

Gaetano De Francesco

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Dipartimento di Architettura e Progetto - DiAP
Università degli Studi di Roma 'La Sapienza'

DFR Architecture Founder

INFRA- STRUTTURE DELL'ACQUA

Strategie adattive
all'emergenza idrica
dei mutamenti
climatici. Progettare
infrastrutture idriche
di nuova generazione

CONTESTO DI RIFERIMENTO

dibattito sulle
infrastrutture

modello di
città adattiva

pensiero **sistemico**
paradigmi del **digitale**



Diga sull fiume Giallo a Henan
2011
© Water by Edward Burtynsky

best urban practice



- Greater New Orleans Urban Water Plan
- Forshey Street Resilient District New Orleans
- Rijkere Dijken
- Dike-in-dune Katwijk aan Zee
- Parco degli Museumpark Rotterdam
- Water plaza Bloemhof Rotterdam
- Water plaza Bellamyplein Rotterdam
- Water plaza Benthamplein Rotterdam
- Ruimte voor de Rivier Nijmegen
- Blesbosch Stad Rotterdam
- Ruimte voor de Rivier Noordward
- Solar-Powered Floating Pavillion Rotterdam
- Parque del Agua Saragozza
- Pedonalizzazione centro medievale Banyoles
- Bacini sotterranei Barcellona
- Giardino marittimo Sistianna
- Parque de la Thalle Chalou-sur-Saône
- Piazza di La Malleraye-sur-Seine
- Warften HafenCity Amburgo
- Potsdamer Platz Berlino
- Saint Kjaer's Quarter Copenhagen
- Tasinge Square, Copenhagen
- Minghu Wetland Park Lihpanshui
- Ang Mo Kio Park Bishan
- Yanzhoushou Park Jinhua City
- Yingzhou Central River Ningbo
- Trin Warren Tam-boore wetland Melbourne
- Qiaoyuan Wetland Park Tianjin
- Unni Stormwater Park Haerbin
- Cultural Center Wetland Park Harbin

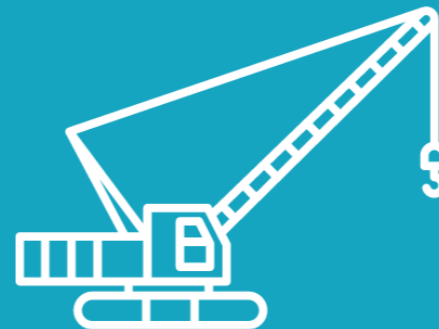
condizioni al contorno



in between



approccio
multi-obiettivo



realizzate / in fase di
realizzazione

ambiti spaziali



waterfront



riverfront



urban voids

Giardino marittimo
Sistiana (Italia)
MDP Michel Desvigne
Paysagiste e Renzo Piano
1990

1990

Bacini sotterranei
Barcellona (Spagna)
Municipalitat di Barcellona
1997

Potsdamere Platz
Berlino (Germania)
Atelier Dreiseitl
1998

Warften HafenCity
Amburgo (Germania)
Kees Christiansee + ASTOC
2000

Biesbosch Stad Rotterdam
(Olanda)
International Architecture Biennale Rotterdam,
MDP Michel Desvigne

Water plaza Bloemhof
Rotterdam (Olanda)
Studio Marco Vermeulen

Trin Warren Tam-boore wetland
Melbourne (Australia)
rush\wright associates
2005

Water plaza Bloemhof
Rotterdam (Olanda)
Studio Marco Vermeulen
2007

Warften HafenCity
Amburgo (Germania)
Kees Christiansee + ASTOC

Parcheggio di Museumpark
Rotterdam (Olanda)
Paul_de_Ruiter_Architects

Solar-Powered Floating Pavilion
Rotterdam (Olanda)
Delta Sync + Public Domain

Parque del Agua
Saragozza (Spagna)
Aldayjover arquitectura y paisaje +
Christine Dalnoky

Yingzhou Central River
Ningbo (Cina)
Turenscape

Qunli Stormwater Wetland Park
Haerbin (Cina)
Turenscape
2010

Pedonalizzazione centro medievale
Banyoles (Spagna)
Miàs Architectes
2008

Water plaza Bellamyplein
Rotterdam (Olanda)
Rik de Nooijer

Ang Mo Kio Park
Bishan (Singapore)
Ramboll Studio Dreistl

Minghu Wetland Park
Liupanshui City (Cina)
Turenscape
2012

Qiaoyuan Wetland Park
Tianjin (Cina)
Turenscape
2009

Rijkere Dijken
(Olanda)
Architects + Dingeman Deijns Architect

Water plaza Benthemplein
Rotterdam (Olanda)
De Urbanisten

Greater New Orleans Urban Water Plan
New Orleans (USA)
Waggoner & Ball Architects

Parque de la Thalie
Chalon-sur-Saône (Francia)
Urbicus

Cultural Center Wetland Park
Harbin (Cina)
Turenscape
2013

Saint Kjeld's Kvarter
Copenaghen (Danimarca)
Tredje Natur
2011

Tåsinge Square
Copenaghen (Danimarca)
GHB Landscape Architects

Piazza di La Mailleraye-sur-Seine
La Mailleraye-sur-Seine
(Francia)
Agence Babylone

Forshey Street Resilient District
New Orleans (USA)
New Orleans Redevelopment Authority
2014

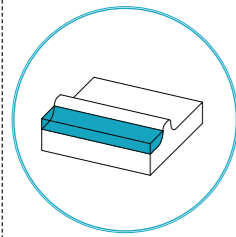
Dike-in-dune
Katwijk aan Zee (Olanda)
OKRA Landschaps Architecten

Ruimte voor de Rivier
Noordward (Olanda)
West 8 + ipv Delft

Ruimte voor de Rivier
Nijmegen (Olanda)
H+N+S

Yanweizhou Park
Jinhua City (Cina)
Turenscape
2015

2015



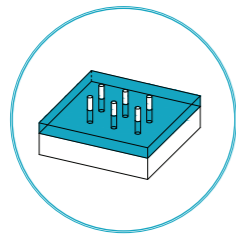
1_sbarrare



▲ Rijkere Dijken (Dighe più ricche) (DELVA Landscape Architects + Dingeman Deijs Architect, 2012-2013)



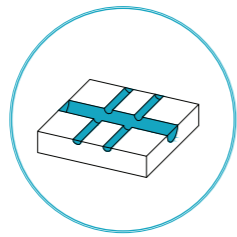
▲ Dike-in-dune (diga-duna) Katwijk aan Zee (OKRA Landshaps Architecten, 2010 - 2015)



2_sollevare



▲ Warften HafenCity Amburgo (Kees Christiansee + ASTOC, 2000-)



3_diramare



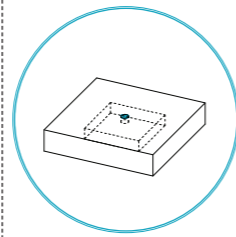
▲ Pedonalizzazione centro medievale Banyoles (Mias Architectes, 1998-2008)



▲ Greater New Orleans Urban Water Plan (Waggoner & Ball Architects, 2005-2013)



▲ Yingzhou Central River Ningbo (Turenscape, 2007-2010)



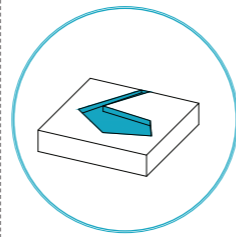
4_interrare



▲ Bacini sotterranei Barcellona (municipalità di Barcellona, 1997-)



▲ Parcheggio di Museumpark Rotterdam (Paul_de_Ruiter_Architects, 2010)



5_convogliare



▲ Water plaza Bloemhof Rotterdam (Studio Marco Vermeulen, 2007)



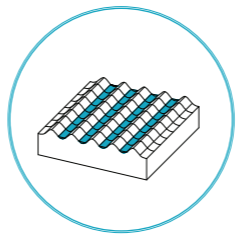
▲ Water plaza Bellamyplein Rotterdam (Rik de Nooijer, 2012)



▲ Water plaza Benthemplein Rotterdam (De Urbanisten, 2013)



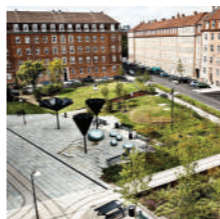
▲ Piazza di La Maileraye-sur-Seine (Agence Babylone, 2014)



6_corrugare



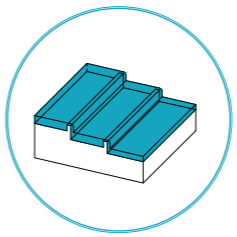
▲ Saint Kjeld's Kvarter Copenhagen (Tredje Natur, 2011)



▲ Tasinge Square Copenhagen (GHB Landscape Architects, 2014)



▲ Forshey Street Resilient District New Orleans (New Orleans Redevelopment Authority, 2014)



7_assorbire



▲ Potsdamer Platz Berlino (Atelier Dreiseitl, 1994-1998)



▲ Trin Warren Tam-boore wetland Melbourne (trushwright associates, 2005)



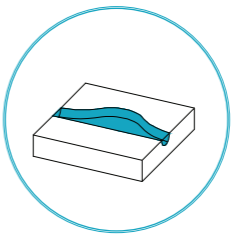
▲ Qiaoyuan Wetland Park Tianjin (Turenscape, 2005-2009)



▲ Qunli Stormwater Wetland Park Harbin (Turenscape, 2010)



▲ Cultural Center Wetland Park Harbin (Turenscape, 2010-2013)



8_dilatare



▲ Parque del Agua Saragozza (Aldayjover arquitectura y paisaje + Christine Dalnoky, 2010)



▲ Minghu Wetland Park Liupanshui City (Turenscape, 2009-2012)



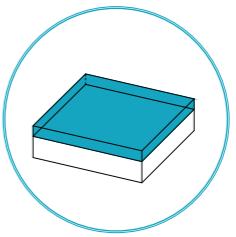
▲ Parque de la Thalie (Urbicus, 2013)



▲ Ruimte voor de Rivier Nijmegen (H+N+S, 2013 - 2015)



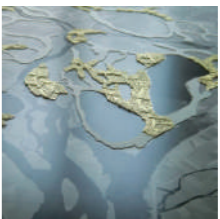
▲ Ang Mo Kio Park Bishan (Ramboll Studio Dreisil, 2007-2012)



9_inondare



▲ Giardino marittimo Sistiana (MDP Michel Desvigne Paysagiste e Renzo Piano, 1990)



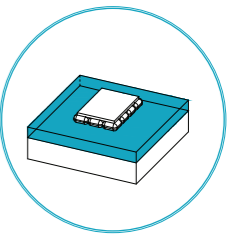
▲ Biesbosch Stad Rotterdam (International Architecture Biennale Rotterdam, MDP Michel Desvigne, 2005)



▲ Ruimte voor de Rivier Noordward (West 8 + ipv Delft, 2006 - 2015)



▲ Yanweizhou Park Jinhua City (Turenscape, 2015)



10_galleggiare

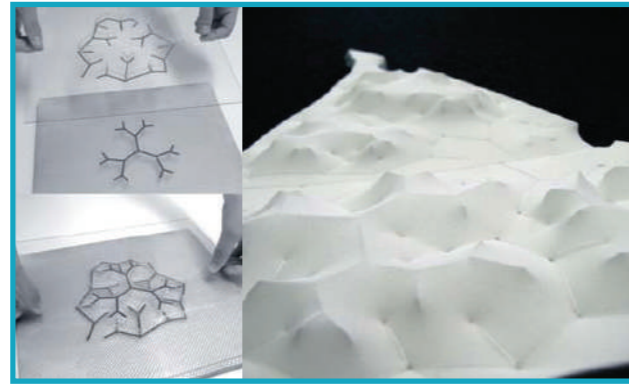


▲ Solar-Powered Floating Pavilion Rotterdam (Delta Sync + Public Domain, 2010)

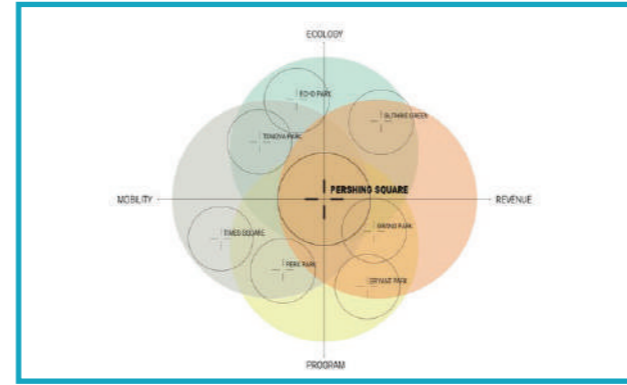




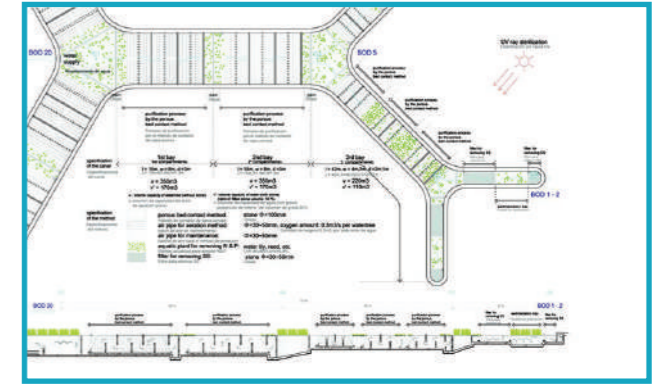
1. Mapping



2. Layer, palinsesti e diagrammi generativi



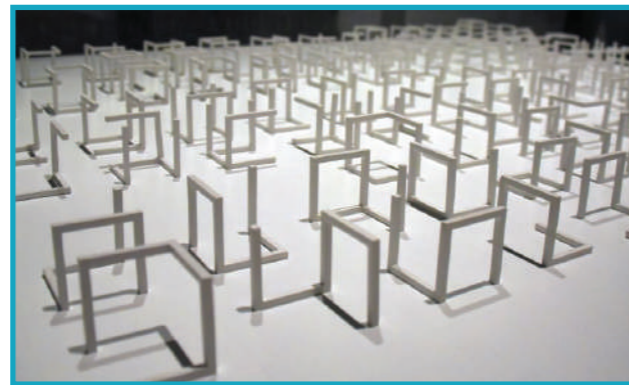
3. Multifunzionalità



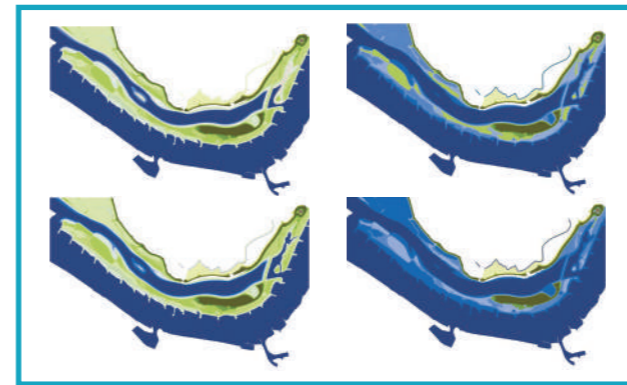
4. Ecologie artificiali e servizi ecosistemici



5. Topografiaia, microtopografia e pattern tridimensionali



6. Figure morfosintattiche e variazioni progettuali



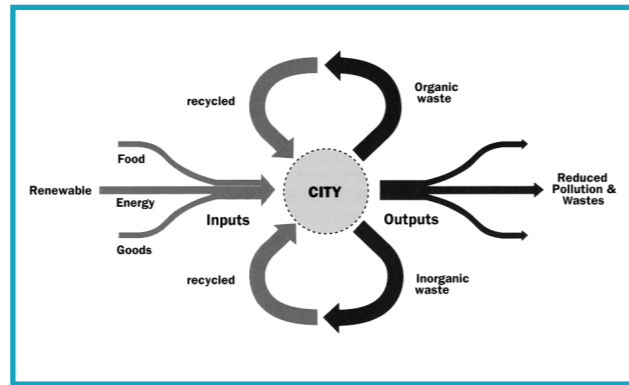
7. Scenari possibili e processi metamorfici



8. Simbolismo, narrazione, metafora e ricerca espressiva



9. L'impatto territoriale



10. Loop chiusi per un'economia circolare



11. Progetto transmediale e sistemi informativi

approccio multitasking

ibridazioni programmatiche e figurative



multitasking



Qunli Stormwater Wetland Park
Turenscape, 2010
© Turenscape





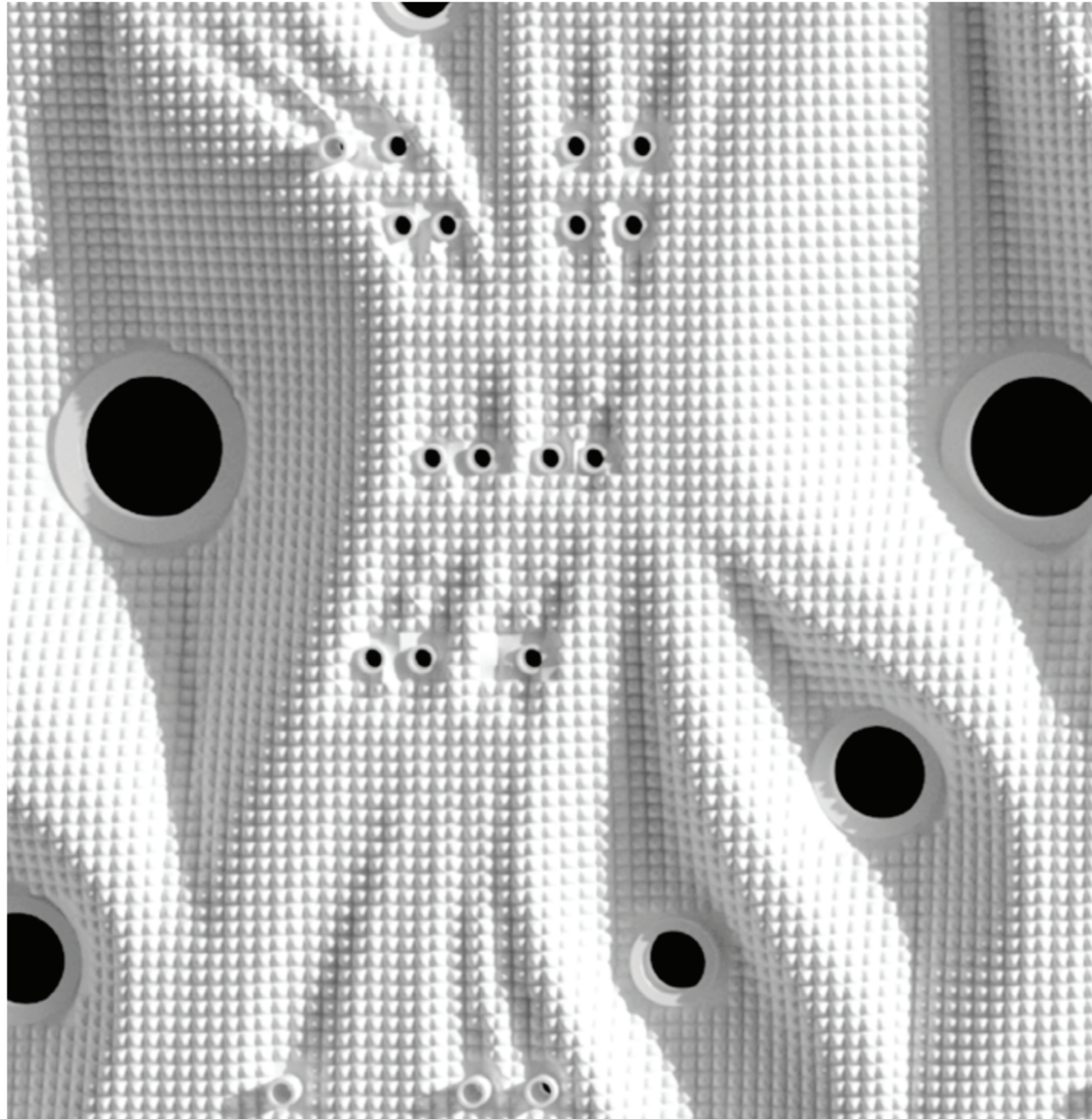




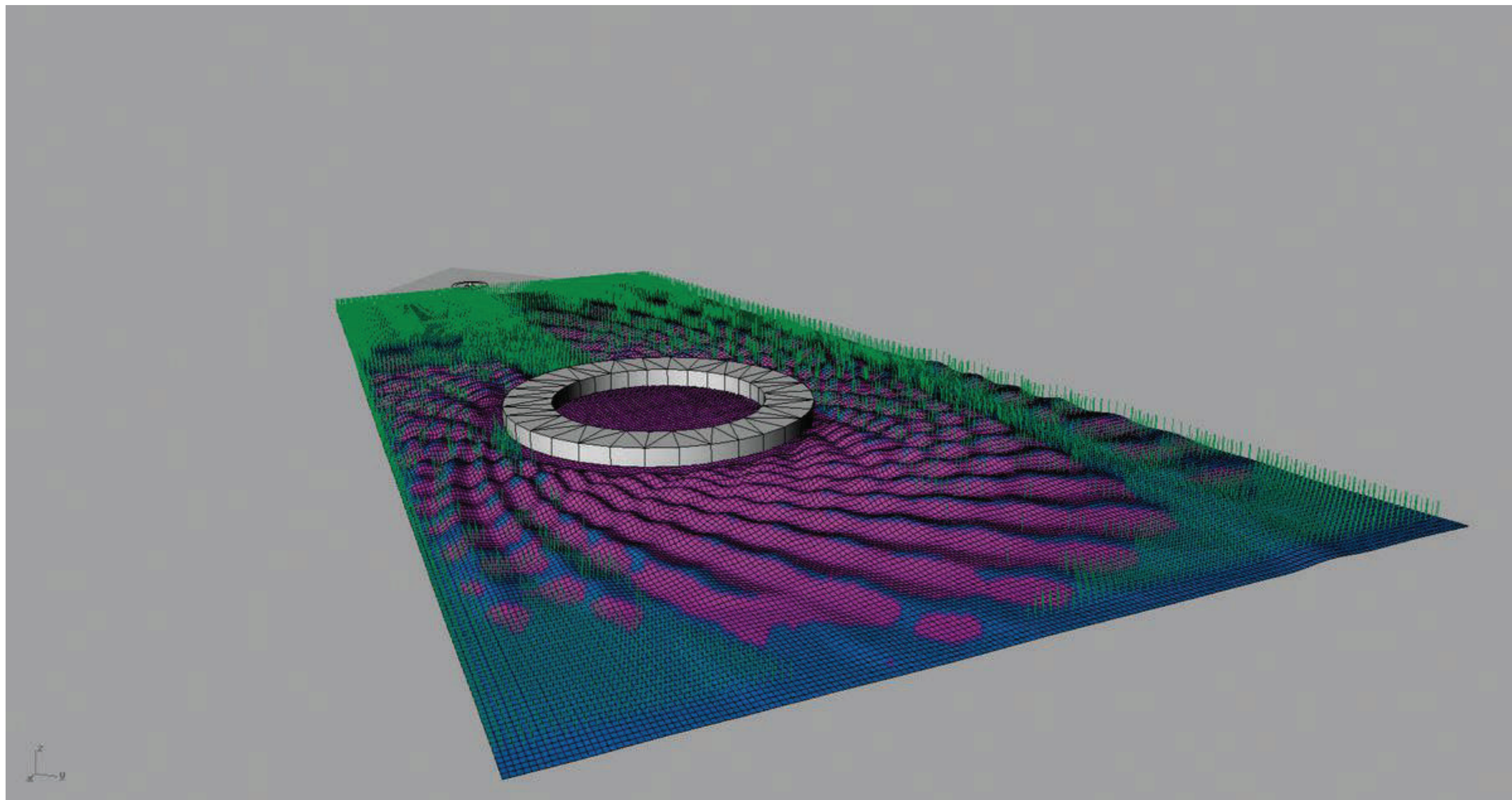
Niederhafen River Promenade, Amburgo, Zaha Hadid Architects, 2019, foto di Piet Niemann



Parque del Agua Saragozza
Aldayjover arquitectura y paisaje + Christine Dalnoky 2008
© Jordi Bernadó - Santiago Amo

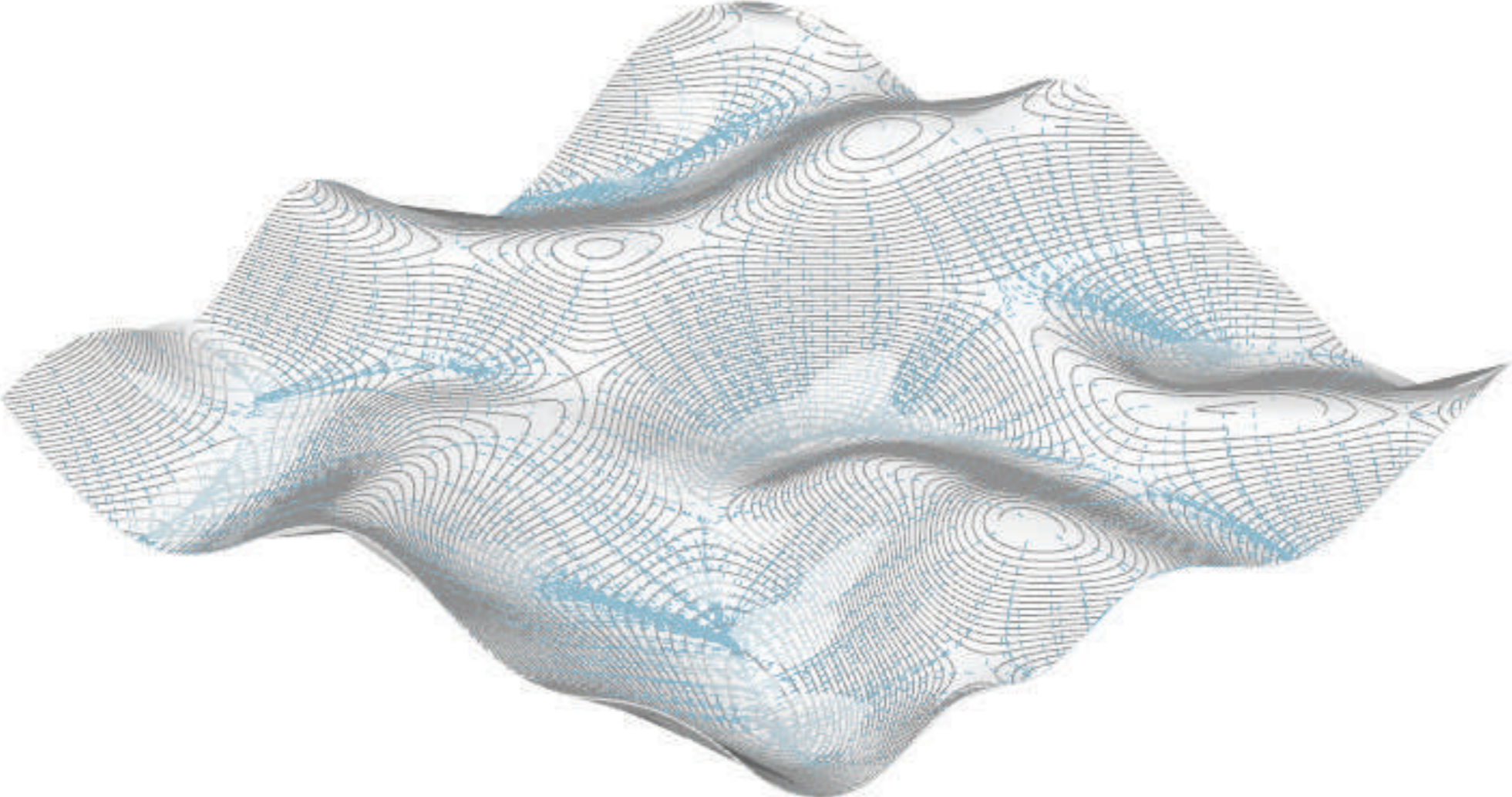


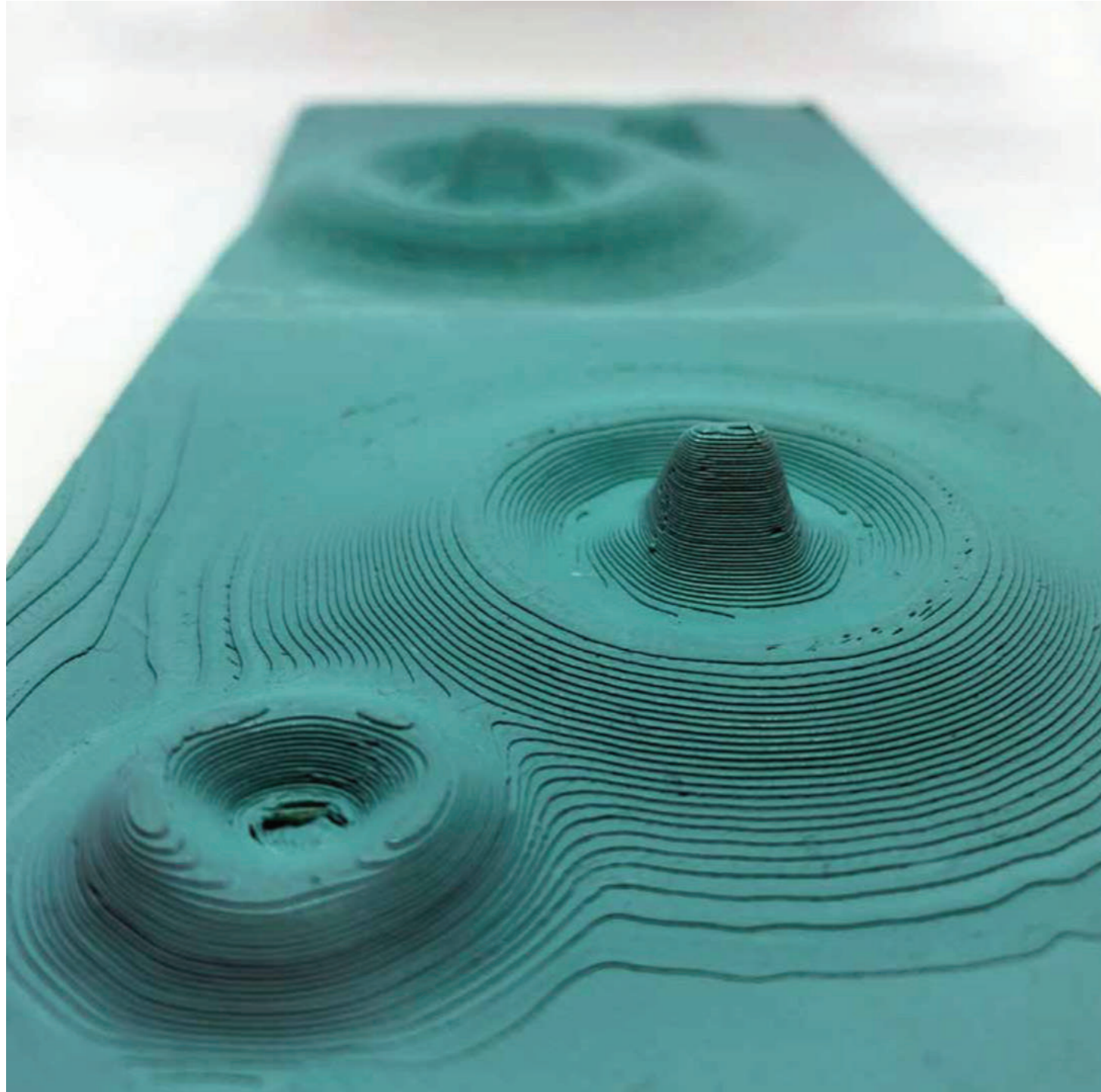
Water Absorptive surface and subterranean basin Las Vegas
Amy Mielke e Caitlin Taylor 2014
© Water Pore Partnership



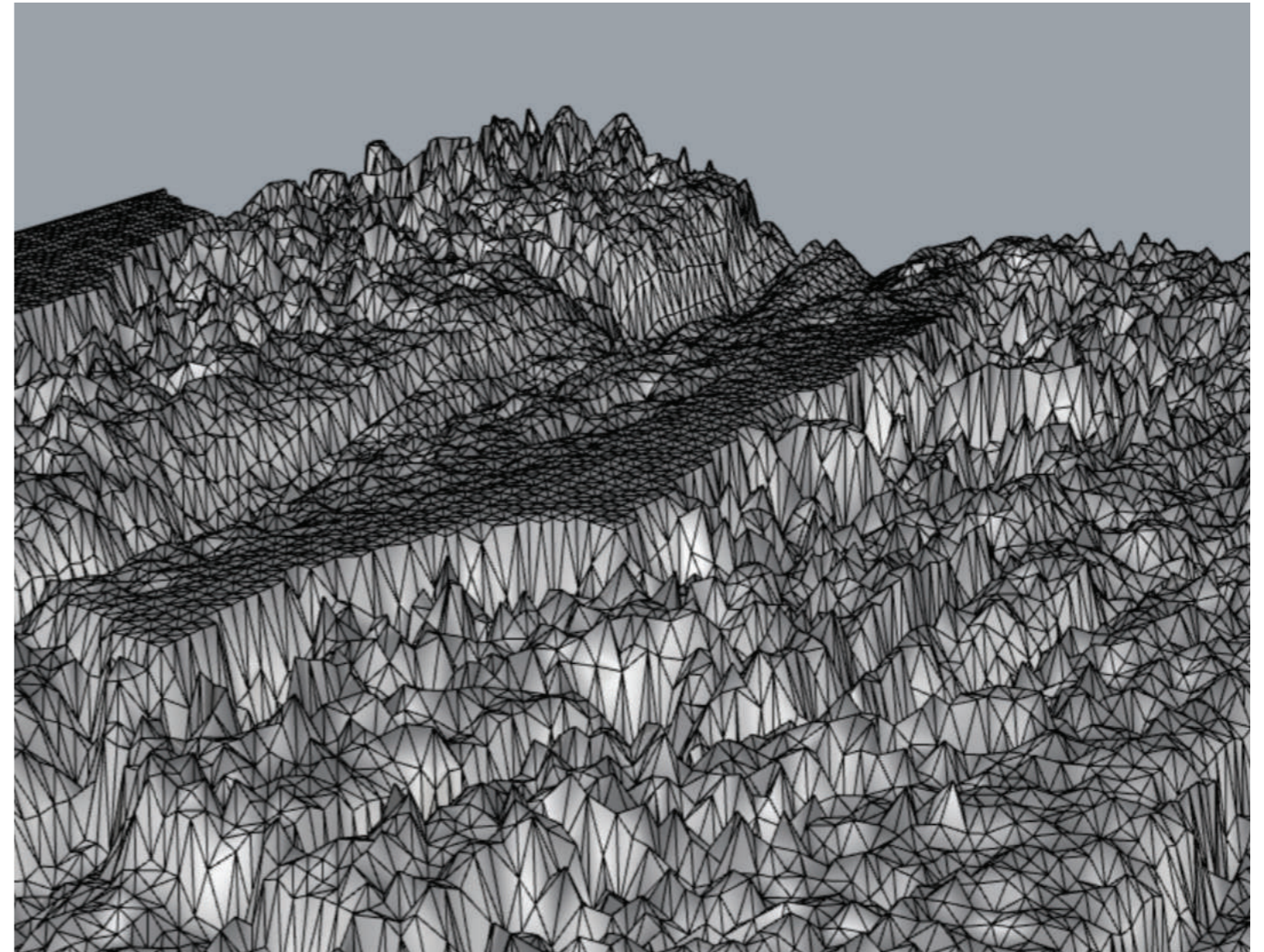
Snøhetta, modello 3D Rhinoceros-Grasshopper
di MAX IV Laboratory Landscape, Lund (©
Snøhetta)

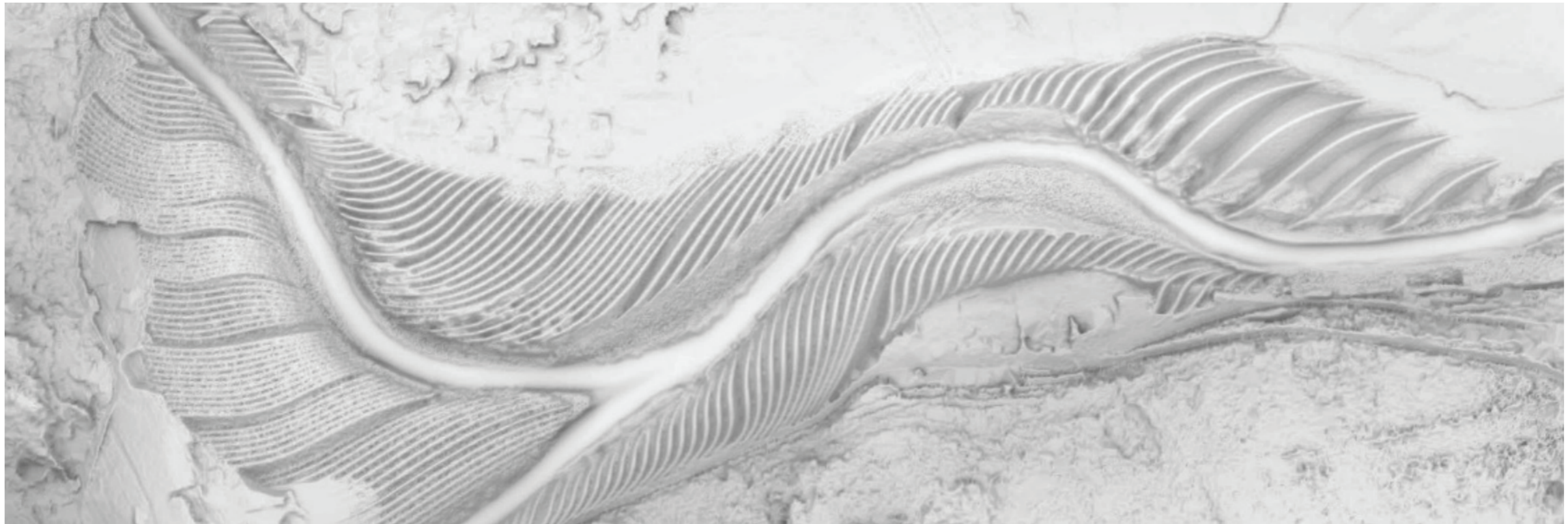




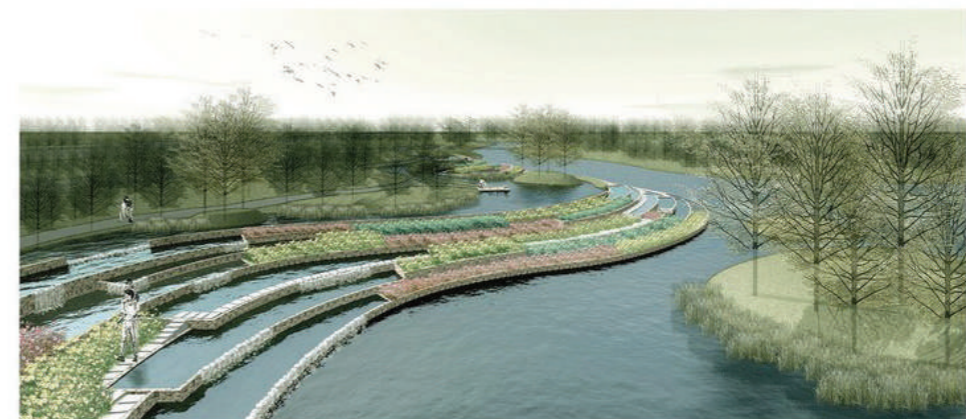
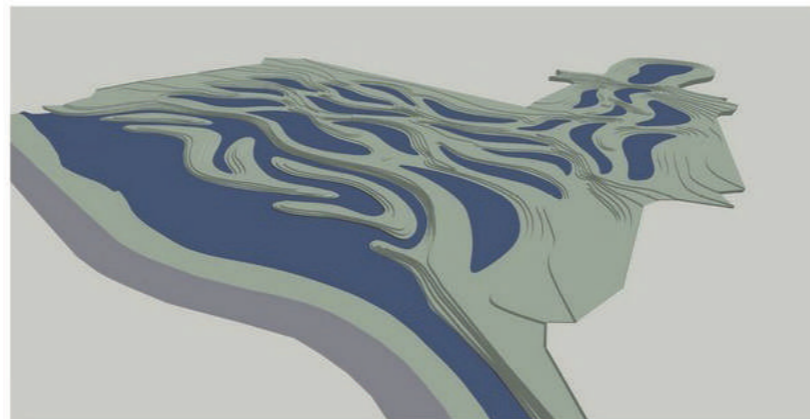


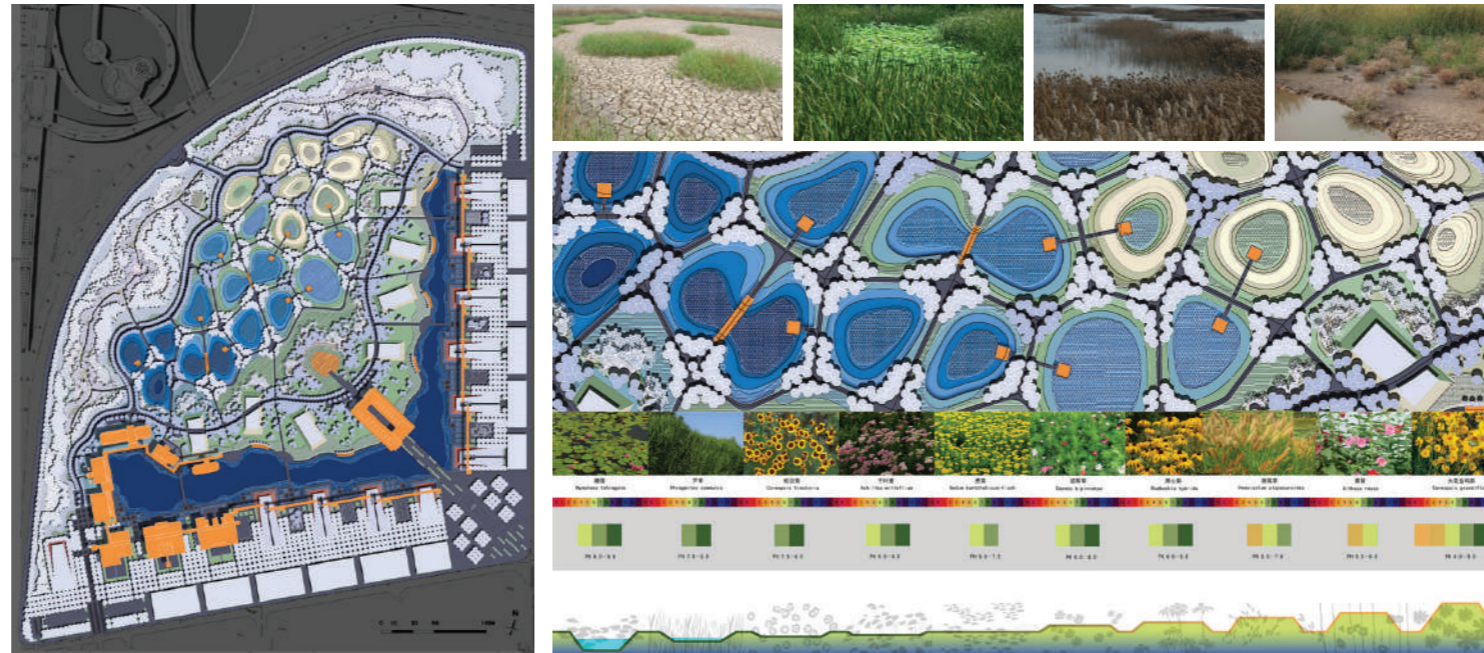
QIAD
Tecniche di modellazione digitale





Computational Terrain Modeling
ETH Zurich, Chair of Landscape Architecture, Zurich/Switzerland,
Digital Building Technologies,





The Adaptation Palette



Tianjin Qiaoyuan Wetland Park
Turenscape, 2005-2009
© Turenscape



Duincasino, diga-casinò in corso di realizzazione, Middelkerke,
DELVA Landscape Architects + ZJA, 2020 - in corso (foto di ZJA)







Minghu Wetland Park - Liupanshui City
Turenscape 2009-2012
© Turenscape



T.R.A.M.A.

sistemi informativi



Mosbach Paysagistes, Philippe Rahm Architectes e Ricky Liu & Associates Architects + Planners , Phase Shifts Park, Taichung, 2011-2020 (© Mosbach Paysagistes)



nuove ecologie progettate



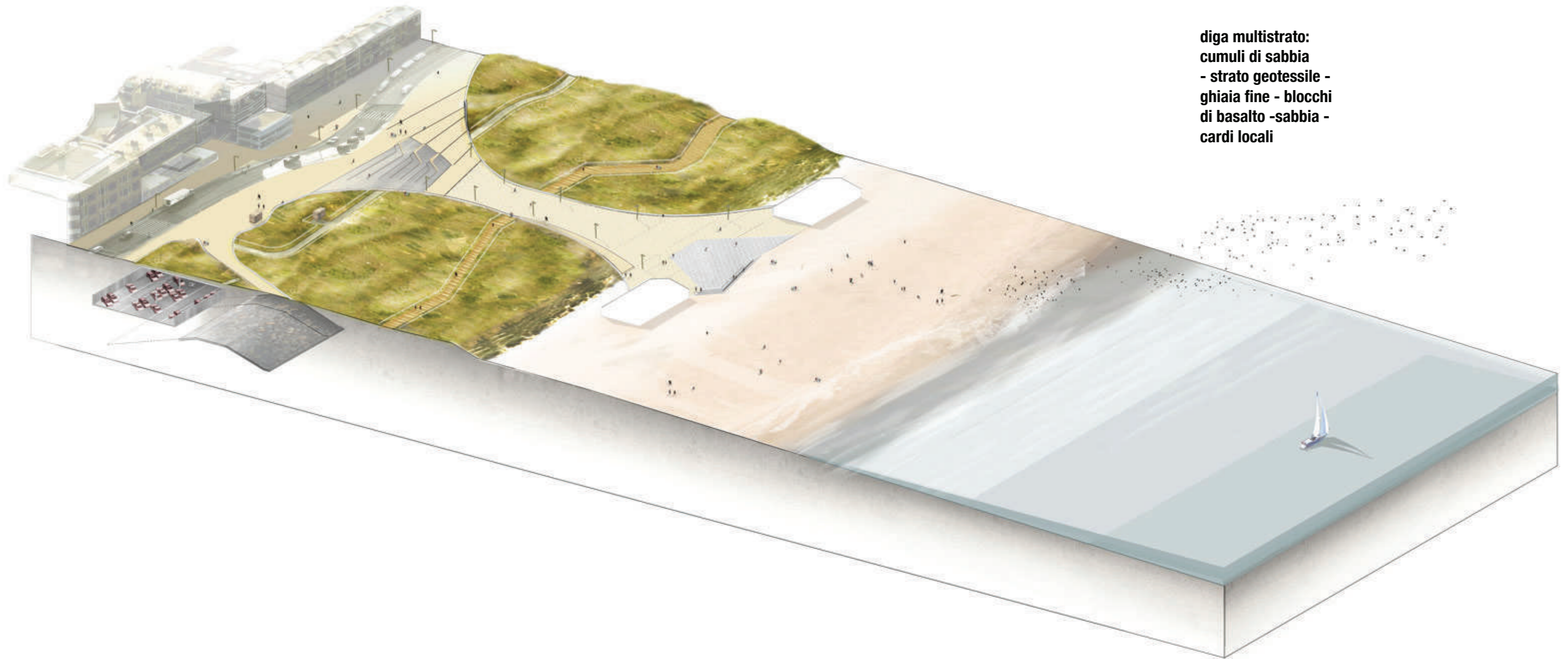
Dike-in-dune Katwijk aan Zee
OKRA Landschaps Architecten + Royal HaskoningDHV 2010-2015
© OKRA Landschaps Architecten - On Site Photography

nuova estetica della macchina idrica



Dike-in-dune Katwijk aan Zee
OKRA Landschaps Architecten + Royal HaskoningDHV 2010-2015
© OKRA Landschaps Architecten - On Site Photography

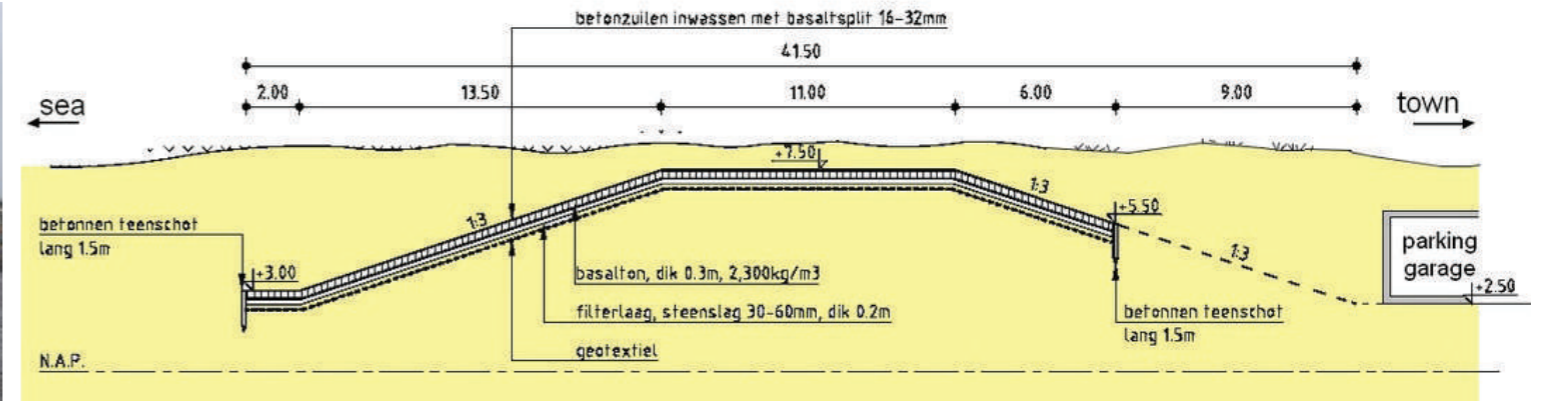
tecniche
rainbowing e compattazione



diga multistrato:
cumuli di sabbia
- strato geotessile -
ghiaia fine - blocchi
di basalto - sabbia -
cardi locali

6.4 Sbarrare: le demarcazioni di argini e dighe

tecniche
rainbowing e compattazione



tecniche
rainbowing e compattazione



multiscala



6.4 Sbarrare: le demarcazioni
di argini e dighe

tecniche
rainbowing e compattazione



guide-lines



Zero soil consumption

Zero consumo di suolo



Multitasking

Multifunzionale



[NBI] Nature Based Infrastructure

Infrastruttura basata su sistemi naturali



Networking

Creare reti



Data collector

Sistema informativo



Social catalyst

Catalizzatore sociale



Dissipate

Dissipare



Flexible & Adaptive

Flessibile e adattiva



Self-managing

Auto-regolativa

Diller Scofidio, Blur, EXPO, Yverdon Les Bains, 2002 (© Diller Scofidio + Renfro)



grazie