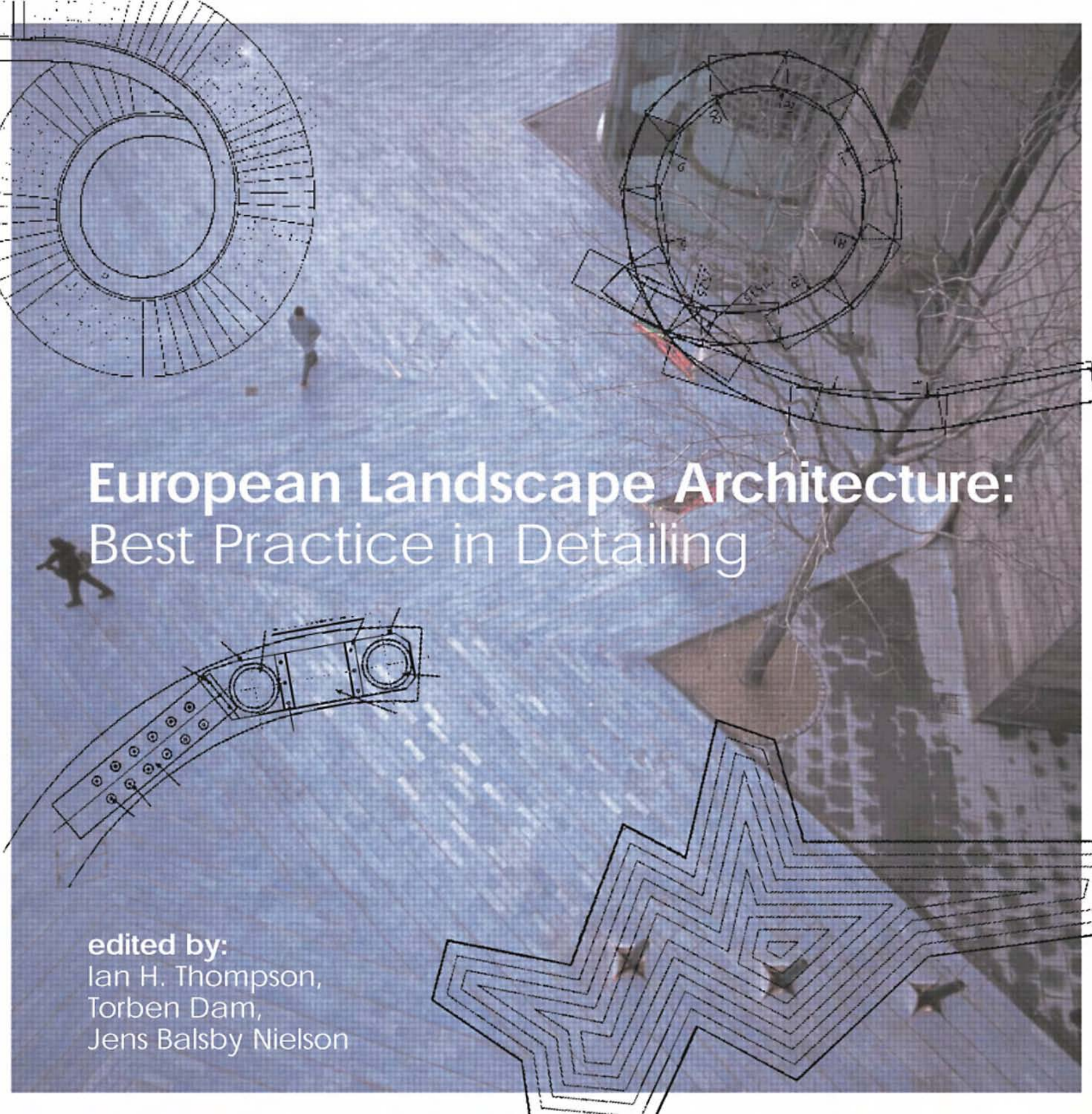

European Landscape Architecture:
Best Practice in Detailing

edited by:
Ian H. Thompson,
Torben Dam,
Jens Balsby Nielson

European Landscape Architecture

This is an important new book about landscape construction and good detailed design. It is not a book of standard details in landscape architecture, nor does it give the reader step-by-step instructions; instead it highlights how important it is to consider detail in the creative process, showing that good practice in detailing is as integral to successful design as an exciting concept or striking site plan.

The book features case studies of recent landscape architectural projects in nine European countries, including the Peace Garden in Sheffield, the Harbour Park in Copenhagen, a motorway service station in France, a guest house garden in Hungary, a cemetery in Munich and the new Botanic Gardens in Barcelona. Each project has been chosen for its exemplary good practice in construction detailing and is demonstrative of how a strong overall concept can be expressed through well-designed detail to create convincing design.

European Landscape Architecture draws together a team of leading professionals and academics in the field of landscape architecture. The case studies are well-illustrated with photographs and many original construction drawings running alongside the text. This will be a valuable source book for students and practitioners alike, as well as being of interest to researchers with an interest in the process of design.

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Foreword

Design proposes ideas but it is through the medium of landscape detail that these ideas are projected as a material reality on site. The art of this activity, and I need to declare immediately that it is a very inventive, subtle and robust art-form, lies in the processes of detail design – the act of detailing by the landscape architect and the subsequent evolution and elaboration over time and by others of the resulting constructed landscape detail elements and forms. If landscape architecture is to continue to advance its knowledge base as a series of cultural practices and a pragmatic art form of the highest level, design practitioners and teachers must pay due care and attention to advancing the practice of landscape detail as the core of contemporary landscape design.

Three crucial areas of work need to be carried out by landscape researchers and academics regarding the broader subject of landscape technology, construction and detail design. These are detail durability, the preparation of a history of landscape technology and, finally, regional case studies in landscape design detail. The first area, durability, has become of increasing significance to the landscape architecture profession as issues of sustainability, diminishing natural material resources and accountability required by clients and municipalities for constructed landscape design projects over time. The second area, on the history of landscape technology, has regrettably still not received adequate attention by landscape historians or theorists and still remains a productive area of the landscape field in need of development. Finally, with this publication focusing on the European experience of landscape detail and detailing practices, the third area of work takes a significant step forward in addressing the issues of landscape detail across national and geographical boundaries. In this book and in the cases studies that are illustrated here, the European landscape design community has taken up the task of offering critical commentary on contemporary detail practices and projects within their national landscapes. This is both a timely and significant task as the development and implementation of contemporary landscapes and conversely, it should be noted, the demolition and eradication of many more recent design works, continues with little pause. In addition, the geographical and cultural complexities of the national practices demonstrated here present an antidote to globalization, homogeneity and lack of specificity in detail design. This is therefore a benchmark publication by the editors Jens Balsby Nielsen, Torben Dam and Ian Thompson in the evolution of landscape architectural practice and scholarship.

The case studies that occupy the greater part of this book illustratate landscape projects as living dynamic processes of design, with their resultant

dead-ends, backtracking, leaps of imagination and periods of creative design synthesis.

The case studies do not, as the editors point out, resemble a set of guidelines or rules that will automatically result in successful details in the future (we may, however, care to measure the notion of 'success'). That is not the nature of landscape design or that of landscape detail. It still requires individuals to have developed individual design talent with the capacity to work productively in the landscape field in whatever country or countries they are commissioned to work. Nor do they absolve the designer of having to grasp the total range of knowledge and skills in all other areas of landscape architecture design, technology and construction practices.

Instead, they provide a way of understanding landscape design through its detail, and, at the same time, a way of looking at landscape detail through design. In this, the purpose is to project landscape detail beyond its current role as a complement to other parts of the landscape design and planning processes, and to establish it as an identifiable subject on its own. This is a subject deeply concerned with the intellectual activity of design, both as a daily form of practice and a personal aesthetic language.

It is also a way of rediscovering what has already been recognized in the landscape design work of previous historical periods, but today continues to elude our full appreciation. Making landscape detail form as a design activity requires a lifetime investment of energy, resources and patience from any designer. The notion of commitment to serious detail investigation requires an obsessive mind, while also giving broad attention to the particular design challenges of landscape detailing, a clear intellectual focus, and a deep understanding of design history with as much practical site experience in varied cultures and climates as any designer can muster in a professional life time.

In return a built form is produced which is intricate yet strong in its resolution and execution, an art form combining materials, ideas and meaning, which is simultaneously poetic and pragmatic. In short, it displays the practical dimensions and creative possibilities of landscape design detail. It is hoped that this publication will be the first of many.

Niall Kirkwood
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Introduction

Jens Balsby Nielsen, Torben Dam and Ian Thompson

This is a book about landscape construction and the importance of good detailed design, but it is not a book of standard details, nor will it instruct you how to set about creating details of your own. It might, however, convince you that the consideration of detail is as important as an exciting concept or a striking site plan. It might show how a big idea can be worked through into every detail, and how details can come together in a powerfully convincing way. It might inspire you to think more carefully about detail, and to see the design of construction as integral to the creative process.

This book, like many a design project, has had a long gestation. It was first proposed in 2001, at a meeting hosted by the Royal Veterinary University, Copenhagen. Two of the editors, Torben Dam and Jens Balsby Neilsen, had issued an invitation to fellow academics with an interest in the teaching and understanding of construction. It was one of the participants, Ian Thompson, from the University of Newcastle in the United Kingdom, who suggested that a book would be a suitable vehicle in which to explore this theme.

From the outset, the idea was not to produce a textbook or a set of instructions for producing landscape details, but to examine the topic of detailing through the consideration of case studies which would shed light upon the design process. We were particularly interested in the way in which decisions were taken. Why was one detail favoured over another? How did designers come to choose their materials? At what point did the consideration of details become important – was it a concern from the outset, or did it only become significant later in the development of a design? Usually, when we look at a project or visit a site, we know very little about the constraints and conditions within which the designer had to work.

Another important topic was the relationship between aesthetics and the practicalities of use and maintenance. What sort of compromises might be necessary? Designed landscapes are places to be used. Can an artistic vision withstand the mundane realities of wear and tear? We were interested in projects that could be taken to exemplify 'best practice', so we asked our contributors to select schemes which had already won awards or received positive reviews in the professional press. We did not ask them to select the most recent designs, but to find projects which had been in place for a few years. Our reasoning was that only after a period of use would any deficiencies in design, materials or construction become evident. Readers should not therefore be surprised to find projects in this book which they have read about elsewhere. Our aim was not to produce a glossy compendium of what was most recent; indeed we are more concerned with what might be enduring.

The title of the book is *European Landscape Architecture: The Details*, and all the case studies are drawn from European countries. The original idea was to invite each contributor to submit two case studies, together with a brief introduction, setting these projects in the context of the historical development of landscape architecture in their own country. There are 49 states that can, for geographical and historical reasons, be considered part of Europe. Not all of them have a well-established profession of landscape architecture, but there would still not be space, within a single volume, to represent all those countries in which landscape architecture is practised. To a large extent, our contributors were self-selected, in that they were the people who responded to that first invitation from Copenhagen, but we sought out a few other people later, in the interests of obtaining a good geographical spread. Therefore, the book includes chapters from as far west as Ireland, as far east as Hungary, as far north as Sweden and as far south as Spain. In some chapters, there is only one case study. For the most part, the contributors are resident in their lands of origin and they describe work from their own country, but in a couple of cases, compromise was necessary; the Irish chapter is written by an Englishwoman and the French chapter by a Swede educated in Denmark.

We asked our authors not only to describe, but also to evaluate, so it was important that they should not be writing about their own work. Again, we have to report a compromise; Boudewijn Almekinders and Ad Koolen worked on the two schemes described in the Netherlands chapter. However, when it came to the evaluation, we asked them to evaluate one another's projects, rather than their own.

Initially, we thought that the projects should all be by indigenous designers, i.e. a British design should be by a Briton and the Swedish design by a Swede. If there were any national differences in approach or style, this might help reveal them. In the event, this too proved impossible to enforce, since Ingrid Schegk was very keen to write about the Landscape Park Riem, near Munich, which was designed by a Frenchman, Gilles Vexlard.

This raises an interesting question. Does the title of this book simply reflect the origins of its editors and authors, or is there something identifiable and distinctive about 'European Landscape Architecture'? Throughout history, design influence has flowed back and forth around the world. Sixteenth-century Italian gardens influenced those of seventeenth-century France, while the grand manner of Le Nôtre was enviously copied by German princes. In the eighteenth century it was the turn of England to provide the dominant cultural model, and the craze for the *jardin anglais* swept around the globe. Nor should we underestimate

the oriental influence upon European design, represented in the eighteenth century by the passion for *chinoiserie* and more recently by the influence of traditional Japanese design upon twentieth-century Modernists and Minimalists.

From the case studies gathered here, it seems that the places to which European designers have been looking most recently for their inspiration have been Spain and France, or perhaps, more specifically, Barcelona and Paris.

Following the establishment of democracy in Spain, the municipal authorities in Barcelona sought to revive the city's civic life through a programme of new public spaces, an initiative given additional emphasis by preparations for the Olympic Games in 1992. It was a programme that was admired and envied by civic leaders, designers and planners throughout Europe.

The spotlight then turned upon Paris, where the French government had, in 1982, proclaimed a competition for a new urban park for the twenty-first century, to be built on the site of a former cattle market at La Villette. The competition was won by Bernard Tschumi, a Swiss-born architect practising and teaching in New York. Tschumi's design was controversial, since it set its face against both the pleasurable presumptions of the picturesque and the social worth and utility of Modernism. It seemed to be, at one and the same time, both mechanical and mad, yet it certainly fulfilled the government's desire for a prominent cultural statement.

Although Tschumi claimed to be celebrating disjunction and folly, the Parc de la Villette collaged and collided three very ordered systems, a grid of bright red *folies*, a system of spaces based on simple geometrical shapes, and a path system which included dead-straight covered walkways. Despite its author's deconstructivist rhetoric, both Descartes and Le Nôtre contributed something to its design. A spate of significant parks soon followed. There was the Parc Citroën (opened in 1992), by Allain Provost and Gilles Clément, where the revival of seventeenth-century geometries is plain to see, its plan echoing the layout of Louis XIV's great gardens at Marly, and Provost's Parc Diderot at La Defense (also 1992), where neatly trimmed box hedging and a sculptural slate cascade swoop in waves down a hillside, another design that might please the spirit of the Sun King. Soon major commissions throughout Europe seemed to be tumbling into the hands of French designers, not just the Landscape Park Reim discussed in this volume, but also two of the most notable projects in London, Allain Provost's Thames Barrier Park (completed 2000) and Desvigne + Dalnoky's plan for Greenwich Peninsula.

Both Barcelona and Paris exemplify an enthusiasm for urbanism. Over the past decade landscape architecture seems to have become predominantly an urban profession, concerned above all with the quality of life in cities and towns. Generalisations are difficult, because, as Marc Treib's recent book, *The Architecture of Landscape, 1940–1960*, clearly demonstrates,[1] the profession has very different histories in different countries, but it nevertheless seems safe to hazard that this focus upon city life represents a shift. In Britain, during the middle decades of the last century, landscape architects used to be more concerned with the effects of developments such as roads, dams, commercial forests, power stations and oil refineries upon the countryside. Although many landscape practices still do similar work – many commissions are connected in some way with steering development proposals through the planning system – we hear less about it than we do about new parks and squares in cities. And this change is not unique to Britain. Given a free choice of case studies, the only truly rural project selected by any of our contributors is the guest-house garden designed by Gábor Szücs, which appears in Kinga Szilagyi's chapter on Hungary.

Wherever landscape architects have been concerned with cities, the dominant ideology has often been *rus in urbe*, the countryside in the town, and the picturesque or naturalistic park has been the preferred model. In Barcelona, where many of the new spaces were relatively small and had been designed by architects rather than landscape architects, there was far less emphasis upon nature and a far greater use of hard materials. This transition is expressed perfectly by Luis Peña Ganchegui's Parc de L'Espanya Industrial, where banks of lawn sweep softly down to one side of a pool, in a manner that even 'Capability' Brown might have recognised, while the other side of the same water body is hard, sharp, angular and stepped, speaking of industry and the city. In this book, Catalonian design is represented by the new botanic gardens in Barcelona. The image presented is rather softer and more naturalistic than we have come to associate with that city, since the gardens are designed to show plants in their natural associations, yet the organising principle and the path layout depend upon a hard-edged 'irregular triangulated grid'.

In Paris, Bernard Tschumi took things a stage further, throwing down a gauntlet to all naturalistic designers. The Parc de la Villette was not a park in the traditional sense, he argued, it was 'the biggest discontinuous building in the world'. While all this has been happening, landscape architects have also had to recognise the rise of urban design, a sister or brother profession perhaps, but one with which there is certainly a degree of sibling rivalry.

What has all this meant in terms of detailed design, the main concern of this book? There is little doubt that it has focused attention upon the qualities of hard materials. The balance between formality and informality in landscape design has shifted, for the moment at least, towards formality. We might label the work of contemporary French designers as post-modern or deconstructivist, but it revives classical idioms and insists upon precision, neatly clipped hedges and crisp patterns of paving. How extraordinary it is to see the most 'continental' of horticultural techniques – pleaching – being used to create an outdoor room in the middle of Dublin's O'Connell Street. Modernist simplicity and functionalism survive in the design of street furniture, the strikingly contemporary braziers at Dublin's Smithfield, or the elegant and practical benches of Budapest's Erzsébet Square.

In Britain, characteristically perhaps, design is quirkier and ironic. Thomas Heatherwick's Blue Carpet in Newcastle certainly uses contemporary materials in a precise and controlled way, but at the same time the whole design is a deliberate joke. The Peace Gardens in Sheffield are almost impossible to pin down stylistically; despite the use of contemporary materials and technologies, they hark back to traditional civic patterns of formality, yet they are infused with post-modern whimsy and a hint of the exotic.

Another theme, clearly identifiable in the Danish and Swedish chapters, is the reuse of former industrial or dockland sites. This is not something unique to Europe. Richard Haag's celebrated scheme for Gasworks Park in Seattle, constructed on the site of a former coal-gas conversion plant, was opened in 1975, keeping the rusty chimneys and retorts and recycling the abandoned machinery, brightened up with coats of paint, in a playbarn. Equally iconic, the more recent Landscape Park Duisberg Nord, designed by the German practice, Latz + Partner, turned a steelworks with blast furnaces and bunkers into an award-winning park.

Back in the 1960s, reclamation was generally seen in Modernist terms; the site had to be swept bare or covered over to create a history-free *tabula rasa* for new construction. Gradually we came to see that too much that was valuable, socially, culturally and ecologically, was destroyed in such a process. The Harbour Park in Copenhagen exemplifies the new philosophy of conservation, conversion and reuse. Original granite sett paving and railway tracks have been retained and the inverted hull of an old ferry-boat forms an eye-catching shelter. Across the Öresund, Malmö's Daniaparken reuses a harbour site, but with less recycling of on-site materials. Nevertheless, the character of the new park is derived from its openness and from its traditional palette of materials, mainly granite, gravel and tarred wood.

These case studies are presented in the conviction that they can be an aid both to creative work and to education. As Peter Blundell-Jones has written, 'starting with the case rather than the laws at least assures dialogue with the material'.[2] In similar vein, Mark Francis has observed:

> For professional education, case studies are an effective way to teach by example, to learn problem-solving skills, and to develop useful evaluation strategies. For the profession as a whole, case studies are a way to build a body of criticism and critical theory, and to disseminate the effectiveness of landscape architecture outside the profession. A case study is a well-documented and systematic examination of the process, decision-making and outcomes of a project, which is undertaken for the purpose of informing future practice, policy, theory, and/or education.[3]

There has been considerable discussion of the case study methodology as a research tool within academic and professional circles, in both architecture and landscape architecture. Blundell-Jones can see the advantages of the case study method: 'Looking at a small sample detail, one can feel more confident of getting at least something right than when building an edifice of theory that might crumble into a thousand pieces in the face of contradictory evidence.'[4] Rolf Johansson says that the adoption of case studies as a research methodology links research and practice.[5] And Malene Hauxner says that to criticise works of garden art without knowing the circumstances of their creation can lead to even greater misunderstandings. Gardens are created in a particular time, on a particular programme, intended for a particular place by a particular person. 'In assuming this double nature, that the work, besides being a work of art, is a social product, the method requires both a critical reading of its context and a close reading of the landscape.'[6]

Natural science attempts to reduce the variables and to control the sampling method in order to obtain unequivocal results, but this approach cannot work in the complex situations faced by landscape designers. The case study method, conversely, keeps all the variation and the complexity, but restricts the number of cases examined in order to look at them in more depth. Nevertheless, case studies need to be systematic and well documented. Johansson suggests a format involving three phases: deductive, inductive and abductive. The deductive is linked to natural science and positivism; the inductive methodology has its roots in ethnography and what in recent years has become known as 'grounded theory'. The abductive is similar, but differs in that it attempts to reconstruct the case from the accessible facts. Although the contributors to

this book were not asked to follow a particular method, aspects of all three approaches are evident.

A good case study is a way of making the construction and the technology, the decisions, the compromises, and the tectonic expression visible. We hope that in reading this, you will understand more about the hidden processes of design than you could ever learn from looking at pictures, or even from visiting the site, though, of course, we would be delighted if what we have presented here makes you want to travel to see these exemplary projects.

Denmark

Torben Dam and Jens Balsby Nielsen

Landscape architecture in Denmark

Danish landscape architecture has been vigorous for over a hundred years.[1] Its origins were in the design of private gardens, but since the start of the 1930s landscape designers have participated in a wide range of projects from parks and housing areas to motorways and landscape planning. After the Second World War, the amount and range of landscape architectural assignments rapidly expanded. Several landscape architects had careers which spanned 40–50 years and during this period a new generation grew up. Many of them worked at the offices of G.N. Brandt and C. Th. Sørensen and were part of a well-connected network which provided the basis for a common experience, and the formation of a tradition (which is understandable in a small country with only five million inhabitants). In her *Guide to Danish Landscape Architecture,* Annemarie Lund remarks that during the 1930s 'several landscape architects continued enthusiastically to experiment with various geometrical shapes to create exciting space' (1997: 22). In the 1950s, the number of landscape architects grew, as did the number of assignments. It started with housing areas, accompanied by innumerable other commissions to create ground for elementary and high schools, universities, training centres, health-care and cultural institutions and cemeteries.

> Common features of these garden and landscaping projects were that they were to be functional, sensible, practical and beautiful. The technical execution was excellent down to the last detail, carried out with great insight. The gardens were simple and, in contrast to today's creations, unpretentious. (ibid.: 23)

During the 1960s, international inspiration became more and more obvious. There is still a strong urge to perform a balancing act with ellipses, curves and slightly staggered, wriggling lines. 'Streamlined trellises, delicate steel bridges, imaginative lighting fixtures, and detailed, complex paving surfaces are effects that are used frequently and not without reference to foreign models such as the Parc de la Villette, Parc Citroën, etc.' (ibid.: 26).

Case study:
The Harbour Park, Islands Brygge, Copenhagen

Project data

Project name:	The Harbour Park, Islands Brygge
Location:	Iceland Docks, Copenhagen
Planning period:	1st draft December 1993, planning commencement 1994
Construction period:	1995–2000
Costs:	DKR25 million
	4.1 million without buildings
Area:	2.8 hectares (28.000m²)
Landscape architects:	Annelise Bramsnæs and Poul Jensen, Copenhagen
Client:	City of Copenhagen, represented by Roads and Parks Department
Awards:	The Danish City Planning Award 2003

The project chosen as the case study for this chapter is a continuation of the Danish traditions of unpretentious, functional, geometrical forms and excellent technical execution down to the last detail. On the other hand, the Harbour Park reflects the new approach to relaxed outdoor life in an urban context which has become familiar in Barcelona, Berlin, the Netherlands and France.

Overview
For the residents of the Islands Brygge neighbourhood, the creation of the Harbour Park was a breakthrough. For many years, local people had been in conflict with the city authorities over redevelopment plans for the area. Suddenly everyone found themselves in agreement that the right use for the site was a park. Part of the explanation can be found in the arrival of a new generation of staff in the city's public parks office, but the influence of successful harbourside redevelopments around the world was also felt.

The Harbour Park also proved to be a breakthrough in design terms, even though it borrows ideas from projects elsewhere. In particular, there is a strong Mediterranean influence with the use of soft gravel surfaces, dark red walls and the provision of outdoor sitting and cooking facilities. The desire to preserve accumulated cultural value led to the retention of existing artefacts, such as the railway and crane tracks, and even one *Aesculus hippocastanum* which had been planted by local residents in an earlier and provisional phase of the park's development. This emphasis on reuse harmonises with the philosophy of sustainability which is now an important theme in Danish landscape architectural practice.

1.1
Harbour Park seen from the Langebro bridge, looking south

About the designers

Annelise Bramsnæs (1941–99) worked in Sven-Ingvar Anderson's landscape architecture office (1967–70), and as an Assistant and Associate Professor at the Royal Academy of Arts School of Architecture, Department of Town Planning and Landscape, Copenhagen (1973–99). She was a teacher, researcher and writer, mainly in the area of landscape planning, and her particular interest was in how nature and natural resources relate to spatial qualities and aesthetics in landscape architecture. Bramsnæs took part in architectural competitions, but the Harbour Park is one of her very few built projects.

Poul Jensen (1929–) graduated as an architect from the Royal Academy of Arts Architectural School in 1958. He was in practice with partners from 1962 until 1988, but then set up his own office. He was chairman of the neighbourhood council of Islands Brygge from 1972. 'Poul Jensen made his first proposals under the influence of international modernism.' 'During the 70s this influence lessened as in the Town Hall of Struer.' 'The Nørrevangskirken church represents a free interpretation of the Danish church. Design and materials are regionally orientated but the building contains a light influence of post-modernism. Poul Jensen takes part in the contemporary architectural debate, mainly concerning the renewal of the Copenhagen harbour front' (Møller, 1993, translated by the authors).

Project history

Islands Brygge is a landfill area dating from 1905–08. 'Is' is the Danish term for ice and the name reflects the usage of this part of the harbour, for it was here that ships trading with Iceland and the Faroe Islands would berth. Islands Brygge is also a neighbourhood housing 12,000 inhabitants in dense five-storey blocks. The main road parallel to the park is also called Islands Brygge. The harbour activities changed rapidly after the Second World War, and the area's uses became more diverse. Trade declined and the dockside railway activities stopped.

In the 1970s, the residents of Islands Brygge pointed out that the housing densities were very high and that the area needed a park. The activities of the residents and an accidental explosion in a nearby factory drew attention to the concerns of the district. In 1971, a number of residents groups were formed to protest against the proposal to build the Hotel Scandinavia on the site. Although the hotel went ahead, it was from these groups and from the neighbourhood council that the idea of creating a park emerged. The explosion in 1980 revealed that the authorities could not handle an escape of chemical substances so close to a densely populated area, and support for the needs of the residents began to grow.

Following the urban renewal in other parts of the city (e.g. at Nørrebro) and the explosion of 1980,

1.2
Harbour activities on Islands Brygge in 1980
1.3
Residents making a lawn in 1984

the municipality of Copenhagen acknowledged that Islands Brygge was a very densely populated district and that the built form meant that there was sunlight for only short periods in the streets and backyards. At the waterfront, however, there was light and air and lots of activity.

Over the course of one weekend in April 1984 several hundred residents laid out a provisional park on the harbourside which covered an area of 1 hectare. The preparations for this were considerable. The residents got permission from the port authorities to use the northern part of Islands Brygge, where activity in the harbour was decreasing. The permission required that harbour activities in other parts of the harbour could still continue. For example, it was specified that the existing railway tracks should still be usable. The new park was laid out as a 'happening' that marked the residents' wishes. The initiation of the park attracted a great deal of publicity. The park was popular and gradually it became obvious from the wear and tear that the maintenance of the park demanded more than the local people could do in their spare time.

The neighbourhood council and its chairman Poul Jensen continued to work on the park and in 1993 the municipality of Copenhagen decided to give the money to complete the park as a permanent feature. The neighbourhood council established a fund to support the park. The fund would contribute DK kr. 5 million. Poul Jensen and landscape architect Annelise Bramsnæs were asked to act as consultants. In December 1993, they presented a plan: 'A new harbour park at Islands Brygge – a recycled park which conveys the place, the history and our time'. The planning proposal[2] stated the intention: 'To make sure that the establishment of the park is made with consideration to the area's attractive position close to the city centre, the entrance to the harbour and also the adjacent dominant building façades.' The designers believed that the park should be developed as a concise whole with organic shapes in a constructive correlation with the rest of the make-up of the city.

1.4

Aerial perspective sketch of the proposed Harbour Park on Islands Brygge, December 1993. The caption reads 'a recycled park which conveys the place, the history and our time'.

Design development

The harbour

The harbour park is part of the harbour area, with an ambience that reflects its maritime and commercial history. Towards the east, a six-storey, uniform residential block ends the harbour area. Towards the north, the 10m-high bridge, Langebro, ends the harbour area. Facing south the view is towards the preserved buildings of Dansk Sojakagefabrik (the Danish Soya-cake Mill) and the H.C. Ørsted Works. West of the park is a 300m-wide basin and Kalvebod Brygge. In the background, the characteristic skyline of Copenhagen is visible – with five-storey buildings and towers.

The park itself is 50m wide. The groundscape is a level surface of gravel onto which components are either placed or dug into the ground. Towards the east a leafy canopy of two rows of *Prunus avium* functions as a promenade. The 12m-wide waterfront raised 2m above sea level ends the park towards the basin. Where streets open onto the promenade, corresponding spaces within the park fulfil a specific variety of functions, as described below. The components in each space have a different character. Between the open spaces are 30m-wide lawns bordered by a 36cm-raised concrete panel. Paths are cut diagonally through the lawns.

The park consists of different elements which are described and analysed separately below. Many different approaches towards design have been combined. In the design of Vestmanna Plads, the Lawns and the Playground, the designers listened carefully to the wishes of the residents. The design for the Waterfront, the Festival Place, Halfdan's Passage and the Market Place were informed by respect for the history and character of the place, as well as a positive attitude towards the recycling and reuse of existing features. The diagonal paths crossing the lawns, the curved walls at Reykjaviks

Plads and lighting at Halfdan's Passage, on the other hand, demonstrate a contemporary approach. Some features of the park employ references to other designed landscapes, such as the Alley, which draws upon Marienjberg Cemetery as well as promenade planting in Berlin and Paris; the lighting at Halfdan's Passage, inspired by examples in Barcelona; and the zigzag steps at the Festival Place, which pay tribute to those at the Parc de la Villa Cecilia, Barcelona.

Promenade with leafy canopy of cherries

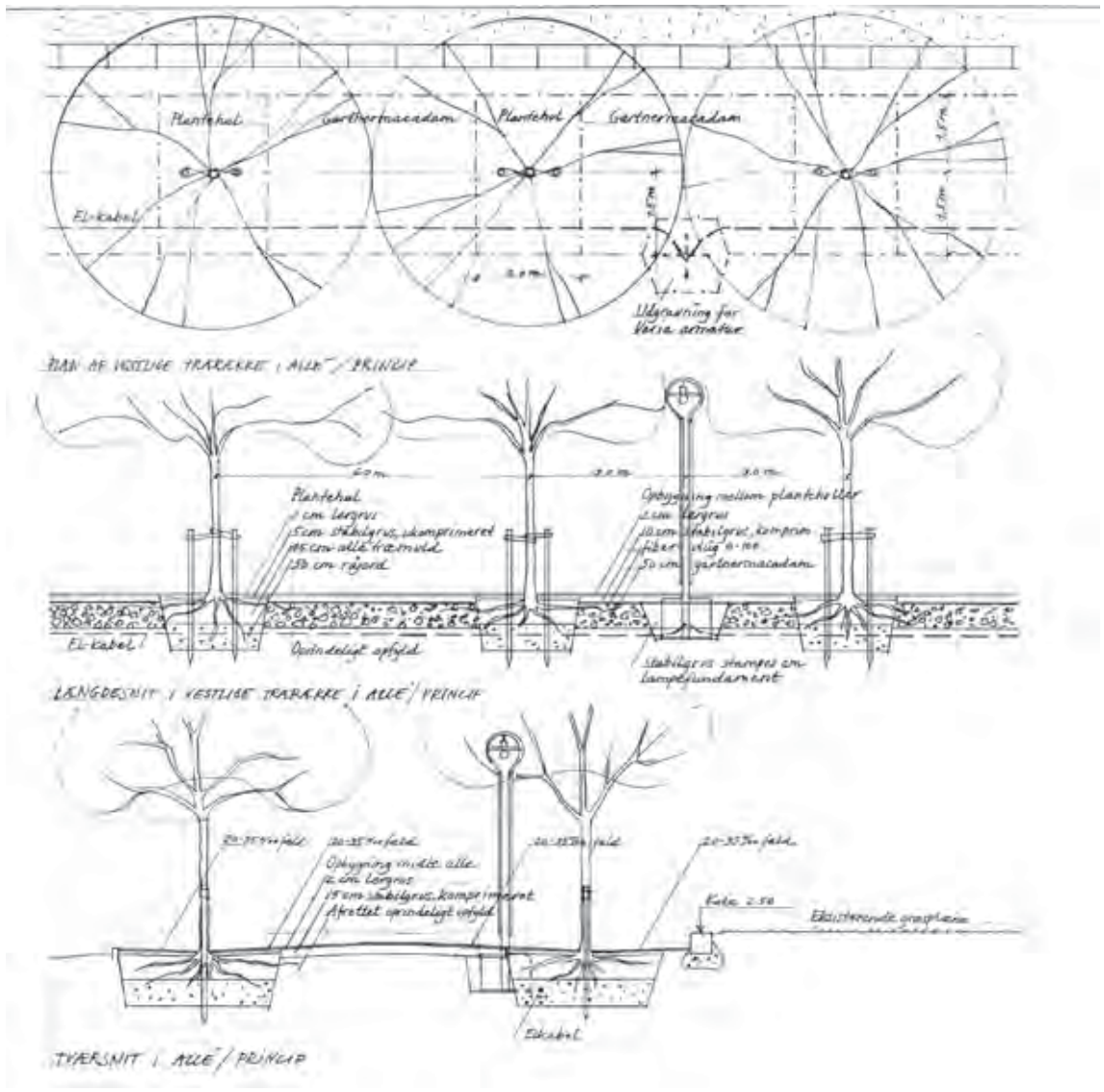
Parallel to the street known as Islands Brygge on the eastern side of the park there is an alley formed of *Prunus avium*. This avenue is 7.75m wide and 570m in total length. There is a 100mm camber to this alley, casting run-off to either side. A specimen of *Aesculus hippocastanum* from the provisional park is to be found at the northern end of the alley. The trees create a leafy canopy which is broken by gaps at the points where other streets meet Islands Brygge. This gives the impression of a partly open and not a distinctively tight character. On the other hand, the rhythm and profile of the avenue provide an instantly recognised element and one can easily accept these pauses at the street ends. The canopy announces the park to the street, and at the same time one can see beneath the trees to the park and the harbour beyond. Stepping over the street kerb onto the gravel surface marks the transition from city to park.

The first row of trees stands 1.75m from the edge of the cycle path. The distance between the two rows is 7.75m and the gravel surface ends 2.18m from the trees with a 36cm-high edge of concrete. The spacing between the trees in the row is 6m. The landscape architects based these dimensions on field research into successful promenade plantings in Berlin and Paris. Lighting is provided by lamp-posts placed at intervals of every fourth tree. The trees were planted as 'standards' (i.e. they had a stem circumference of 18–20cm measured at 1m above ground).

The construction of the alleyway is as follows: the top 20mm consists of hoggin,[3] i.e. gravel bound with clay. This is laid on a 150mm base course of well-graduated gravel (between 0 and 35mm diameter), laid on top of the pre-existing soil formation. The tree planting pits are 2.0 x 3.0m in plan, each containing 450mm of growing medium on top of 500mm of loosened soil. The top of the pit was covered with 50mm of uncompacted gravel on top of 20mm of hoggin. The spaces between the pits are filled to a depth of 500mm with 'root-friendly material' consisting of large stones infilled with soil (the soil occupies about 25 per cent of the volume). On top of this is a geosynthetic membrane, 100cm

1.5

Plan and cross-section of the final proposal. Lighting is carefully sited between the trees.



of *stabilt grus* (crushed stone mixed with sand), and a final 20mm of hoggin. The camber of the path sheds run-off storm-water towards the tree pits, where it is absorbed locally.

The designer's first sketches show an alley of *Salix* trees. Bramsnæs and Jensen stated:

> The main character will come from the light *Salix* in the long canopy. The alley is going to have a partly open and not a distinctively tight character. Therefore *Salix alba* will be planted, because it has a soft form and light foliage. To prevent too much regularity, the rows are disrupted once in a while. Outside the small squares the row stops completely.

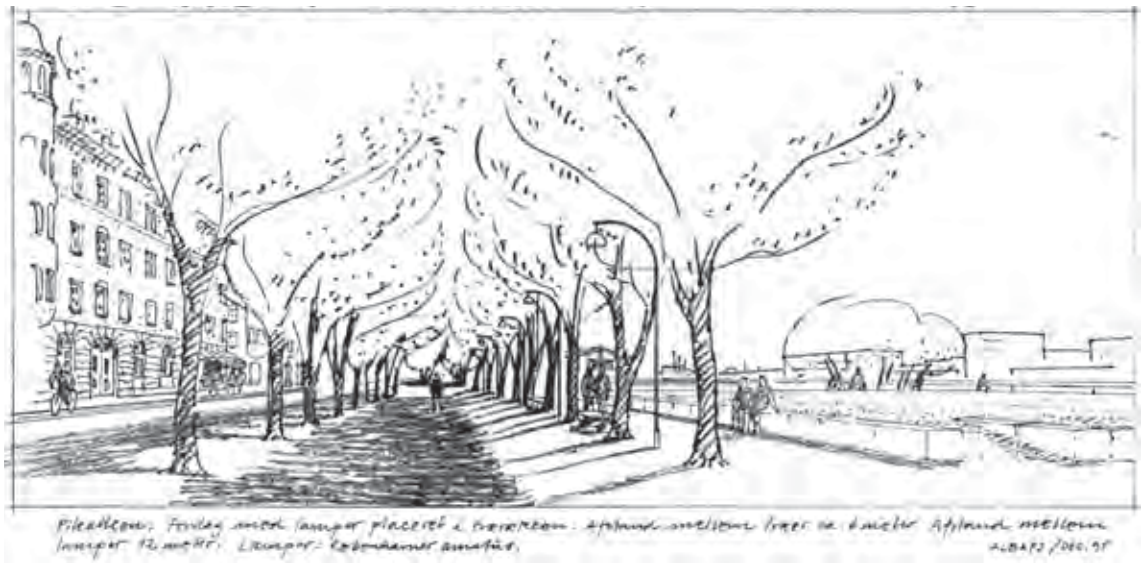
Jensen states: 'The profile of the section was thought of as hollow, like the *Salix* alley at Marienbjerg Cemetery where the grass under the alley makes a beautiful image.' According to Bramsnæs and Jensen: 'The promenade will have a firm gravel surface from the street edge to the park. The iron rails will be removed, but the wooden

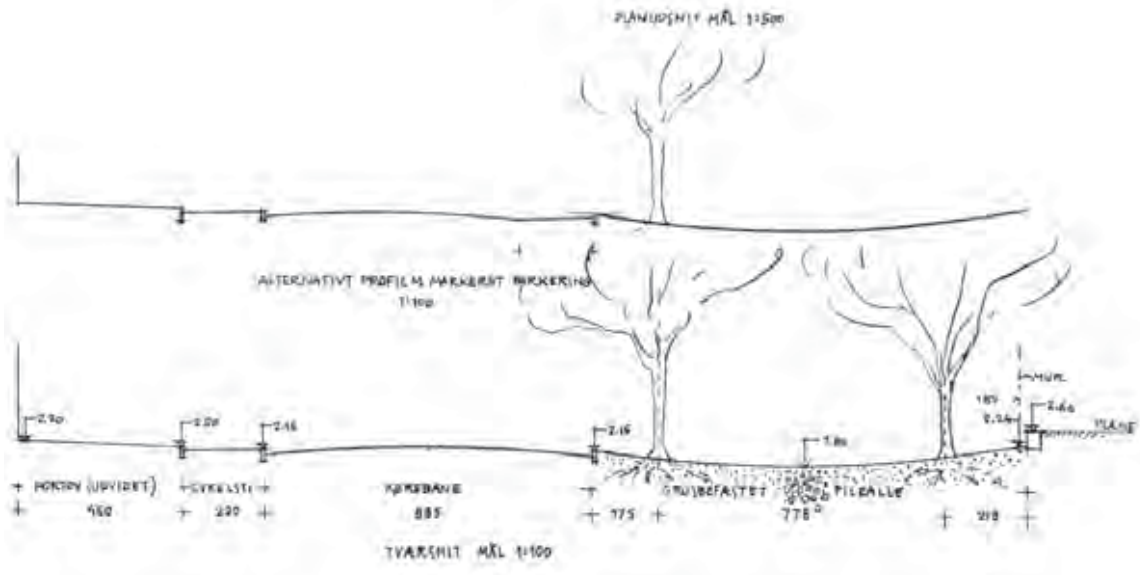
1.6

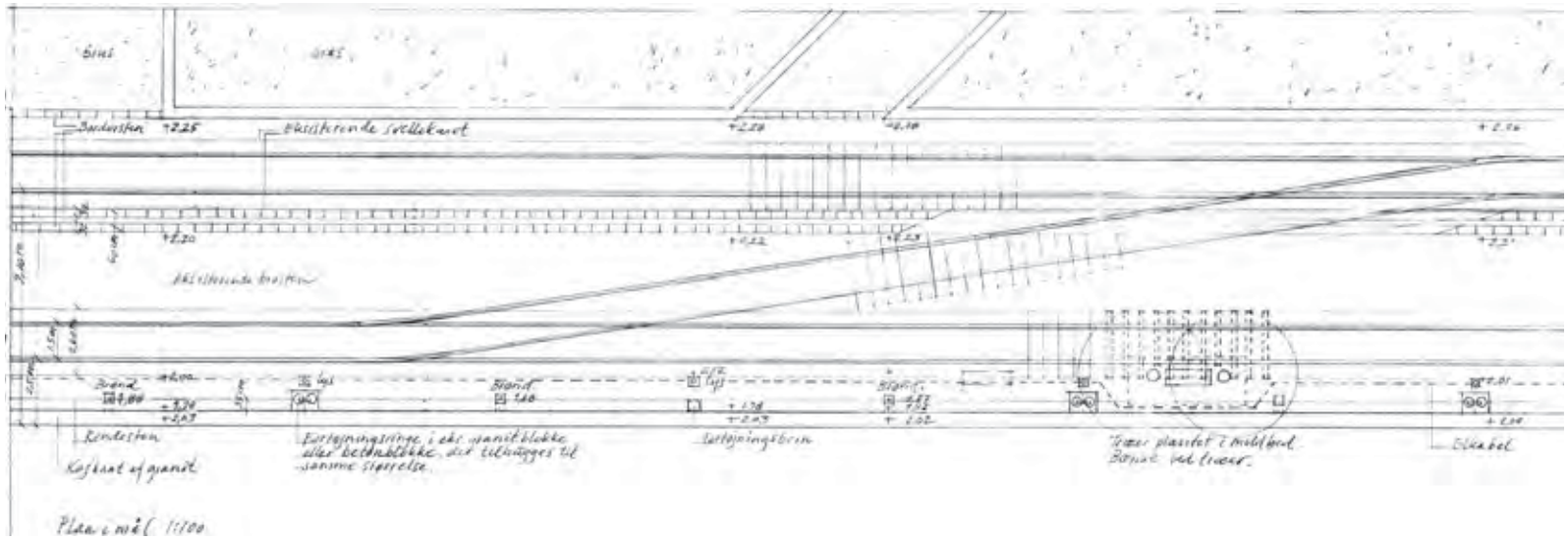
Early sketch of the avenue showing *Salix* trees

1.7

Section through the promenade showing the originally intended concave profile and drain







1.8

Plan of the waterfront, as constructed, showing the line of granite slabs, the railway tracks and the seating areas

sleepers will be kept as elements which give some character and identity. The sleepers will be flush with the surrounding surface.'

However, this original concept had to be modified. The park office in Copenhagen follows a policy not to plant trees smaller than 18–20cm in circumference at 1m stem height. It was not possible to obtain a sufficient quantity of *Salix* in larger sizes, so *Prunus avium* 'Plena' was substituted. It was chosen for its double flowers. It bears no fruits. It also proved impossible to reuse the old railway sleepers as there was a fear that the chemicals which had been used to preserve these timbers could cause cancer.

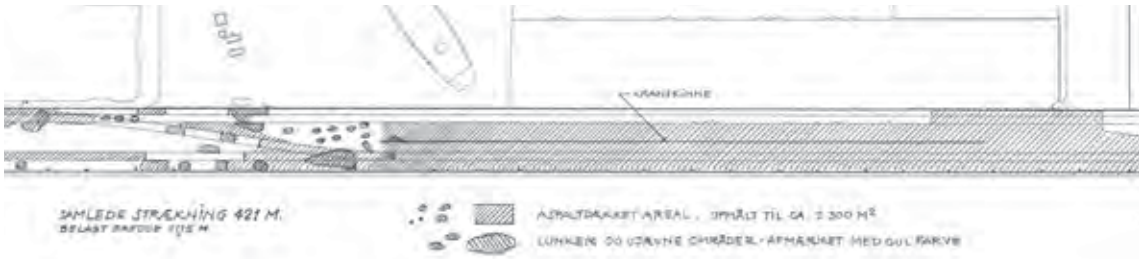
The hollow section in the designer's first sketch suggested a concave profile for the path, but this would have caused ponding of storm-water in the centre, so it was rejected in favour of a convex profile which would shed water towards the trees.

Such large areas of gravel interrupted by raised edges and items of furniture provide good conditions for weed growth. Because of the recycled/reclaimed aesthetic of the site, the landscape architect, Poul Jensen, could accept a few weeds, but he did not want the gravel to turn into a green surface. The maintenance personnel have accepted that hand weeding will be necessary, along with the use of flame weeders. Initially, the gravel surface was a little loose, which made it easier for weeds to become established, but it is now more firm and stable.

The paved waterfront

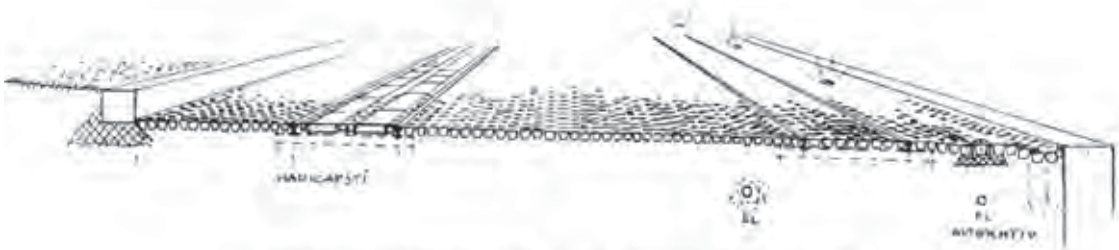
The promenade along the waterfront is 11.15m wide x 570m long and is paved with granite setts. Two sets of railway lines remain in the pavement, connected by gently curving pieces of track. Two rows of granite slabs have been placed along one set of tracks. Along the harbour edge, groups of *Crataegus crus-galli* have been planted. The promenade is interrupted in places by new features with more elevation, such as the skateboard rink, new walls, the pergola and the tower in the playground. There are also new benches sited to give views over the harbour.

The harbour edge is defined by a 350mm-wide granite element which is 50mm proud of the sett paving and dates from the building of the harbour in 1908. The granite setts and the railway tracks are laid directly onto the fill material used to construct the area known as Islands Brygge in 1905–08. Storm-water run-off is directed towards the harbour edge where it is collected in drains before it is delivered into the harbour. The original granite mooring posts have been retained, together with their steel



1.9

Survey plan showing uneven areas and areas of asphalt



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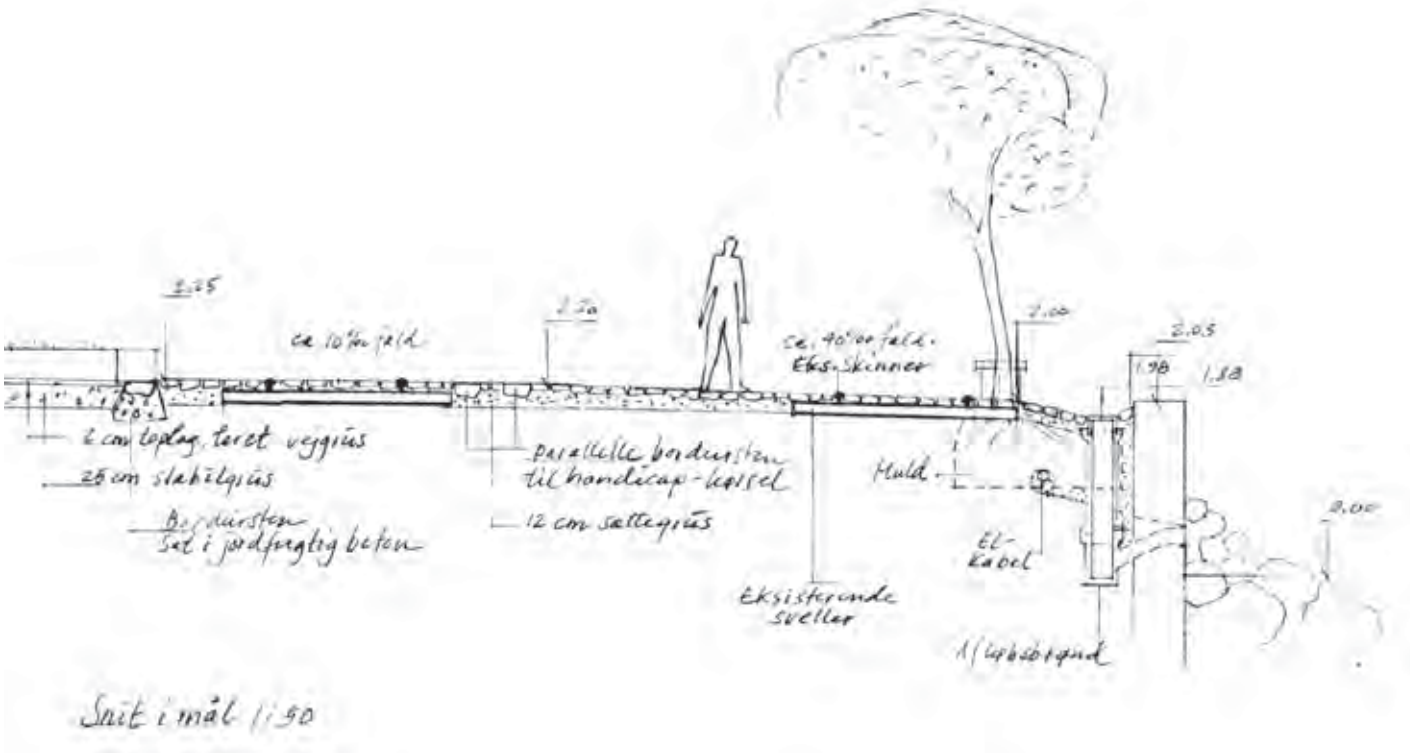
1.10

Typical section through the pavement



1.11

Section through the waterfront from the edge of the lawns to the harbour. Existing sleepers have been retained. Storm-water is directed towards the harbour. Rocks have been placed in the harbour against the quayside wall.

1.12
Plan of the skateboard rink and the sunken basketball court. This area interrupts the line of cherry trees. All the trees have white flowers.

1.13
Photo: the ramps and edges of the skateboard rink. The seven-storey building in the background is on the other side of the harbour.

mooring rings, but rocks have been placed against the outside of the harbour walls so that ships can no longer use this stretch as a quay.

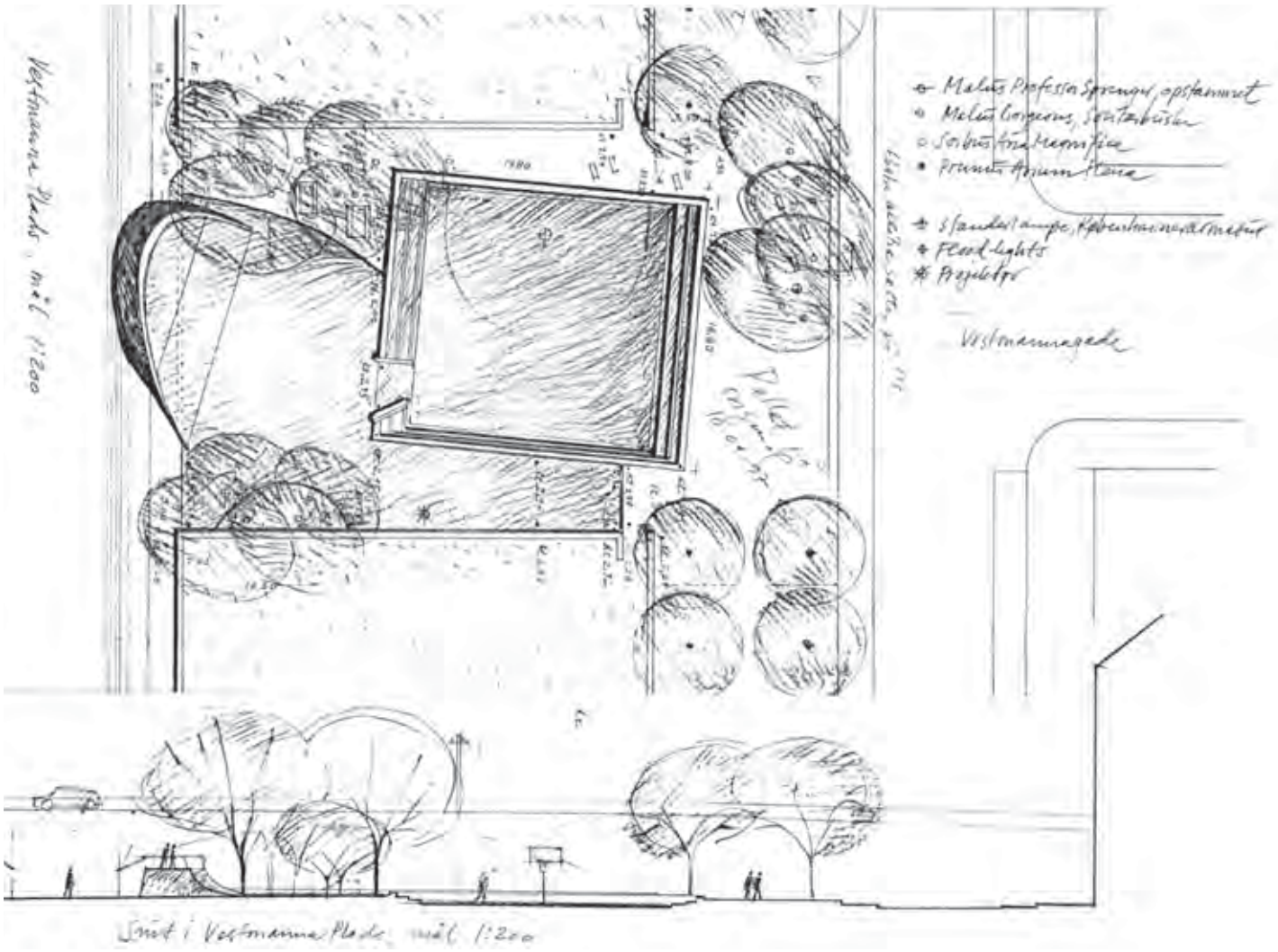
The designers had to decide whether to attempt to salvage the existing sett paving and railway tracks or to undertake a completely new construction. As their general approach favoured the retention of the existing dockside character and the reuse of materials, a detailed survey of the condition of the surface was undertaken. It was found that granite sett paving had often been covered up by additions of concrete or asphalt. In other places, the removal of concrete or asphalt left holes where the sett paving had to be relaid. The railway lines were left in the pavement, with their problematic sleepers undisturbed below. In a few places, such as seating areas or the new plant beds, the tracks were removed. Because a surface made of granite setts can be uneven, and with particular regard for those using wheelchairs or pushchairs, two rows of granite flags were set into the pavement. These flags are of Halland Gneiss, the same material imported to make the sett paving a hundred years ago. The slabs have been sawn and flamed to give them an even surface.

The promenade along the waterfront still has the character of a harbour. Pavement and railway tracks hold the history, while the skating rink, walls and pergola which interrupt the promenade refer to the new functions of the Harbour Park. Although some of the paving has been relaid, it keeps its harbourside austerity because it does not look new.

Vestmanna Plads with the skateboard rink
Opposite the street called Vestmannagade is an area surfaced with gravel and asphalt at the same level as the promenades. Here there is a skateboard rink in steel which is offset by 2m, so that it cuts into the harbour promenade. In the centre of this is a square of asphalt, 280m^2 in area, which is approximately 600mm lower than the skatepark and slightly skewed in plan. This forms a basketball area which is edged by concrete elements forming either a single step or three steps. There is also a ramp between the skatepark and the basketball pitch, edged by two low concrete walls.

Sorbus trees have been planted in groups on both sides of the ramp and in the promenade along the street known as Islands Brygge. Benches and tables have been placed under the latter. The area is illuminated by a single high spotlight positioned on a metal pylon.

The asphalt mastic provides a very smooth surface for roller skaters and skateboarders. The edges around the lowered square are made with the same type of concrete elements used to form the

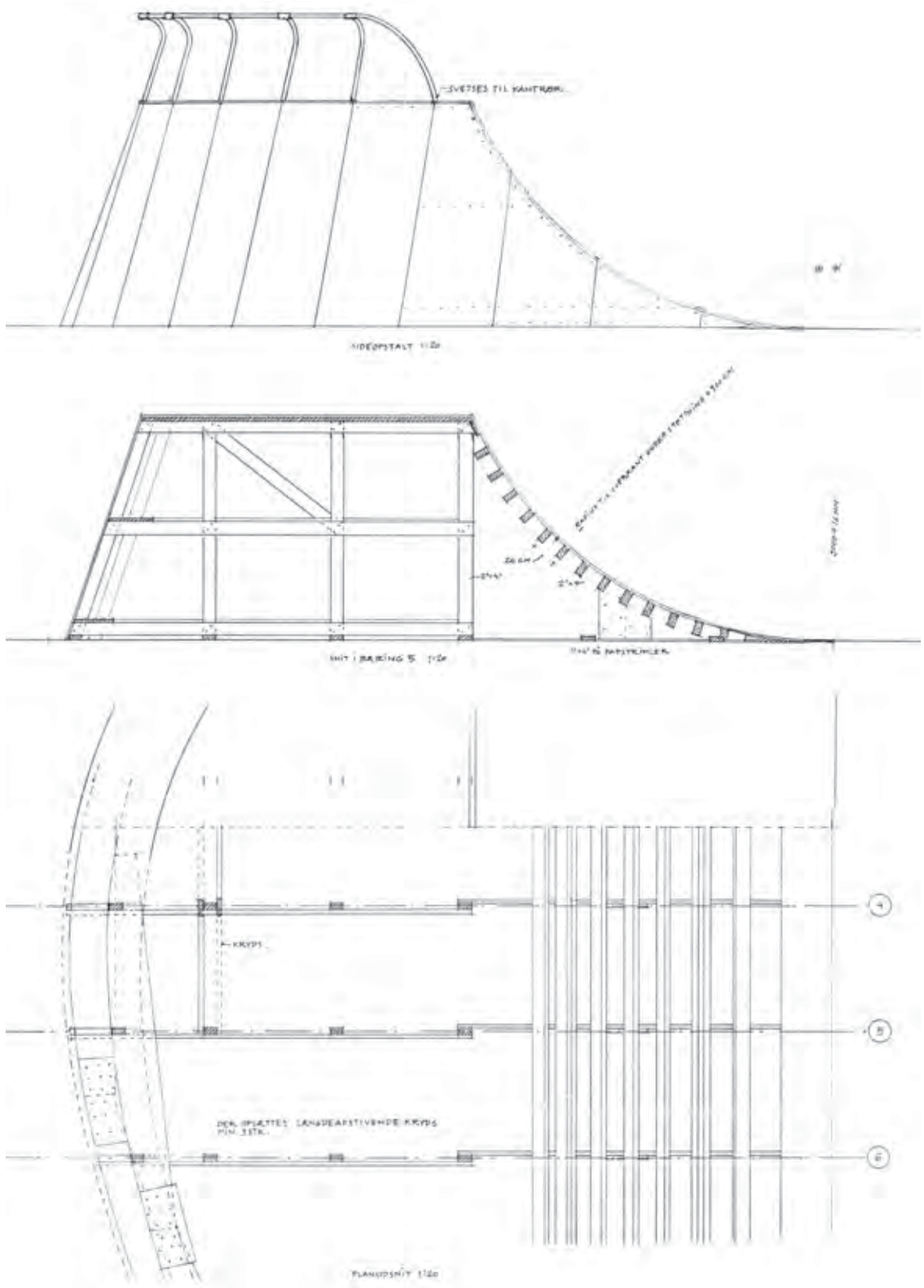


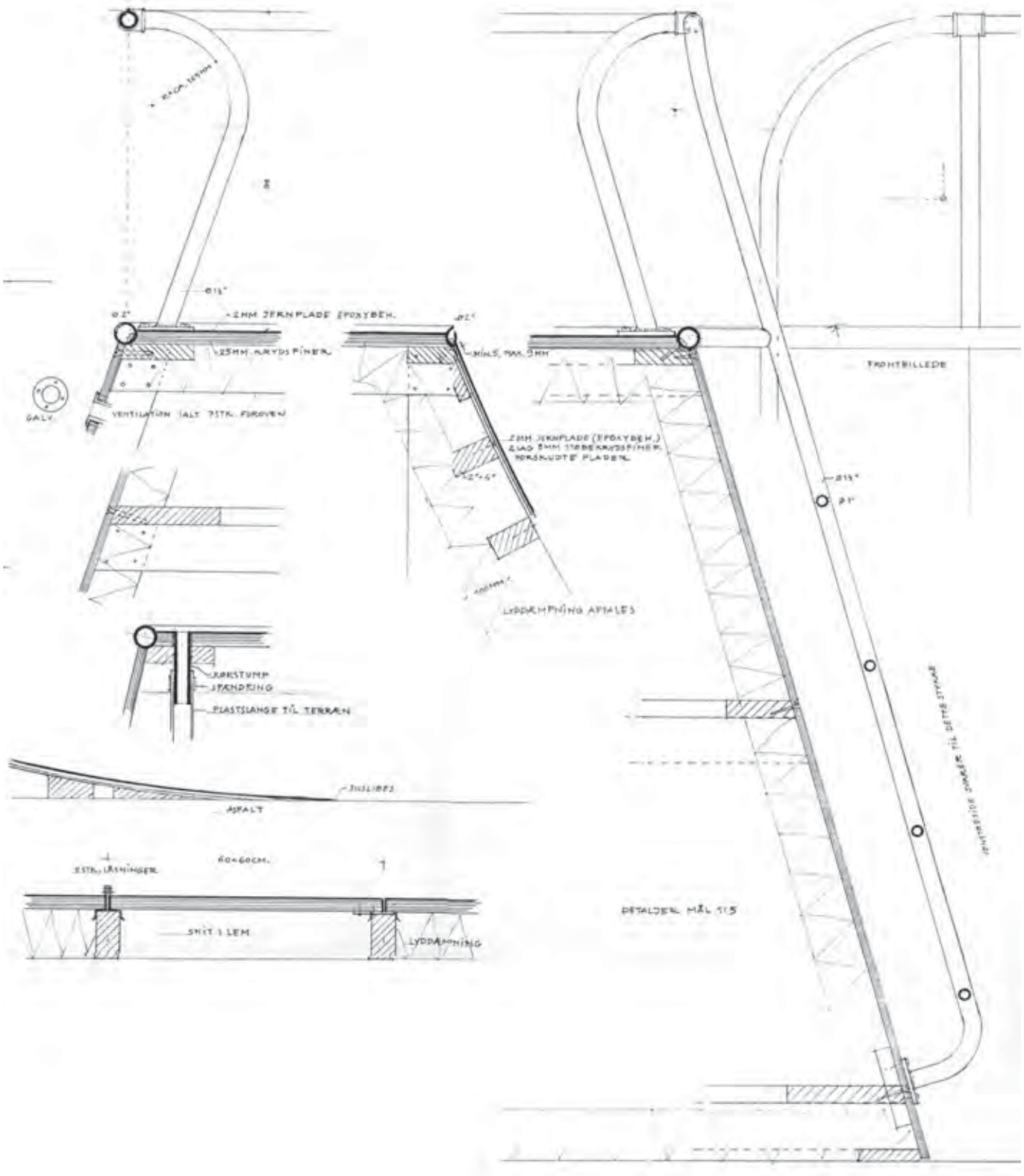
raised lawns, with specially shaped pieces to create the low walls at the sides of the ramp. These walls are raked to follow the slope of the ramp. The skateboard rink itself is made of curved steel plates supported on a timber framework. A handrail secures the edge of the platform which is 2m above the ground toward the harbour side. The sunken asphalt area has a central crown which sheds run-off towards gullies placed in each corner.

In the design proposal made for the park in 1993 Vestmanna Plads is much smaller. It is not mentioned separately but only as the access to a proposed youth hostel, which was to have been housed in an anchored vessel, *Herluf Trolle*. Although this proposed hostel gave an impetus to the creation of the Harbour Park, it was never realised. Meanwhile, in the 1990s, roller skating and skateboarding became very popular, particularly among a group of youngsters with their own subculture. It was decided to redesign the area and to integrate the activities of these young people into the park. Skaters associated with a shop called *Underground* were consulted regarding the first design suggestions for Vestmanna Plads and gave specific advice on the design of features for skating. The design

1.14

As-built drawings of the skateboard rink ramps, in elevation and section. The design is contemporary and was developed in association with the skaters.




2MM JERNPLADE EPOXYBEH.
25MM KRYDSFINER
VENTILATION I ALT 75TK. FORUDEN
GALV.
MINS. MAX. 3MM
2MM JERNPLADE (EPOXYBEH.)
LIGE 8MM STØBEKRYDSFINER
FORSKUDTE PLADER
LYDDÆMPNING AFTALES
FRONTBILLEDE
RØRSTUMP
SPÆNDTING
PLASTSLANGE TIL TERRÆN
ASFALT
60×60CM.
STÅL LÅSNINGER
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could therefore be tailored not only to the character of the place, but also to the specific needs of a particular group of park users, who use edges in their sliding and ramps and smooth pavements to obtain speed.

The skateboard park and the basketball area have proved to be popular attractions. At present, the area is predominantly used by skaters rather than basketball players. The edges around the square and on the ramp are very popular with the skaters. Although the area is mostly used by the young and active, other people often come to spectate, making use of the tables and benches that have been provided.

Reykjaviks Plads

Like much of the Harbour Park, the square known as Reykjaviks Plads is surfaced with gravel. It lies opposite the end of the street called Reykjavikgade. Red walls with integrated benches form a shelter from cold winds that blow from the north especially in the early spring. These walls are curved in plan and their height varies from 1.4 to 3.2m. They are constructed from in-situ concrete and lightweight concrete blocks covered with a red mortar. The walls are capped with square ceramic flags which are light blue in colour and serve to shed water. Seating places and openings in the wall have been faced with the same ceramic flags. Two metres in front of the walls are two 500mm raised beds which contain brightly coloured bedding plants. These too have the blue ceramic facings.

The gravel surface is raised into a small mound, 400mm in height, from which two fragments of concrete protrude.

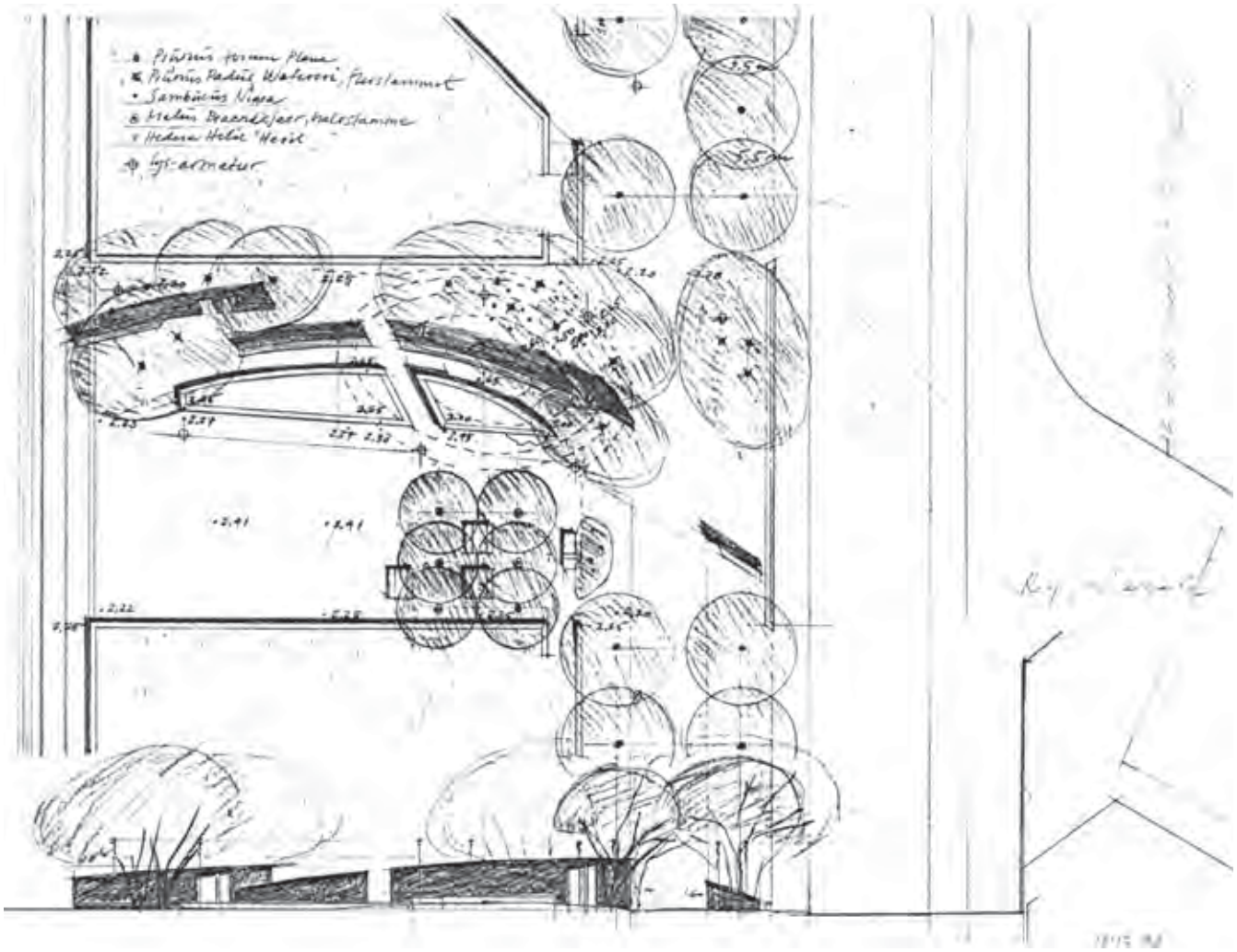
Behind the wall, to the north, groups of *Prunus padus* have been planted, which also provide shelter. The rear of the wall has been planted with *Hedera helix*, while a group of tables and benches in front of the planting beds is placed within a grove of *Malus hybrida* spaced on a regular grid. Light is provided by a low pylon lamp-post to a design often found in railway areas.

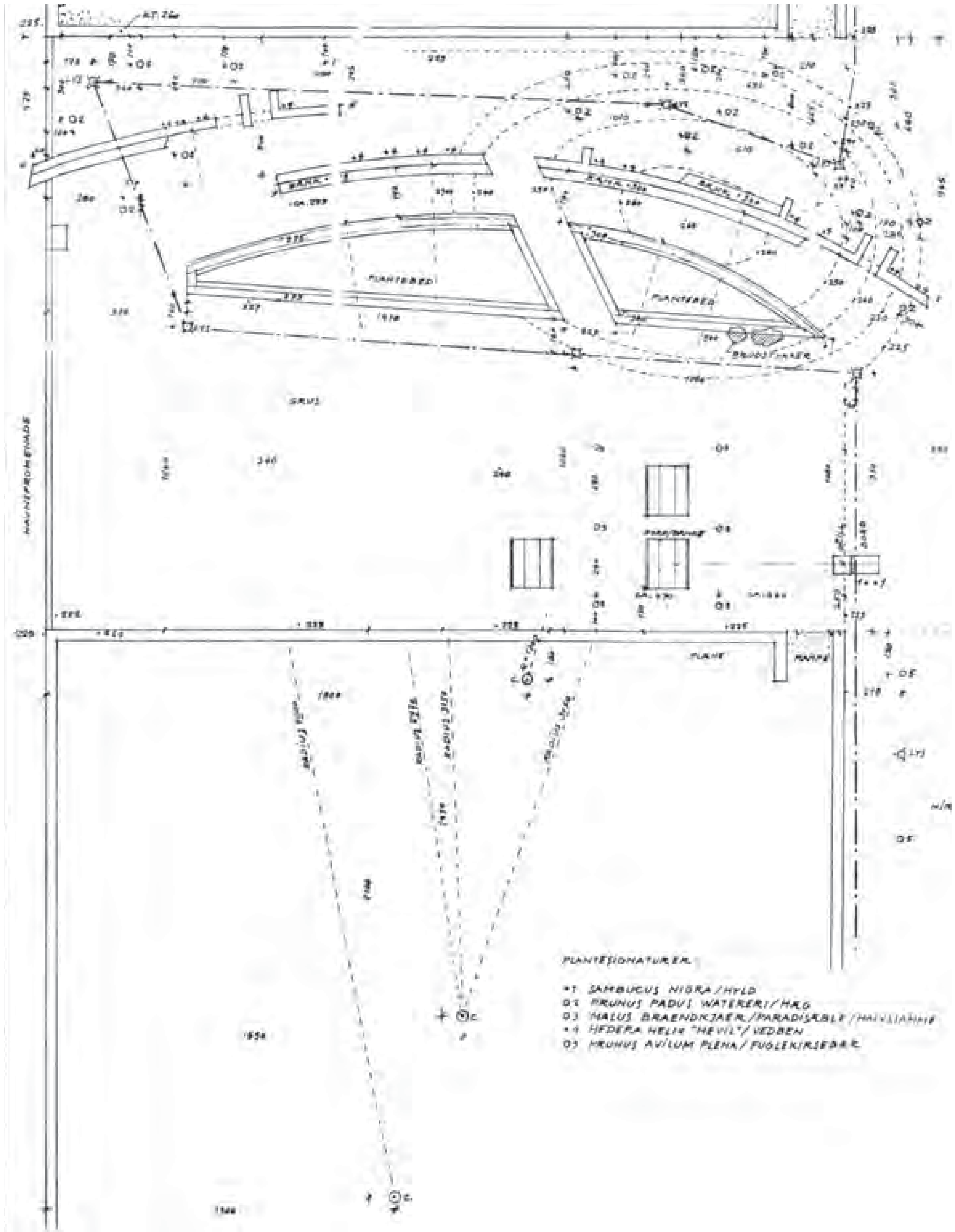
The original design for Reykjaviks Plads showed a much smaller area with pergolas protecting the seating places. The curved wall was a later idea and the choice of the colour red was made after tests on site, with different colours being tried on the wall. Commentators have suggested a wide range of influences from Barcelona to Bolivia, but the truth is that the colour was decided by trial and error.

Originally, the plant list was influenced by the wild herbs which are to be found in the large semi-natural area south-east of the park. The concept was to use blue and yellow wildflowers that could

1.15

Sketch plan and section of Reykjaviks Plads showing the walls, flowerbeds and trees. The wall extends into the promenade and groups of white-flowered trees interrupt the avenue.

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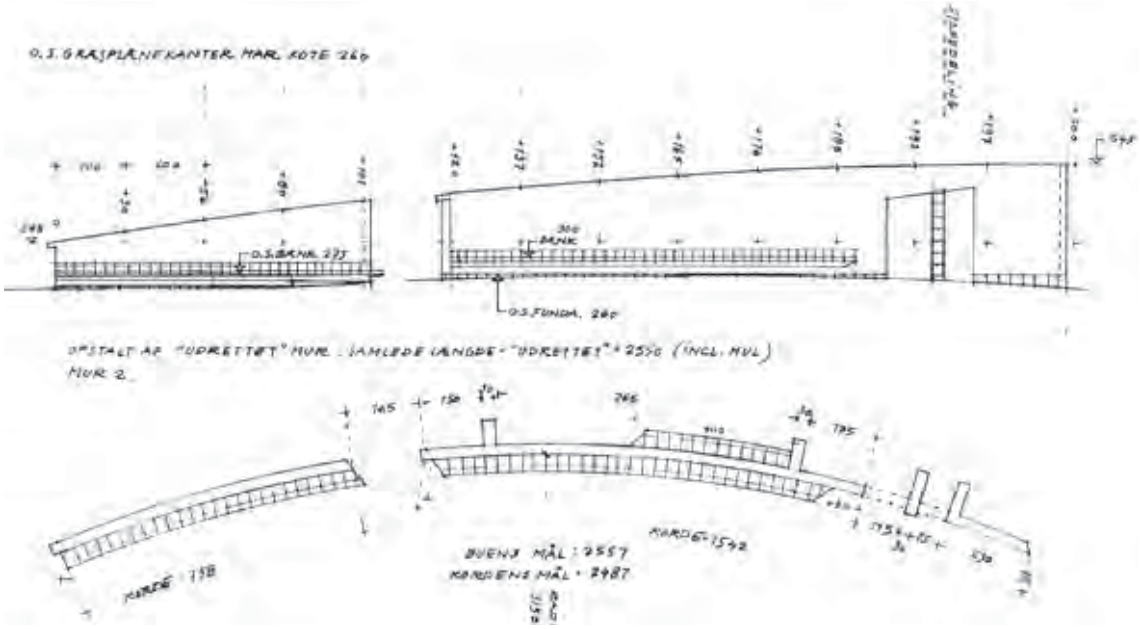
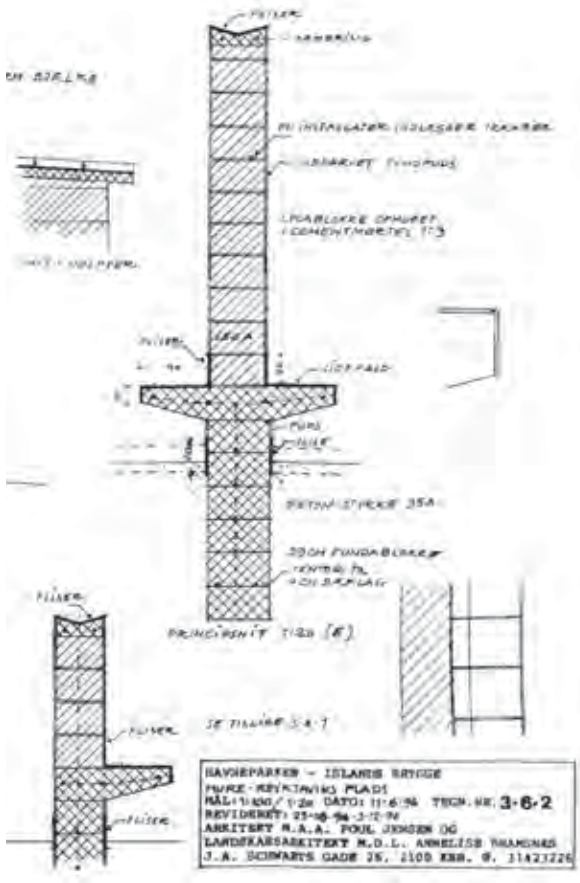




1.16

Opposite: plan as built. Note the small 'hill' and the two concrete blocks that belonged to a building in the former harbour area.

1.17

Details of the wall, shown in elevation, plan and section. The wall has a ceramic coping and ceramic tiles cover the benches and the sides of the wall where storm-water runs off.

1.18

Photo: the slightly raised platform where the upturned hull of the *Pinen* has been mounted as a shelter. Visitors can climb the steps as a stair or follow the zigzag route as a ramp.

1.19

Opposite: plan showing the raised platform in the Festival Place

withstand drought conditions. The desire was to bring nature into the park, and it was also thought that this approach would be appropriate to the envisaged low levels of maintenance. However, the wildflowers were later replaced by bulbs and annuals with blue flowers. After three years, probably in response to undocumented demands from members of the public, the composition of the flowerbeds was changed and a variety of strong colours was introduced.

The red walls of Reykjavik Plads shelter seating places sited to catch the sun. They are particularly popular in early spring. The flowerbeds are kept full of brightly coloured plants and are popular with the residents.

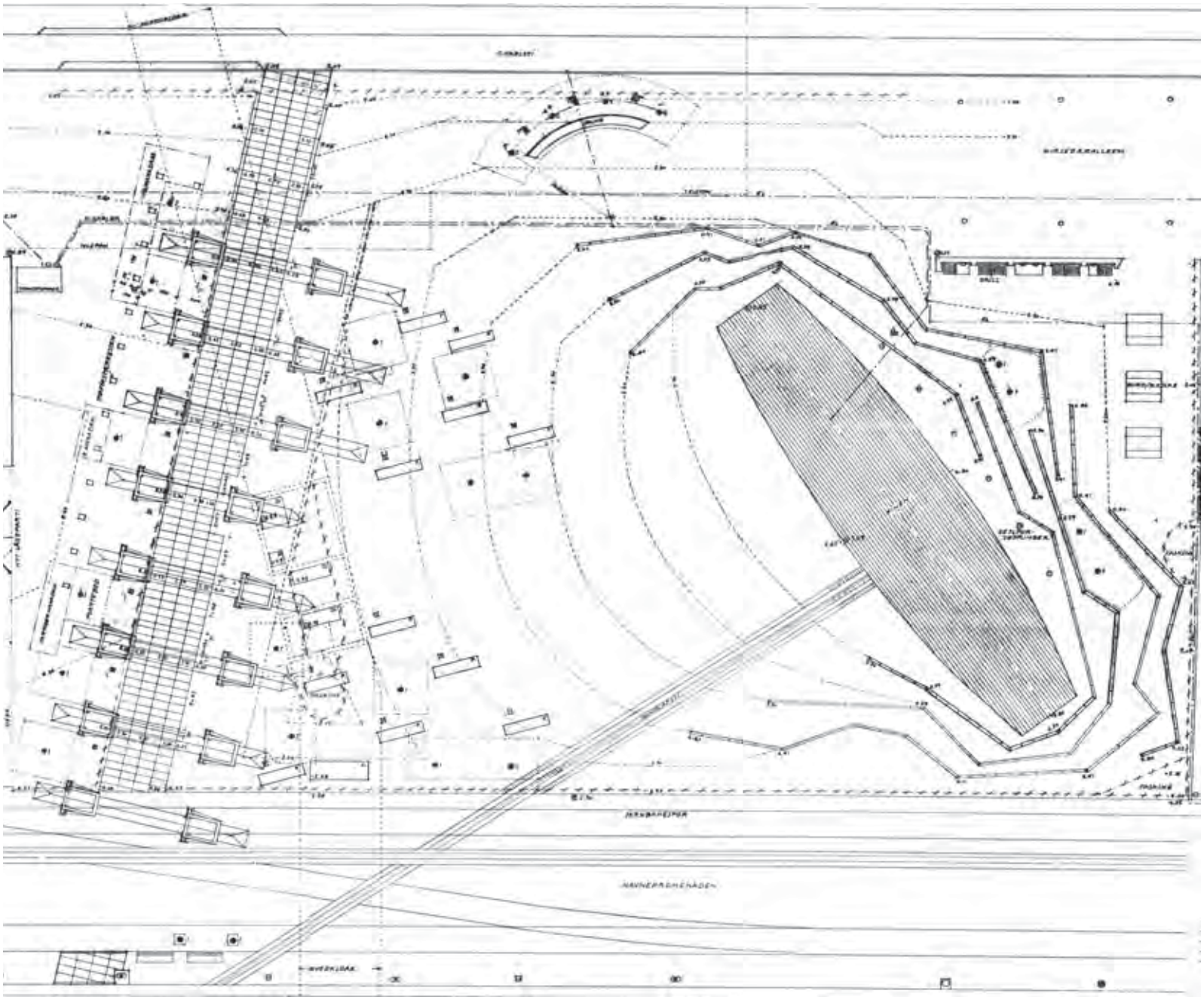
The Festival Place

The inverted hull of an old ferry, the *Pinen*, appears to float over this place. It has become the icon for the park. It is carried on two wigwam-like timber supports to form an umbrella over the highest part of the site. It stands on a gentle mound about 650mm higher than the rest of the park. Beneath it, the chosen surface material is once again gravel, with gentle falls to shed run-off. On three sides – east, south and west – there are shallow steps (100–120mm risers) in an eye-catching zigzag formation. These steps have been created with pre-cast concrete kerbstones. The configuration of the zigzags also accommodates a gentle ramped access.

The northern side of the Festival Place is framed by a 4m-high steel pergola, through which runs a path raised by 50mm. The steel frame of the pergola has oxidised, giving it a rusty appearance in harmony with its setting. It carries steel wires which provide the support for climbing *Clematis*.

South of the *Pinen*, groups of *Crataegus crus-galli* have been planted in the gravel surface, while towards the street there is a group of poplars. All the trees planted are white-flowered. In keeping with the philosophy of recycling and reuse, 12 benches in the Festival Place have been made using concrete from the former storage area of the harbour. The benches are supported on H-profile iron legs, upon which the 60 x 180 x 15mm concrete elements are secured. These are capped with blue ceramic flags. In the south-eastern corner a wall is reused as the support for six barbecue grills. These are fixed to the wall and one of them has insulation underneath so that people in wheelchairs can use it without danger of burning their legs.

The old ship was already part of the provisional park laid out by the residents, the original idea coming from Poul Jensen. The designers felt that 'to stress the special importance of *Pinen*, there should be a slight rise up to it'. The connection to the harbour is

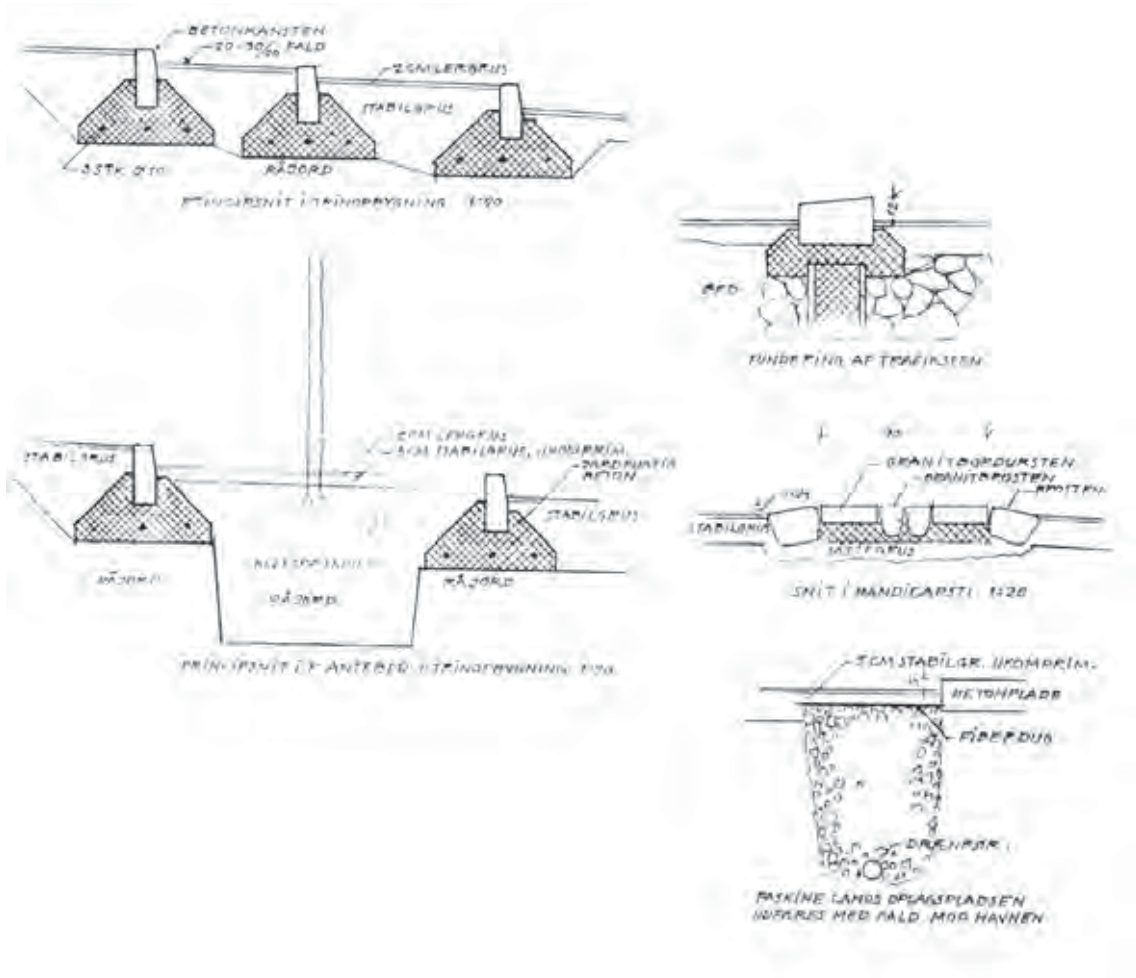


1.20

Sections showing details of the steps in the Festival Place. The kerbstone is made of the same white concrete used elsewhere in the park. The lawn edging is also shown.

1.21

Opposite: survey in plan and elevation of the industrial wall to be retained in Halfdan's Passage.



obvious and stresses the link between the park and earlier activities that took place on the site.

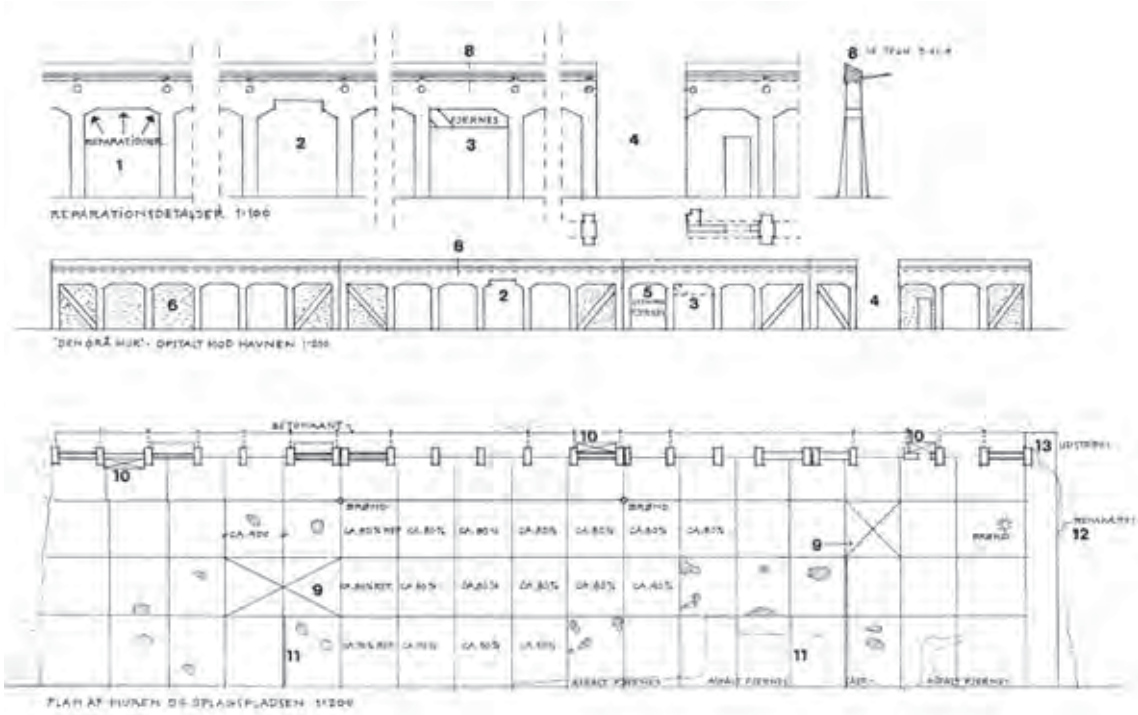
In the first proposal for the Festival Place, it was suggested that it should include an area on the opposite side of the street, but residents were not enthusiastic about having trees so close to their buildings. In the meantime, alternative proposals for renovating the street were implemented and the option of enlarging Festival Place was turned down.

The impressive zigzag steps were inspired by the designer's travels to Barcelona where the Parc de la Villa Cecilia incorporates a similar idea. This concept has been adapted to fit the gentle landform which carries the *Pinen*. This evident use of references is honest, while the design itself is functional. Gravel provides a robust surface which is able to withstand heavy use during the many parties and festivals that are held here, particularly during the summer months.

The barbecue grill and other outdoor facilities can easily be used by people in wheelchairs. Smooth access is made possible by a line of granite flags and some of the grills are deliberately positioned to allow wheelchair users to get close to them.

The wall at Halfdan's Passage

Opposite the street called Halfdansgade to the south of the Festival Place is Halfdan's Passage, where a grey wall about 3m high, a remnant from the days of the harbour, separates a low area with



volleyball and pétanque pitches from an open area paved with concrete. The wall is made of concrete columns supporting a weighty beam. Some of the spaces between the columns are open while others are filled in. *Wisteria sinensis* grows on the wall, softening its industrial monumentality. The open area has in-situ concrete paving laid in slabs of 3 x 3m. Two planting beds have been created within this pavement. The volleyball and pétanque pitches are sunk 450mm below ground level. In keeping with the rest of the park, no trees have been planted in the promenade at this point. Access is provided by two ramps which are angled slightly from the rectilinear geometry of the games pitches.

The pitches have a crown which sheds storm-water to the edges where it is picked up by a drain and led off into a sewer. Lighting is provided by fittings secured to the wall and from uplighters beneath the *Prunus* and *Crataegus* trees. Once again, the influence of projects in Barcelona is apparent in this method of lighting, which creates a striking effect.

The concrete wall used to carry one of two rails for a crane which unloaded coal and later gravel and stone for harbourside storage. The structure also formed one of the walls of a storage building. When designing the park, the decision was taken to demolish most of the building but to retain this wall as a feature which referred to the site's heritage. A full survey was undertaken in plan and elevation and an assessment of the amount of stabilisation and repair necessary was made. The intention was not to attempt a cosmetic transformation of the wall but to retain its industrial character. However, several espaliers were secured to the eastern side of the wall up to a height of 2.5m as a support for the *Wisteria*.

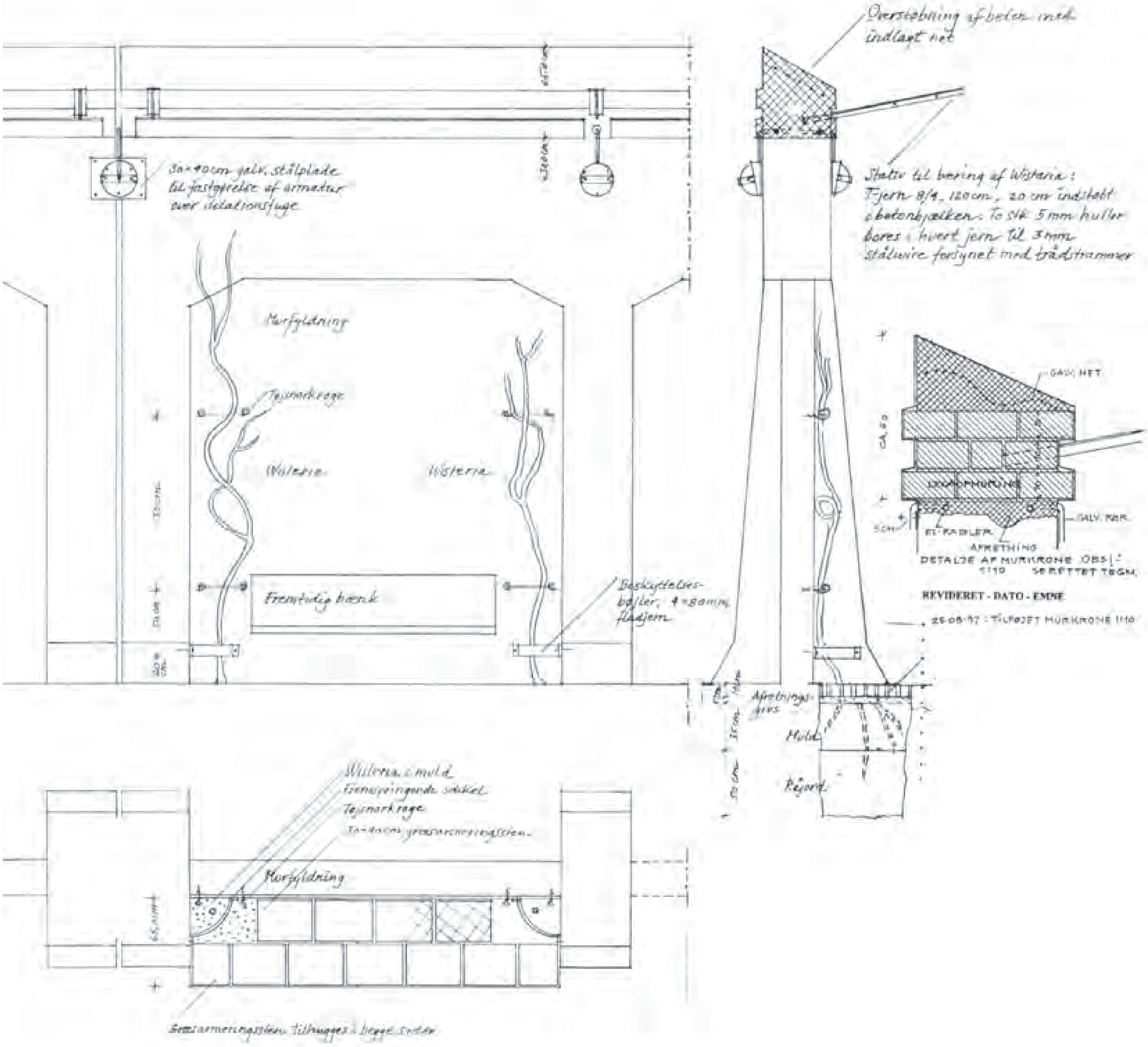
A new coping has been made for the wall, which hides some of the damage caused when the crane was taken off its rails, and this also secures the top of the espaliers. Cables for the light fittings are also hidden within this construction.

1.22

The grey wall viewed from the north-east. Note the new lighting and espaliered planting.

1.23

Opposite: details of the wall in elevation, section and plan showing the new coping, espaliers, plant beds and bench


Overstøbning af bølen med indlagt net
30×40cm galv. stålplade til fastgørelse af armatur over dilatationsfuge
Stativ til bæring af Wistaria: T-jern 8/4, 120cm, 20 cm indstøbt i betonbjælken. To stk 5mm huller bores i hvert jern til 3mm stålwire forsynet med trådstrammer
Murfyldning
Tejsnorkroge
Wisteria
Wisteria
Fremtidig bænk
Beskyttelsesbøjler, 4×80mm fladjern
GALV. NET
GALV. RØR
EL-KABLER
AFRETNING
DETALJE AF MURKRONE
REVIDERET - DATO - EMNE
Afretningsgrus
Muld
Råjord
Wisteria i muld
Fremspringende sokkel
Tejsnorkroge
Murfyldning
Græsarmeringssten tilhugges i begge sider

The condition of the concrete floor in the old storage area was also carefully surveyed for irregularities and damage. In places, it had been patched using asphalt. Using this information the contractor was able to make appropriate alterations and repairs so that the concrete pavement could be reused. The 1993 proposal suggested a flower garden in this location, but instead the salvaged concrete forms the floor of what is now known as the market square. This use was determined by the residents; it is now used once a year for a local festival.

The wall and the concrete pavement on the new market square are important elements from the former harbour which have been incorporated into the new design. Their condition after many years of use means that some repairs and modification were needed before the elements could be used in the new park.

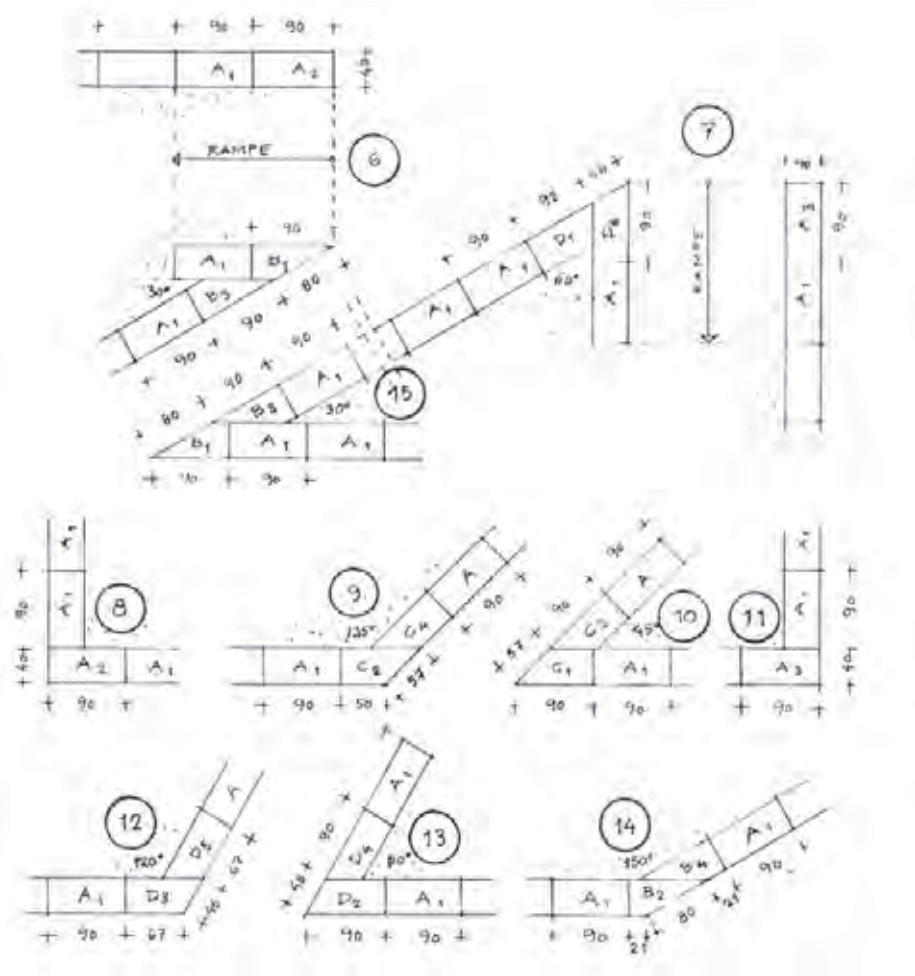
Lawns and sunbathing

Sunbathing was one of the most popular activities in the temporary park laid out in 1984. In response, the designers have provided new raised lawns which improve this function. These are much better than the previous grassed areas which were at the same level as the paving. Ramps give access to the lawns for disabled people and also for maintenance machines.

The three lawns which lie between the cherry alley and the paved waterfront promenade are each 30m wide and they are cut through by paths at various angles – 30º, 45º and 60º. The lawns are raised 360mm above the surrounding levels, which offers them some protection from excessive trampling, as pedestrians are gently channelled along the footpaths. Along the cherry walk there is an access ramp at each corner of every lawn. The edges of the lawns have been constructed using white concrete pre-cast elements – the basic unit has the dimensions 900 x 400 x 400mm, but because of the angled paths, special units were needed for junctions at corners. These elements were laid very closely together with very narrow joints, on a 200mm foundation of dry-mix concrete.

Because there was some contamination of the existing ground, a thin plastic net was used to keep the new soil separate. On this was laid a 340mm-deep level of growing medium, consisting of compost mixed with gravel. The centres of each lawn are raised by about 300mm to facilitate run-off. A PVC membrane has been laid on the inside of the surrounding concrete elements to protect them from moisture percolation.

The environmental authorities for Copenhagen informed the designers that the existing soil on the site was contaminated and should not be allowed



1.24

Photo: one of the diagonal paths cutting through the lawns. Small ramps give access to the grass for children's buggies, wheelchairs and mowing machines.

1.25

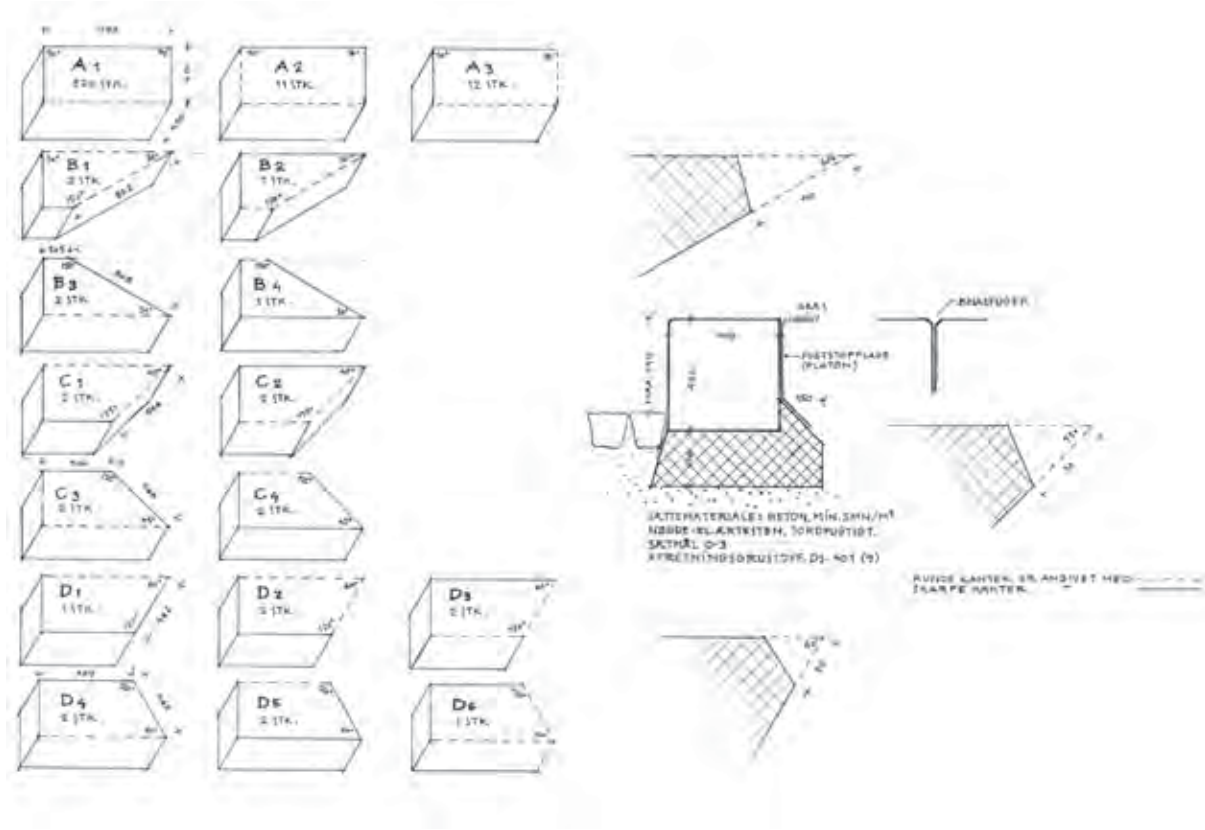
Details of the raised lawn edgings, showing the places where standard elements could not be used

to come into contact with users. This meant that it either had to be completely removed, or a new layer should be added on top. The choice was between transporting and storing a great amount of polluted soil – with all the problems associated with its eventual disposal – or sealing the existing soil on site and bringing in a much smaller quantity of a new growing medium, a much more practical and economical solution. This then was the main impetus for raising the lawn areas. In the proposal dated 1993, the suggestion was that the lawns should be raised by 200–250mm but this height was later increased to 360mm so that the raised edges could also function as informal seats. The decision to raise the lawns also has the benefit of protecting them from wear and tear caused by pedestrians and cyclists which had been a big problem in the provisional park since its creation in 1984.

The decision to raise the lawns meant that careful consideration had to be given to the edges. In 1993, the designers suggested 'a precise and stable edge made of soft coloured concrete elements, maybe with a pattern in the surface'. The paths which cut through the lawns at various angles presented a challenge to the designers, but the solution was to modify the standard element and to create a number of special corner pieces. Each was drawn in detail at a scale of 1:50. Laying these heavy elements to the

1.26

Summary drawing showing the types and numbers of special elements required. The detailed sections show the carrying layer, membrane and joint.



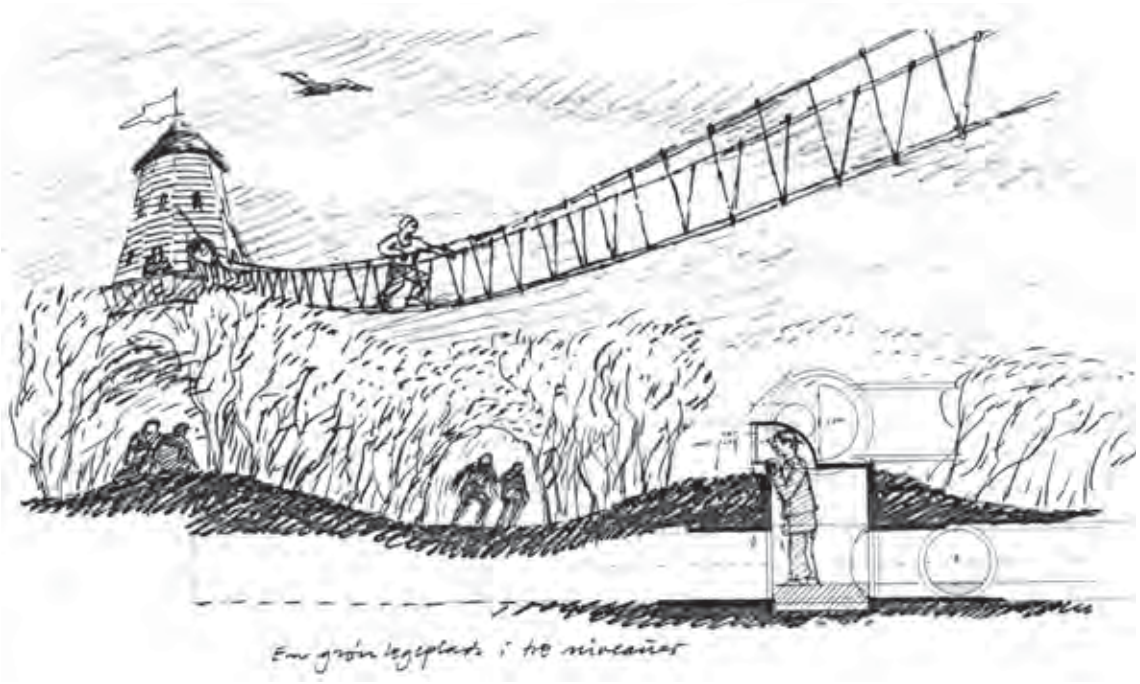
fine tolerances necessary to achieve narrow joints required the contractor to use a crane.

The playground

Towards the canopy of the cherry avenue a 2.2m wall has been built which frames the playground. The face of the wall slopes by about 10 per cent. Towards the harbour the playground is fenced using H-profile steel columns in-filled either by concrete elements or by wires creating a kind of espalier. A narrow stair with five steps and high rails gives access from the promenade. Admittance from the harbour side is via small cast-iron gates.

Much of the playground has a grass surface but there are also areas of gravel. The lawn at the eastern side of the playground rises 800mm up the wall, creating a slope which is orientated towards the harbour and the sun. Benches have been placed along the wall which give good views over the play area to the harbour beyond.

The playground had its starting point in co-operation with the local school. For one month the school ran a project whereby students could put forward ideas for the proposed playground. The pupils wanted to create a jungle with a tunnel system where they could crawl and hide. The landscape architect tried to respond to this concept, but the complex system of tunnels suggested by the children was judged to be too dangerous by the authorities. The tunnel system therefore had to be simplified; it now consists of three small hills, each with a small tube running through it. Similarly, the children's vision of a jungle was reduced to the planting of *Salix purpurea* 'Gracilis' and three groups of *Salix alba*



1.27

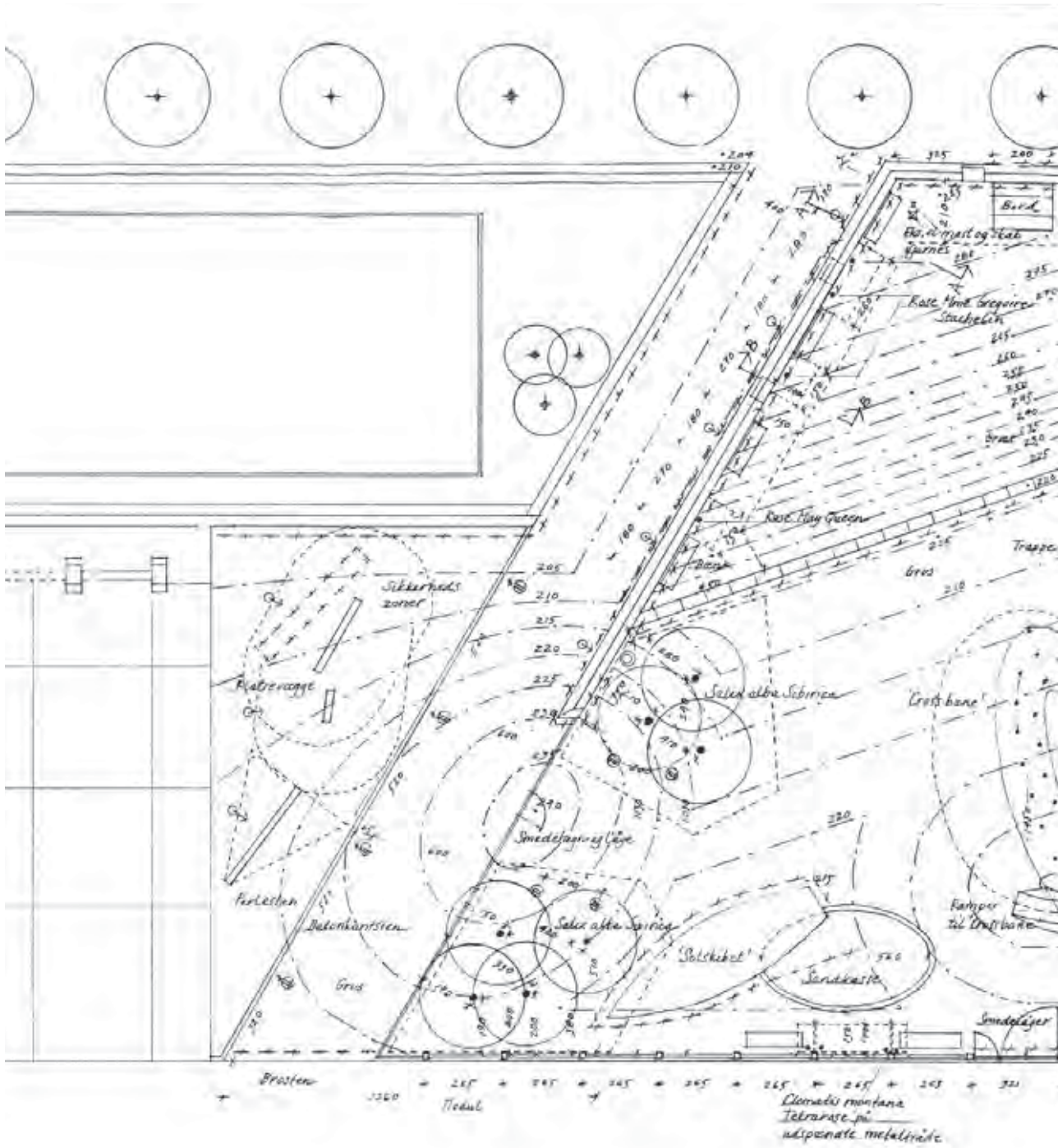
Sketch plan of the playground at an early stage, incorporating the wishes of the schoolchildren following the participatory project with the school

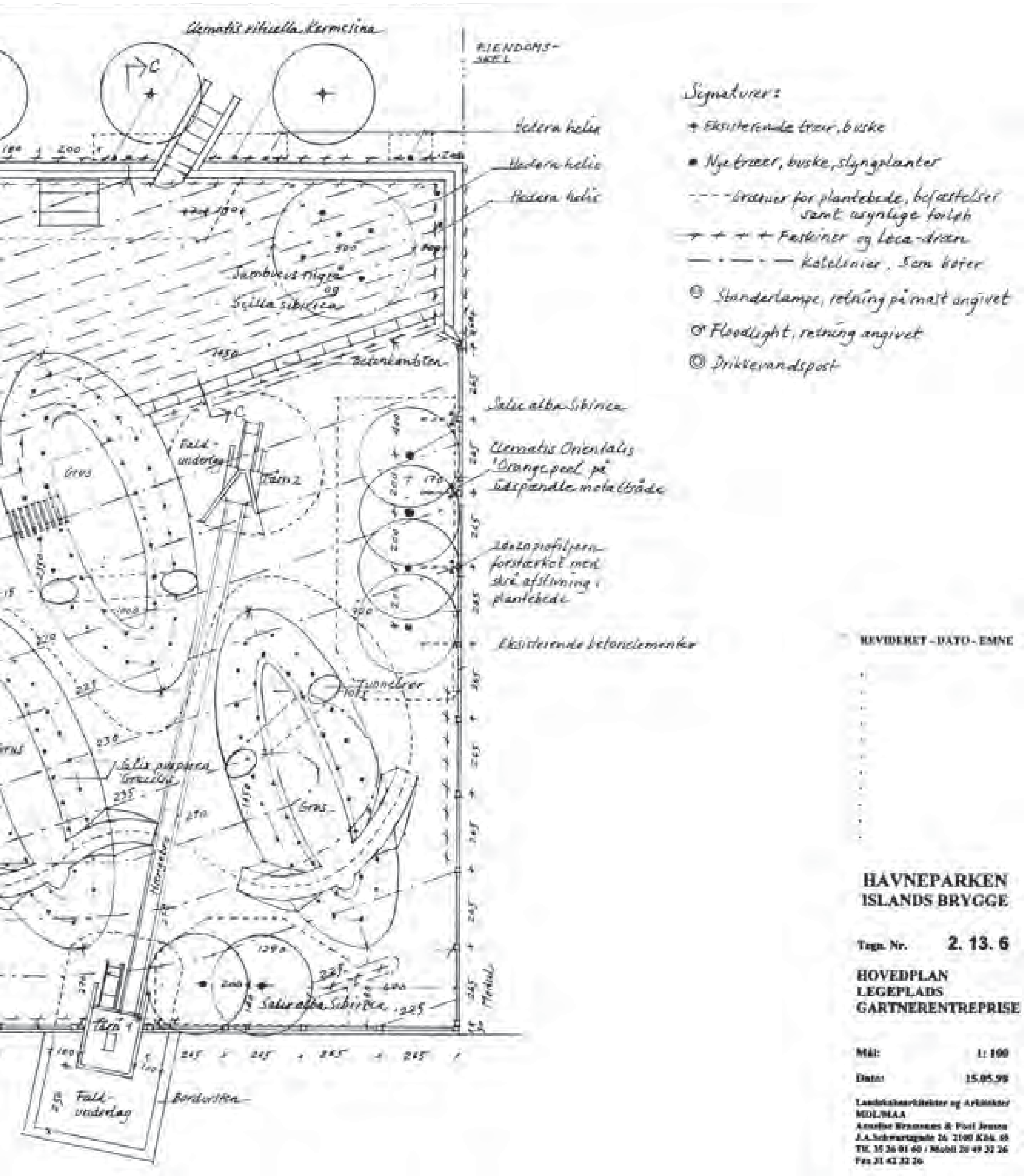
1.28

Sketch showing the underground network of tubes, the jungle and the tower as imagined by the schoolchildren

1.29

Plan of the playground as built. The tower has been adapted for construction in steel. The underground network is limited to three tubes. The 'jungle' was interpreted as willow scrub, but this proved difficult to establish.




Signaturer:
Standerlampe, retning på mast angivet
Floodlight, retning angivet
Drikkevandspost
REVIDERET - DATO - EMNE
HAVNEPARKEN
ISLANDS BRYGGE
Tegn. Nr.
2. 13. 6
HOVEDPLAN
LEGEPLADS
GARTNERENTREPRISE
Mål:
1: 100
Dato:
15.05.98

'Sibirica' in the gravel surface. An aerial ropeway in the children's scheme was changed to a bridge running between two towers. Designing this latter feature was a challenge for the landscape architect, who brought in an engineer to advise on stability. The bridge itself was constructed by a 'rigger' from a local shipyard.

Although the wilder ideas produced by the children had to be toned down, the playground provides a good and safe place to play. It is fenced and framed by a wall to the street; spatially it is very open to the harbour, though fenced all round for reasons of safety.

Evaluation

In the original proposal for the park the designers stated that their intention was to create 'a recycled park which conveys the place, the history and our time'. In this, they have been successful. The four themes – recycling, place, history and time – are evident throughout the Harbour Park.

It is not just the materials and elements of construction that have been reused or recycled, but also the very openness of the site itself. This place in the middle of the city and the edge of the harbour has been retained with an open sky above and unimpeded views of the city skyline. History has been preserved in numerous ways, not just through the paved waterfront and the recycled materials but in new constructions like the pergolas or aerial ropeway which have a family resemblance to the older elements and make reference to the former use of the site. The more recent layer of history provided by the provisional park is also marked by the retention of the *Aesculus hippocastanum* and the rethinking of the big lawns. Our own time is written on the site in the form of the diagonal paths, the curved walls and the new lighting. Local people have contributed to the creation of this contemporary layer, as in the suggestions made by the skaters for the design of steps, pavement and ramps. Contemporary needs are also addressed in the focus upon outdoor facilities, which has become even more important

following the opening of a swimming pool in the harbour in front of the park.

The idea of the informal is seen in the choice of gravel as pavement and the partly broken alley of cherries, and it suits both the old harbour environment and the impression given by the provisional park. The informal is today obvious and appropriate but it belies the amount of professional time and skill that has gone into its creation, not least in the survey and assessment of the condition of the existing site and the possibilities it presented. This effort has been entirely justified and has given the site an authenticity which would have been very difficult to attain with a completely new construction.

The many references to Berlin, Paris and Barcelona have been incorporated by the landscape architects in such a way that they fit the context of the Harbour Park, which required adaptation and redesign. For example, the distance between the trees in the alley of cherries is the result of many considerations, but the final proportions of the alley allowed the designers possibly to break the line at certain points without disturbing the general impression. The lighting of the park alludes both to railway sidings and to the uplit squares of Barcelona.

The relatively long period that the design process has taken has provided the time to listen closely to the residents and the park has been adapted as it has been built. For example, it allowed time for the skaters' needs to be included and for the decision to build a marketplace rather than construct more flowerbeds.

The Harbour Park is a new form of park for the 1990s, which met the needs of the city at the time of its creation. The residents who since the 1980s had been fighting for better living conditions on Islands Brygge have seen one of their main goals fulfilled. The Harbour Park is thus an exemplar and inspiration for other groups fighting for better environmental conditions and proves that perseverance can be rewarded. The authorities will recognise the virtues of supporting a local initiative when the arguments for it are persuasively made.

Ireland

Sue Jackson

Landscape architecture in Ireland

The Irish Free State came into being in 1922, following a civil war, when 26 Irish counties seceded from the United Kingdom as the 'Irish Free State'. The conditions for this split developed during the previous century as a result of social, political, economic factors, cultural imperatives and the severe effects of the potato famine of the 1840s. Six counties remained within the UK as Northern Ireland. With the creation of a republic in 1949, the Republic of Ireland was born.

The Republic of Ireland was traditionally a rural economy and its economic development was hindered by poverty and emigration until the 1990s. That decade saw the beginnings of remarkable economic success and the country became known as the 'Celtic Tiger'. During that time, with support from the European Union, the Irish government implemented a series of national economic programmes including urban regeneration and development. These policies had a very positive effect and Ireland now has a thriving economy and a rising population which is young and well educated, with good employment prospects.

Landscape architecture is a developing profession within the Republic of Ireland, having its independent origins in the 1970s. In 1966, when the United Nations considered the country undeveloped, there was only one landscape architect in private practice and the profession was a chapter of the (British) Landscape Institute. The profession began to develop when seven landscape architects who trained in America, with Ian McHarg among their tutors, returned in the 1970s to the Republic of Ireland to work. In the early days the planning and environment section of the Tourist Board and the Office of Public Works provided important opportunities for landscape architectural input into prime projects, for example, the site planning of Glenveagh National Park, the historic Glendalough site in the Wicklow mountains and the Canal Studies Strategy.

The advent of the European Union, which brought the predicted opportunities for development and consultation arising from legislation, led to the profession's separation from the Landscape Institute in the UK. An initiative in 1993 brought together the Institute of Landscape Architects and the Horticultural Association to form the Irish Landscape Institute (ILI), which has members working in private practices and local authorities throughout the Republic of Ireland. In 2004, an undergraduate landscape architecture course was instigated at University College, Dublin, in addition to landscape horticulture, which has been the traditional route for those training for the profession.

Local authorities employ architects, urban designers and landscape architects. They have recently

accessed European subsidies for their infrastructure implementation schemes, such as new transport systems. The profession is considered to be behind the UK in client awareness, with the design and implementation of public open space generally being the domain of architects with landscape architects in support. However, the evidence from newly completed schemes suggests that the tide is turning. There have been recent developments, for example, at Baronstrand, Waterford (Bernard Seymour), Eyre Square, Galway (Mitchell and Associates), Patrick Street Cork (Beth Gali) and Tralee town centre (Nicholas de Jong), for which landscape architects have been commissioned to design and implement town and city centre schemes.

Residential, business and industrial development is booming. Partnership between private investment and government money is expanding. The National Spatial Strategy (NSS) emphasises the potential for the urban and rural environment to contribute to the country's continuing prosperity. The NSS (2002–2020) is a planning framework which aims to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning.

Irish towns and cities are becoming more cosmopolitan in character and lifestyle and the design of their urban spaces and streets is fundamental to this development. High-quality sustainable and innovative spatial design complements new buildings and promotes regeneration of the built environment, while strengthening communities. Other changes have integrated life inside the buildings with streets and external spaces. The windows in bars which were traditionally high or decorated, which detached them from the streetscape, are now large and of plate glass, which integrates the internal and external environments. The smoking ban of 2004 (which applied to enclosed public places), together with an upsurge of markets, has also increased the use of outdoor spaces. These livelier streets have increased the demand for external spaces of high quality, the implementation of which has increased their usage.

The cityscape of Dublin has recently undergone a renaissance. In 1986, the Urban Renewal Acts provided tax incentives for undeveloped parts of the city, although they made no provision for community benefit within the developments. The first landscape project in the vicinity of Dublin to take advantage of the new legislation was the ferry terminal at Dun Laoghaire, built in 1991 to accommodate new ferries of larger size. The terminal plaza is an important gateway to the country for tourists and immigrants. The scheme includes microclimate attenuation and striking artwork in the form of a

mosaic serpentine seat. There is also a sample of Irish humour – palm trees, *Trachycarpus fortuneii*, to perplex the visitor as to their location. They grow contentedly in this relatively mild climate.

This high-quality redevelopment became an important catalyst for the regeneration of Dublin and set the agenda for future development. In 1998, six Integrated Area Plans took redevelopment beyond physicality to include local community needs. The redevelopment of public spaces, along with changes in transport systems, have provided significant improvements, both visually and in terms of access.

Along the River Liffey, access for pedestrians has been greatly improved on the northern bank by the construction of a boardwalk, which provides a separate walking and seating area cantilevered over the river. Its location on the north bank not only provides a sunny site, but promotes a united city as traditionally investment was centred in the southern half of the city.

The National Development Plan has targets for new homes which will be exceeded. There is a need to develop sustainable communities and to this end housing may be grouped in larger numbers in multi-storey dwellings (100 units per ha) to reduce the area of land required for development. A large-scale residential and community development is taking place in Ballymun, to the south of the airport, under the control of the local authority in the form of Ballymun Regeneration Ltd. The 1960s high-rise housing is being replaced by three- to four-storey dwellings, laid out with precise definitions between public and private space, and a coordinated palette of materials within a set of landscape guidelines, determined by the landscape architect. These are made available to consultants and developers for the landscape of streets. Green spaces and parks are included within the development. In other areas, levies on residential development are funding new green spaces, for example, the contemporary urban park, Father Collins Park[1] in Dublin's north side, designed by an Argentinean practice, Abelleyro and Romero.

Two projects in Dublin have been chosen to illustrate the development and regeneration of the built realm in the Republic of Ireland, but such projects are not unique to the capital; all the major cities are benefiting from this type of redevelopment.

Case study
Smithfield, Dublin

Project data

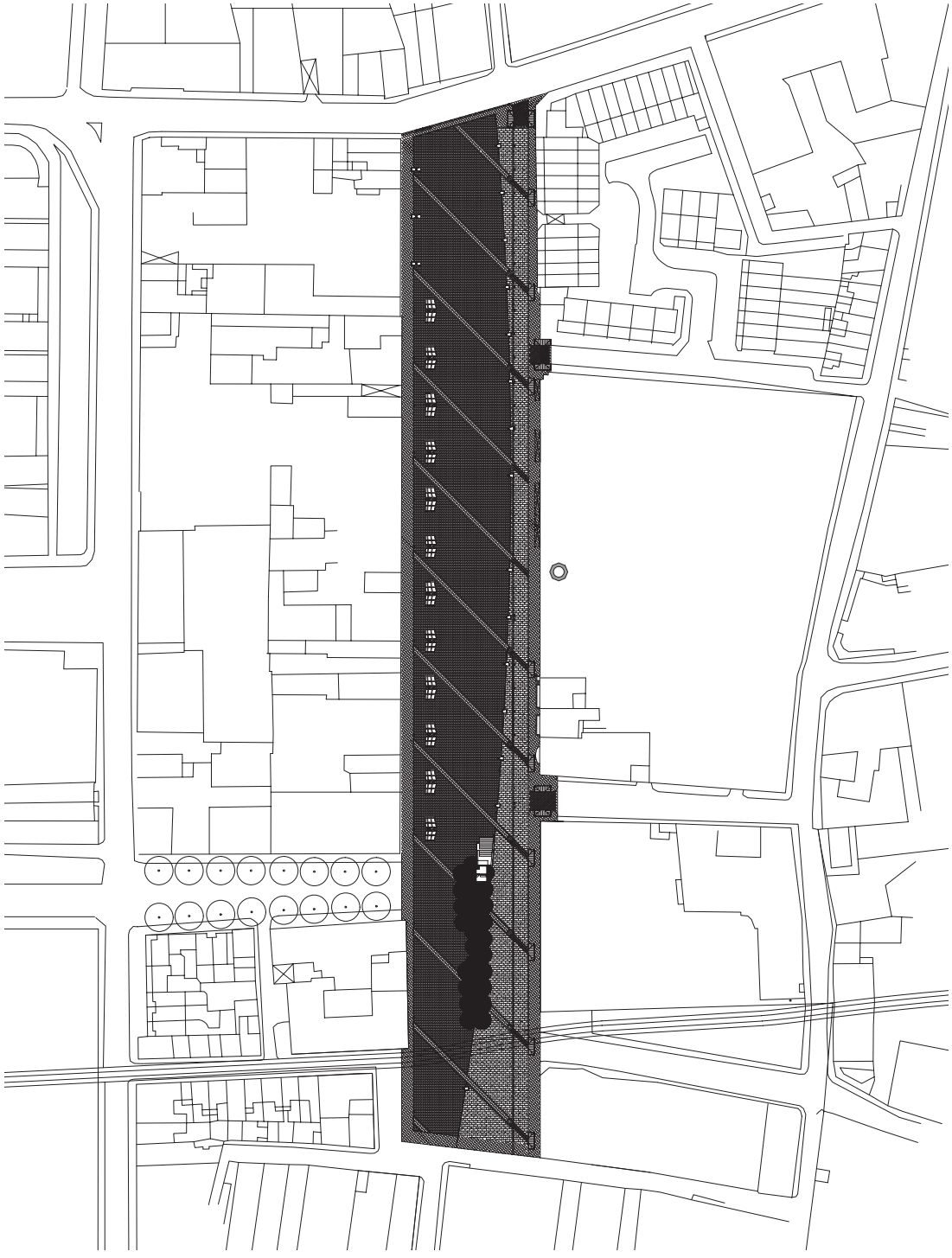
Project name:	Smithfield
Location:	Dublin City, north of the River Liffey in the heart of the
	community of Smithfield
Date completed:	2000
Cost:	4,400,000
Area:	14,405m^2
Designer:	McGarry Ni Eanaigh Architects
Client:	Dublin City Council
Awards:	CCCB (Centre de Culture Contemporania de Barcelona)
	European prize for public open space
	RIAI Irish Architecture Award in 2000
	AAI award 2001

Overview

The most notable millennium landscape project in Dublin was the redevelopment of Smithfield in the northern area of the city. The site is located north of the River Liffey, in the heart of the community of Smithfield. It is a major public gathering and market space, holding up to 12,000 people, which is used for a monthly horse fair and also for concerts and civic ceremonies, such as bestowing the Freedom of the City. It is also the starting point for the St Patrick's Day parade. Formerly a fruit and vegetable market, it has a strongly rectilinear overall form, creating an uncluttered, well-detailed and dramatic space. There is an existing residential development bordering the square on its north-eastern and northern boundaries. Additionally, a locally important public house stands adjacent to the site on the northern boundary. At the time the scheme was developed, the western boundary was occupied by single-storey small businesses which have now been replaced by a major seven-storey residential development. The height of this development has significantly altered the skyline, and consequently reduced the impact of the iconic lighting columns topped with braziers.

2.1

Smithfield: plan



2.2
Flaming braziers at Smithfield

Project history

This public space was the subject of a design competition in 1997, following a brief from the City Planner and the City Architect. The brief from Dublin Corporation, now known as Dublin City Council,[2] was to create confidence in the area by developing Dublin's premier civic space for the twenty-first century. It has a strong, distinctive shape, a thinly rectangular configuration which is framed by the surrounding developments. The local residents were given the opportunity to be involved in the competition assessment, but declined.

There was then a dormant period during which the client accessed EU funding from the Structural Fund to finance the scheme and to pay for a large storm-water sewer which was needed prior to implementation of the design. To the northern and north-eastern sides of the site are found vestiges of the residential area which pre-dated the development of this space. To the east is a new hotel, but to the west, at the time the competition was launched, there was only a derelict area. The multi-storey residential development now taking place in this area includes a communal square linked spatially to Smithfield.

The site, which covers an area of 14,405m^2, was designed by McGarry Ni Eanaigh Architects, following their success in the international design competition. Ove Arup and Partners, BG Technology plc, Lighting Design Partnership and Dublin City Council were all participants in the project. The site was constructed by SIAC Ltd.

The project, completed in 2000 at a cost of 4,400,000, was awarded the CCCB (Centre de Culture Contemporania de Barcelona) European prize for public open space and an RIAI Irish Architecture Award in 2000 and the AAI award 2001. The regeneration has stimulated the commercial, residential and leisure development of the Smithfield area. The new development will include a relatively small central public space linked to Smithfield which, in accordance with the developer's brief, will be designed not to integrate with Smithfield, but to provide a contrast to it.

The southern side of the competition site is still awaiting development. It is presently an informal car park with surrounding commercial buildings and street access to the river in the south. McGarry Ni Eanaigh's design was not implemented in this area, because the site was bisected by a new sustainable transport link, the Luas line. In this southern area, there is a formal group of existing mature trees adjacent to the service building for the braziers. When the design for this area is implemented, there will be modifications to the existing scheme, as a response to local needs and the amenity value now highlighted in community participation.

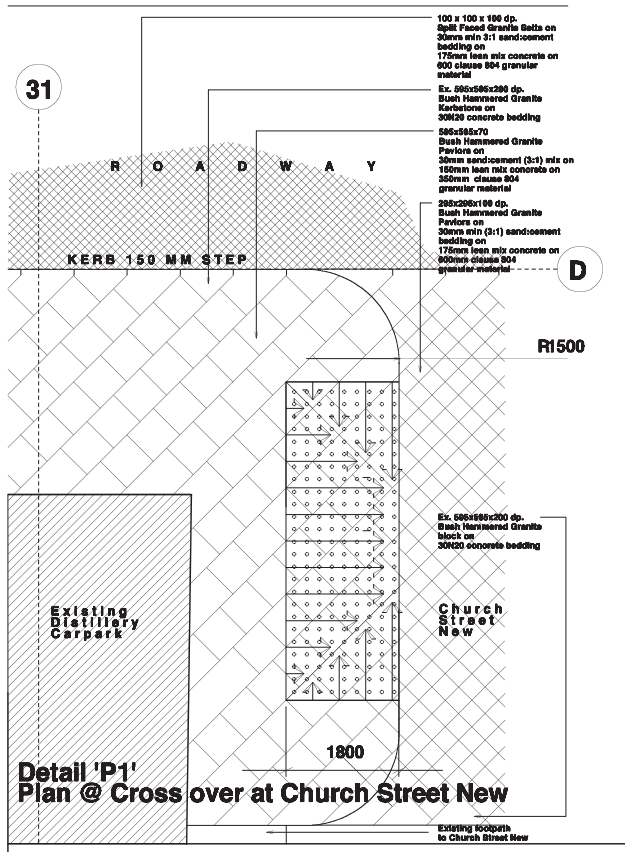
2.3
Diagonal pattern of the paving
2.4
Edge paving cut to delineate the roadway

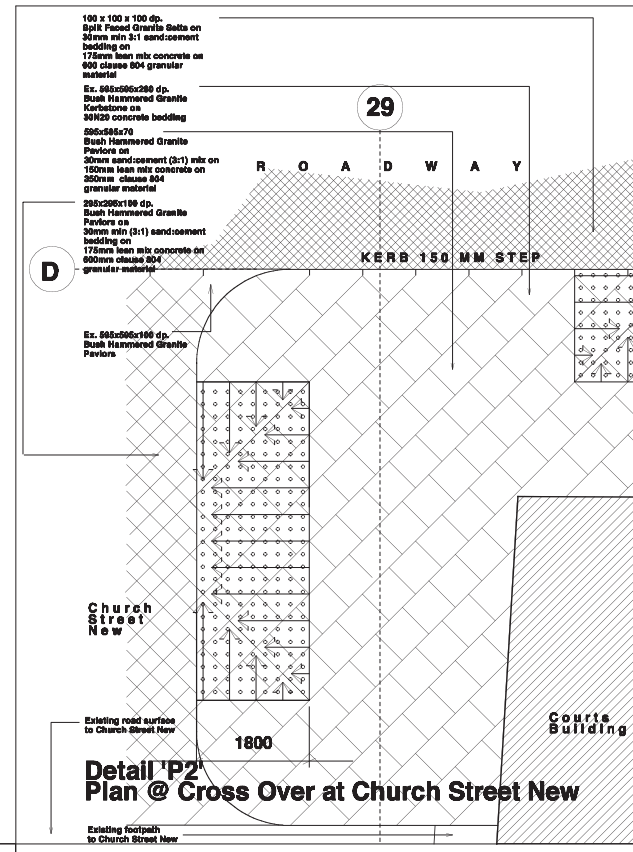
Along the eastern boundary, adjacent to existing government offices, a new hotel was developed at the same time as the open space, to which its main accesses relate. The existing chimney, from the top of which the site can be viewed, is now a tourist destination. It is a central feature of the new enclosed Smithfield Village, designed by architects A&D Wejchert, which links the rear of the hotel to adjacent streets to the east. There has been less public activity in the area than originally envisaged in the brief, although, around Christmas, the site is the location of a temporary ice-rink.

Design philosophy

The site boundaries provide a high length-to-width ratio. The designer wished to retain the site as a single strong visual entity with a purity of form. It is not subdivided and the 45° angle of the paving across the whole site increases the sense of width in relation to length. To the east, the road and paving boundary curve in a long arc, which is emphasised on the ground by the choice of different coloured materials for the road and the central area. Dark grey basalt and granite setts from the existing surface were reused in the central area while a new, lighter grey, Chinese granite was used for the roadway. The maintenance of this colour differential was important to the designer. No kerbstones have been used; instead, the edge paving was cut to provide the delineation of the roadway. The design philosophy would have been interrupted by a linear kerb line on two counts: first, the integrity of the diagonal design would have been compromised; second, the purity of the curve of the roadway, in contrast to the surrounding darker materials, would have been lost.

Pedestrian access across the site is prioritised by using level road-crossing points and maintaining the use of the same materials for the road and paved areas. Removable stainless steel bollards with 45° angle slits have been designed for the site. The very tall and visually interesting lighting columns, with


31
R O A D W A Y
KERB 150 MM STEP
D
R1500
100 x 100 x 100 dp. Split Faced Granite Setts on 30mm min 3:1 sand:cement bedding on 175mm lean mix concrete on 600 clause 804 granular material
Ex. 595x595x200 dp. Bush Hammered Granite Kerbstone on 30N20 concrete bedding
595x595x70 Bush Hammered Granite Pavlors on 30mm sand:cement (3:1) mix on 150mm lean mix concrete on 350mm clause 804 granular material
295x295x100 dp. Bush Hammered Granite Pavlors on 30mm min (3:1) sand:cement bedding on 175mm lean mix concrete on 600mm clause 804 granular material
Ex. 595x595x200 dp. Bush Hammered Granite block on 30N20 concrete bedding
Existing Distillery Carpark
Church Street New
1800
Existing footpath to Church Street New
Detail 'P1'
Plan @ Cross over at Church Street New


29
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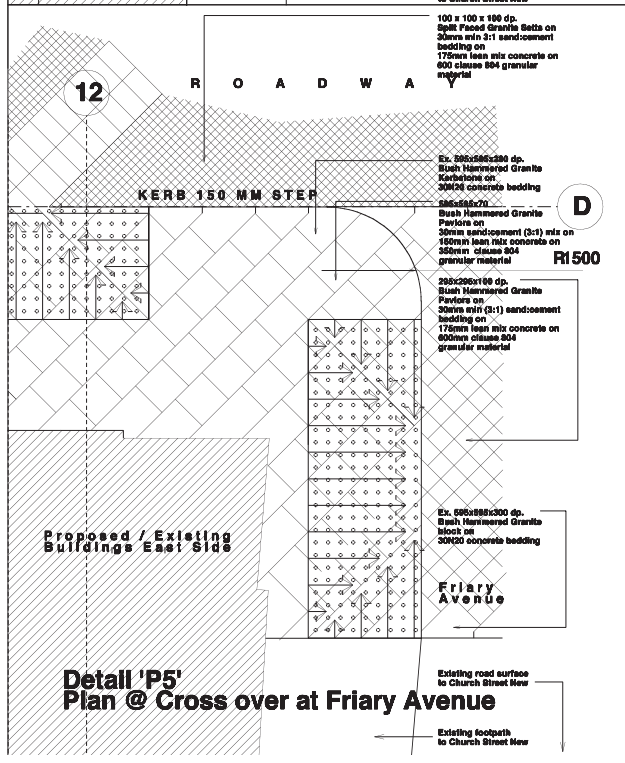
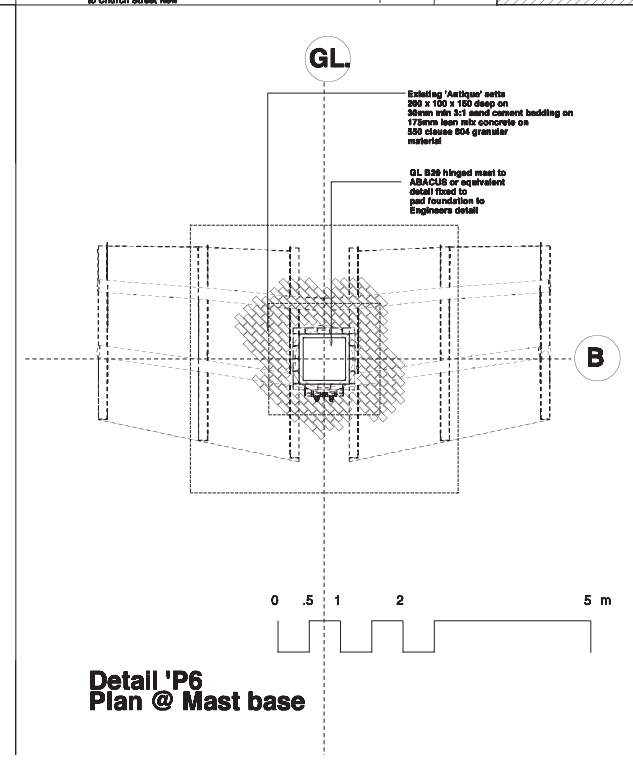
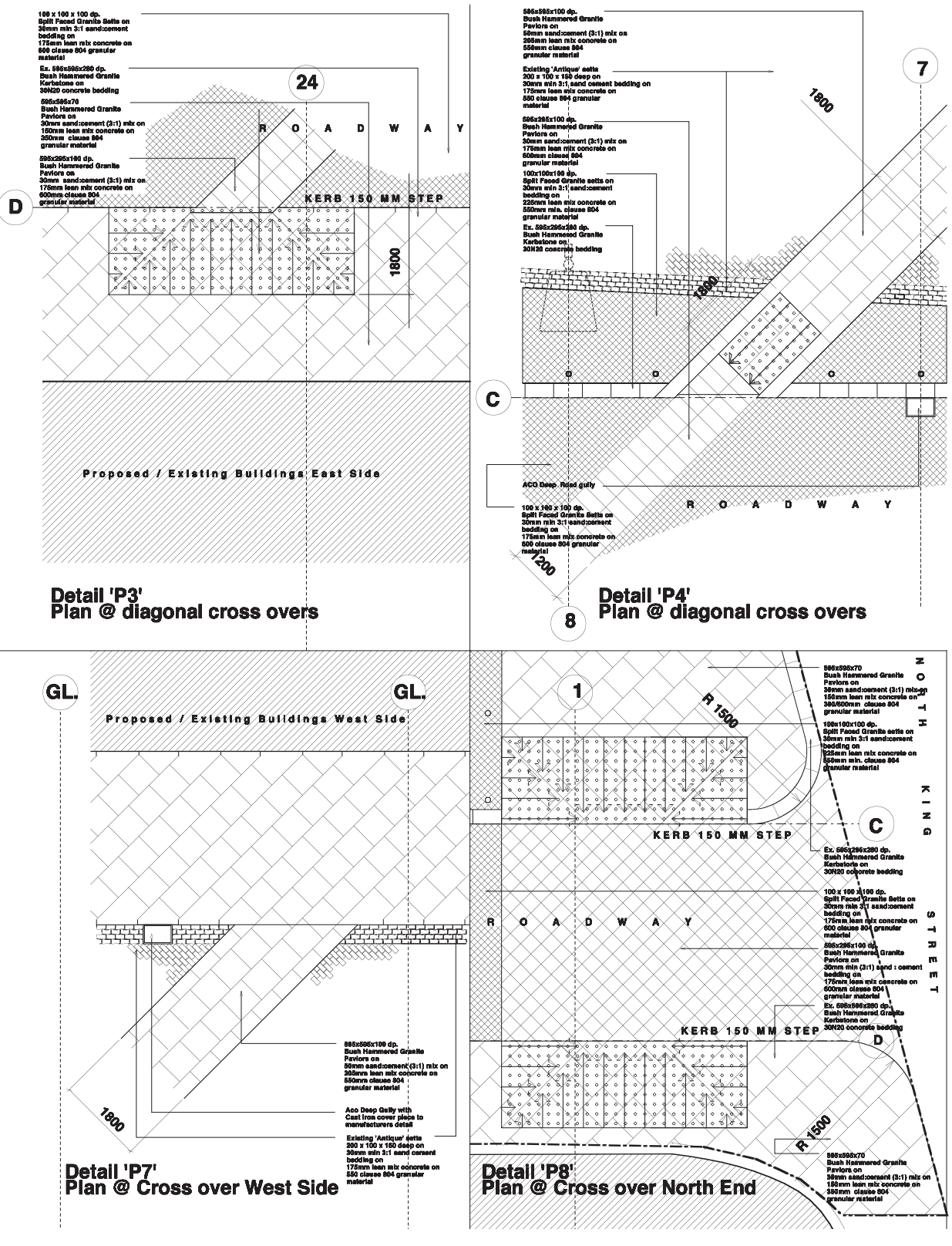
295x295x100 dp. Bush Hammered Granite Pavlors on 30mm min (3:1) sand:cement bedding on 175mm lean mix concrete on 600mm clause 804 granular material
Ex. 595x595x100 dp. Bush Hammered Granite Pavlors
Church Street New
1800
Existing road surface to Church Street New
Existing footpath to Church Street New
Courts Building
Detail 'P2'
Plan @ Cross Over at Church Street New


12
R O A D W A Y
KERB 150 MM STEP
D
R1500
100 x 100 x 100 dp. Split Faced Granite Setts on 30mm min 3:1 sand:cement bedding on 175mm lean mix concrete on 600 clause 804 granular material
Ex. 595x595x200 dp. Bush Hammered Granite Kerbstone on 30N20 concrete bedding
595x595x70 Bush Hammered Granite Pavlors on 30mm sand:cement (3:1) mix on 150mm lean mix concrete on 350mm clause 804 granular material
295x295x100 dp. Bush Hammered Granite Pavlors on 30mm min (3:1) sand:cement bedding on 175mm lean mix concrete on 600mm clause 804 granular material
Ex. 595x595x300 dp. Bush Hammered Granite block on 30N20 concrete bedding
Proposed / Existing Buildings East Side
Friary Avenue
Existing road surface to Church Street New
Existing footpath to Church Street New
Detail 'P5'
Plan @ Cross over at Friary Avenue


GL.
Existing 'Antique' setts 200 x 100 x 150 deep on 30mm min 3:1 sand cement bedding on 175mm lean mix concrete on 550 clause 804 granular material
GL B36 hinged mast to ABACUS or equivalent detail fixed to pad foundation to Engineers detail
B
0 .5 1 2 5 m
Detail 'P6
Plan @ Mast base



2.5

Smithfield: detail plans showing paving treatments at significant junctions between materials

2.6
Pedestrian routes using the larger, smoother slabs

their shields and post-top braziers, delineate the site from the western boundary and have provided a recognisable and highly significant feature in the skyline.

The designer also considered the geographical and social relevance of the choice of this economically poorer northern area of the city as the site for a millennium redevelopment.

Design development

Prior to implementation of the surface redevelopment, it was necessary to install major infrastructure, including an enormous storm-water drain. Two types of paving material were chosen for the scheme. Basalt and granite setts were already present on site and the largest possible number were recycled. The choice of the additional material, smoother and larger 600 x 600mm granite slabs, was to allow easier universal access across the site. They were used for the pedestrian routes, across the pavements, roads and within the central area. The designer wished to use larger 1200 x 600mm slabs, but for budgetary reasons the size had to be reduced to 600 x 600mm. In areas of vehicle access these slabs are 100mm in depth. The carriageway is of light granite, which originates in China and was sourced for this scheme. The edge stones adjacent to the carriageway which form the kerb are 275mm in depth.

During the construction process, the working area was very constricted as local businesses claimed ancient trading rights and therefore access routes, and the timing of construction were limited.

The construction of the area of setts has a geotextile sheet below broken stone and 200mm concrete on a 50mm semi-dry sand and cement bed. This is pointed in the same material. This mortar absorbs

2.7
The drama of Smithfield at dusk

moisture from the air (or, in times of drought, is watered during construction) creating a semi-rigid rather than a rigid surface.

Each of the 26m masts features a base-hinged arrangement which, in conjunction with a hydraulic counterbalance unit, allows the mast to be lowered to ground level. At the installation stage, this allows the necessary equipment to be fitted to the mast at ground level and routine maintenance is carried out without the need for expensive access systems. The gas brazier fitted to each mast produces a 2m-high flame.

The masts were purpose-designed by Abacus, the lighting contractor, to accommodate the complex cabling system required to fuel the gas braziers, as well as an elaborate indirect lighting system at approximately half the height of the braziers. This utilises a reflector system and a dish containing the floodlights and casts a soft general light over the space. The gas-fuelled braziers are powered by a unit contained in a building at the southern end of the site, visually mitigated to some extent by the existing mature trees.

Evaluation

Smithfield is a visually stimulating and socially diverse public space. It exudes drama and is a landmark with its iconic lighting columns topped with braziers complemented by the visually strong and unified ground design and detail. In the city of Dublin, this scheme has been key to the extensive regeneration of the area. The scheme illustrates, in its impact, the development of a European flavour within modern Irish landscape architecture and urban design. Situated in the north inner city in a traditionally working-class area, the site had to maintain its previous functions while improving the visual amenity of the space and its potential for adjacent redevelopment.

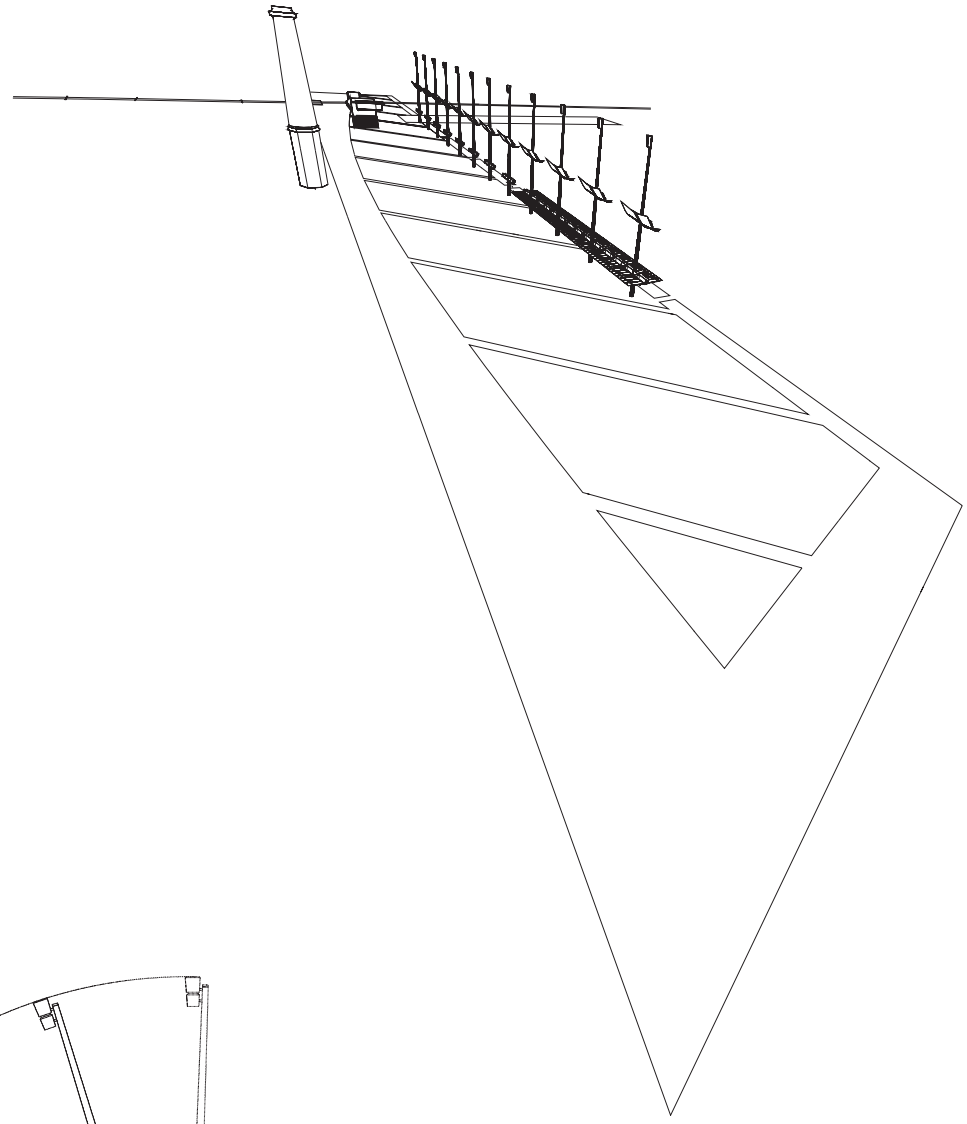
Smithfield is a complete spatial entity, with a strong and clear design philosophy. The 45° angle increases the apparent width of the space and, in its detail, provides for interesting cut lines on the kerbing, adjacent to the street and on the drop kerbs at the south-eastern end of the site. The quality of this detail is emphasised by competent implementation, particularly around the carriageways and dropped kerbs, which is highlighted by its continuing integrity despite the reported failings in traffic management. The width and design of the carriageway, with its frequent level crossing points and depth of paving edge, permit only slow vehicular movements and this assists in the comprehension of the space

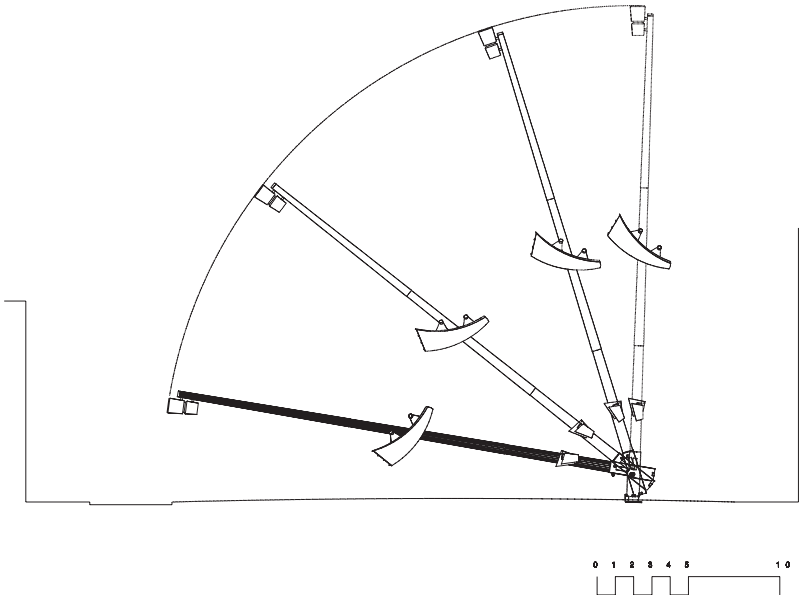
2.8

Smithfield: perspective sketch

2.9

Smithfield: diagram showing lowering of the lighting masts





2.10
Quality of detailing at drop kerb

as pedestrianised, despite the necessary vehicle movements in front of the hotel.

The scheme has been hindered by the management and replacement policy, which has not adhered to the detailed design and therefore slightly downgraded the robust nature of the design philosophy. The curve of the roadway is accentuated by the differing colours of the stone products used in the adjacent areas, but lack of cleaning of the lighter granite of the carriageway limits this contrast and therefore diminishes the original design intention. The 100mm diameter non-standard stainless steel bollards are fitted into baseplates to provide a guide to traffic management on the site. They are all removable for events. In certain areas, bollards have been flattened by collision from vehicles, as there is limited traffic management on the site. Replacement bollards are of a standard cylindrical form omitting the interesting angled detail and therefore, over time, this replacement policy is reducing the quality of detailed design. The designer had considered the use of heavier gauge bollards to limit vehicle impact, but if these had been used, the baseplate could have been lifted by impacts which would have caused further damage to the paving.

The development of the Luas tram line has prevented design implementation to the south, where the existing plane trees are located in crudely constructed raised squares of granite setts, adjacent to the brazier supply building.

Highly durable natural stone paving has been used and there has been recycling of the existing setts. The roadways are single carriageway and traffic was observed to travel slowly. At the crossing points along the east outside the hotel, the carriageway becomes level allowing universal access. These zones are frequent along the pavement, providing good ease of access especially outside the hotel and commercial outlets. The most northerly crossing point from the east starts outside a local shop and provides access across the site to the residential locations to the north-west.

The pavement width was observed to be narrow outside the hotel for the volume and multi-directional nature of the pedestrian traffic, but the level crossing points provide defined safer routes across the road and assist in accepting the additional volume of pedestrians outside the main hotel doors. The exposed edge of the cut paving at the road edge varies in depth from zero at the crossing points to 280mm elsewhere. This provides visual interest and rhythm along the roadway.

The vast, open, central area provides uninterrupted public space for the variety of current uses, but the area was not designed for heavy vehicle use.

The dramatic lighting columns with their pole-top braziers are unusually high for the width of the open space. This emphasises their drama and the restrained detail of the hard surfacing provides a horizontal foil for the imposing verticality. The braziers are the symbolic feature of the site and design articles written since the millennium have extensively used them as an image of the developing European urban form of Dublin. They were once a skyline feature of this area and provided a recognisable symbol of the area's regeneration, but the multi-storey residential development which provides their new backdrop somewhat reduces their impact, as there is now the visual distraction of high levels of detail in the background.

The creation of hard-surfaced landscape schemes requires systematic maintenance input to maintain the integrity of the design as implemented and it is recognised that this has not been of sufficiently high quality, as shown, for example, by the failures in the replacement policy.

Nevertheless, the apparent design simplicity and restrained use of materials, coupled with the dramatic use of lighting, has given the site an important role in the regeneration of the locality and the development of urban public space design in the Republic of Ireland.

Case study
GPO Plaza, O'Connell Street, Dublin

Project data

Project name:	GPO Plaza (Phase 1 of the O'Connell Street improvement scheme)
Location:	O'Connell Street, Dublin; the major street which runs north
	from the River Liffey
Date completed:	2004
Landscape designer:	Mitchell & Associates
Engineering design:	Dublin City Council
Client:	Dublin City Council

2.11
Elevated view of the site, showing the GPO frontage, the Spire and the 'room' formed by the pleached trees

Overview

O'Connell Street is the most famous street in Dublin. Originally known as Drogheda Street, and later as Sackville Street, it was renamed after independence in recognition of the liberator, Daniel O'Connell. It is a wide avenue, which runs from the northern area of the city in a southerly direction, terminating at the River Liffey. It is bordered by nineteenth- and early twentieth-century buildings, most of which have a retail function. Many shop-fronts have been modernised. The central area reservation between the carriageways contains statues of individuals significant in the development of Dublin and Ireland. These include the O'Connell monument and the recently erected Dublin 'Spire' built to replace Nelson's Pillar, a Doric column which was blown up in 1966. The initial damage was carried out by former IRA men, who blew up the top half of the statue, but two days later Irish Army engineers completed its destruction after considering it too unsafe to repair. The timing of the attack suggests that it was done to commemorate the fiftieth anniversary of the Easter Rising of 1916.

The featured project centres on the General Post Office forecourt and associated streetscape to the east. The GPO is an imposing building on the west side of O'Connell Street, designed by Francis Johnson (1760–1829), who also designed the ill-fated Nelson's Pillar. The site is bounded on three sides by recently planted pleached lime trees, with the fourth side of the rectangle formed by the frontage of the General Post Office.

Project history

In February 1998, Dublin Corporation, concerned that O'Connell Street had been in decline since the 1960s, launched a new action plan that recognised its potential as the finest street in the city. O'Connell Street is the major and historic route in the northern area of the city. It links major transport routes from the north, including the airport, into the heart of Dublin and therefore it is important for commerce and tourism, but recently the prosperity of the city has centred upon the retail area to the south of the River Liffey, while O'Connell Street's decline has been marked by cheap shops, fast food outlets and a seedy reputation. The works in the vicinity of the GPO are part of a larger project to reverse this perception.

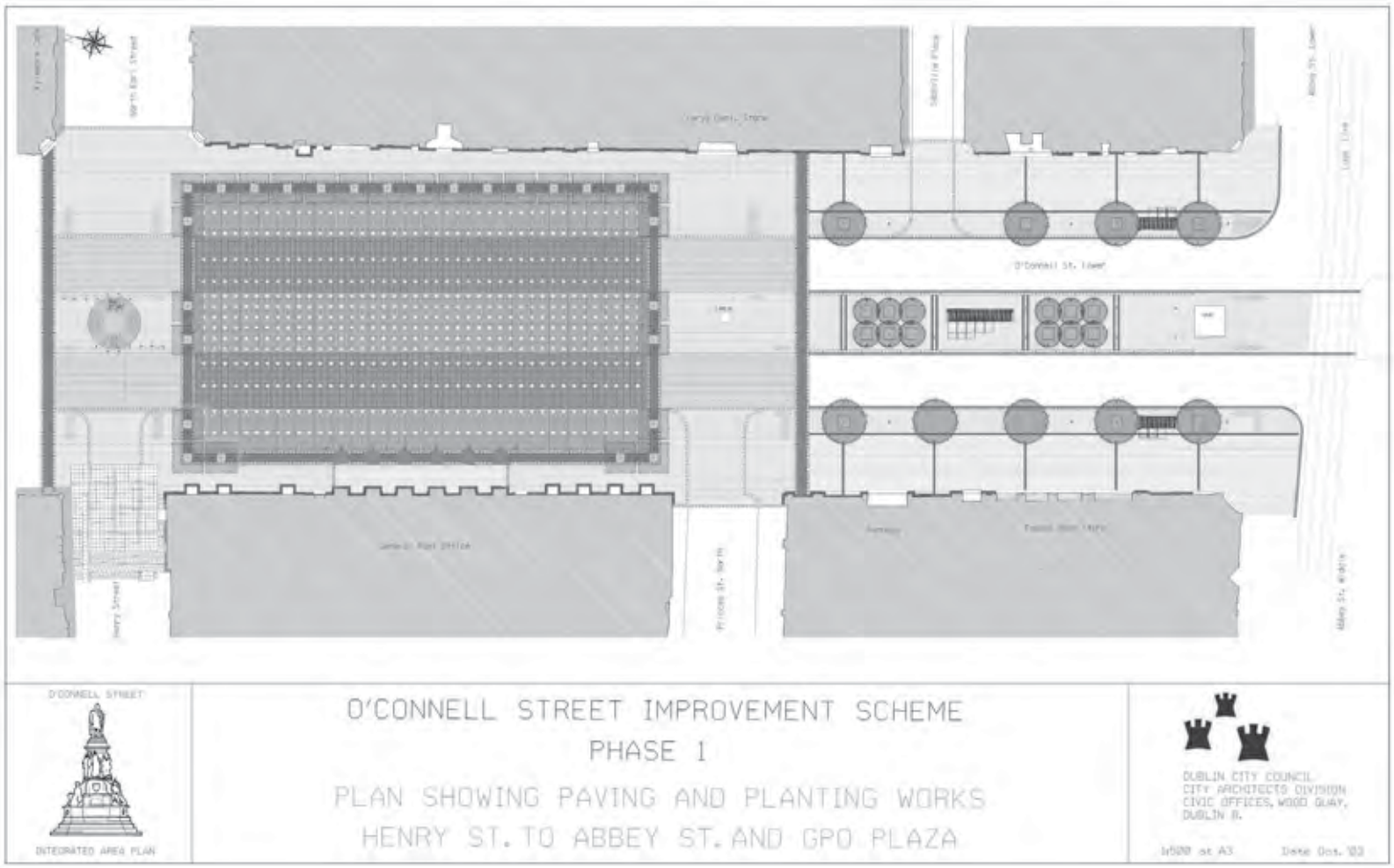
The O'Connell Street Integrated Area Plan covers an area that extends from Parnell Square in the north to Trinity College in the south, with Moore Street and Marlborough Street forming the east and west boundaries. The Phase 1 works described here are to be found in the central section of this larger improvement area. The adjacent redevelopment sites within this project (phases to the north and south) are being developed in-house by Dublin City Council.

This site is extremely important in the history of the Republic of Ireland. It was a very significant location in the Easter Uprising of 1916 during which the British Army crushed an Irish rebellion with huge loss of life. The General Post Office, which is still pock-marked by bullet holes, is the building most associated with the rebels. They did not have general public backing, but when some of their number were captured and secretly executed by the British, support grew and led to a revolt. After further hostilities between 1919 and 1921 treaty negotiations led to the formation of the Irish Free State, though dissatisfaction with the terms of this settlement led a further period of civil war in which several prominent republicans, including Michael Collins, lost their lives. The war ended in mid-1923 with defeat for the forces opposed to the treaty. The GPO and its setting are thus of particular historical and symbolic significance for the city and the nation and this has a particular bearing upon the contemporary redevelopment.

Under Dublin City Council's Action Area Plan for O'Connell Street, the landscape architects were employed as consultants for Phase 1 of the project. The specification details and implementation remained under the control of Dublin City Council. A budget was also allocated for physical shop frontage improvements to encourage the retail function, but this has met with a limited response from the owners of these properties.

2.12

Presentation plan of O'Connell Street Improvement Scheme Phase 1, Dublin City Council



Design philosophy

Mitchell & Associates is a multi-disciplinary practice founded in 1989, combining architectural, landscape architectural, urban design and masterplanning skills. The practice deals with the interface between the town planning scale and that of the individual site. The main areas of experience are in relation to urban landscape, masterplanning of rural sites – particularly historical estates – and the insertion of built form into sensitive landscapes. In addition, the practice has been responsible for the preparation of a series of Integrated Action Plans for historic townscapes/landscapes, combining elements of planning, urban design and landscape.

In the case of the GPO Plaza, the creation of a 'room', a major civic space for meetings, responding to the site's historical significance, was the underlying design concept and it is exemplified through the planting and the paving designs and choice of materials.

Design development

The Spire

The Spire was erected to the north of the GPO Plaza in 2003. Designed by Ian Ritchie Architects, London, following their competition success, this monument was envisaged as the key feature for the refurbishment of O'Connell Street. The Spire is a 120m-high conical structure, making it the tallest structure in Dublin city centre. Constructed of rolled stainless steel sheet, it is 3m wide at the base and tapers to 15cm wide at the top. The top section is perforated and lit by small LEDs. During the day, the surface reflects light and the surrounding streetscape. At night, the tip of the cone is illuminated and provides the city with a navigation beacon. The circular base at the bottom of the cone is of ridged stainless steel.

Stone styles

Mitchell & Associates were commissioned as sole landscape consultants in 1997. They were not the lead designers for the O'Connell Street works, but collaborated closely with Dublin City Council throughout the project. The decision-making involved a large number of people, at all levels up to the City Manager, in relation to the selection of stone. A wide range of samples were collected and assessed prior to the final selection.

2.13
Close-up of 'spot-stone'

The designers wanted to create a level surface around the GPO which could be shared between pedestrians and traffic, creating the sense of an urban square, but bus routes through the site led to a demand for kerbing. A compromise was reached, involving level controlled crossing points, with kerbing to the carriageways and central reservation. A pattern of white 'spot stones' articulates the dark grey granite Plaza and assists in the delineation of lanes. Shared space with lane narrowing provides generous pavements, approximately 11m in width. Widened pedestrian areas were proposed to engender feelings of spaciousness reminiscent of the pavements of other major European cities.

Carriageway widths have been narrowed to two lanes and a cycle lane in each direction, with an 8m-wide paved central median. There is a major pedestrian crossing point to the north, the centre of which is the Spire, and another crossing point south of the site.

There are links from O'Connell Street to the adjacent narrower side streets, which have a variety of paving styles. The recently refurbished Henry Street links to O'Connell Street visually in its use of similarly designed paving. North Earl Street, a pedestrian street on the east side of O'Connell Street, has an older two-coloured pavior design. At the interface between the two, there is a new pedestrian crossing point, which consists of 267 x 267 x 70mm granite blocks with 166 x 166 x 166mm blocks in the carriageway area. The surface is flame-finished.

The designers built upon the lessons learnt from other projects, combining research and expertise to establish a paved surface which should be as resistant as possible to vehicular movements over its surface. The prominence of the site demands high levels of maintenance. Street cleaning vehicles have acute turning circles which create a high twisting momentum across the paving. Building on the knowledge of the Scott report, which was sponsored by the natural stone suppliers TRL (Edinburgh) and recognising the problems experienced in the paving scheme for Eyre Square, Galway, Dublin City Council's in-house engineers developed a specification for the site. Advice was sought from Iggnaci Di Lecea, the Chief Specifier for the municipality of Barcelona. His main piece of advice was that, when using stone and other high-quality materials, it is normal to expect a much higher level of on-going maintenance.

Research into the use of stone elsewhere in Europe and an awareness of the problems that can occur when the bonding pattern is broken led to the choice of a smaller granite paving unit (166 x 166mm) on the carriageway than might have been chosen for purely aesthetic reasons to complement

2.14
Construction of granite kerb and carriageway paving
2.15
Details at the base of the Spire, including protective bollards

the large-scale stone structure of the General Post Office. These units are, however, deeper than those previously specified (166mm) to avoid or minimise the potential for a weakening of the surface integrity as a result of the slueing effects of vehicles. The granite paving units have sand-blasted, bush-hammered sides and bases to assist in effective mortar bonding.

The units are flame-finished and the joints mortared. Flame-finishing is a widely used stone treatment in Europe and provides the minimum texturing for slip resistance, but produces a very even finish. The granite blocks used under the GPO portico and on the adjacent pavement are 350 x 350mm with a depth of 70mm. They are flamed and bush-hammered with mortar joints.

Lighter stones are used to mark the carriageways, below the GPO portico and on the western open area of pavement. The edge of the roadway is marked by large stainless steel studs. These studs are also used at the controlled crossings to provide a tactile warning for the visually impaired. To protect the base of the Spire from vehicular damage, there are stainless steel bollards and these are complemented by stainless steel mounting posts and surrounds for the traffic lights which control the pedestrian crossings.

The trees, recessed lighting and some of the stainless steel waste bins are set into a band of pink granite. The 1200mm-wide granite margin contains the formal trees and up-lights and it forms a perimeter around the four sides of the central plaza, which runs from the edge of the GPO portico on its north side, across the pavements and carriageways, down the eastern side parallel to the shop fronts and back across to the southern pillar of the portico. It is edged internally and externally in dark grey which provides a contrast to both the pink and the paler grey of the main bulk of the paving. It is in this band that the change of level occurs at the crossing points of the roadways. The trees are planted at a spacing of 4.4m. The drainage for the wide pavement area is a linear system integrated into the design detail. There are large lighting columns with seven units on each post to complement the recessed pavement units. The interface between the surrounding buildings and the light grey pavement is of dark grey 100 x 100 x 70mm granite setts. At the entrances to the building and in bands below the portico pillars there are larger granite slabs of the same colour.

2.16

Lighting column carrying seven lighting units

2.17
Band of pink granite paving with tree pits and sunken light fittings

Evaluation

Dublin's main street is a potential prime retail location and the major entrance to the city from the north and the airport. Its width and the nineteenth-century buildings which define its edges create pleasing proportions, but it has much heavy traffic. The development of wider pavements limits the impact of the traffic and provides pedestrians with a more pleasant environment, which is less traffic-dominated and easier to negotiate. The planting of the trees to form the three sides of the rectangle in front of the Post Office building emphasises the pedestrianised space, an area for a crowd, a solidly contained and delineated space, in contrast to the linear carriageways which cut across the space with their transient movements. Over time, as the trees increase in volume, this will become even more apparent. The interplay between the history of the Easter Rising and the contemporary priorities of city use are well illustrated by the spatial development and containment of this design.

There is evident quality in the design, the materials, the implementation and the maintenance, which provide a significant plaza in front of this historically important building. At present, when one is within this 'room', the sense of containment feels less than when one is outside, looking in through the treed boundary. The scale of the buildings, the width of the street, the traffic, the Spire and the lack of significant volume in the trees all contribute to this perception. However, once the trees establish greater bulk, they will become a more dominant element of the design. The choice of pleached trees emphasises the ground design, while the two trees at the base of the Spire provide an effective frame, limiting the background confusion. The stainless steel street furniture is echoed by the posts for the traffic lights, producing a pleasing suite of complementary fittings.

The specification, maintenance and management of the stone paving have all been based upon sound research. Collaboration and positive working practices between client and landscape architect become evident when discussing this site with either party. The units of paving appear small compared with the bulk of the stone pillars of the portico, the built face of the GPO and other contemporary schemes, but a compromise was necessary in the light of experience, and a small reduction in aesthetic values will be compensated by the maintenance of the surface integrity over time. The surface is presently in an excellent condition.

There have been compromises in the surface levels on the site, owing to the highway engineering requirement to maintain kerbs along bus routes and the designer's desire for level pedestrian access. This has resulted in minimal kerb height crossing

2.18

Pleached trees emphasise the pedestrian space. Note the 'spot' stones.

points increasing to kerb depths of 75mm within the plaza and 150mm outside the plaza. It was observed that the route below the Spire is a busy junction and that pedestrians cross, not just in the relatively level prescribed crossing areas, but also by cutting across zones where the kerb height is increasing. This changing kerb height was observed to be a trip-hazard in these areas, even though it is visually delineated using the pink and grey coloured bands. These paving materials and colours are banded across the site to include both the pavements and the carriageways. The streetscape is visually complex in this area and may lead pedestrians to become distracted.

On the blocks behind the level kerbs, stainless steel crossing point studs are used for pavement/roadway delineation. On alternate paving blocks forming the kerb, larger stainless steel studs have been installed to mark the proximity of the carriageway, which is difficult to discern in certain light levels and shadow patterns, owing to the use of pavement and carriageway materials of the same stone. The studs do not appear very large on site, however, and visually might be mistaken for lighting units.

Lighter blocks are used occasionally as 'spot stones' to mark out the area for the carriageways and are also used in the central reservation and in front of the GPO. This also diminishes the visual difference between the carriageways and the pavements, which could have pedestrian safety implications.

The interface between O'Connell Street and North Earl Street is well maintained and only two units showed signs of jointing weakness. Visually this high-quality junction serves to emphasise the excellence of the new scheme compared to North Earl Street. The development of this area to high design and detailed standards provides a more appropriate setting for the historic buildings while maintaining contemporary flair and has positively developed this major access route for the economic and aesthetic benefit of the inhabitants, investors and visitors to the capital city.

France

Emma Jonasson

Landscape architecture in France

France has a long tradition of landscape architecture. The famous seventeenth-century parks created by André Le Nôtre form an important heritage, which is reflected in today's landscape architectural practice.[1] Some contemporary projects are as large as the enormous parks of the seventeenth century, but landscape architects no longer design royal parks; instead their work is found in industrial areas, residential quarters and even in motorway service stations.

Since the 1970s, a stream of influential figures has given the French landscape profession a face: Chemetoff, Clément, Corajoud, Coulon, Lassus, Provost, Sgard, Simon, Vexlard, and many more. Well known outside their country of origin, they have also contributed to the development of landscape architectural theory and to the education of several generations of landscape architects.[2]

Influenced by their teachers and the projects of the 1970s and 1980s, such as the creation of the new suburbs 'Les Villes Nouvelles' and the pioneering rehabilitation of some areas in Paris including Les Halles and the Parc de La Villette,[3] young landscape architecture offices are now making their own mark upon the landscape. They are commissioned in advance of development, to anticipate the consequences and undertake sound site planning, rather than waiting until the errors of urbanisation and the implantation of infrastructure become evident and demand to be camouflaged. These young professionals seize the occasion to create new landscapes and stimulate new users of their sites. We can anticipate the end of the opposition between planning and development, on one hand, and landscape and environment on the other.[4] The case study chosen for this chapter, the motorway services at the Bay of Somme created by the HYL (P. Hannetel, A. Yver, Ch, Laforge) practice in Paris, is an example of this new approach.

In France, landscape architects are employed in both the private and public sectors. Moreover, independent landscape architects often work in conjunction with the public service. There is an association called APCE (*Association des Paysagistes Conseil de l'Etat*), which is an association of advisers consisting of a hundred experienced independent landscape architects. They are selected by competition and employed by the State in an advisory capacity for two and a half days per month.

At a departmental level, CAUE (*Conseils d'Architecture, d'Urbanisme et d'Environnement*) provides free advice to people who build for themselves. This organisation also employs independent architects on a part-time basis.

France has a long tradition of design competitions compared to other European countries. The system developed in the 1970s and serves today as a model. All public commissions above a certain cost must be put out to design competition. Normally the client chooses three to five teams of consultants who are paid to produce proposals. For landscape architects there are thus many occasions to participate every year and for private consultants this is the main way of winning assignments. The wide variety of projects also provides the opportunity for young landscape architects to find their way into the market, even if it is hard to compete with more established offices. The motorway service station described in this chapter was subject to just such a competition.

Motorway traffic is increasing in Europe. The European Commission has anticipated a growth of 38 per cent for freight traffic and 24 per cent for passenger traffic between the years 1998 and 2010. Whatever the long-term future of the internal combustion engine, it seems that the expansion of the motorway network will be inevitable in the short term. In France, drivers must pay a toll to drive on the motorways; 'the user pays according to his needs'. The motorway association in France, ASFA, says that the fees make it possible to maintain the high quality of the French motorways compared to those of some other countries in Europe.[5]

A payment motorway is a closed system. It is not easy for drivers to pull off the motorway to get petrol, visit local shops or find refreshment. This makes it all the more important that the design quality of the official stopping places on the motorway is kept very high. A break from driving should be a pleasant experience.

Case study
Bay of Somme motorway service station, on the A16, France

Project data

Project name:	Motorway service station, Bay of Somme, A16
Location:	On the A16 motorway, 10km north of the city of Abbeville
	in France
Planning:	Competition 1995, 1st prize
Construction period:	1998–99
Area:	20ha in total, of which 10ha is parkland
Cost:	4.0 million (total), 2.4 million (park)
Landscape architect:	HYL – Pascale Hannetel, Arnaud Yver, Christophe Laforge
Architect:	Bruno Mader
Engineer:	Studinfra BET
Client:	SANEF (Société des Autoroutes du Nord et de l'Est da la France)
	and Conseil Général de la Somme

3.1
Map of the Department of Somme with the A16 motorway, the motorway service station of the Bay of Somme and the coast

Overview
Travelling along the A16 motorway between Abbeville and Touquet in the north of France you can take a break at the motorway services of the Bay of Somme. When you enter the services you are transported into the characteristic landscape of the Somme department and the motorway feels far away.

This is a part of Picardie in the region between Normandie in the south and Nord Pas-de-Calais in the north. This corner of France consists of the plain of the River Somme which crosses the department and ends up in the Bay of Somme delta, a water-landscape that changes with the tides with a variation of several metres per day. These fluctuations have an influence on the perception of the landscape, which is constantly altering.

The A16 motorway between Paris and Calais was opened in 1998.[6] Now the coast of Picardie is only two hours away from Paris. To promote local tourism, a competition was announced to create a service station that would combine the functional needs of motorway drivers with the provision of information and interpretation related to the Bay of Somme. In this respect, it was a pioneering project and it demonstrated that this fusion of aims could work very well. The architect Bruno Mader and the landscape architecture firm HYL (previously Hannetel & Associés) won the competition in 1995.

3.2

Aerial photograph showing the special landscape of the Bay of Somme

3.3

Park and surrounding countryside with path reaching out into the landscape

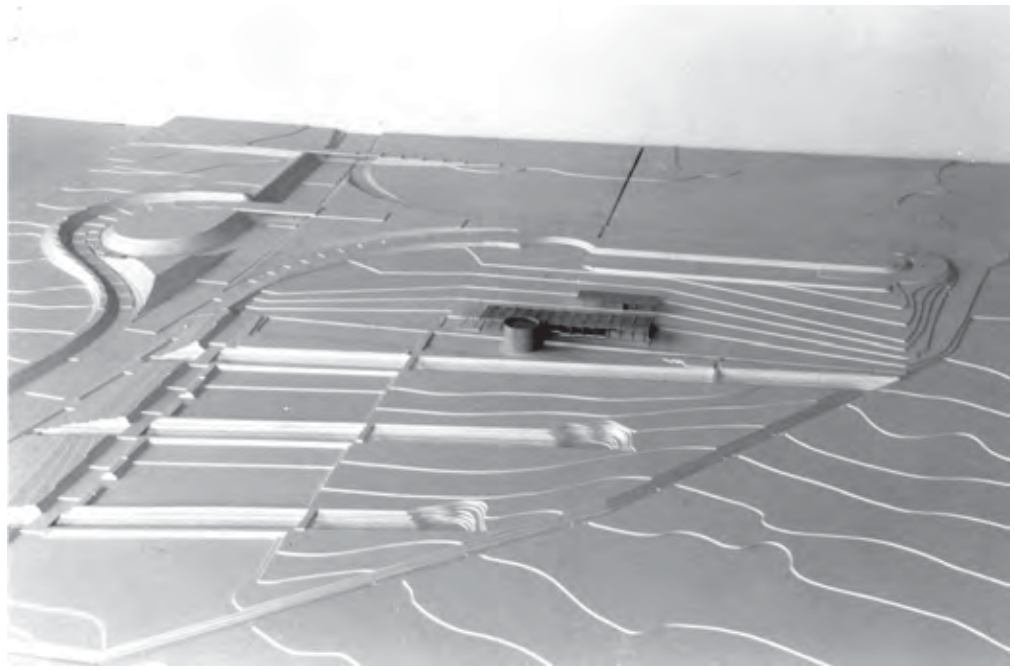
Design philosophy

The aim was to integrate the service station into the surrounding countryside, a landscape where the fields appear boundless and where the view stretches to the horizon. The characteristic landscapes of the Department of Somme are those of the Bay of Somme delta and the fields of the Plateau of Picardie. These landscapes with their canals, wetlands and open fields have been combined in the design of the park.

You enter the site from the south and are led into the landscape, away from the motorway, by a road concealed by slopes. You successively discover the parking area and the building that divides the motorway world from the wide-open landscape on the other side. By first emerging in this way, through the slopes, the feeling of freedom when entering the park is enhanced.

In excess of 200,000m^3 of earth, excavated during construction of the motorway, was to became the new landscape of the Bay of Somme motorway services. The winning project proposed to cover the whole site with a 2–2.5m-thick layer of earth and then to create canals and wetlands within this layer. When one visits the site today, the extra layer of earth is barely visible. To facilitate the understanding of these comprehensive earthworks, a model was placed in the administration building on the site during construction.

It was important for the HYL office to visualise the terrain of the project using models during the design process. A lot of effort was put into solving the problems, step by step, that were associated with the levels. Modelling also proved to be a useful tool when seeking to insert the proposal into the surrounding landscape, a fundamental aspect of the HYL design philosophy. Through the terrain

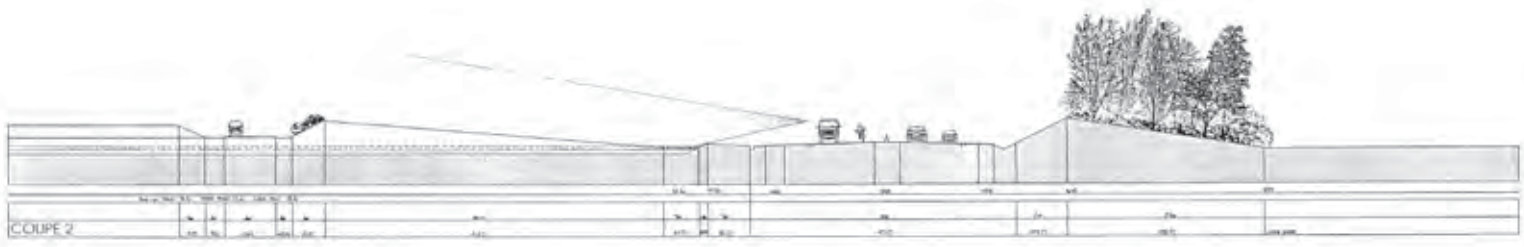


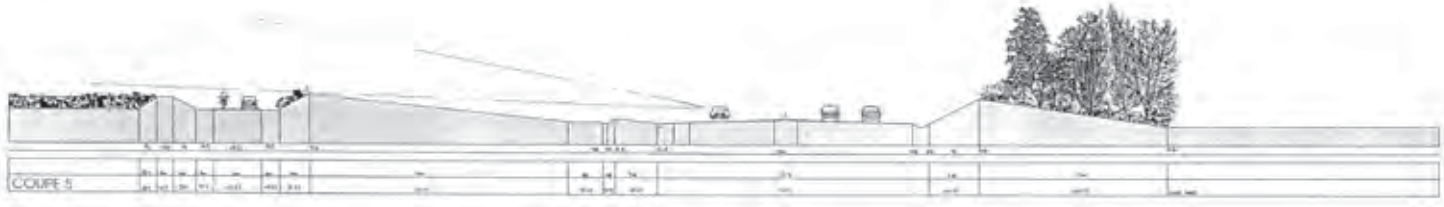
3.4
Plan from the competition documents
3.5
Photo of the earthworks model

modelling, the functional needs of the project were analysed and incorporated into the design, together with environment considerations and the quest for aesthetic beauty. This approach to design creates projects that are very clear in their conception and very easy to comprehend.

The treatment of rainwater is an important issue for HYL and often provides a structuring element in their projects. When the environmental issue of run-off is taken seriously, the functional need to lead off and store rainwater becomes a main element in the concept of the site.

Steep slopes separate the A16 and the park. The only visual contact between the motorway and the park is provided by the canals, which are level with the motorway. High speed drivers on the motorway may not even notice them. Only by turning one's head at the right moment can one become aware of the park situated on the other side of the slopes. This visual connection between the A16 and the park is thus very discreet.





3.6
Section of the site through the A16 motorway and a canal in the park

3.7
Section of the site through the A16 motorway and the access way to the picnic areas in the park

3.8

Final plan after implementation: (1) service area; (2) service building; (3) park landscape; and (4) A16

3.9
Photo of the U-bend and slopes towards the service building with the wind turbine in the background

Design development

Service area
To enter the site from the A16, you have to sweep around a U-bend. This detour might seem a peculiar approach, but it results from a conscious decision by the landscape architects[7] – to slow down the traffic speed and to gradually guide drivers to the goal of this stop: the petrol, the food, the toilets and, unusually for a motorway stopping place, to a high-quality park.

A functional material – asphalt – was chosen for the surfacing of the traffic areas in the service station. Here there are organised parking places for cars, trucks and buses close to the petrol station.

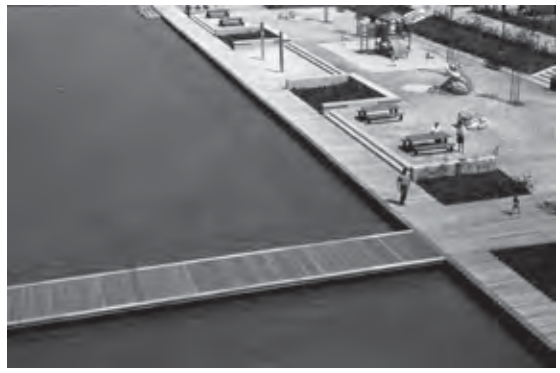
To stabilise the roads, the soil had to undergo a lime treatment, by mixing the clay-filled earth with crushed lime. This creates a chemical reaction that dries the clay and the soil is thus stabilised and hardened.[8]

A special feature of the Bay of Somme services is that you can actually arrive at the service building and its park without going onto the motorway at all. A separate road to the service area crosses the motorway by a bridge. Visitors who arrive this way can use the facilities, but have no vehicular access to the motorway. This opens up the site not only for motorway users but also for local inhabitants and for tourists who are staying in the area.

The local flora which is found on a calciferous soil inspires all the new planting in the project. South of the access road there is a dense woodland, which includes such species as *Fraxinus excelsior*, *Quercus robur* and *Acer platanoides.* Here the vegetation and the slopes enhance the feeling that you are moving away from the motorway out into the countryside. In the areas close to the access road, solitary trees are dispersed on the slopes which are covered with meadow flowers.

The service building
The service building is constructed on a rectangular surface 0.6m above the previous natural ground level and contains a playground, terraces and parking towards the artificial pond situated in between the building and the park. Here the surfaces are more varied, including *béton désactivé* (exposed aggregate concrete), gravel, timber decking and *sable stabilisé* (stabilised sand).

The main service building is designed to be opaque towards the petrol station and the parking areas. Here you find restaurants, toilets, shops and information stands about the Bay of Somme. The walls are made of concrete elements with inlaid stones from the local coast. On the other side, the building

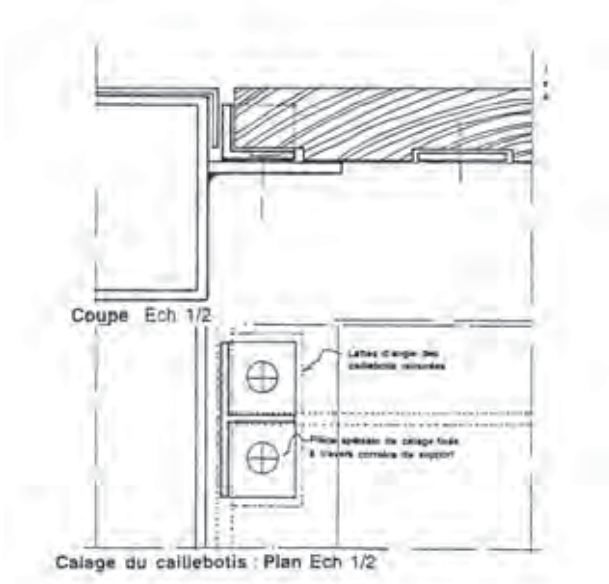


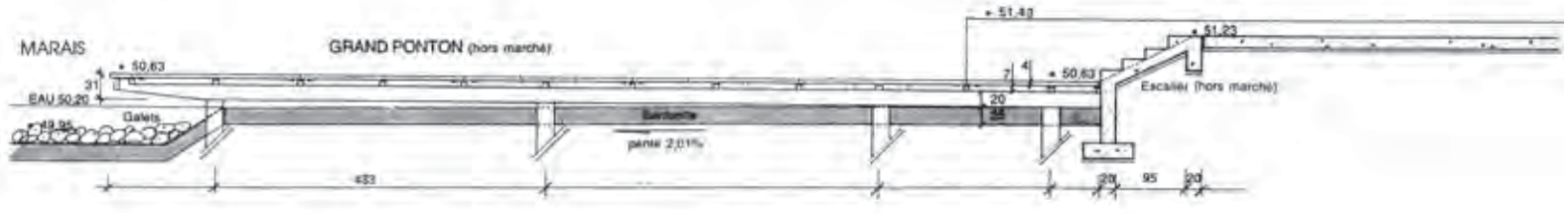
3.10
Photo showing the transparencies between service building and park

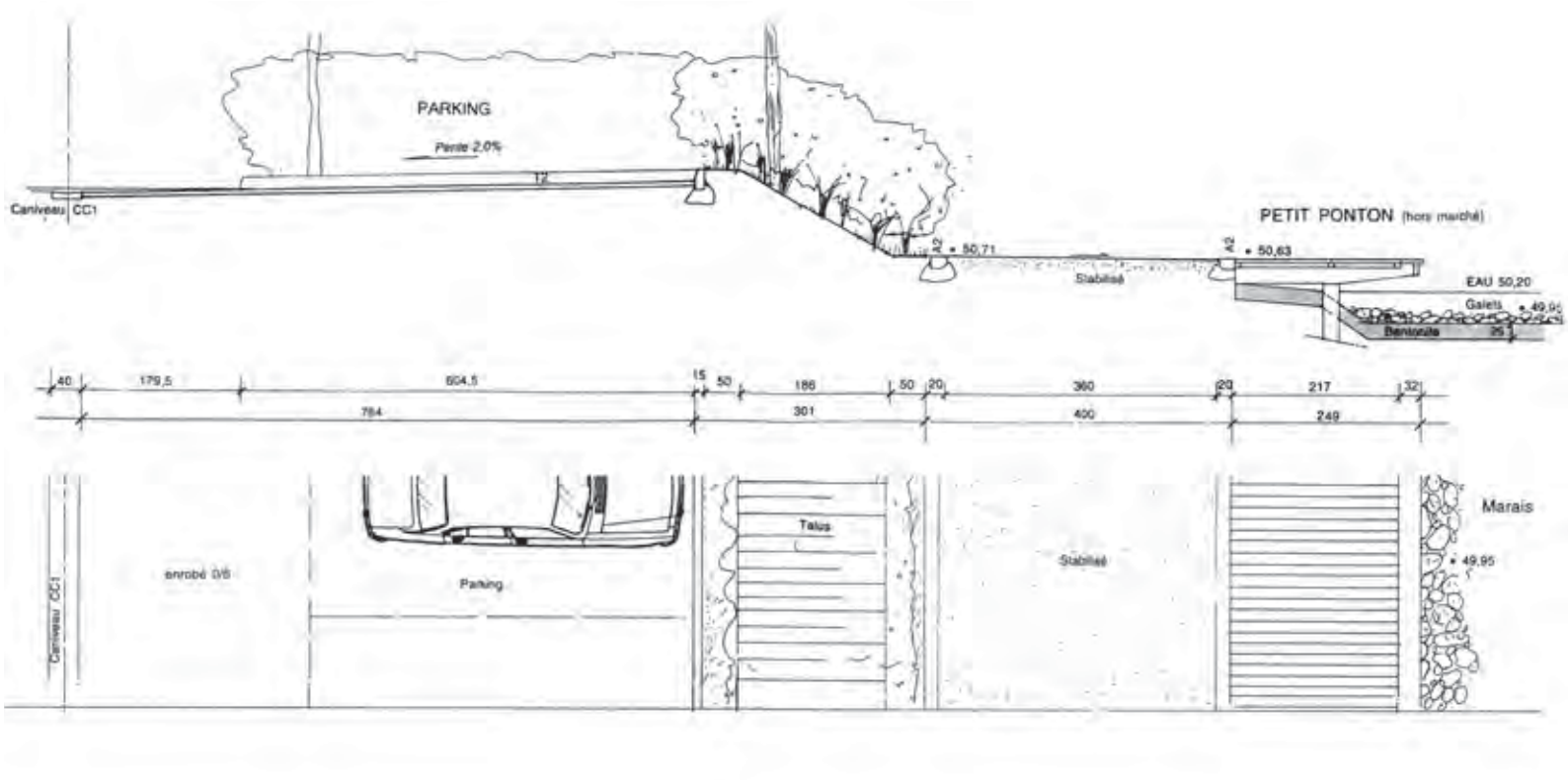
3.11
Photo showing the playground area and the wooden path going through the park

3.12
Detailed plan and section showing fixing details for the duckboards

3.13
Section through timber terrace







is transparent and through its huge windows the park landscape is totally exposed.

The playground is covered with gravel. A humorous touch is provided by the specially designed colourful giant frogs in concrete which invite children to play.

The paths around the building are made out of exposed aggregate concrete. The terraces and paths leading out to the park are made of wood. A sophisticated detail is that the planks are linked together by screws from underneath, so that the screw-heads cannot be seen from above. Details like support walls and steps are made out of *béton sablé* (sand-blasted concrete). Different kinds of concrete are used quite often in France to provide a variety of surfaces. Lamps are incorporated into the supporting walls.

A wind turbine was added during the feasibility studies and has become a landmark in the area. You can see it from far away coming along the A16. This also underlines the environmental quality of the site. The wind turbine produces all the electrical power for the Bay of Somme service station, 500,000kWh per year.[9]

From the service building you can enter a cylindrical tower, 19m in diameter, which rises 10m above the ground. A staircase winds its way around the outside to the top. On the ground floor, there is an exhibition about the region with a slide show of the Bay of Somme. The surrounding landscape can be seen from the top of the tower, a view that extends all the way to the coast. Here you also have a view of the 10ha park. It is interesting to note that from this viewpoint you cannot see the service area itself because of the roof of the main building.

Hedges of *Carpinus betulus* and different kinds of roses divide the various areas close to the service building. A grid of *Fraxinus velutina* has been planted, extending the rhythm established by the pillars of the service building.

3.14
Opposite: section and plan through the west side of the service building, showing parking-places and path with terrace alongside the pond

3.15
Service building and tower seen from the park

Park landscape

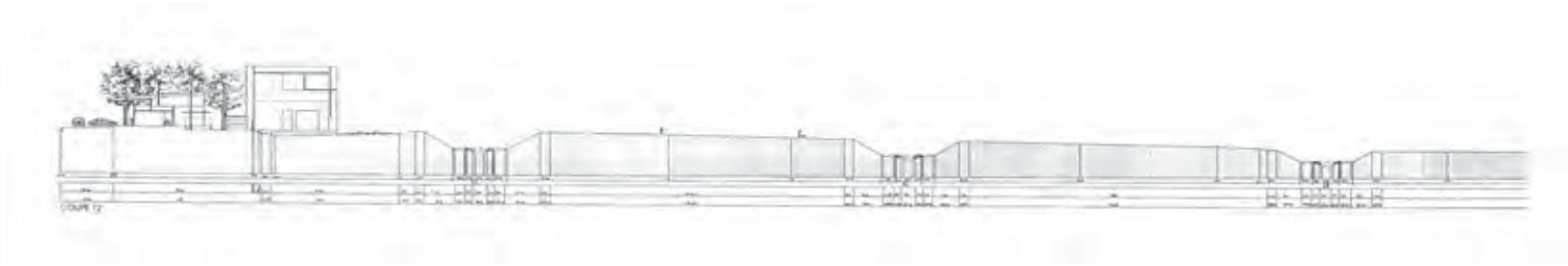
From this point we have free access to a park that contains many different elements. There is a pond that represents the wetlands of the Bay of Somme and three canals that emerge through the plateau like the canals of the 'Bas-Champs' (local polders). For those visitors wishing to picnic, there is an area further away from the buildings, which is protected from the wind by slopes. This area is accessible by car and supplied by parking places for caravans and picnic facilities.

A timber-decked path goes through the park and leads out to the surrounding fields. From here you can go out to the canals. The bridges crossing the canals are designed to look as light as possible. These constructions are in contrast to the natural expressions of the site. The HYL office also designed the picnic tables and terraces in the park and the parking area.

The boundaries of the whole park are made as invisible as possible. The outermost fence is hidden in a *ha-ha*, which also serves as a storage and flow equalisation basin for heavy rain. Even inside the park, along the edges of the pond and along the terraces, fences are avoided. The need for safety fences has been eliminated by making the pond shallow; 1m out, the bottom is only 20cm deep.[10]

The canals are 2.5m deep, and the bottom is actually the former land level. All rainwater from the parking places and the roofs of the buildings is led out to the canals. The water runs from one canal into the next. Before transfer to the canals the water is filtered to separate suspended solids. In case of a pollution leak from the service area, the nearest canal can be isolated.

An 80m-deep well was drilled to keep the pond supplied with clean groundwater. The engineers were pleased to find water, although the depth was far deeper than expected during the feasibility studies.[11] In dry seasons the canals are supplied with water from the pond located close to the service building.



3.16

Section of the site through the park showing the cylindrical tower and the three canals

3.17

View from the tower towards the picnic area and the A16 during construction

The edge of the pond consists of sand and pebbles from the nearby coast.

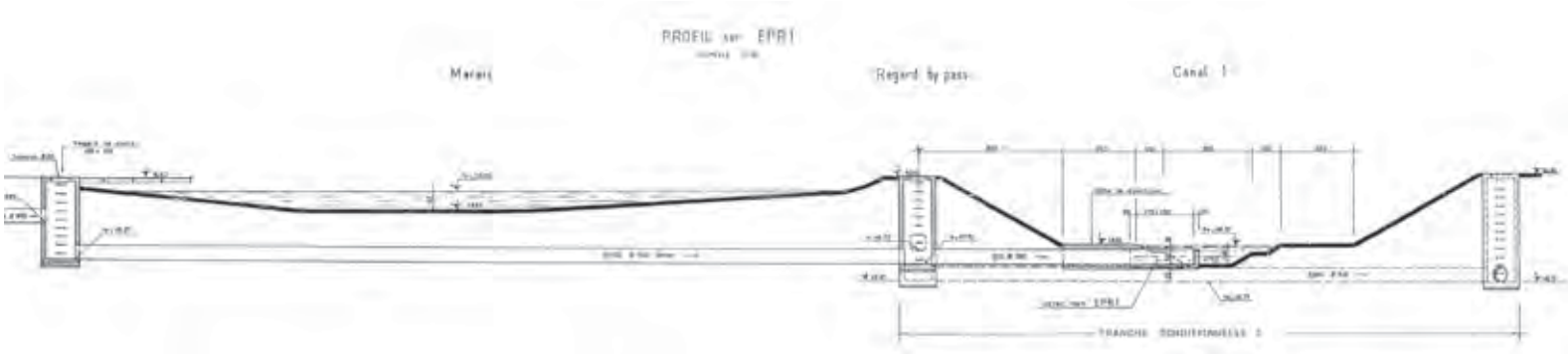
Each canal has an infiltration pond designed to hold the capacity of the severe storm that occurs once in a hundred years. The actual shapes of these ponds differ from the initial competition proposal as a result of new calculations; they each now have an area of 200m^2.

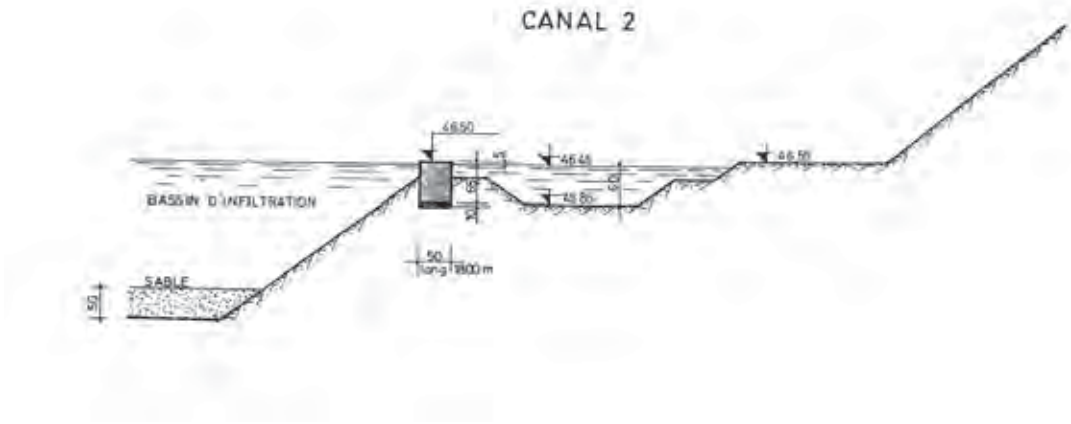
The section through one of the canals shows how they are designed to respond to different functional needs. The bottom is covered with a layer of Bentonite, a kind of clay that expands when water is added and creates an impermeable surface. A bench in the slope serves as a maintenance path. This also gives visitors the opportunity to take a walk in private.

The layers of aquatic plants treat the water in the canals by absorbing pollutants such as nitrogen, phosphorus and suspended solids.

The vegetation is varied and, as mentioned before, is inspired by the species from the surrounding biotopes such as the wetlands, canals and forests on the plateau and near to the sea. In the park there are fewer trees than on the south side of the service building. The overall pattern in the park is that the slopes and park borders are planted with shrubs like *Salix caprea*, *Cornus mas* and *Viburnum tinus* which are not allowed to grow too high. The wetlands and canals are planted from an ample palette of water-adapted plants. The reeds in the canals grow abundantly and must be cut regularly. The *bas champs*, the picnic area and the caravan area are treated differently to provide a more cultivated appearance, with small trees chosen for the colours of their flowers and leaves.

There are different textures of grass. The humid areas can be inundated and are covered with clover. The open prairies are mown once a year to maintain a rural appearance. The areas close to the service building and parking are more frequently maintained to give them a well-cared-for look. This selection of vegetation gives the visitors a genuine impression of the wider landscape when walking in the park.





3.18
Section showing the connection between the pond and the first canal

3.19
Section through the canal and infiltration pond

Evaluation

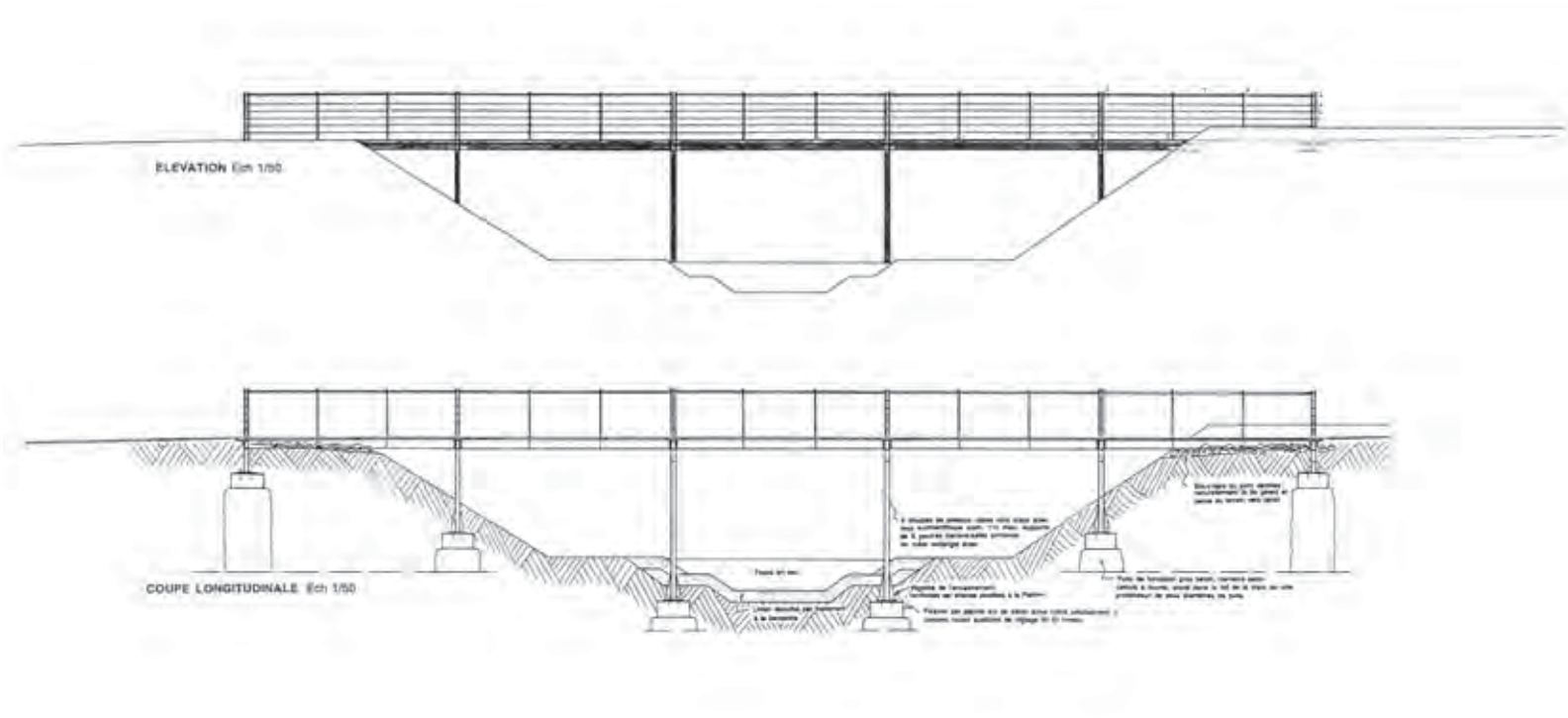
The development of the vegetation is interesting. Initially the intention was to plant far more trees in the park than have actually been planted. During construction it emerged that what seemed evident on the drawings was not necessary in reality, so the plantations that framed the area on the initial drawings were omitted, reinforcing the impression that the park and the fields float into each other without interruption.

The solitary trees located in the parking area at the west end of the service building area grow slowly because of the wind, which deforms them. HYL does not consider this to be a problem, but rather an educational tool, since the natural process that shapes the trees is clearly evident.

The project, as realised, gives the impression that no boundaries exist between the park and the surrounding landscape. As described, fences have even been avoided around the ponds by the use of ground modelling. However, the organisation now in charge of the maintenance and operation of the site reviewed this design and decided that they had to secure the safety of the children on the playground by installing fences. In the opinion of HYL, this was not necessary and the pervading concept of no borders has been weakened.

In the competition proposal, the canals were extended on the eastern side of the motorway. This would have been very costly in reality and was abandoned during the feasibility studies. Again, what looked important on the drawings turned out to be neither necessary nor possible in reality.

What emerges from such considerations is that if a project has a strong concept, small adjustments make no difference to the overall impression. At



3.20
Section through the bridge crossing the canal

the Bay of Somme services the initial concept still stands strong and the design, as built, has changed little from the competition proposal. This reflects one of the strengths of the HYL office; their projects are always worked out in detail from a very early stage. The close collaboration between the architect and the landscape architect from the earliest drawings stage has been important for the result.

Motorway stopping places are rarely designed with such careful attention, yet they are visited by large numbers of people, and provide a great opportunity for landscape architects to show their skills.

The Bay of Somme service station has become a well-established attraction for the visitors and local population. People in the region are very proud of their natural landscape and the design of this facility promotes this in an excellent way. A place which could have been conceived in a narrowly functional way, as only a place to buy food or petrol, has become a much more important asset for both travellers and residents.

Germany

Ingrid Schegk and Sabrina Wilk

Landscape architecture in Germany

Landscape architecture in its current form is a relatively young discipline in Germany, despite the fact that when one looks at past garden art and garden architecture, its origins have very traditional roots. The planning and designs of landscape gardeners such as Friedrich Ludwig von Sckell (1750–1823) or Peter Joseph Lenné (1789–1866) still influence the appearance and the open space systems of important German cities today.

If we confine our observations to contemporary landscape architecture, the period after the Second World War represents an important phase in its development. Even if the post-war period was characterised mainly by very conservative attitudes and landscape architects were mostly concerned with private gardens, some progressive and socialist-based ideas did become widely accepted. The protagonists of these positions were landscape architects such as Herrmann Mattern, Ulrich Wolf and Günther Grzimek, the designer of Munich's Olympic Park, which opened in 1972. They demanded parks and open spaces with varied activities and uses for all social classes.[1]

From that time onwards, an important medium of German landscape architecture has been the national and international garden exhibitions (BUGA and IGA). Ever since their premiere in Hanover in 1951, these exhibitions have taken place every two years, each one in a different German city. Over time, their importance has evolved into something much more than a horticultural fair. They 'create social green spaces and make an essential contribution to a modern ecological urban development'.[2]

Beginning in the 1940s, the study of landscape architecture has also been established as a postgraduate or an engineering programme at universities and polytechnic colleges. Most such study programmes belong to the so-called 'green' faculties and are closely combined with subjects such as horticulture or agriculture and not as a specialisation of architecture. Accordingly, the courses are often characterised by an ecological orientation. Under somewhat differing names, studies in landscape architecture or related courses are currently offered at a total of 16 universities in Germany: 5 research universities and 11 universities of applied sciences, the German *Fachhochschulen*. Related study programmes orientated towards landscape construction and management are relatively new and are offered at a small number of faculties. In this particular field, the University of Weihenstephan and the University of Osnabrück currently offer the only complete engineering degree in Landscape Construction and Management, and each school has developed its own particular emphasis and profile.

German unification in 1989 initiated numerous impulses and new fields of activity for the whole building industry, including landscape architecture. The re-united city of Berlin was made the capital of Germany again. With three million inhabitants, Berlin is the largest German city. As a result of the relocation of the German government from Bonn to Berlin, a lot of new facilities have been built, and a multitude of remarkable landscape architecture projects have also been generated.

Many projects realised in Berlin or neighbouring Potsdam could have been used as examples of 'best practice' in landscape architecture. However, two projects in the city of Munich have been chosen for the following case studies. The first example is the 'Landschaftspark Riem', or the Landscape Park in Riem, located in an eastern city quarter of Munich, which is not completely finished at the moment of writing. The second example is the new cemetery in Riem, which is a part of the park, but is not as well known, although it is a noteworthy project in its own right. Both projects are judged to have exemplary content. Our assessment of 'best practice' is not confined to consideration of a single remarkable object, based on a persuasive design concept and realised in high technical quality; we also evaluate 'best practice' on the basis of a holistic, interdisciplinary planning strategy in which landscape architecture plays a decisive role.

Case study
The Landscape Park in Riem

Project data

Project name:	The Landscape Park in Riem
Location:	Munich, district of Riem
Planning:	International competition 1995, 1st prize
Construction periods:	1998–2001 (1st phase of construction), 2000–04 (2nd phase of
	construction), 2002–05 (National Garden Exhibition 2005)
Cost:	60 million (park) 41 million (garden exhibition)
Area:	210ha (park) 130ha (garden exhibition)
Landscape architects:	Gilles Vexlard, LATITUDE NORD, Paris (design); Stahr and
	Haberland, Munich (bidding, site management, 1st phase of
	construction); Heiner Luz, Munich (since 1998, bidding, site
	management, 2nd phase of construction); Rainer Schmidt,
	Munich (Garden Expo)
Client:	City of Munich, represented by MRG München–Riem Ltd.

Overview

The Landscape Park in Riem extends southwards from the housing areas of the city quarter of Riem. With an area of more than 200ha, it is the third largest park in the city after the English Garden and the formal park of Nymphenburg Palace.[3] The park offers ample areas for recreational activity to people visiting the new exhibition centre and quarter, as well as the neighbouring communities. The catchment area of the park contains approximately 40,000 people. The park also provides areas of ecological balance and replacement (such areas are required by German law, particularly when large building projects have considerable ecological impact) and a fresh air corridor for the city centre.

In 1997, the city of Munich applied to host the National Garden Exhibition in 2005, as a mechanism to advance the completion of the park. By holding the exhibition, Munich wished to continue the successful tradition established there by former events such as the Olympic Games 1972 and the International Garden Expo in 1983 which attracted a record number of 11 million visitors to a garden exhibition. The city won its bid as host because of its convincingly sustainable concept for both the city quarter and the garden exhibition.

Project history

With a population of 1.3 million people, Munich is the third largest city in Germany. The new area around the Munich Exhibition Centre is currently being developed as a new city quarter. The project has been evaluated as 'one of the most interesting projects of urban development in Europe'.[4]

Although property is expensive to buy or rent in Munich, the city is known as one of the most attractive places to live in Germany, because of its proximity to the Alps and to the lovely lake environments just south of the city. Living standards are high, as are the facilities for recreation. The city's approach to its urban development is represented by the slogan 'compact – urban – green'.

It was decided in 1992 that Munich's Riem Airport, built in east Munich between 1936 and 1939, was to be relocated to Erding, further north-east of the city. This decision marked the beginning of the development of the Munich Trade Fair and the Exhibition Centre of Riem. Six years on, the new exhibition buildings, which form the core of a new city quarter, have been opened. This kind of regeneration process is typical of so much recent urban development throughout Germany and Europe in general. The basic principle for developing such new districts is the so-called 'three parts solution': one-third of the area zoned residential, one-third allocated for industry or business development, and one-third for parks and open space.[5]

Based on an ecological concept which allows 'living and working among greenery', the new city quarter of Riem will offer housing space for 16,000 people and 13,000 jobs by the year 2013, not including the trade fair and exhibition grounds.[6]

The main advantages of the new district in the east of Munich are the good transport connections (the highway and the subway), the international flair of the trade fair and exhibition areas, the high-quality infrastructure and the partially completed landscape park with its large lake and bathing facilities. The landscape park hosted the national garden exhibition (*Bundesgartenschau*) in 2005. This was regarded by the city of Munich as a six-month-long housewarming party for its new city quarter.[7] It is the first time that such a garden exhibition has taken place in a park which was planned entirely independent of the temporary event.

The national garden exhibition follows a sustainable urban development approach and clearly demonstrates the ecological demands of the project. All phases of development have been thought through with ecological aspects in mind, from the demolition of the former airport, to the creation of the new landscape park as the linking element between the

new quarter and the surrounding environment. The park acts as a green corridor for Munich, ensuring a fresh air supply into the city. The 6.6ha of photovoltaic cells on the roofs of the trade-fair halls are the largest installations of their kind in the world.[8]

The range of tasks and problems encountered in contemporary landscape architecture is very clear in the new city quarter of Munich–Riem, which is why this project was chosen to demonstrate 'best practice' in its broadest sense. The following aspects will be considered:

- landscape architecture as an essential part of sustainable ecological urban development;
- parks and green spaces as an important and distinctive component within a new urban quarter (the landscape park);
- the temporary event becoming ever more prominent as a new dimension of urban and landscape design (the national garden exhibitions);
- the creation of a classic type of open space (the cemetery) that must fulfil the needs of a society which is becoming increasingly multicultural;
- the integration and implementation of various concepts and designs, created by different landscape architects from different countries (urban quarter – landscape park – garden exhibition – cemetery);
- the clarity of design, the technical quality and the ecological compatibility as simultaneously traditional and modern values of the contemporary building culture (best practice in materials and design).

Design philosophy

The design by French landscape architect Gilles Vexlard won the 1st prize in the 1995 international design competition. Despite the very individual and distinctive approach with its characteristic formal language, the design concept was very sensitive to the site's conditions and its cultural landscape traditions. The design was also very persuasive in its details. The jury correctly commented that:

> The work develops its formal characteristics out of the historic field boundaries and the prevailing wind directions. The formative framework of light oak and pine forests, as volumes structuring and directing space, is supplemented by smaller groves and narrow plot hedges providing what Vexland called 'visual distance markers'. These elements, in conjunction with the wide, grassy heath areas and meadows, provide a coherent ecological approach to this space. The path systems are overlaid onto this vegetal structure, the antithesis of an English landscape park, as an independent network. A band of activity areas (sports areas, pocket parks) runs through the new exhibition centre connecting the urban areas and the wider landscape in an aesthetic and functional way.[9]

The newly-built landscape park is very impressive. A piece of designed Munich landscape has been created which appears somewhat new and seemingly unused, yet its expansive open spaces convey a strong sense of freedom and the need for rapid movement. 'Who knows how people will move around in 50 years' time?' This question was asked by Gilles Vexlard, while walking through the park, and it challenges us to think.

The scale and the relationship between one person and 300ha of space are definitive for Vexlard. He describes the landscape park as a project between a 'sprint and a marathon'.

In order to explain the park's very consistently designed details, it is important to present the hierarchical layers of the park concept, as developed by Gilles Vexlard:

> Topography→ Landscape and green structures
> → Pathways.

First, Vexlard designed the terrain and topography of the park, then he structured it with green elements. Thus, the pathways in the park were laid through the previously designed landscape at the very end. Gilles Vexlard compares them with the scenographic route of a camera moving through the landscape, which offers the park users three or four different landscape situations on their walk, which they can choose to examine and explore.

'We do not just observe these things, we are in these things', says Vexlard. With this, he clarifies the difference between his idea of the English landscape garden, which presents the citizens with distant landscape elements along their route, and his landscape park, which allows people to approach their landscape, to go inside it and finally to become a part of it.

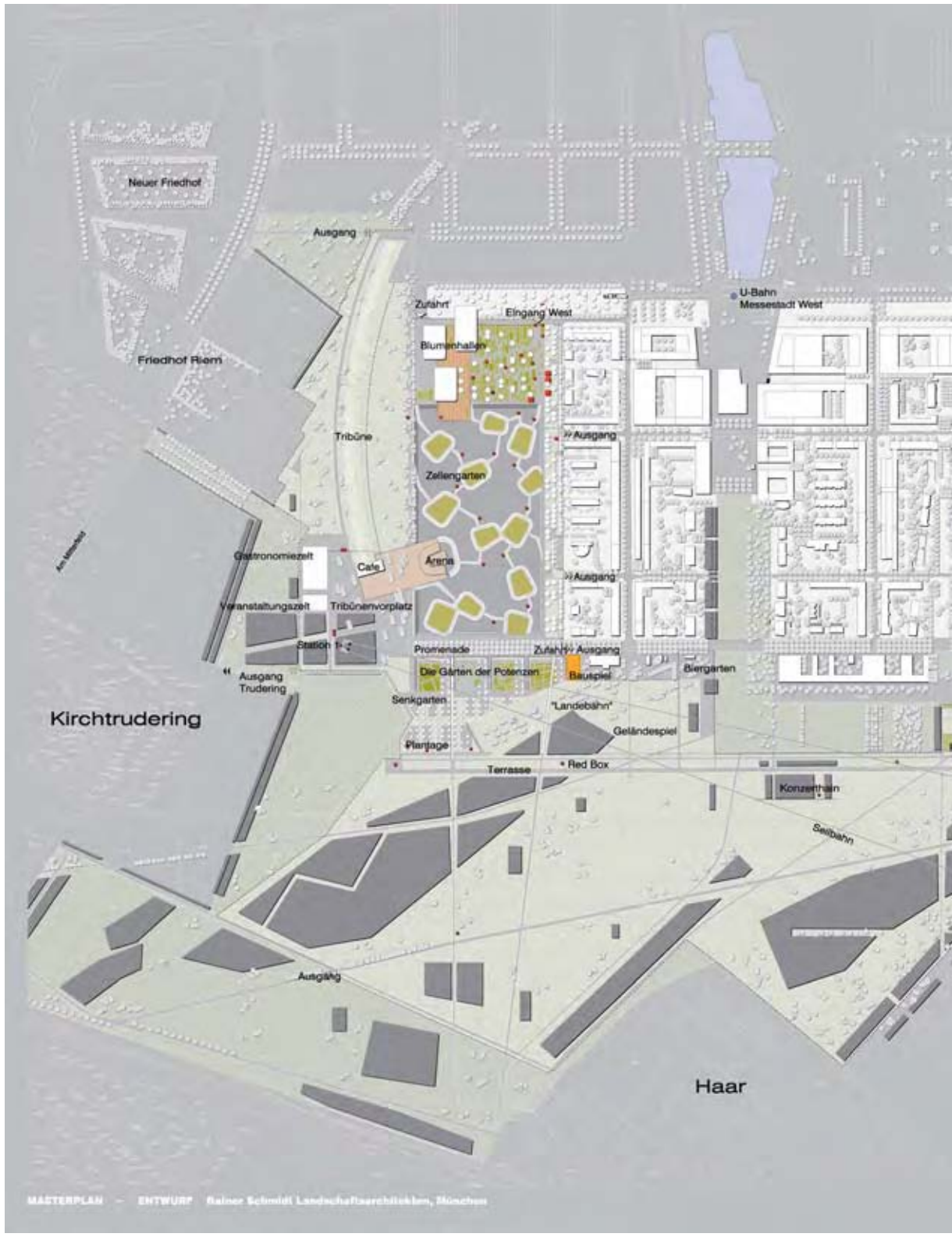
The landscape architect's concept integrated various recreational attractions, an artificial 14ha bathing lake, a 27m-high sledding hill and an 18m-high viewing hill, both the latter made from excavated material from the site. The bathing lake and the hills were completed in the second phase of construction and are open to use by local residents and city dwellers alike. The lake has four different types of edge: an urban quay to the north, a finely pebbled bathing beach and sunbathing meadows to the east, a soft and natural-looking edge with fields of perennial wildflower to the south and a wide belt with cat-tails and reeds along the western edge. In this area, the path becomes a boardwalk over the water. People can experience the biotope without damaging the vegetation with their feet.[10]

The difficult task for the participants in the competition for the German national garden exhibition, the *Bundesgartenschau* in 2005, was to design an exhibition concept that would present an independent idea which combined and harmonised with the park already built by Gilles Vexlard. In addition to the areas dedicated to the *Bundesgartenschau* within the landscape park, further building plots for temporary exhibits had to be made available later.

The most convincing solution to these demands was developed by the Munich landscape architect Prof. Rainer Schmidt, whose design won 1st prize. His design was inspired by microscopic images of the plant world. Exciting spaces such as the 'Cell Garden' with over-sized 'cells' made of gravel berms, or the 'Leaf Garden' with a pathway system based on the vein structure within a leaf could be experienced. Embedded within the formal language of the landscape park, the gardens were further enhanced by the lower-lying 'Sunken Garden' and the 'Parallel Garden'. These 'enhanced the language of Vexlard's park in an almost poetic way and with an astonishing lightness'.[11] While the Cell and the Leaf Gardens were temporary, the Sunken and Parallel Gardens remained after the exhibition, as part of the landscape park. Within the Sunken Garden, the concept of 'cell' images can be found once again. Under the title of 'Gardens of Powers', layouts were created based upon a spatial interpretation of microscopic photos enlarged to varying powers of ten. This micro/macro theme fits in with the main *Bundesgartenschau* theme, which is 'Changes of Perspective'.

4.1

Overview Landscape Park Riem and National Garden Expo 2005




Neue Messe Riem
U-Bahn
Messestsct Ost
Ausgang
Messestadt Riem
Aussichtshügel
Ausgang
Salmdorf
Eingang Ost
Blattgarten
Zufahrt
Ausgang
Kulturallmende
Gärtnermarkt
Biergarten
Seeçafe
Spielgelände
Strand
Station 2
Badesee
Spielplatz
Haar
Kleingärten
Krautgärten
Ausgang
Eingang Süd
BUNDESGARTENSCHAU 2005 MÜNCHEN

Design development

The collaboration between German and French landscape architects was a special feature of the realisation and construction of the park. Gilles Vexlard sees historic connections: the design of the English Garden in Munich by Sckell was a result of the French Revolution. Vexlard feels almost closer to the city of Munich than to some French cities such as Toulouse and Marseille.[12] Certainly the cross-border collaboration was not always easy. The construction plans created in the Paris office had to meet the German norms and technical specifications. The differences between the two planning cultures were often very visible.[13] A closer look at the park shows that the international cooperation has led to a novel design and professionally interesting result.

Design of the terrain

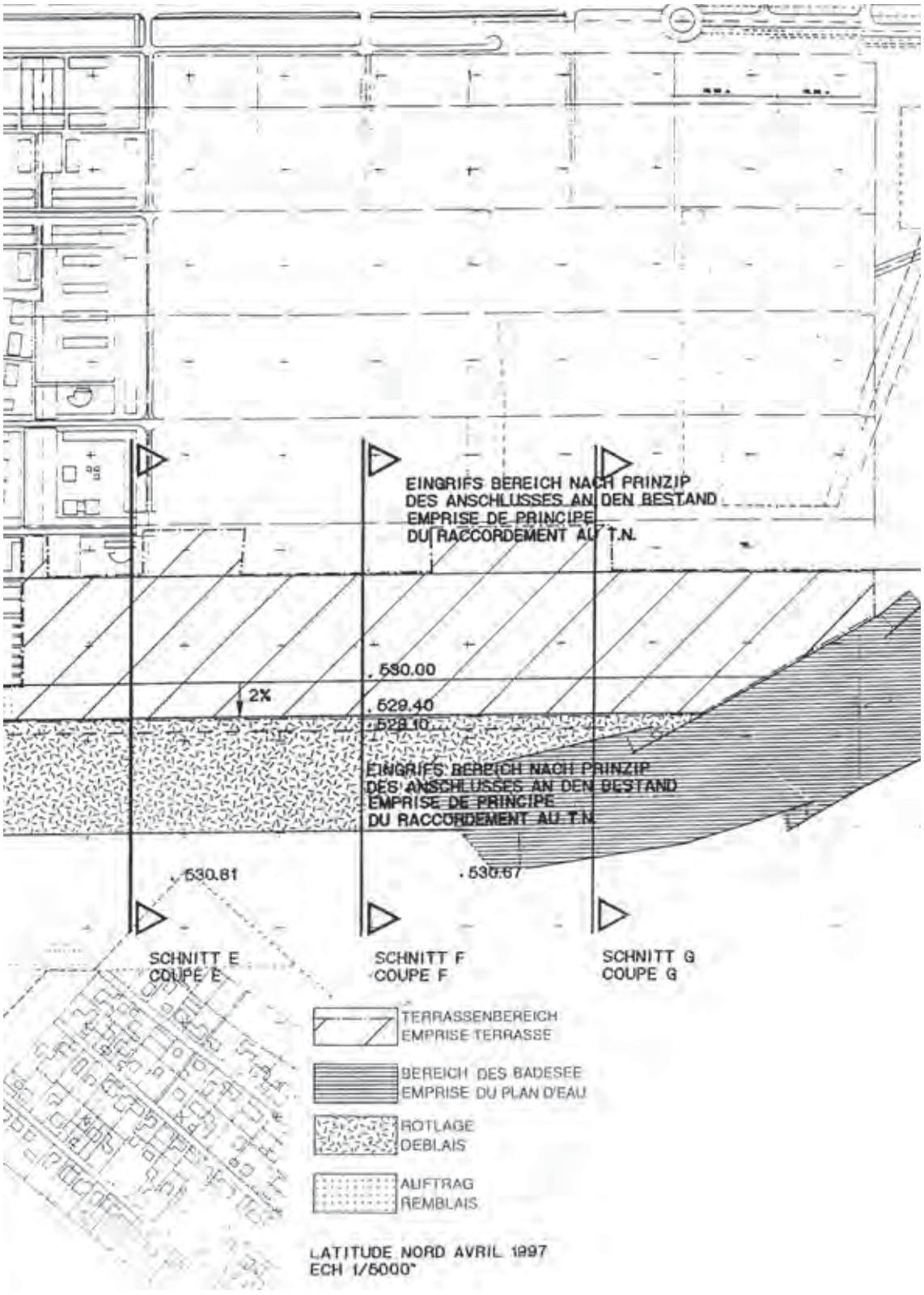
In order to be accountable to the human scale, despite the almost geographical dimensions of the park, the landscape architect undertook several decisive changes in topography. These are hardly recognisable today. He evened out the existing slope of the site northwards to the city. This slope was minimal, but across such lengthy distances it would have led to uncomfortable sightlines for the people in the park areas closest to the city. A terrace was created to form a frame for the city's silhouette. Two parallel pathways lie on the slightly southward sloping terrace, a large and a small terraced pathway, which combine to form a promenade which allows for extensive views into the park.

The wall which is necessary to accommodate the changes in grade, the so-called terrace wall, marks the boundary between city and park landscape. The top of the wall runs horizontally for long distances. City, park and landscape form a true ensemble. Gilles Vexlard goes back to a classic device in landscape architecture in his handling of the topography, an effect that was used during the Renaissance: the paths adjacent to the ground planes are elevated.[14]

Planting design

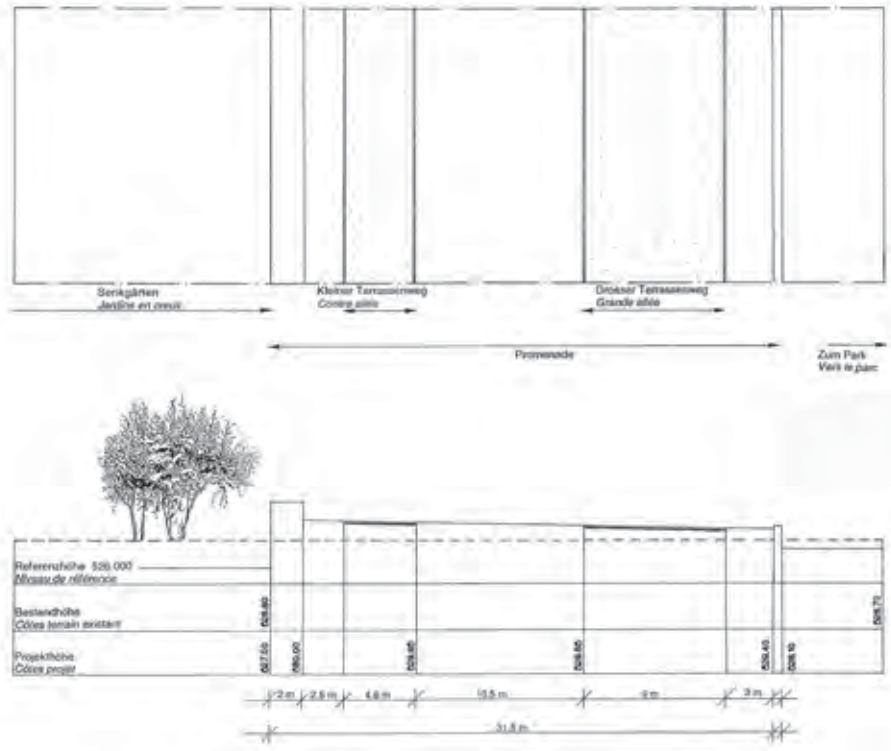
The most important building materials in the Landscape Park Riem are the plants. The overall plan of the park and garden exhibition requires about 30,000 newly planted trees. As previously described, the green structures in Vexlard's park hierarchy are secondary to the topography, but lie above the pathway systems.

The park is structured using woody plants and shrubs of differing sizes, as well as incorporating grassy meadow areas. The contrast between the spatially effective volumes and the open limitless surfaces heightens the relationship between the dense large city and the openness of the countryside. The volumes of woodland orientate themselves towards the directions found in the



4.2

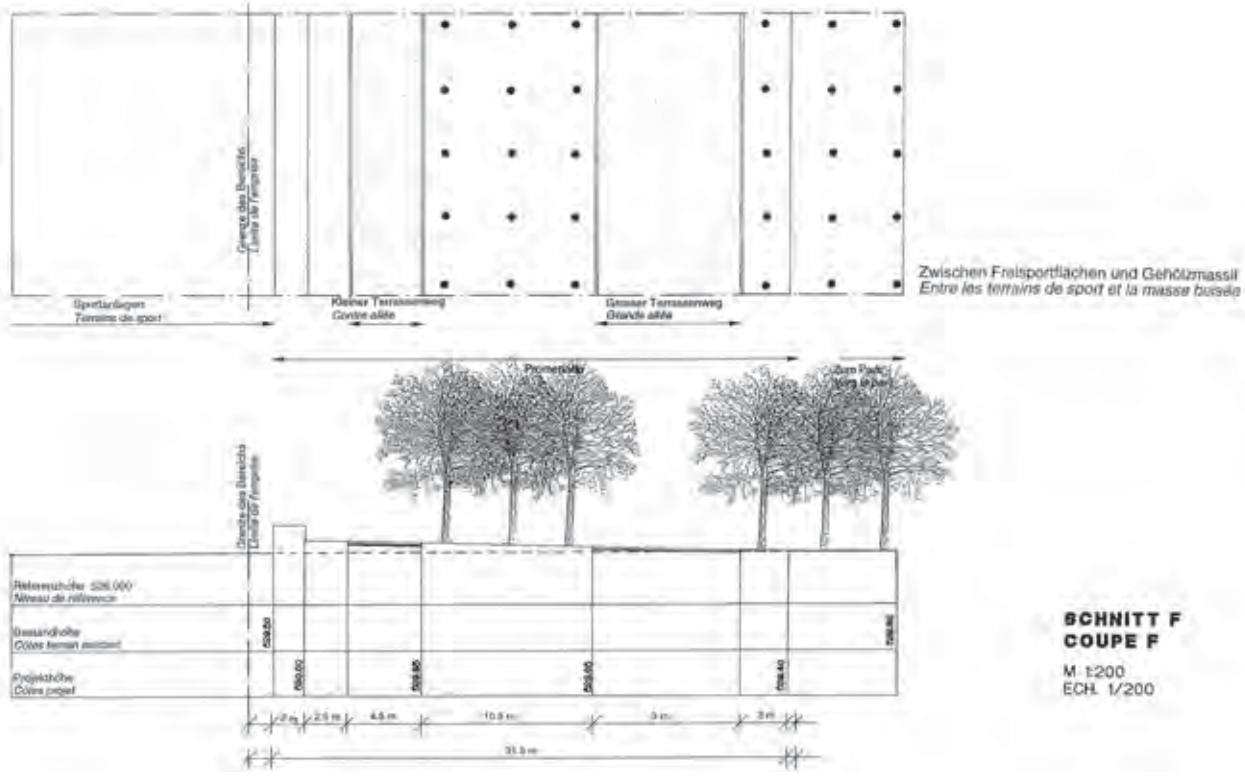
Plan view of the promenade adjacent to the lake (includes key to sections; section F is shown overleaf)



Senkgärten
Les jardins en creux

SCHNITT B
COUPE B

M 1:200
ECH. 1/200



Zwischen Freisportflächen und Gehölzmassiv
Entre les terrains de sport et la masse boisée

SCHNITT F
COUPE F

M 1:200
ECH. 1/200

4.3
Typical sections (and associated plans) through the promenade. Section B shows the section through the western part of the promenade.

4.4
Section F (keyed in Figure 4.2) shows a section through a tree grove on the promenade.

4.5
View from the elevated terrace onto the open landscape

landscape: historic field boundaries, existing infrastructures, the main wind direction. The selection of plant species was directed by the potential natural vegetation of this landscape area, a criterion defined by the city of Munich.

The planting concept includes five different typologies shown in the table overleaf.[15] All structures for the woody plants and shrubs comprise consistent, sometimes very dense grids. Vexlard's planting principles distinguish between 'homogenous and heterogeneous' and 'regular and irregular' plots, which offer differing transparency, depth and height effects.

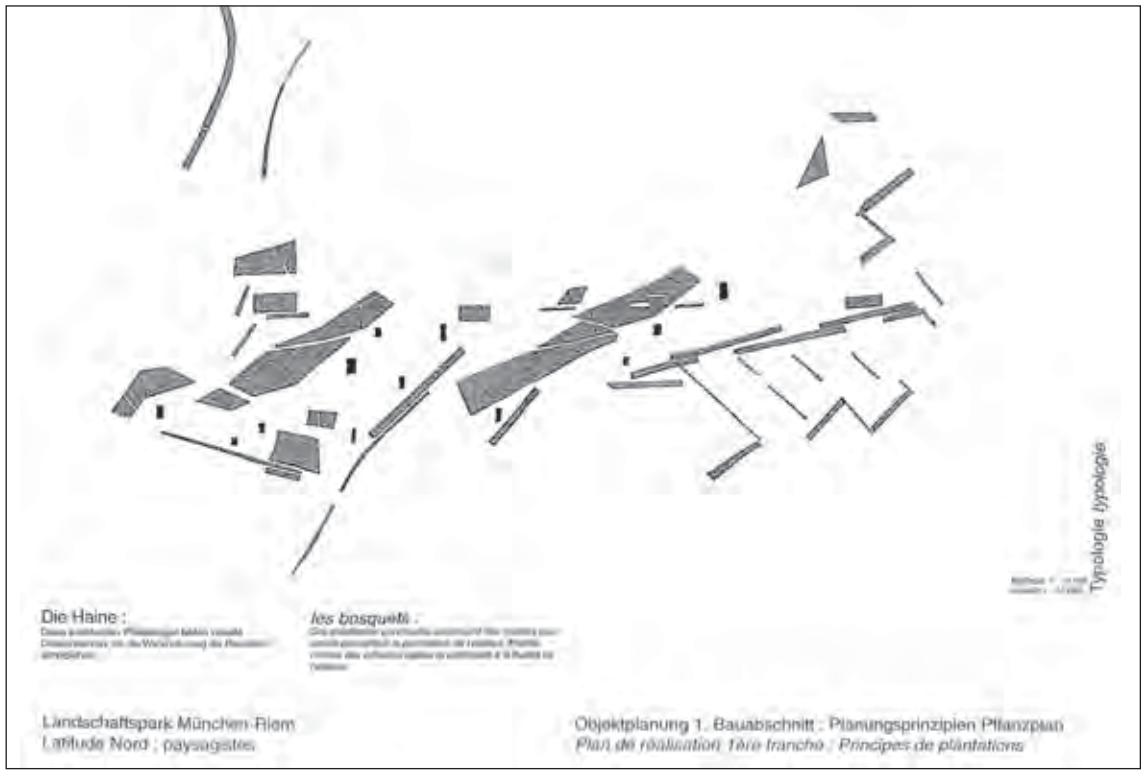
The materials in the park

Even though it is the structure of the vegetation in the Landscape Park Riem that plays the starring role, the park's hard details and materials are the elements that allow Vexlard's concept to be understood. They facilitate the use of the park by the people around it, especially in the terrace areas close to the city.

In accordance with the ecologically-oriented planning concept for the trade fair centre and city quarter of Riem, it was important that all construction materials were of the highest quality and met criteria for ecological sustainability. The palette of materials is limited to natural stone, concrete, timber and steel. The material selection avoids spectacular, risky or short-lived novelties. The park's green elements, the woody plant structures and the colourful blooming grassy meadows lie in the foreground of the design. The area for the sunken garden by Rainer Schmidt is intensively designed and contains predominantly built components. Special details and materials can be found here, for example, an elastic pathway

Planting concept of the Landscape Park, Riem

Type, description	Characterisation, description	Important species (botanical names)
Woody plants (massive volumes)	The main structure of the park, they contain the spaces; they define the large or small open spaces using their forms and their order	Mixed plants from the species found in Oak–Hornbeam forests (*Carpinetum*) and in Oak–Pine forests (*Quercetum*)
Groves	Planted occasionally, these form visual distance markers that allow the spaces to be experienced. They are placed in open meadow areas; distances between groves are 150–300m	Usually contain only one species (*Tilia cordata, Pinus silvestris, Fraxinus excelsior*, etc.), but some are mixed containing non-native tree species (*Liquidambar, Ginkgo*)
Strips and bands of woody plants and shrubs	These direct the spaces and create connections to the surroundings; they form thresholds, cross borders; open up spaces towards neighbouring sites; they tend to lie at the edges of the park; strips are 30m wide, bands are 10–20m wide, and a minimum length of 100m	The mixed plantings are linear, containing multi-stemmed and solitary shrubs of the following species: *Fraxinus, Populus, Sorbus, Aver, Betula, Fagus, Juglans, Quercus, Pinus, Prunus, Ilex, Crataegus, Corylus, Carpinus, Viburnum, Syringa,* etc.
Plot hedges	Planted along the plot boundaries, they mark boundary lines and integrate them with the park; low hedges lead from the park into the open landscape; they are approx. 5m wide and 100–150m long	The mixed plantings are linear, containing multi-stemmed and solitary shrubs of the following species: *Cornus, Ligustrum, Viburnum, Crataegus, Prunus, Eleagnus,* etc.
Solitaire trees and tree lines	Trees are planted in differing configurations: as solitaire trees (strong or uncommon tree species), in lines or groups; they accentuate the space; their crowns develop freely, giving them their characteristic height and form, which in turn adds scale to the park	The solitaire trees have diameters of 25/30 to 50/60cm girth. Species include: *Acer platanoides, Acer pseudoplatanus, Aesculus hippocastanum, Fraxinus excelsior, Tilia cordata, Quercus robur, Pinus silvestris, Pinus nigra*, etc.

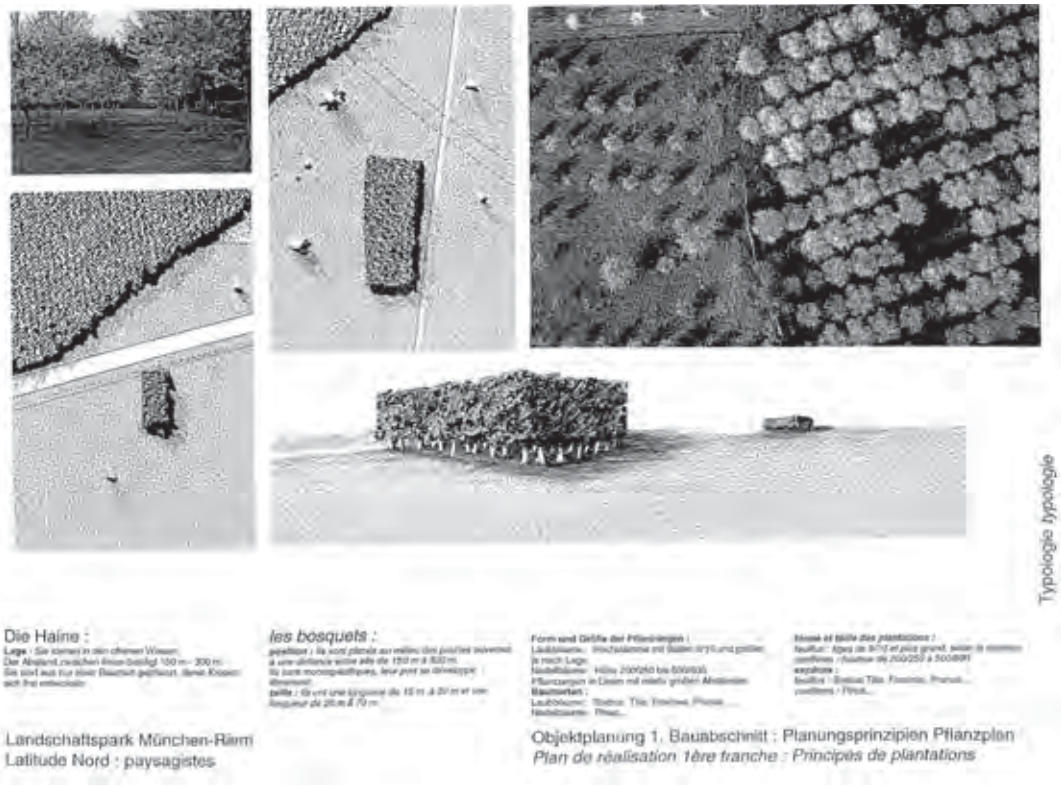


4.6

The groves in the park (black rectangles)

4.7

The typology of the groves



4.8

Typical planting scheme for the grove

4.9

Grove of lindens – overview

4.10

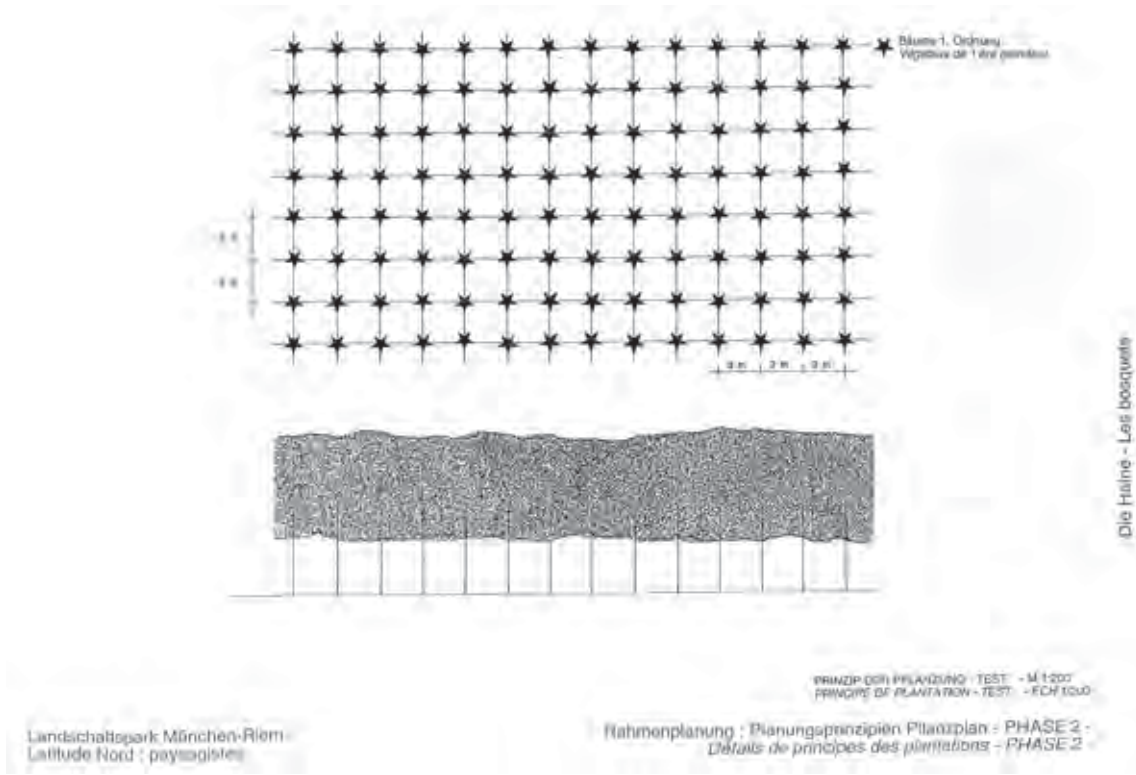
Grove of lindens

4.11

Opposite: the sunken garden

4.12

Opposite: the toboggan hill



surfacing made of recycled rubber and planting bed edges made of shiny stainless steel. It is expected that all the chosen materials will age gracefully.

The walls

An important detail is the terrace wall mentioned above, which in some respects creates a new city wall, yet it has little in common with a traditional city wall. In most sections, the wall height is relatively low (1.00m) but the width is doubled (2.00m), so that one can walk upon it or enjoy the sun by lying on its thick natural stone cladding. The wall can become a catwalk, a bench or a sunny terrace, in accordance with the user's wishes.

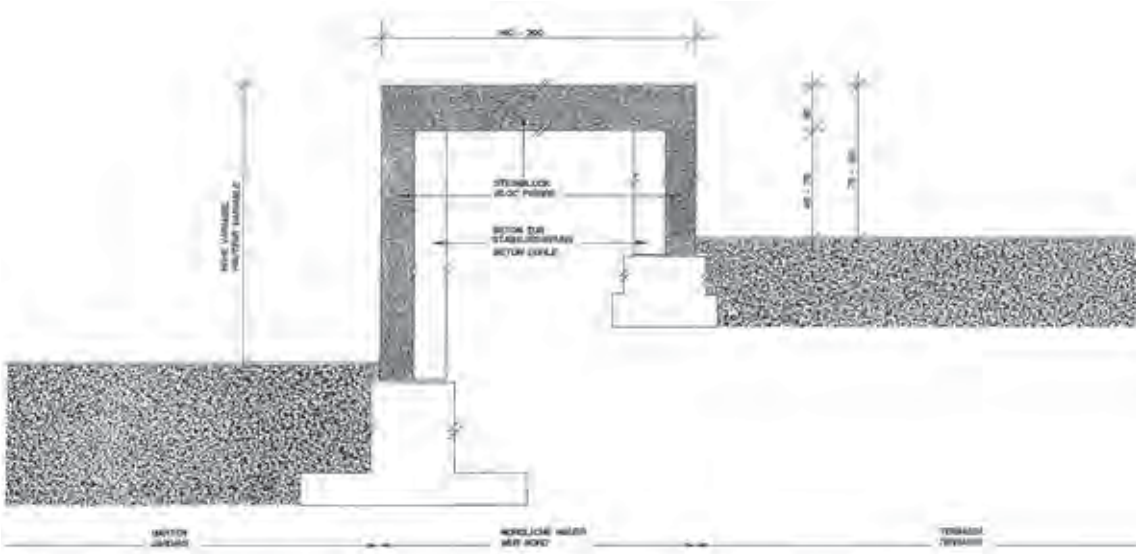
The wall is interrupted in some areas by the pathway systems, which lead to the park's 'green fingers', the areas that connect the park with the residential quarters. Precisely constructed, acutely-angled volumes of concrete and cladding can be found here.

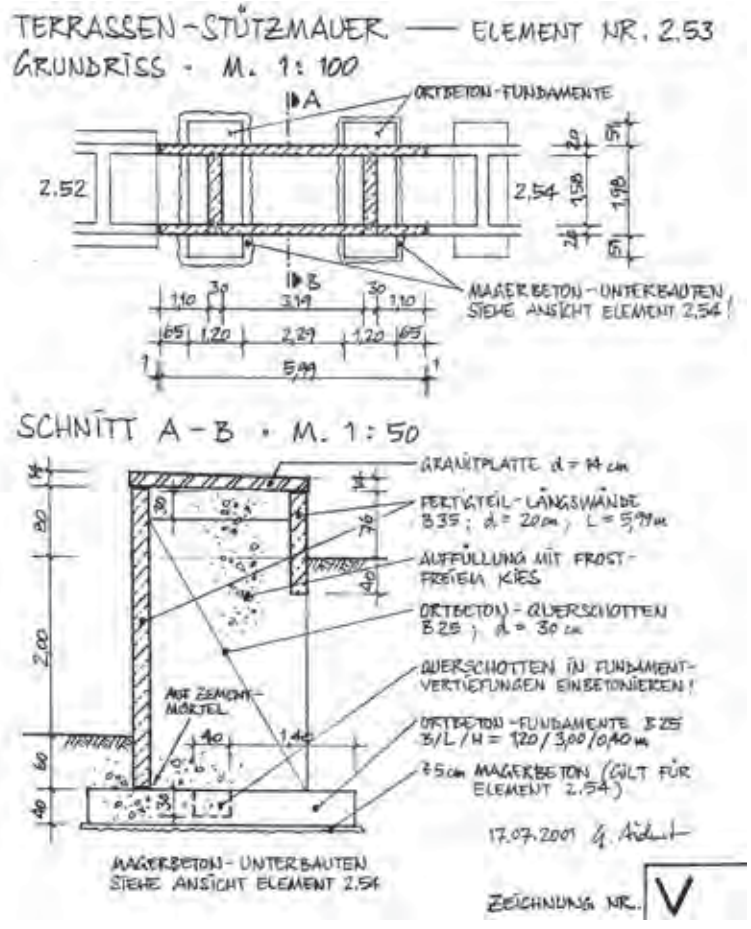
The wall is constructed of several parts: the side walls, which are connected by a kind of transverse bulkhead, were produced as pre-cast concrete elements and were installed on site. By using a casting form with a timber matrix, the surface of the wall was given a profile. The interior is filled with gravel. The cladding is made of 'Gebhartser Syenit', an Austrian natural stone, similar to granite, which displays a high bending and tensile strength.

Several different types of walls coexist alongside the terrace wall in the landscape park. The necessary height differences in areas around the sunken garden are dealt with using high retaining walls. These walls are carefully detailed. While the north wall of the sunken garden is painted red as a complementary contrasting colour to the green of the garden, the wall at the end of the former runway of the old airport is enhanced in a stonemason-like fashion. This serves to remind one of the local natural stone, a conglomerate called 'Nagelfluh', which is sometimes called 'the concrete of God'. There are still several elements made of this natural stone on the former airport site. The old airport building and the observations platform are now protected as historic structures within the landscape.

Integrating the former flight observation arena into the park was not an easy task. For reasons of safety and historic protection, access had to be prohibited. To avoid the need for a fence, Gilles Vexlard designed a separating trench densely planted with willows. The willows are regularly cut flush with the top of the trench, allowing an unobstructed view of the observation arena, without allowing access to the area.

The low seating walls are another type of wall found in the park. These are inviting and encourage visitors to stay. They consist of massive natural





4.13

Terrace wall, schematic section by Vexlard

4.14

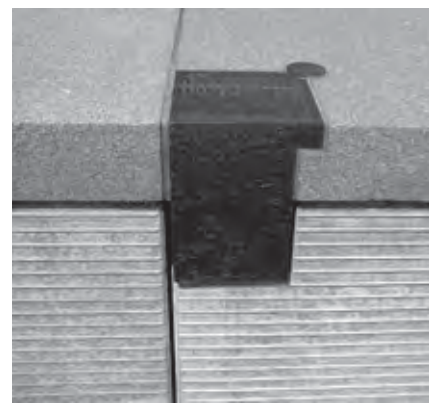
Terrace wall, detail drawing by Luz

4.15

Photo: terrace wall, detail

4.16

Photo: terrace wall, detail. The bronze inlays show different images from places at the same latitude as the park



4.17

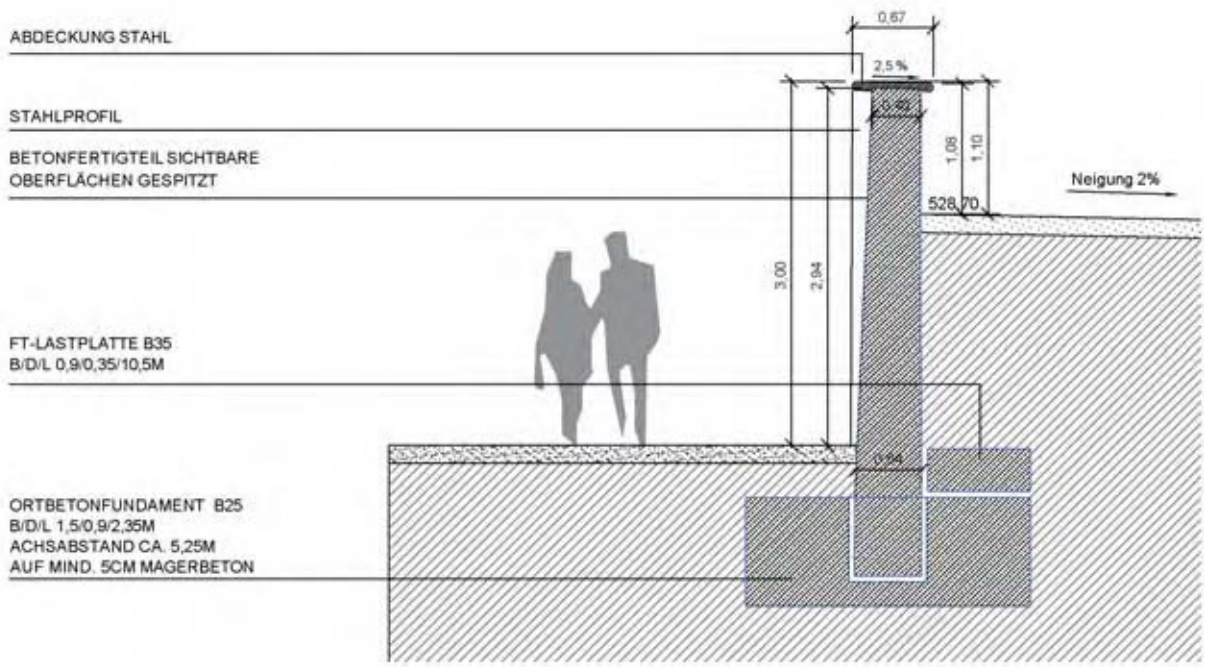
North wall of the sunken garden

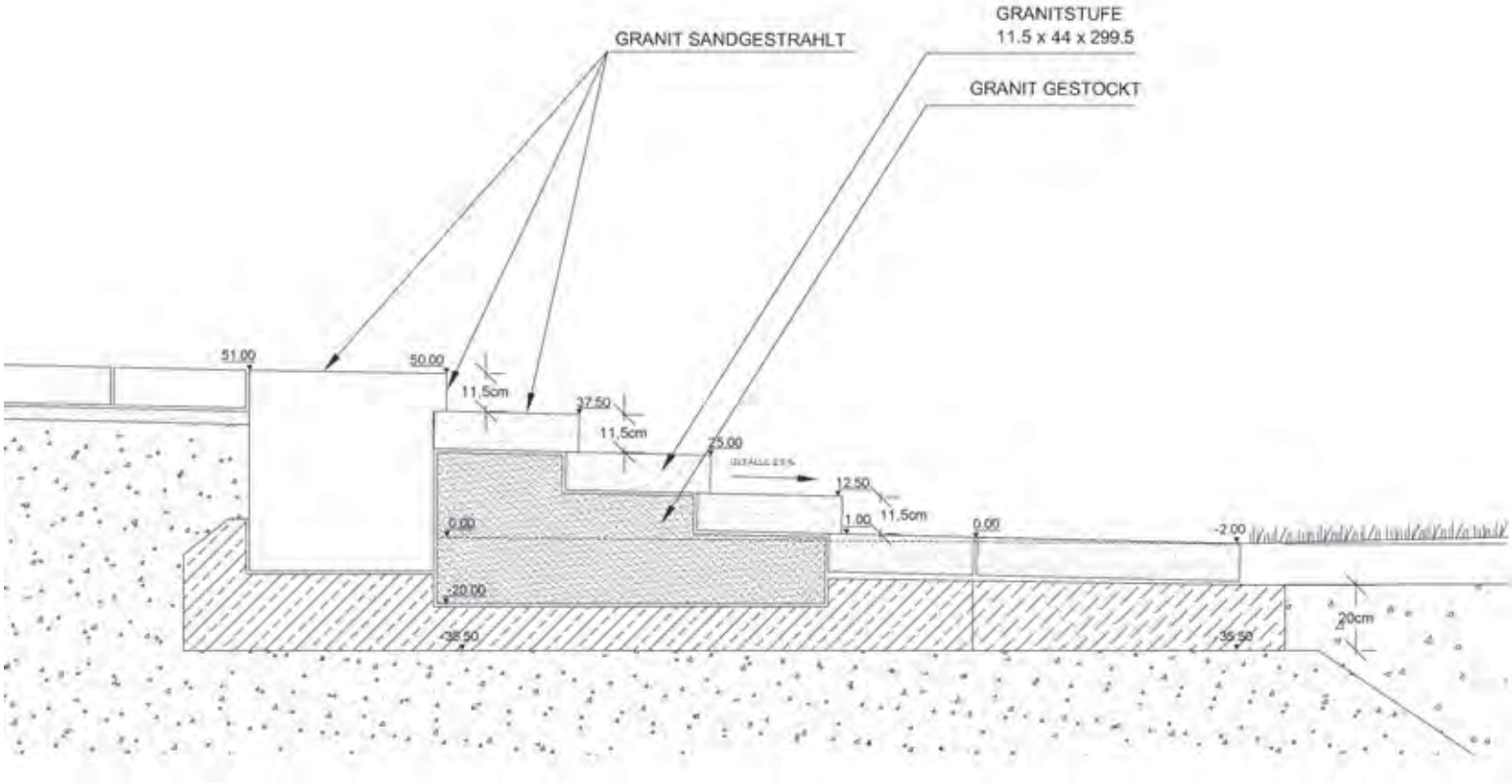
4.18

Wall along the former runway, detailed section by Luz

4.19

Nagelfluh stone





4.20
Seating wall at a linden grove, detail drawing by Luz

4.21
Seating wall at a linden grove

4.22
Seating wall on the toboggan hill

4.23
Path edging, intersections
4.24
Securing the upper edge of a slope using concrete elements
4.25
The hard and soft banks of the lake
4.26
Seating steps and stairs beside the lake
4.27
Special angle-detail designed by Vexlard

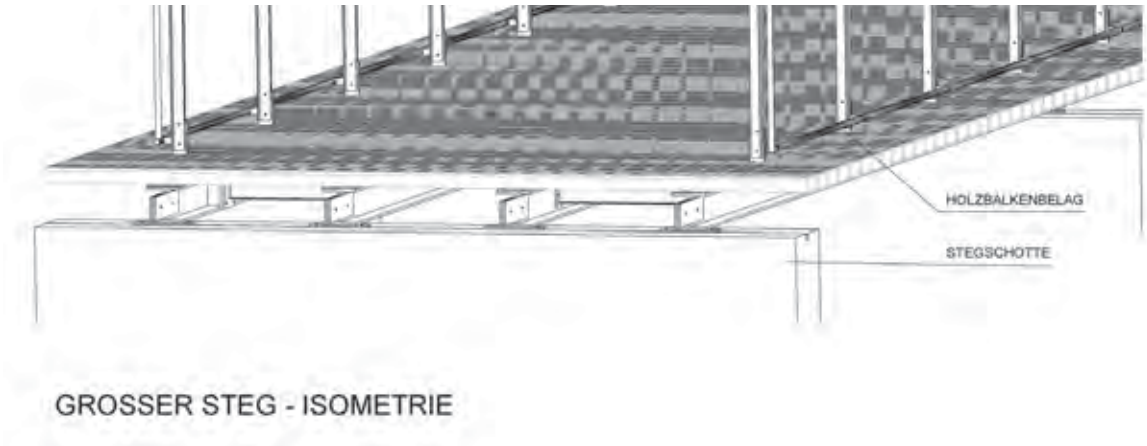
stone blocks, whose side surfaces are sometimes enhanced by the work of stonemasons.

Lines, edges and borders
The artificial landform of the park has very clear forms. The intersections of the pathways – the third and last part of the park's hierarchy – produce many acute or obtuse angles, much like the coincidental pattern of the sticks in a game of 'Mikado'. All the lines within the park are thus very exact and sharp. This formal clarity demands a structural definition of the boundaries and edges, which has led to the park's characteristic details. The paths are edged with natural stones or concrete kerbs. The precision with which the boundary lines and lengthy paths, which can have edges 2,000m long, were built is impressive.

Terrain edges, path intersections and junctions are secured through the use of natural stone borders and concrete elements. This means that eventual rounding off of path junctions or the erosion of the upper levels of berms and slopes will be avoided. The characteristic formal language of the park and the sharp lines of its design are protected from becoming effaced or blurred through human use.

Even the design of the lake in the eastern part of the site follows these principles. The northern bank represents a hard borderline constructed as

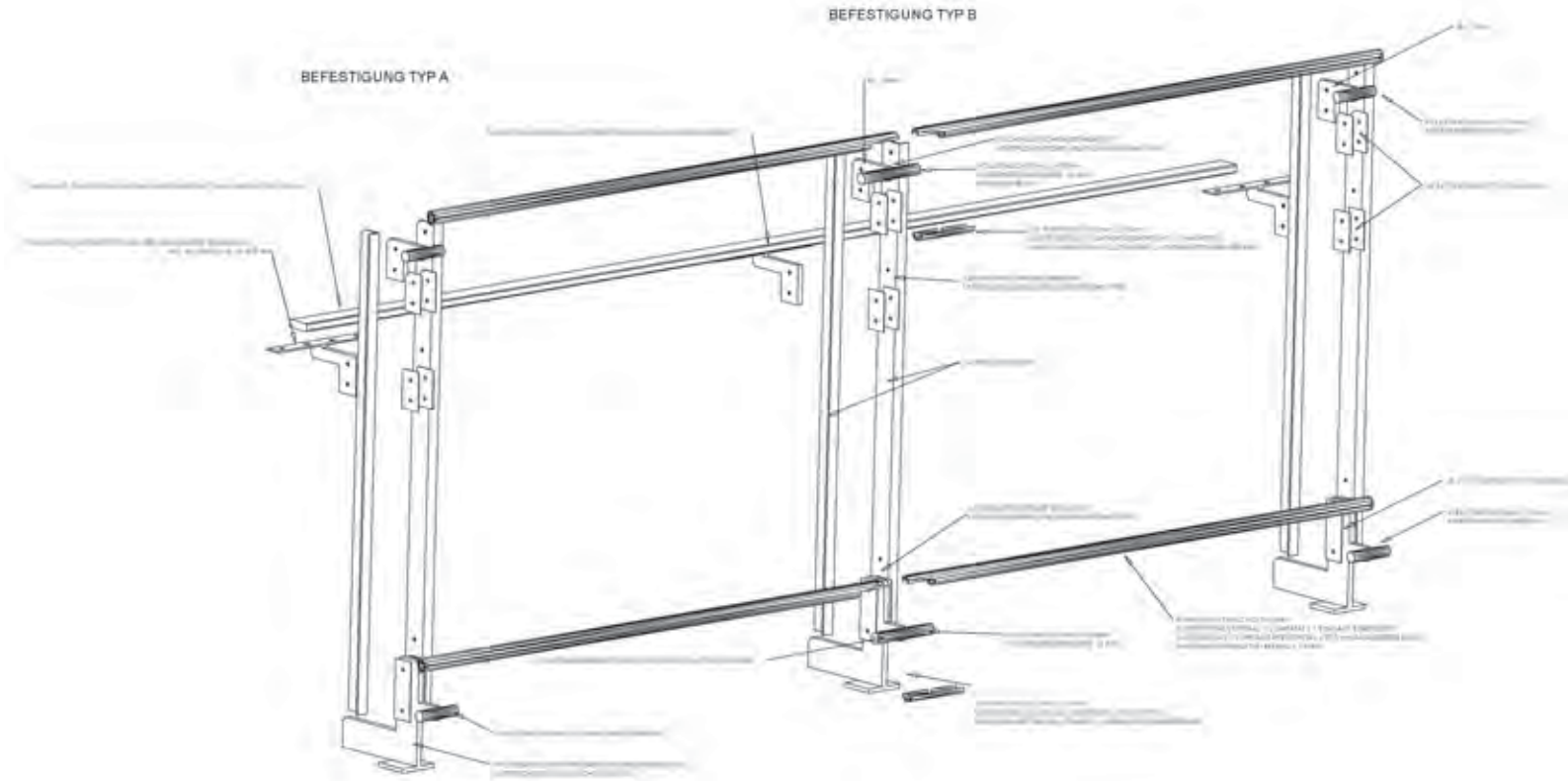
4.28
Boardwalk, isometric drawing
4.29
Boardwalk detailed drawing, showing handrail construction
4.30
Photo: boardwalk detail



a natural stone block. The terrain is consistently terraced with seating steps, each combined with two risers.

The long stairway to the top of the toboggan hill consists of 40cm treads with 12cm risers, providing a comfortable gradient, with landings every seven steps. The specially designed stainless steel handrail follows the slope of the hill as well as the stairway. To the rear of the hill, serpentine bends are used to reduce the slope to 3 per cent to ease access for those with mobility difficulties.

The pedestrian boardwalks
In order to continue the long, linear pathway connections in the areas of the bathing lake and the sunken garden, pedestrian boardwalks were necessary. The construction of these boardwalks appears to be very solid. The load-bearing construction consists of steel members, painted black, and a surface of larch-wood planks with surface grooves. The dimensions of the construction members are based on the static calculations of the consulting engineer. The untreated timber planks contain extra measures against weathering. To make the side elevations of the boardwalk appear more elegant, the wooden planks were angled towards their ends. In order to avoid a visible screw connection from the top, two planks were connected on the underside with a steel plate. These were then attached to the binding inter-ties through the gaps between the planks from above. The construction of the boardwalks ensures timber protection, the interrupted appearance of the wooden material, and safety for pedestrian users.


BEFESTIGUNG TYP B
BEFESTIGUNG TYP A

Evaluation

The construction of the landscape park in Riem initially attracted much negative criticism from Munich's citizens. 'A straight path cannot be an ecological area' was common opinion. Many citizens were shocked at the park's strong linearity and large dimensions, since the term 'landscape park' had evoked visions similar to Munich's 'English Garden', the Olympic park or the Westpark. Vexlard was also widely criticized for having dissolved the oval plan of the former airport, the remains of which can today only be experienced around the protected observation platform. A large old hornbeam hedge also had to be removed. His vision foresaw a park without borders: 'the power of the Munich landscape is the distance'.[16] The closed form and finished character of the oval, a typical design form from the 1930s, did not fit with his ideas of freedom and openness in the landscape. The landscape park Riem is meant to develop further south and is not yet finished. In the meantime, the design is now better understood by the citizens. The blooming of the extensive grassy meadows in the spring has already convinced many doubters.

A more serious criticism concerns the very dense planting areas, some of which contain only one species. Experts fear that these areas will completely collapse within a few years. As a result of the close proximity, thinning out of single trees may not be possible without causing great damage to the rest. The issue of sustainability, otherwise so consistently addressed, does not seem to have been considered here. But despite this criticism, this planting scheme allows the spatial effects of the green elements to be experienced immediately in this very young park.

Generally speaking, the park impresses through its formality and its consistent design throughout. The sharp clarity of the concept has produced a large, ecologically-functioning landscape directly next to a major city. The park's 'genius loci' can be clearly felt. Its green structures are based on the boundaries of the historic cultural landscape in east Munich and the prevailing wind directions through the site. The precise 2km long lines remind users of the former airport's runways. Yet despite these connotations of the past, the landscape park Riem is also a park for the future. Its independent character can exist without quotations, symbols and images.

The innovative character of the park arises not only through spatial definition, forms and usage, nor through alienated elements, eye-catching furnishings or trendy materials and details. For Gilles Vexlard, the landscape park is a very special project. For him it comprises the 'sum of many voices in the landscape' and the result of 30 years of work as a landscape architect.[17]

Case study
The New Cemetery in Riem

Project data

Project name:	Cemetery Extension in Munich-Riem
Location:	Munich, district of Riem (Munich-Riem quarter)
Planning:	Competition 1997, 1st prize, planning commencement 1997
Construction period:	1999–2000
Construction costs:	DM6m (about 3m) without buildings
Area:	13ha (130,000m²)
Landscape architects:	Axel Lohrer and Ursula Hochrein, Munich, Magdeburg, Perach/Inn
Architects:	Andreas Meck and Stefan Köppel, Munich
Client:	City of Munich, represented by MRG München-Riem GmbH
Awards:	German Landscape Architecture Award 2001 – Honourable Mention
	German Architecture Award 2001 – Acknowledgement

Project history

In 1995, as part of the development process of the urban planning project for the Trade Fair and Exhibition Centre Munich East, it was decided to enlarge the cemetery in Riem. This cemetery was to expand by 13ha, as the original area had been designed and built in 1908 and could no longer meet current needs. The old cemetery is separated from the wedge-shaped extension site by a roadway. The site for the cemetery extension lies at the border of old Riem and has become a sort of green connection between the old city quarter and the new Munich East Trade Fair area.

In 1997, the competition jury for the new cemetery in Riem awarded the landscape architects Axel Lohrer and Ursula Hochrein 1st prize. The competition brief demanded a new cemetery for a total of 6,500 graves, the integration of a funeral hall and chapel, a direct connection to the old cemetery, despite a dividing roadway, and recommendations for noise barriers in the north of the site along the A94 Autobahn. The brief also required that the existing typical and ecologically valuable oligotrophic grasslands – which are also a large and important part of the new landscape park – were to be kept and even enhanced as a connected, uninterrupted open space.

The design for the cemetery extension was also to refer to the design concept for the landscape park. The park's concept has a clear structure and individuality with its long pathways and sightlines, wedge-shaped topography and planting areas. The pathways and connections between the landscape park and the residential areas bordering onto the new cemetery were to be taken into consideration and kept open.

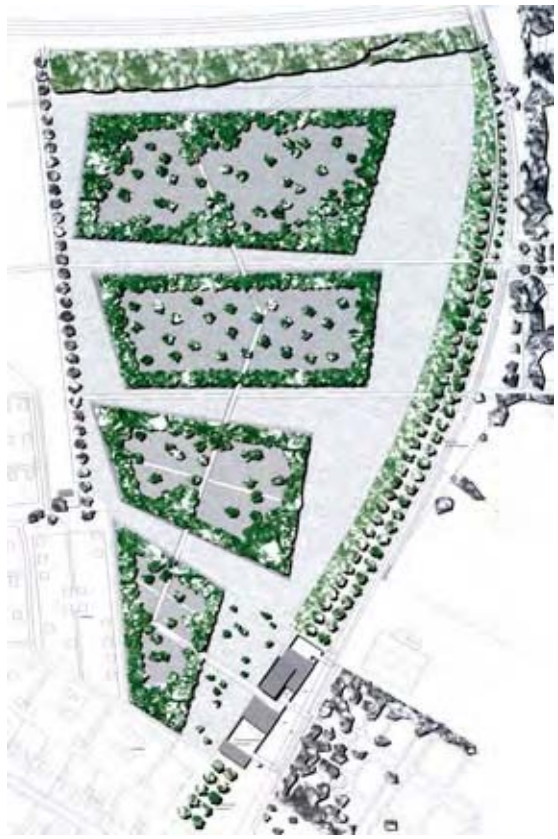
The new cemetery has come to represent the western part of the Landscape Park Riem which is the main part of the green semi-circle around the new trade fair area. It was one of the first phases of the landscape park to be completed.

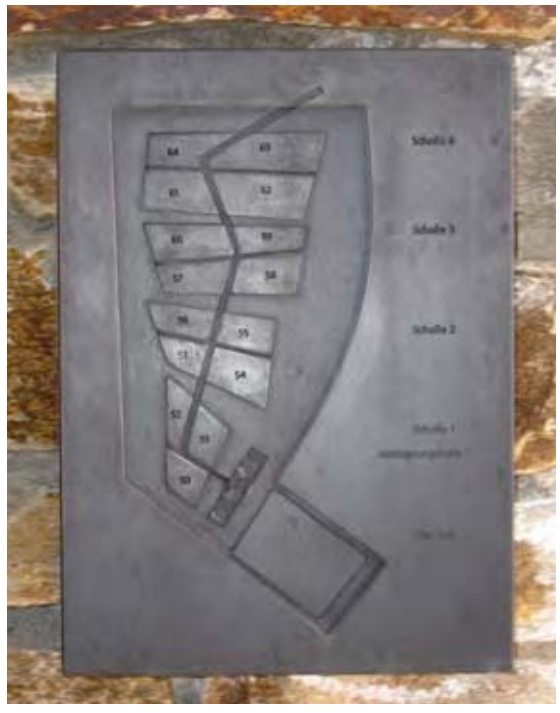
Design philosophy

The landscape architecture practice of Axel Lohrer and Ursula Hochrein started in 1993. They are one of the best-known and most successful young landscape offices in Germany. They define their philosophy in the following way:

> We deal with open spaces, preferably the opposing relationship between urban density and open landscape. Whether in an open dialogue, in interdisciplinary teams, in competitions or as jury members, we search for the essential and unique aspects of a place as the basis for our own design work.
>
> Evolving from the place, its history, its potential, and according to the given task, we develop an individual landscape architectural language, along with simple and flexible solutions to meet the project's demands.
>
> From the first idea onwards, we are committed to seeing that our philosophy is carried through from the large-scale urban planning concept into detail design and construction. It is standard for us to project-manage all levels of the German planning guidelines (HOAI), demand high-quality craftsmanship, efficiency and cost management from conception to maintenance.[18]

The new cemetery in Munich Riem is representative of this philosophy. A unique and unmistakable place has been created. Thoughtful consideration was given to maintaining the individuality of the existing extensive dry and oligotrophic grasslands within the very urban setting of the trade fair area and its large roadways. The place is distinguished by the interaction of function, design, materials, colour and plants, all of which serve to further enhance the place's individual character, while integrating with the Landscape Park Riem.





Design concept

During the site analysis process, while exploring the theme of 'cemetery' and searching for appropriate symbolism and forms, the landscape architects discovered a description of the 'islands of the dead' located outside Venice. This image of 'islands of peace and tranquillity' in the middle of an urban context, with its different buildings, roads, bustle and noise, appeared to be an interesting vehicle for the concept for a cemetery.

Lohrer and Hochrein designed four trapezoidal-shaped burial landforms, whose shapes related to the characteristic language of forms found in the landscape park. Surrounded by wedge-shaped earthen berms, the four burial areas rise up from the extensive surrounding dry grasslands like islands. A main linear pathway, which changes direction twice to avoid becoming a banal axis, connects the four islands.

There are three kinds of graves in the new cemetery: (1) normal earth graves in the flat ground; (2) the so-called 'urn-walls' where cremation ashes are housed in urns with inscribed plaques; and (3) a new form of communal 'earth columbarium' where the urns are lowered into the ground in steel baskets.

The funeral hall is situated on the dividing roadway and becomes the connecting element between the

4.31
Design concept for the cemetery

4.32
Schematic plan for orientation at the cemetery entrance

4.33
The elevated level of the grave islands, the dry-laid stone wall inside and the oligotrophic berm in the background
4.34
The main linear pathway connecting the islands
4.35
Cherry tree grove, flowering in May

old and the new cemetery. This quadripartite building has a strict, almost monastic design.

The elevated level of the 'grave islands' has a functional purpose: it was required by the very high ground water table of the site. From the outside, the enclosures present themselves as parts of the landscape, as green and colourful, flowering sloped berms. The upper level of each berm lies approximately 2.60m above the surrounding site. The land within the berms is approximately 1.0m above the level of the natural terrain. On the inside, the berm slope is supported by the dry-laid gneiss stone walls. The 1.50m-high walls provide the grave areas with enclosure, yet still allow for distant views into the landscape beyond.[19, 20]

Groves of different native tree species such as oaks and hornbeams, cherries, pines and birches and wild apples are planted very densely around the edges, becoming less dense towards the inside of each island. These groves give each of the grave islands its own distinctive character.[21]

The 13ha area of the cemetery extension now represents an impressive synthesis of a generously designed park cemetery with spacious grassy fields, lengthy pathways, individual fruit trees and introverted burial islands. These islands display the seemingly closed-off character of traditional churchyards. The designers were successful in creating spiritual places of tranquillity and introspection in the middle of an urban park landscape.

Detailed description

The special atmosphere of the cemetery is distinguished by the construction details and materials. These are best described by taking a virtual walk through the site, beginning with the old cemetery exit in the south-east and going northwards across the four burial islands.

The new funeral hall and its entrance area, designed by the architects Andreas Meck and Stefan Köppel, form the link between the old cemetery and the new one. The new funeral hall's entrance court lies directly – but not exactly centrally – in the main visual and functional axis of the old cemetery.

The hall has a strong design relationship with the cemetery, but neither element is weakened by the other.[22] The three essential construction materials which give the cemetery its character and colour are introduced here: concrete, gneiss from Stainz in Austria (a natural stone which changes from grey-brown to rusty brown through its iron-oxide content) and corten steel, which has a protective layer of rust and harmonises perfectly with the gneiss stone. In a few individual situations, oak becomes the fourth material. The rust-brown tones of the natural stone and the steel provide a lovely complementary colour contrast to the vegetation. Red colours dominate around the funeral hall, green in the cemetery.

The gneiss is found in layered masonry walls and as polygonal pavers in the ground. The surrounding walls of the funeral hall's court take on the materiality of the building: to the outside, a masonry wall; to the inside, the quiet surface of a poured concrete wall, which is also characteristic of the bell tower. The heavy, honourable-looking gates are made of corten steel and are meant to remind one of the heavy cast-iron gates of old village cemeteries.[23]

A linear gravel pathway leads from the funeral hall, directly to the first grave island. In the centre of the island, the path bends northwards leading to the second and third island. The gates of each island can be locked.

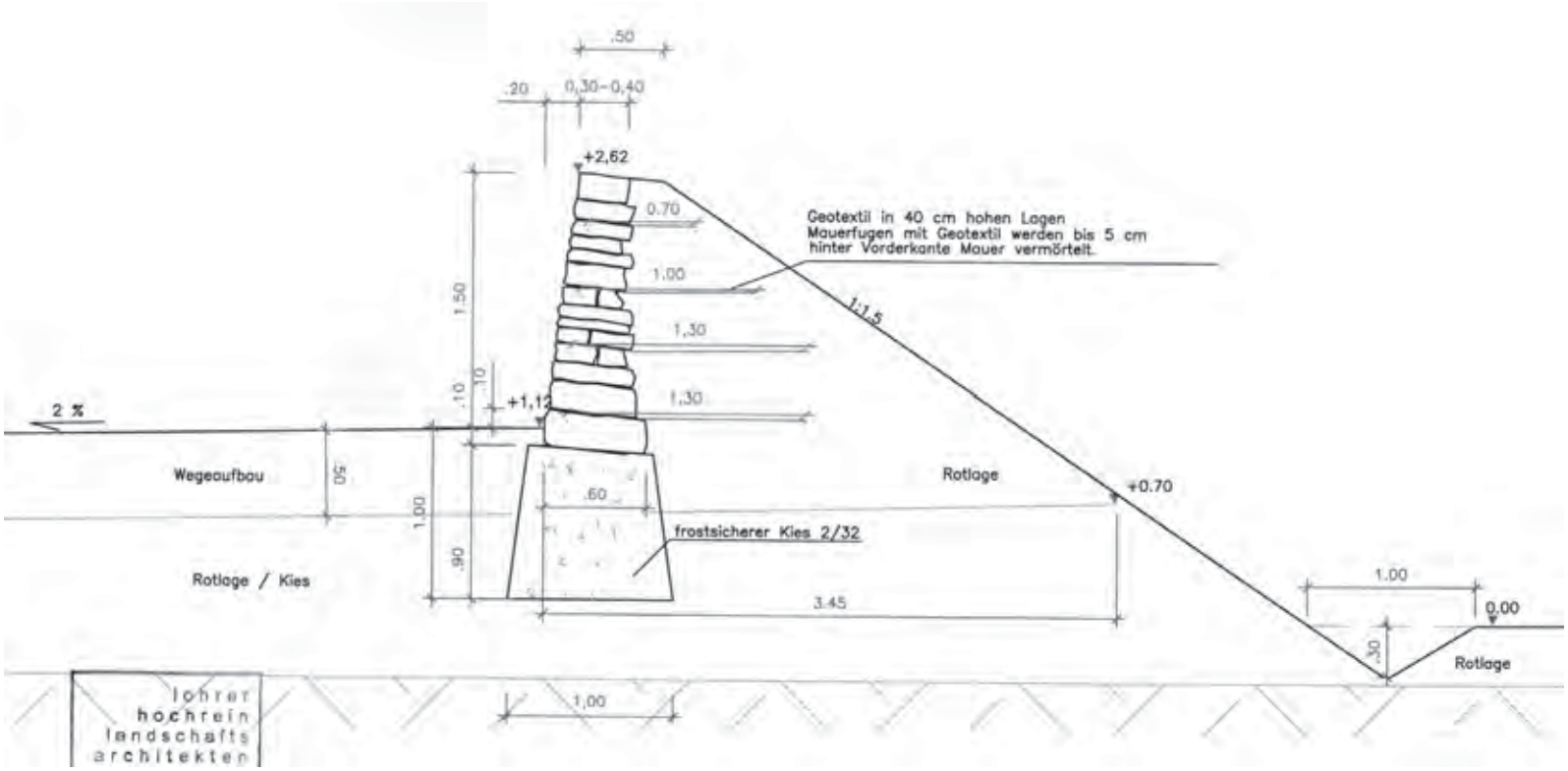
In the centre of the first island there is a cross sculpture by the Munich artist, Hermann Biglmayr. Four oak trunks carry a mighty gneiss stone plate and define a cruciform open space below.[24] The different confessions, for which the cemetery is intended, are hereby respected.[25]

Each grave island presents itself outwardly with colourful and blooming sloped areas. To the inside and to the grave areas, the islands show the closed surfaces of the layered masonry walls. These appear comfortably dimensioned so that one can see over the walls into the surrounding landscape.[26] The

4.36
The most important material: Austrian gneiss, here combined with oak

4.37
The 'double-faced' surrounding wall

4.38
The quiet concrete surface of the bell towers

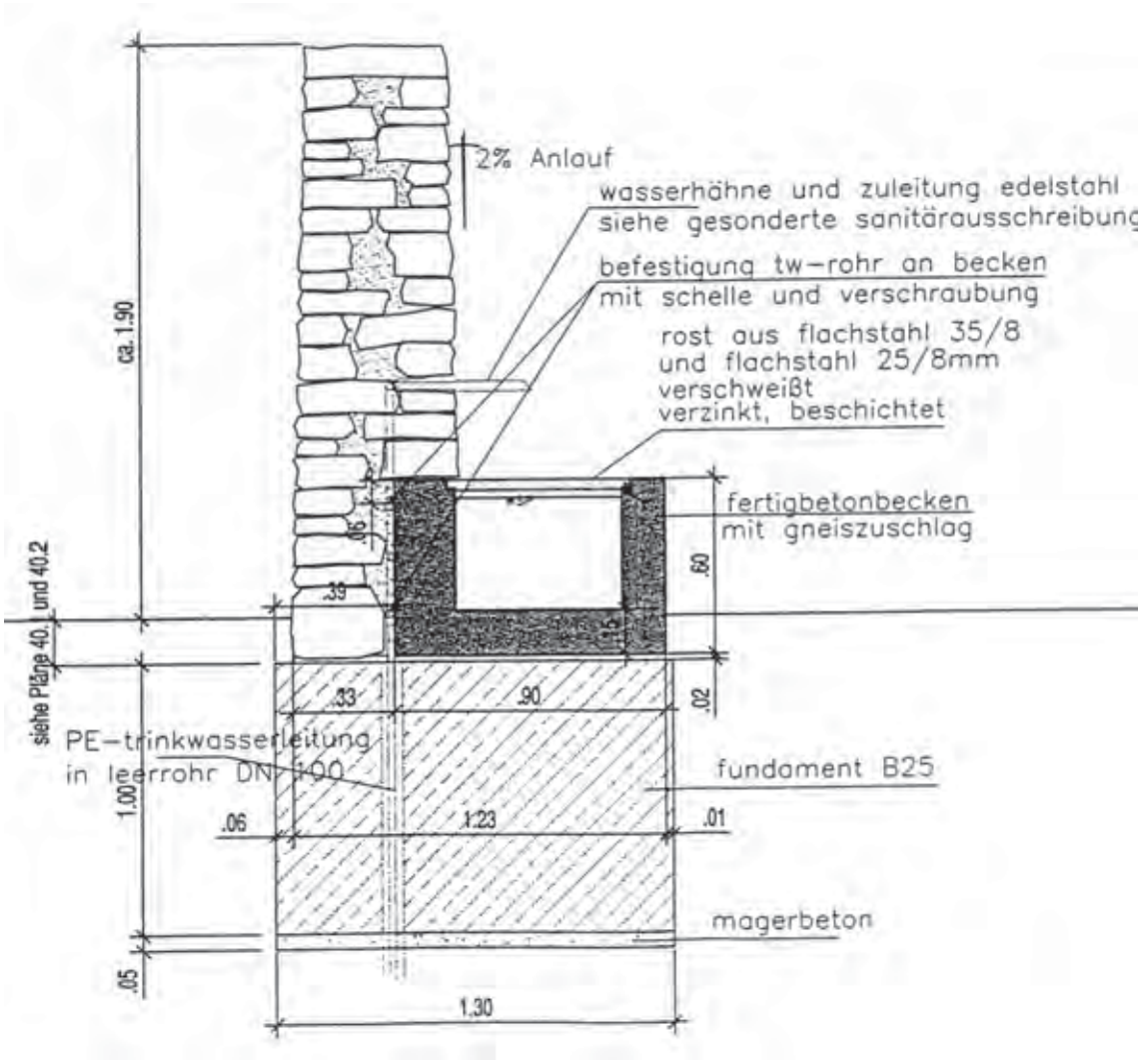


4.39

Cross-section through the wall

4.40

Corner of wall and slope



4.41

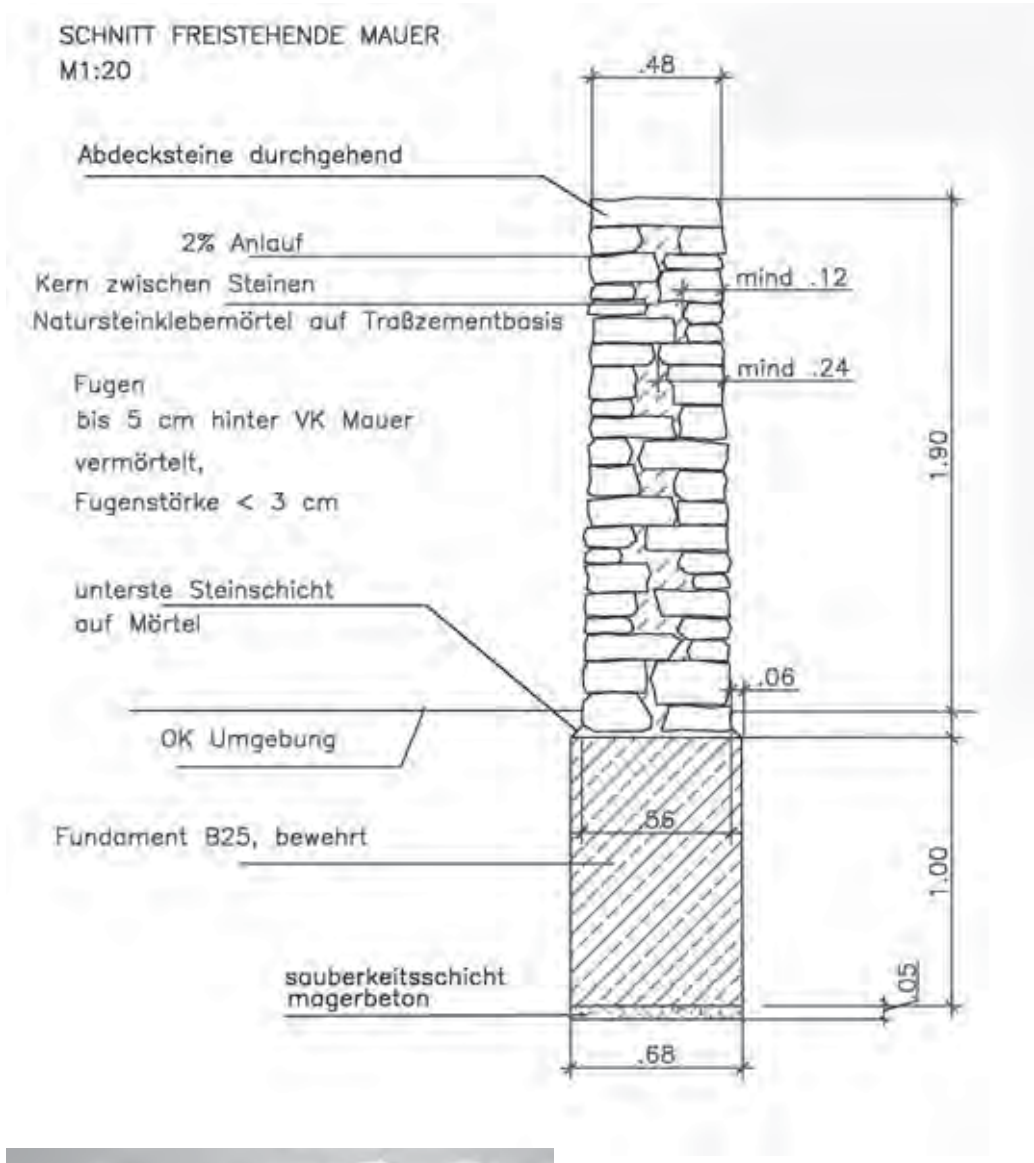
Water basin detail, section

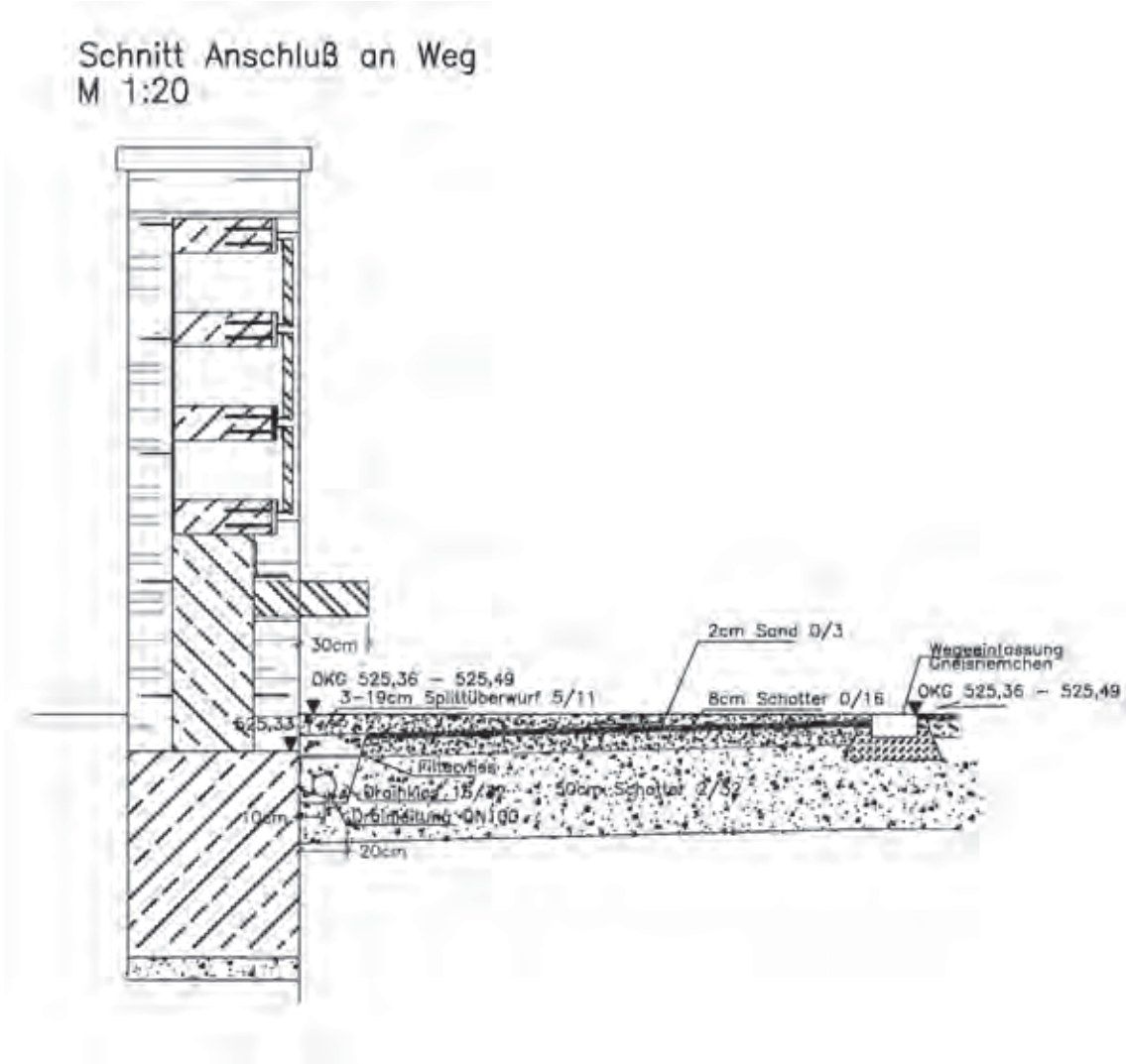
4.42

Water basin, taps

4.43
Wall unit construction detail

4.44
Wall unit for watering cans



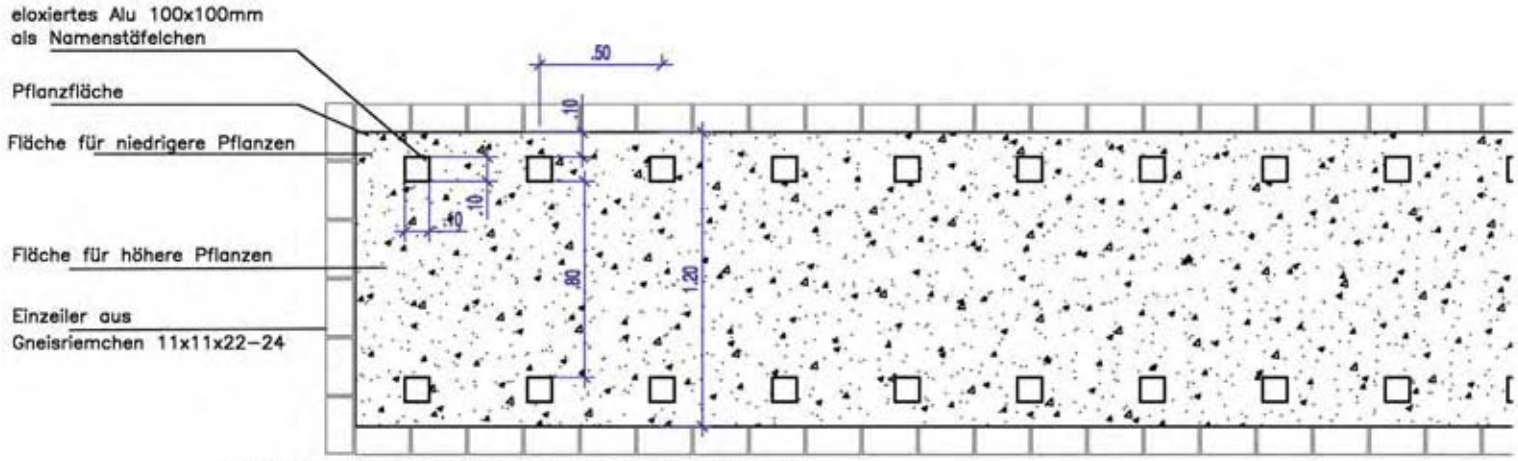


4.45

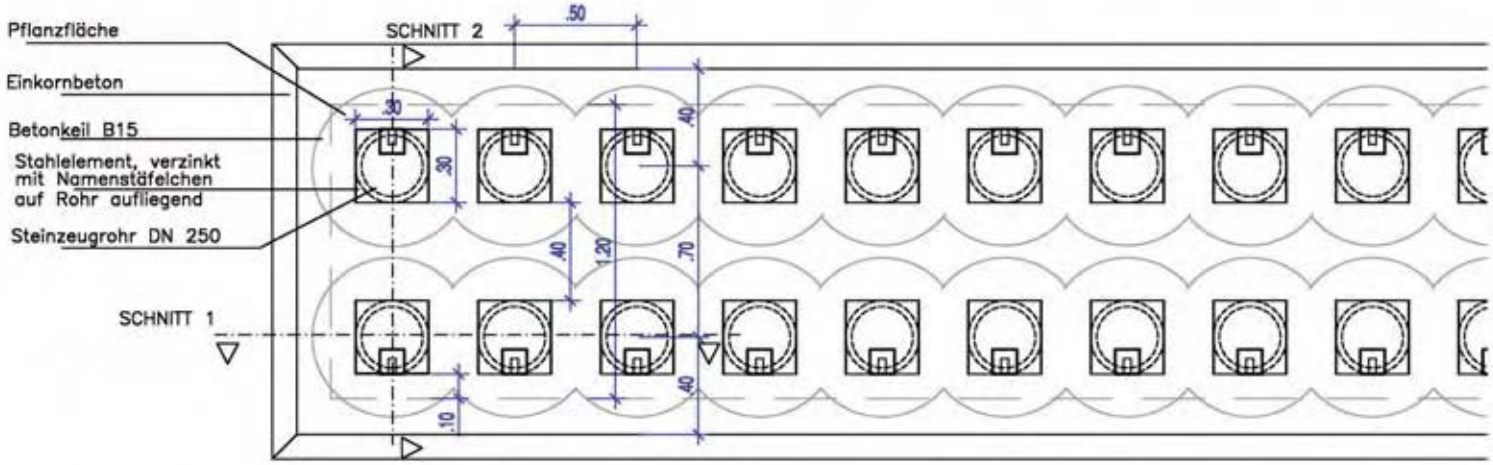
Urn wall, construction detail

4.46

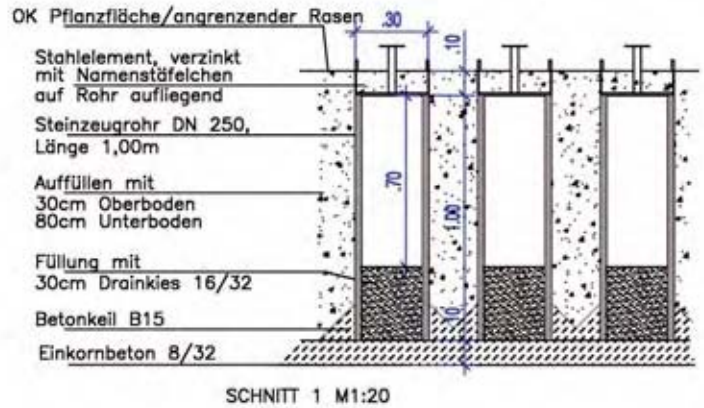
Urn wall



AUFSICHT ANLAGE MIT URNENGEMEINSCHAFTSGRÄBERN M1:20



AUFSICHT OHNE PFLANZSUBSTRAT UND EINZEILER 1 M1:20



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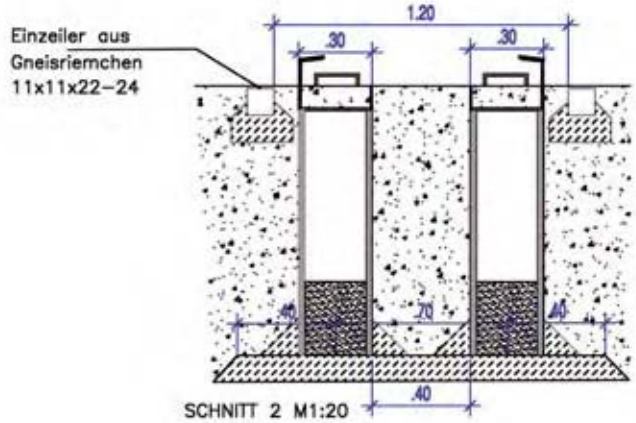


SCHNITT 2 M1:20

cemetery's landscape and urban context are not hidden from view.

A special innovative construction method was developed to build this type of enclosure. The walls are built as dry-laid stone walls. In order to ease the earth pressure from the sloped side, layers of geotextile were integrated every 40cm, which stretch up to 1.30m into the sloped berm. The structural stability of the retaining wall is maintained, even though it only has a cross-section depth of 50cm at its base.

Masonry walls made of layered Stainz gneiss form the framework for the water stations, found at each bend in the pathways. The stones also form the freestanding urn walls. The water basins are made of light-coloured concrete with robust stainless steel taps, and similar wall units house the watering cans.

The urn walls have a long urn ledge, where flowers, candles and other mementos of the deceased can be placed.[27] The intensive use of this ledge by the mourners is reminiscent of the urn walls found in southern European countries.

In addition to the traditionally influenced urn walls, the landscape architects developed a new form of urn grave. The urns are placed into a steel frame, which is sunken and thus allows uninterrupted planting areas. The urns can be added and taken away according to need and still allow for extensive areas of vegetation. Despite this very efficient and economic design, in this very modest-looking community grave area, the honour of the individual remains respected.[28, 29]

The design of the pathways' edges and the stairways is very consistent. The gravel paths are lined with upright gneiss stone pavers and the gneiss material is found again in the stairs, which offer an alternative to the gently-sloping access ramps to the grave islands, for people with limited mobility.

In the third grave island, the linear pathway bends again and leads to the fourth and final island. From this last island, the path bends one last time and leads to a green stair made of gneiss to a viewing platform within the noise barrier of the motorway. This viewing platform, with its tower-like concrete column, is meant to make drivers along the autobahn aware of the neighbouring cemetery, and also allows visitors to the cemetery a view out into the everyday urban context. It symbolises the brief but energy-laden meeting of the spiritual place of the cemetery with the banal place of the motorway.[30]

4.47
Opposite: urn grave, plan and section construction details
4.48
Stairs made of Stainz gneiss with a riser to run ratio of 14.5:33cm
4.49
Pathway edging

Evaluation

The new cemetery in Riem successfully combines a contemporary landscape park cemetery with the motifs of a traditional enclosed regional village cemetery, in an ideal symbiosis.

The materials and construction details are distinguished by quality craftsmanship, sustainability and the necessary economy. It is a unique place with a very special identity. The textures and characteristic colours of the natural stones and corten steel contrast with the greens of the vegetation and the blue Munich sky and all correspond to the light grey of the concrete and the gravel pathways.

The spiritual quality of the place inside the burial islands can be felt, despite the close proximity to the trade fair centre and the motorway. The enclosures with their 'two-faced' walls, showing colourful sloped berms to the outside and stone walls on the inside, offer quiet and honourable places for the graves. Visitors are offered views over the cemetery walls towards the city landscape and beyond to the Alps. This respectful relationship between the inside and outside gives the cemetery a sense of lightness. On occasion, visitors have been known to lie in the unused meadows of the cemetery during their lunch breaks.

Lisa Diedrich describes the character of the cemetery as follows:

> No heroic prospects but rather simple sensual stimulation distinguishes the walk to the graves: the steps on the polygonal pavers in the court, the sound of the gravel under one's feet on the way to the grave, the smell of the fruit trees along the pathway edge, the elegant bending of the grasses on the sloped berms, the touch of the rough corten-steel gates or dry-laid stone walls, the rustling of the leaves as one arrives at the graves.[31]

Hungary

Kinga Szilágyi

Landscape architecture in Hungary

In spite of Hungary's relatively small size, there are multiple and varied challenges for Hungarian landscape architects. The country has a mosaic landscape structure which spreads from sub-alpine mountains to sub-Mediterranean regions and to the plains which have a continental climate, but seem to be getting warmer and drier as a result of global warming.

Furthermore, as a result of historical forces, there is a huge contrast in the economic situation and development of various regions. The generally more-developed western part of Hungary includes Transdanubia, the central region with many towns and cities, including the capital, as well as tourist regions and recreational areas which have developed dynamically from the 1970s. The eastern part is moderately developed on the whole. It includes regions and counties where the crisis of industry and agriculture penalises both landscape and inhabitants – partly as a consequence of natural causes, partly because of poor economic decisions taken in the past. The traditional west–east axis of development is varied and influenced by features of the landscape and geography. Stagnating regions with small villages are also to be found in Transdanubia, while significant developing cities with prosperous administrative and cultural centres emerge from the Hungarian Great Plain.

Urbanised areas transformed rapidly and drastically after the fall of the communist regime in 1989. Because of the forced industrial development under communism, which neglected the country's natural endowments, the great industrial centres collapsed and huge areas became brown-fields requiring costly remediation, planning and redevelopment. Large tracts of agricultural land have become sites for building or reserves for further development, particularly in proximity to large cities. The renewal of historical city centres, delayed for decades, must not be postponed any longer, if we are to halt the migration to the metropolitan agglomerations. Urban open spaces are becoming more valuable; their significance is growing from the social, aesthetic, urban ecological and economic points of view.

In Budapest, where the bulk of administrative and cultural institutes are situated and one-fifth of the country's population lives, even greater expectations are placed upon open spaces. On the one hand, there is a measurable social need for parks, public squares and various urban open spaces, while, on the other, the downtown districts are less able to bear the expanding traffic and parking needs. Thus, one of the proposed solutions is multiple land use. Due to these opposing requirements, open space is a common challenge for the urban designer, architect, landscape architect and

traffic planner, where the long- or short-term plans of developers and investors can turn the balance. However, the renewal of the city by central government and the municipalities should always take the long-term view. Urban reconstruction has created opportunities for new open spaces, such as gardens and pocket parks, on sites brought into being by the demolition of industrial buildings or the selected demolition of blocks of flats in densely built-up traditional residential districts.

Regions that have avoided urbanisation, to a greater or lesser extent, provide another type of task for landscape architects. Owing to Hungary's wide-ranging landscape heritage, almost 10 per cent of the country's territory is protected natural areas, assets of local and national importance. These natural and cultural landscapes are considerable attractions in terms of recreation and tourism. At the level of spatial and development planning, the landscape architect, recognising the capacity of the landscape for development in relation to recreation and tourism, must ensure that such development does not damage the existing character of the landscape.

Accession to the EU could bring changes to agriculture, such as an increase in traditional organic farming and land management. Moderate economic development can be beneficial, if it is motivated by a thorough knowledge of landscape features and traditions, and if the rural landscape can provide semi-natural sites for recreation and ecological conservation. At the same time, such development must be done in such a way that the distinctions between different types of landscapes are not lost.

Hungarian landscape architecture was shaped by modernist functionalism until the end of the 1980s. Landscape and open space structure were very much determined by the basic principles of everyday usage, so the clearly expressed function appeared as an aesthetic value without ornamental decoration or *l'art pour l'art*. After the events of 1989, a change can be seen in both the content and the function of Hungarian landscape architecture, as a consequence of the transformed institutional, administrative system and the new circle of investors. It also might derive from the quick spread of new theoretical ideas and trends from western countries and from new building materials and technologies. Regarding the content, a freer approach to the ground-plan structure of open space designs and towards ornamentation was noticeable. Later, the self-assertive intention of the designer to articulate a clear artistic essence could also be seen. The fashionable philosophical trends from the West, such as the architectural reflection of post-modernism and deconstructivism, have had an influence on landscape architecture, but only in a gradual way.

The influence of the global ecological crisis is of critical importance both in architecture and landscape architecture. On the one hand we have mere lip-service to ecological thinking, but on the other, we have the radical assertions of the 'ecological approach'. The organic direction, which makes reference to Goethe's theories and to Rudolf Steiner's anthroposophy, is more and more characteristic and popular among professionals and creates a proper intellectual context for the creation of landscape architecture. The turn toward rural areas and villages is logical, but not necessarily new. Traditional rural architectural features have become popular among those who intend to leave the cities temporarily or permanently. They are motivated by the wish to change their lifestyles, perhaps because of snobbism, perhaps because they are bored with the way of life in cities.

Alongside all of these tendencies are to be found, of course, 'modern' approaches and ideas, reflecting those of an older generation. It is interesting that 'neo-modernism' has become quite popular among younger designers with extremely sleek, hard ornamental elements and high-tech building materials and technologies. Also, to a certain extent, the effect of an old-fashioned, almost forgotten, fine arts tradition can be recognised in our landscape architecture, including the influence of landscape art and minimalism.

The two landscape architecture projects chosen as case studies represent two very different creations in terms of style, philosophy and environment. One is a typical urban open space which – relative to Hungarian conditions – is a trendy, neo-modern masterpiece of the younger generation, developed under the influence of the French geometric style. The other is the garden of a rural guest-house, managed by an entrepreneur who has moved from the city to the countryside. In the case of this garden, the landscape designer's remarkable achievements have aroused the owner's sensitivity towards the rural landscape and its traditions and towards the interrelationship between humans and the environment.

Case study
The Garden of Somogy

Project data

Project name:	The Garden of Somogy, garden of a guest-house
Location:	Somogy County, Bonnya
Date completed:	1998
Cost:	9,000,000 Hungarian Forints (c. £25,000) in 1998
Area:	7,000m^2
Designer:	Gábor Szücs, landscape architect of the PAGONY Landscape and Garden Design Company

Overview

Called the 'Garden of Somogy' by its designer, this garden is located in the countryside near Bonnya, a small village in Somogy County. Bonnya lies among loess hills approximately 30km south of Lake Balaton, a 77km-long freshwater lake, which is a popular destination for tourists and holiday-makers. The natural vegetation of this region consists of various types of forest – silver linden, calciphile oak and hornbeam-oak. The buildings associated with the garden serve rural tourism and hospitality.

The client, an economist seeking a rural retreat, bought several adjacent sites and merged them into one. She had the ruined buildings on these sites pulled down, except for one stable, and then had new buildings constructed: a guest-house with eight rooms, a kitchen, a public room, and a peasant's house in the traditional style of Somogy County, with two rooms for guests, a public room, a kitchen and a sauna. The two new buildings and the stable form a frame around the central part of the garden.

This was the core, the starting point for further developments. The central group of spaces was designed very carefully, down to the smallest details. The total area is around 7,000m^2, divided into various garden spaces with different functions. At the entrance is a three-sectioned gate, which opens onto the front garden with a car park. In front of the guest house there is terraced garden, while the cottage used as a guest-house is surrounded by a peasant-style garden. The garden between the guest-house and the stable is designed for barbecues and picnics, while the southern slope is intended for silent recreation, as is the fruit garden in the embrace of the stone retaining wall. Beyond the garden, the wider estate covers about 3ha. and includes a paddock and a field for sports and amusements.

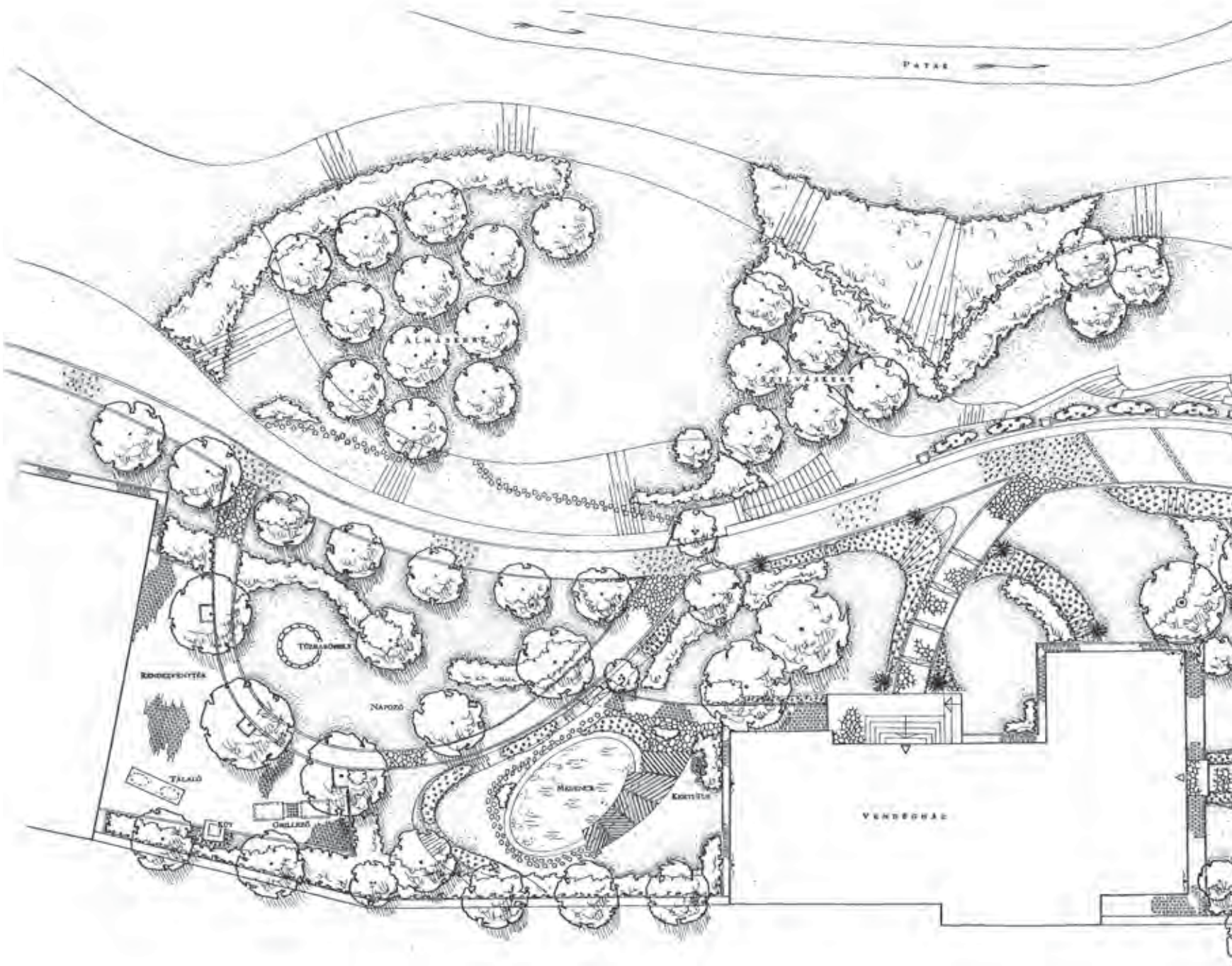
5.1
View of the hills of Somogy from the fruit garden
5.2 (overleaf)
Plan of the garden at Somogy

Project history
The client lived in a city and her daily life was taken up with her work. The connection to nature seemed to be missing from her life, but the need and the yearning for it were there somewhere, hidden inside her. Her husband ran a profitable enterprise in the city, but did not participate financially or intellectually in the project.

This city economist wished to open a guest-house in a small and almost depopulated village at the back of beyond. She was also interested in animal husbandry and agriculture. All of these were completely unfamiliar to her and at first she had only rough ideas about this unknown environment. She therefore needed help from the designer, who was not only responsible for creating a garden, but also helped her to discover and outline a new way of life. The client's decision shows her commitment to rural areas and country life. Even though it was a for-profit venture, the client showed her commitment to the rural area and country life by choosing to belong to a small community of villagers. She turned to a sensitive, natural world, to a village and an existing society, where she has tried to develop a new view of community, with the idea that she would one day live there permanently.

Bonnya is a small, remote and very poor village in Somogy County with approximately 200 inhabitants. In such villages in Hungary, afflicted by depopulation, the way of life is changing. Bonnya was an independent, self-supporting village before the Second World War. It was never rich, but while farming was considered valuable, its inhabitants made a reasonable living. The self-supporting model worked relatively well until the war, but privately owned fields were merged into co-operative farms during the socialist reorganisation. The villagers, who had lived off their properties, now had to cultivate estates that had belonged to someone else. The people became rootless, the landscape changed and people no longer felt attached to their homeland or village. The traditional culture, the familiarity of place, the idea of living in a close relationship to the environment – all these things were forgotten, gradually. After the change of regime in the 1990s many people were able to get their properties back, but the original, self-supporting way of life could not be easily restored.

There are hardly any popular traditions or folk customs left. The client found this out when she tried to discover the original local traditions during her stay in Bonnya. When she arrived, she felt it was important to build a living connection with the village and the villagers and she organised a programme of cultural and sporting events to try to infuse life back into the village. This initiative was not a resounding success, since the villagers approached the new initiative in a disinterested, half-hearted manner.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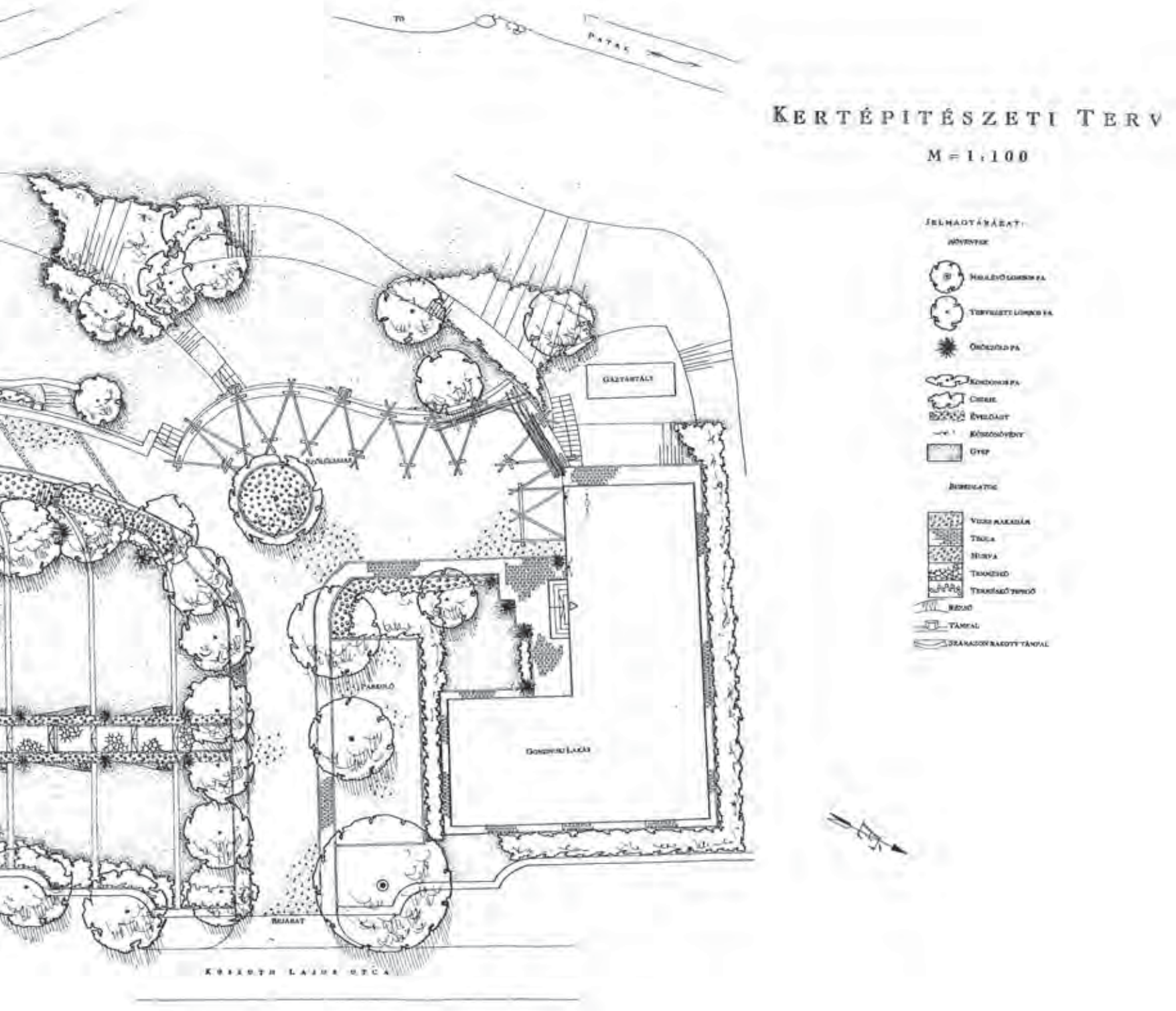
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Society continues to change. In the 1990s, city dwellers and foreigners started to buy houses in the villages. These newcomers visit periodically and generally do not take part in community life or are excluded from it. If one-third of the houses are bought up by city dwellers and foreigners, and another third belong to elderly people in their sixties or seventies, only the final third is available for local families and the younger generation. City dwellers longing for a move to the country, or people searching for a second home, do not want to run a farm, so they rebuild their new residences as summer cottages and the environs are also subordinated to this function.

But there are also new farmers coming from the cities who are interested in growing plants and keeping animals. Such people stay in touch with the city, and thus are not interested in establishing a self-supporting, peasant-like style of farming. Though they produce food, both for their own consumption and for sale, they often have ecological ideas which are new to the communities they have joined. In villages where subsistence farming cannot be revived, these newcomers bring new thinking. Their ideas and their new methods of farming will influence the villagers' way of thinking too. Hopefully these changes will lead to a revival of rural life in villages like Bonnya.

Design philosophy

The designer, Gábor Szücs, works at the PAGONY Landscape and Garden Design Company, which is influenced by the renowned organic architectural studio led by the eminent architect, Imre Makovecz. PAGONY Landscape and Garden Design Company builds, in its own way, upon the organic approach, and this influences everything from the initial relationship with the client to the changing life of the garden and the requirements of future users. The aim is to create a living system and not to have a still, frozen, static construction.

According to Gábor Szücs, a designer can only create a really excellent garden if he is a good observer. The reasons for this are twofold. First, observation allows one to recognise the spirit of the place, so that it is possible to create new things which arise from the character of the landscape. Second, accurate observation of the client's personality is essential in order to connect the place with the person. Gábor Szücs's approach was developed after a study tour to Switzerland where he was influenced by the writings of Jochen Bockemühl, who was formerly the head of the Institute for Natural Sciences at the Goetheanum at Dornach. Without the ability to observe, says the designer, there can be no cooperation between client and designer. The designer must recognise and mediate all the associations that lie in the client's hidden,

'unknown', inner world, and reveal how the future users of the garden might feel once the design has been implemented.

According to Szűcs, our ideas about gardens are rooted in the Garden of Eden, an ideal notion of the garden, which represents the memory of a harmonic environment, existing within ourselves as a deep, inner, personal, generally subconscious experience. The task of a landscape architect is to revive this idea, to keep it working, and to use it in planning and design. He states:

> I think that the landscape architect, when starting to plan a new garden, has to have this notion somewhere hidden deep inside, and during the design process he tries to revive, to validate and to re-construct it. Therefore, the creation of a garden should be first called a rebirth, the rebirth of the Garden of Eden.
>
> Before getting started, I observed and felt the landscape of Somogy in Bonnya, so as to create a garden concerned with and connected to the atmosphere of the landscape. I tried to include the landscape of Somogy into the garden itself. The landscape is really vivid here with its small hills, fine vineyards, creeks and mosaic views. There is a special quality in its atmosphere, in its situation and in the view of the village from the estate. These natural facilities are realised in the garden itself, in the small terraces, in the arches and lines of the retaining walls, in the patterns of tiling, resulting in harmony with the landscape.

The same ideas are expressed in the building materials and of course in the use of plants, starting from the flower gardens next to the buildings, through the fruit gardens to the semi-natural plantation in the outer part of the estate, which forms a natural buffer. And as we observe nature and the landscape with a special sensitivity, we should also observe the person for whom we design the garden. The designer's intentions have to be balanced and harmonised with those of the client, who should adopt these ideas so as to be able to develop and take care of the garden in the future.

Design development

The gardens

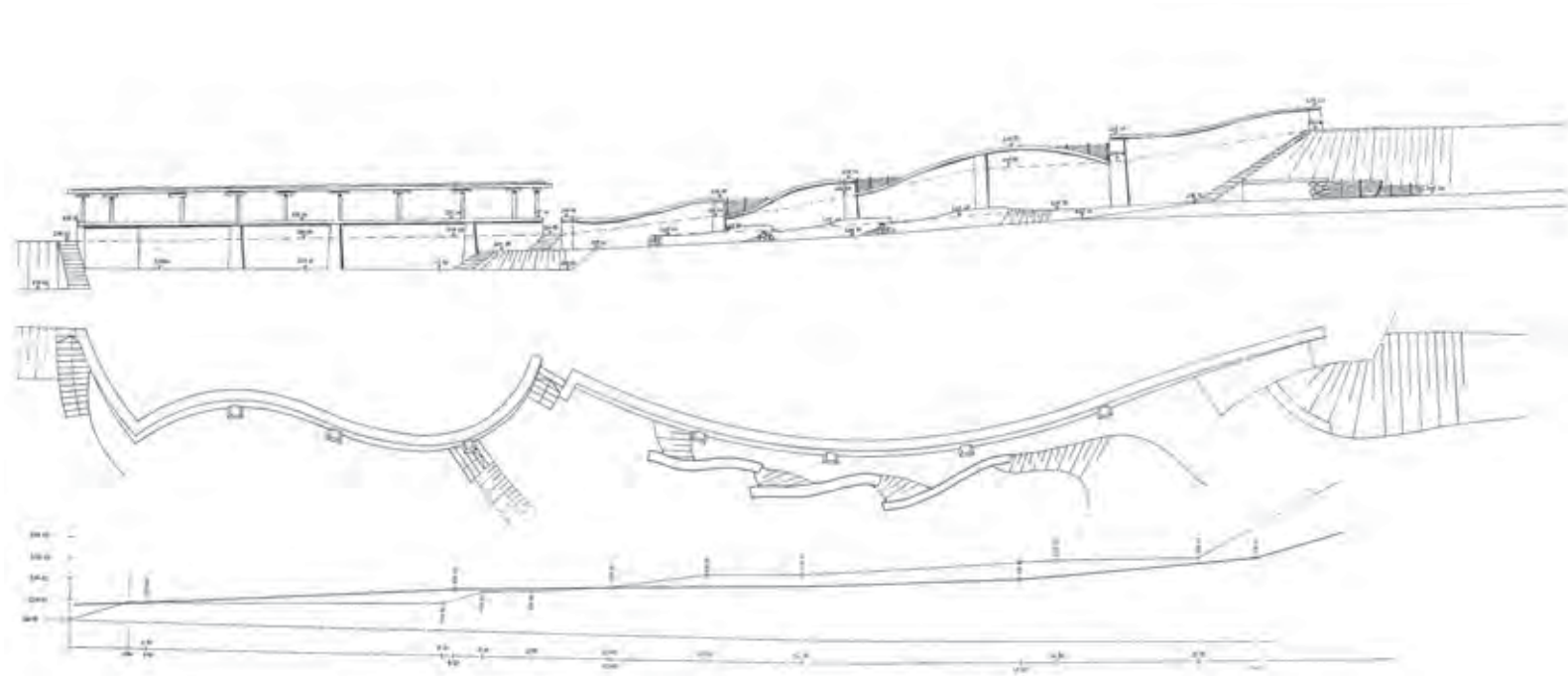
The project's aim was to provide hospitality for affluent guests, which required high-quality buildings, furniture and equipment in the guestrooms, together with the best of rural cuisine. The aim was to create a homely atmosphere, so that the clients would come back time and time again. This is not the cold, severe and elegant style of a hotel, but an enchanting and vibrant rural hospitality with activities in the garden, and the lively proximity of domestic animals, such as horses, donkeys, sheep, goats, rabbits, chickens and geese.

The second phase of the development aimed to provide a wider range of services for guests. There is a group of buildings for company training and conferences, complemented by open air structures, a swimming pool, areas for intimate garden parties, and an open air oven for bread-baking and traditional cooking. A health and fitness centre with a garden as a core element is also under development. The guests will be able to rejuvenate physically and mentally in the Garden of Harmony, designed by Gábor Szücs.

Some gardens demonstrate the designer's will, but do not last; some can only be maintained by regular pruning, forcing plants against their natural habits; but the Garden of Somogy is alive and ever-changing. The designer's personality is expressed in a vivid, lively garden; henceforth the user of the garden will keep this process alive and moving. The plan secures a moment, but it also encodes processes of birth, change and passing. While, in the case of a building, the architecture can give a permanent frame to a shifting way of life, the keeper of a garden constantly reforms it, in keeping with the changing needs of life, and the garden designer can only provide a foundation. It is not just the garden itself that is organic, but also the process through which the garden is planned, created and constructed throughout the course of its existence.

The client, in this case, gave the designer a fairly open brief. She made some stipulations about parking spaces for herself and for her guests, and about open space for family activities. It was also very important to her that the typical flora of the Somogy landscape should be used in the garden. Otherwise she entrusted everything to the designer.

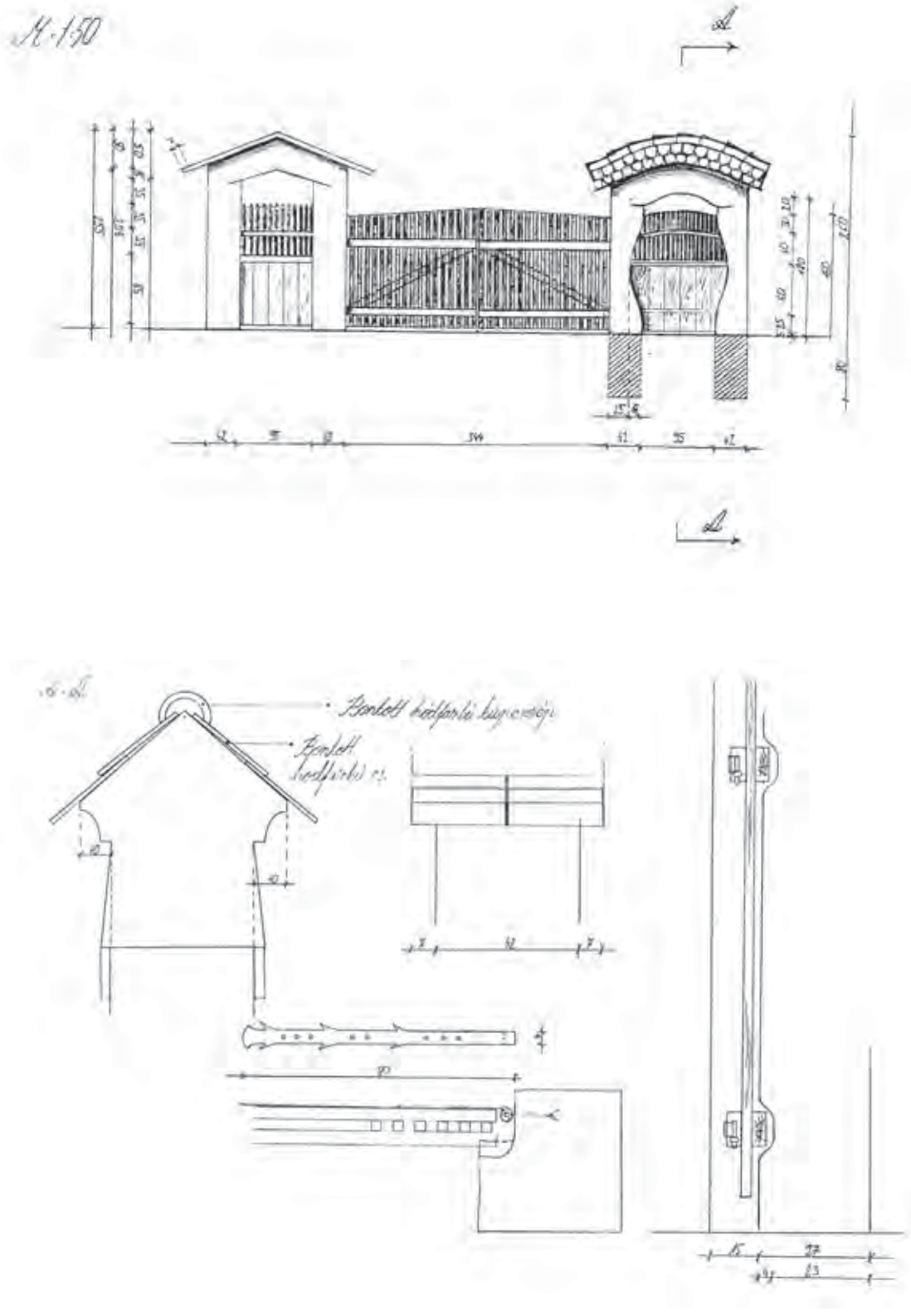
The designer was excited by the diversity and the romantic/picturesque aspects of the area. The new buildings were built on a high terrace, lying next to the main road, with a good view over the rippling hills and the low valley of a stream lined with trees and shrubs. There were no flat areas suitable for use around the buildings, as the sloping hillside



5.3
Plan, section and terrain alignment of retaining walls

5.4
Ramped path and retaining walls

5.5
The system of retaining walls from below



5.6
Elevation of 'male' and 'female' entrance gates
5.7
Details of the 'female' gate
5.8
Photo: 'male' gate
5.9
Photo: 'female' gate

extended all the way to the stream. The original surfaces next to the buildings were inappropriate for the intended garden uses and could not remain. The realisation of the entry, the steps that gave access to the guest-house, the parking places, the barbecue and the furnished garden lounge, was only possible using a series of retaining walls to accommodate height differences. This stepping of the ground originates from the requirements of everyday use, but it melts into the landscape from the most important viewpoints.

A characteristic gate marks the transition between the welcoming area associated with the buildings and the outside world. The gate is the threshold that allows visitors to understand that they have arrived at a new place. People can enter this welcoming area on foot or by car, and when they arrive, they are faced with the Somogy landscape. The driver who speeds along the motorway and turns off the highway and arrives in Bonnya, slowing down a little bit on the hills of Somogy, turns through the gate and stops. It must be a real stop; he must wait for a moment before getting out of the car, looking around, calming down, for here is the true landscape of Somogy.

The creation of this welcoming place was a primary aim of the design. It was necessary to create an old-fashioned system of terraces and embankments using retaining walls that varied in height from 500mm to 4m. These enabled the designer to enlarge the upper area and to create a fruit garden below, which became the most intimate resting area within the garden, where low walls for sitting were incorporated. The undulating lines of the retaining wall symbolise the outlines of the landscape, but at the same time, like all the curving, dynamic lines in the plan, it is a line full of energy, charged with mental and spiritual ideas, which draws upon the area's ancient culture and popular arts.

Beyond the guest-house, an enclosed area near to the stable forms an open-air lounge for community activities. It includes some characteristic structures, an open-air oven which provides all the functions of a kitchen and a sideboard, and an old restored well, which today has only ornamental value.

In the planting, the principle was to use species that reflected the character of the surrounding landscape, while also symbolising, in a sensitive way, the complex relationship between human beings and place. Next to the house, therefore, there is a great variety of species, including small ornamental bushes and perennials, and also some native species with high ornamental value. As well as some traditional forms of roses, we can find peonies, hydrangeas and yuccas, while the south front garden is planted with herbs typical of a

peasant's garden: *Mentha, Lavandula, Santolina, Salvia, Thymus* and *Rosmarinus*. Further away from the house, a greater proportion of the more common and native species are planted, including *Corylus colurna, Syringa vulgaris, Viburnum opulus, Amygdalus nana, Cotinus coggygria, Sambucus nigra, Euonymus europaeus, Lonicera japonica* and *Spiraea x vanhouttei*.

Perennials are particularly important in such a young garden, where they provide the main ornamental interest. They are planted here in great numbers. There are rich flowerbeds forming a riot of colour around the house and along the main roads; they are planted with *Iris, Campanula, Centrantus ruber, Solidago aurea, Rudbeckia, Phlox, Achillea* and *Lilium*. The intensive use of flowerbeds is less and less evident as one moves away from the house and the main picnic areas. There are perennials not only along the garden paths, around the bushes and in certain parts of the grass-covered areas, but also along the roadside and opposite the gate to emphasise arrival. The driveway is lined with a welcoming avenue of maples (*Acer campestre*) while a pleasant sycamore in a round flowerbed radiates a sense of calm from the centre of the front garden.

The English yew (*Taxus baccata*), which used to be typical of this landscape, plays an important symbolic role. While the yew is considered the symbol of death in many cultures, it is also regarded as the symbol of life. The ancient Celtic warriors honoured it as a holy tree. The most effective bows were made out of yew and, according to historians of ecology, the huge number of war bows made during medieval times caused the extinction of English yew in many parts of Europe, including Hungary, where only some small yew forests survived in the Transdanubian region. In Hungarian culture the yew carries complex meanings. It is regarded as the root of history and the temple of wisdom, and it helps us to restore and to purify ourselves. Because of these strong associations, it was chosen to create a frame at the main entrance to the guest-house, bringing the 'energy of life' into the building.

The European white elm (*Ulmus leavis*) is another symbolic tree in Hungary. According to ancient traditions, the elm was the most significant saint's tree and was able to create a connection with the sky, therefore all the most important decisions were made beneath the elm tree. It was therefore essential that this species should be represented in the garden.

On the lower terraces there is a fruit garden planted with the varieties of fruit trees found in traditional peasants' gardens. On the middle terrace the fruit trees are next to the retaining wall and are grown on cordon, utilising the heat stored and re-radiated by

the wall to ripen the fruit. This also adds character to the garden. The newly planted trees were advanced nursery stock, nursery-aged to create character and beauty in the shortest possible time.

Building materials

Like the plants, the building materials were chosen to suit the atmosphere, character and spirit of the landscape. For paving and steps the designer deliberately used good-quality second-hand building materials to give the garden the appearance of an old, organic, well-used and vernacular place, with mature, patinated surfaces to convey a homely atmosphere. The footpaths and the open-air lounge were paved with second-hand bricks, while second-hand red limestone blocks were used for the garden steps. The road from the gate and the parking place are surfaced with a grey gravel, while the walls in the garden are built of natural stone. The low retaining walls to each side of the steps to the guest-house entrance and the high retaining wall along the garden road were built of dense, frost-resistant, volcanic rocks from the Balaton highlands. The colours and textures of these blocks, even when freshly mined, give the impression of old, patina-covered, rustic building stones. Deep joints evoke the dry-stone walls used in the agricultural countryside. The benches, tables and the furniture of the open-air lounge were made of wood, while the sitting walls in the fruit garden are of stone. The fence along the boundary of the estate, next to the road, is a traditional structure used in peasant gardens. It is made of acacia, a strong and durable wood, and has a wattle construction in keeping with the spirit of the landscape.

5.10
View of the guest-house and stables from the meadow

Evaluation

The Garden of Somogy came into being as a consequence of the designer's typically organic approach. A particular landscape has subconsciously suggested a solution, which the designer has recognised and uncovered using his powers of observation. He has untangled it and helped it to be born. On the one hand, this represents the 'will' of the landscape; on the other, it represents a thorough knowledge of the client and the gradual discovery of the hidden corners of her personality. Subjectively the designer looks for suggestions from the character of the landscape, paying attention to the relations between man and environment. His role is to help to revive the *genius loci*, and to transform its capacity for arrangement into a vital process.

The garden has been in use for six years. The owner feels that it belongs to her; she loves it and cares for it and the plan has realised her hopes. The garden expresses the spirit of place; it provides a home for the owner and also for her guests, who come back regularly. They have become attached to the place, to the garden and to the landscape. The project has proven the economic viability of such an enterprise, developing a village remote from the city. Since the garden was first created, new buildings and outdoor areas have been added, but the garden is still developing under the guidance of Gábor Szücs.

Case study
Erzsébet Square, Budapest

Project data

Project name:	Erzsébet Tér urban open space
Location:	Erzsébet Square, Budapest, 5th district
Date completed:	2002
Cost:	300,000,000 HuF (1,186,245)
Area:	7,615m^2
Landscape architects:	Péter István Balogh, Zsuzsanna Bogner, Tamás Sándor,
	Sándor Garden Design Ltd, Firka Architect Studio Ltd,
	András Bánfalvy, István Bikki, András Boór, Dénes Halmai
Architects:	Firka Architect Studio Ltd, Boór and Kern Deposit Company
Client:	Ministry for National Cultural Heritage

Overview

The Erzsébet Tér is a vivid, multi-functional open space in the heart of Budapest city centre. It forms part of an ambitious renewal project, intended to increase the quality of urban life through the provision of new facilities for entertainment, recreation and the appreciation of culture. The development includes underground facilities, including a 700m^2 concert hall and conference room, an 800m^2 commercial area, a 450m^2 restaurant and a car park for 140 vehicles. Up to 800 people can use the underground facilities at any one time. The new urban space is technically a roof garden, designed to provide a calming environment with water and vegetation within a dense urban environment. Despite the intensive pedestrian traffic in this central location, it has been possible to safeguard 70 per cent of the total area of the square for water features and soft landscape.

Project history

In medieval times, the site lay outside the city walls of Pest. Originally it was used for cemetery purposes and later it became a market place, then, in the middle of the nineteenth century, it became a public park providing opportunites for open-air recreation. A hundred years later, in 1948, a modern, functionalist bus terminal was built on the eastern side of the park, replacing a two-storey baroque residential building which had been badly damaged in the Second World War. Along the small boulevard nowadays called Bajcsy Zsilinszky út, a huge car park was built.

In 1996, after a long political and professional debate, the government decided to build the new National Theatre on the site of this car park, thus recreating the spatial boundary along the small boulevard and providing a new architectural landmark that would transform the difficult and irregular link to Andrássy Avenue. The former bus station would gain a new cultural function, while the Erzsébet public park would be kept intact and revitalised.

The idea of building the National Theatre in Erzsébet Square did not meet with unanimous approval, neither among professionals nor within civil society. The opponents of the plan raised objections against the proposed density of the cultural institutions, pointing out that the city centre was already overcrowded. They objected to the projected increase in urban traffic and the likely increase in air pollution. Following the 1998 parliamentary elections, a new, right-wing government was returned, which doubted the soundness of the Erzsébet Square urban development proposal and halted the construction of the National Theatre, even though a substantial part of the special vibration-resistant underground structure had been finished. This huge reinforced concrete structure yawned empty for two years. In the mordant vernacular of Pest, it became known as the 'National Hole'.

At this point, the government, together with the municipality, proposed the enlargement of the existing Erzsébet Park, in association with the creation of a new urban open space and a new cultural centre served by an underground car park, which would utilise the existing concrete structure. In 2000, the Ministry of Culture announced a design and planning competition. Architects were discouraged by a very precise competition brief, a difficult context and the memory of the long political wrangles connected with the site, so only five proposals were received. The jury decided not to award prizes, but to appoint the Firka Architecture Studio Ltd as consultants, both for planning and design. Their entry had impressed with its clean, constructivist forms, free from stylistic dissonance, and the artistic, visual and functional opening onto

5.11

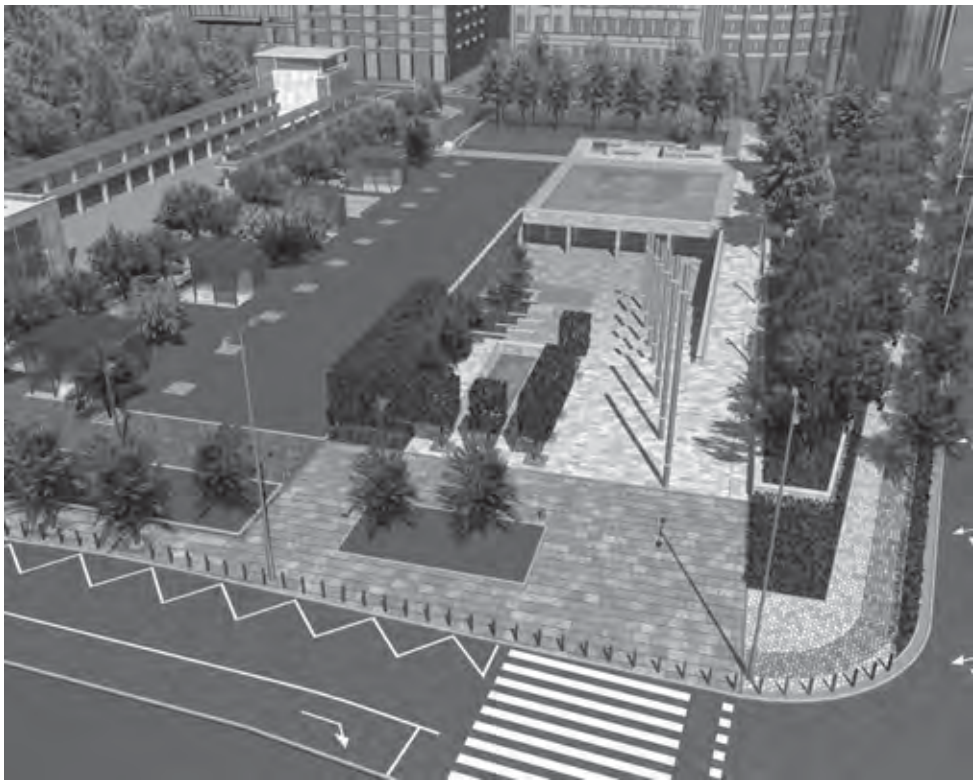
Landscape masterplan by Péter Balogh, Zsuzsanna Bogner and Tamás Sándor landscape architects

5.12
Large car park on Bajcsy Zsilinszky út

5.13
Overall plan showing context, including the revitalised public park

Deák Square and the sunken city agora were also highly regarded.

The Firka Studio then tendered for proposals from landscape architects to assist with the project, and appointed a young team comprising Zsuzsanna Bogner, Péter István Balogh and Tamás Sándor. It would be their task to develop detailed designs for the gardens and open spaces to complement the original urban and architectural design. They were able to start almost from the beginning, keeping in mind the main stylistic and architectural elements of the successful competition entry.



5.14

Computer-generated images of the proposals, one showing the view from Deák Square towards József Attila Street, the second looking from the junction of József Attila Street and Andrássy Street towards Deák Square

5.15

Plan of the public park at Erzsébet Square in 1873

Design philosophy
According to Zsuzsanna Bogner:

> The main idea of the landscape design was to create a great variety of interesting, inspired and delectable urban spaces in spite of the small area given and the dense urban fabric. The task has been rendered more difficult by the excavation of the 'Hole', the huge concrete structure and the detailed architectural and urban planning regulations.

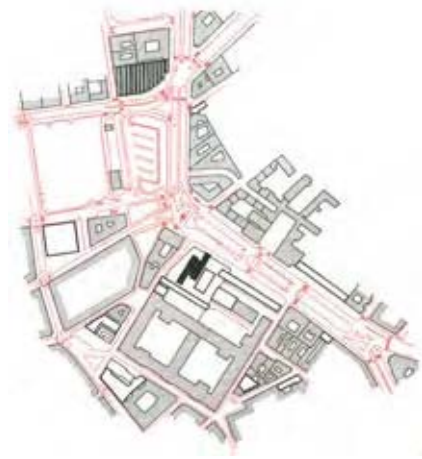
The aim was to bring the roof garden and the underground structures into close harmony, and this directed the designers towards a very strict architectural approach to space forming and style. The basis of the landscape design was laid down in Firka's competition entry, which used a fine constructivist form, but in the light of the competition the whole architectural programme had to be carefully reconsidered.

Satisfying the needs of pedestrians, opening up a new visual axis, and creating new connections have had an influence upon the surrounding area. The connection to the Cathedral (Bazilika) to the north has been rethought, with a new promenade starting in front of the former bus terminal building.[2] Though the restoration of the old public park at Erzsébet Square was not included in the planning competition, the municipality of the 5th district decided to handle the two parts of the Erzsébet Square as one unit. Therefore the landscape architecture team drew up a design for the whole area, with fine connections and a smooth transition from the fresh, up-to-date urban space to the traditional public park. It is not the designers' fault that the building project was (and still it is) restricted to the new open space and the Hole. Redevelopment of the old bus terminal as a cultural exhibition hall and the refurbishment of the old Erzsébet park have been delayed.

According to Zsuzsa Bogner:

> From a technical point of view, the Erzsébet Square is a typical roof garden, where the co-ordinated system of open and inner spaces complete each other in a strict structural order defined by pure functional needs. It was a fantastic challenge to exploit the possibilities of the concrete structure and, at the same time, to disguise the roof garden character; it should not be visible to the visitors, nor should it be sensed by the plants in the garden.

In spite of the complicated underground structure, the open space with its calm grassy expanses and water surfaces restores a sense of evenness and reassurance to the disturbed, hectic city life.



5.16
Budapest City Centre. Detailed urban plan of Budapest city centre with the bus station and the parking place on the plot of the former Morocco court. The irregular break of Andrássy Street, József Attila Street and the Kiskörút can be seen

Design development

Architectural concept

The Erzsébet Square design answers various functional needs with a complex system of places. Six different areas, each with a particular spirit and function, have been created within this small area; nevertheless they complement each other because of their strict geometric arrangement. The square is framed by spacious promenades and broad pavements. Hornbeams clipped into cubic forms frame the welcoming area, and there is a small pond in the direction of Deák Square. Wide stairs and terraces, richly decorated with plants and falling water lead to the underground cultural, entertainment and commercial centre which still bears the ironic nickname the 'Hole' (the National Theatre was eventually built on a different site in the 9th district). A row of lamps, at a slight angle from the general orientation, points towards the entrance of the exhibition and concert hall. The pool with its promenades and boardwalk, built into the cover slab of the exhibition hall, provides an ideal leisure park. The peacefully sparkling water surface is beautifully revealed from the adjacent terraces and steps. An elevated leisure area is waiting for visitors along the small boulevard known as Bajcsy-Zsilinszky Street. The spacious central lawn offers a pleasant view with its playful bubbling water elements.

The architectural concept of Erzsébet Square ensures that the buildings and the open spaces, the open and inner spaces, are connected to each other logically and continuously. This is the result of a constant co-operation between the architects and the landscape architects. The most unique and spectacular link is that between the roof garden and the cultural centre, which takes the form of a large expanse of water, the, 660m^2 ornamental pool. The conference room is lit by natural lighting through its glass bottom. The timber boardwalk beside the pool is one of the most pleasant places for sitting and relaxing. The level difference between the entertainment spaces below and the boardwalk above serves to provide sufficient shelter against the noise and bustle of open-air concerts.

The nickname 'National Hole' of Pest was finally accepted as the name of the Erzsébet Tér cultural centre.[3] The underground cultural and commercial institutions are accessible on a spacious open staircase serving the terraces which step down from Deák Square. This represents a symbolic interchange between the historic city centre and the busy new urban nexus. The rigidity of the flights of stairs is relieved by smooth water surfaces, pools, lawns and deciduous trees, and therefore the stairs themselves can be used as resting and seating spaces, and even for watching open-air concerts or other events. Even on the hottest of summer days

5.17
Foyer of the 'Hole' leading to the conference and exhibition hall
5.18
View of the pool from József Attila Street

this area can be used as an agora, which, because of its sunken level and orientation, can host noisy events without disturbing the calm quality of life above.

Essentially, the whole of this new urban space is a roof garden, with the thickness of soil required varying in accordance with the design. One of the planning conditions placed upon the site was that there should be a depth of 2m of soil over 25 per cent of the site to accommodate larger trees. This requirement, along with the need to deal with the evidence of the pre-existing concrete structure, suited the designers' purposes well. A corrugated cover slab provides an elevated garden, sheltered from the busy boulevard by densely planted raised beds. The raised level of the surface was also of benefit to the architectural design, since the height of the rooms below could be increased.

The architectural elements keep a low profile for the sake of a harmonious view. Stairs leading to the underground car park, elevators and airshafts were placed in elegant glass buildings with good proportions, in order to emphasise the new pedestrian axes between Deák Square and the Basilica. The form of the glass cuboids responds to the modern design of the former bus terminal building. The materials, the variations of sandblasted and smooth plate-glass, reflect today's architectural possibilities. Pergolas, similar in construction and materials, enclose the row of glass buildings, and run at right angles to the promenade, opening a transverse walk towards the pier. There is an alley of *Gleditschia triacanthos* 'Shademaster' along the promenade. Their foliage provides an intense background to the glass buildings and creates a green wall parallel to the face of the terminal building.

József Attila Street is an extremely busy main road connecting Buda with the city centre via the Chain Bridge. The pavement is really only suitable for fast walkers, but people are offered the opportunity to turn into the park and use the inner promenade instead. For the purpose of preserving the calmness of Erzsébet Square, it was necessary to close off the length of József Attila Street, with a long glass moulded construction, which offers natural lighting for the underground car park and protects the park from the heavy noise at the same time. This has been sandblasted with a design that records significant dates in the long history of Erzsébet Square.[4] The pavement at József Attila Street, parallel to this glass screen, is closed off with a short alley of six columnar maple trees (*Acer platanoides* 'Emerald Queen'). The public utilities running beneath restricted the opportunities for planting in this location.

Plants and trees

The demolition of the Morocco Court residential block had created a gap in the urban fabric. Here again public utilities and structures beneath the pavement made it difficult to provide enough soil for dense planting, so the designers sought to restore the spatial structure of this area by planting a loose alley of maple trees along Bajcsy-Zsilinszky Boulevard There is a 1m-high elevated plant box on the other side of the pavement, where an alley of Common Hackberry (*Celtis occidentalis*) could be planted, recalling the character of neighbouring Andrássy Avenue. The necessary 2m depth of soil for the trees is provided by small planting pits within the special corrugated cover slab. The elevated plant boxes are filled with leafy perennial species, groundcovers and small shrubs (*Amygdalus nana, Cotoneaster horizontalis, Deutzia x rosea, Lonicera nitida* 'Maigrün'*, Potentilla fruticosa, Spiraea japonica, Spiraea x bumalda* 'Antony Waterer'*,* 'Froebelii', *Viburnum opulus* 'Nanum', *Vinca minor*). The elevation of the surface and the dense plantation not only produces clear visual closure, but also ensures that the traffic of Small Boulevard does not disturb the relaxing visitors. The pedestrians can choose whether they want to hurry along the pavement or to walk in peace on the tranquil promenade inside. The 4.5m-wide promenade is paved with hard limestone. The resting terraces are decorated with beds of perennials, including such species as *Geum coccineum, Hemerocallis fulva, Hosta lancifolia, Hosta plantaginea, Vinca* and *Waldsteinia*. These terraces are entirely suitable for informal leisure, looking around and chatting because of the loose rhythm of their built-in benches and the dense planting.

Water features

The pool built into the slab of the cultural centre provides a beautiful spectacle. Its glass bottom is at a depth of 40cm to increase the visual flickering effects within the cultural centre, while the depth of water is only 6–10cm under the boardwalk and the promenade. The 1.6m-wide promenade which runs alongside the pool extends above the water as a pier. The pavement here is also made from the same hard limestone. The promenade parallel to József Attila Street consists of timber boarding which apparently floats over the water, supported by slender steel structures which are hidden. Above the timber-boarded pier there is a place for resting, which consists of terraces and steps made from huge polished blocks of limestone. Plant boxes with perennials, small geometric patterned pools and water spouts make this place seem intimate. They provide the atmosphere of a sun-terrace with sitting surfaces built into the pavement. There is a impressive view of the sparkling water surface and the spacious lawn.

5.19
Sandblasted glass panel recording significant dates in the history of Erzsébet Square

5.20
Outer promenade along Bajcsy-Zsilinszky Boulevard

The lawn includes water features in the form of 11 jets which are lined up parallel to the glass buildings and the *Gleditschia* alley and provide a lively counterpoint to the calm lawn. These fountains form a regular row at the lawn edge, and the jumping jets land in pools covered by a grid in order to retain the spattering water.

Materials

The prominent situation of Erzsébet Square, combined with high levels of state investment and a high political profile, created a tremendous opportunity for the designers to realise almost all their ambitions. They were allowed a free hand during the planning process without any strict financial limits. In general, very high-quality materials could be used, which were not only functional, but also matched the high aesthetic aspirations of the project. Different areas and places with different functions were created in a relatively small area, while the considered use of particular materials and plants not only ensured that these places were individual and diverse, but provided cues to their roles and functions within the overall creation. The choice of materials accords with the function of each place and its connection with the urban pattern. As with the hard materials, the use of plant materials has been kept simple, with large masses of plants and a limited palette of species, to maintain the calm and regular character.

'The use of clipped green walls, huge flat lawn surfaces and special colours are characteristic of the whole open space,' says the landscape architect, Zsuzsanna Bogner. 'Some solitaire ornamental trees with special foliage are situated on the terraces, where they act as counterpoints to the jungle-like planting of the elevated plant boxes.' (*Liriodendron tulipifera, Parrotia persica, Quercus palustris, Corylus colurna, Cercis siliquastrum*.) The planting used good-quality advanced nursery stock. The soil depth is 100–200cm for the trees in the boxes, while it is 20–40cm for the lawn and 60–80cm for the shrubs.

Different paving materials are used in the various areas of the square, but the diversity of treatments reflects usage and is therefore not annoying. The promenade outside and the pedestrian area in front of the former bus terminal building are covered by 2cm-thick granite stonework. The welcoming area at Deák Square, the terraces leading to the Hole, the staircases, and the promenades along the pool are surfaced with a hard limestone imported from Croatia. Unfortunately there were some minor financial restrictions in the last stage of the implementation, therefore 3cm-thick material was substituted for the 4cm-thick slabs originally specified. As could be foreseen, this restriction has caused some reduction in the quality, since the Croatian limestone did not prove to be sufficiently frost-proof.

5.21

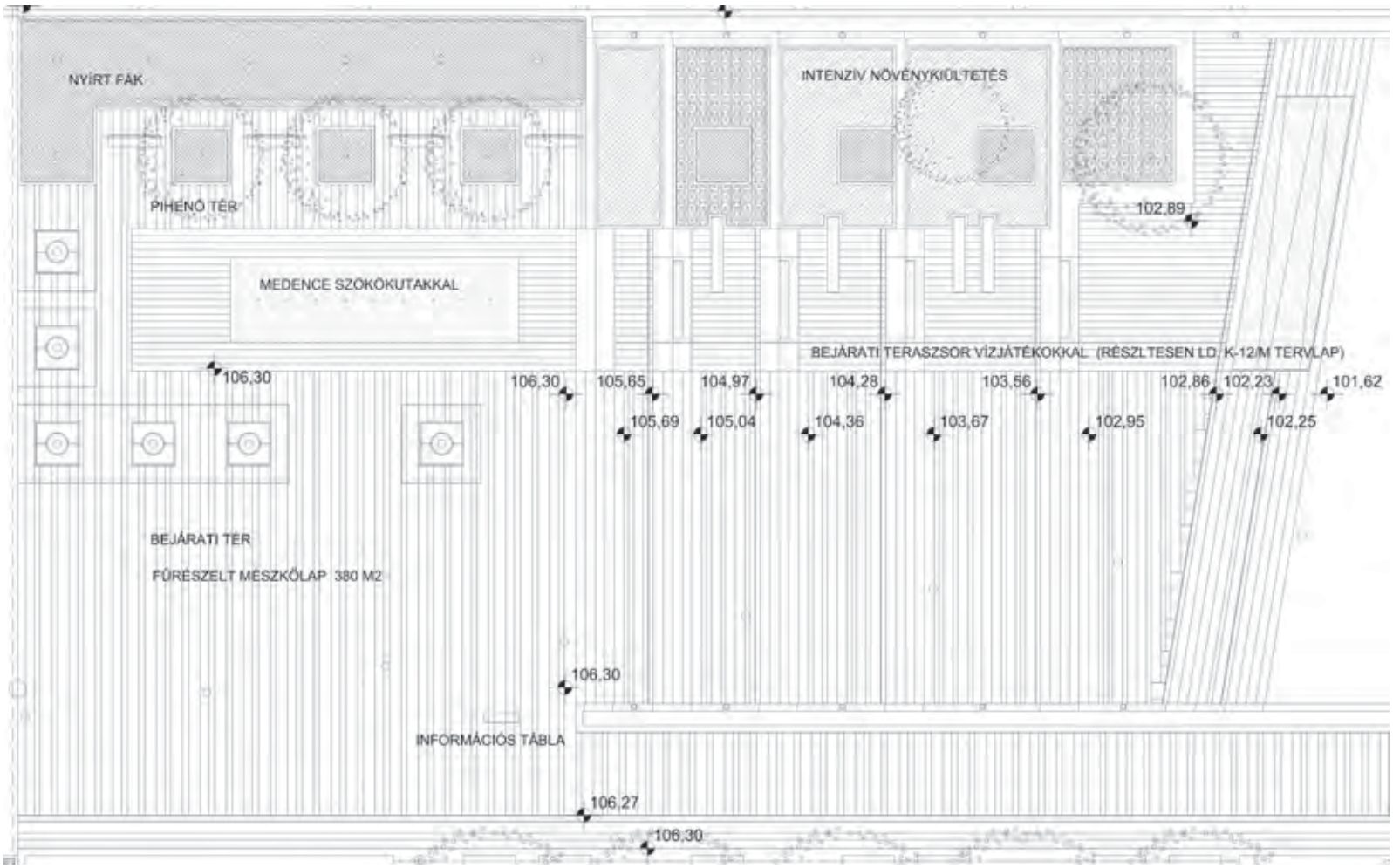
The pier used as a sun terrace

5.22

The vertical walls beside the steps to the Hole are finished in huge raw slabs of red limestone

5.23

Terraces and steps leading down to the Hole



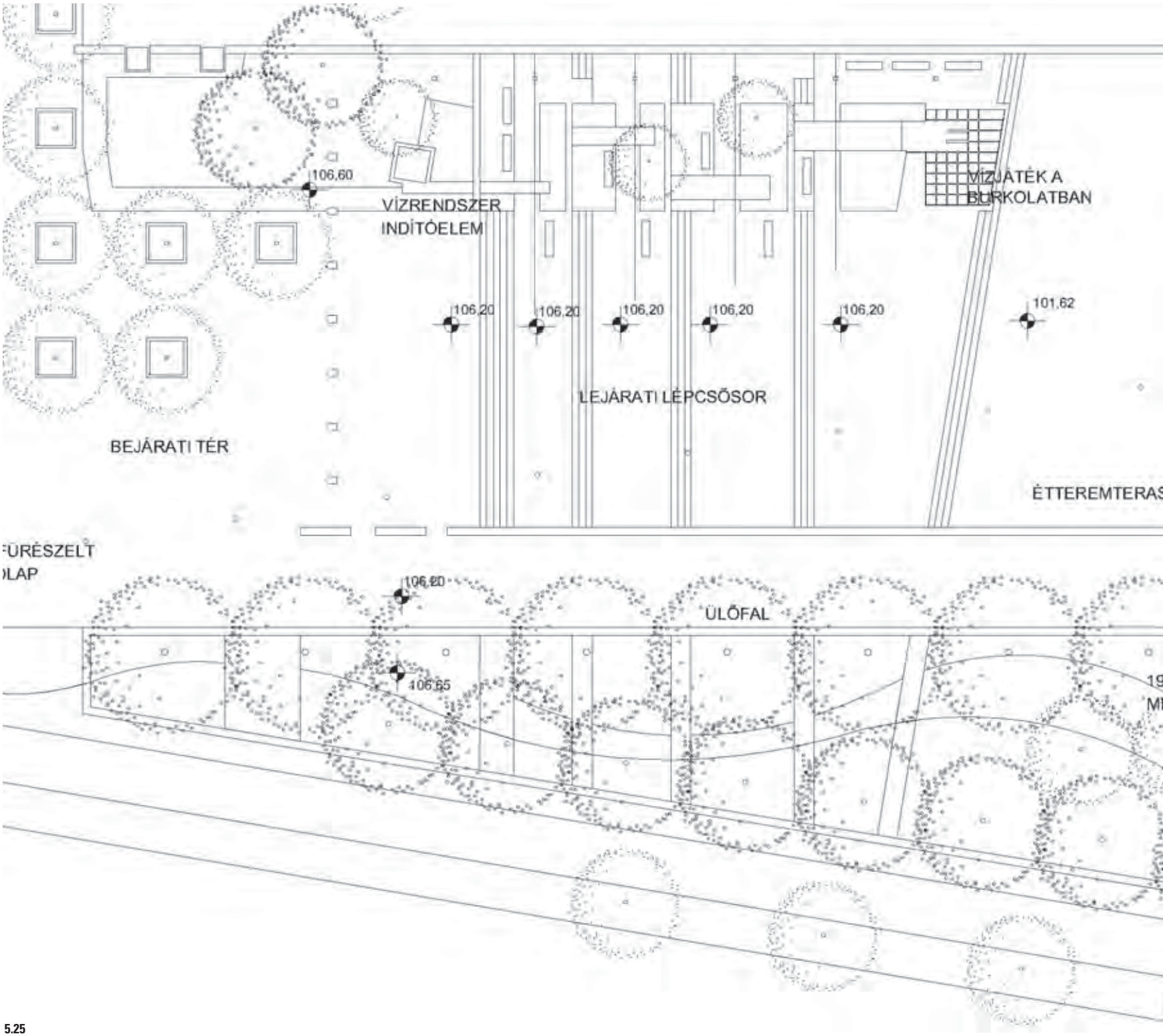
5.24

Plan of steps and terraces

A further problem is the need for the limestone surfaces to be regularly scarified to prevent people from slipping on them.

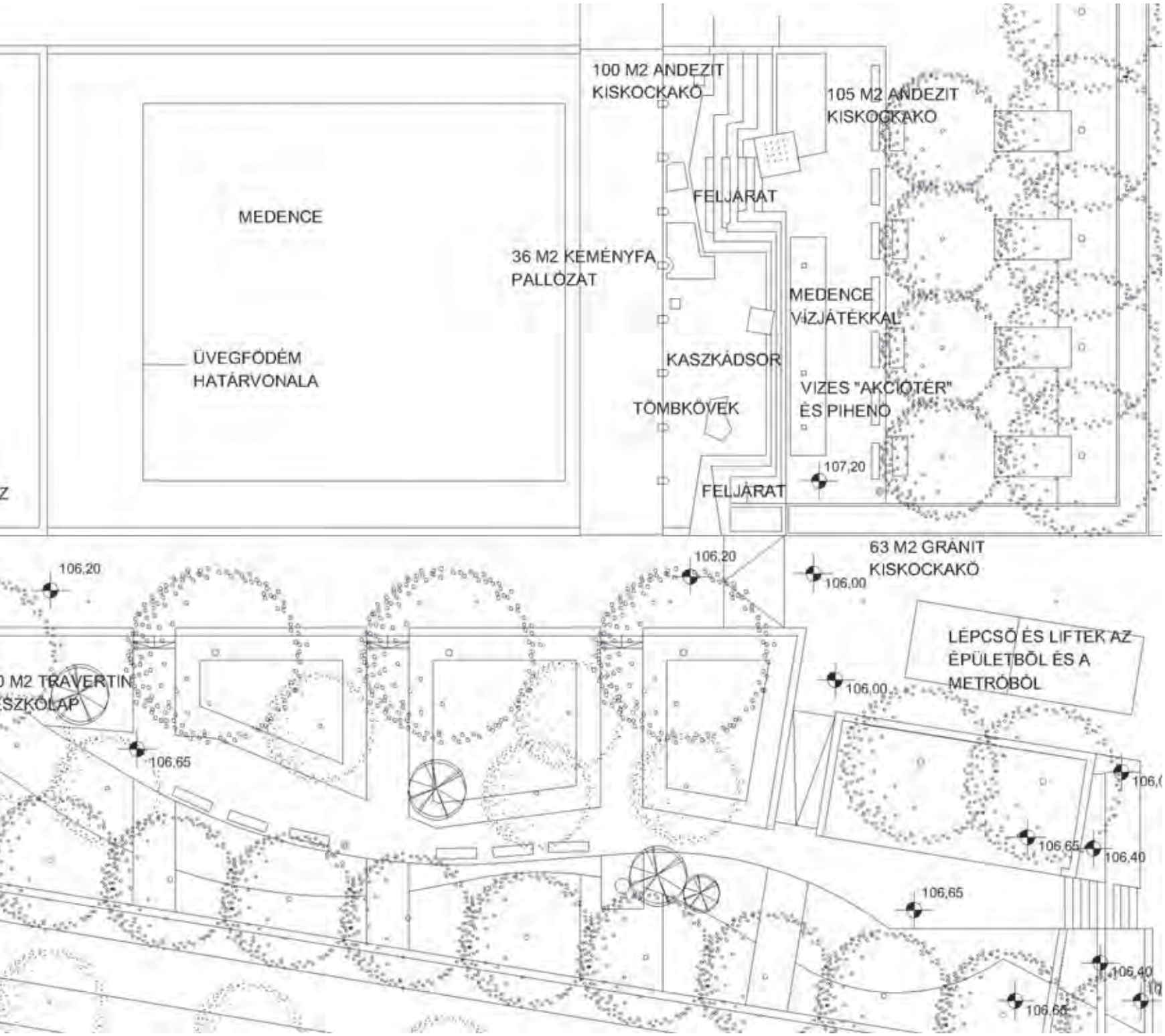
The finishes used for the Hole's vertical walls are quite special. These are covered with huge raw slabs of red limestone, which have not been smoothed or polished. This dramatically rustic effect resembles the working faces of a mine, recalling the first stage of the Hole's creation. The white limestone on the terraces and stairs and the vertical red limestone nicely complement each other. The ornamental plant boxes and trees on the terraces, as well as the glittering water running down the cascade, bring vivid life to the steps and terraces, while at the same time they pleasantly freshen and cool the air. The rhythmical stairs, cascades, walls and seats soften the steps of the terraces.

People hurrying through the park may not realise the variety of benches and seating places provided. Prefabricated street furniture of good quality is offered for the visitors on the long promenade and on the raised leisure area. The height of the terraces in the Hole allows them to be used as seats, close to the stairs and the cascades. There are wooden sun-beds near the pier with the same fine, decorative wooden surface as used for the boardwalk along the large water pool. The 40cm-high retaining wall, which closes the plant boxes in front of the Andrássy Avenue junction, also acts as a seating area. The seats on the promenade alongside the bus terminal are custom-designed, unique elements. The foundation is made of in-situ reinforced concrete, covered either with the characteristic granite of the promenade, or with decorative timber ribs, in character with the boardwalk and the pier.



5.25

Plan of the Pool and the steps down to the Hole


100 M2 ANDEZIT
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105 M2 ANDEZIT
KISKOCKAKÖ
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MEDENCE
36 M2 KEMÉNYFA
PALLÓZAT
MEDENCE
VÍZJÁTÉKKAL
ÜVEGFÖDÉM
HATÁRVONALA
KASZKÁDSOR
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Evaluation

The birth of a new open space in the crowded, overdeveloped, traffic-burdened centre of Budapest is a huge event in itself, especially when the opening of this space has put an end to a long political battle, disguised as a debate about architecture and city planning. The process of birth was protracted, but ultimately the result is an outstanding and remarkable stage in the renewal of central Budapest and the product of intensive teamwork between urban planners, architects, landscape architects and civil engineers.

A high-quality contemporary open space, in a strict and coherent style, has been born on Erzsébet Square. Its designers bravely accepted the architectural challenges and possibilities presented by the underground structures and turned urban regulations and structural restrictions to advantage. The calm and generous surfaces, the play of levels between the common areas and the rich and diverse use of water have resulted in a practical and healthy central open space which is also vivid, fresh and enriching.

Its strange position in the urban pattern, originating from previous phases of urban development, endowed Erzsébet Square with a difficult heritage. The guiding principles of the designers were the usability and the inner consistency of the new spaces, rather than the real or virtual connections with neighbouring squares and urban views. The only direct visual opening to Deák Square strengthens the connection to the historical city centre, but not to the northern part of the 5th district or to Andrássy Avenue. The new open space structure does not solve the problem of the irregular link between Andrássy Avenue and the small boulevard (Bajcsy-Zsilinszky Street), nor the need to provide a worthy commencement to the respectable and grandiose axis of Andrássy Avenue; on the contrary, it denies the existence of such a problematic point in the urban fabric. In numerous earlier urban development projects, planners suggested that this junction should be marked with a vertical element, a structure, a building, a memorial or even a piece of water architecture, which could respond to the grand Millennium Memorial of the Városliget (City Park) at the other end of Andrássy Avenue. And now the new open space does not have any architectural or vertical emphasis, in fact, it ignores the defective beginning of Andrássy Avenue completely.

The manner in which the new space opened directly on to Deák Square has been heavily criticised, as the square seems to 'turn its back' to Andrássy Avenue and the northern part of 5th district. This direct and one-sided opening of Erzsébet Square could be seen partly as a functional demand, partly as the logical step and an evocation of the development of urban fabric.

Seen in a functional perspective, the balancing of new recreational functions and environmental needs has been a success; but the urban context requires that one should consider the history of the site as well as its present use. The new urban space, opened up on only one side, recalls former urban connections and the previous direction of urban development, as the city of Pest (part of the 5th district today) spread northwards from the end of the eighteenth century. Only at the end of the nineteenth century, when Andrássy Avenue was built, did the city development take another direction.

Those who represent the interests of disabled people have also been critical of the square, because there are serious problems of accessibility. The stairs have caused the largest problems, although all levels and parts of the park are served by elevators. The boardwalk and the pool surroundings are problematic places for people in wheelchairs. Along the poolside the stone edge finishes above the water surface, which solves a drainage problem and makes the promenade more secure, but the timber-boarded pier reaches over the water without any raised edge, which looks very elegant and beautiful, but is really not safe enough.[5] It has also been suggested that there are risks for small children in this environment.

There are also some undeniable maintenance problems, caused in part by poor design or faulty implementation. First of all, some very typical uses of urban squares were not taken into account, particularly the enthusiasm for skateboarding, which is causing so much harm to the pavements and urban squares of Budapest. In the case of Erzsébet Tér the arrival of the skateboarders has caused some serious damage to the elegant hard limestone pavement.

The covering of the elevated plant boxes was made of the same Croatian material, and while this finish proved to be appropriate on the pavements, it has not worked well on the retaining walls. The skateboarders took possession of the finely finished and delicately sculpted retaining wall and destroyed it within a few weeks. The edges of the stone cladding first became worn and chipped, then later, lots of the stone tiles were broken. It was hard for the designer to have predicted this onslaught, and the retaining walls still have not been restored. There would be little point in restoring the same structures to watch them be destroyed again, but the present situation with the broken limestone finish is unsightly.

Though it is not the fault of the planners, it is a sad fact that the great lawn, designed originally for sunbathing, had to be closed soon after the opening of the park, and one is no longer allowed to walk or sit on the grass. A sign saying 'Keep off the Grass'

was placed there. This regrettable decision was forced upon the managers of the square, which was a victim of its own popularity. Because there are so few green spaces in the inner city, this small lawn had become extremely attractive. It was subject to such wear and tear that it would have needed to be returfed annually. It is a great pity that use of this space cannot be allowed, for as Zsuzsanna Bogner says, 'The original aim of the designers was to create vivid, practical open spaces, where people can sit, have a rest, touch the vegetation and play with the bubbling and jumping water.'

Despite these mistakes and failures, the new urban open space has become an organic, fresh and usable element of the city centre. The curious story of this place has not yet come to an end, since the project has not come to an end. The underground facilities are not yet fully utilised, the former bus station still awaits conversion to its new use and old Erzsébet park still awaits restoration.

The Netherlands

Boudewijn Almekinders and Ad Koolen

Landscape architecture in the Netherlands

Landscape architects in the Netherlands have historically come from a horticultural background. Most of the early landscape designers were botanists or owned nurseries themselves and were self-educated in design. Their design approach tended to be traditional, following whatever was the fashion in architecture of the period. At the end of the nineteenth century, ideas from the Italian Renaissance, French Baroque and the English Landscape Style, were 'translated' into the Dutch situation without much vision.

Architecture has always been a mature profession, but the field of urban planning is a lot younger. Landscape design started to be nationally recognised as an independent profession when its first professor at the Wageningen University was appointed in 1946. Professor Dr. Ir. J.P.T.H. Bijhouwer has had a great influence. In his view, one should be very careful with the characteristics of the many different types of landscape which Holland possesses, but nevertheless, he argued, 'Don't hesitate to change landscapes or environments when the change means an improvement.'

At first, landscape architects worked on their own, but during the post-war reconstruction they teamed up with urban planners and architects. Those projects resulted in well-integrated neighbourhoods. This idea of the neighbouring professions being complementary and overlapping, rather than being competitive, is a notion that still exists if one looks at the composition of Dutch landscape practices today. Indeed, their multi-disciplinary approach goes further. Nowadays one may find many other disciplines, including photographers and artists, employed in a landscape office. Their point of view and novel ideas often enrich the designs for public space.

The private landscape practices, together with landscape architects in government service, form the professional field in the Netherlands. The vast majority of projects are for public space. Plans and projects are made at all scales: national, regional, town and site. Together they form a coherent hierarchical relationship: the higher-scale projects setting the outlines and briefs for the more detailed planning. The clients for the different tasks are in general the different levels of government: land, regional and town. In the Dutch system, the water boards are the oldest authorities.

Most Dutch territory lies below sea level. From the beginning the land has been protected from the sea and the rivers by dunes and dikes. Later on the Dutch found ingenious ways to conquer land from the sea and secure it behind new dikes. The water protection business has become a Dutch primary

instinct. The battle with water is a continuous one because of the need to maintain the water defence systems and because of ever changing circumstances. In this densely populated country, the building of houses and industrial projects continues to encroach upon the rivers, making it difficult for the water to find its way to the sea. This went on until the middle of the 1990s. At present, the sea level is rising more than ever before, while the flows of water in the rivers are also generally higher, with higher peak flows. This makes protection with higher and more solid dikes necessary. The IJssel quay in Doesburg is an example of how the Dutch deal with this traditional brief in a modern way.

At the end of the nineteenth century, the industrial revolution triggered the growth of many Dutch towns. During the Second World War a lot of houses were destroyed, especially in the bigger cities, so in the post-war period, a project of large-scale development was introduced to fill residential needs. This project has also, perhaps, become second nature to the Dutch. Like the perpetual defences against water, this building project is an ongoing one as well. The reason is that the average area required by a household has grown substantially, while the number of people per household has decreased dramatically.

Since the 1960s, the government has made general plans for spatial development. Activities and functions such as agriculture, ecology, recreation and housing have been planned, with the aim of realising a coherent spatial environment at a national level. In 1994, a national decision was made to create large new housing districts (4,000–8,000 dwellings) directly related to existing urban areas. Integral to this proposal was the task of creating valuable new public spaces. One of the results of this policy can be seen at Albrandswaard, which forms the second case study.

Case study
Quay on the River IJssel at Doesburg

Project data

Project name:	IJssel quay
Location:	Doesburg
Date completed:	Design process: 1997–2005
	The project was constructed in different phases: quay completed
	in 2001; residential area completed in 2005
Cost:	7.2 million (excluding VAT) cost level in 2001
Area:	5.4ha (length of the quay approx. 500m)
Designer:	OKRA landscape architects
Clients:	Johan Matser Projectontwikkeling bv
	Municipality of Doesburg
	Rhine and IJssel Water Board

Overview

In the town of Doesburg on the River IJssel, a split-level quayside has been designed to provide flood protection. The concept is very simple, and is fully adapted to the river: a low quay to provide mooring for shipping, and a high quay serving as a promenade. With its abrupt changes in elevation, the new ground level for the higher-lying residential area provides a new perspective on the relationship between town and river. Thanks to the view over the 'Veluwe massief' from the higher of the two quays, there is a tangible contrast between the two sides of the river: quays on one side, floodplains on the other.

But the quay provides a lot more than a defence against the river. It also becomes a place for living and working, for mooring, and merely for strolling. By becoming an attraction in its own right, it brings new spirit to this former Hanseatic town – just at a time when interest in the towns of the Hanseatic League is undergoing a revival.

6.1
Aerial photographs of the total project area and its context

Project history

Broad, slow rivers are an integral part of the delta landscape in the Netherlands. In this flat country, their fall is only slight, and these rivers seem to flow more slowly than they do. But while they look peaceful, appearances can be deceptive. For the low-lying land of the delta needs protection not only against the sea, but also against the rivers.

The Netherlands has always been at the mercy of water. Over the years, increasingly radical measures have been taken to keep it out, and thereby to protect new and reclaimed land. It was for precisely this purpose that public organisations – the so-called regional water boards – were established as long ago as the early Middle Ages.

As technology advanced, the number of floods was gradually reduced. However, in the second half of the twentieth century, coastal and river defences were tackled in an increasingly technocratic way, and, as with landscape planning, matters were carried too far. Too great a stress was placed on engineering, and the measures became increasingly uncompromising. One result was an illusory sense of security. Embankments and levees were raised, and land was taken for housing and other types of intensive land-use when it was actually necessary to the system of rivers, streams and coast.

In 1995, high water levels in the Dutch rivers revealed just how dangerous it can be to deprive a natural system of the space it needs. The real danger of severe flooding made it apparent that rivers needed to be given more space in the stretches between towns. It also became clear that the various sluices, dams and water-control structures that lay along these rivers should be examined anew.

Today, the paradigm that long dominated the thinking of the regional water boards therefore seems to be changing. No longer are structures intended as defences against the water regarded in isolation; instead, they are seen as vital parts of the landscapes and towns that surround them. Such a view provides scope for integrating that structure within the urban landscape, and thus for linking a town with the river that runs through it. The quay along the IJssel in Doesburg is one of the first projects in which a structure that meets the most recent safety requirements will be integrated with a new, public quayside, one which is itself part of a network of public urban spaces.

Just like its riverside sisters of Zutphen, Deventer and Kampen, the little IJssel town of Doesburg evokes the heyday of the Hanseatic League. However, since the decline that began at the end of the fifteenth century, it has never developed a true waterfront of its own: over the years, the area

6.2
High water

between the moat and the river has been used solely by industrial establishments.

The closure of industry along the river now provides an opportunity to combine the development of a riverside hotel and over two hundred houses into a contemporary waterfront that provides spectacular views over the floodplains across the IJssel – views that extend to the fringes of the Veluwe region. Because it is so seldom that a chance arises to build frontage along a major river, the creation of this quayside is a unique project.

Design philosophy

The landscape architects at OKRA believe that landscape architecture is not an autonomous art, but is strongly influenced by the project's context. In their projects, they aim to discover and strengthen the site's authentic identity. This context can consist of the surrounding topography, the history, the programme or social aspects. The design concept should always tell the story of this context.

For OKRA, a concept is only valid if it is realistic. Their aim with every design project is to be fully involved with the determination of details and materials. They like to defend the concept through the more concrete stages in this way. Almost every design goes through a stage of cost-cutting. Decisions in this matter have to be taken according to the concept, and, as designers, OKRA like to be closely involved in this, although this is usually not the designer's task in the Netherlands, where this stage has been mostly undertaken by engineers and quantity surveyors, a situation that landscape architects from other European countries might find rather odd.

When designs become more concrete, OKRA tend more towards minimalism than to formalism or functionalism. Therefore their projects tend not to appear hugely expressive. The expression of a project should merely help to understand the con-

text. OKRA believe that public space should merely be a stage for the performance of everyday actions. It should support people's lives and facilitate a wide range of activities. OKRA never want to make the functional gestures too strong, since people cannot be made to conform to the designer's wishes. Through design, the landscape architect can, however, guide the public in a more natural and subtle way, by providing paved surfaces, technical details and furniture where appropriate. When a place is quieter, less bustling with people, the pleasant appearance of that space becomes more important. Therefore, OKRA's designers always consider the appearance of the project area at night, or in the poor weather conditions that are so common in the Netherlands, and take that into account when determining the materials.

Design development

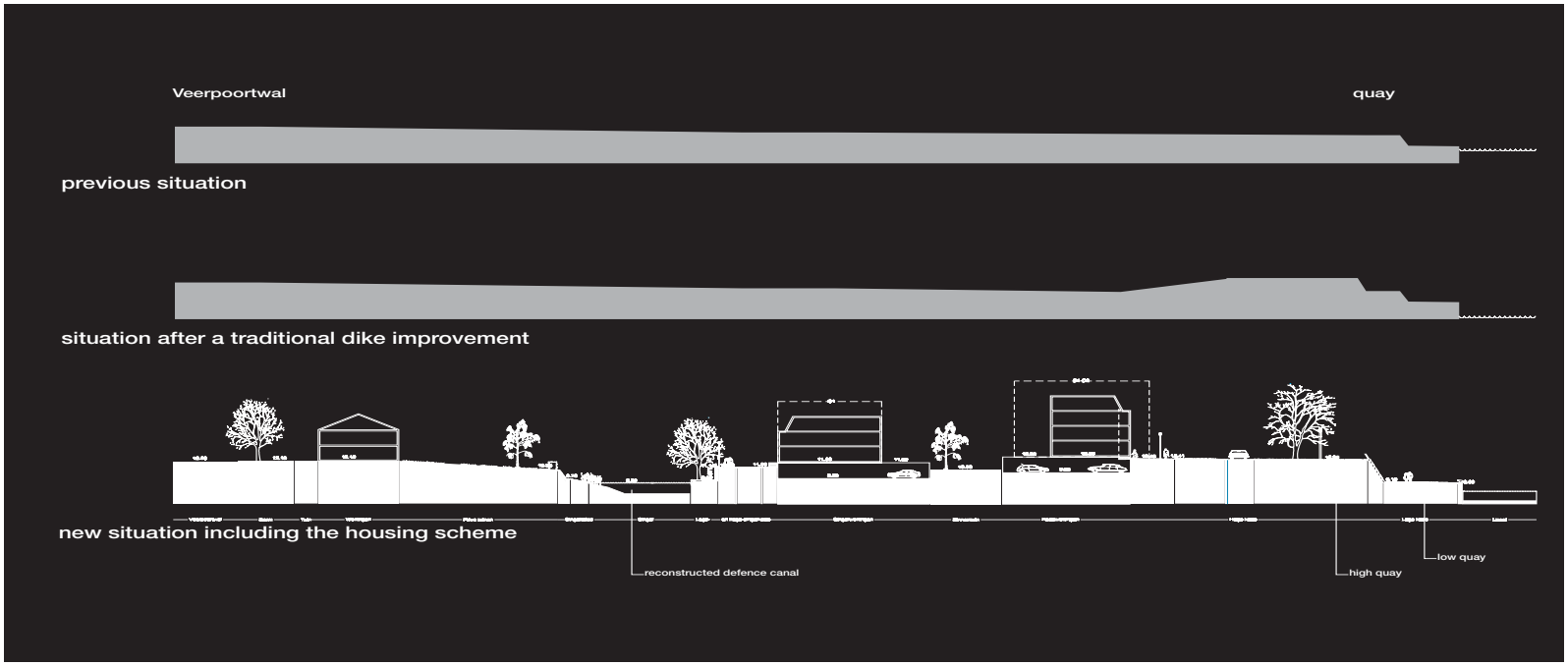
The waterfronts

The development will in fact lead to the creation of three separate waterfronts on the IJssel: besides the riverfront, there is also the canal along the former fortification. Like the IJssel quay itself, the inside and outside of the former moat will be treated as waterfronts in their own right.

Naturally, though, the main IJssel quay is distinguished by its exposure to the influences of the river. It also marks the meeting of water and town. First and foremost, it is a defence against the river, with the height of the quay being determined by that of the embankment – itself determined under the auspices of the *Deltawet Grote Rivieren* (the Rivers Act). In this part of the IJssel there is a considerable difference in water level – some 5m between the highest and lowest levels.

If the quay is to meet its full potential for liveliness, it should provide moorings for a wide range of vessels. It should also provide potential for long-term transformation, not only with regard to the properties that stand along it, but also to public open space.

In principle, the low quay is under the influence of the river. As it will sometimes be submerged, it



6.3
Cross-section of the IJssel and the town of Doesburg

contains nautical fixtures only, and is entirely free of street furniture. The high quay will always lie above the high-water mark, and will thus be in constant use.

Thanks to the difference in elevation between the old ground level and the new embankment, it will be simple to build car-parking space under the housing, thus keeping public space free of cars. The boundary between the high and low quay is defined by a slightly sloping wall topped with railings; both will be adapted to the scale of the river.

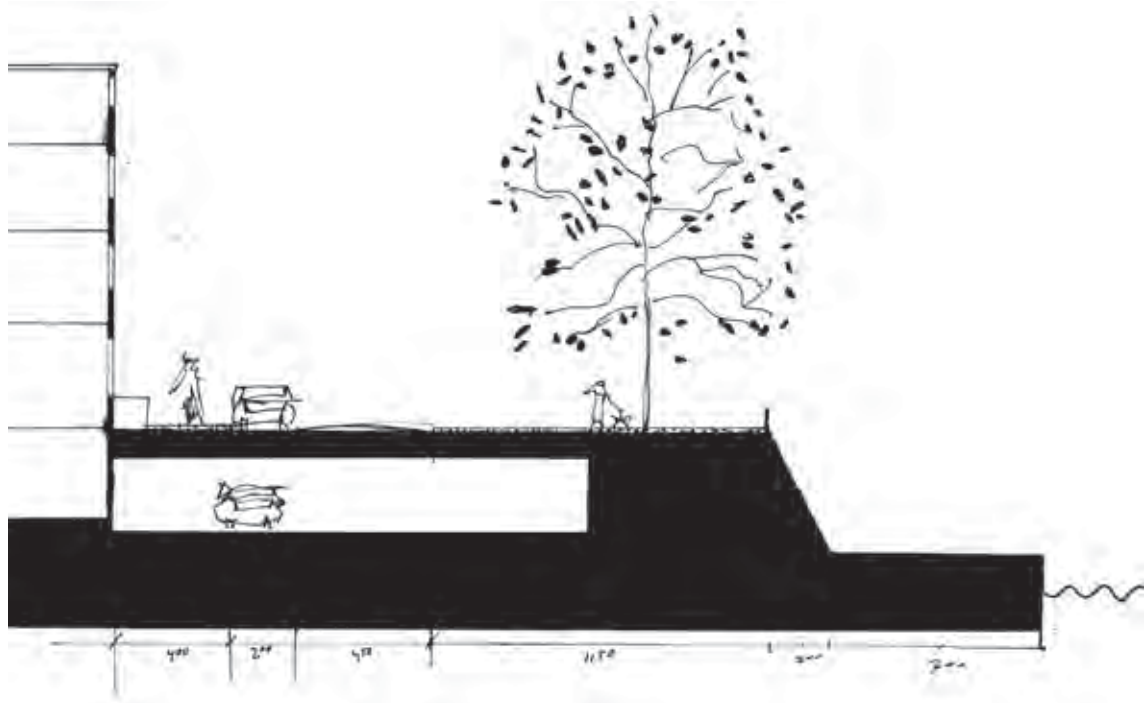
In the profile of the quay, the row of trees marks off the space close to the buildings on the higher quay, in contrast with the edge of the quay with its view over the river and the floodplains. At the same time, specific lines of sight are included in the various perspectives, such as the view towards the centre, with the tower of St Martin's as a landmark.

At the lower quay, the focus lies principally on the direct contact with the water. Because of the wall along the convex riverbank, it is not possible to stand on the long quay and view the totality of events along the river in a single glance. Moving along the river means that something new is constantly entering or leaving the field of vision.

As highlights, the quay will feature some striking elements. One will be a flight of grandstand steps; orientated towards the sun, and overlooking the harbour basin, these will provide a natural place to sit. Another will be the Doesburg Panorama, an observation tower built on a pontoon on the peninsula that is to be tackled at a later date.

On the town side, the various fragments of the canal that used to surround the town centre are joined again. On the side of the old rampart, the new canal is given a soft bank; on the side of the new riverfront, the bank is stony.

6.4
IJssel cross-section: promenade (raised level)
6.5
Photo: the materials of the lower quay



As on the river, there is also a high quay and a low quay, though in this case their significance will be very different, and their relative elevations are also closer. By lowering part of the narrow profile that runs along the houses, contact with the water is increased, and views onto the narrow watercourse are optimised.

Town and riverfront will be linked by three prominent routes, two of them leading along former dams planted with horse chestnuts. The various ponds will be connected by means of culverts under these dams. In the third route, an arched bridge will cross from the soft bank to the stony one.

The low river quay
The river is subject to great extremes: 5m difference between its high and low water levels. The design must therefore be capable of withstanding the current and everything it carries.

The low quay is an industrious place – representative like the high quay, but also functional and sturdy. Robust by design, it features the characteristic mooring bollards. In short, it is a quay that can take a lot of punishment, especially in winter, when it will be under water.

Like many other quays in the Netherlands, it is paved with a material that can be transported to the site by barge: Belgian cobblestones. This uneven paving provides a subtle contrast with the tautness of the river wall. The cobbles in question are second-hand stones from the quarry at Quenast – one of the softer materials, which over the years will produce a relatively flat surface. While reasonably comfortable for walkers, this is not the easiest paving to walk on. However, such aspects are subsidiary to the ambience the stones create on the high quay, their blue-grey tint the colour of a lowland river, fitting the palette selected for the materials overall: blue-grey, black and white.

Just like this material, the pointing will be irregular, though the stones are nonetheless made with a

a

b

6.6a, b

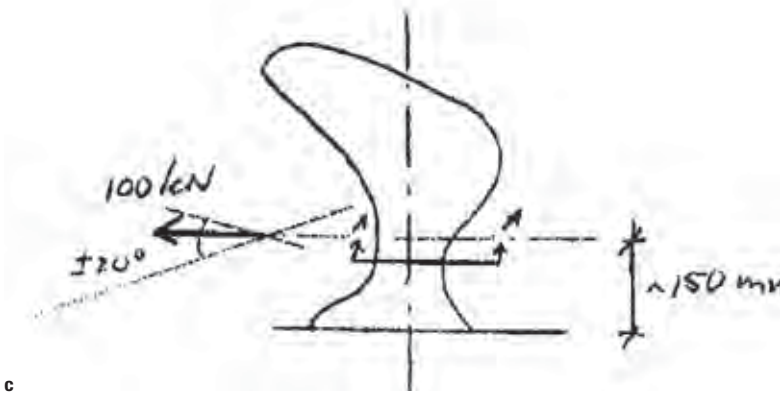
Mooring bollards, first sketches

6.6c

Mooring bollards, construction diagrams

6.6d, e

Mooring bollards, production drawings



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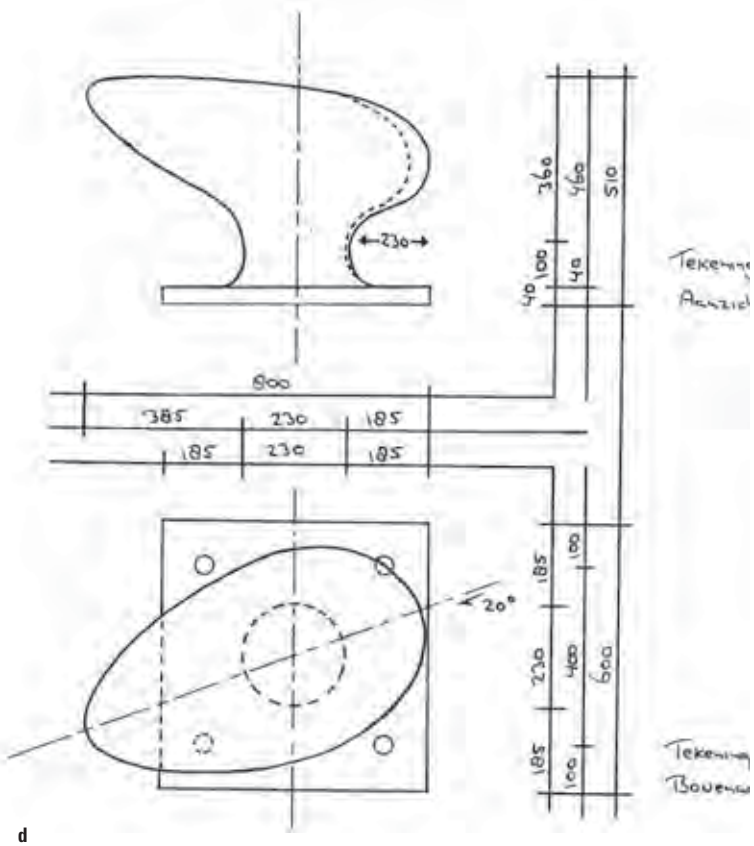

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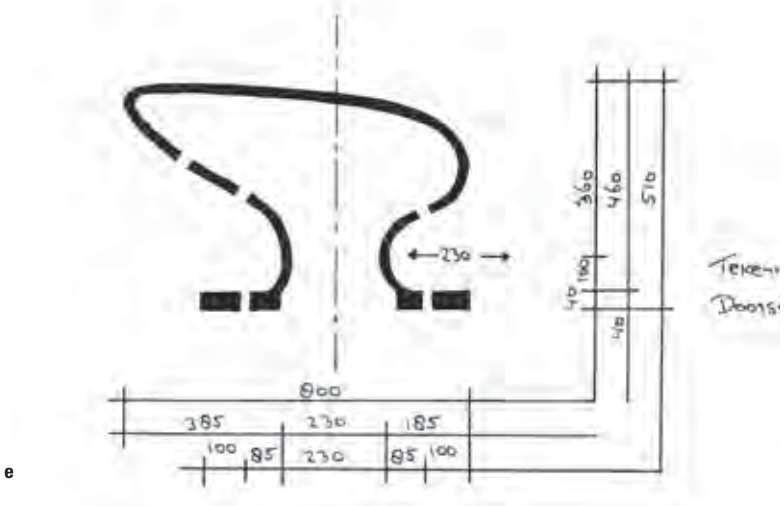


e

loose mortar. Despite the risk that this may be washed out by the current, the stones are not set in concrete: the site manager prefers to undertake new pointing work than the alternative, which is to repair frost-damaged concrete.

The furniture on the low quay is nautical. The bollards have sufficient tensile strength for mooring passenger and cargo vessels, tour boats, and occasionally such exceptional vessels as the Red Cross ship *J. Henry Dunant*. The bollards have been designed to be stronger than strictly necessary for the traffic in question; thanks to their extra size, they also provide passers-by with excellent incidental seating. The bolts with which they are fixed are weaker than the quay wall. It is better to accidentally have a bollard tipped into the water than damage to the wall itself.

These bollards have been prefabricated in a limited series of 20, each bollard and baseplate being cast in a single piece. Their black coating will enable them to withstand long periods under water. They are also fitted with shearing pins that will snap if a bollard is subjected to too high a tensile force. This will prevent damage to the sheet-piling of the quayside.

The high river quay

The high quay is an attractive quay lined with imposing houses. A row of trees divides the space upon it into two areas: one between these buildings and the promenade and one on the water's edge. Standing at a distance from the houses, these trees will be relatively transparent, thus ensuring both that residents derive maximum benefit from the wonderful views across the river, and also ensuring that the quay looks very different in summer than in winter.

Semi-hard paving beneath the trees provides plenty of suitable space for strollers. Nearer to the façades, overall appearances are stonier. Against the façade itself is a sidewalk that creates a transitional zone with stairs along the houses.

Constituting a green promenade along the river, the high quay provides a softer, greener counterpoint to the low quay. The area of housing lying behind it consists of a succession of blocks with enclosed gardens and a square.

The quay wall

First and foremost, the wall of the quay is intended to serve as a defence against the river. Because of the widely fluctuating water levels, construction work had to be completed in the shortest possible time. For functional reasons, it was decided to use prefabricated concrete elements for wall and steps alike. Behind this wall, the quay consists of a so-called 'theoretical dike profile', i.e. an earth body in

which no foundations may be built and no trees may be planted. Where steps break into the line of this wall, continuous piling has to be undertaken.

The wall that bridges the difference in height between the high and low quays is intended to be a real river wall, and should not evoke associations with a fortress. This explains why it has been built at a slight slope, why it is finished with grey vertical stripes, and also why it is topped not with a balustrade but with railings.

Inclined at an angle of 2.6:1, the quay wall consists of a piled retaining wall with two slopes of post-stressed elements. The underlying construction consists of piles driven into the riverbed at 70cm intervals, precisely between the anchors for the sheet-piling. To construct the retaining wall, a slab was cast onto the top of the piles.

Due to their shape, the elements – which are 4.5m high and 2m wide, with a projecting upper edge and a toe slab on the underside – were constructed on their sides. Post-stressed on site with 12.9mm-diameter FeP 1860 strands, they abut each other without any bonding material.

The quay wall has been faced in a random bond created with grey prefabricated strips in three different lengths, but with a consistent width of 20cms. These have been applied up to the level of the edge of the quay, which projects slightly. As the wall is subjected to such extreme conditions, the only option for creating the desired finish lay in bonding the strips to the wall. To ensure that they would not detach when submerged, atmospheric humidity had to lie below 70 per cent. In northern Europe, this situation can pertain only in daytime during the summer. The pace at which work could proceed was thus determined both by this and by the risk of high water levels in the river.

Designed by OKRA, the strips have a structured surface evocative of 'solidified water'. They are made of epoxy concrete sandblasted in the factory, but do not have an anti-graffiti coating, as this would affect the structure of the wall. Any graffiti will be removed by sandblasting.

The finish of the curving wall of the quay is accentuated by vertical lines: as you walk along the quay, the number of strips rises. These have been applied in a vertical pattern, an effect that is accentuated by narrow vertical joints and broad edge joints.

The refinement of the wall gives expression to its height relative to the fluctuating water levels. White slabs are a poetic expression of the high water; irregular stripes create a graphic representing the extremely high water levels of 1995.

6.7
The steps with small tread elements
6.8
The canal quay under construction

Future high water levels will also leave their mark, even if this is just a dark line along the wall. This, of course, is inherent to a quayside, part of which is submerged, and part of which remains dry. For this reason, no plans for cleaning the wall – and thus for effacing the traces of high water – have been included in the quayside management regime.

The grandstand steps create a prominent 70m break in the line of the quay, which is 450m in length. They consist of a prefabricated concrete stairway construction 4.15m in height, and are designed partly as a grandstand, partly as steps. Although they will usually be empty, they will fill up with people when there are festivities on the water.

As in the new residential area, it was a deliberate decision to leave the quay almost completely bare of furniture. Because usually there are not many users on the quay, it was decided to keep it as empty as possible. This idea is extended in the stairs – which thus become a grandstand – and also in the bollards (which will provide an obvious place to sit) and in the three very long benches on the high quay.

The stairway is placed on the white 40 x 40cm grandstands steps in the form of black 20 x 20cm treads. In one area it is continuous, but elsewhere fragmented. The overall composition is evocative of the keys of a piano.

On the top of the quay wall there are railings whose design was inspired by those on a ship. Their materials are also related to ships: cables, stainless steel and wood.

The balusters are inclined so as to follow the slope of the wall. They are conical in form, and thus taper. Containing welded sleeves through which the cables pass, they are made of grit-blasted stainless steel, and are thus more resistant to dirt.

Near the hotel, the balusters are higher and have been topped with a wooden rail, wide enough to support the elbows of anyone leaning on it to look over the river. This rail is made of bonded locust wood and is oiled against weathering.

The steel cables passing through the balusters have been tensioned with wire-stretchers at the pressure braces and tension braces, which will also allow for post-tensioning at a later date.

The promenade on the quay consists of white semi-hard paving, with elm trees planted just beyond the theoretical dike profile. The paving is a two-component type that develops a stable surface after mixing and rolling.

The high canal quay
The canal quay is much less open than the quay

along the IJssel. It is narrow, with trees planted on the low part. At 2.20m in height, the wall is a little higher than a man. A vertical wall spans the difference in elevation between the high quay and the lower one along the water.

The profile is narrow, comparable to that of an urban canal in the western Netherlands. The high quay is paved with black Dutch clinker bricks, with the edging along the house paved in stretcher bond. The steps to the house lie within this zone. Gently sloping ramps to the inner area and the ground floor entrance of the house are made on the inner side of the block, thus improving access for less able-bodied residents and visitors. The roadway is laid in herringbone bond, bordered by a double stretcher bond, with narrow gutters of the same width as the stretcher sections. The edge of the quayside contrasts with the paved area, which repeats the white semi-hard paving used on the high river quay.

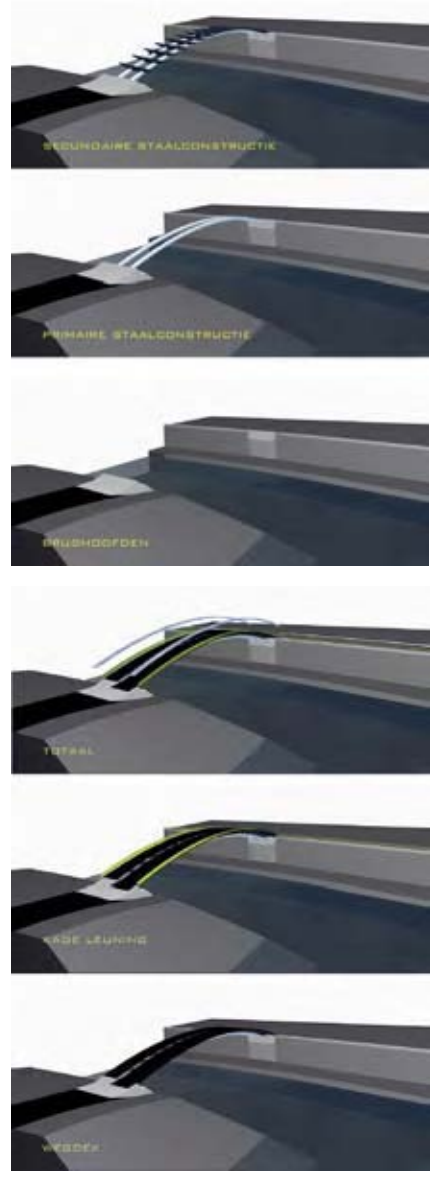
The high quay is lit. In consultation with the police, it was decided that the housing areas – and thus the high quay – would be very well lit. To avoid a false sense of security, however, the low quay is unlit. Thus, after dark, the high quay will be the safe route.

Along the canal, due to the limited space and the presence of trees on the other side, the lighting armatures are fixed to the houses. On the river quay, the lamp standards are spaced along the roadside at a sufficient distance from the trees, with the interplay of lights and trees creating a rhythm of their own. By the passageways through to the inner area, armatures of the same type are suspended from overhead wires – a subtle transition from the public area to the semi-public inner court.

The low canal quay

The wall of the quay along the canal is concave. In contrast with the river quay, it contains horizontal lines. It is faced in bricks of the so-called Hilversum format, an extra-long brick introduced in the 1920s by the Hilversum town architect, Dudok. Access to those who wish to walk directly along the waterside is provided by narrow steps and by an extra flight of steps enclosed in the quay wall. With its single span, the bridge over the canal connects the hard quay with the soft bank. The route along the low quay is continuous, even though, as with the river quay, it was decided to make the higher quay easier to walk on, and to make the extra route along the lower more adventurous. The quay is paved with Belgian cobbles of the same type as those used along the riverside.

The length of the quay and its limited width are also reflected in the details. To provide space for a narrow, obstacle-free path, the spaces in which the trees are planted are orientated longitudinally.



6.9
Design principles of the bridge

Trees species are chosen that can cope with to the wet conditions pertaining at the site. The trees are planted in a very shallow hole; in this way, it is hoped that the high water level will not cause the roots too many direct problems.

The bridge over the canal

The almost literal leap over the river between the old and new town will be made on an arched bridge for cyclists and pedestrians. This will be built on a supporting framework consisting of two arched tubes 18m in length. The construction consists of a deck, anchored to a framework of beams to reduce vibration. The railings along the quayside and the bridge will create a single unity, though both will be simpler than those along the riverside.

Evaluation

Doesburg is in fact a very small town on the River IJssel. The river and its dikes are out of scale in relation to the shape of the town. The project designed by OKRA landscape architects has answered the scale of the landscape and the river more than that of the town. The enormous amounts of water flooding between the dikes asked for solutions that were far beyond the scale of the tiny city. Several solutions were possible. The most usual solution in Dutch water engineering is one produced by a technical mind, not from the heart, one which does not take any notice of the context.

The way OKRA dealt with the problem was more typical of the approach in Dutch architecture. The first question the designer must ask is: For whom are we doing this? And then: What is the context we are working in? Of course, there was a technical problem to be addressed: How to protect the town of Doesburg against water? But for the designers it was more interesting to find a way to make this place recognisable and authentic. In this, OKRA succeeded very well. The place may be out of scale for the town, but it indicates *where* a town is situated along the river, and, more importantly, *which* town is situated in this location. There are a lot of places in Holland that are more or less similar to this situation, but *this* design story is unique.

The materials used feel like they were invented for this spot. It feels like being on a ship: sturdy and strong at the lower level, elegant and refined at the upper level. In fact, the designers used the same materials as the water engineers normally use, but by adding elements (prefabricated large scale tiles, stainless steel railing, etc.), the atmosphere became very specific. The constructed project is not just a place for big ships to moor or to load; it is also an important public space. The place will be used by inhabitants to enjoy the nice weather and to meet for gossip. On the other hand, it can be a very exciting place during stormy weather or in springtime when the water level in the river rises. Boulders and other elements relate to the flow of the river, but have been shaped for visitors who want to want to sit and reflect upon life while they gaze over the river and the landscape.

The OKRA project was designed in conjunction with a housing project, which is currently being realised. The dike and the new residential project really form a single coherent project. A section through this landscape really tells the story: the narrative of the river, the public place and the private spaces, the backyards; all is clear and comprehensible. Working in tandem with the town's urban planners, OKRA have realised a plan of which Doesburg can be proud. It has given the town a face. For the landscape architecture profession, the design is also significant, since it has proved that technical problems can be solved in an aesthetically pleasing way. In Holland, this has been proved in the past, but it is good to see that the tradition continues.

6.10
Map of the Netherlands showing Albrandswaard

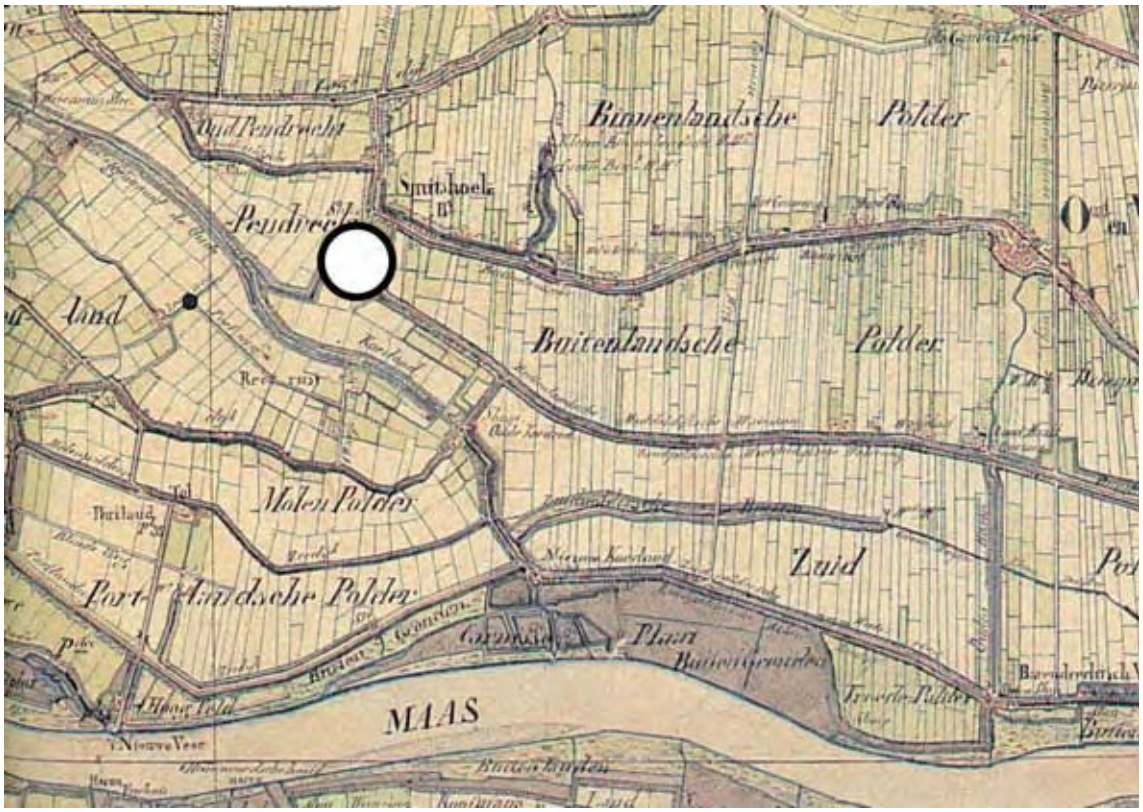
Case study
The Portland Neighbourhood Park, Albrandswaard

Project data

Project name:	Wijkpark Portland
Location:	Albrandswaard
Date completed:	Design process, 1999–2001
Construction:	The hill (roughly shaped) 2000–2002
	The park 2003–2004
	Art application 2005
	The pond 2007/2008
Cost:	1 million (excluding VAT and art application) cost level in 2000
Area:	5ha
Designer:	ad Koolen (ad koolen | advies en ontwerp)
Client:	Municipality of Albrandswaard

Overview

The Portland neighbourhood park is located in the municipality of Albrandswaard, to the south of Rotterdam. In the 1990s the government designated land (mostly farmland) on the outskirts of existing towns for the creation of the so-called VINEX housing estates. One of these, the Midden-IJsselmonde VINEX estate is being developed jointly by the municipalities of Albrandswaard and Barendrecht. Scheduled for completion by 2005, it will comprise approximately 10,000 housing units. The new neighbourhood contains two parks, one to the east and one to the west of the polder. Here the western park, Portland neighbourhood park, is described. The architecture of the new development lacks character, so the designers of the new community park have turned to the surrounding landscape for inspiration.



6.11
Map of the landscape in former days

Project history

There has been a structural housing shortage in the Netherlands ever since the Second World War. To meet the demand for good housing over the years, the government – particularly the Ministry of Housing, Spatial Planning and Environment – has developed a succession of housing policies. First, there were large estates bordering directly on towns (jerry-built post-war housing), then satellite towns, such as Houten (Utrecht), Zoetermeer (The Hague), Hoofddorp (Amsterdam) and Almere (Amsterdam). Attention then turned to urban renewal and in the 1990s to the so-called VINEX estates.

The various kinds of government policy have all been characterised by a large-scale project-based approach. Sometimes, as in the case of urban renewal, it was underlain by social considerations. At other times, as with post-war reconstruction and the satellite towns, it was guided purely by hard public housing figures. More recently, individual investors have had a particular influence on policy. The VINEX estate policies, developed in the 1990s, were intended to provide a total of 650,000 new homes before 2005, a scale of construction comparable to the post-war reconstruction period.

The VINEX concept is currently being criticised from all sides because of its large scale and uniformity of approach. Each VINEX estate has a designated area, a designated programme, a designated budget, a designated period for completion, and so forth. As Frits Palmboom, a well-known town planner in the Netherlands, has said, it resembles a military operation, something in which spontaneity and temporality are almost completely lacking.

After many years of planning and land acquisition, construction is currently in full swing. The estates have an average density of 40 housing units per

hectare, usually comprising 4,000 to 5,000 housing units overall.

The Portland VINEX estate is being constructed in a former agricultural area. As it is land which was once reclaimed from the sea, the subsoil is mainly clay. The area is characterised by dikes (usually with ashes and poplars growing on them), and also by large arable field plots and orchards with shelter-belts. The infrastructure of the area is situated on the dikes, whose height provides a unique experience of the landscape.

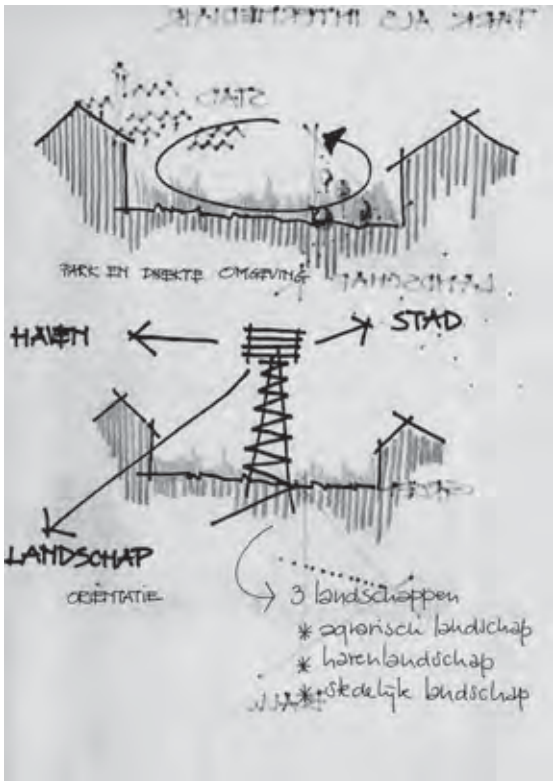
The southern side of the site is bounded by a minor river, the Koedood. In the urban development plan, this river will be widened considerably, and will form the principal axis for the estate, whose urban structure is characterised by a series of residential islands lying in the newly created body of water. Other elements of the landscape, such as former sea embankments, have been incorporated into the urban development plan.

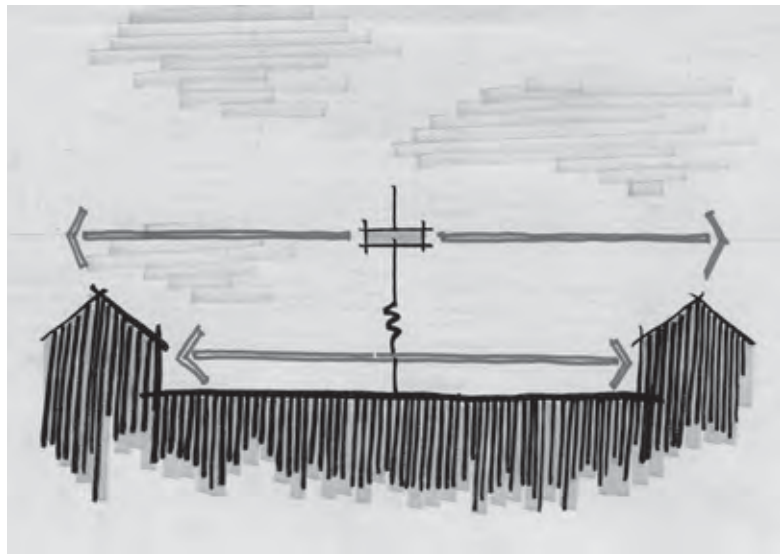
Design development

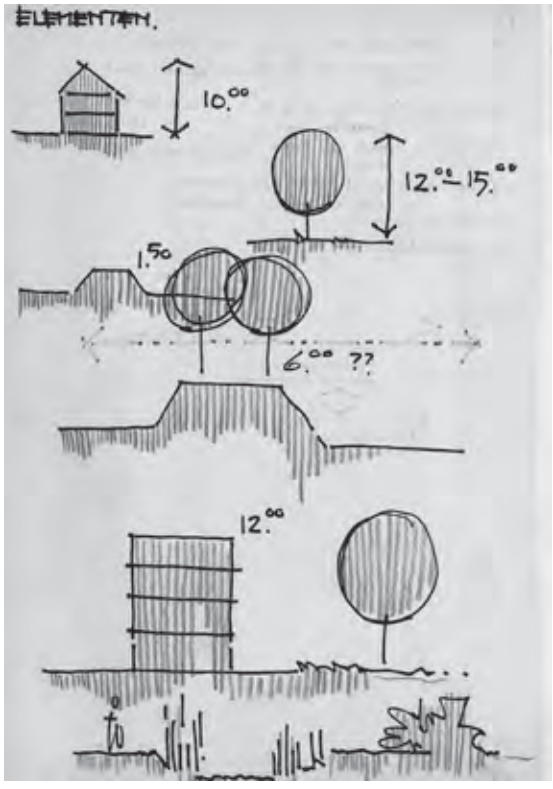
Because the neighbourhood's architecture had no uniquely specific features, these had to be sought in its surroundings – in other words, in the landscape. This is characterised by the succession and variety of images which unfold within a short distance: to the north-east, there is the urban landscape of Rotterdam with its high-rise buildings; to the north-west, there is the awe-inspiring scale of the docklands area, with its terminals, oil storage and shipping; and to the south there is farmland, with its dikes, orchards and large fields of brassicas.

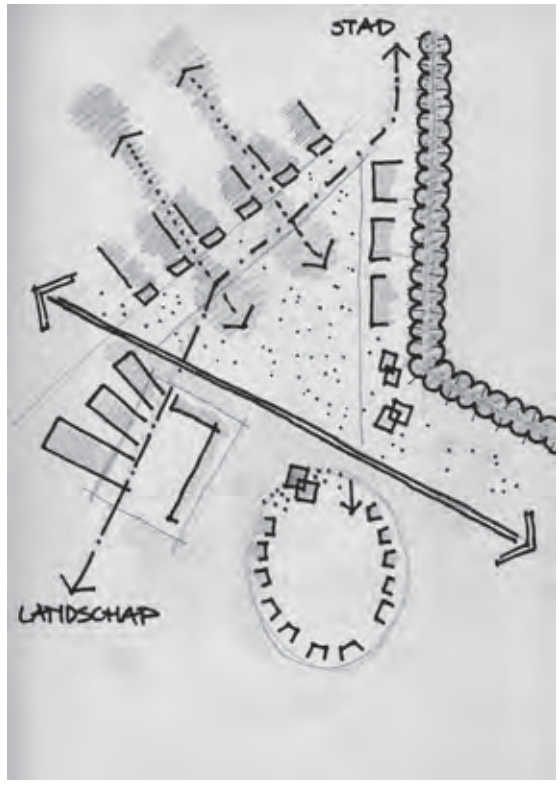
The Portland neighbourhood park is situated amid the kind of housing that typifies a VINEX estate: mainly two-floor buildings with a pitched roof. The park incorporates characteristics of the surrounding area, not by bringing features of the surroundings into the park, but literally by making the surroundings visible. A 10m hill has been raised in the park. Because most of the houses are only 9m in height, it is possible to see the surrounding landscapes over the rooftops.

The neighbourhood park is laid out in a triangle, and contains the hill – itself an offset triangle – with a variety of elements placed around it, such as an urban farm, a playing field and an area for sitting. All these elements are geometric in form: oval, square, oblong or round.









6.12a

The discovery of three landscapes: the city, the harbour and the country

6.12b

Two spaces

6.12c

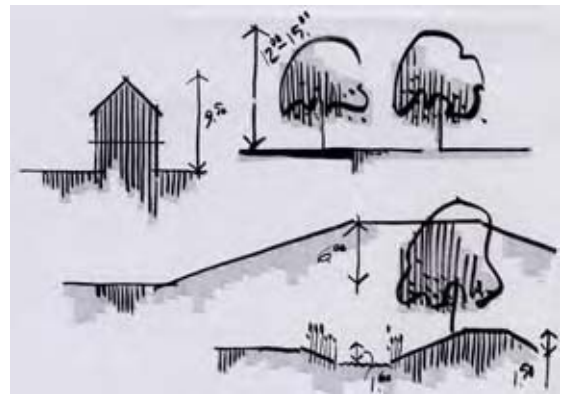
Elements in the environment

6.12d

The park and its surroundings

6.13a
Art on top of the hill
6.13b
Measures in the neighbourhood
6.13c
Detail of the entry to the hill (plan)
6.13d
Detail of the entry to the hill (sketch)
6.13e
Paths to climb the hill
6.13f
Kerbs and seats

a



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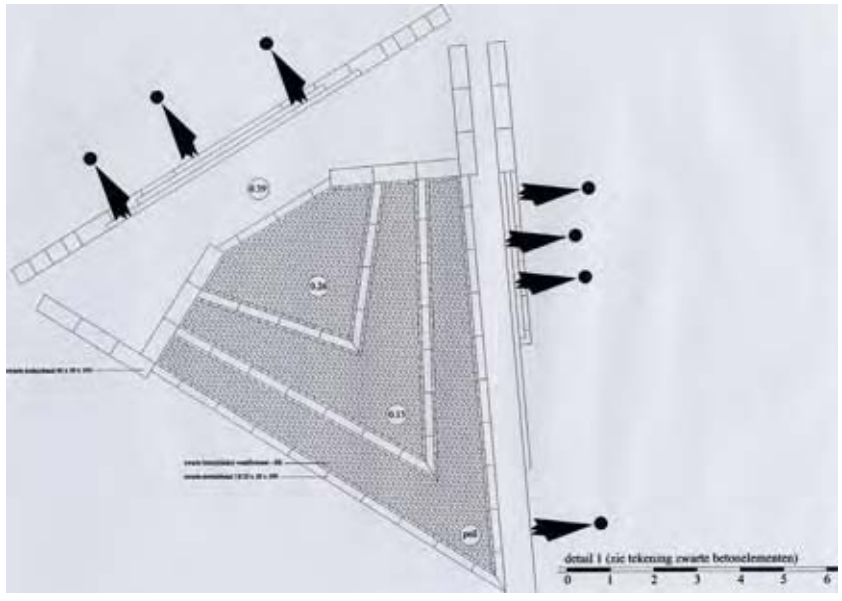

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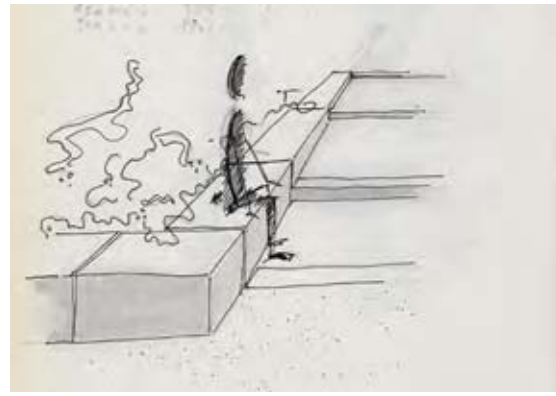

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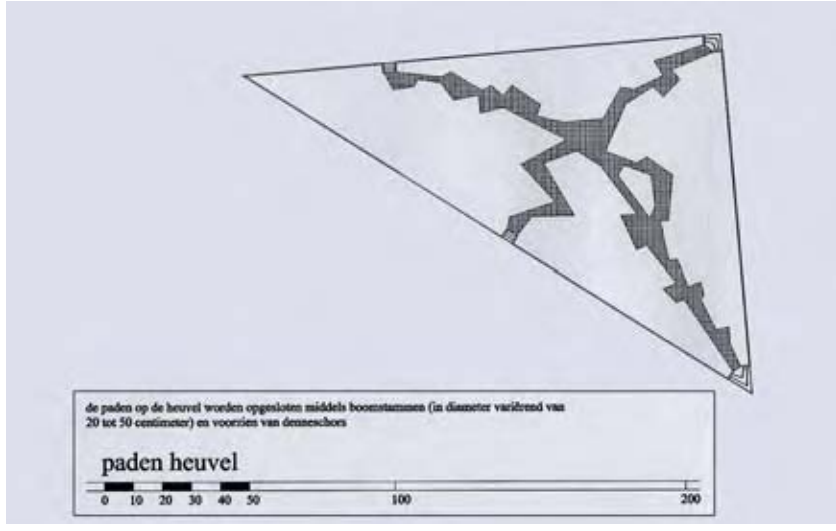

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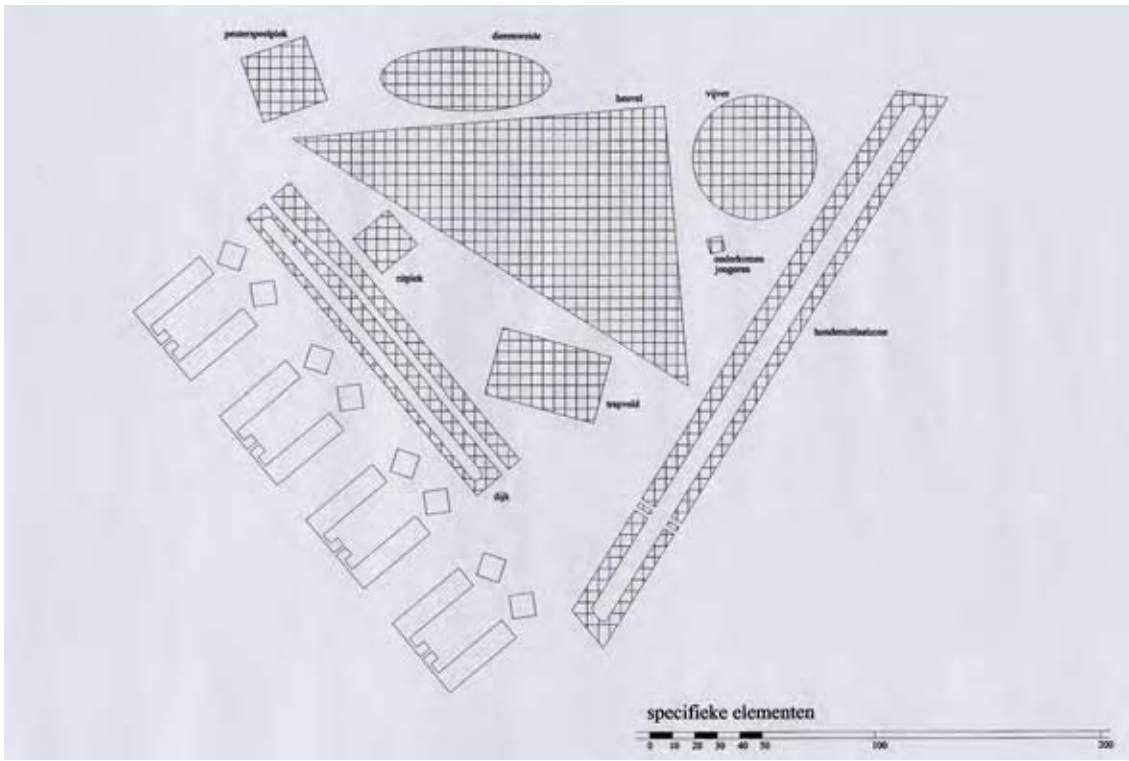
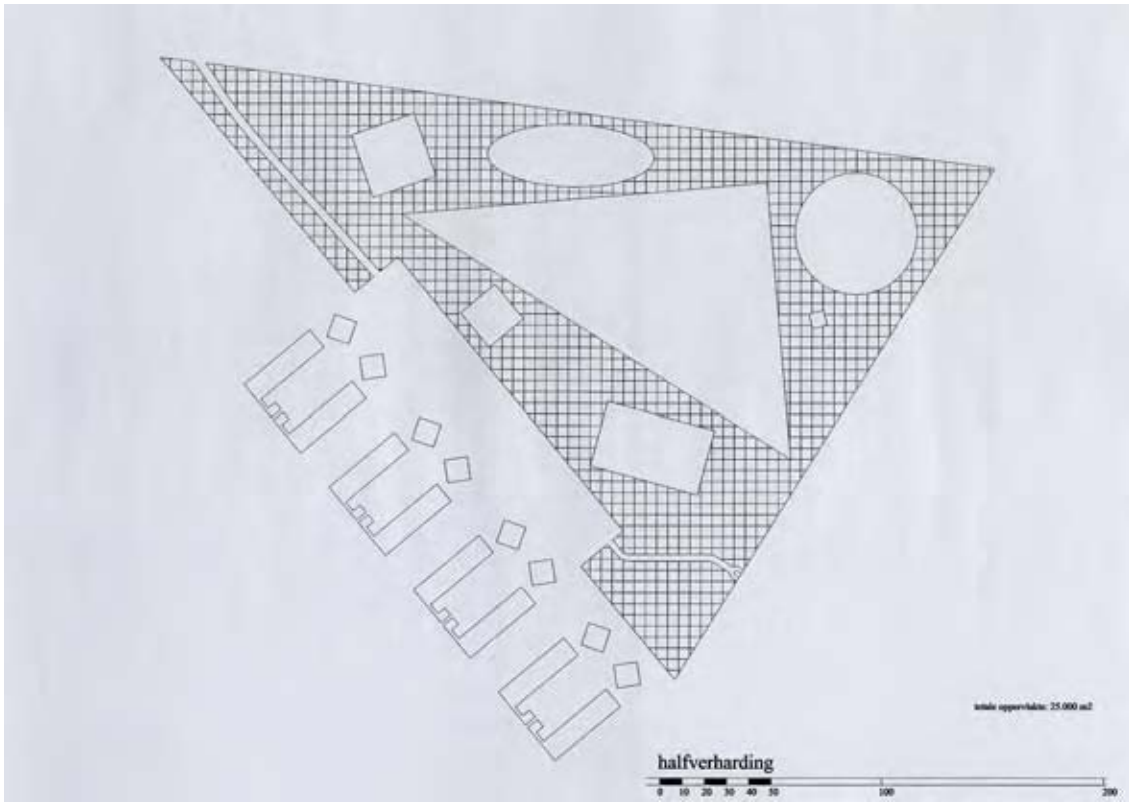
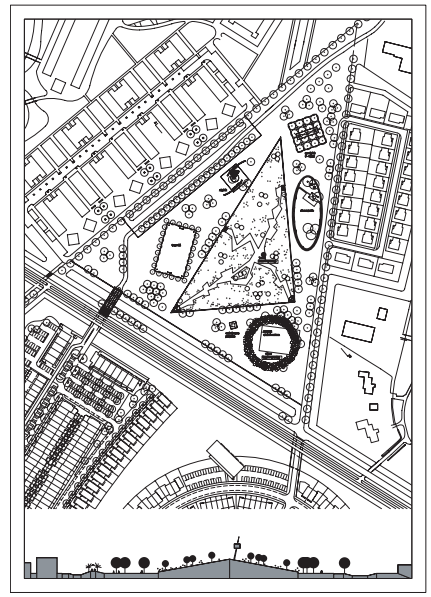






6.14

The park and its different functions

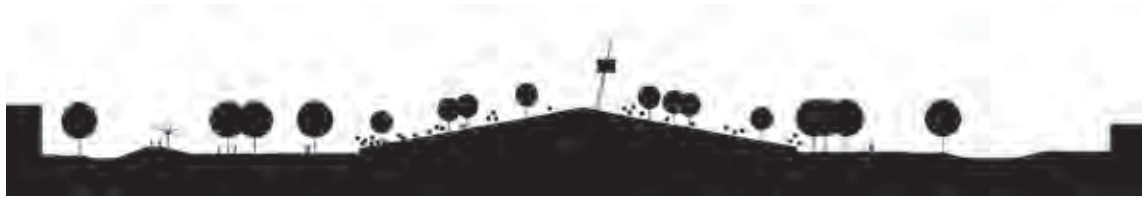
6.15

Map of the park

6.16

Roadmetal shells

6.17
Cross-section



Because the hill has been positioned in the middle of this relatively small park, there is no point from which the whole project can be seen at once. This makes the idea of a walk through the park very attractive. Subsidiary spaces have been created by the mass of the hill, in which spatial units with a particular function have been placed, such as a dog-walking area, a playing field and a 'hangout' for young people.

The park covers nearly 5ha. In principle, it has a loose shell paving throughout, in which holes have been made in various shapes, such as triangles, squares, circles and ovals. These elements take up roughly half of the total surface, so that the shell paving covers a surface of approximately 2.5ha.

The diversity of materials has deliberately been kept to a minimum. The 'islands' in the sea of shells have all been edged with black 07/20 x 20 x 100cm concrete strips. Heavy black concrete 200 x 50 x 40cm kerbing strips are laid around the hill. Where paving other than the shells has been used, black concrete paving blocks (20 x 10 x 10cms) have been laid. Designated seating (i.e. benches) has been used only sporadically. Thanks to its design, the edge of the hill in fact constitutes one huge bench.

The park's primary lighting has been limited to the bicycle path running through the park. However, other lighting has been used to accentuate specific aspects and ambiences of the park at night. In other words, lighting has been used more to accentuate aspects of the design than to provide functional lighting.

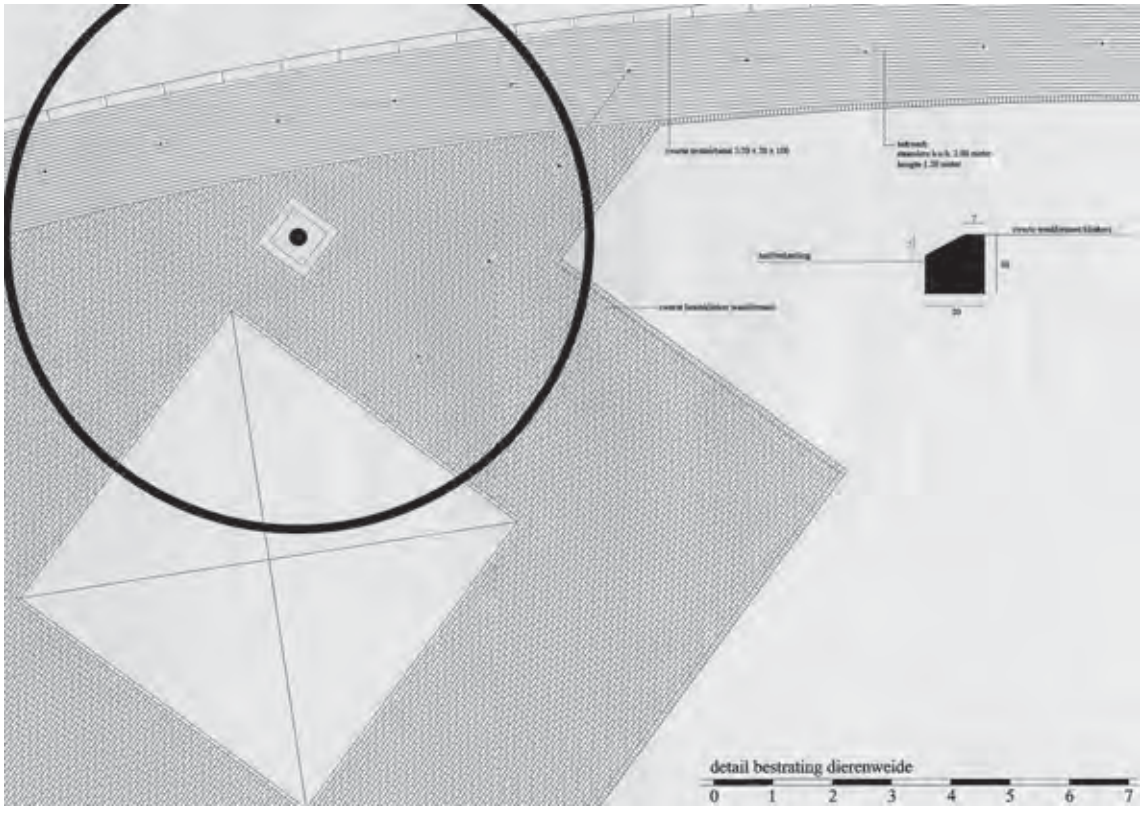
Hill with artwork

The most eye-catching feature of the park is the hill, whose 10m-high mass gives it a prominent presence. The base of the hill is triangular, a shape that is shown clearly by the high black concrete kerbing blocks, which are 0.5m high, 0.4m wide and 2m long. In total, they create a kerb nearly 500m in length, which implicitly provides a huge amount of seating. At four points little flights of steps enable visitors to climb onto the surrounding concrete kerb, and thus to climb the hill.

At some point in the future, an artwork by Nico de Wit will be installed on the hill. This will fully capitalise upon the site and the design philosophy of the park as a whole. On top of the hill, well above the highest point, he has created a balcony from which the surrounding landscape can be surveyed to even better effect.

The urban farm

An urban farm has been sited on the east side of the park. The construction of several more houses on this side of the park will guarantee control – social and otherwise – of the various comings and goings there. The



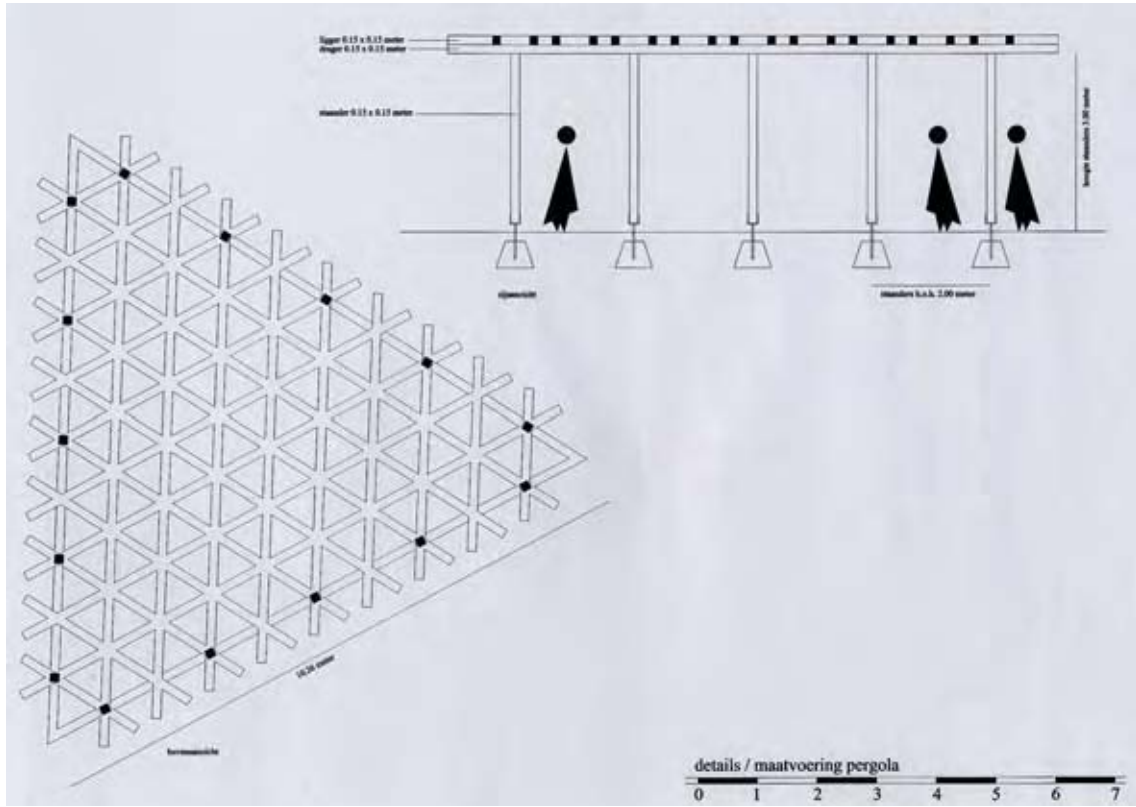
61.8a
The making of the animal house
6.18b
Detail of the animal house
6.18c
Surfacing plan for the area around the animal house

farm is laid out upon an oval, its periphery marked by a 2m-wide kerb of black paving blocks, in the middle of which there is a fence 1.2m in height. This enables visitors to reach the meadow easily, while ensuring that the animals (ducks, a sheep, a goat, a calf, etc.) do not trample the meadow on the other side of the fence. The oval is accessible to visitors on one side. This area is paved and contains two picnic tables.

The building for the animals has a ground plan measuring 6.0 x 6.0m, and is built on two storeys. The top storey is used for storing hay and straw. Half of the ground floor is used as sleeping and winter quarters for the animals, while the other part is occupied by fodder storage, a toilet, stairs to the hay loft, and a space for the volunteers who work at the farm.

6.19a

Plan and section of the pergola



Playground for small children

A playground for small children is situated in the northern part of the park, an area chosen for its proximity to the farm, as both places attract the same public. The playground is a green oasis within the park. It contains various items of simple playground equipment, meant mainly for children between the ages of two and four. An extra accent is provided by brightly coloured surfaces. To allow for longer stays, for instance, when a children's party is combined with a visit to the urban farm, two picnic tables have been provided.

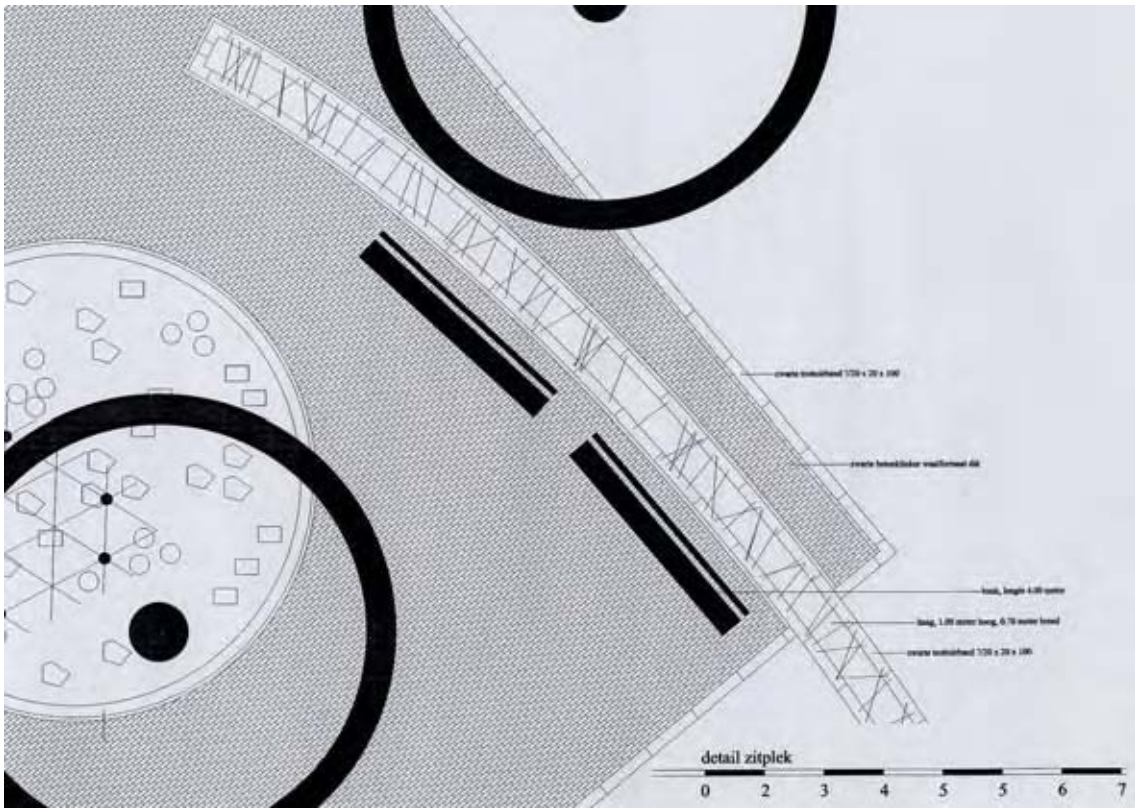
Seating areas

As stated above, the concrete kerb around the hill and the concrete edge around the dog-walking area provide ample seating. A more conventional sitting space is provided on the other side – the western side – of the hill. The space, a square plateau, is characterised by specially designed benches, a circular herbaceous plant bed, a triangular pergola and oval hedges, all smaller-scale echoes of the park's overall design.

The pergola was designed especially for this site. Its basic triangular shape is repeated in the division of the 'roof', which creates an interesting interplay of shadows on the paving. Although construction costs meant that the posts are square rather than triangular, the overall effect has not been compromised.

The playing field

The playing field lies at a good distance from the sitting area, and is slightly separated from the residential buildings by an embankment. It owes its spatial visibility to a row of poplars – a common feature of this former polder landscape, where they are used as windbreaks around orchards. Compositional balance is provided by the black concrete strips that border the playing field and the poplars.



6.19b

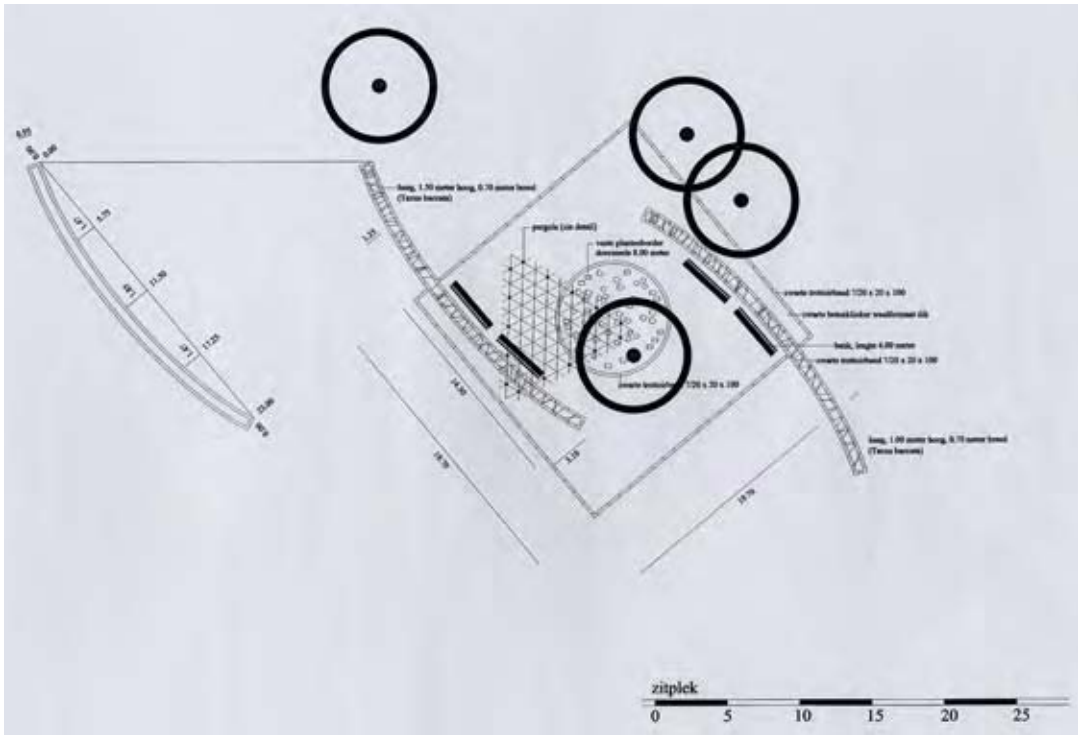
Detail plan of seating arrangement

6.19c

Detail of the pergola

6.19d

Plan showing pergola and seating arrangement



6.20
The construction of the border of the soccer field

Goalposts and goals for the playing field were designed to harmonise with the design of the rest of the park. The goals are made of rectangular blocks of black concrete into which holes have been punched, hopefully inviting the invention of new games. The corner posts are also made of black concrete; 3m in height, they are also very prominent.

The hangout
Situated on the south side of the hill is a black concrete cubic element, which, with four closed sides (the bottom, top and two sides), provides shelter from the rain. Along one of its walls is a bench 2.5m in length. This provides a pleasant meeting place for young people, without giving others a feeling of insecurity. Though the cube can clearly be seen by park visitors, the number of empty drink cans suggests that the young people who use it feel secure there. In other words, we can conclude that the place is functioning as planned.

The pond
Currently, the south-east corner of the park is occupied by a shopping centre. In the near future, however, this temporary supermarket will be replaced by permanent neighbourhood shopping facilities elsewhere on the estate. A large, round pond will be dug on the site. The body of water will be 39m in diameter. The bank around it will be 8m wide, and will consist of loose basalt blocks. The pond's round shape and black colour will ensure that it fits in with the other elements in the park.

The dog-walking area
The south side of the park is marked by a broad watercourse (water-line 8.5m) which is essential for the local water management. On its northern side, there is a terraced embankment with a 3.5m slope and a vertical of 3m. All of it has been sown to grass; its northern side has also been edged with the same black concrete kerbs that edge the hill. These have a height of 0.5m, a width of 0.4m and a length of 2.0m. In this way the park has been defined in a very natural way, simultaneously creating another huge length of sitting space and a strip where dogs can be walked without causing nuisance to other park visitors.

Planting
The park has been planted sparingly, but in a well-considered fashion. The whole hill has been planted with *Hedera helix*. Within several years this will have grown into a close covering which will accentuate the hill's distinct design.

Several clumps of shrubs (such as *Philadelphus* 'Belle Etoile' and *Buddleia davidii* 'Ile de France') have also been planted on the hill, along with approximately 2,000 daffodil bulbs that will herald each new spring with an explosion of colour.

6.21a

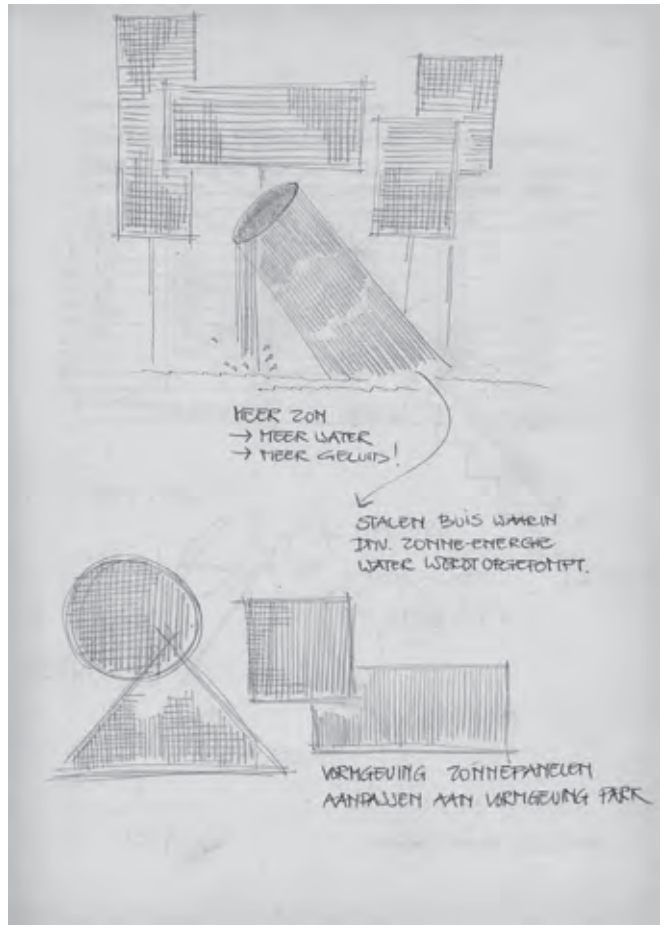
Design sketch: at the border of the pond

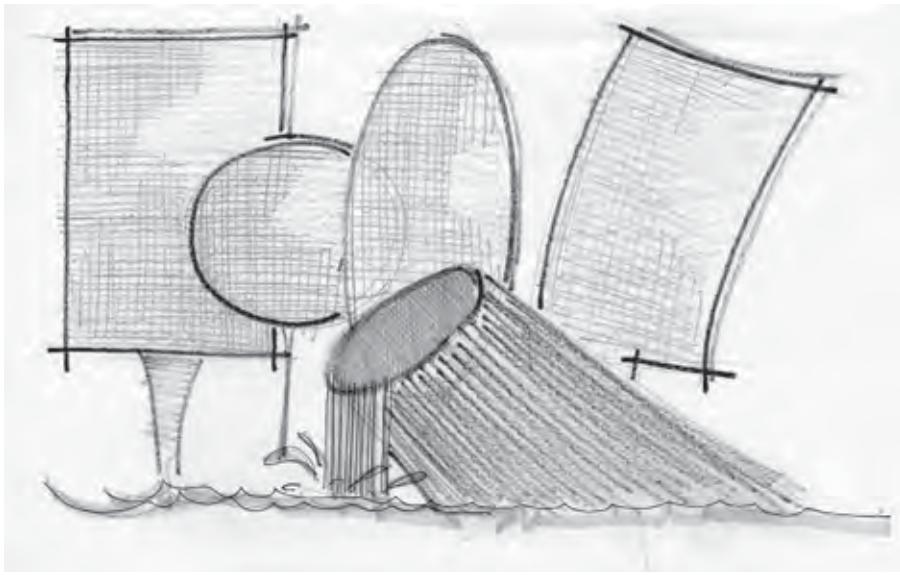
6.21b

Design sketch: sun panels in the pond

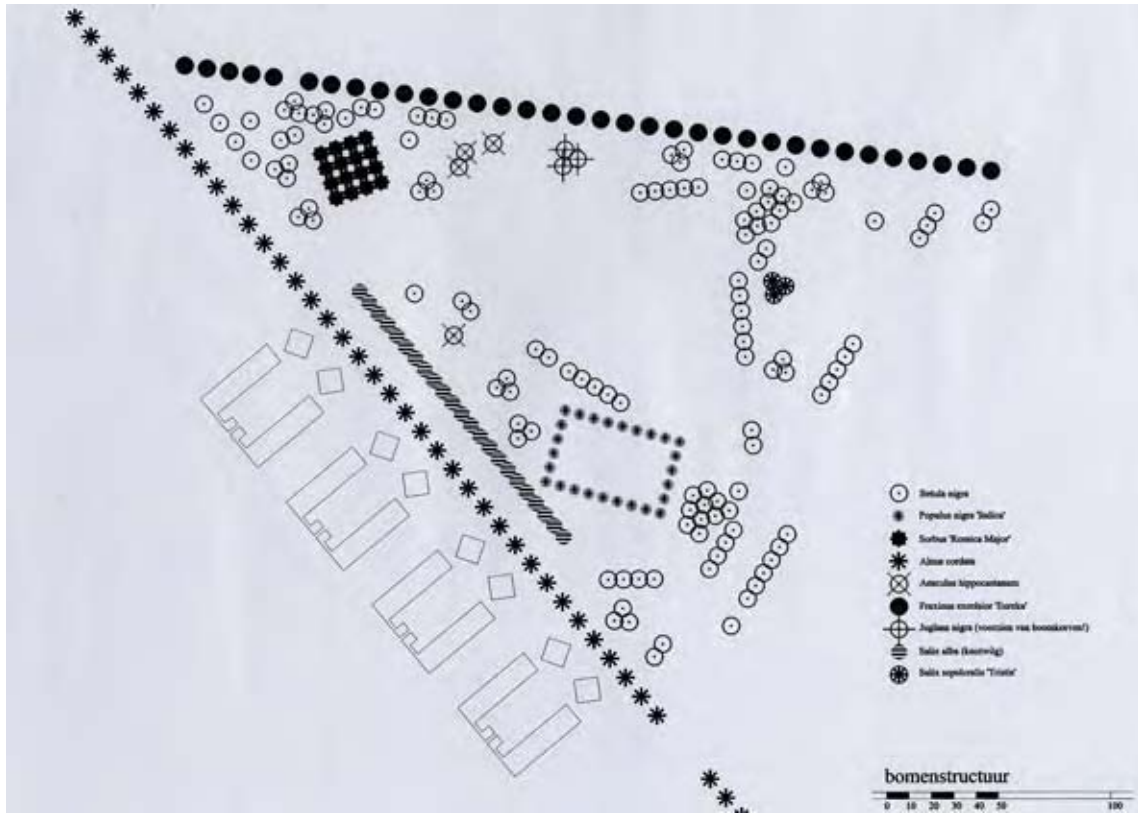
6.21c

Design sketch: sun panels as art collections in the pond





6.22a
Plan showing structure of tree planting
6.22b
Photo: the construction of the road surface



The western side of the park is marked by a line of trees (*Alnus cordata*) that continues into the residential area. While the eastern side is marked by ashes (*Fraxinus excelsior* 'Eureka'), the other trees in the park are birches (*Betula nigra*). The various elements have been planted with specific trees, such as *Juglans nigra* by the urban farm, *Salix sepulcralis* 'Tristis' by the pond and *Populus nigra* 'Italica' around the playing field.

Evaluation

The spatial framework of the park is a very strong one. The designer's intention was that the triangular hill would organise the other geometrical elements of the park. In a low-density residential area such as this, a park has to create its own structure. The surroundings lack vertical interest. To give the park a big, strong, structuring element was a good intervention. It makes the park recognisable, and the hill invites visitors to climb to the top, from where there are panoramic views to be enjoyed. The accessible sculpture accentuates the hill as the highpoint and highlight of the park. It provides a new perspective on the surrounding landscape and, in this respect, the concept of the park and of the artwork reinforce one another.

The choice of materials provides a clear contrast between the hill, the surrounding area and the site-specific elements. The hill, planted with *Hedera helix*, is a green, three-dimensional object, which is

much stronger in form than a group of trees would have been. The surrounding light-coloured gravel provides a neutral background for the more expressive and richly detailed elements of the park.

The design of the park has been conceived as a single strong spatial framework. The construction was carried out in one phase. During the development process of the whole residential district the economic climate changed dramatically. The construction period for the houses stretched out over a much longer time-span than expected. The area surrounding the new park is still something of a building site, even though the park itself was completed in 2004.

Because of these changing circumstances, the park is not yet intensively used. And because of this low intensity of use, there is not sufficient social control, which has led to vandalism, compounded by problems of imperfect maintenance. Special elements that refine the design such as floor lights are subject to vandalism and take a long time to get repaired. The quality of the design lies in the fact that these delicate elements are not essential to the general impression that the park makes.

All in all, the park combines a number of functions and elements, well organised but informal. The generous scale of space makes it a welcome addition to the small gardens of the private houses. Its layout has a good balance between logical composition and spatial tension and this makes it an attractive park.

Spain

Marti Franch

Landscape architecture in Spain

It is difficult to summarise the landscape design tradition in Spain, although everyone might agree that a new approach or 'tradition' in public space design started in the democratic municipalities in the early 1980s. During four decades of grey Franco dictatorship, open public space had been completely neglected. With the advent of freedom, street events, such as concerts, markets and street parades, emerged instinctively. It became obvious that recovering public open space, as the ultimate space for coexistence and democracy, was an important issue. 'The city is only the public space, the rest is houses and private condominiums, wrote Oriol Bohigas, the head of Barcelona's planning department. In this social context, a new approach to urban planning and public open space design started. Squares, parks, 'rambles' and gardens were created or renovated in every town quarter. The hope was that this public intervention would unlock the regeneration of the surrounding urban fabric by private investors. It worked.

With very little landscape design background at all, the architects of the 1980s had been trained mostly to make residential housing schemes, and approached this new sort of 'open space' assignment rather in the manner of interior designers. The combination of political will and general enthusiasm, in the face of a daunting amount of work to be done, seeded the ground for a new vocabulary of open space design. As in designing a house, the definition of limits, study of materials and a special concern for detailing at the small scale, emerged as priorities. Eventually new principles – clear modern forms, design through abstract concepts instead of lyrical references, attention to details and innovation in materials, care in the choice of furniture and lighting, as well as a little understanding of plants and soft works as a design tool – created a new movement that quickly gained followers.

Design has slowly evolved; gradually agronomists, biologists and landscape architects have joined the architects in the task of designing open space and more complex and interesting schemes are now emerging. Those responsible for smaller towns, peripheries, villages, and finally for natural and rural areas have also incorporated landscape design in their agendas and there is a growing number of projects emerging in these locations.

There are many examples of this newly born tradition all over the country; some have passed the '10 years test', while others have proved to be mere drawing-board exercises. Although open space is now clearly understood to be an essential part of our cities, and there exists a growing sensitivity for landscape matters, landscape planning, especially at the regional scale, is an almost unexplored field

7.1
Panoramic view of the JBB shortly after the 1999 inauguration

in Spain. There have been a number of interesting initiatives, carried out mostly by the University, that have sunk in the ocean of political lack of will. Looking at the European scale, one might say that our 'new' landscape design tradition still has space for experimentation and a lot to learn from our neighbours.

Professionally a Masters Programme in Landscape Architecture started at Barcelona's Architecture School in 1983–84 which trained some of the most talented professionals now practising in this field. The long-awaited Landscape Architecture Degree finally started in the same school in 1998–99, without being recognised by the government, and the first students have just now graduated. Madrid University, similarly, has a new degree programme which started in 2003.

Case study
Jardí Botànic de Barcelona (JBB)

Project data

Project name:	Jardí Botànic de Barcelona
Location:	Barcelona
Date completed:	1999 – under plantation
Cost:	6.061.206 euros. 50.50 euros/m^2
Maintenance:	360.000 euros/year
Area:	14ha (12 constructed)
Botanical consultants:	Dr Joan Pedrola, botanist, Dr Josep M. Montserrat, botanist
Designers:	Carlos Ferrater, architect, Bet Figueras, landscape architect,
	Jose Luis Canosa, architect
Works direction:	Carlos Ferrater, architect
Construction management:	Fernando Benedicto, technical architect
Planting plan scheme:	Artur Bossy, horticultural specialist
Post-inauguration plantings:	Núria Membrives, botanist
Garden technical coordinator:	Jaume Pàmies, agronomist
Client:	Ajuntament de Barcelona

Overview
Barcelona's new Botanical Garden (JBB) is a happy example of the best of that city's school of public space design. Yet it has some features that make the project stand out from others: a newish approach to planting, which escapes from drawing-board exercises and incorporates ecological criteria such as phytosociology and morphologic evolutionary convergence; a special sensitivity in working with the site's topography; a clever infrastructure layout that allows the project to grow in a very flexible and creative way, while keeping it coherent as a whole; a Spartan detailing that establishes a strong tension with the growing vegetation; and finally, a richness in perceptions of scale.

Paradoxically, the Jardí Botànic de Barcelona looks more like a landscape than a garden. Lyrical garden vocabulary has been replaced here by a sort of extensive, ever-changing vegetal texture, which creates a subtle tension with the elements of static infrastructure. For the future, one visualises it as a sort of changing *machia* landscape, as if taken from an Impressionist painting.

'All the Mediterranean in the world' is the motto of the new Botanical Garden of Barcelona. It displays the vegetation found in those regions of the world with Mediterranean climates: the Mediterranean basin, southern Australia, California, central Chile and the tip of South Africa. Opened in 1999, on the basis of an initial planting, it is currently at the development stage.

JBB introduces an innovative approach to botanical gardens; instead of presenting its plant collection by taxonomical order, it does so by rendering diverse vegetal landscapes from Mediterranean climatic regions worldwide. Plants are distributed according to their place of origin and are grouped by ecological affinity into 71 phytoepisodes, or artificial reconstructions of the plant communities characteristic of particular landscapes.

The spatial strategy used to structure the garden collections is a triangulation grid, inspired by surveying techniques. The irregular triangular grid becomes the basis for a hierarchical path system that determines the major planting plots, divides these plots into smaller units, and makes them accessible. The resulting extensive plot system allows for a very flexible and creative planning of the phytoepisodes.

Formally, the design appears as a whole, where themes from the grand scale are echoed on the smaller scale. The fractal geometry of the triangulation plan is reinterpreted at the smaller scale, in the zigzagging, faceted layout of the path system, in the pavement, which is divided into small trapezoidal shapes, and in the 'broken' volumes of the entrance building.

Two basic materials with an untreated finish – in-situ concrete and corten steel – were chosen for the hardworks, the extensive path infrastructure and the buildings which provide identity and continuity to the garden. A strong contrast and dynamic tension are set up between the sharp formality and materiality of the paths and walls and the 'naturally' evolving plantations, wild and apparently anarchic.

When strolling through the winding paths of the garden, one has the feeling that one simultaneously experiences four different scales of perception: (1) a city scale, now and then providing open views to Barcelona's skyline; (2) a project scale, punctuated by overall views of the garden from strategic points; (3) a one-to-one scale, when one is looking at the different phytoepisodes, which convey the mind to Australian or South African landscapes; and finally (4) an intimate scale, when one completely withdraws from the outside world and is lost in the contemplation of a flowering *Banksia* or is transported by the smell of a *Spartium junceum.*

Project history

JBB is located on the northern slopes of the hill of Montjuïc, next to the Olympic Stadium. The terrain resembles an amphitheatre facing south-west, with overwhelming views toward the Barcelona skyline. The garden is at an altitude of 150m above sea level and the topography is difficult, with slopes of up to 30 per cent with a difference of 50m between the highest and lowest points. It has a mild Mediterranean climate and it receives moisture from the sea, which condenses in the shade of the hill.

The soil horizons have very uneven properties and depths. According to a geotechnical study, approximately 50 per cent of the JBB surface was a former rubbish dump with deposits up to 20m deep in some areas, whereas much of the rest of the ground is stony.

The site used to be a sort of suburban pine forest until the 1960s, when it became an informal shanty quarter for migrants from southern Spain. In the gestation period for Barcelona's 1992 Olympics Games, Montjuïc Mountain became one of the epicentres of the city's transformation. In 1986 the municipality commissioned the Botanical Institute of Barcelona to make a plan for its future and for its 1930s Botanical Garden, which was affected by the Olympic Ring works. At that time, the idea of looking for a new location for the Botanical Garden was raised, and a 17ha site was assigned just behind the Olympic Stadium. An international 'Ideas Competition' was held in 1988. The winning entry by Ferrater, Figueras, Pedrola, Bossy and Canosa was announced in 1989.

In 1994, a detailed scheme proposal was commissioned and an application for European Union funding was requested, on the grounds that the new Botanical Garden was to be built on top of a former rubbish dump. The European funding was granted in 1997. The detailed Masterplan, including civil works as well as an overall planting scheme, was presented in October 1997 under the title 'Recovery of an Urban Solid Rubbish Dump into Barcelona's Botanical Garden'. The engineering works started in December of the same year.

The official inauguration date was fixed for April 1999. Within a 17-month working period it was not economically or logistically possible to implement all the planting envisioned in the Masterplan, and it also proved difficult to obtain many of the target species. For this reason a new competition was established for an initial planting scheme. The objectives behind the inaugural planting scheme were to provide a first impression of the future

7.2

Plan 'as built', showing infrastructure: buildings, path system, walls and (in dashed lines) the main drainage lines

7.3

Photo: the site before it was planted

7.4

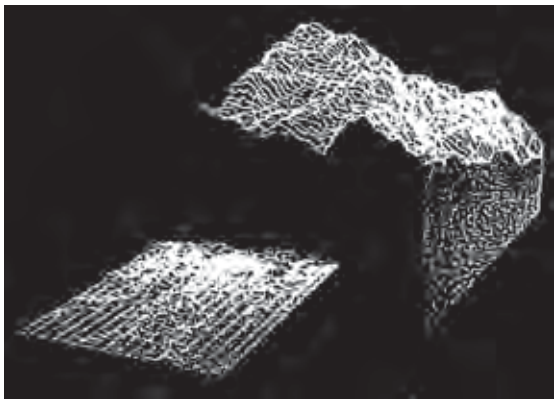
First sketch scheme proposal, 1989

7.5
Masterplan, 1997

garden and to create suitable conditions for the successive establishment of the different phytoepisodes. During the execution of the civil work, important formal and functional decisions were taken, and only after the works ended did the garden acquire its present appearance.

Since its inauguration in 1999, planting has continued and the aim is to complete structural planting of all of the phytoepisodes by 2010, with approximately 50 per cent of the potential species represented. It is now possible to see that the initial dominance of the paths and walls is gradually being balanced by vegetation. The experience of the garden now is richer and more complex, and the growing volume of trees and shrubs makes the planned path layout 'faceting' more explicit. Surprise and discovery have become two new words to describe the garden.

The Municipality would like Montjuïc Mountain to be known as Barcelona's 'Central Park' within the decade, and since 2000 has been investing in this vision. Parks, gardens, sports installations, museums and galleries, are being created, restored or promoted, and public transport and pedestrian accessibility from downtown are being enhanced. The 14ha Botanical Garden remains one of Barcelona's biggest parks and keeps growing and maturing within this ambitious project.



7.6
Mathematical representation of fractal islands by BB Mandelbrot

Design philosophy

> We did not want to show a Holm Oak (*Quercus ilex*) but to show an Holm Oak wood.
> (B. Figueras)

According to the botanists, plants in the new JBB were to be grouped by ecological affinity and morphologic evolutionary convergence into phytoepisodes. These are an extrapolation of the most characteristic species and vegetal associations found in nature. Those at JBB will represent typical Mediterranean-type landscapes: South Africa's Fynbos, Mediterranean Basin's Evergreen Oak Woodland, Chile's Espinal, California's Joshua Tree Woodland, etc. Therefore each phytoepisode synthesises the similar plant communities that conform to a vegetated landscape.

Phytoepisodes were to be distributed in a mosaic pattern as in nature. Plantation patterns within each phytoepisode were also to be rendered from nature according to vegetal succession 'transects', phytosociology and finally morphologic convergence criteria. According to this philosophy, plants were to be allowed to grow naturally respecting their own shapes and dynamics in order to investigate their reactions to the conditions in Barcelona. No pruning was to be allowed, and irrigation was only admitted during the establishment period.

According to the architects, there were two fundamental premises for the spatial design: first, let the site's morphological and topographic qualities set the rules for the intervention, and, second, find a structure that would allow for the ordering of the future botanical collection according to the phytoepisodes into a sort of mosaic pattern. A strategy of superimposing a geometrical 'triangulation grid' was adopted. This grid presented itself as a useful instrument with which to adapt to the wild topography of the place, while unifying the entire complex and organizing the botanical collection. Finally, the 'triangulation grid' became a network of hierarchical paths that delimits the planting plots. These plots, conveniently subdivided according to the most favourable slope and orientation, incorporate the different phytoepisodes.

Fractality is the principle that underlies the form of the project. The term 'fractal' is used to describe mathematically represented objects or systems, where the creation of form is based on irregularity or fragmentation. In fractal systems, the principles of the major geometry also define the smaller geometries or details, as shown in B.B Mandelbrot's figures. Nature provides many examples of systems presenting a fractal nature, such as the ramification of hydrographic networks or the shapes of mountain ranges. When applying 'fractal logic' to project making, the logic of

7.7
Mediterranean siliceous scrubland phytoepisode

order and form is 'echoed' at the different scales At JBB, the geometrical principle of the 'triangulation grid', which determines the infrastructure grid, is echoed in the 'faceted' layout of the paths, influences the form of paving joints, and orders the broken volumes of the entrance building. Ultimately the whole garden assumes the fractal nature of these Mediterranean landscapes themselves

C. Ferrater envisages the garden growth as an 'inversion process': 'At inauguration, the infrastructure made the garden and the plantations were the ornaments. At maturity the plantations will make the structure and the paths will be the ornament.'

While the spatial approach and the planting schemes are complex, construction details are simple, almost spartan, with very basic treatments, unaffected materials and repetitive solutions. It seems to make the point that, in detailing, the best solutions are the simplest and that in JBB, complexity and poetry should emerge from the rendered landscapes and the way that they are experienced, not by prodigious detailing.

Design development
The design can best be described in terms of themes rather than zones.

Spatial strategy and earthmodelling

> The goal is to exploit the natural distribution of vegetation, the mosaic using the grid as a spatial strategy for allocating the different Mediterranean landscapes of the world.
> (Dr Joan Pedrola, botanist, 1989)

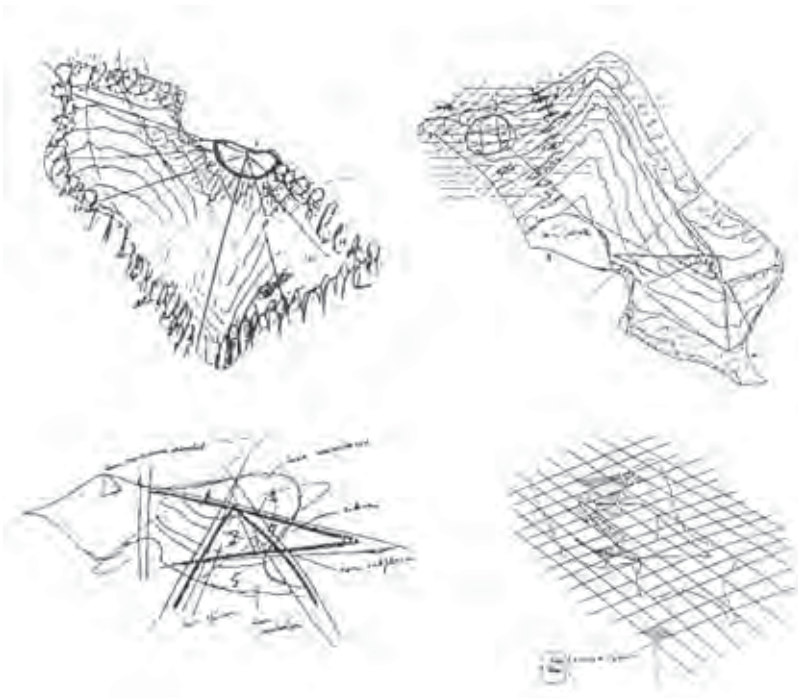
At the beginning of the design process, it was essential to find a flexible spatial strategy that would allow the botanical collections to be distributed, while making them accessible. The strategy would also provide a basic matrix for all the different professionals involved to work together.

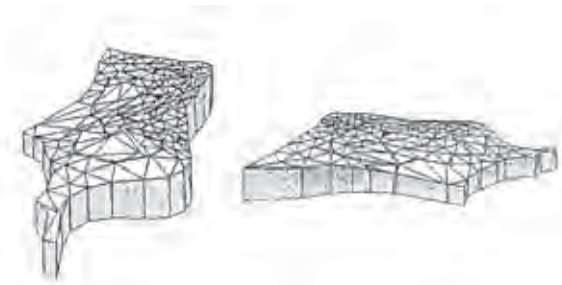
Initially, the project team started working with the classical square or regular grid that most of the world's historical botanical gardens have traditionally used to organise their collections, but, as a result of the site's complicated topography and steep slopes, this geometry would have generated huge earthworks and made the project unviable. After some research, an irregular triangulated network, as used by surveyors to generate digital terrain models, was adopted as a device to generate a grid which could be used to divide the garden into parcels of land and to plan the path network. The triangulated grid also came closer to natural mosaic patterns, another objective of the designers.

This irregular triangulated network was adapted to the contours of the terrain, in such a way that each triangle had two vertices at the same height and an area that varied with the slope, minimising the earth modelling. The triangle is the polygon that has more perimeter per unit of surface, therefore it is the polygon that provides the best visual accessibility. The result is an abstract grid that clings to the topography like a fishnet stocking.

In some places, the continuity of the terrain was then fractured by modifying the heights of some of the vertices of the underlying triangulation system. This resulted in flattened triangular shapes surrounded by concave or convex retaining walls that contained the land cut or the landfill respectively. These places were planned to be strategic resting points, belvederes and didactic nodes within the path network. At the same time, these artificially created topographical irregularities enrich the garden's climatic variability in terms of sun and shade exposure and wind shelter, and thus enhance opportunities for the establishment of different plant communities.

The underlying grid guides a hierarchical path system that carries the drainage and irrigation networks.





7.8 (top left)
Preliminary schemes by Dr J. Pedrola, 1989

7.9 (top right)
Triangulated irregular networks digital terrain model

7.10 (right)
The site-referenced triangulation grid

7.11
The triangulation approach translated onto the site

Main paths run in the most suitable directions, following the existing topography, and determine the major planting plots, whereas the secondary path system runs obliquely to the slope, searching for gentler slopes, and subdividing the plots into the final phytoepisodes. The topography plan shows how little earth modelling was required to accommodate the path infrastructure. The path network offers the visitor a choice of routes, each of a different botanical interest. It is a 'Labyrinth without a centre' (C. Ferrater) which works in a similar way to a golf course that allows simultaneous rounds.

The result is an irregular yet rational grid, subservient to the site topography, that in a similar manner to Cerda's Eixampla (the town plan which allowed Barcelona's extension) allows great flexibility, while ensuring the continuity of the project as a whole.

The path network

Constructing an extensive path network on a site with slopes ranging from 10–30 per cent was a challenge. Nevertheless, the final layout of the paths had to solve more than problems of gradient.

'I was horrified by the vision of a long path perspective going up the hill,' explains Bet Figueras. 'People would get frustrated. Instead we pursued a "faceted" path, winding through the garden and offering ever-changing views.'

Zigzagging paths were laid out according to the triangulated network, searching for surprise sequences and different perceptions of scale: sometimes walking above the garden, sometimes 'among the plants'.

The brief for the competition established that the garden should be designed in such a way as to give the visitor a free choice of itinerary and to allow the simultaneous circulation of visitors and maintenance vehicles. The project establishes two hierarchies of paths: main paths, wider than 3m, and secondary paths with widths ranging from 1.6–2.6m. Main paths run almost flat, following the existing topography according to the triangulation grid, with slopes ranging from 4–6 per cent and occasionally 8 per cent. Secondary paths run obliquely to the banks, searching for gentle slopes between 8 and 11 per cent. When the slope is above 11 per cent, the paths become steps. At the meeting point of primary and secondary paths, flat 'fractal' squares are created. These squares act as resting points, distribution nodes, belvederes, places for specimen

7.12

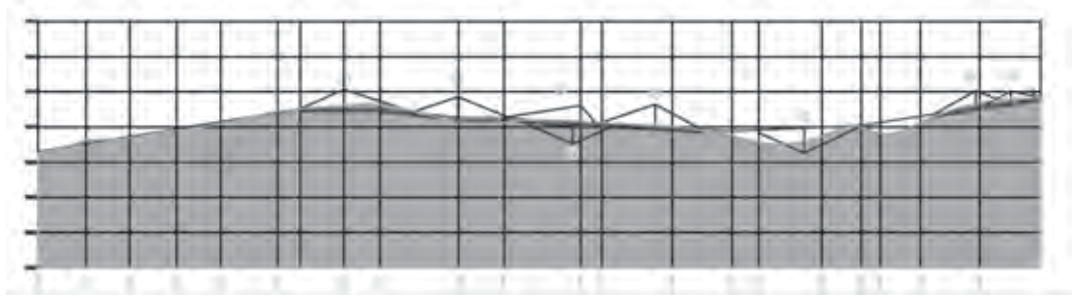
Photo: impression of the path network shortly after inauguration in 1999

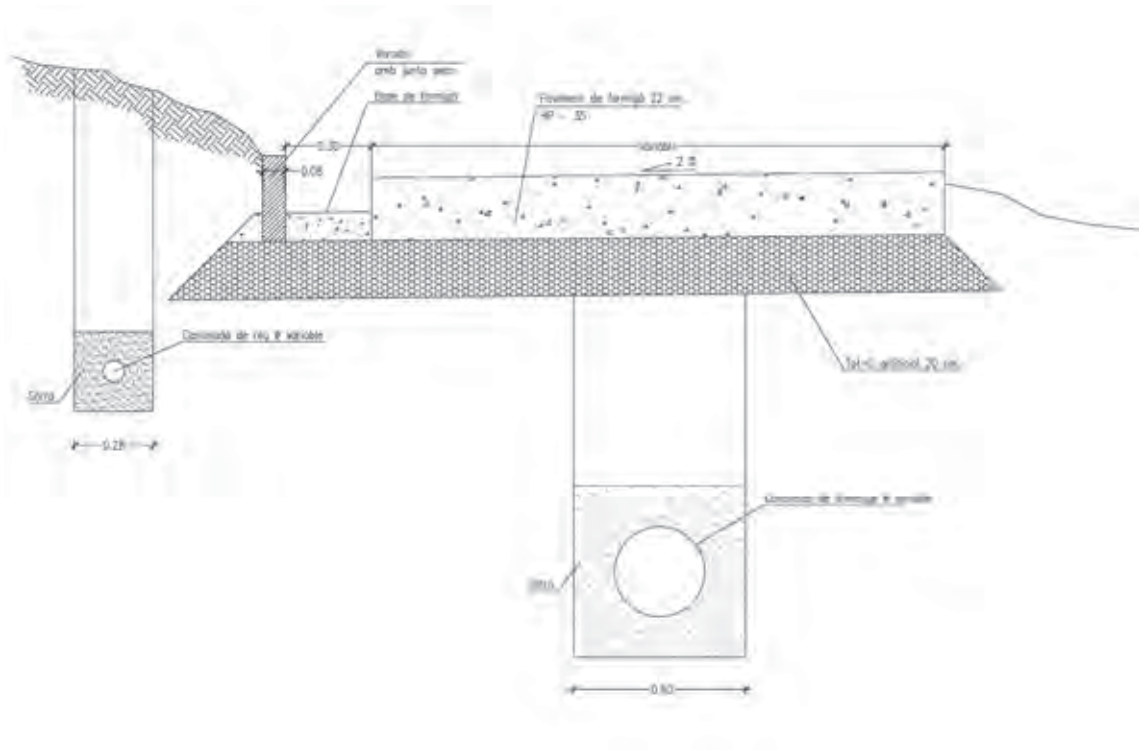
7.13

Main path longitudinal cross-section. The dotted line shows initial topography and the grey texture the new gradients.

7.14a, b, c

Walking scenes: asymmetrical stair, main path, secondary path





7.15

Desert Square: the point at which some of the driest phytoepisodes, from Chile, South Africa, California and Australia, come together

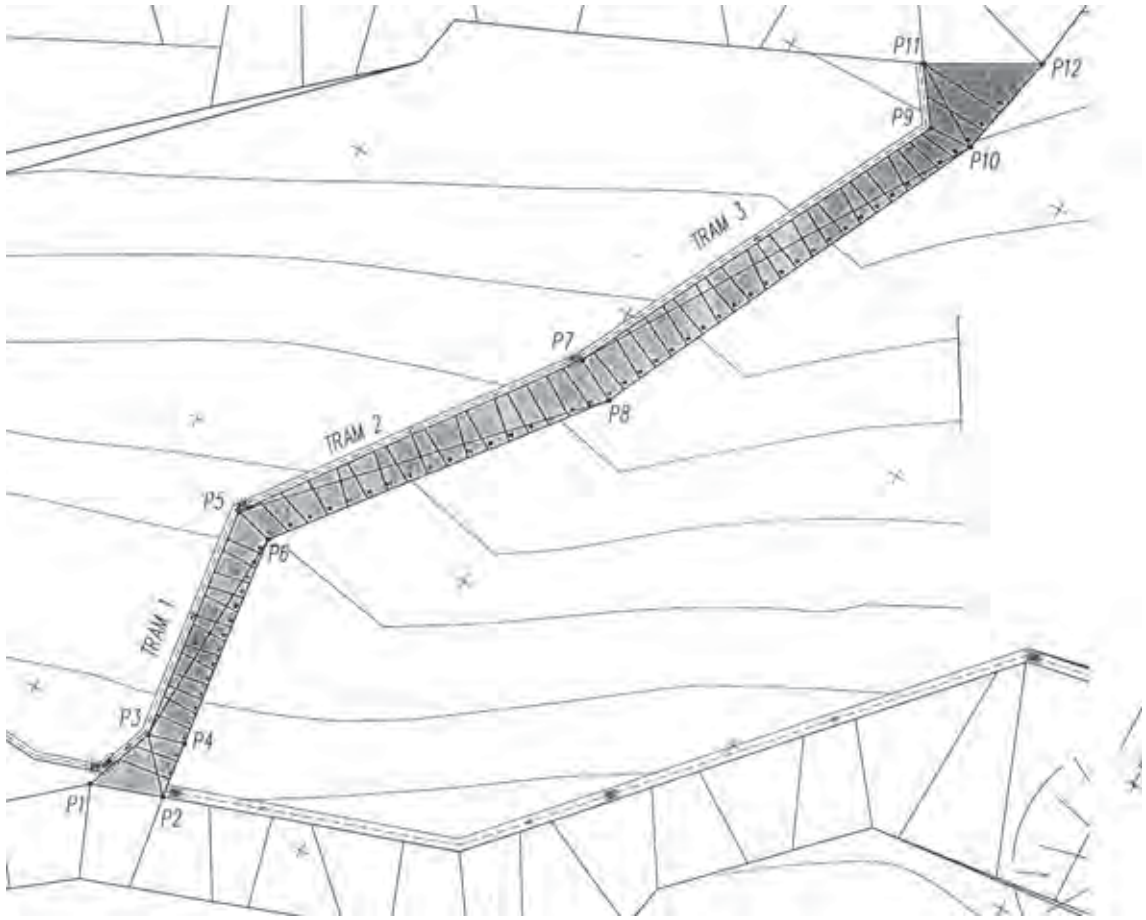
7.16

Standard path cross-section. Main and secondary paths differ only in width. The irrigation system follows the paths

plants to be exhibited and as information stops along the way.

Regarding the choice of materials for the paths, some options were considered. The consultant botanist preferred soft paving, such as gravel or coarse sand, but these were not advisable because of the erosion risk and the likely cost of maintenance. Before works stared in 1997 the secondary paths were to be paved with asphalt with railway-sleeper edges. However, this proposal would have caused problems during construction, because of the difficulty of using the appropriate machinery on such steep slopes, sometimes up to 30 per cent, and in the pouring and spreading of the asphalt along such narrow paths. The project team changed the design of the secondary paths, constructing them of in-situ concrete, widening them and providing them with drainage channels.

Concrete is a relatively cheap material, easy to work with, flexible enough to adapt to complicated topography and it needs little maintenance. JBB was an ambitious project with a limited budget, the-



7.17

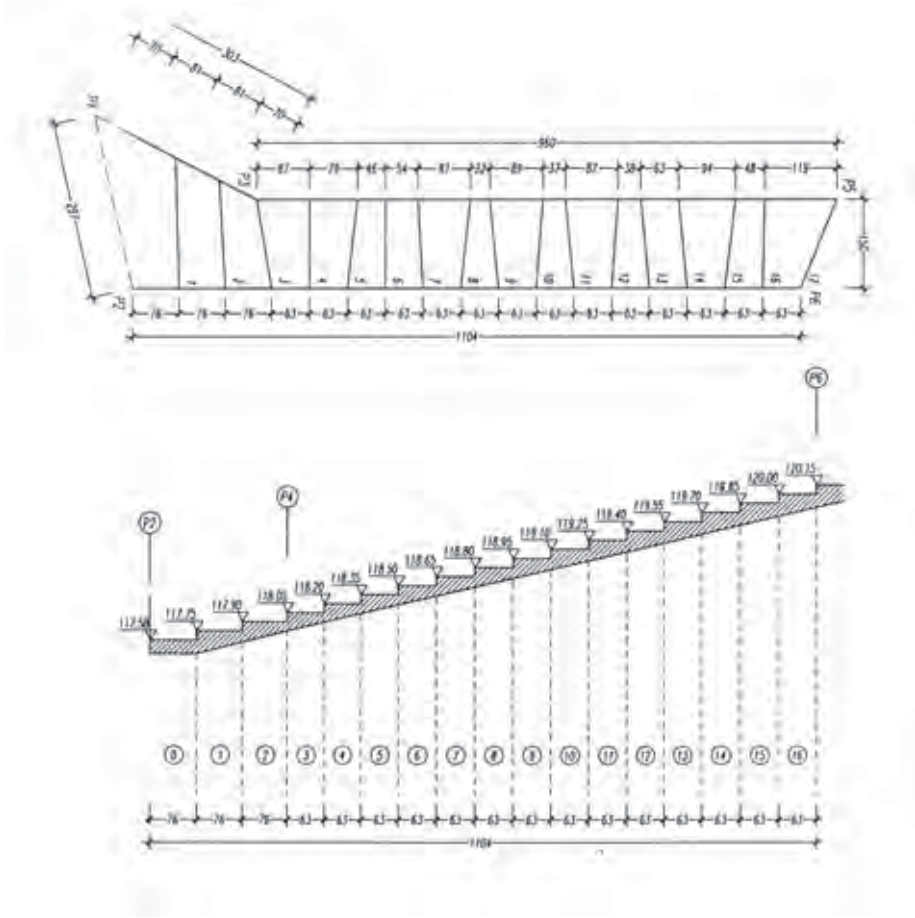
Plan of main path showing expansion joint positions. 'As built' plan

7.18a

General plan of the asymmetric stairs

refore economy of means was an important issue. Ultimately the paths were made of 22cm-thick concrete without reinforcement, with a triangular system of 25mm expansion joints. Reinforcement was used in the former rubbish dump area where there was a risk of soil movement. A 20cm-wide channel, designed to intercept run-off, follows the walkway on the upslope, as well as at the foot of the supporting walls. The edge of this consists of a commercially produced 22cm-thick pre-cast concrete slab. The height of the edge determined the final path thickness, in order to simplify the construction process. This generous concrete width also allowed for making bigger trapezoidal blocks in the square without need of further expansion joints. On the main paths the concrete finish is smooth, whereas on the secondary paths with more than 11 per cent slope, the concrete surface has been finely scraped to improve grip.

The fractal approach to the design inspires the zig-zag layout of the paths and their final detail as well. The path's plank moulding was done with straight boards, making it easier to construct and contributing to the 'faceted' appearance. The expansion joints were deliberately over-dimensioned to 25mm in order to form a tracery of lines, dividing the paths into trapezoidal shapes, which, in the steeper cases, became irregular steps. By systematically breaking up the concrete surfaces of the paths and squares into relatively small pieces, the paths acquire a more dynamic perception. The impression that one is surrounded by massive blocks of concrete is avoided. In order to avoid cracking, expansion joints were not



7.18b

Detailed plan and section of the stairs. From the 'as built' plan

cut at angles less than 60º relative to the edge of the concrete slab. This worked well with paths up to 3m wide, but some cracks have appeared in wider paths and in some of the squares, where concrete polygons were laid side by side. In places where the expansion joints were not continuous, some fissures have appeared.

The ultimate layout of the paths was decided on site; the Project Director, together with a surveyor, defined every path in turn, searching for the most convenient slopes, pursuing the final fractal effect. The Masterplan was updated accordingly. The expansion joints were also drawn 'in-situ' by the site architect in charge of construction, Carlos Ferrater: 'If the triangulation grid was a "strategy" conceived from the office, as if by generals, the final lines of the paths were field tactics, as if created by guerrillas, and done from nearby.'

Walls

The Masterplan considered the construction of in-situ concrete walls to retain the landform that resulted from the creation of the plots. According to a geotechnical study the soil had very uneven properties and depths; approximately 50 per cent of the JBB surface was landfill with debris from building materials, clays and rubbish, with deposits that were up to 20m deep in some places. With such soil conditions it was not advisable to lay the foundations of any rigid structures. Alternatives were studied and finally the decision was taken to use reinforced earth walls. These do not need any foundations, have the necessary structural stability,

7.19

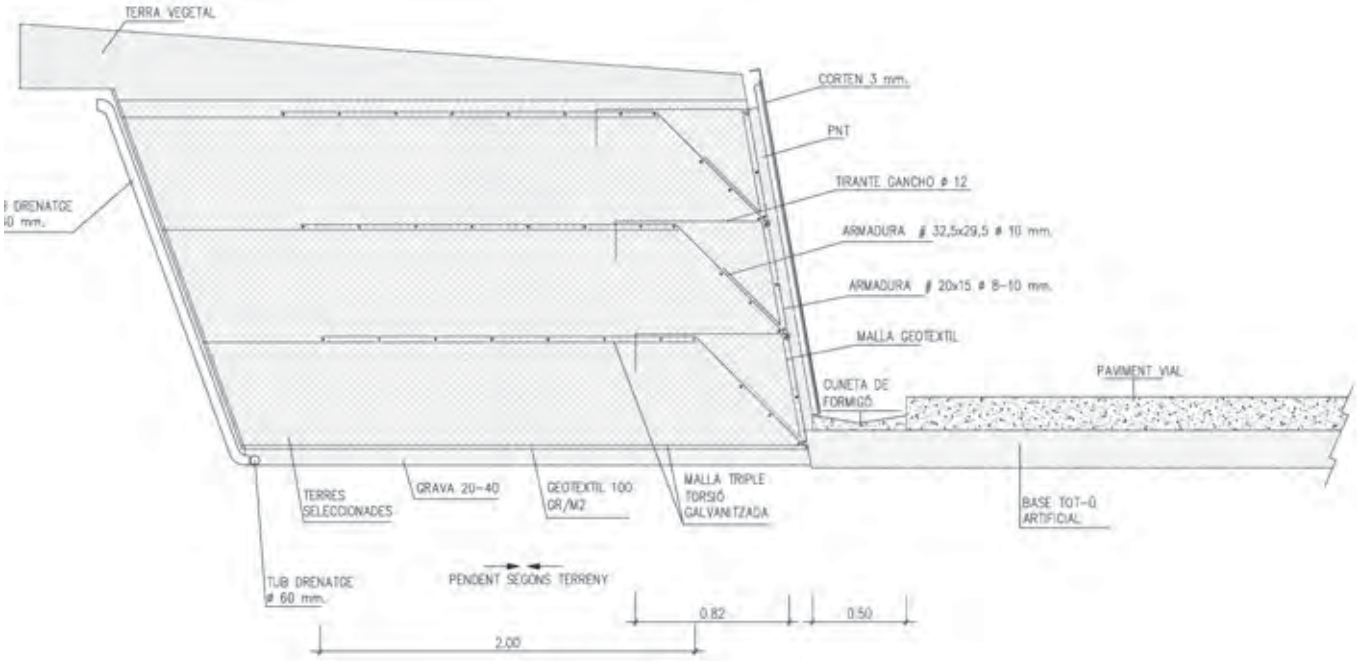
Photo: reinforced earth-retaining walls clad with corten steel

7.20

Cross-section of reinforced earth-retaining walls. Standard solution

7.21

Cross-section of reinforced earth-retaining walls. Standard solution


TERRA VEGETAL
CORTEN 3 mm.
PNT
TIRANTE GANCHO ø 12
ARMADURA ∥ 32,5x29,5 ø 10 mm.
ARMADURA ∥ 20x15 ø 8-10 mm.
MALLA GEOTEXTIL
PAVIMENT VIAL
CUNETA DE FORMIGÓ
TERRES SELECCIONADES
GRAVA 20-40
GEOTEXTIL 100 GR/M2
MALLA TRIPLE TORSIÓ GALVANITZADA
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0.82
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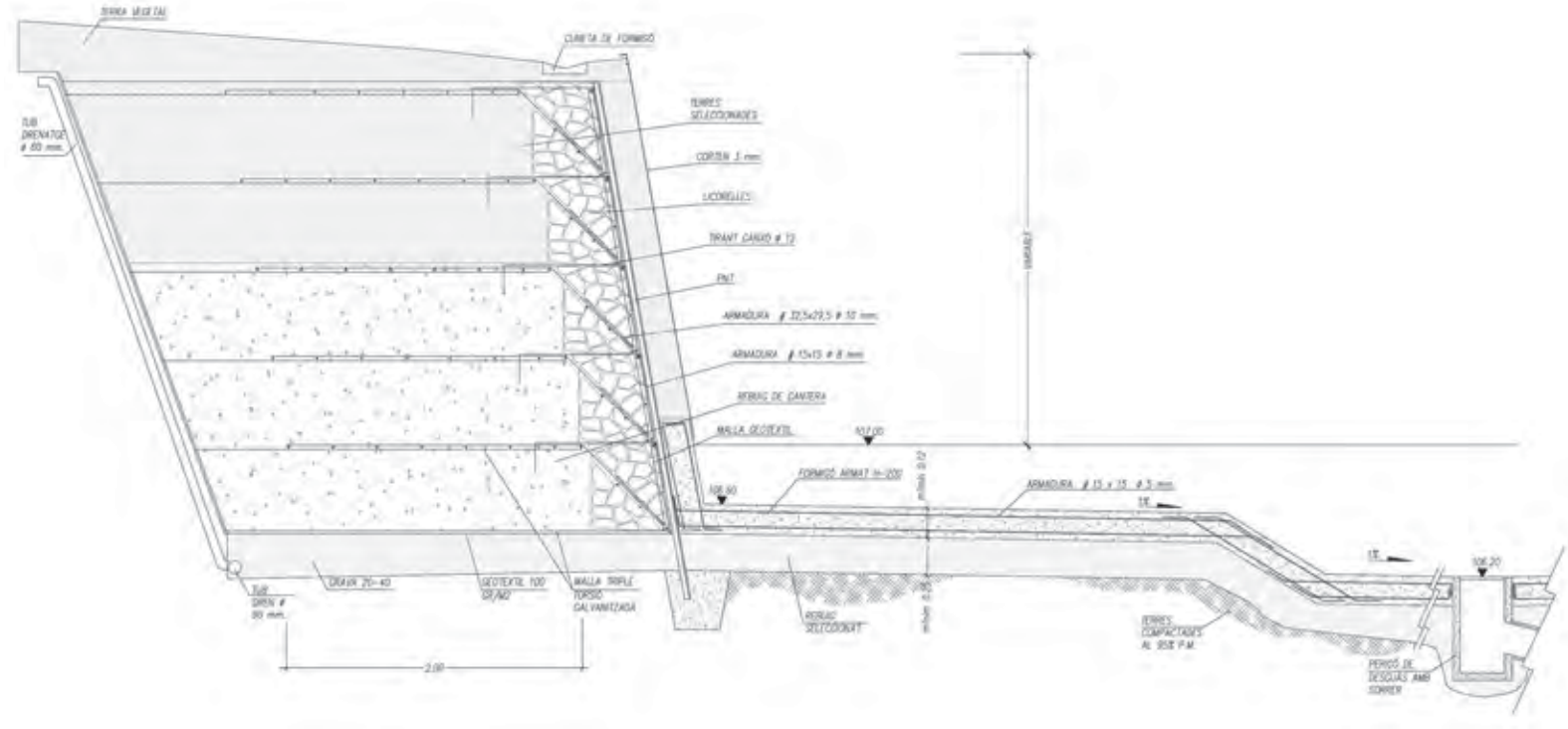
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ARMADURA ∥ 15x15 ø 8 mm
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MALLA GEOTEXTIL
FORMIGÓ ARMAT H-200
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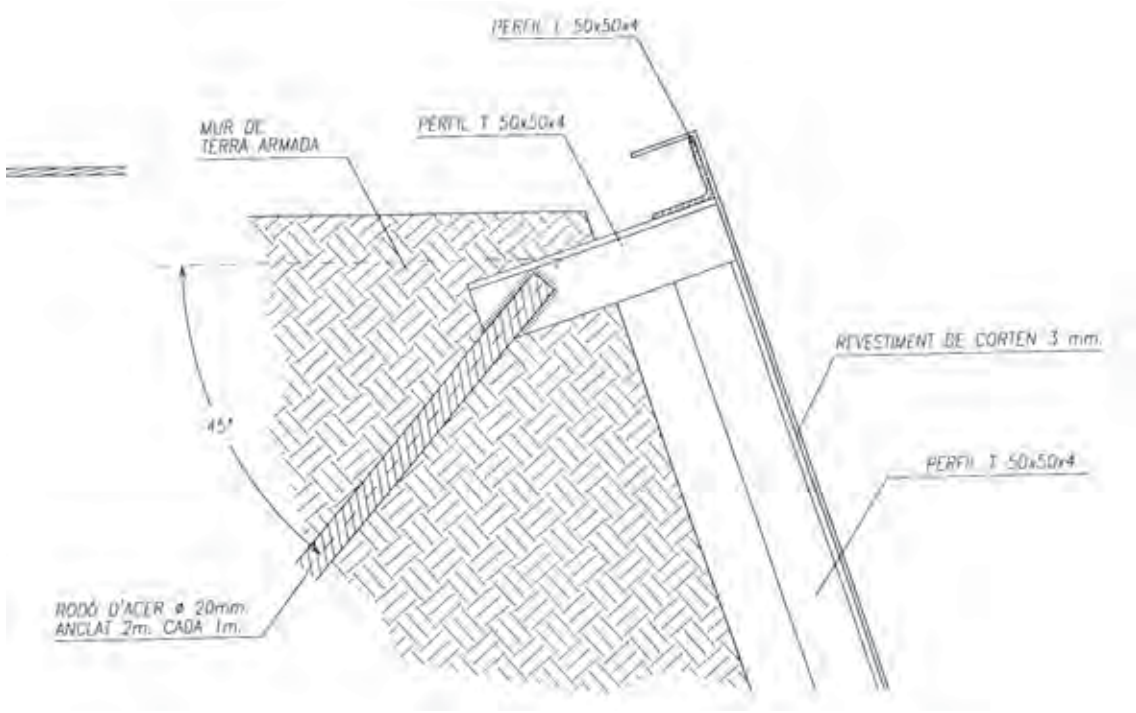
7.22
Section through 'standard' retaining wall before facing

7.23
Photos: construction process for the reinforced earth walls



and offer enough flexibility to assimilate the deformations that may occur in such unconsolidated soils and incorporate their own drainage system. This option was also cheaper since it was not necessary to excavate the ground in search of a stable base.

Reinforced earth walls are made of soil that has been compacted in layers and reinforced with steel mats. The walls were battered at an angle of 8° to accommodate possible ground movements. The face of the reinforced earth wall can simply be seeded or clad/covered with any material. The decision was to use corten steel sheets without treatment. The colour contrast between pale concrete and the ochre red walls it is one of the most defining characteristics of the garden. Corten steel does not need maintenance and its colour reminds one of ploughed earth.

For walls in the lake area, close to the water, a specific construction detail was adopted to prevent 'brown' drainage water from getting into the lake.

Though difficult, it was possible to persuade the politicians not to insist upon any railings on the landfill walls, which would have spoiled the views. The top part of the corten wall was gently raised to provide a sort of rim with a welded 'U' bar profile.

7.24
Echium: Canary Islands thermophilous woodlands
7.25
Rotación derocalla: Saxicolous communities of Spanish Levante

In order to optimise the use of the corten plates, these were welded perpendicular to the slope of the top of the wall. As with paths, the final height of the walls was also decided on site by the site architect with the help of the surveyor.

Planting scheme

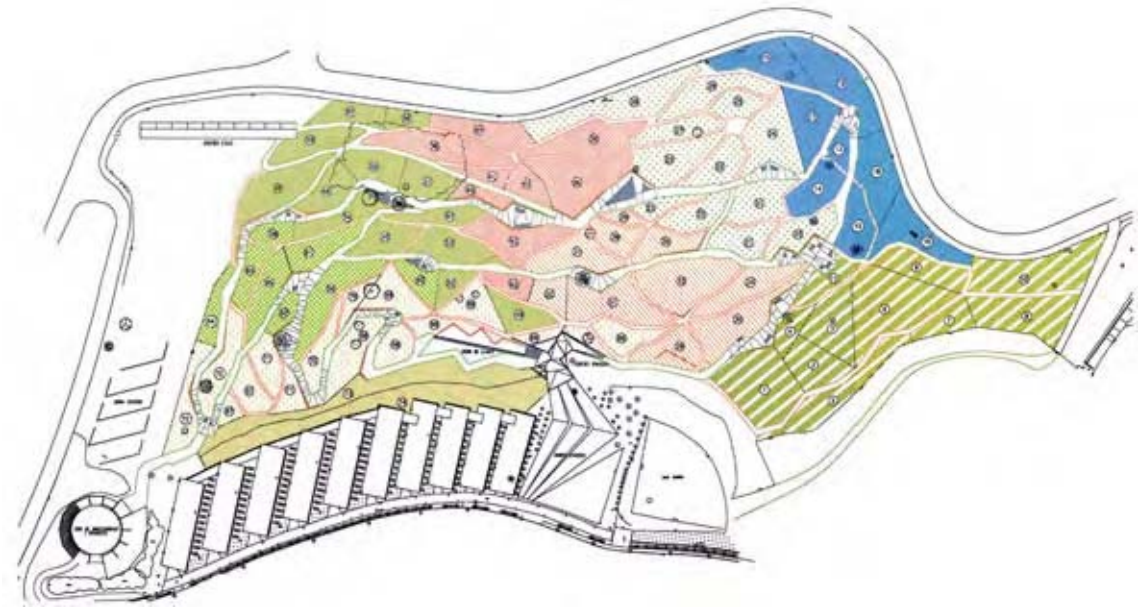
The five parts of the world with a Mediterranean climate – the Mediterranean Basin, west California, central Chile, the tip of South Africa and part of southern Australia – although so widely separated from one another, nevertheless present extraordinary climatic affinities, which are reflected in the appearance and structure of their plants, their systems of land use and also the general appearance of their landscapes. Plants in these various Mediterranean regions have had to adapt to survive the dry summer, occasional frosts in winter and, in many cases, the regular presence of fire. Though genetically different, these plants went through similar processes of adaptation to climate, which in turn resulted in their similarity. This is known as the evolutionary convergence of plants. In the JBB collection, Canary Islands sub-tropical vegetation has an important relation to the rest of the Mediterranean climate flora, since it represents the original *Thermophilous* vegetation from which all the others evolved at the time when Pangea separated 250 million years ago.

JBB introduces an innovative approach to botanical gardens: instead of presenting its plant collection by taxonomical order, it groups it by ecological affinity and *morphologic evolutionary convergence* into *phytoepisodes*. These are not literal botanical communities or ecosystems found in nature, but an extrapolation of the most characteristic species present in natural landscape. For example, there is a single phytoepisode to represent the Holm Oak forest, the most common forest in the entire Mediterranean basin. Called 'Evergreen Oak Woodland', this phytoepisode presents most of the representative species present in all the different Holm Oak forest communities in the Occidental Mediterranean. Therefore, the concept is to render the worldwide Mediterranean vegetal landscapes in order to investigate their adaptation strategies, plants associations, phytosociology, conservation of endangered species, survival in Barcelona's conditions, etc.

This innovative concept has important advantages in terms of conservation and scientific investigation, since the botanical garden will have 'full populations' of each species instead of individual specimens, and therefore much higher genetic variability. It also has practical advantages, since these naturally associated populations have the same growing conditions and tend to find ecological balance between themselves, minimising establishment and maintenance works.

7.26

Phytoepisodes distribution. Blue: central Chile / White dotted green: west California / Striped pink: tip of South Africa / Striped green: southern Australia / Reddish: north Africa / Green: west Mediterranean / Green dotted white: east Mediterranean / Dashed orange: Canary Islands

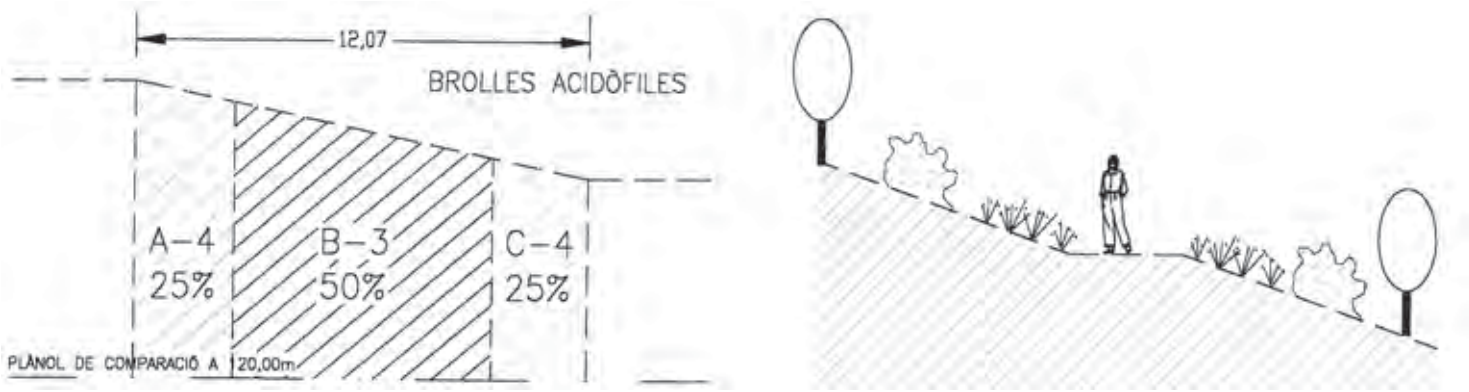


According to the consultant botanist, the JBB site allows for approximately 4,000 species to be represented, roughly 7 per cent of the total of around 60,000 vegetal species to be found in these diverse Mediterranean regions. A list of *potential species* was defined for each phytoepisode and preference was given to the most representative species, as well as those dominant in terms of the percentage of soil coverage.

Within each region of the garden, phytoepisodes are distributed according to principles of succession, in such a way that those parcels where tree communities predominate, such as pinewoods, oak woods, eucalyptus forests, etc., are placed in the perimeter, whereas brushwood and scrubland phytoepisodes are placed towards the centre. This criterion is concerned with preserving overall views of the garden, but also has practical benefits. Generally, the perimeter parcels have steeper slopes, sometimes excessive for certain maintenance works, but forest phytoepisodes require less care and integrate these slopes visually.

Within and between the regions, phytoepisodes are ordered by criteria of morphologic evolutionary convergence for educational and aesthetic purposes. For instance, all the driest phytoepisodes of Australia, South Africa, Chile and California meet in 'Desert Square', and something similar happens with all the rockeries from the Western Mediterranean and Northern Africa. This criterion helps to soften the transitions between the different phytoepisodes and to create a perception of the garden as a whole, with sequences of similar textures.

Generally, within each phytoepisode, plants are arranged according to 'transects', imitating the succession processes of natural vegetation. Each transect divides a parcel into distinct belts of trees from 2 to 30m high, shrubs from 0.5 to 2m, and finally low shrubs of up to 1m. It attributes a percentage of the plot to each belt and defines the plantation density of each. To represent nature properly, bigger plots would have been required; therefore a concentration exercise has been necessary. The concept of minimum surface area, defined as the minimum area necessary for a plant community to be viable for a long period, has been employed when sizing and distributing the different phytoepisodes, even though it is a concept which still needs



7.27

Occidental Mediterranean siliceous heathland transect. Schemes from the Planting Plan 1999

A. Trees from 2 to 30m are predominant of this fringe

B. Shrubs from 0.5m to 2m. Some individual trees can be planted randomly

C. Low shrubs up to 1m. Trees up to 5m or shrubs up to 2m can be very occasionally planted

1. Very low-density planting; 2. Low-density planting; 3. Average planting; 4. High-density planting

to be researched; indeed, it will be one of the major investigations undertaken at JBB.

A study of the vegetation in the original landscapes was first undertaken, prior to defining the composition of the phytoepisode planting. Trees, shrubs, herbaceous plants, climbers and ferns were studied and the most dominant and representative species were determined.

As can be seen in the transect for Occidental Mediterranean Siliceous Heathland, A-4 means a high-density planted forest, B-3, an average-density brushwood and C-4 a high-density planted scrubland.

Plantations are initiated with a high density of the most dominant and characteristic species, primarily lignified plants. For the rest of the phytoepisode, the goal is to create a mosaic that provides a feeling of heterogeneity, while at the same time having large enough populations for the visitors to identify each species. Phytosociology is a crucial theme when defining the arrangement of the different species. According to the transect approach, bigger plants are planted at the back and smaller ones in the front for easier identification. Generally, planting densities decrease as one moves away from the path, in order to create an effect of depth. Densities are established according to size at maturity, though shrubs and smaller plants are planted in slightly higher densities, to allow for problems with adaptation and establishment.

Phytoepisodes are planted as units, and planting only starts when there are enough plants to cover at least 70 per cent of the area of the plot. The strategy is to establish a sort of ecological balance within each phytoepisode, in order to minimise weeding. An irrigation system is installed during the planting period. When the missing species can be obtained, room is made for them amidst the existing plantation.

Once planted, material is allowed to grow spontaneously, respecting its own shape and natural dynamics without pruning or any garden shaping. In shrub areas, irrigation is only undertaken during the establishment period (i.e. for the first two years) to let plants grow naturally and achieve an authentic appearance. Nevertheless dead flower stems are removed from some flowering shrubs such as *Santolina*, *Lavandula*, etc. for aesthetic reasons.

As can be seen, the planting schemes are very basic, leaving an important part of the final appearance to be decided at the planting stage, as well as during subsequent maintenance. This is not an ideal situation and a more detailed plan would be preferable, but flexibility is a key issue in cases where

many species have yet to be obtained. The mature form of each phytoepisode relies upon the newly obtained species replacing some of the initial planting and the final result is not technically specified; it very much lies in the hand of the gardener.

To meet the tight deadline of the 1999 inauguration, within the constraints of a very low budget, and in order to avoid ridiculous scenes involving the extensive planting of very small plants, which would also have caused serious difficulties for subsequent maintenance, it was proposed to combine strategic tree and shrub planting with the ploughing and hydroseeding of parcels of land. The aim was to create a quick first impression of the garden. This scheme would give the garden the appearance of a 'harlequin' traditional terraced Mediterranean landscape, with ochre milled fields and green fields from seven agriculturally referenced weed mixes.

The strategy for the opening had a second objective. To create convenient conditions for the establishment of certain phytoepisodes, more climatic variability was required, in terms of shade and protection from the wind. For this reason, priority was given to plantations of trees and tall-growing shrubs in the first phase. Some 1,170 trees were planted primarily in the phytoepisodes of the perimeter of the garden, together with 8,285 shrubs of available species. Complementary planting of mature specimens – which the designer called 'Picassos' – took place in the squares along the main paths. Ultimately, from the goal of 4,000 species to be shown in the garden when mature, 400 species were represented; 300 were available in the nurseries and 100 were especially produced for the JBB.

By December 2003, around 28,000 plants had been planted, representing 1,250 species. Of the 71 phytoepisodes, 11 had more than 50 per cent of the required species, 51 had been planted, but with less than 50 per cent of the potential species and nine had not been planted at all. By 2010 the structural planting for all of the phytoepisodes should be complete.

Soil preparation

Before planting, the ground was cleared of stones and scrub and ploughed to a depth of 30cm. According to the ultimate character of the planned phytoepisode, the soil was improved, to adjust the texture, organic matter content and pH value. The existing soil was mostly sandy, with an average pH of around 8.0, and the percentage of organic matter was very low, below 1 per cent. The original soil conditions, together with contamination in some areas from the former rubbish dump, and the acidic nature of many of the phytoepisodes to be represented, required some significant adjustment of the soils' conditions. It was also necessary to

7.28
Acidic soil improvement at South Africa's Fynbos

cultivate the soils after the passage of much heavy machinery.

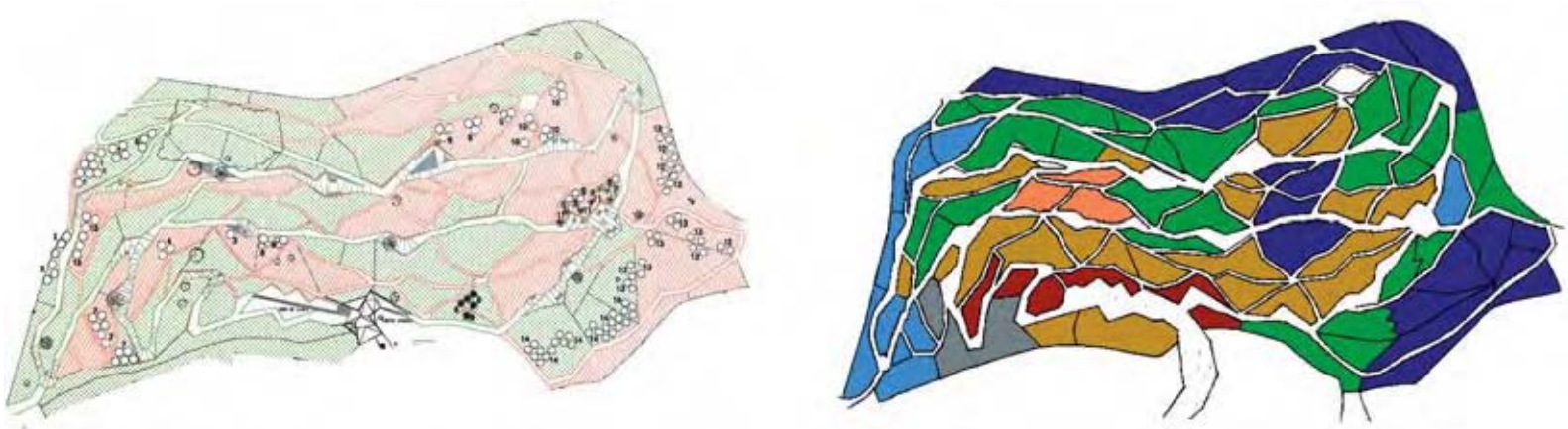
The standard correction applied to the whole site before inauguration consisted of the addition of a 15cm top layer consisting of 55 per cent coarse gravel, 20 per cent clay, 10 per cent mud and 15 per cent organic matter. Oversized tree pits (more than twice the root area) were used in order to improve planting conditions; these were backfilled with a mixture of 50 per cent coarse sand, 30–40 per cent plant-based organic matter, and 10–20 per cent animal manure.

Where more acidic conditions were required a standard specification was an 80cm–1m-deep planting bed, consisting of 10cm of drainage quarry rubble (30–70mm), 50–60cm of coarse sand, 10cm of sieved coarse sand, 20cm of a mix of 75 per cent sieved coarse sand and 25 per cent organic matter. After the soil improvement process, a conventional tree and shrub planting process was followed, together with the installation of an irrigation system.

Mulching and soft paving scheme

After the opening, the aim was to get closer to the character of the original landscapes, while rationalising maintenance, especially in those phytoepisodes which had just been planted or where the percentage of soil covered by plants was low. Thus, a mulching and soft-paving scheme was conceived. The practical criterion was to search for a functional alternative to the original landscape cover. Different solutions are being tested at the moment:

- Sieved coarse sand (beige in the scheme) is used for the driest phytoepisodes with low plant coverage, as well as for dressing many of the areas of an acidic nature, and for developing scrubland phytoepisodes that will eventually be totally covered with vegetation. The sand is spread in a 10–15cm layer on top of a geotextile. In the driest phytoepisodes the mulch is 100 per cent coarse sand, while in the rest 25 per cent organic matter is added.
- Woody prunings (sky blue in the scheme) are used in woodland phytoepisodes with little understorey. The prunings consist of branches, mostly from conifers and up to 20cm long, which have not been composted. They are laid in an 8–15cm layer.
- Volcanic gravel (purple in the scheme) is used in the Canary Islands volcanic phytoepisodes. Two textures are used: a red 10–15mm mix and a bigger 20–25mm black one.
- Pine needles are used in the Canary Islands pinewoods phytoepisodes, just as they occur in nature. Fallen pine needles are simply left on the ground.



7.29

Inauguration cover scheme 1999. Ochre = ploughed fields and green = hydro-seeded meadows

7.30

Photos: mulching regimes: Coarse sand (*saulló*), Pruning remains, Black volcanic clay, Red volcanic clay, Pine needles, Green grassy area, Rockery, Chippings

- '*Green field*' (green in the scheme) This is the name given to a maintenance regime that aims to establish a low, green, grassy cover, 10–15cm high, while the shrubs take over. It is mostly in the perimeter woodland phytoepisodes where there is a significant understorey. The grass is mown 10–15 times per year, depending upon the weather conditions.
- *Rocks* (orange in the scheme) are used in the rockery phytoepisodes. These are mostly big boulders, grouped in various ways.
- '*Maintained meadow*' (dark blue in the scheme) This is mostly used as a temporary maintenance programme for those phytoepisodes with little or no planting yet. It aims to establish a sort of meadow 20–25cm in height. It is mown 5–8 times per year. Four phytoepisodes from South Africa and California, with fast growing brushwoods and scrublands, will be kept in this programme following planting, until the shrubs become established.
- *Coloured chippings* are used in the square

parterres, chosen according to the origin and quality of the specimen exhibited.

It is noticeable that there is a convergence in the mulching materials used, which mirrors the 'morphologic evolutionary convergence' between the phytoepisodes, regardless of their place of origin. This helps with the interpretation of the exhibits, and provides coherence at a scale greater than that of the individual phytoepisodes, helping visitors to perceive and comprehend the garden as a whole. When strolling in the garden, the mulching and soft paving materials contribute to the sense of landscape character. Extensive, practical and low-key, these surfaces, together with the understated nature of the detailing, prevent the botanic garden from developing a theme-park ambience or a gardenesque appearance.

Evaluation

With a timescale extending from 1989 to 2010, JBB is a long and complex project, undertaken by a multi-disciplinary team consisting of a botanist, an agronomist, a horticultural specialist, architects, landscape architects, surveyors, civil engineers, etc. It has been an open-ended , non-linear project, with a two-speed approach that is even now defining its own future. It is too soon for a final evaluation, but some conclusions can already be drawn.

JBB is an adventurous project that involves innovation and experimentation in the fields of botany and landscape design. Using phytoepisodes as the planting units for the arrangement of the botanical collections, and thus reproducing naturally occurring landscapes, has introduced novel concepts such as ecological affinity, morphological evolutionary convergence and phytosociology into the design of botanical gardens and urban public spaces.

The project is inventive in the way it is spatially organised on a site with difficult topography. The use of a triangulated grid, inspired by surveying techniques, as the underlying mechanism for defining the exhibition plots, has provided maximum accessibility and a range of perceptual possibilities at various scales, while requiring the minimum amount of earth modelling.

The botanical garden is contemporary in its design vocabulary and rational in its detailing. Inspired by fractal logics, the application of triangulation as the basis for the civil engineering works has produced a coherent overall design with a clear identity. The gardenesque approach has been avoided, in favour of a more sober, low-key use of extensive textures of vegetation, interwoven with paths, which maintains an important fluidity and coherence among the spaces. Only by adopting this extensive approach could one have avoided falling into the trap of creating theme-park scenery. The result is rendering rather than representation, landscape rather than garden. There has been no concession to lyricism; instead, there is a tension between plants and infrastructure, the living and the inert, sharp edges and organic forms, the static and the dynamic, between permanence and change, simplicity and complexity. Poetry emerges from the different perceptual scales of the project, rather than through prodigious design or detailing.

The three main conceptual approaches to the project – the phytoepisodes as the criteria for organising the botanical collection; the triangulation grid as a flexible spatial strategy; and the fractal logic as the basis for the design of the infrastructure and architectural elements – seem to be working well together in a necessarily flexible way. The convergence of these three concepts has allowed the garden to be implemented gradually, without major interruptions, while remaining open to the public.

The two-speed consolidation of infrastructure and planting has proved to be practical. The extensive path system was constructed in a single phase during 1999 allowing complete access for planting and maintenance, whereas the different phytoepisodes are being implemented gradually, as the budget and the plant materials become available.

The garden seems to fulfil expectations in terms of accessibility, social acceptance, and the development of the planted schemes, but some criticisms can be made. Locating the building which houses technical services away from the entrance building has created some problems in terms of costs, security and logistics which could have been avoided if these functions had been combined in a single building or complex. On the other hand, the entrance building, as it stands, has a welcoming sculptural quality, which might have been difficult to achieve in a building with a larger programme. It displays itself as one more fractal object amidst the fractal patterns of the garden, with a broken geometry, halfway between a square, a building and a window to the garden. The same cannot be said about the management building or the recently inaugurated Botanical Institute, both of which are situated at the edge of the garden, and have their own inner logics

that escape the triangulation vocabulary used in the rest of JBB. Nevertheless, the use of similar materials helps to harmonise them in the general context. One could regard them as follies, in terms of the overall concept. The new Botanic Institute Building has a 70m-long window façade; even though one might agree with the concept, it is difficult to escape the conclusion that the window is too long and too dominant for a project which otherwise has such a fine grain.

A challenge to JBB, as in all the public space projects, is to keep the original scheme simple and coherent, and to avoid the gradual superimposition of urban furniture, signposting and other elements in a variety of styles. This has not yet happened at JBB, although the recent appearance of litter bins which employ previously unused materials and different styles should sound an alarm.

A doubt arises about the way the phytoepisodes are being managed. During the flurry of activity before the opening, many of the phytoepisodes were implemented without a single plan. Even though the results are interesting, one might say that they could have been better if more time could have been invested in their design. The budget at JBB has been limited and this has prevented a number of important tasks from being completed, among them research into the phytoepisodes and more detailed design commissions, whether by the in-house team or by consultants. Plants need to be identified and explanatory signboards are needed. Work on these aspects has been commissioned.

The number of visitors doubled in 2003 to around 24,000 per annum, but the garden is still far short of being economically sustainable. Two more strategic developments are underway – the opening of a restaurant/bar in the Biological Institute, and the construction of an amphitheatre for open classes and meetings, together with picnic facilities in one of the phytoepisodes. A programme of school visits, open days, conferences and temporary exhibitions in the Botanical Institute will be inaugurated in the near future, in the hope that this will gradually increase the visitor numbers.

Sweden

Ann Bergsjö

Landscape architecture in Sweden

The dialogue and harmony between landscape architecture and the natural landscape are explicit and obvious in Sweden, whether it is shown by designers taking their inspiration from nature or by the incorporation of existing natural elements into a design. The garden or park often appears as nature refined. The clue, or key word, for landscape architecture in Sweden could be *resistance*. This word can be interpreted in terms of the resistance offered by the natural landscape and the harsh climate which presents such difficult growing conditions for vegetation. Second, the word can be understood in terms of the restrained forms found in Swedish landscape architecture itself. Designers must also contend with financial resistance.

The importation of foreign ideas has a long history in Sweden. Landscape architecture has developed over the centuries in close relation to and dialogue with art and society. Looking back at their predecessors, Swedish landscape architects find monks and nuns of the Christian monasteries, peasants, royalty and aristocracy, military figures, gardeners, architects, botanists and artist painters. As a result of the extraordinary conditions presented by the natural landscape and climate, foreign ideas have rarely been copied exactly, but often given a special modification, or interpretation with respect for the given site. Inspiration for landscape design has also been drawn from vernacular forms and old cultivation methods, such as meadows and pastures.

Even in more recent times, when Modernism appeared around 1930, it was not applied in its purest form. Outdoor life became a priority, when architects implemented ideas for better health, access to light and to greenery. Use became more important than form. Architects tended to mix the new with the traditional, as for example in the famous Woodland Cemetery in Stockholm, the first park in the world on UNESCO's World Heritage List. The Swedish landscape is dominated by woodlands and the forest has been one of the most profound images in the tradition of landscape architecture. The enduring belief, shared by many landscape architects throughout the different eras of architectural style, has been that the natural landscape should act as the model for the urban landscape. The Stockholm School of the 1940s designed modern parks with a social programme, modern materials, detailing and management, though mainly naturalistic and traditional in their visual aspect. The vegetation consisted mainly of native species and materials and vernacular references were preferred. Since the 1970s, many Swedish landscape architects have been drifting away from this naturalism and have adjusted to the more continental and

8.1
View from the south, with original boulders and waterfront

international styles ruled by urbanism. At present, we can see signs of a return to and revitalisation of the traditional naturalism in design. This give and take, acceptance and rejection, adjustment of people's needs and affection for nature are characteristics of the best aspects of Swedish landscape architecture.

Case study
Daniaparken, Malmö

Project data

Project name:	Daniaparken
Location:	Malmö, Sweden
Client:	City of Malmö
Designer:	Thorbjörn Andersson and Pe Ge Hillinge/ FFNS Architects
Project team:	Veronika Borg, Peter Ekroth, Clotte Frank, Sven Hedlund,
	Kenneth Hildén, Anders Lidström, Michael Hallbert (illumination)
Area:	20,000m^2
Date completed:	2001

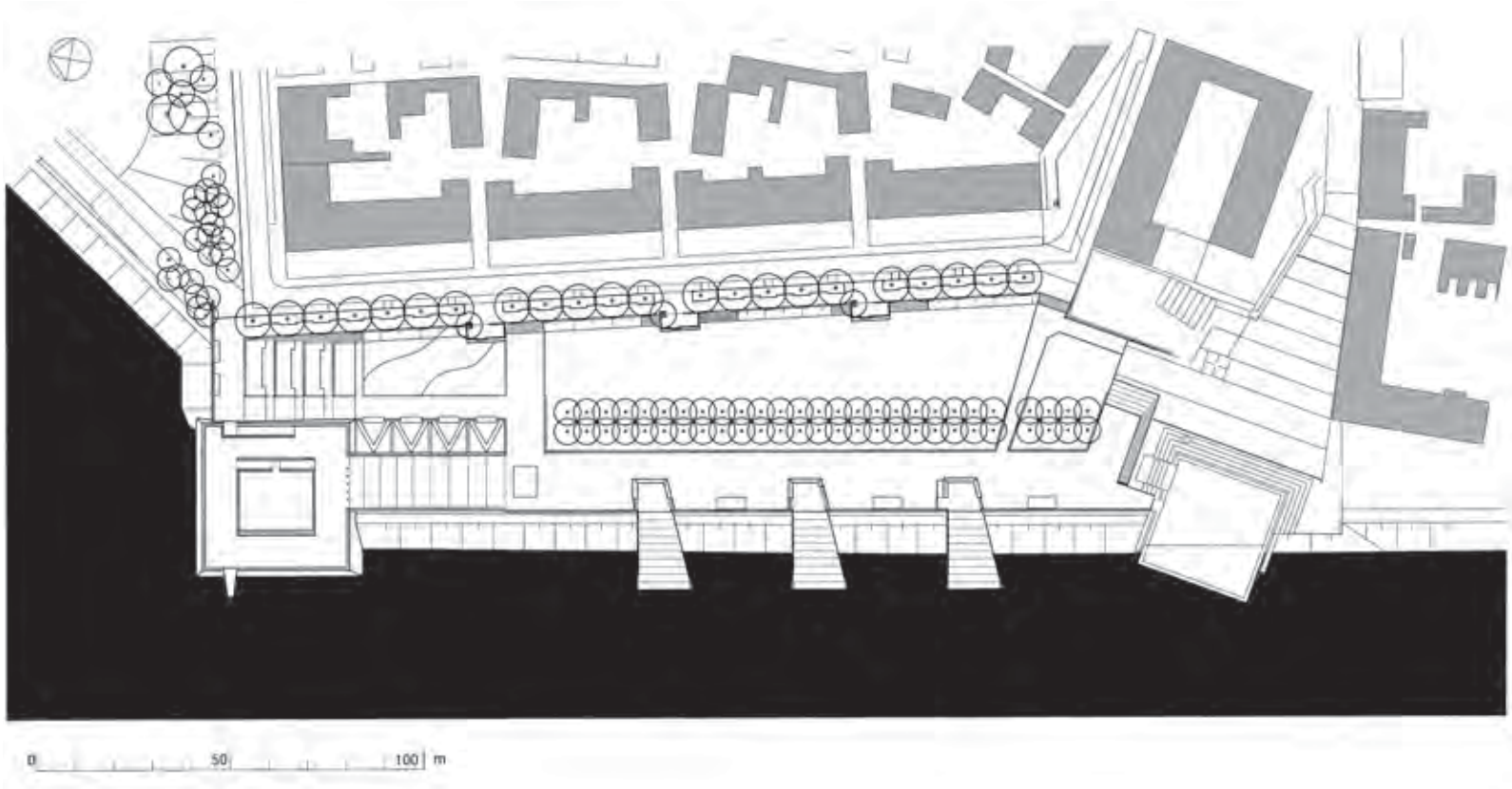
Overview
Daniaparken is part of a new urban district in Malmö, a city of over 260,000 inhabitants, located in the southernmost part of Sweden. When complete, the new district will contain about 600 dwellings, shops, restaurants, offices, school and day care centres, parts of a new university campus, streets and parks.

The site is a landfill, with contaminated mud as a result of about a century of industrial activity. It is all flat. Existing qualities of the site were the sea, the wind, the sky and the long views to the free horizon. The immense scale of the waterfront landscape is reflected in the park, which also has a large scale. The openness is intended to contrast with the density of the city development of the district.

The park will, to a great extent, provide space for social activities. Different elements and places provide space for different activities and numbers of people. The Scouts area, for example, can accommodate about 10–15 people, while the large multi-use lawn can take several thousands.

In Sweden, most of the large city parks were completed around the turn of the last century. Malmö has the reputation of being 'the city of parks' in Sweden. In spite of this, no parks of the size and cost of Daniaparken have been designed and constructed for half a century, either in Malmö or in Sweden as a whole. In this respect, the effort by the city of Malmö is remarkable and admirable.

The design of the park is the result of a competition, which was initiated by the European exposition Bo 01. The design process took off in a competitive atmosphere between several well-known landscape architects and offices from Scandinavian countries. The location and site are exceptional in many ways and the design was intended to be exceptional too, in having an international outlook and in being at the forefront of contemporary landscape architecture in Sweden. Even though the concept of the design seems to be typical of waterfront parks all over Europe, it maintains Scandinavian traditions in detailing and materials, using mainly granite, gravel and tarred wood in the characteristic elements of the park. Details are both traditional and innovative in design.

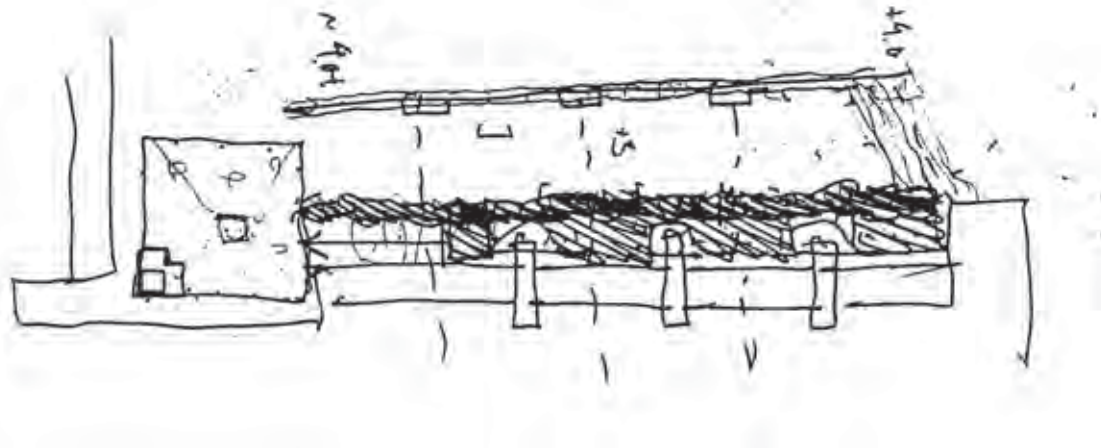


8.2

Site plan

8.3

The landscape architect's first conceptual sketch



8.4

Overview computer image

8.5

Computer image of the Great Slope

Project history

The former harbour and wharf area of Malmö stretches in the shape of a peninsula out into the sound (Öresund) from the central parts of the city. The development of the harbour was relatively late, towards the end of the eighteenth century. The period of industrialisation at the end of the nineteenth century resulted in increased activity, but the major land-winning projects were carried out after the Second World War. The Kockums Company, which specialised in submarines and naval technology, has had the greatest impact upon the area. The company has since closed down and left the area.

At present, this part of the city is called the Western Harbour and the aim is that it will be transformed step by step into a new urban district with 600 dwellings, shops, restaurants, offices, streets, parks and gardens. The Masterplan was approved by the municipal authorities at the end of the 1990s. The character of the older parts of the inner city forms the model of the structure – dense and intimate. With the development of the Western Harbour district, the close relation between the sea and the city will be re-established.

The area facing the waterfront was treated as an international exposition, Bo 01 – the City of the Future – in 2001. Within the concept of a dense and irregular small-scale urban structure, a number of buildings in minimalist and neo-modern styles were constructed.

Five landscape architect companies, from Sweden, Norway, Denmark and the Netherlands, were invited to take part in a competition dealing with the parks and the public open space of the district. The programme for the competition gave clear suggestions for the design of the shoreline park:

> The Waterfront Park is situated facing the sea … The site is exposed, the wind is harsh and salty water is thrown to the shore in hard weather. The high content of salt in the air, in the sea and in the ground water forms difficult biological conditions for plants, but gives a strong character. The place is unique and the design reflects this character. The Waterfront park is to a great extent a public park ... The scale is immense and must be profoundly studied ... Possible words to describe the character are: sea, barren, salty water, windswept, sculptural, contemplative, rustic, urban, public.[1]

The architects of the exposition decided to co-operate with different landscape architects upon different sites within the district. For the waterfront park, given the name Daniaparken, the proposal of the company FFNS Architects, with landscape architect

8.6
Early perspective sketch of the east promenade

Thorbjörn Andersson in charge, was declared the winner. The following quotation is from the jury's assessment:

> The connection and exposition to the sea has been given new dimensions without compromise in the control of the four elements. Strong design elements forms events and space in a large overall design. A unique outdoor environment in a project to be remembered.[2]

The design process and the construction of the park had a tight schedule due to the date of the opening of the exposition. Daniaparken can be compared to Strandparken in Copenhagen, which is similar in size and is also located in an urban environment, the initiative and the design process were different, but both resulting parks have proved equally popular with the citizens.

Design philosophy

Thorbjörn Andersson has, in his book *Places. platser* (2002), given his own views on landscape architecture and the role of the landscape architect. The American landscape architect and theorist Marc Treib has interpreted the landscape architecture of T. Andersson in an article published in the same book,[3] where he also gives a more general view of Swedish landscape design traditions and characteristics. The following is partly drawn from the book, but with some supplementary reflections.

Andersson claims that landscape architecture has a social mission. The main issue is to design public open space that is durable, in terms of both form and materials, for many years to come. The places should give a reflection of our culture, our present, our mutual aspirations and the kind of city life people desire. To handle the complexity is not easy, but if you make the existing site a starting point and add a layer to fulfil the needs, you have set the basis for the design. The work of the designer should not be a reflection of his or her personality, but of people living their everyday lives on the site, in the city.

These ideas of design restraint and understatement position Andersson in a long-standing tradition in Swedish landscape architecture. Like the Stockholm School and Swedish Romantic Modernism, the design is propelled by social purpose and a predi-

lection for local materials. Opposing the tradition, he does not inject fragments of natural landscapes within the urban context, but instead seeks a logical consequence in architectural forms and materials.

Design development

No parks of this size have been built in Sweden for half a century. Instead we have relied on our heritage from the turn of the last century, when most of the existing parks were designed and constructed. The design has been made in co-operation between Thorbjörn Andersson and Pe Ge Hillinge. They have worked together many times before and describe the design process as 'like running in a relay race, where they carry the stick in turns.'[4] As key words, or clues, to his design process, Andersson refers to the Swedish architect Ingeborg Hammarskiöld-Reiz's ideas about sufficiency and necessity. For a public park it is sufficient to include the necessary. The rest is for life itself to add.

Structure

The site of the park is a flat landfill with contaminated mud. A strong boulder lining along the edge of the sea retains the mud. The immense scale of the coastal landscape on the site is reflected in the park. The openness is intended to contrast with the dense and irregular city development.

The basic design concept is very simple with straight lines stretching from south to north, along the sea and the shore, with hard-surfaced walks running east–west, an elongated grass field between the promenades and a few lines of trees. The existing boulders along the edge of the sea provided a

departure point for the design, as did the elevated mass of fill material that the boulders prevent from eroding into the water. In a way, the park is open to the land and closed to the sea.

Along the boulder line runs a tarred wooden wall, or palisade, 1.4m high. Consequently you can look over it, if you are tall enough, but not through it. Three tilted concrete planes, the Scouts, penetrate the wall and boulder line and permit visitors access to the water. Along the wall, on the inner side, is a wide gravelled walk with park benches, suitable for promenades and biking. The large multi-use grass field, the Lawn, is distinguished from the walk by two lines of trees. The Lawn is appropriate for playing as well as for larger events, as it provides space for several thousands of people. To the north, the grass field ends with a terraced garden of perennial plants and to the east a grass slope provides possibilities for sitting on the ground. Along the eastern border, towards the residential area, stretches another gravelled walk with a single line of trees and simple stone benches under the canopies.

The elevated parts of the park are of great importance for the design concept. A large flat table, called the Node, lies about 6m above water level in the north-east corner of the park. Three tarred wooden boxes, the Balconies, overlook the grass field, from the slope to the west of the park.

The general lightning of the park is provided by three slightly tilted masts, 16m high, equipped with well-directed spotlights. The different places and elements have different forms of illumination, coordinated with their different design and character.

Scale

The park is mostly about scale, proportion and space for social activity. The design is like Pandora's box, comprising spaces and places of various sizes and qualities that address various kinds of visitors and activities. Andersson has described it as follows:

> The park contains a series of social spaces from the large park benches where a family can have a picnic, via the Balconies for about ten people. The Scouts provide for about 20–30. The Node provides space for a few hundreds, and finally the Lawn can, if required, accommodate thousands of people. That's the idea.[5]

Elements

Because of the extraordinarily large size of the park, one could argue that it lacks what would traditionally be described as a sense of space, meaning enclosed space defined by surrounding walls. On the other hand, one can argue that the park contains a number of parts or elements that separately have such a strong form and character that they cre-

8.7
Bird's eye sketch of the proposal in the design competition

ate a sense of space around themselves. The different parts were already named in the initial sketches and proposal for the competition – the Node, the Scouts, the Balconies, the Lawn – in order to give them a certain identity and closely connect them to the project as a whole and to make it more difficult to exclude them from the project, if, for example, costs had to be cut as the design and construction process continued.

Inspiration for the areas related to marine and coastal scenery was drawn from a small fishing village by the east coast of Scania (Skåne, the county in which Malmö is situated). This happens to be the region where Andersson was born and raised. This inspiration from a small-scale, rural and rather derelict place has been transformed, in the architect's design, into a large-scale, urban space which, in the summertime at least, swarms with city life.

The Node

Initially it was suggested that this should be a very public place, a focal point for the whole district and the city. This important role implied the need for a strong identity in both form and material. FFNS's winning proposal described the Node as a fortification, a citadel. The 40 x 40m flat table, elevated about 6m above the sea level, leaves the visitor totally exposed to the elements, whether to a harsh wind or a beautiful sunset. Some days you do not want to be here at all. Some days it is fantastic.

The Node attracts lots of visitors to the park. Presumably it is the best spot in town in which to experience stormy weather. During the bathing season, the small outpost balcony attached to the wall has become a place for young men and women to test their courage. They jump or dive from the handrail some 6m down into the water and climb the slightly tilted walls up again. The municipal authorities have tried to stop this and put up warning signs, and, just in case, they have cleared the stones from the bottom. Perhaps this is a typically Swedish manner of handling such a matter – it is prohibited, but the authorities do not want anyone to get hurt.

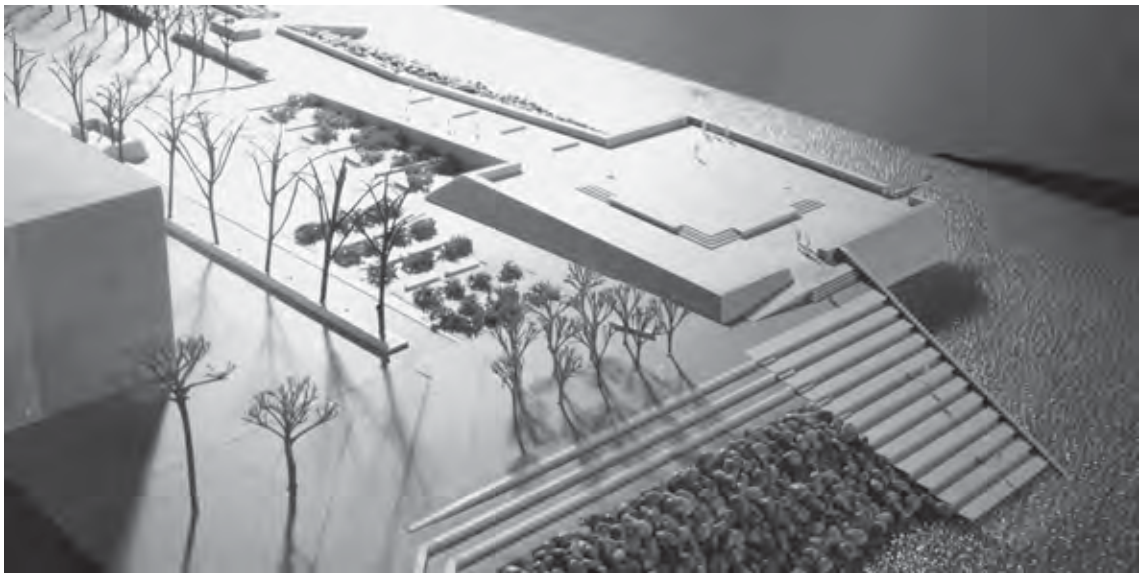
The Node is the part of the park that, to the greatest extent, has been transformed between the early design proposal and the actual construction. In the first proposal it had a huge staircase down to the water surface with a narrow elevated pier towards the north-east corner. This was followed by a design with a narrowing staircase and a small outpost attached to the wall. Eventually the staircase disappeared and the Node was given its final form. The Node is a very large body. The designer stresses that it is especially important to take care of the details when working at such a large scale. 'Large scale without detailing turns out monotonous and dumb, inhuman.'[6]

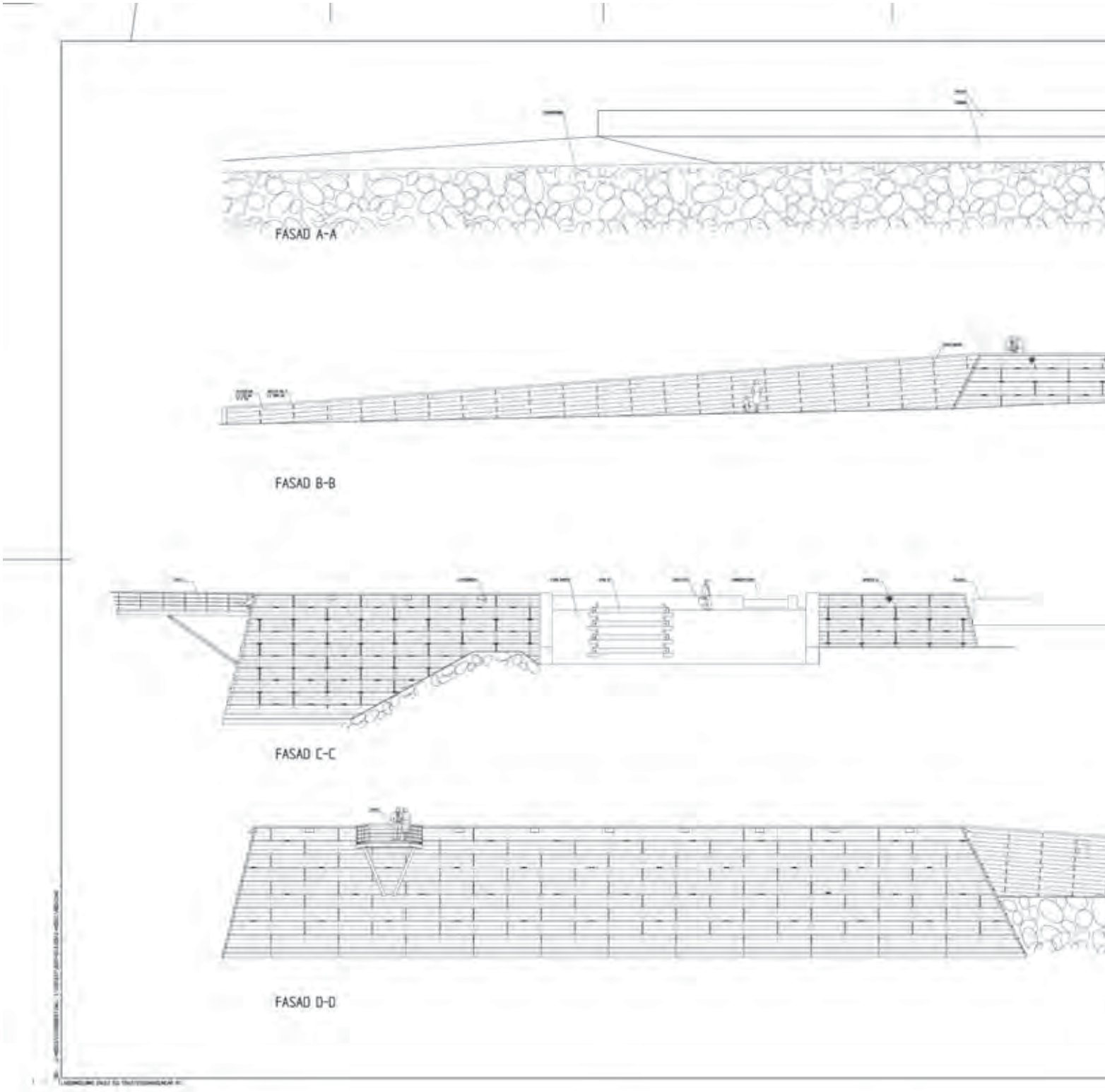
8.8

Photo of a model of the proposal at a later stage in the design process

8.9 (overleaf)

Elevations of the Node




FASAD A-A
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FÖRESKRIFTER

(VAV NODENS TRÄBEKLÄDNAD) MÖTER MARK, VARV SIG (ETT ÅR) FRÅGA OM GRUSYTA, SMÅGATSTEN, PLANTERINGSYTA ELLER STRANDSKONING SKA DEN FORTSÄTTA NER I MARKEN SÅ ATT INGEN GLUGG ELLER GLIPA BILDAS.

HÄNVISNINGAR

FÖR PLACERING AV DISTANSBRICKOR SE RITN 23 979 EESL 2001-04-09
FÖR KONSTRUKTIONER SE RITNING 25070-076

NORRA STRANDPARKEN, ORIENTERINGSPLAN
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FFNS
FFNS ARKITEKTER AB
STOCKHOLM

BOD1 STRANDPARKEN
STENKORSET, FASADER

MALMÖ GATUKONTOR
23 979

8.10
The outpost with a view towards the bridge between Sweden and Denmark

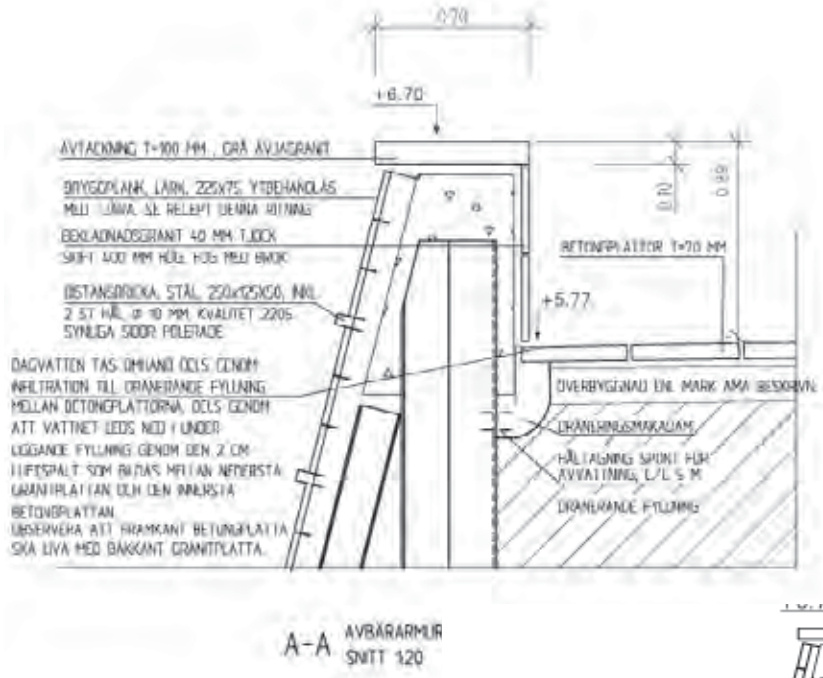
The Node is constructed with walls of concrete and an exterior tongue of steel. Inside the walls a fill material of crushed bedrock has been used to permit drainage The original idea was that both exterior and interior surfaces of the wall should be covered with 40mm granite slabs with a rough surface, so that the whole thing resembled a citadel. Ultimately only the inner surface was finished in this way. Because of high costs, the exterior façade was covered with tarred horizontal wooden paling. Small washers of steel were inserted between the wood and form a diagonal pattern. The metal glitters in the black surface in the daylight. During the hours of darkness a sloping light from the upper edge of the wall creates shaped shadows down the walls. In this way the large façade surfaces have a desirable detailing.

The outpost is a small and tapering platform, stretching out about 5m from the wall, 6m above the water surface. It is a steel construction with a wooden decking of azobe and framing handrails of steel. Taking a few steps out onto it gives one a feeling of dizziness, like hanging above the water.

In the middle of the flat square plane of the Node is a place that is elevated by approximately half a metre, called the Stone Table. You can climb onto it via steps or a ramp. It is totally free of all kinds of equipment. You can sit along the edges or on the elevated plane itself. The supporting walls, the stairs and the ramp are all constructed with solid granite blocks. The surface of the plane has the same concrete slab paving as the rest of the surface of the Node. The colour is dark grey with a structured surface and the dimensions are 500 x 500 x 70mm.

8.11

Detailed construction sections for the outpost



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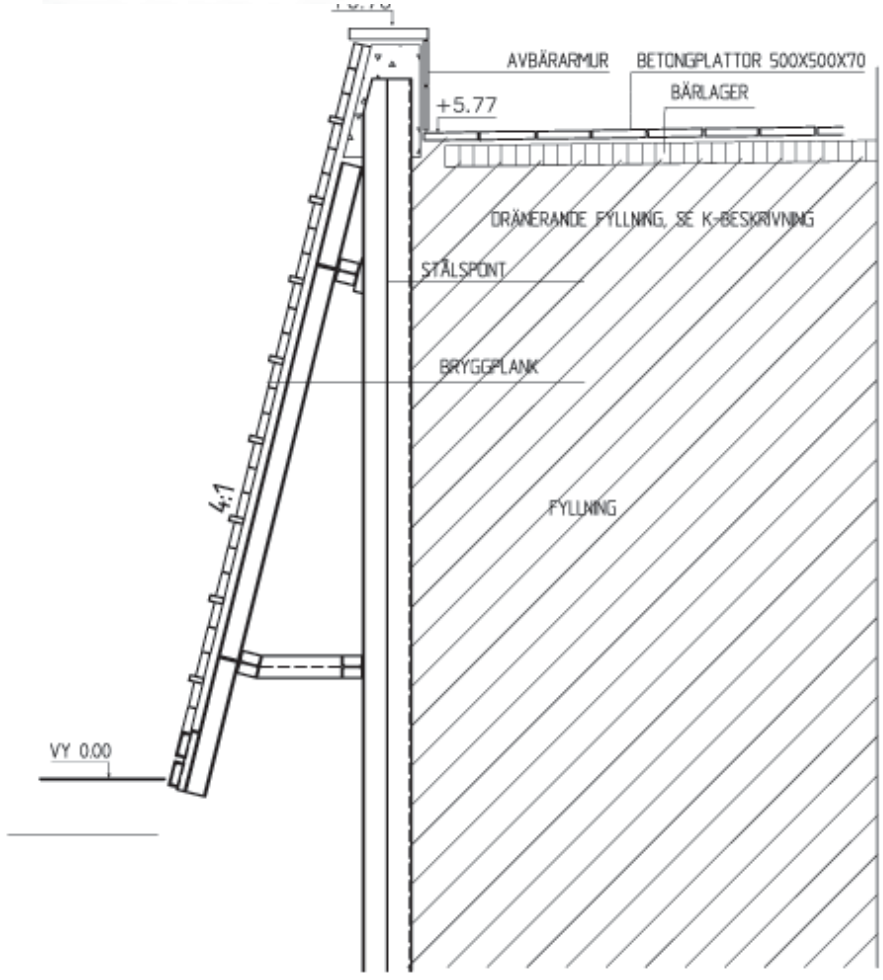


8.12
The Node – façade
8.13
The Great Slope
8.14
Detailed plan of the paving on the Great Slope

The falls across the Node have been designed in order to direct the storm-water towards the surrounding walls. A small gap between the paving and the wall makes it possible for the water to flow down into the crushed rock filling.

The Great Slope
Connecting the Node with the gravelled walk along the shore lies the Great Slope which is tilted at about 7 per cent (1:15). The intention was that the slope could be used as a platform or stand, directed towards a stage of granite slabs in the gravelled surface below. The slope is also suitable for sunbathing, picnics and children's play. You can also find benches, designed with a nautical touch, situated on the slope, but you rarely see anyone resting here. It is primarily attractive for activities like biking and skateboarding.

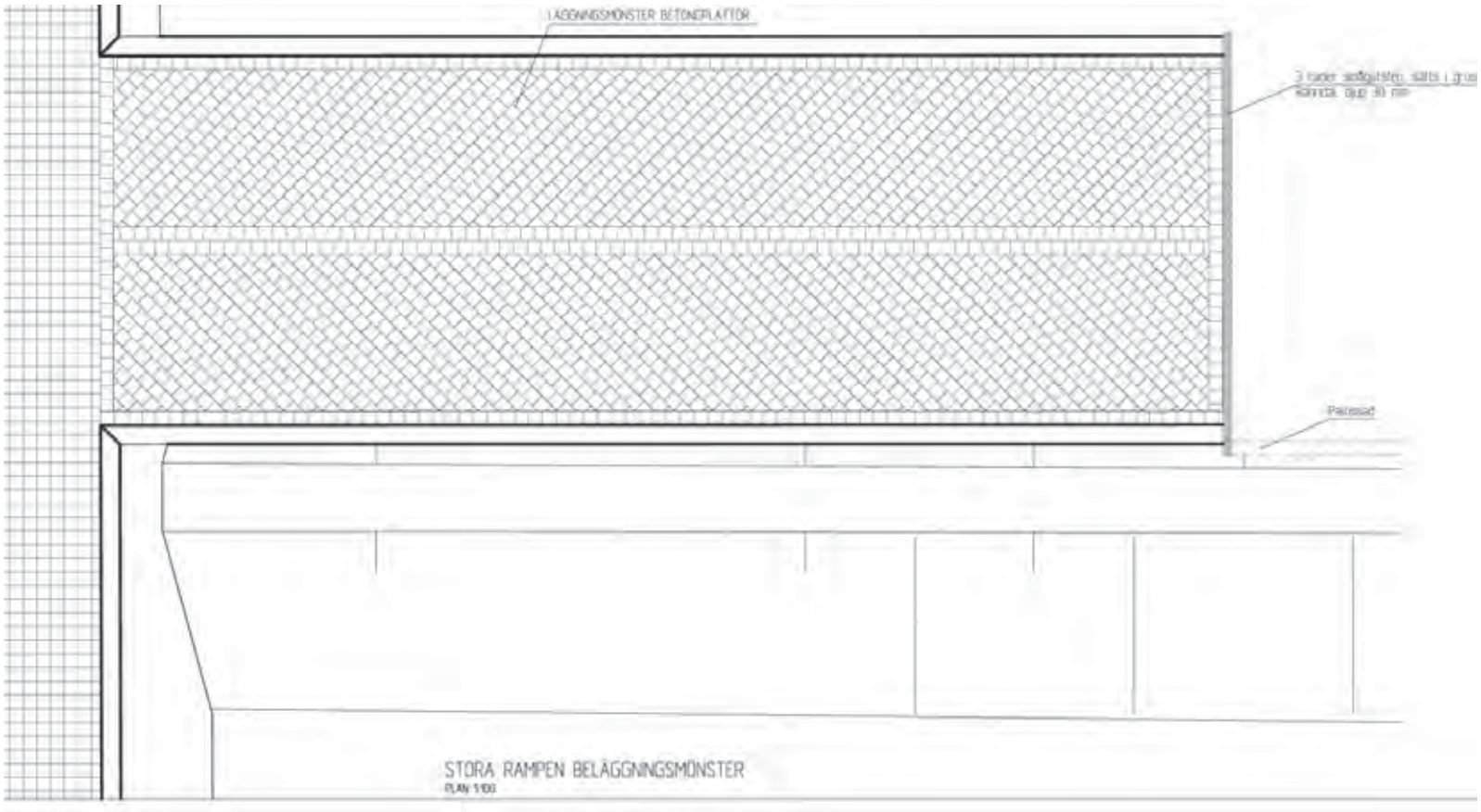
The supporting walls have the same concrete construction as those of the Node. The inner covering façade is made of granite slabs with a rough surface and the outside of tarred wood. The wall has a coping of granite.

The paving is made with the same concrete slabs as used on the Node, but with a pattern laid at a 45° angle to a central line formed by two rows of slabs. The whole area is framed with a frieze of the same slabs. Along the lower edge of the slope runs a gutter of three rows of stone setts. The stage inserted in the gravelled surface below the slope is paved with large slabs of Swedish granite with dimensions 1000 x 1000 x 100mm with a flamed surface. The slabs are grounded in concrete. The surface is exactly level with the surrounding gravel, with the unwanted result that the gravel overflows onto the stone surface.

The park benches in the slope are constructed of square sawn timber in robust dimensions lying on a low stand of steel. The wood is processed with iron vitriol, which gives the surface the look of a grey, natural patina.

The Scouts
The three Scouts are facing the sea. They have the shape of slightly terraced, tilted platforms, resembling those used when launching boats. The shape is extended towards the water. Waves can overflow the tilted plane, but never reach its back edge. The sea is invited to the park, the park is invited to the sea. This is the place were you can penetrate the wooden wall and get in touch with the water. You can go swimming, windsurfing, take a rest on a park bench, sense the wind and water, have a full view to the horizon and Denmark on the other side of the narrow sound between the countries.

Originally it was planned that the Scouts were to be constructed with a body of cast concrete. The



raised, protecting wall along one of the sides were to have a covering of tarred wood. The paving of the upper platform as well as the terraced slope were to be paved with flame-finished granite slabs. The framing wall at the back, towards the gravelled walk, was supposed to have a concrete body with a façade of rough-surfaced granite slabs. The final construction was made with the terraced slope in cast concrete with a brushed surface. The risers have a hardwood edge (azobe) chosen because it is so much more durable than any domestic timber. The wing wall along the northern side is a solid cast concrete construction with a smooth surface.

The grading of the tilted terraced slope is designed to have water overflowing the lower parts, even in periods of low water. In the Öresund there are no tides, but the average water level fluctuates over the seasons and as a result of wind direction. Normally the water reaches the third or fourth step. This has resulted in a growth of seaweed that makes the steps very slippery. Accidents have occurred in connection with bathing. The municipal park department are testing different non-slip materials to prevent future accidents.

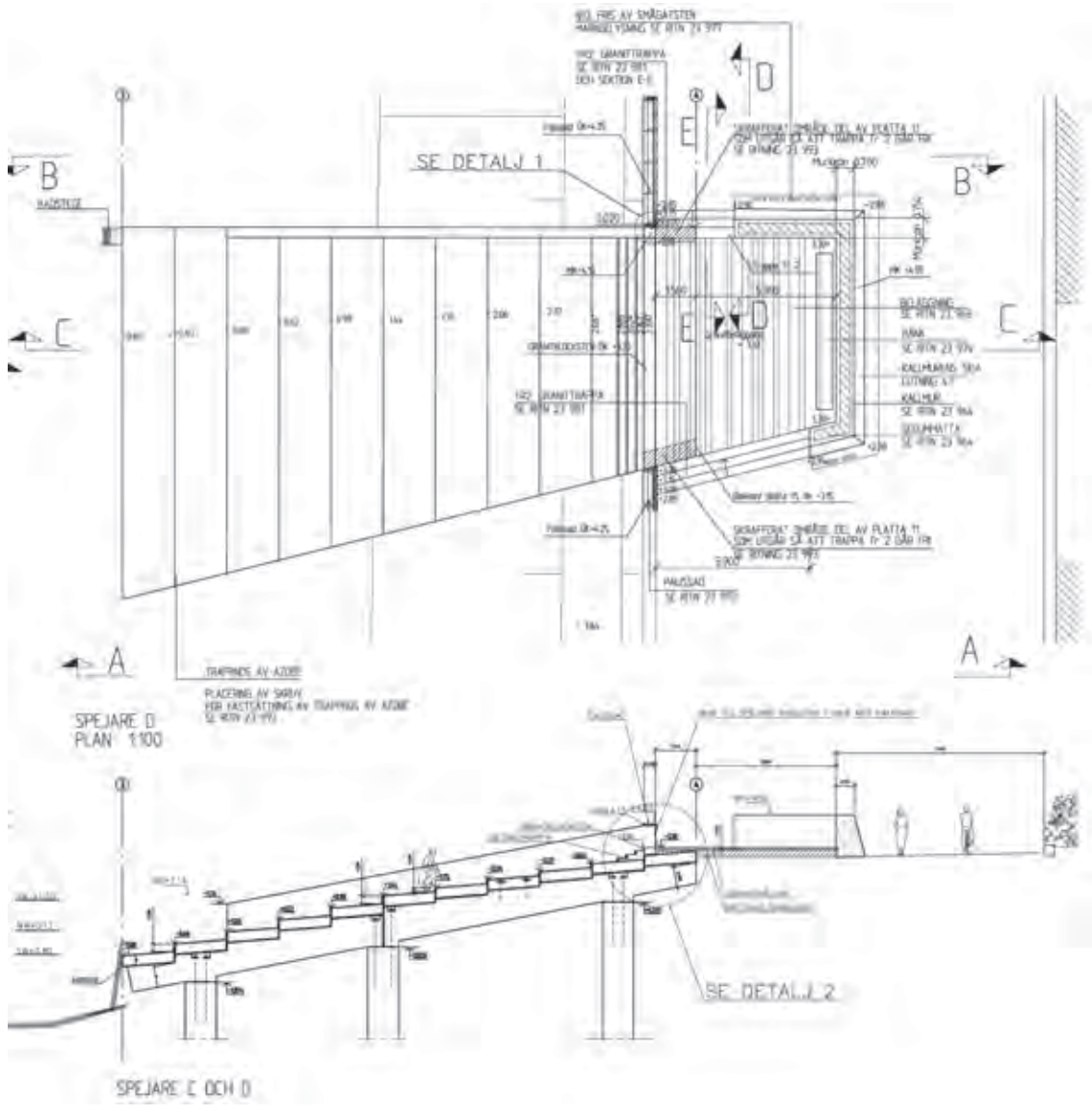
The paving on the upper platform is granite, following the original intention. This part is elevated by two to three steps above the gravelled walk. That means you go up on to the Scout and then down to the water. This increases the form and identity of the Scout as a separate element in the overall design of the park. The wall at the back was not built as intended, but is a skilfully cut

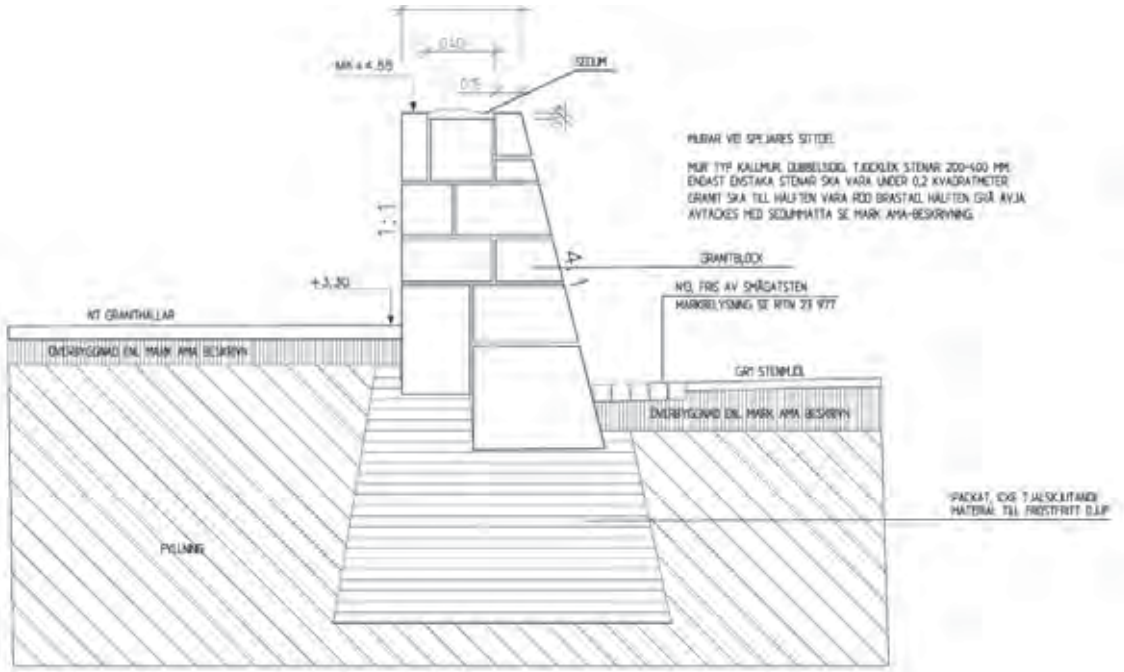
8.15

Detailed construction drawings of the Scouts (plan and section)

8.16

Detailed section through the granite wall





D-D KALLMUR
SNITT 1:20

8.17
Face of the wall
8.18
Surface of the in-situ cast concrete paving

and constructed dry wall of two different kinds of Swedish granite. These have a robust character, with a rough surface marked by the wedges of the stone craftsmen, open joints and small wedge stones, inserted as stabilisers for the whole construction. This is an example of best practice in traditional stonework. The coping of wall consists of turfs of Sedum, but these have proved hard to establish.

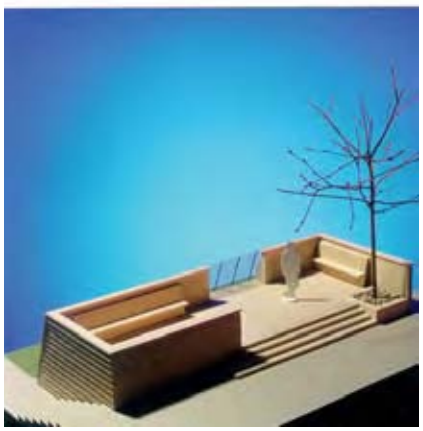
The Balconies

The Balconies are intended to be pieces of cabinet making, like 'cigar boxes pushed into the slope'.[7] The design is a contribution by architect Anders Lidström. They are placed in the eastern part of the park, in the slope from the Lawn up to the gravelled walk. They are elevated approximately 1m above the level of the Lawn. You enter the Balcony by climbing a few steps from the walk. As with the Scouts, this small elevation reinforces the form and identity of the element.

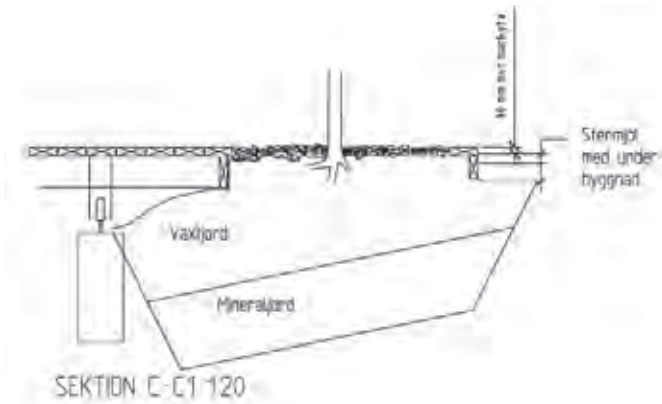
The construction consists of a platform of concrete sitting on concrete columns upon a cast concrete foundation. On top of the concrete platform lies a wooden decking of azobe. The enclosing walls do not have a supporting function, and would more correctly be described as an embracing fence. The outside covering of wood is like a façade covering the supporting structure.

The framing fence, height about 1.1m, is covered on the inside with horizontal wooden laths. On the outside the covering is made of small, thin pieces of wood, like a traditional *spåntak* or chip roof. The chips are tarred, giving a dim black impression that at the same time is impregnating and protective to the wood. The façade facing the lawn is slightly tilted like the outside façades of the Node. On this side there is also an opening in the fence, like a peephole to the park and the sea. In the opening there is a grid made of circular steel, following the tilt of the fence. The fence has a coping lath of teak with carefully rounded edges. The lath is screwed on to steel sheets, that are fixed to brackets on the fence posts. The outside façade is illuminated during the hours of darkness by lighting fittings hidden under the coping lath of wood.

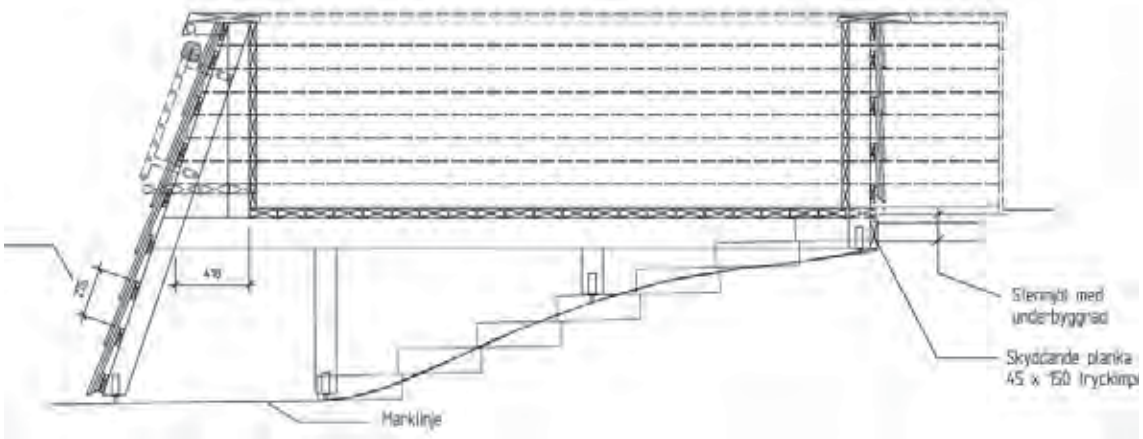
At the entrance to the Balcony is a tree, which gives the impression of being planted in a box, though actually it has a pit in the slope below.



8.19
Photo of the scale model of a balcony



SEKTION C-C1 1:20



SEKTION B-B1 1:20

8.20

Section through tree pit in the slope under a balcony

8.21

Detailed section through supporting structure and façade

8.22

Balcony inserted into the grass slope

8.23

Close-up of the timber cladding

Evaluation

Daniaparken is, by Swedish standards, a very large and costly project. The design and construction in this district have higher quality standards than is usual. It is a kind of adaptive reuse project that at present occupies several landscape architects in the country and that has become something of a speciality for Thorbjörn Andersson: to transform a landscape produced by prior human use, where old structures might have been removed or still occupy the site. This raises some interesting questions when approaching the design process, for example, do we destroy the existing cultural landscape and replace it with another? Or do we keep the structure but modify the function?

In the case of Daniaparken there were very few remaining structures and elements on site. Although the land was formerly an industrial area, it was completely cleared and filled. In this respect, Daniaparken is not a typical project of Andersson's work. In other respects it is, on the contrary, very typical in its analytical and simple concept, its predilection for linear structures, the sensibility of its detailing and its use of local materials (mainly granite).

Andersson explains about his general guidelines of design as follows:

> I want five strong design ideas in a project. They are the basic principles. I can accept to let go of two. Three strong ideas could still make a good design, but it is difficult to keep up the quality with less … It is not only my responsibility, but my obligation to produce a project with an acceptable level of quality … During my first years in practice, this was a burden. In course of time it has become a little easier, I presume experience helps.[8]

The design concept, or scheme, of Daniaparken is very simple – a linear overall structure with hard surfaces along the shore and the border to the buildings, an elongated grass field without any specific assignments of use and a few features that have a strong attraction to visitors. A problem with a striped structure – a landscape of ribbons – is the lack of relationship across the lines. In Daniaparken you can sense this lack of relation across the Lawn. At present, the walk along the east border feels remote from the city, but this might change over time, when the district is more dense and has more buildings. And, of course, the waterfront has a very strong attraction that is difficult to compete with. One opinion about the park is that it has a very serious atmosphere, almost sacred. Andersson does not oppose this opinion, but argues that landscape architecture does not necessarily have to be amusing in itself. It is a framework, a background where people should have fun and be funny. The landscape design is for the people, not contrariwise.

The park's very ambitious programme of illumination, created in cooperation with a specialist, plays a very important role for the experience of the park during the dark hours and seasons, not only for the visitor but also for those who see the park from a distance.

In 2003, Daniaparken was one of 14 contemporary parks nominated for the Rosa Barba European Landscape Award.

It is rather a rule than an exception that design projects undergo changes during the design and construction process. This was true in the case of Daniaparken. The single change of materials which had the greatest impact on the architectural design was probably the change from granite walls to façades of tarred wood on the Node. You can debate whether the Node, as well as the park as a whole, has gained something from that substitution. The eclectic idea about resembling a citadel was replaced with a fresh idea, based upon reflections of a marine context. The ultimate solution, with the walls having an inner façade covered with granite under a coping of granite, results in a meeting of materials (with the tarred wood) that is not successful. You can compare this with the Balconies, where there is both an inner and outside façade of wood and even though they have different expressions this does not cause the same visual conflict.

The tarred wood demands frequent maintenance, which the municipality does not fulfil in a proper way. Consequently, the surfaces look greyish and dried out already, a few years after construction.

Also the Scouts had to undergo a change of materials. The paving of granite slabs was partly replaced with in-situ cast concrete and the wing wall was constructed as a solid in-situ cast concrete wall, instead of a concrete body with wooden covering. But these changes have not caused any disadvantage to the Scouts or to the park.

Typically for an Andersson urban landscape design, there is little vegetation. He has, over the years, developed a lack of confidence in the unpredictability and changeability of vegetation in an urban context. In Daniaparkenm, vegetation does not play any leading part. Rows of trees have been concentrated along the walks. Mixed borders of small shrubs distinguish the Lawn from the gravelled walk along the shore and there is a perennial garden in the northern part of the park.

The shrubs and perennials have established well, which is not the case with the trees. Actually, many of them died during the first year after planting. The trees were not planted in single pits, but in a long, continuous trench. The planting site consists of 800mm soil, 400mm mineral soil and 400mm

8.24
Trees along the upper east promenade
8.25
Herbaceous garden

top soil, which could be described as a common standard for the size of trees and the kind of urban environment. The cause of the failure has not been entirely investigated, but the trees will be replaced by others of the same species, mainly whitebeam (*Sorbus aria*).

In the early proposal for the competition the site could be characterised by phrases like 'wide sky', 'extended horizon', 'long vistas', 'stone boulders'. This character remains on site, but in a refined form. To describe what is on site today you could add words like 'modern urbanity', 'public urban space' and 'swarming city life'. The latter, which is not typically Swedish, would be an apt description of the site as it now appears from spring until autumn; for the rest of the year it is desolate, a more typically Swedish characteristic!

With Daniaparken, Malmö has consolidated its position as the leading city of Sweden in terms of impressive parks. It has done this with a park that is able to attract the younger generations of inhabitants and accommodate their activities, even though the design of the park adapts to the Swedish and Scandinavian traditions on landscape architecture and has a universal applicability in use and materials.

The United Kingdom

Ian Thompson

Landscape architecture in the United Kingdom

Great Britain is a relatively small, densely populated and urbanised island. It is often suggested that there is a north–south divide. London and the South-East are regarded as prosperous, but suffer from a housing shortage which pushes up prices and increases the pressure to build upon greenfield sites. In the old industrial conurbations of Northern England, South Wales and the West of Scotland, the story has been one of traditional industries, such as coal-mining, steel-making and shipbuilding, going into decline, with a resulting loss of population to the more prosperous south.

Though this picture is over-simplified, it does correspond to two of the main strands of activity in which British landscape architects find themselves engaged in the early years of the twenty-first century. The first, which is really a continuation of the post-war concern for the aesthetic accommodation of large items of infrastructure, such as motorways, reservoirs, power stations, towns and commercial forests, within the rural landscape, is concerned with the mitigation of the ecological and aesthetic impacts of new developments outside or on the edge of urban areas. The second is an engagement with the regeneration of post-industrial towns and cities and the effort to reverse economic decline through a mixture of environmental improvement and cultural development. The aim is to alter perceptions and thus increase inward investment, business relocation and tourism. The two projects studied in this chapter belong to this second category.

Newcastle and Sheffield can both be classified as post-industrial cities. Little remains of the industries with which they were once synonymous, coal-mining and shipbuilding in the case of Newcastle, steel-making and metalworking in the case of Sheffield. Both have been looking for ways to shake off the negative images associated with their industrial heydays. Following the example of Glasgow, which was European City of Culture in 1990, they have sought to add to their cultural attractions, while addressing the deficiencies of their city centres through urban design. In Sheffield, this has been done through an initiative called the Heart of the City Project which, in addition to the transformation of the Peace Gardens which will be described here, involved the construction of the new Millennium Galleries and demolition of the egg-box-like Town Hall Extension, creating the site for the striking new Winter Gardens. In Newcastle, the 'Cityscape' exercise promoted by the northern branch of the Royal Institute of British Architects was a catalyst for city centre renewal, while Newcastle Gateshead's highly acclaimed, though ultimately unsuccessful, bid for European City of Culture 2008 created an adventurous climate in which novel ideas could be received into urban thinking.

Both of the projects to be described involve the remodelling of significantly placed urban spaces, adjacent to the Town Hall in the Sheffield example, outside an art gallery in the case of Newcastle. Both were multi-disciplinary team efforts, involving not only landscape architects, but also highways and lighting engineers and specialist designers, artists or craftspersons. A major difference between the projects was that in the case of the Blue Carpet, Newcastle, the creative vision was essentially that of one person, Thomas Heatherwick, whose training was in three-dimensional design and who combined the ability to work with others with the tenacity to hold onto the integrity of his ideas; whereas in the case of the Peace Garden, creative ideas came from many different people and sources, yet the whole scheme is remarkably coherent and unified. It seems to disprove the adage that one cannot get good design from a committee.

Case study
The Blue Carpet, Laing Square, Newcastle upon Tyne, England

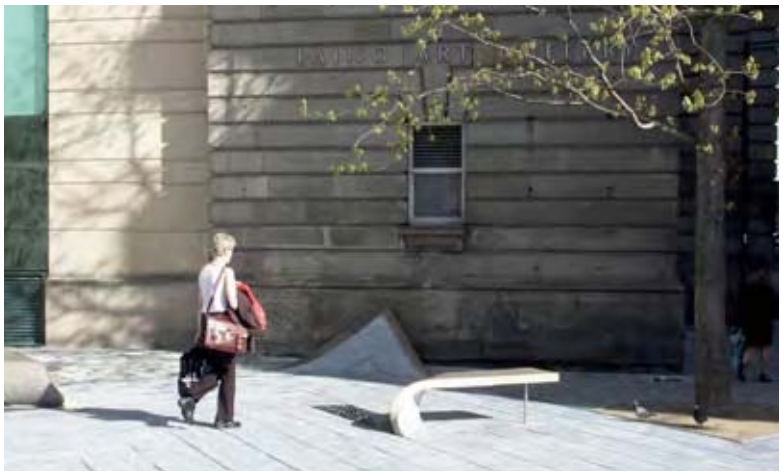
Project data

Project name:	The Blue Carpet
Location:	Laing Square, Newcastle upon Tyne
Date completed:	2002
Cost:	£1.4 million
Area:	1300m^2
Designer:	Thomas Heatherwick
Client:	City of Newcastle

Overview

The location of this project, outside Newcastle's Laing Art Gallery, and its title, the Blue Carpet, suggest that this is a piece of public art and this was certainly the way in which the City Council chose to represent it. But Thomas Heatherwick, the designer who won the competition to remodel this neglected corner of the city, where the new glazed entrance to the Laing faced a scruffy expanse of tarmac and a miscellany of unrelated buildings, does not describe himself as an artist, and he is adamant that the Blue Carpet is a functional part of the city. It is just that more thought has gone into it than goes into most urban spaces. It is not so much that the paving material used, which was the result of much research and experimentation, is blue (indeed, one of the critical reactions to the project has been that it is not blue enough), nor even that it uses recycled glass, but that in its form and in its details the Blue Carpet is out of the ordinary.

The Blue Carpet is essentially a paving scheme, but unlike conventional repaving, it does not fit tidily inside the usual boundaries provided by adjacent buildings and road kerbs. Instead, it has been laid, like an irregular mat, into a space which is itself oddly shaped. It laps up against the wall of the Laing Gallery like an Axminster that has crept. It appears to have been punctured by bollards. Strips peeled from the carpet form benches. Deliberately ill-fitting, it over-laps tree pits, while the paving surrounding it is conspicuously ordinary. It is rather as if the owner of a house with poor floorboards has bought an exotic rug and thrown it down to distract attention from what lies beneath, but just as a rug can change a room, so the Blue Carpet has altered the entire character of this formerly nondescript corner of Newcastle city centre.



9.1 (top left)
View towards the Laing Art gallery showing the 'peeled' benched and the carpet lapping against the gallery wall

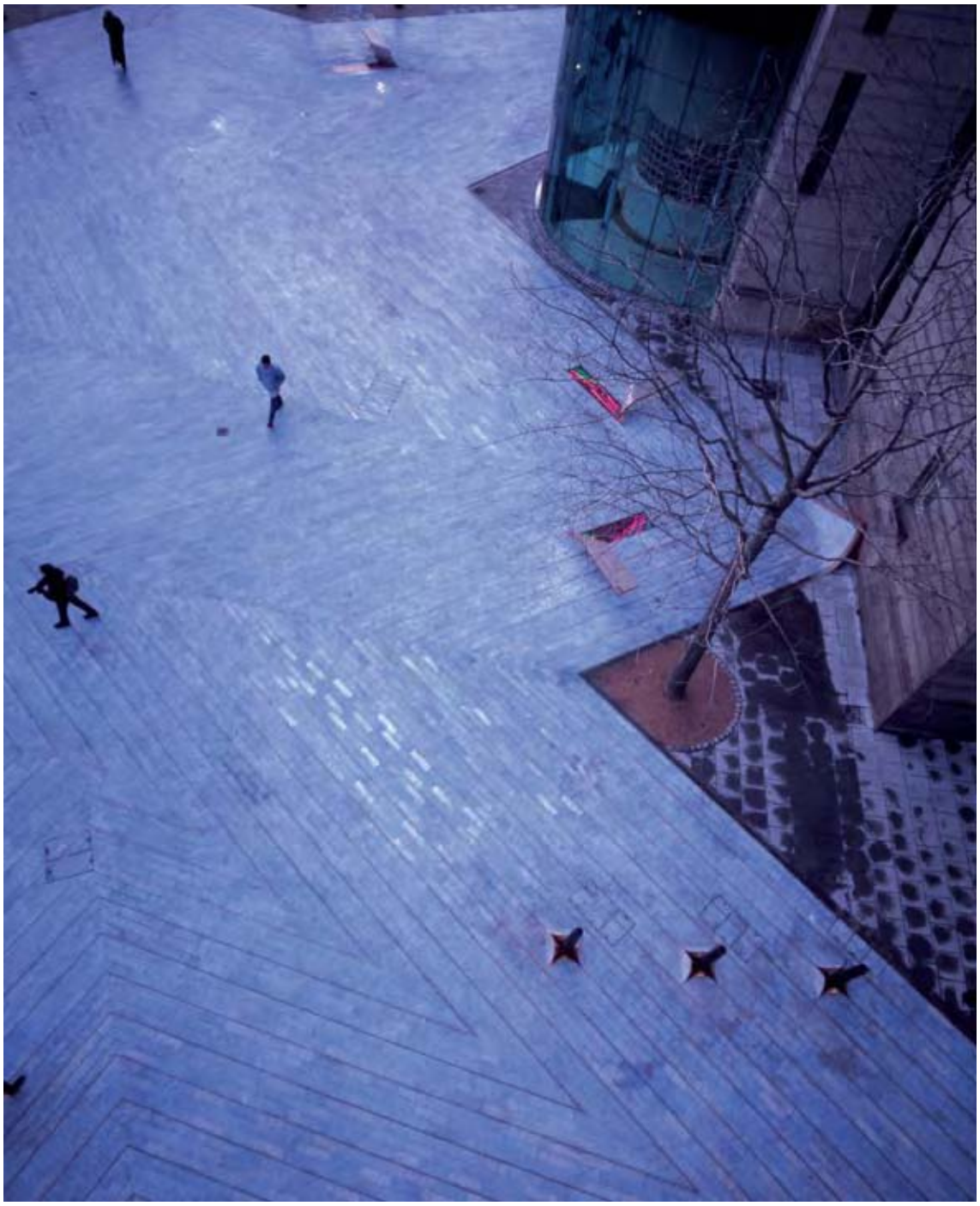
9.2 (above right)
View of Laing Gallery prior to implementation

9.3 (above left)
The site before implementation: view towards the Newcastle Building Society

Design philosophy

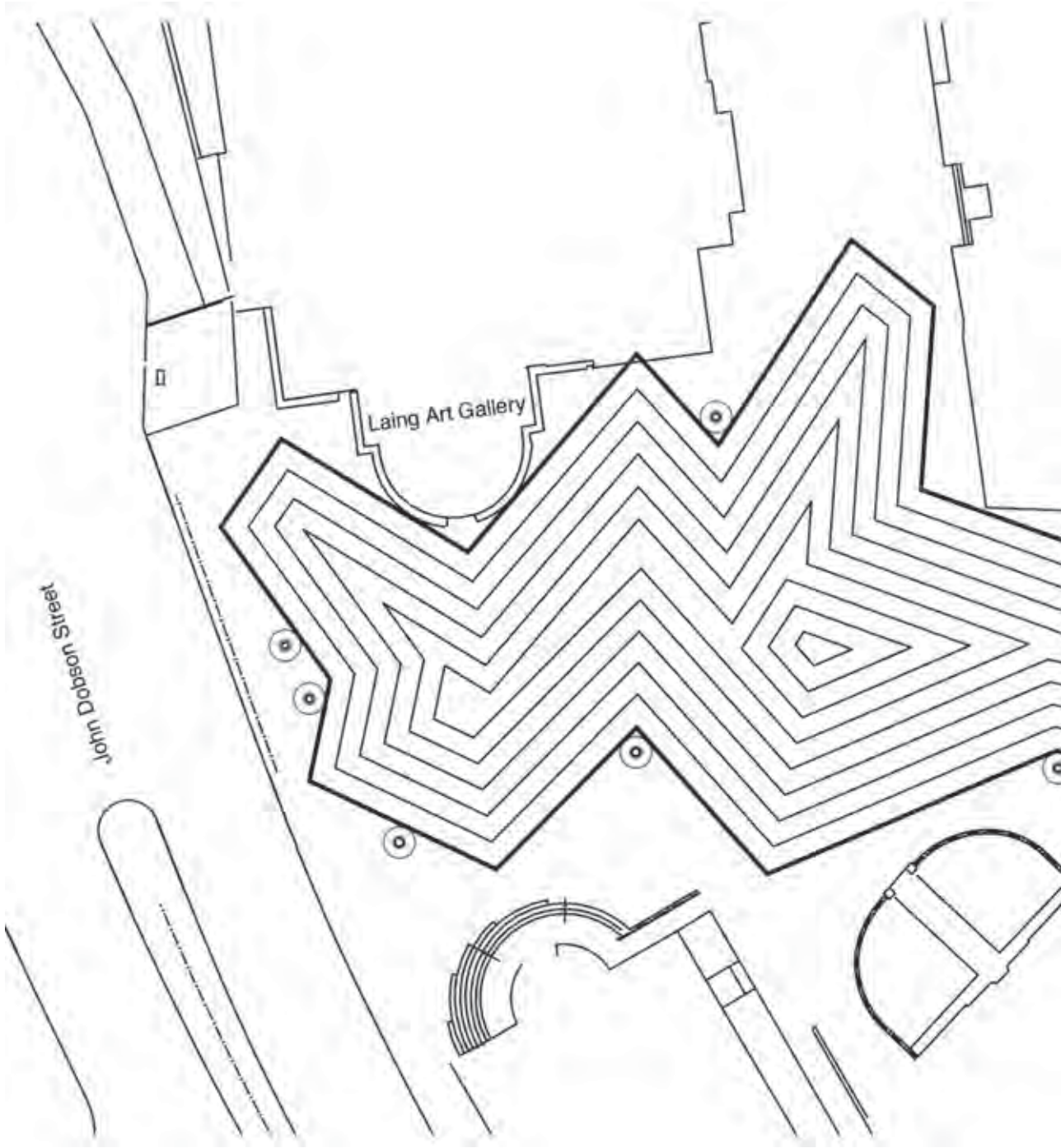
The brief issued by Newcastle City Council called for a designer rather than a design. The idea was that the involvement of an artist in the scheme would bring something special to the design and lift it out of the commonplace. Thomas Heatherwick trained in three-dimensional design at Manchester Metropolitan University and the Royal College of Art, and founded the Thomas Heatherwick Studio in 1994 to bring together architecture, art, design and engineering. The proposal which won this commission for Heatherwick was very different from the scheme that was eventually built, although the continuity of his thought process is easy to follow.

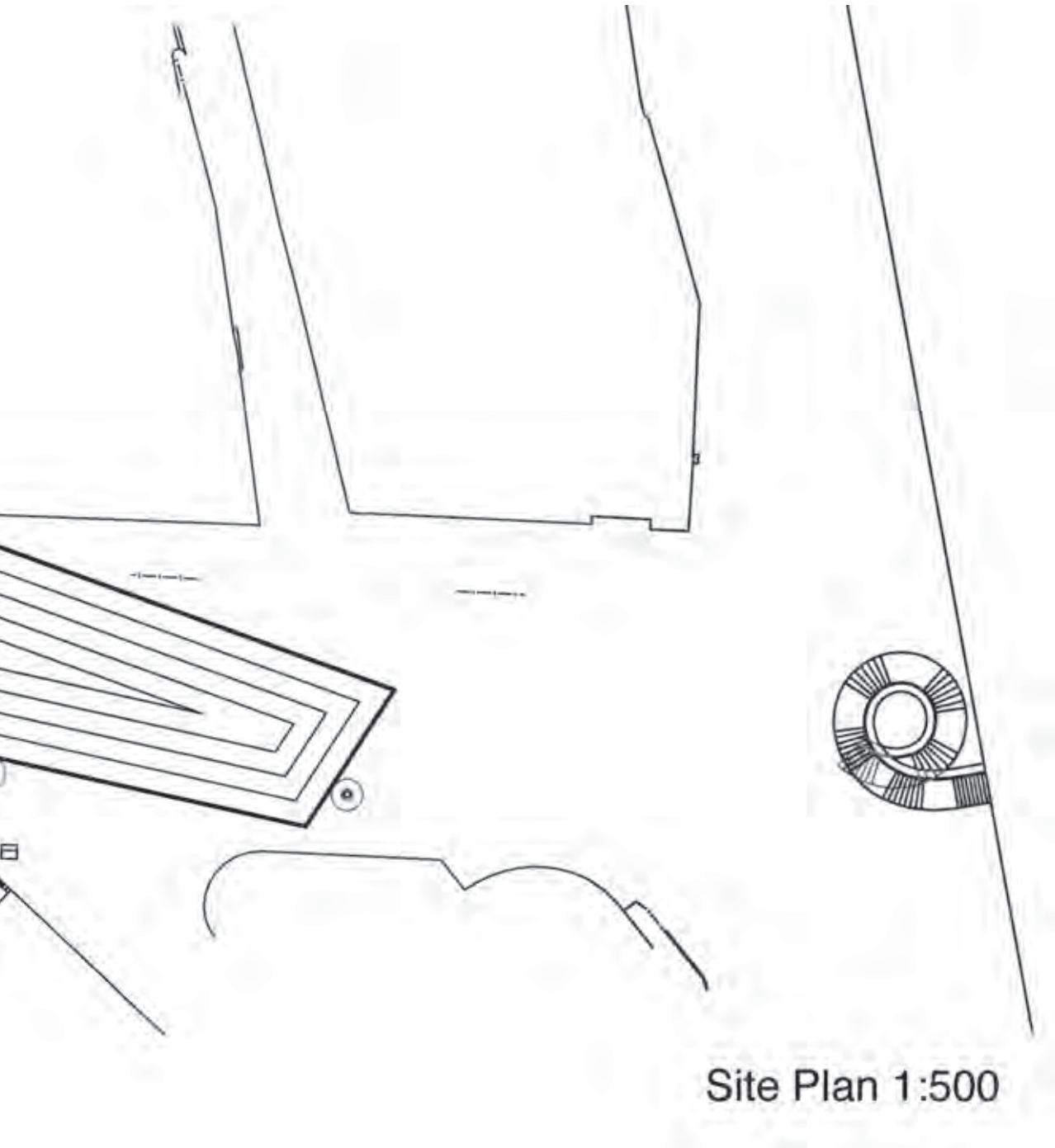
Presented with an irregular site which was little more than a piece of abandoned roadway, Heatherwick's first thought was to make it less linear and more like a city square. This led him to imagine a sinuous curvaceous form, rather like a lava flow, which would lap into the adjacent streets. It would be 'as if someone had poured a material called "Square" into this space and, like mercury, it has flowed up the streets'.[1] The designer had been collaborating with Pallam Precast, a terrazzo company, and experimenting with the idea of putting



9.4
Aerial view of the Blue Carpet, as laid

9.5
Site plan

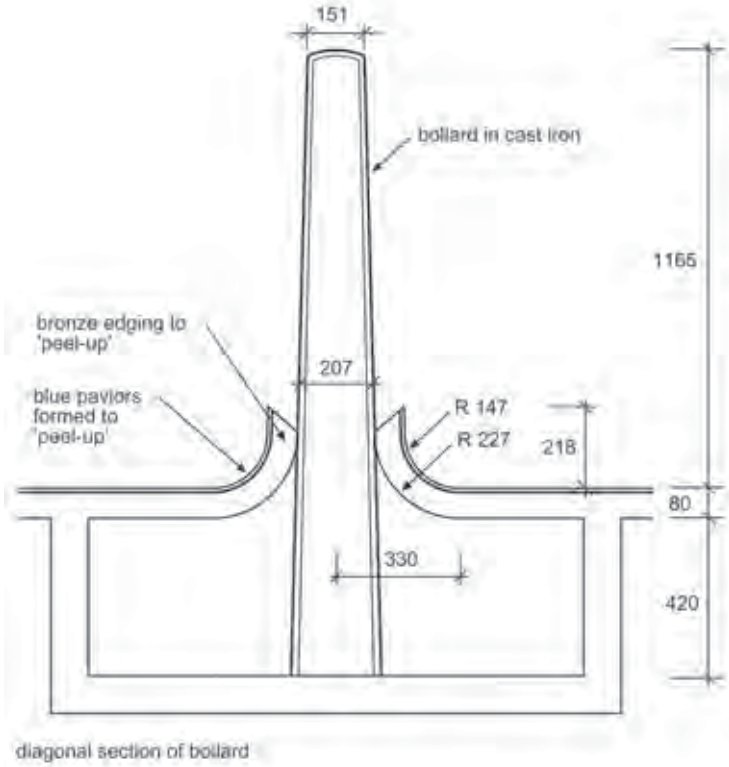



Site Plan 1:500

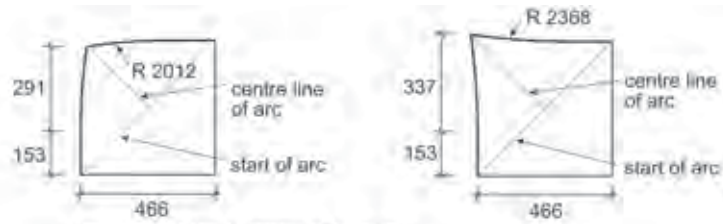
fibre optics data-transmission fibre into terrazzo, then grinding off the ends, so 'we could make paving that by day just looked like ordinary paving, but by night had points of light in it'.[2]

This ambitious concept soon ran into the realities of budgetary constraints and had to be abandoned, but the notion of an unusual material which unified the space without entirely filling it remained. One of the most costly aspects of the lava-flow idea had been the curving shapes. Every piece of the square would have needed to have been uniquely cast. Straight edges were more economical and this thought led to the idea of a carpet. In his experiments with the terrazzo company, Heatherwick had been trying to find an inexpensive way to bring colour into a paving material and had been investigating the idea of using broken glass. Though he does not regard himself as an artist, perhaps there was something of conceptual art here; the conception that a material so hard, sharp and brittle as glass could be turned into a suitable material to pave a city clearly appealed to the designer.

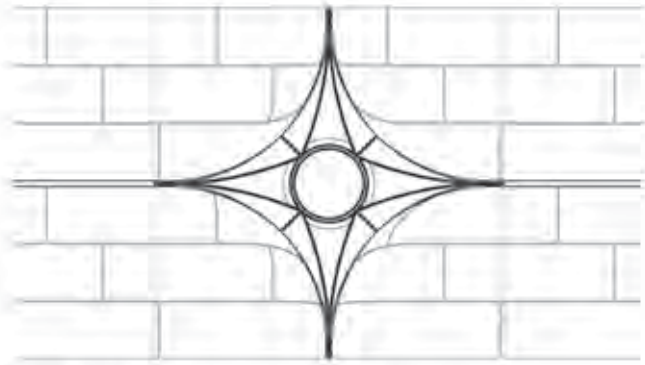
The idea of a material which lit up at night also proved too expensive. Heatherwick resisted the suggestion that a small part of the square might be treated in this way, but then found a solution which satisfied him. By creating benches which appeared to be strips cut from the carpet, he also created voids which could be filled with coloured neon tubes. Lights could be installed beneath the bollards, shining up through the punctured fabric. In this way it appeared that the whole carpet had been laid over some bright molten material which shone through gaps and fissures, rather as if the lava flow was still there but smothered beneath a rug.



diagonal section of bollard



templates of top & bottom of 'peel-up' showing 'squashing' & stretching of surfaces



plan of bollard

9.6

Bollard concept detail: section and plan

9.7

Illuminated bollard by night

Design development

For Newcastle City Council the idea of employing a designer with distinctly adventurous and artistic ideas to repave a road junction was a major departure and it required many of the other professionals involved to adjust their thinking. The competition brief had been written by an urban designer working for the Planning and Transportation Division, but the people Heatherwick would have to work most closely with were highways engineers. The idea that an 'artist' might not just want to produce an object to place in the new square, but in effect would want to design the whole place from scratch was difficult for them to accept and there was initially much scepticism and resistance. This mismatch of perceptions was also reflected in the unrealistic fee initially offered to the designer, which was based on the assumption that most of the detailed and technical design would be done by others. Fortunately it was possible to overcome these obstacles and Heatherwick found a great ally in Nader Mahktari, the local authority engineer appointed as project manager.

When it became clear that the lava-flow concept was not going to be possible, Heatherwick realised that he would have to do something closer to a customary paving scheme. He was certain that he did not just want to make a pattern out of conventional elements, which meant that the material itself had to be something unusual. Glass interested him because it is inherently hard and thus resists wearing. Coloured glass is homogeneous and will not fade through wear or exposure to the elements. These are its virtues, but it also presents difficulties. The sharpness of broken glass makes it an unlikely paving material, particularly in Britain's safety-conscious culture. There are technical difficulties about using it as an aggregate within a cementatious matrix. Heatherwick recalls how the engineers would take out their keys and scratch the sample blocks to see if any shards of glass became detached.

Blue glass was chosen in preference to green or brown because it seemed to keep its colour better when embedded. Initial tests showed that white cement was better than grey because it reflected light back through the glass. The quest was to achieve the mix which allowed the maximum amount of glass at the surface without any of the particles becoming loose. The glass particles were very small and the blocks were not polished, so the surface, without being rough or jagged, provided a good grip.

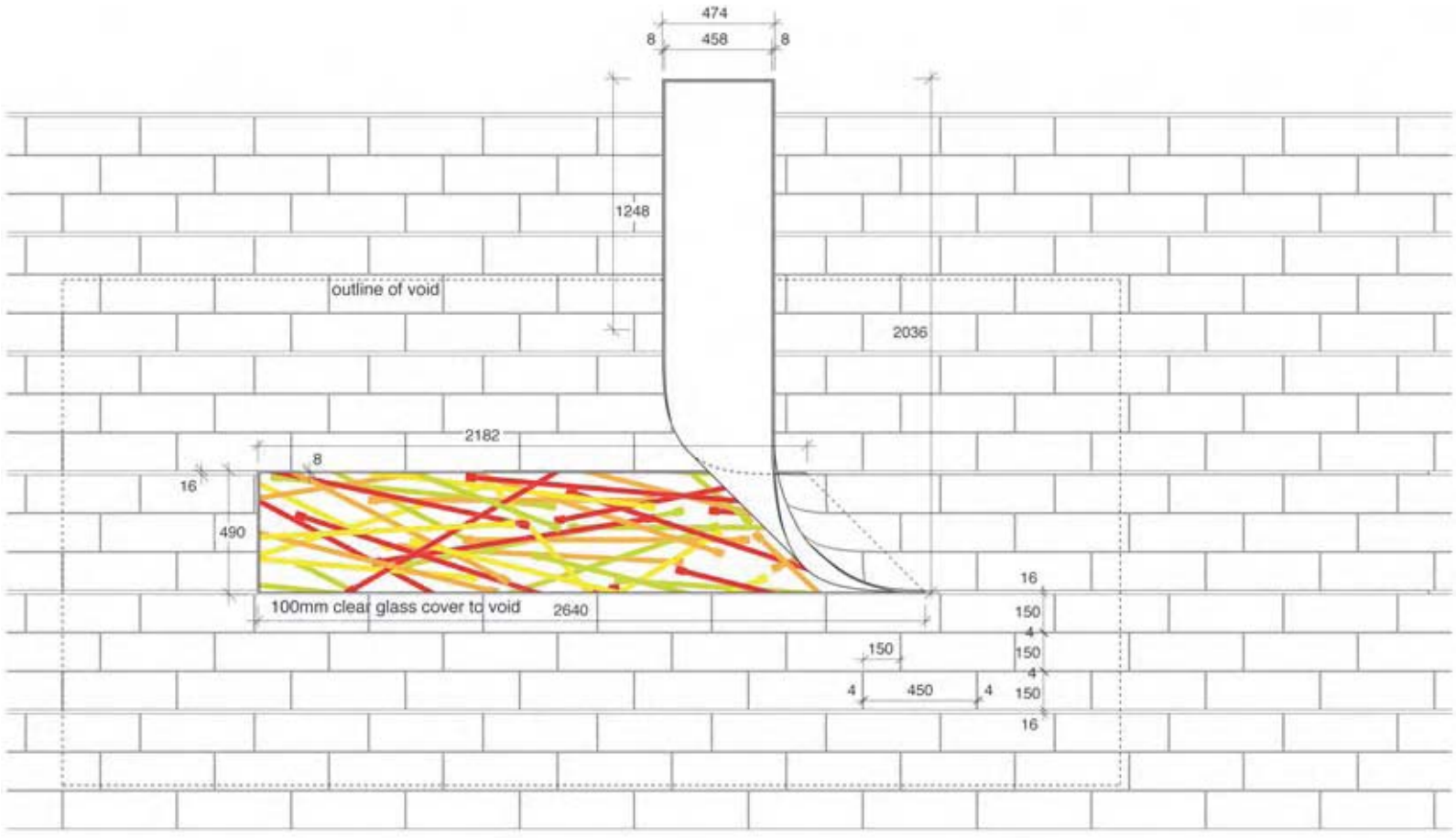
The breakthrough came when Heatherwick turned to the idea of using resin as a matrix rather than concrete. One of the benefits of this was that the material could be used to make thin tiles rather

than heavy blocks. Glass is so extraordinarily hard that a layer of only 5mm will have a wearing life of 60 or 70 years. These tiles could be bonded on site to a concrete base. Heatherwick made contact with the Design Research Centre at Sheffield Hallam University where they had been exploring the use of glass as an indoor terrazzo component. Heatherwick did not want his material to be polished, so he asked them to produce samples in which the resin was cleaned back to expose the facets of the glass. Eventually, working with two companies, Dew Pitchmastic and Resin Building Products, the team devised a system for making the necessary tiles. Each tile measures 450 x 150 x 10mm and is made from blue glass in a white resin base. They cover a total area of 1300m^2 and are bonded to the base material with an epoxy adhesive. An epoxy grout was also used. This new material is now known as TTURA. It consists of 85 per cent recycled glass held in a solvent-free resin and can be regarded as an environmentally sympathetic material. It is also resistant to acids and alkalis, diesel and petrol spillage and, perhaps the most likely hazards in this party-city, cigarette burns and alcohol.[3]

The surface of the carpet is broken up by strips of brass which echo the overall shape in the manner of contours on a plan. In the daytime the neon tubes are switched off, but these metal strips catch the light. The most eye-catching features in the square are the benches which seem to have been formed of the carpet material, peeled up and given a gentle twist. No one was prepared to manufacture these at a reasonable cost, so their brass edges, together with the structural steelwork that would be hidden inside them, were made in Heatherwick's own studio prior to casting by Pallam Precast.

Although the Blue Carpet is essentially a hard-landscaping scheme, it includes seven mature trees that were transplanted from nurseries in Germany and the Netherlands. This aspect of the work was supervised by the City of Newcastle's Landscape Section. They are some of the largest trees ever imported into the UK (one is over 16m tall).

Another feature of Thomas Heatherwick's scheme is the spiral staircase which links the new public square to one of the city's main car parks across the Central Motorway at Manors. Designed as an elegant replacement for an existing steel structure, the staircase has at its core a simple broad spiral made of 1,340 individual pieces of marine plywood. It was decided that only a boat-builder, used to the complex curves of hulls, would be able to construct this sophisticated and technically-demanding shape and the work was given to McNulty Boats Ltd of Hebburn. The metalwork of the stairs themselves was manufactured by Hi Def (UK) Ltd. The stairs



9.8

Bench concept detail (plan)

9.9

Creating the frames for the benches in the studio

9.10

A bench as cast

9.11

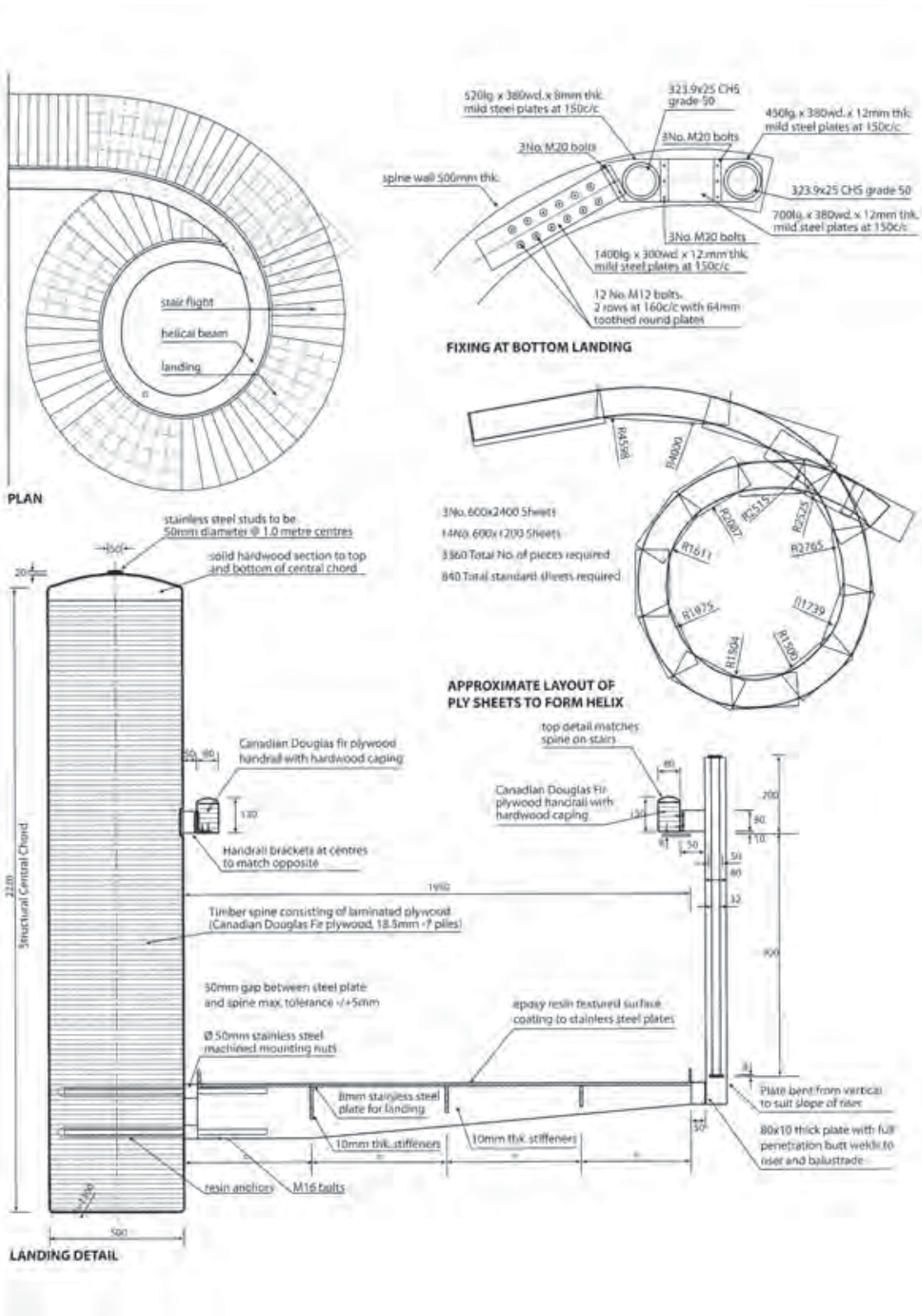
Staircase details

9.12

Spiral staircase from below

9.13

Spiral staircase from above



are formed from 8mm-thick stainless steel plate cut using the Plasma arc process. Each flight and each landing had to be individually produced because the radius of the spiral varied along its length. The staircase is a considerable work of craftsmanship in its own right.

Evaluation

The Blue Carpet was not a routine piece of environmental improvement. In order to attract funding, it was promoted as a piece of public art. During the lengthy period of technical innovation it was hyped relentlessly. When it was finally revealed to the public, there was an initial sense of anti-climax. As Heatherwick observes wryly, 'It was just before the Gateshead Millennium Bridge went up. We worked as hard on the Blue Carpet as they did on that, but how exciting can paving ever be? People are inspired by things that soar up in the air.'[4] It is hard to deny this psychological insight, yet it does not seem a good reason to give up on paving. It is just because paving is such a ubiquitous material that we should care about it more, and worry as much about its aesthetic qualities as its durability or safety. Nevertheless it seems to be a simple fact that by nature we get more excited about bridges and skyscrapers than we do about the ground beneath our feet.

Some commentators complained that the Blue Carpet was actually not that blue. It is certainly not turquoise or azure, but when compared with other paving materials it is undeniably blue. Indeed, it might be argued that if it were a stronger colour it would be too dominant for the urban scene. It is blue enough. Heatherwick contents himself with the knowledge that it is as blue as he could possibly

make it within the limits set by considerations of durability and safety.

In the professional press, the Blue Carpet has had a mixed reception. In *Landscape Design*, the professional magazine for British landscape architects, Michael Downing complained about the poor quality of the paving that surrounded the Blue Carpet, particularly the detailing of the circular tree-pits, which were 'completely out of keeping with the crisp modern treatment of the carpet itself'.[5] Heatherwick thinks that he missed the point. Without this contrast between ordinary materials and the extra-special quality of the Carpet and its fittings, the whole concept would lose its power.

There were also objections to the cost and to the time taken to complete. The final budget amounted to £1.4 million, considerably more than the projected £300,000 that had been in the initial brief. Some £500,000 of the final total came from Lottery Funding obtained on the strength of the project's artistic aspirations. While £1.4 million is a significant figure, it does not seem wildly inappropriate for a new square in a city which is determined to raise its international standing through cultural endeavour. To put the expenditure into perspective, Gateshead's Millennium Bridge cost £22 million. The Laing Square scheme was initially scheduled for completion in December 1999, but was not completed until early in 2002. In all, it took five years from competition briefing to completion. This is much longer than most conventional hard-landscaping projects, but it is not so unusual for a public art project. What no one foresaw at the outset was the time that would be needed for research and development of the new paving material.

Hugh Pearman, the architecture critic for the *Sunday Times* summed up the Blue Carpet when he described it as 'an intelligent, quirky, upmarket little regional pedestrianisation scheme'.[6] Apart from the unnecessarily Londo-centric swipe at things regional, this assessment seems fair. The Blue Carpet was over-hyped during construction. As a one-off, it does not have the scale or the impact to become iconic, yet it is, without doubt, an ingenious and witty piece of design. It is also genuinely innovatory in terms of the materials used. It is easy to forget the doggedness that a designer must demonstrate if he is to push through an inventive idea in the face of technical problems, indifference or disbelief. What a city like Newcastle needs is not just one example of design of this quality, but a civic culture that demands this standard of originality and flair in all its public projects.

Case study
The Peace Gardens, Sheffield, England

Project data

Project name:	Peace Gardens, Sheffield
Location:	Sheffield city centre
Date completed:	1998
Cost:	£5 million
Designer:	Sheffield City Council
Client:	Sheffield City Council

Overview

The Peace Gardens are located to the south of Sheffield Town Hall, a Victorian building (with a Grade I conservation listing) to which an extension was added in the 1920s. The latter has a symmetrical elevation which helped to determine the focal point for the new gardens. This takes the form of a computerised fountain at the lowest point of the site. There has been an open space in this location since 1937 when the abandoned church of St Paul's was demolished to provide the site for a further Town Hall extension. This building proposal stalled with the outbreak of the Second World War and the site was then grassed. After the war, it became known as the Peace Gardens and flower beds were cut into the turf, but in design terms, it was never distinguished. In the 1970s, a concrete Town Hall Extension was built on a neighbouring site which soon became known as the 'egg-box', an object of derision for some, but also the focus for an inverted kind of civic pride.

By the 1990s, the old Peace Gardens had acquired an unsavoury reputation. It was mostly frequented by the homeless and people with alcohol problems. The Heart of the City Public Realm Project aimed to restore it to full community use. The egg-box would be demolished to provide the site for the Millennium Galleries and the new Winter Gardens designed by architects Pringle Richards Sharratt with consulting engineers Buro Happold. The Peace Gardens would form a welcoming, sunny and sheltered place, nestled against the Town Hall whose architectural merits would at last be complemented.

There is a change in level of about 2m across the site. At the lowest point, aligned with the axis of the Town Hall elevation, a dancing fountain forms the hub of the garden, which sits within a larger space known as Town Hall Square. Along the rim of the garden at the higher level there is a stone balustrade, from which five stone-flagged paths descend towards the principal water feature. Beside each path run water rills seemingly fed from the spouts of large metal vessels mounted on carved circular plinths above the balustrade. The rills are lined with highly textured leaf-like ceramic forms. In the segments separated by the radial paths there are lawns raised by about 0.5m and retained behind bulging stone copings. The slopes behind them are richly planted with shrubs and herbaceous material. In good weather, the grass is crowded with people sunbathing and socialising. Although the overall layout is formal, the detailed forms of the rounded copings, the balusters with their alternating dumb-bell and egg motifs, and the eight curvaceous urns around the perimeter give the place an air of whimsy and seem to evoke some mysterious lost civilisation. The slightly exotic feeling of the place is enhanced by the planting, which, though based on a traditional English garden style, includes many architectural plants with bold foliage.

9.14

An early masterplan by Allies and Morrison for the whole of the Heart of the City project. The Peace Gardens are shown as 'City Square'.

9.15

View of the bronze urns by Asquith Design Partnership

9.16

View towards the Town Hall, showing steps, water features and seats

9.17

Bronze bollards designed by the Asquith Design Partnership represent Sheffield's metalworking history

Design philosophy

The Peace Gardens were part of a larger initiative called the Heart of the City Public Realm Project, the largest city centre regeneration project in Britain since the 1950s. Raising the quality of public open spaces was a key concept in this strategy; indeed, the notion of 'quality' was a fundamental value throughout the project and is reflected in the materials used, particularly the extensive use of natural stone, which has often been regarded as too expensive for contemporary projects.

The idea of quality is also reflected in the craftsmanship demonstrated throughout the gardens. Six separate art or craft commissions were incorporated into the design. The stone-carver Richard Perry worked on the balustrades, the ceramicist Tracey Heyes produced the inlays for the water rills, the father-and-son team known as the Asquith Design Partnership was responsible for the work in bronze, the furniture designer Andrew Skelton produced timber benches, and two letter carvers, Tom Perkins and Ieuan Rees, wrote inscriptions on the stonework.

Another key idea was that the Peace Gardens should genuinely be a garden, not a paved urban square. This requirement emerged strongly from a public consultation exercise carried out in conjunction with an exhibition at the Town Hall held over seven days in November 1995. The public expressed strong preferences for traditional park or garden elements such as grass lawns, herbaceous borders and semi-mature trees. There was a feeling that the Peace Gardens should remain a green oasis and refuge from the bustle of the city, and suggestions that it should become an 'entertainment space' were viewed with suspicion. The public also objected to the proposition that a nearby water-feature, the Goodwin Fountain, should be removed without replacement, and there was general support for the idea that water should somehow be accommodated within the proposed design.

Although many of the Peace Gardens' visitors may never know it, a subtle symbolism underlies the overall layout and also informs many of the details. The five converging paths with their associated water rills represent the five young rivers upon which Sheffield is said to have been founded. The metal vessels which flank the gateways represent their sources high in the Peak District. The cascades represent the waterfalls coming off the Edges and the rills represent the rivers themselves. The fountain symbolises the vibrancy of the city centre. In the words of Lyn Mitchell, leader of the design team in the Department of Design and Property, 'We just wanted an all-singing, all-dancing water feature.'[7]

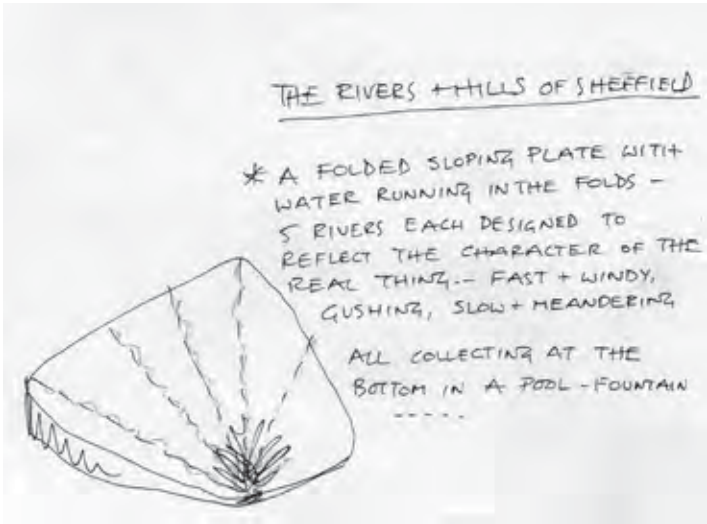
Water power was important in the earliest industrial processes in the area and there are over one hun-

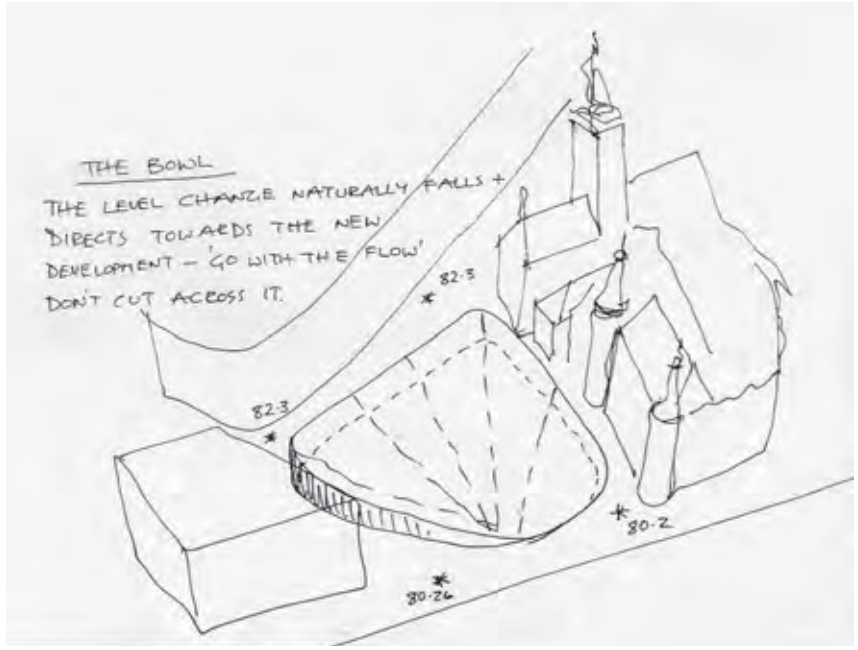
dred weirs within the city. The garden contains other references to the city's industrial past. The bronze vessels created by the Asquith Design Partnership are reminiscent of the crucibles used in steelmaking, though they gush with water rather than with molten metal. Other elements of the scheme, such as planters and bollards, were also cast in bronze to echo Sheffield's history as a metal-working city.

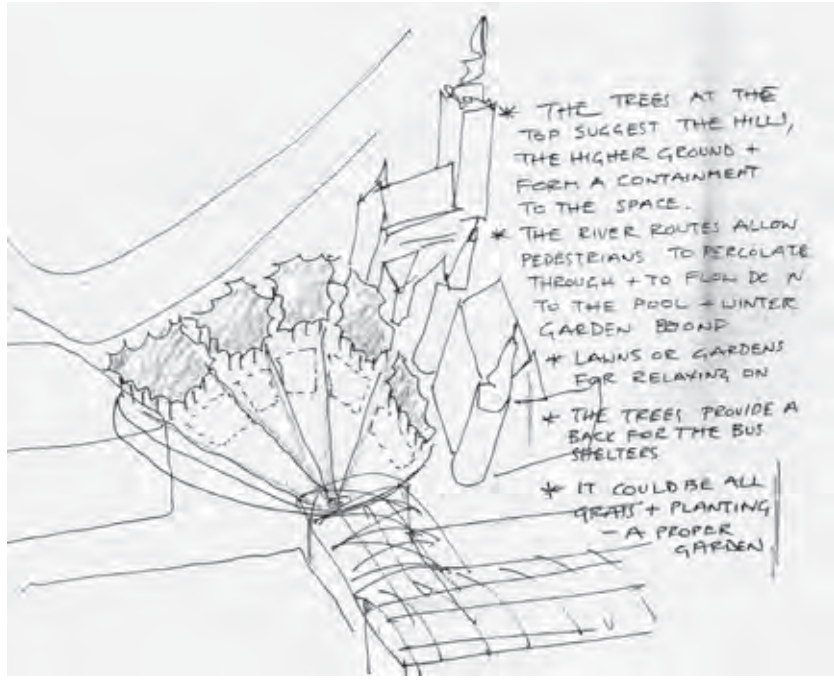
Design development

To the uninformed visitor, the Peace Gardens appear to be as much of one piece as Newcastle's Blue Carpet, yet the design process was very different. The Peace Gardens involved a very large design team, mostly drawn from within the Council's own ranks, but augmented by artists specially commissioned to work on the project. Although the Council began to think about the redesign of the gardens around 1995, the construction phase was astonishingly rapid with work starting on site in October 1998 and finishing in time for Prince Charles's fiftieth birthday tour of Britain in November of the same year.

The design process was also strongly influenced by the public consultation exercise held in 1995 and was also subject to much attention from local politicians and media. In the early stages, high-profile masterplanners had been consulted. A masterplan produced by Allies and Morrison showed most of the area paved and was shelved once the public had expressed their opinion. The in-house team assembled by Sheffield City Council was very large. Lyn Mitchell, a landscape architect from the Department of Design and Property, was the overall coordinator for the Heart of the City Public Realm Works. Her colleague Jill Ray was lead designer for Town Hall Square, while Richard Watts, a landscape architect from the city's Department of Planning, Transport and Highways, was lead designer for the Peace





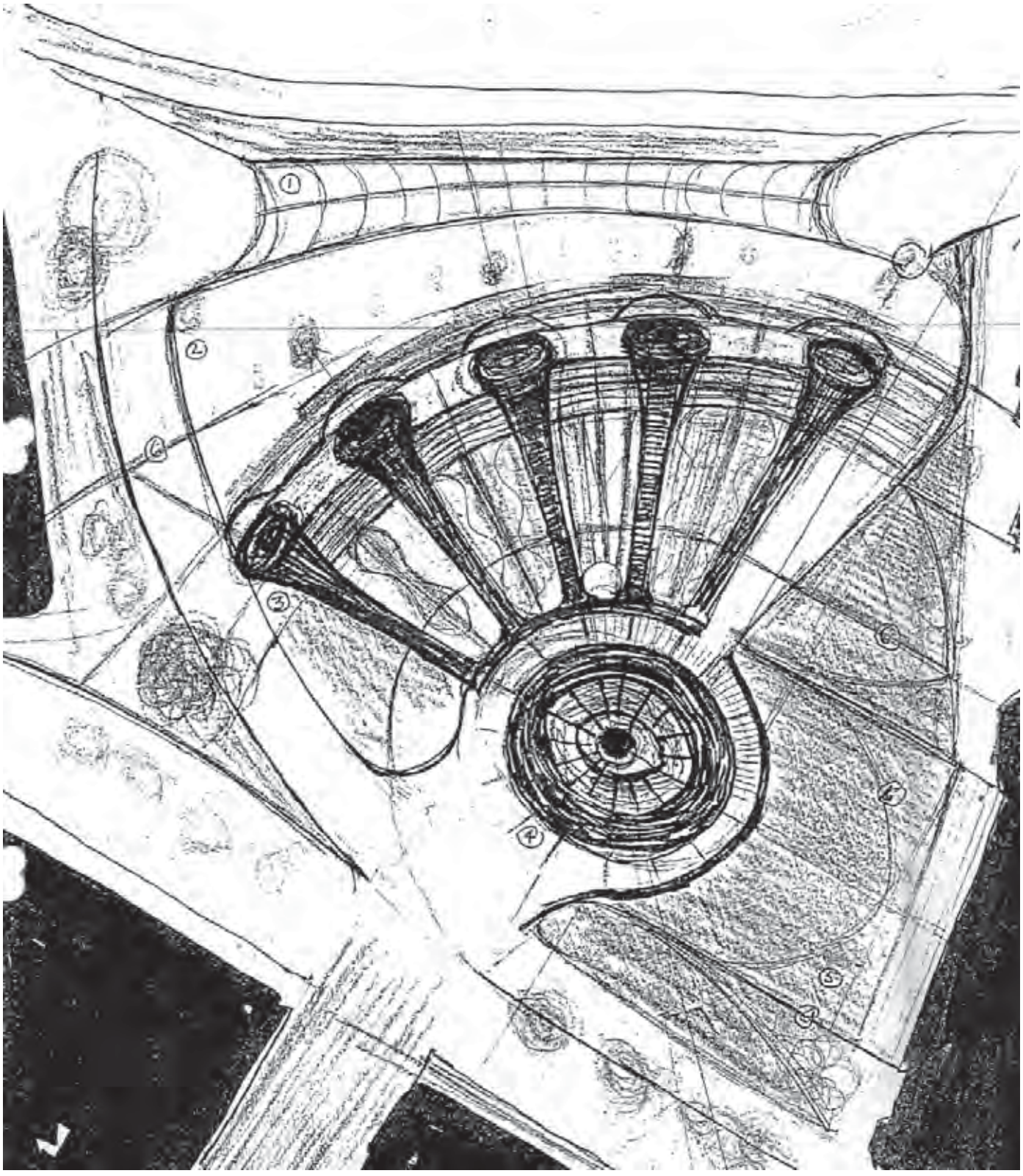


9.18
Design development sketch showing the 'folding, sloping plate'

9.19
Design development sketch showing the five rivers concept and relationship to the Town Hall

9.20
Design development sketch showing the lawns and the planting concept

9.21
Design development sketch showing the five rivers concept



Gardens themselves.[8] This team was augmented not just by the artists, who were brought in at an early stage, but also by various in-house engineers – highways, electrical and structural. Where specialist knowledge did not exist within the authority, it was recruited from outside. A company of water engineers called Invent was consulted regarding the fountains and pumps while the lighting design was in part undertaken by a company called Equation. The construction was overseen by a management contractor, Tilbury Douglas Construction Ltd (now known as Interserve).

A significant difference between this project and the Blue Carpet is that, in this case, no individual seems to have been the sole driving force behind the design, which seems to have emerged instead through a protracted series of meetings and discussions. The process does not seem to have been an easy one. Most designers recoil in horror from the idea of design by committee, but Lyn Mitchell admits that 'It *was* designed by committee. Every single decision went through about a hundred hoops. The politicians had their say, everyone had their say and there was public consultation.'[9] The designers look back on the process like war veterans. 'It was very complex and painful', says Mitchell.

Responding to the public's desire to see a replacement for the Goodwin Fountain, the design team opted for an array of jets which would spring from ground level. There would be no basin of water to collect litter or fill up with suds in the manner of the old fountain and the design had the advantage that the jets could easily be switched off if the central area was required for another purpose (in this way a vestige of the 'entertainment space' concept remained).

Although the water in the rills appears to flow into the fountain, there are actually two separate circulation systems. Similarly, while it appears that the eight large bronze vessels carry a large quantity of water, the reservoir tanks are in fact below ground. One ingenious feature of the system is that it adjusts according to weather conditions. An anemometer attached to one of the lamp columns measures wind speed and can initiate a progressive shutdown. On calm days everything will work, but as the wind speed starts to rise, the flow from the spouts will be reduced and the height of the jets is reduced. On really windy days the spouts and the fountains cut out altogether although water will still flow along the rills, thus overcoming the risks and inconvenience of blown spray which is so often a problem in the British climate.

The generous budget for the project and the emphasis on quality rather than economy meant that a circular plan could be adopted, even though

this multiplied the technical difficulties involved in design and construction. The retaining walls are built from a soft sandstone from Stoke Hill Quarry, the same source used in the building of the Town Hall. The machine which cut the blocks at the quarry could be programmed to cut them to the necessary radii. Every block was numbered before delivery to the site. When it came to the paving, the Stoke Hill stone was insufficiently durable, so slabs were sourced from Johnston's Quarry, Huddersfield, the last in the country which uses traditional cutting techniques. Most of the paving is Rockingston Hard stone, which has an attractive iron staining. It was shot-sawn to create a ridged texture. However, this material could not be used for the tighter radii in the central area because the iron banding would have looked odd. It was substituted by Crossland Hill stone which is similar in colour and was supplied by the same company.

In the Town Square, beyond the curve of the balustrade, quality of materials was still a concern, but most of the area was laid with granite setts. Where stone slabs have been laid, they mark access routes. Although some of these followed curves, it was felt that the radii were not sufficiently tight to require special cutting at the quarry, and the changes were taken up with wedge-shaped pieces of stone. As Jill Ray commented, 'It was considered too expensive to cut these slabs to a radius, and so far out from the central feature it was no longer necessary.'[10]

The majority of the setts are pale grey with the addition of some buffs, pinks and dark greys. It is the same mix of setts which was used in the repaving of nearby Fargate. Following a construction technique used in Warrington, the sets are laid on a macadam base, bedded in a cement slurry which is then squeegeed in. After the paving was laid, it was covered with sawdust for 14 days to clean the surface.

It is the distinctive contributions of the artists which create the unique character of the gardens. The exaggerated curved forms were not part of the original concept but evolved through the interchange of ideas. The large rounded copings around the lawns had a practical purpose. They were designed to be comfortable as seats. Rounding the edges would also make them less attractive to skateboarders who like to grind along sharp edges. The water vessels clearly had to be large and rounded if they were to echo steelmaking crucibles. According to Lyn Mitchell, the detailed forms used in the gardens were the result of a long process; 'The artists came up with lots and lots of ideas and we had huge meetings and they could be tough going. We came up with a short list of objects to be designed by artists and they came up with a family of objects based

on these rounded forms.'[11] A direct source of inspiration for the bronze water vessels produced by the Asquith partnership was the work of Christopher Dresser,[12] a late nineteenth-century professor of botany who also became a designer of functional furnishings and an advocate of industrial manufacturing, though his simple geometrical designs for domestic objects like teapots, soup tureens and kettles were too radical for Victorian tastes. Richard Perry, the stone carver, working with the landscape architect Richard Watts, responded with the idea of the fat balusters. Ceramicist Tracy Heyes produced textured tiles based on leaf forms for the water channels, and collaborated in the design of the paving for the central fountain. Richard Perry was assisted by the Carving Workshop Cambridge.

Everything in the Peace Gardens and the neighbouring Town Hall Square is bespoke and, as a result of the lengthy discussions between members of the design team, there is a strong family resemblance between the elements. This applies as much to the incidental features such as benches, bollards, planters and litter bins as it does to integrated water features and lighting.

The lighting concept was provided by Equation. Three forms of lighting were suggested – base lighting for safety and convenience, amenity lighting to enhance the aesthetics of the gardens and flood lighting to show off the Town Hall to best effect. Listed Building Consent was required for the latter. The basic lighting comes from lanterns mounted on lamp-posts. The amenity lighting is integrated into the design at lower level, picking out features like walkways and steps. There are also submerged lights which illuminate the plumes of water which fall from the bronze vessels. Fibre optic lighting was included within the central water feature, but with limited success because the power is insufficient.

9.22
Relief carving on a fat baluster
9.23
Carved details by Richard Perry

Evaluation

In terms of conventional wisdom, the Peace Gardens should not be the success that they clearly are. The designers had to contend with most of the conditions that are usually thought to militate against good design, a high-profile scheme project with much political and media attention, a convoluted process, a tight deadline, and a huge multi-disciplinary team. Some designers find it difficult to work alongside artists and many are ambivalent about public consultation. It is clear, talking to some of those involved, that the process was not an easy one, yet out of this cauldron of ideas an award-winning scheme has emerged which has also been taken to heart by the people of Sheffield. On a sunny day the benches and lawns are full of people relaxing. Whether people enjoy a place or not is surely the acid test for any public realm project such as this.

In aesthetic terms, the scheme is a curiosity. There is something retrospective, almost old-fashioned, about its formal layout, yet the bizarre forms of the urns and the pumped-up balustrade, which might have come from some Hollywood fantasy, mark the place as contemporary and different. Most of the credit for this must go to the artists who have developed a distinctive language of forms for the place. The detailed design represents a fusion of contemporary design with traditional materials. This is exemplified by the granite and bronze benches developed by the Asquith Design Partnership. Despite the physical and symbolic weightiness of the materials, they have produced elegant seats which convey a sense of lightness and modernity, yet harmonise with other aspects of the scheme, such as the rounded copings.

Of course, in a project of such complexity, one cannot expect everything to proceed without a hitch. Difficulties had to be overcome. The teething problems associated with the fountain are a good example. Initially the air-entrained jets, which were designed to create frothy spouts of water, pumped out too much and the drains could not clear it fast enough. The jets were becoming submerged which stopped them from working. The next solution was to have pop-up jets, but these suffered from the ingress of dirt and would not go back down again. Also children would kick them and bend them. After further technical adjustments, the jets were returned to paving level. The fountain was supposed to have been programmed to produce many swiftly changing patterns but they were found to be insufficiently responsive. According to Derek Statham, an architect with Design and Property, 'The thing moved like a snail. The jets lumbered up and down … people are actually just glad that it is working most of the time.'[13]

Working with artists caused familiar frictions. They were included in this project for the same reasons that Thomas Heatherwick was taken on to design the Blue Carpet. There is a view that artists are less entrammelled by conventional solutions and can bring a spark of creativity to a project. This certainly seems to have been the case in both Newcastle and Sheffield, but there is another side to the balance sheet, which is that artists do not always understand the technical constraints involved in designing for public places. Often the landscape architect has to sort out some of the practical difficulties on behalf of the artist. The water vessels, for example, initially leaked and a way had to be found to make them waterproof. There are also spalling problems with the ceramic tiles laid into the rills, though this seems to be a manufacturing problem rather than any failing of the artist or deficiency in the specification.

All manner of constraints can have a bearing upon design decisions, but not be apparent to the visitor. The litter bins, for example, had to be made out of Glass Reinforced Plastic (GRP) because they had to be bomb-proof. The artists would have preferred them to have been made from metal, and in aesthetic terms they were almost certainly right, but the public safety argument prevailed. GRP was also used for some of the smaller planters in Town Hall Square but an only half successful attempt was made to match the larger bronze planters in colour.

The quality of workmanship in the Peace Gardens themselves is exemplary, but standards are not quite so high in Town Hall Square, where the budget was not as generous. The public will perhaps not notice the stone slabs which have not been cut to a radius, but it is something which the professional eye picks up. The sett paving is suffering from problems caused by the high pressure machines used for cleaning which is washing the grouting from between the blocks. It is also regrettable, if only in terms of the sustainable sourcing of materials, that the setts had to be purchased from Portugal because the British equivalent was too expensive.

Viewed as a whole, the Peace Gardens are an impressive achievement without major shortcomings. It is also reassuring to see that Sheffield City Council is committed to maintaining the scheme to a high standard. Perhaps one might say that it would be a very poor show if they did not look after this project, considering that it is right next door to the Town Hall, but similar schemes in similar places have fallen into disrepair or have been torn apart by vandals. This seems unlikely to happen in Sheffield where they have had the foresight to keep security staff on the site around the clock, a return perhaps to the old traditions of park-keeping which once protected such valued places as resources for the whole community.

Notes

Introduction

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Hungary

1 Interview with the designer.
2 The square in front of the cathedral, the underground car park and the new pavement were built in 2003. The promenade is not finished at the time of writing. When complete, traffic will be restricted on the promenade, which will connect the eastern part of the city (mainly commercial and recreational) with the city centre (mainly institutional and administrative).
3 'Gödör' = hole.
4 The key dates are: 1789: building of Morocco Court; 1947: building of the bus terminal; 1998: start of the building of the National Theatre; 2001: beginning of the new institute and open space.
5 A few years ago Hungary adopted a standard stating that no public spaces or buildings should be built without taking into consideration the needs of people with disabilities.

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13 Interview transcript.

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