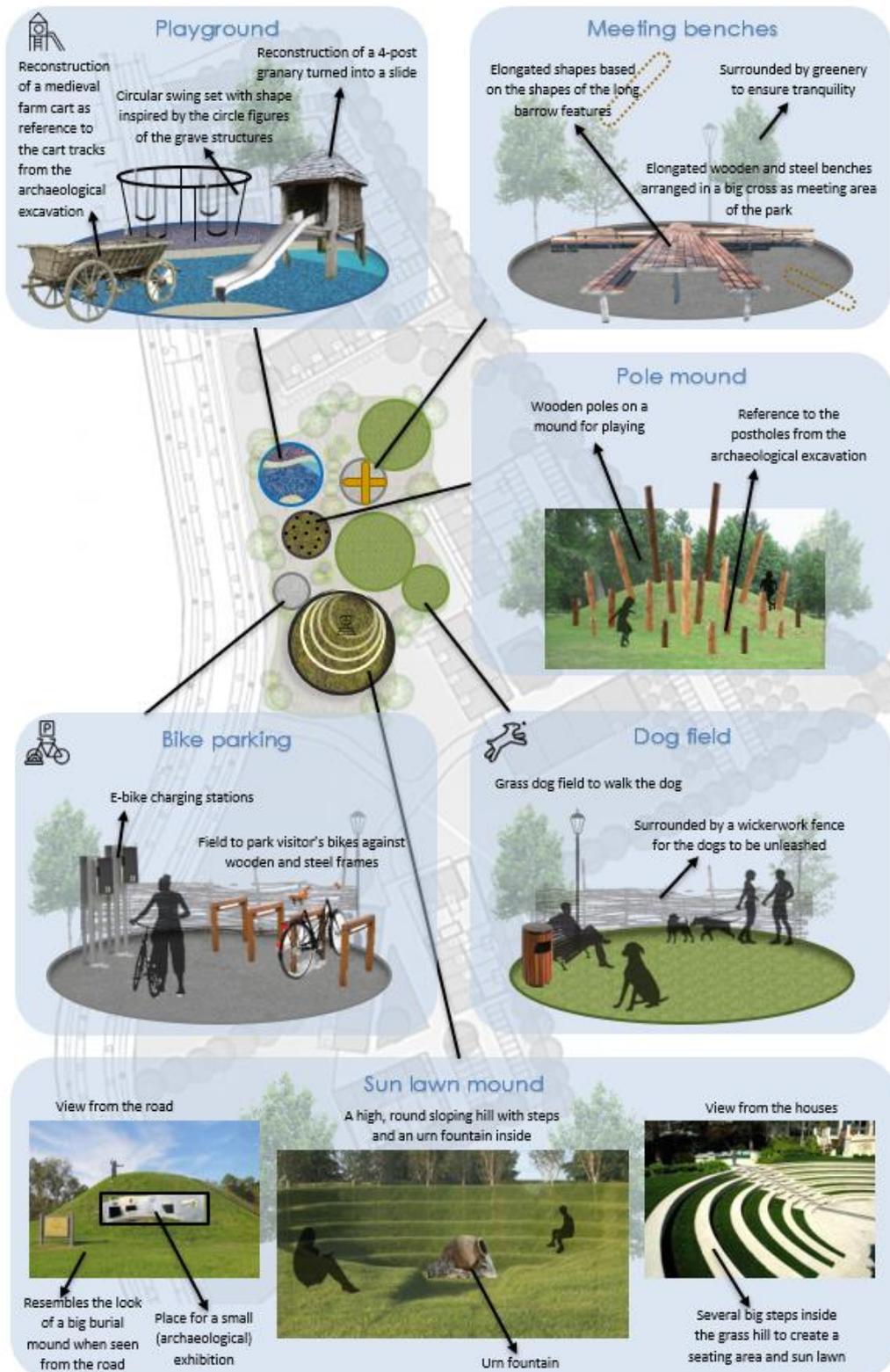
Figure 63. Infographic for the theme Co-creation. For a more high quality version see the appendix of this paper (M. Tenhagen).

7.4. Conclusion

The three levels from the ladder of citizen's participation can be addressed in a different way and by using different tools the implementation of archaeological heritage in a public space have different outcomes. Based on how the public as stakeholder in many projects under the influence of Malta where educated through a top-down system, this is represented in the first scenario through the transfer of information in multiple ways. The information panels, a reconstruction of the granary and the welcome booklet are all ways in which the public can be informed on the archaeological heritage of their area, without room for feedback or views from other stakeholders beside the heritage professionals. In the second scenario, based on how currently in the Netherlands under the influence of Malta and with the inclusion of ideas from Faro more space is reserved for the views of stakeholders without the archaeologists losing agency over what their heritage is, ideas from the stakeholder analysis are included in the plan. In the concertation plan, the public is still educated on what their heritage is by the experts but the ideas of the stakeholders are considered and some are included. The result is a more permanent way of representing archaeological heritage in the public space through the establishment of for example an earthen mound with sun lawn. In the last scenario, 'designing with archaeology' can truly be achieved because of co-creation. The invisible past is visualized within the framework of a new residential area because of a partnership between stakeholders such as the archaeologist, planners, artists and the public. The result is, beside more permanent, a sustainable approach to implementing heritage in a public space in accordance with the principle of the Faro convention.

8. Discussion

The general aim of this paper was to explore the possibilities of the concept of co-creation for archaeology. Based on theoretical observations concerning public archaeology, the scientific results of the excavation, a stakeholder analysis and within the limits of the development plan for *Berk&Hout* three different designs are suggested that can function as an inspiration on how to implement archaeological heritage in the residential area.

In this chapter, a few important aspects are discussed concerning designing with archaeology in a co-creation based project such as *Berk&Hout*. The concept of designing with archaeology is not uncontested. An important aspect is the fact that the concept of co-creation and its application is in an early stage, especially in regards of archaeology and the integration thereof in a public space. Discussed below will be the following elements that turned out to be challenging in this research.

8.1. Planning

Co-creation processes should start with the stakeholder analysis. This should be done *prior* the archaeological excavation but *after* the first concepts for an area are created. By doing so, it can be assured that most relevant stakeholders are identified on time and can be invited to the discussion table. I think in order for co-creation to work, it is necessary that archaeological information must be made available at an early stage during research. This does have the consequence of risking that people will visit the archaeological site when it is not supervised to look for 'treasures', such has happened at the site in Tilburg-Udenhout (Brattinga and Van den Eynde 2021, 59). This could mean the loss of contexts and archaeological information. So there is a struggle between protection and excavation one hand and the democratization of heritage at the other hand. Another challenge in the planning of these kinds of projects is that a finished excavation report is preferred in order to be able to represent an accurate narrative and to choose what to visualize and implement in the area. But for some ideas to be implemented in the design and/or architecture, it is necessary to provide ideas as soon as possible before plans are finalized and the development is initiated.

In future projects it is necessary to discuss these challenges beforehand. A partnership should be organized between stakeholders in which a clear planning of the state of affairs is made and transparency in the sharing of archaeological results is provided, even if this means visits on an unsupervised archaeological site. When there is transparency, stakeholders can be made aware of the vulnerability and scarcity of

archaeological sites which have a limited resource of information (Willems 2011, 28).
I believe risking the loss of certain contexts and archaeological information is
worthwhile when on the other hand the public gains agency over their own heritage.
Because if not for the public and other stakeholders, why and for who are we doing
archaeological research?

8.2. The role of the archaeologist

Present-day archaeology involves more than just conducting research. It is also about
applying archaeology in society by reflecting the narrative of an archaeological
excavation in the public space. The general idea is that archaeologists (should) take an
active role in this to ensure that the right story is told (Jansen 2021).
The case-study of *Berk&Hout* was a development project based on a the principle of co-
creation. The role of the archaeologist in these co-creation projects should be to advise
and guide other stakeholders based on their knowledge of the archaeological heritage
and their expertise in the deep history of an area. The archaeologist can provide insight
into the uniqueness or richness of an archaeological site as well as its vulnerability
(Willems 2020, 29). I think the archaeologist must help other stakeholder in the project
by explaining the possibilities of heritage for the outcome in order to avoid passivity of
stakeholder groups and to assure more innovative and sustainable ideas can be
suggested. It should be up to the other stakeholders to help decide which aspects are
important to the local community now and what should be represented in the current
landscape. At the same time, it must be kept in mind that due to an emphasis on
experience and use values proposed by other stakeholders, the designs can lead to
simplified stories of the archaeological heritage (National Heritage Board 2014, 9). I
therefore recommended that when it is decided to establish a physical implementation
of heritage in the area through designing with archaeology, archaeologists should take
on a coordinating role to make sure the public and other stakeholders are actively
participating during the research itself and to help spread the knowledge after the final
results are published. This can for instance be done through so-called 'DigAlongDays' for
the local community, creating research partnerships with local residents and/or local
historical societies or inviting stakeholders to help process the archaeological finds
outside of the field. For instance, by including metal detectorists volunteers (from the
local community) during excavation and documentation. This is an instrumental solution
that is already successfully applied in other countries such as the Flanders region,
Rhineland and Finland and has proven to ease the tension between both parties (Knoop

et al. 2021, 19-20; Willems 2020, 23). These possibilities ensure that archaeology and their heritage becomes experienceable and that there is room to create affinity with the cultural landscape and to establish a heritage community. It is the Faro convention in action in a positive way.

8.3. Making choices

Due to the richness of the site in Tilburg-Udenhout, the possibilities on how the archaeological heritage could be implemented were countless. It is however advisable to focus on the story that is chosen to be represented. In this paper, the focus was on the prehistoric urnfield and it was chosen to work within the existing plans. The prehistoric urnfield gained the most attention and interest from the stakeholders due to its impressive amount of cremation burials, which were reported in an article in the provincial newspaper of *Brabants Dagblad* and on their website. Other options that could have been included are for example a change in the architecture of the houses to more closely resemble the Alphen-Ekeren type farmhouse, changing the names of the courtyards and/or streets or to use one of the excavated urns as symbol and in the name for the neighbourhood. Additionally, the different colors of the soil from each archaeological layers could be incorporated in the area in the form of an art installation, flower pots in the shape of an urn can be placed in the area or landscape or different types of vegetation that were recognized during archaeological research can be included in the designs. Even the different fields in the proposed park can be changed according to the needs and wishes of all stakeholders, such as the inclusion of a (communal) vegetable garden or a small swimming pool or fishing area. However, these options do not tell the story of the urnfield.

8.4. The benefits of co-creation

Although true co-creation was not reached in this project as the ideas for implementation come from the author in the role of archaeologist and the infographics are designed without the help of experts such as planners or artists, the proposed ideas that were inspired by the input of all stakeholders function as inspiration and to demonstrate the potential of co-creation and designing with archaeology. It is meant to spark interest amongst heritage professionals to the possibilities of co-creation for heritage and the subsequent role of designing with archaeology based on the hypothesis that co-creation and integration of archaeological heritage in the public space will be relevant for the future of archaeology.

Archaeology is often seen as a hinder for development plans through the added expense and potential delay. Although this is partially based on prejudice and is in many cases small and relatively inexpensive research sufficient without affecting the construction rate (Teters 2013, 26), it is still a necessity for archaeology to offer added value for development plans. Archaeologists can, beside contributing to academic issues, participate in spatial development or contribute to economic and societal issues. It is important that the results from archaeological research are represented in a visual manner that in partnership with stakeholders conclude in a sustainable, creative and innovative outcome (Jansen 2021, 327). I think this is where co-creation can be seen as a tool for the heritage field, including archaeology, to reach such outcomes in development projects. It is a tool where stakeholders are actively participating in the decision-making process as well as there is more inclusion and transparency towards archaeological research and results.

On the other hand, co-creation will ask for a different skillset from (future) archaeologists. Beside qualities such as analytical thinking, knowledge of the past, sociology and anthropology that are necessary for archaeologists now, co-creation asks for a scale of communicative skills such as active listening, strong communication, intercultural sensitivity, partnership, connection, to inspire and motivate and to have patience. For co-creation projects, this also involves the identification of stakeholders, how they relate to each other and what motivates them, as well as what their vulnerabilities and desires are. Different perspectives need to be recognized and identified by the heritage professional in addition to the acknowledgement of ownership and authority to subsequently come up with a democratic and inclusive approach. These skills need to be applied within a political and/or administrative and ethical framework (Willems 2020, 28-32).

These remarks conclude the discussion. Based on my research, the possibilities of implementing archaeology within co-creations projects based on the new spatial urban plan for *Berk&Hout* were explored as well as the planning, the role of the archaeologist, the choices that were made and the benefits of co-creation. Founded on scientific results of the excavation and co-creation, 'designing with archaeology' was applied to propose visualizations of the archaeological heritage that the stakeholders of *Berk&Hout* can experience in their daily environment. In the next chapter, the research will be summarized.

9. Conclusion

This Graduation Project revolves around the real caste study and co-creation project *Berk&Hout* which is situated on the boundary of the municipalities Tilburg and Udenhout (the Netherlands). An important element in the development of this new residential area was the excavation of a Late Bronze Age/ Early Iron Age urnfield together with settlement traces from the Bronze Age and Roman Period. The aim of this paper was to explore the possibilities of co-creation projects for archaeological research, especially for its public outreach including citizen participation.

9.1. How is co-creation defined and what does this signify for citizen participation and archaeological heritage?

Co-creation is an upcoming concept in the field of public archaeology, a branch of archaeology that concerns itself with the interaction between the archaeological research and the public (Van den Dries 2012; Jansen 2021, 293-295). The intention of co-creation is to create an environment in which all stakeholders of a project work together to define the goals of a project, create the plan and make joint decisions. Co-creation is one of the higher goals on the ladder of citizen participation which reaches from nonparticipation to citizen control (Arnstein 1969). It signifies that the public has as much impact on a project as experts or other stakeholders would have. This would mean that the public will also be involved in the public outreach of the archaeological research or at the least they are consulted.

9.2. Which treaties are relevant to co-creation and archaeological heritage?

In order for co-creation to become increasingly prevalent in the field of archaeology, the establishment of two treaties by the Council of Europe were necessary. It started with the implementation of the Malta convention (1992), which ensured conservation and protection of the archaeological heritage and with that the role of the archaeologists in society and within (development) projects. At the same time, with the Malta convention the importance of the accessibility of heritage and the role of public awareness was considered (Council of Europe 1992a). In the Faro convention (2005) the focus on participation in cultural heritage was developed even further. The framework aided the shift in focus from *how* Europe's heritage should be protected to *why* heritage should be

accorded value (Council of Europe 2005b, 4). Its intention was to change the role of the public in assigning value to heritage and emphasizes that heritage should not just be defined by the heritage professionals. It was an important step in order to facilitate co-creation projects: a shift in the agency, the valorisation and inclusiveness of cultural heritage.

9.3. What can be concluded on how archaeological heritage is recently implemented in the public space within the Netherlands?

The Faro convention also mentions the potential of heritage as resource for sustainable development and ability to enhance the quality of life through placemaking and creation of communities (Council of Europe 2005a). Five case studies from the Netherlands and its neighbouring countries demonstrated the potential that archaeology has in co-creation projects when designing with archaeology is used. Overall, there are two ways in which (archaeological) heritage can be visualized: physically and through media. Physical ways to do this are by incorporating heritage in the architecture, in the urban planning and in public areas, whilst through (moving) pictures, audio and text other aspects can be highlighted. The case studies gave the indication that the goals from the Faro convention are slowly being integrated, but that there is still room for improvement when it comes to the inclusion of *all* stakeholders.

9.4. Which opportunities offer the plans for the development of the residential area *Berk&Hout* with regards to the architecture and design?

For the project of housing estate *Berk&Hout* in Tilburg-Udenhout, the project developer *Triborgh Gebiedsontwikkelingen* wanted to create a new neighbourhood based on co-creation. It meant that stakeholders were asked to think along in how the area should be arranged, what types of residences there should be and how certain architectural aspects should be implemented. This resulted in the master plan to create three courtyards which are blocks of houses that resemble a farm estate with each their own theme that are surrounded by open land. For the architecture it was decided to create a fusion between traditional, contemporary and modern styles that come together in farm type houses. Each courtyard of the estate will contain a row of houses that is more richly decorated like the main house of a farm estate, whilst the rest of the houses convey the look of a stable. Based on the masterplan, visualizations can either be proposed within

the framework or it could be decided to change the original plans. Due to the original location of the urnfield being located where according to the plans there is open space in *Berk&Hout,* it was chosen to work within the framework of the plans.

9.5. What are the results of the archaeological research and which stakeholders are involved

9.5.1. Archaeological results

As part of the development, and in accordance to the Malta convention, the area was assessed for its archaeological value. This is how *Archol* became one of the stakeholders in the *Berk&Hout* project. Besides the preservation of the archaeological values, there was also a wish was to explore the possibilities that the co-creation process had for archaeology. During prospective research two archaeological sites were identified that were selected to be preserved: a prehistoric urnfield and a late prehistoric/Roman period settlement. Based on the archaeological research it was concluded that there were settlement and funerary traces in the area during the Bronze Age, an urnfield that was in use till the Early Iron Age and a settlement during the later Roman period (Brattinga 2021). The urnfield is not unique for the region (Van der Linde 2016), but the scale of the urnfield is notably large. Over 230 people were buried here between 1100 and 500 BC. The deceased, usually accompanied by grave goods, were placed on the funeral pyre whereafter the burnt residues were placed inside the burial pit and covered by a mound built of sods of heather (Brattinga and Van den Eynde 2021, 55-56). These sods of heather created an earthen mound that was a visible grave monument in the landscape. In the course of time, the barrow monuments of the urnfield would have looked like a cluster of small mounds in the landscape that were visible from a large(r) distance. Other features related to the urnfield are (series of) postholes and two or three rather large plans of a farmhouse. The northern part of the excavation area uncovered settlement traces from the Roman period. The plan of a two-aisled Alphen-Ekeren house type, a very common structure in South-East Netherlands from the Roman period (Van Enckevort and Hendriks 2014, 239) and associated 4-post granary concluded the features of a farm. East to the urnfield, a small outhouse or granary from the late prehistoric or Roman period and multiple cart tracks from the Medieval period were found (Brattinga 2021).

9.5.2. Stakeholder analysis

Within a co-creation project a stakeholder analysis is essential to identify the stakeholders and their opinions on, and expectations of, the project. Stakeholders are any (groups of) people that have an interest in the project or that can either affect or be affected by the project. For *Berk&Hout* there was the local community (current and future inhabitants, the village council of Berk-Enschot and of Udenhout and the historical societies Heemkundekring De Kleine Meijerij and Erfgoedcentrum 't Schoor Udenhout-Biezenmortel), heritage- or research-related stakeholders (Archol and the historical societies) and work-related stakeholders (Triborgh Gebiedsontwikkelingen, the municipality of Tilburg and the architects from LA Architecten Ingenieurs and Ruimtelijke Denkers Wissing). All stakeholders agreed that it is important for the community to incorporate the archaeological heritage in the new neighbourhood (Dasenaki and Tenhagen 2021). Certain plans for this were prosed, such as placing information panels, incorporating circles in the paving of the residential area and it was suggested to incorporate the heritage in such a manner that it can be experienced and can be part of the landscape.

9.6. Which scenarios can be suggested for the implementation of archaeological heritage in the co-creation project of the residential area Tilburg-Udenhout – *Berk&Hout*?

Based on the master plan of *Berk&Hout*, the archaeological research and the stakeholder analysis, it was decided to physically implement the archaeological heritage in the landscape of *Berk&Hout* through designing with archaeology*.* Three designs were suggested that were themed around three different steps from the ladder of participation. Based on how the public as stakeholder in many projects under the influence of Malta where educated through a top-down system, this is represented in the first scenario through the transfer of information in multiple ways. The information panels, a reconstruction of the granary and the welcome booklet are all ways in which the public can be informed on the archaeological heritage of their area, without room for feedback or views from other stakeholders beside the heritage professionals. In the second scenario, based on how currently in the Netherlands under the influence of Malta and with the inclusion of ideas from Faro more space is reserved for the views of stakeholders without the archaeologists losing agency over what their heritage is, ideas from the stakeholder analysis are included in the plan. In the concertation plan, the

public is still educated on what their heritage is by the experts but the ideas of the stakeholders are considered and some are included. The result is a more permanent way of representing archaeological heritage in the public space through the establishment of for example an earthen mound with sun lawn. In the last scenario, 'designing with archaeology' can truly be achieved because of co-creation. The invisible past is visualized within the framework of a new residential area because of a partnership between stakeholders such as the archaeologist, planners, artists and the public. The result is, beside more permanent, a sustainable approach to implementing heritage in a public space in accordance with the principle of the Faro convention.

9.7. What are the possibilities of co-creation for archaeologists and our stories?

Based on this research by design project, I wanted to make apparent the possibilities co-creation projects can offer for the field of archaeology and heritage through 'designing with archaeology'. It is a way to actually, and even sustainably, visualize the (archaeological) heritage of a place including active involvement of the stakeholders. This can lead, or at least contribute, to community building, enhance the quality of the environment of a new housing estate and thus contribute to the well-being of residents. I believe the role of the archaeologist within co-creation projects should be to advise, guide and coordinate other stakeholders based on their knowledge of the archaeological heritage and their expertise in narratives of the (deep) past: occupants who previously inhabited and used an area. At the same time the archaeologists should make sure that the public is actively participating during the research itself to educate the stakeholders on their heritage and to create affinity with the history of their environment. This asks for a different skillset from (future) archaeologists in their communicative skills as well as the identification of stakeholders and their motivations and vulnerabilities, ownership and authority to come up with a democratic and inclusive approach within a political and/or administrative and ethnical framework (Willems 2020, 28-32). Co-creation offers a place for the integration of archaeological heritage in the public space and I believe it can thereby assure the future of archaeology and heritage. Co-creation and 'designing with archaeology' can transform the space of the development project *Berk&Hout* to a place again: from cremation to co-creation.

Abstract - English

This Graduation Project revolves around the real caste study and co-creation project *Berk&Hout* which is situated on the boundary of the municipalities Tilburg and Udenhout (the Netherlands). An important element in the development of this new residential area was the excavation of a Late Bronze Age/ Early Iron Age urnfield together with settlement traces from the Bronze Age and Roman Period. The aim of this paper was to explore the possibilities of co-creation projects for archaeological research, especially for its public outreach including citizen participation. Co-creation is an upcoming concept in the field of public archaeology, a branch of archaeology that concerns itself with the interaction between the archaeological research and the public. The intention of co-creation is to create an environment in which all stakeholders of a project work together to define the goals of a project, create the plan and make joint decisions. In order for co-creation to become increasingly prevalent in the field of archaeology, the establishment of two treaties by the Council of Europe were necessary. It started with the implementation of the Malta convention (1992), which ensured conservation and protection of the archaeological heritage and with that the role of the archaeologists in society and within (development) projects. At the same time, with the Malta convention the importance of the accessibility of heritage and the role of public awareness was considered. In the Faro convention (2005) the focus on participation in cultural heritage was developed even further. The framework aided the shift in focus from *how* Europe's heritage should be protected to *why* heritage should be accorded value. Its intention was to change the role of the public in assigning value to heritage and emphasizes that heritage should not just be defined by the heritage professionals: the democratization of heritage. It was an important step in order to facilitate co-creation projects because of a shift in the agency, the valorisation and inclusiveness of cultural heritage. The Faro convention also mentions the potential of heritage as resource for sustainable development and ability to enhance the quality of life through placemaking and creation of communities. Five case studies from Netherlands and its neighbouring countries demonstrated the potential that archaeology has in co-creation projects when designing with archaeology is used. Based on the master plan of *Berk&Hout*, the scientific results of the archaeological research and the stakeholder analysis, it was decided to physically implement the archaeological heritage in the landscape of *Berk&Hout* through designing with archaeology. Three designs were suggested that were themed around several steps from the ladder of citizen

participation; information, concertation and co-creation. This research by design made apparent the possibilities and challenges that designing with archaeology offers for the field of archaeology and heritage within co-creation projects. It is a permanent and sustainable way to physically represent the heritage of a place. With active involvement of the stakeholders it can lead to community building and enhance the quality of life for an area. Co-creation and 'designing with archaeology' can transform the space of the development project *Berk&Hout* into a place again: from cremation to co-creation.

Abstract - Nederlands

Dit afstudeer project staat in het teken van de casus en het co-creatie project *Berk&Hout* dat zich bevind op de grens tussen de gemeente Tilburg en Udenhout (Nederland). Een belangrijk aspect in de ontwikkeling van deze nieuwbouwwijk was de archeologische opgraving van een Late Bronstijd/ Vroege IJzertijd urnenveld en de bewoningssporen met een datering in zowel de Bronstijd als de Romeinse tijd. Het doel van dit onderzoek is om de mogelijkheden van co-creatie projecten voor archeologisch onderzoek te onderzoeken, met in het bijzonder het publieksbereik en burgerparticipatie. Co-creatie is een groeiend concept binnen de publieksarcheologie, een tak binnen de archeologie die zich bezighoud met de interactie tussen het archeologisch onderzoek en het publiek. Het doel van projecten op basis van co-creatie is om voor alle belanghebbenden (Engels: *stakeholders*) samen te werken zodat de doelen van het project bepaald kunnen worden en de plannen en beslissingen samen gemaakt worden. Voordat co-creatie een begrip kon worden binnen de archeologie speelde de rol van twee verdragen gemaakt door de Raad van Europa hierin een belangrijke rol. Dit begon bij het Verdrag van Malta (1992), waarin er aandacht was voor het behoud en de bescherming van het archeologisch erfgoed, het belang van toegankelijkheid van erfgoed en de rol van het publiek en de publieke bekendheid. In het verdrag van Faro (2005) werd de nadruk op (publieks)participatie binnen de culturele sector verbreed en werd de focus verlegd van *hoe* het erfgoed van Europa beschermd moet worden naar *waarom* erfgoed waarde moet worden toegekend. Dit verdrag van Faro heeft de intentie om de rol van het publiek te verschuiven wanneer het aankomt op waardering van erfgoed en het benadrukt dat erfgoed niet alleen door de vakmensen bepaald zal worden: de democratisering van het erfgoed. Dit is een belangrijke stap geweest om co-creatie mogelijk te maken doordat er een verschuiving is in de vertegenwoordiging, herwaardering en inclusiviteit van cultureel erfgoed. Het verdrag van Faro benoemt daarnaast ook de potentie voor erfgoed wanneer het gaat om duurzame ontwikkeling en het vermogen om de kwaliteit van leven te verbeteren doordat erfgoed kan bijdragen aan *placemaking* en het creëren van gemeenschappen. Vijf casussen uit Nederland en zijn buurlanden toonden deze mogelijkheden van archeologie binnen co-creatie projecten aan wanneer er gewerkt wordt met 'ontwerpen met archeologie'. Vervolgens is er op basis van het masterplan van *Berk&Hout*, de wetenschappelijke resultaten van het archeologische onderzoek en de stakeholderanalyse besloten om het archeologisch erfgoed fysiek te verwerken in het landschap van de wijk *Berk&Hout.* Hiervoor zijn drie ontwerpen gepresenteerd die elk zijn gebaseerd op een stap uit de ladder van participatie: informatie, overleg en co-creatie. Dit onderzoek op basis van ontwerp gaf daarmee de mogelijkheden aan welke ontwerpen met archeologie kan bieden voor erfgoed binnen co-creatie projecten doordat het een manier is

om erfgoed permanent en duurzaam te vertegenwoordigen in het landschap. Door belanghebbenden actief te betrekken, kan erfgoed een verbindende factor zijn, voor gemeenschapsvorming zorgen en de kwaliteit van leven voor een gebied verbeteren. Co-creatie en 'ontwerpen met archeologie' kunnen het gebied van *Berk&Hout* weer transformeren tot een plaats: van crematie tot co-creatie.

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Appendix -

Infographics

designing with

archaeology

Berk&Hout

Reconstruction 4-post granary

Place for replicas of prominent archaeological finds

Place for minibieb books and the excavation report or a story on the archaeological finds

Information panel explaining this is a reconstruction of a 4-post granary and why it is here

Window to the past:

Roman period settlement
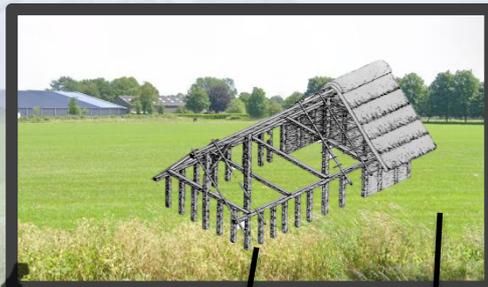
Reconstruction drawing of an Alpen-Ekeren type farm

Text on the story and archaeological research of the Roman period farm settlement

See-through

Window to the past:

Prehistoric Urnfield

Reconstruction drawing of a Bronze Age urnfield

See-through

Text on the story and archaeological research of the prehistoric urnfield

Welcome booklet

A small booklet to welcome the new residents to their neighbourhood.

Included is the story of the cultural landscape and the most important

Sun lawn mound

A high, round sloping hill with steps inside

View from the road
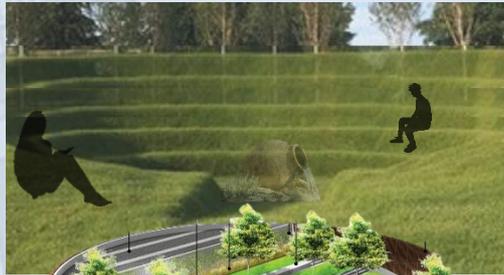
View from the houses

Resembles the look of a big burial mound when seen from the road

Several big steps inside the grass hill to create a seating area and sun lawn

Windows to the past
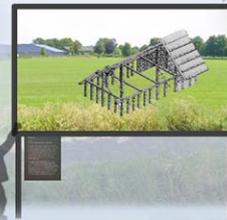
Installment of the two windows to the past with information panels placed at the (i)

Circles on the ground

Outlines of circles on the ground to indicate the original location of grave structures of the urnfield

Created by using several different natural materials

Urn fountain

The urn fountain is placed inside the sun lawn mound as a playful way to create a reconstruction of a burial mound with burial pit

An urn on its side as water source for the fountain

Playground

Reconstruction of a medieval farm cart as reference to the cart tracks from the archaeological excavation

Circular swing set with shape inspired by the circle figures of the grave structures

Reconstruction of a 4-post granary turned into a slide

Meeting benches

Elongated shapes based on the shapes of the long barrow features

Surrounded by greenery to ensure tranquility

Elongated wooden and steel benches arranged in a big cross as meeting area of the park
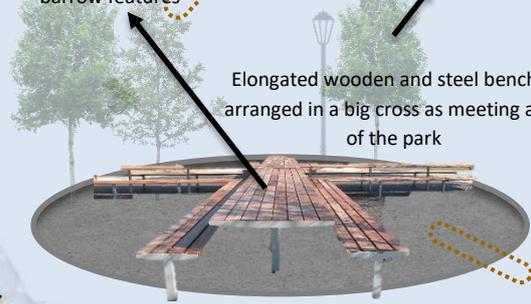
Pole mound

Wooden poles on a mound for playing

Reference to the postholes from the archaeological excavation

Bike parking

E-bike charging stations

Field to park visitor's bikes against wooden and steel frames

Dog field

Grass dog field to walk the dog

Surrounded by a wickerwork fence for the dogs to be unleashed

Sun lawn mound

View from the road

A high, round sloping hill with steps and an urn fountain inside

View from the houses

Resembles the look of a big burial mound when seen from the road

Place for a small (archaeological) exhibition

Urn fountain

Several big steps inside the grass hill to create a seating area and sun lawn

M. Tenhagen 2022