Water Management Solutions

Where are we Heading?

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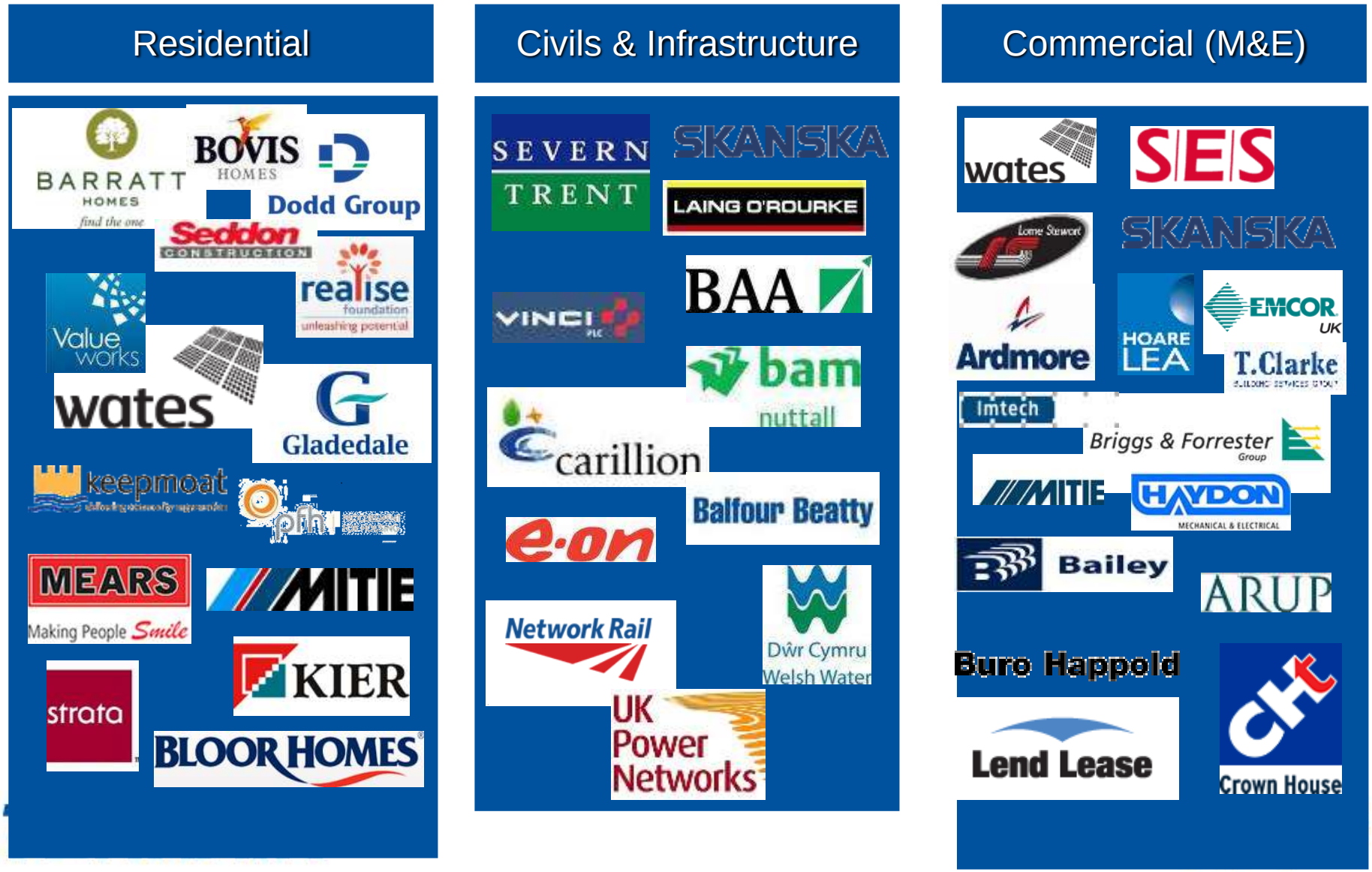
Segment focus achieving



Polypipe Terrain –Our Partners

construction products association

BSRIA Member

CONSTRUCTING EXCELLENCE in the built environment

British Expertise promoting professional services worldwide

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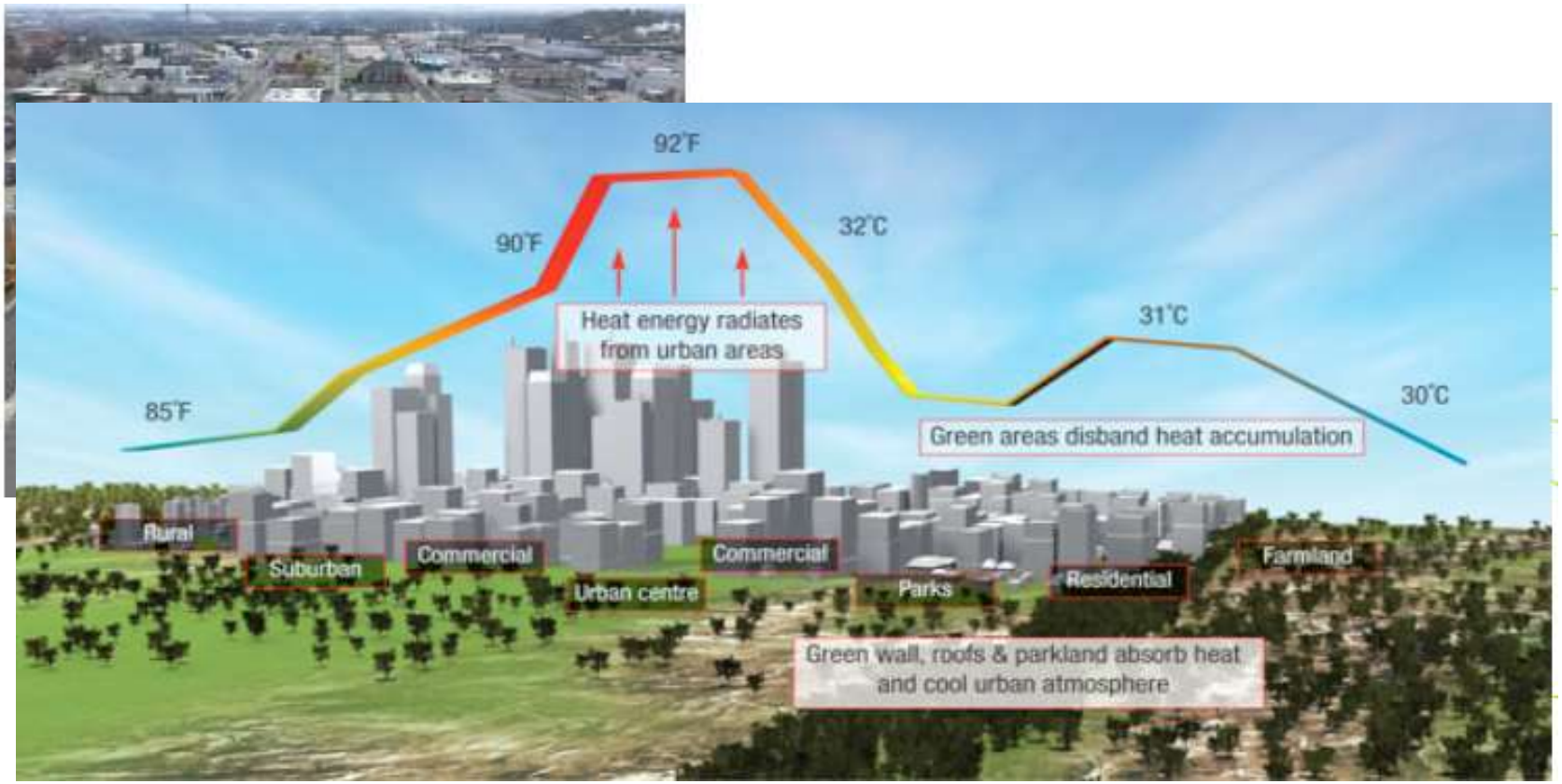

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Urban heat island

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Urban Farming

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Roof top parks

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Sponge city

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1 billion investment

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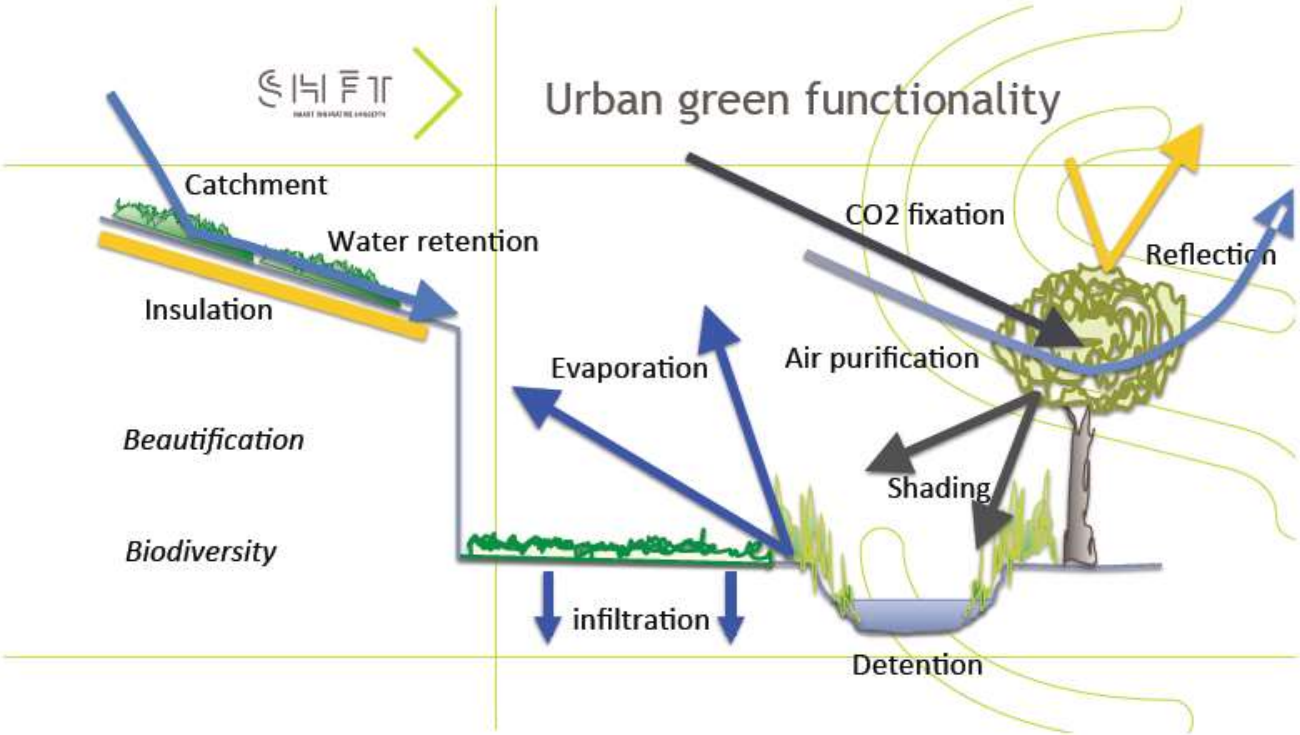
Urban green cycle



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Water -Modern City Development

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Industry drivers -The London Plan

- The London Plan (SPG)
- Use of SuDS measures for undeveloped sites
- Storm period returns
- Open space greening
- Climate change factors
- Wider sustainability issues; cooling urban space
- The Environment Agency
- Water Authorities / Port of London Authority
- CIRIA guide 976
- BREEAM
- FORS
- Commercial floor space rents
- BS 8582 :2013
- Other cities –Holland

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CIRIA RP 976

INTRODUCING WATER SENSITIVE URBAN DESIGN

water sensitive urban design

05

Water Sensitive Urban Design is the process of integrating water cycle management with the built environment through planning and urban design.

Two principles are essential to its application:

1 All elements of the water cycle and their interconnections are considered concurrently to achieve an outcome that sustains a healthy natural environment while meeting human needs. This includes managing:

- a Water demand and supply
- b Wastewater and pollution
- c Rainfall and runoff
- d Watercourses and water resources
- e Flooding and water pathways

2 Consideration of the water cycle is made from the outset, and throughout the design and planning process. Accordingly, water management solutions seek to meet the expectations and aspirations for design of successful places, such as:

- a Celebrating local character, environment and community
- b Optimising the cost-benefit of infrastructure and built form
- c Improving quality of life for communities
- d Providing resource security and resilience in the future.

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Traditional Attenuation Engineered Solutions

- Above or below ground tanks and pumping requirements
- Sectional tanks in plant rooms
- Infrastructure tanks -Basement locations using valuable area
- Additional pumping to sewers
- Not currently working with the built environment –Greening cooling effect, amenities Landscaping & planting, sports pitches, Street furniture

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Commercial factors –Retail Floor space rents

- £495-900/m2

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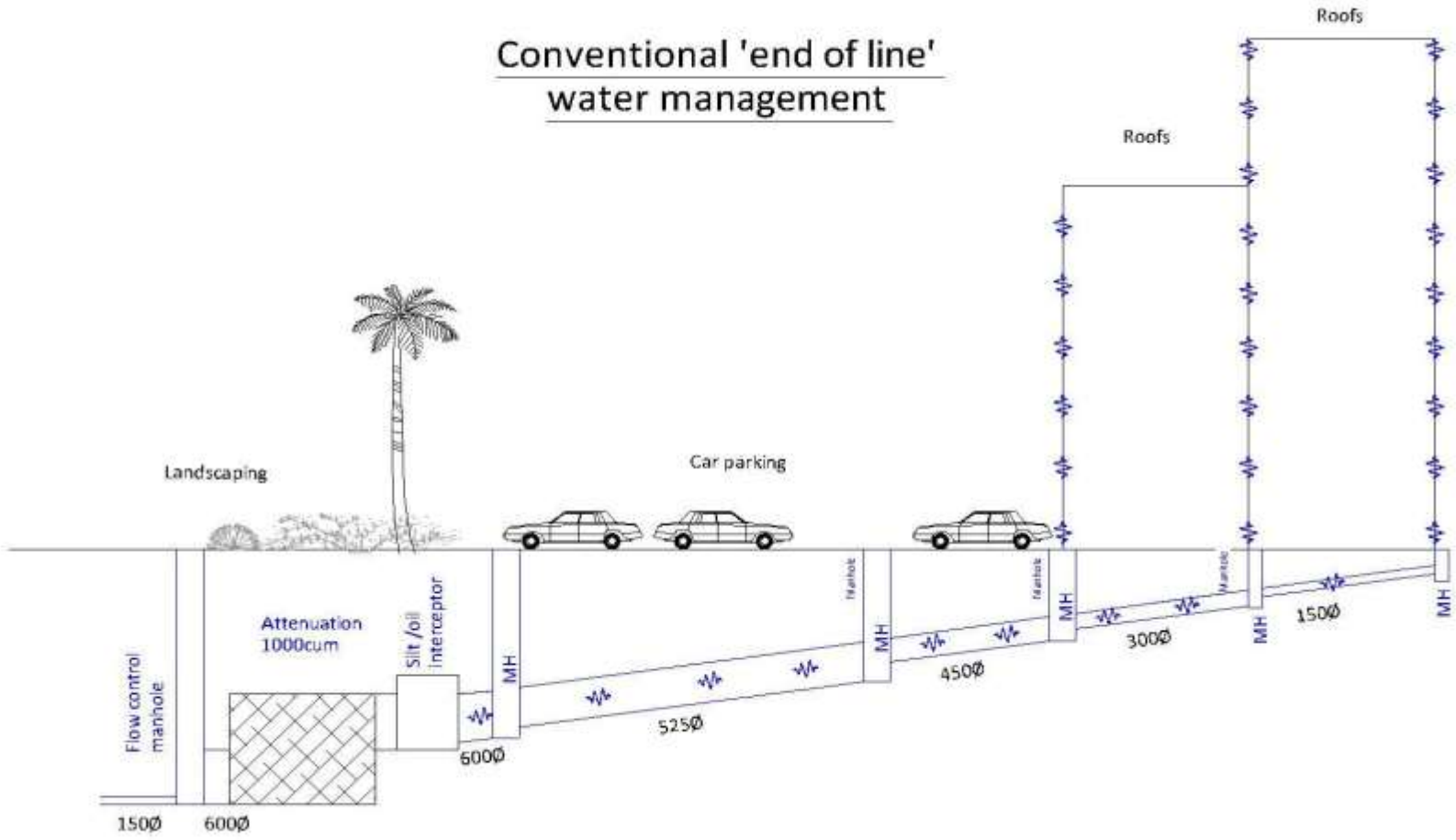
Traditional End of Line approach



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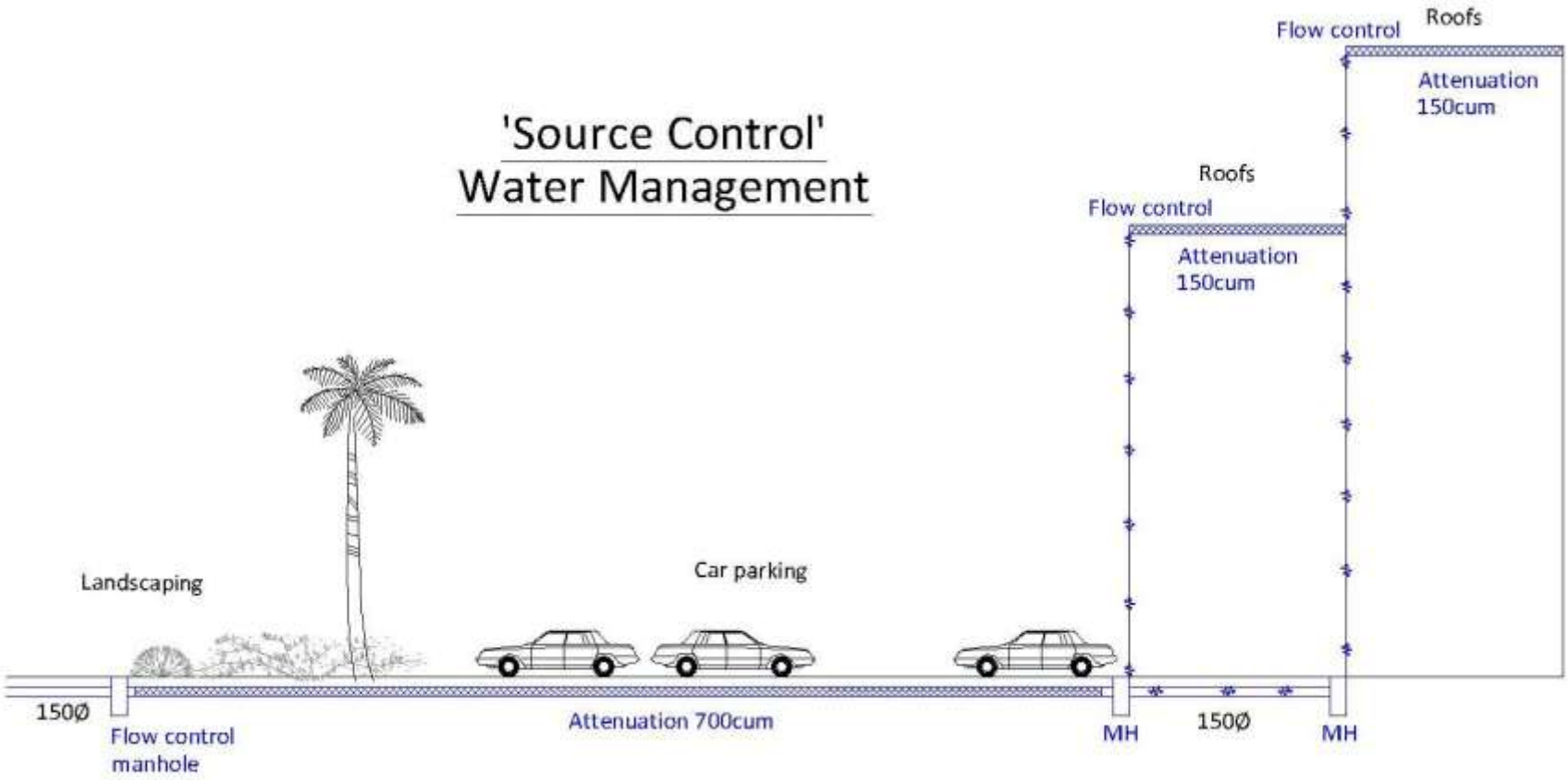
Source Control Approach



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Challenging Tradition

- Designing out RWH tanks in basements if possible
- Basement areas being used for other commercial use cycles & car parks
- Target additional BREEAM Credits- higher rated buildings - better rent values for client and developer
- Providing design input at FRA stage providing technical PI services via own engineering consultants EPG, introduction to the design team

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New thinking-Challenging tradition

- Many projects have under used roof & podium levels with sub base
- Capital costs exists for the client/developer to hold the surface water run off on site for the project
- Surface water approach ‘’Threat to Asset thinking’’ -Using stored water at podium to passive irrigate green areas, reduced potable usage
- Use of ECA allowance in contracts to non Government clients & corporation Tax payers
- Traditional RWH pumped units may be not be required

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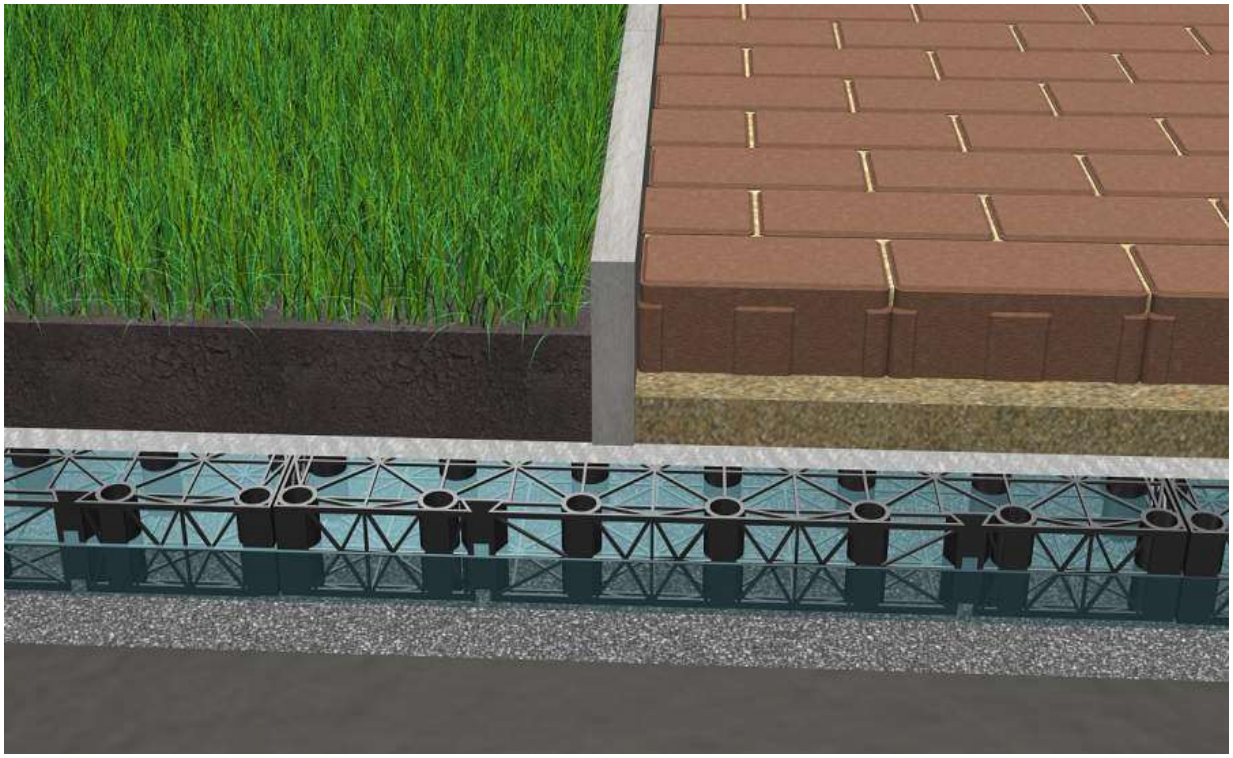
Permavoid –Green/Blue Roof & Podium



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London Olympics – Greenwich Park Temporary Deck

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London 2012

London Olympics – Greenwich Park Temporary Deck

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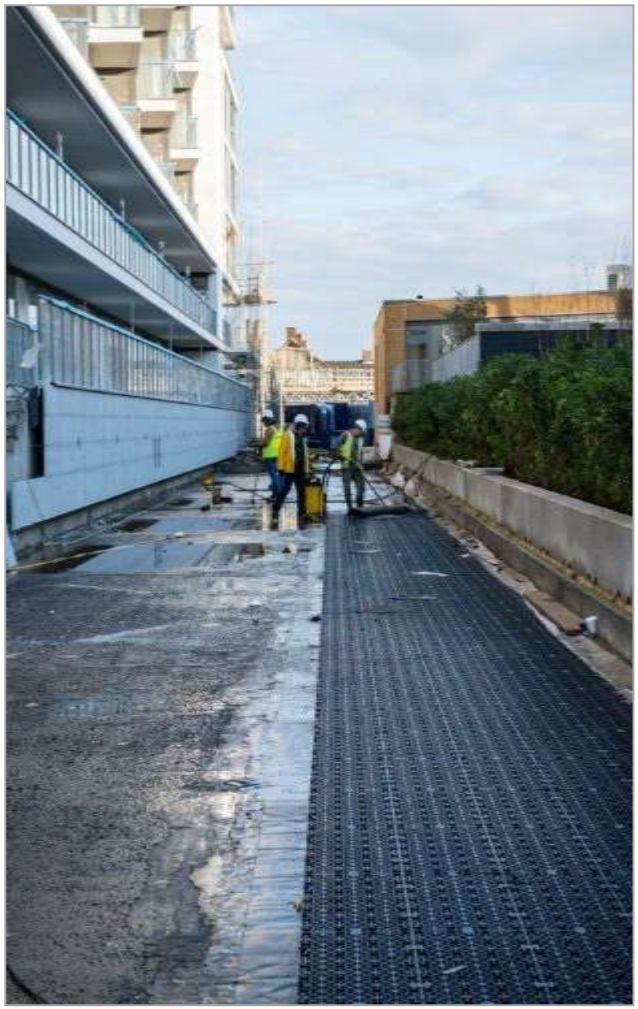
Greenwich project



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Greenwich completed

Greenwich Complete

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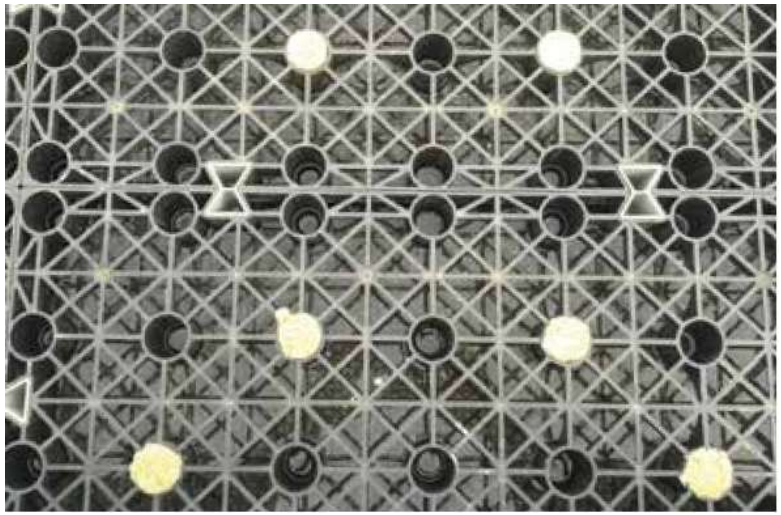
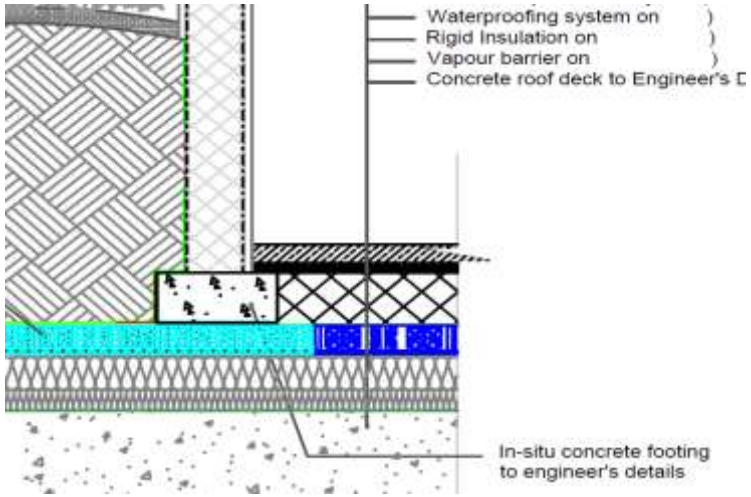
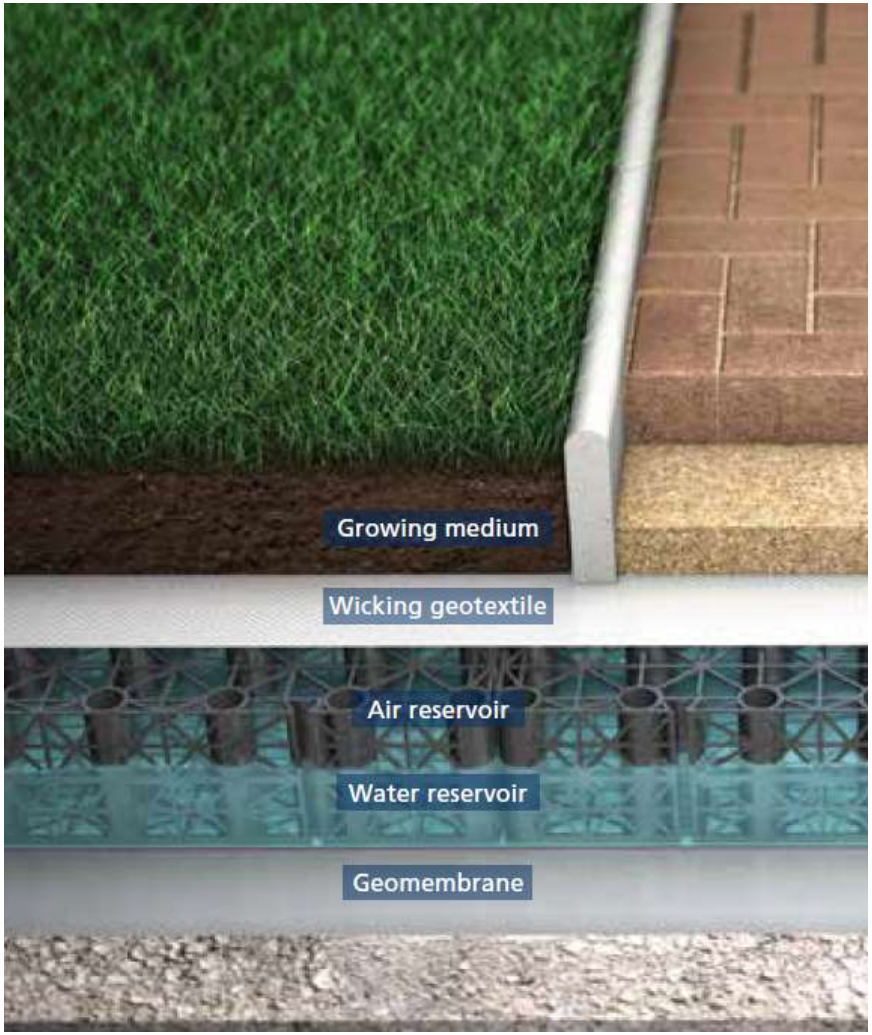
Passive irrigation







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Unite ‘’Stratford ONE” -2014

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Transport –Reduced movements

1 Truck load of SUDSsport 85mm

= 23 pallets x 144 SUDSsport units + 1 pallet ties
= 3312 SUDSsport Units (4 SUDSsport units per sq.m)
= 828 square metres finished area.

EQUIVALENT TO

828 square metres sub-base at 250mm thick
= 828 sq.m x 0.25m = 207 cubic metres sub-base
= 207cu.m x 2.0 tonnes/cu.m = 414 tonnes

=21 Truck loads at 20 tonnes per truck

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Transport -Fleet Operator Recognition Scheme

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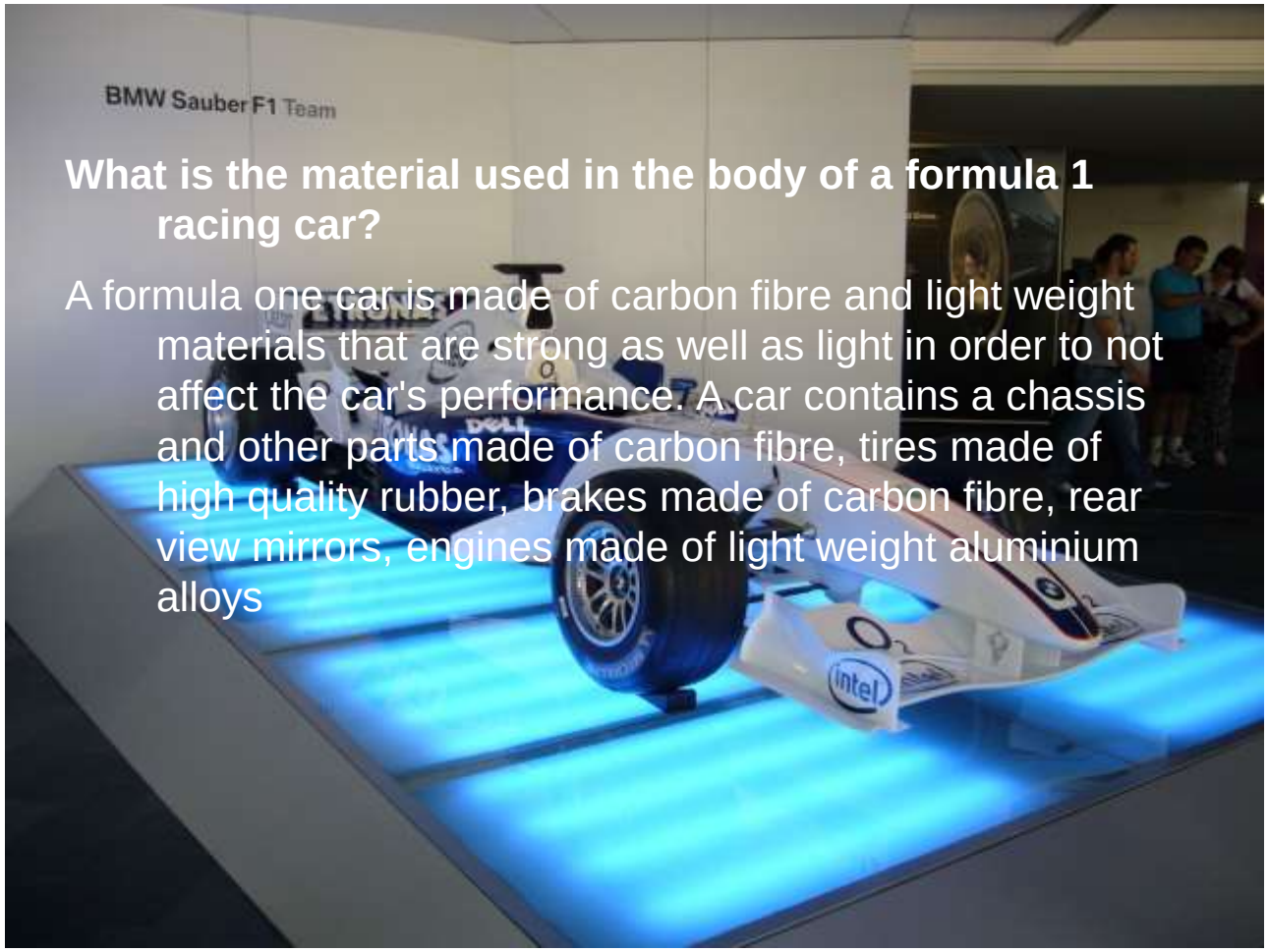
Engineered Plastic Solution



What is the material used in the body of a formula 1 racing car?

A formula one car is made of carbon fibre and light weight materials that are strong as well as light in order to not affect the car's performance. A car contains a chassis and other parts made of carbon fibre, tires made of high quality rubber, brakes made of carbon fibre, rear view mirrors, engines made of light weight aluminium alloys

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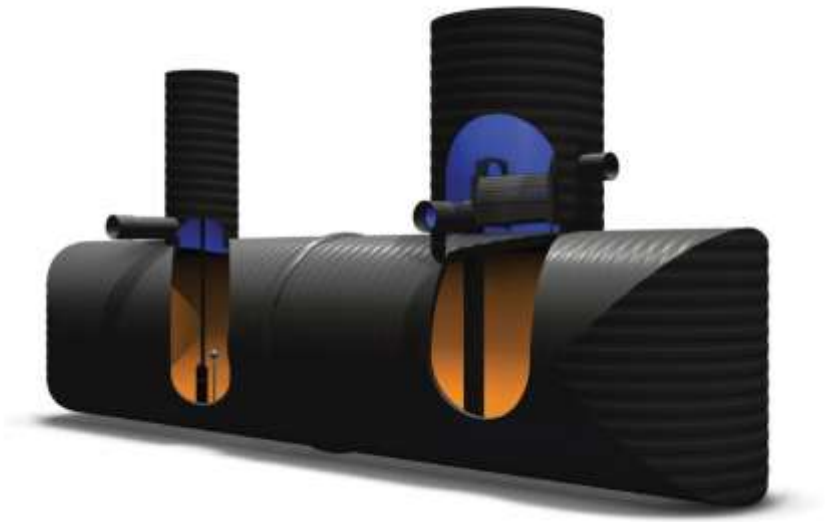
Ridgistorm -XL Tank Range



- No water fill during install
- May not always require imported concrete surround
- As dug material can be used
- Reduced Traffic movements
- Reduced Land fill removal
- Structured wall Polyethylene & can be recycled at end of life
- Carbon calculation better than GRP with Concrete
- Various tank shapes and engineered to suit ground conditions
- Ideal for Pre fabrication
- Unique Bio Master lining
- Example -50 m3 GRP tank requires 50 m3 of water during on site installation & concrete surround of 800mm-1m or 20m3 of concrete

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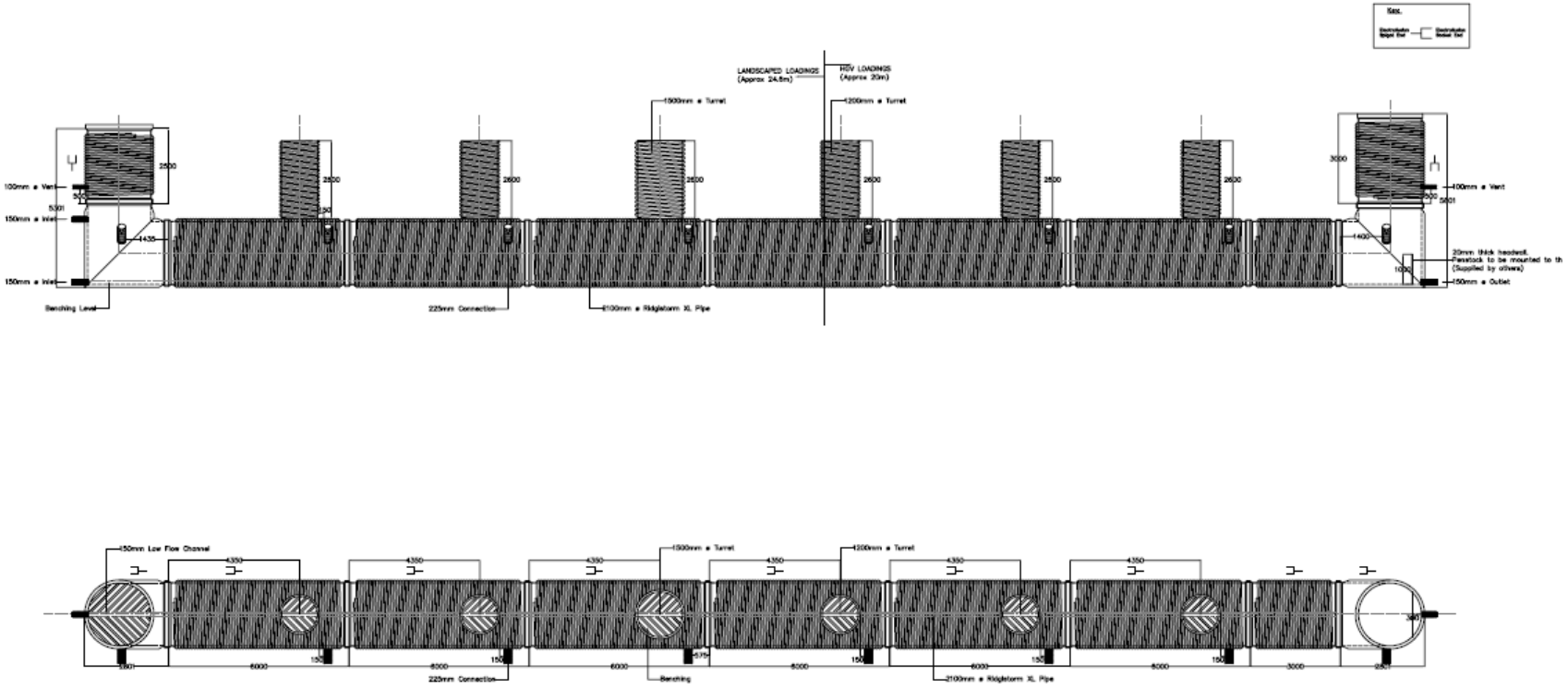
Pre fabrication -The finished Product



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