



The Stormwater Benefits of High-Performance Urban Trees

WATERCON 2018



It's about....

“ **Sustainable infrastructure**

is development that meets the needs of present society without compromising the ability of future generations to meet their own.

”

Innovative solutions for the urban landscape.

—
Making grey cities green.



Importance of Trees in Green Infrastructure

TREES = BMP's

The Challenges of Green Infrastructure in the Urban Environment





DID YOU KNOW?

The average life
span of a tree in an
urban environment
is only 3 to 8
years.



TRANS



BIKE



PETS



KING





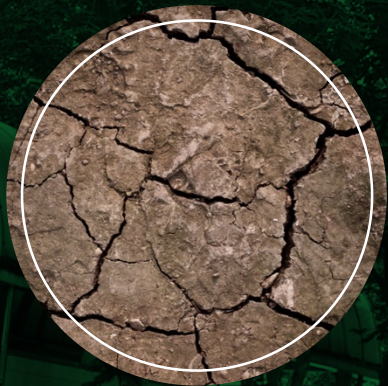
IRRIGATION



AERATION



COMPACTION



INSUFFICIENT
GROWTH



STRUCTURE
DAMAGE

Are We Leading the way in Sustainable Infrastructure?

Healthy root systems

MAKE FOR

Healthy trees and sustainable stormwater management.





Case Study



Uncompacted Soil

Compacted Soil



Compacted Soil



The results of
Compacted Soil



UNDERSTANDING THE REQUIREMENTS FOR

Sustainable Infrastructure

UNDERSTANDING WHY WE
REQUIRE SYSTEMS LIKE

Soil Cells





SOIL CELLS

RootSpace





THE IMPORTANCE OF

Uncompacted Soil





Importance of Void Space and Structural Capacity



Soil Cells



1 YEAR

VS



Structural Soil



INSTALLATION



Bartlett Tree Labs – Charlotte, NC



SOIL CELLS FOR STORMWATER WITH

Pervious Surfaces





SOIL CELLS FOR STORMWATER WITH

Retention or Detention





STORMWATER MANAGEMENT

Stormwater Storage



SOIL CELLS FOR STORMWATER IN

Parking Lots



Stormwater Harvesting





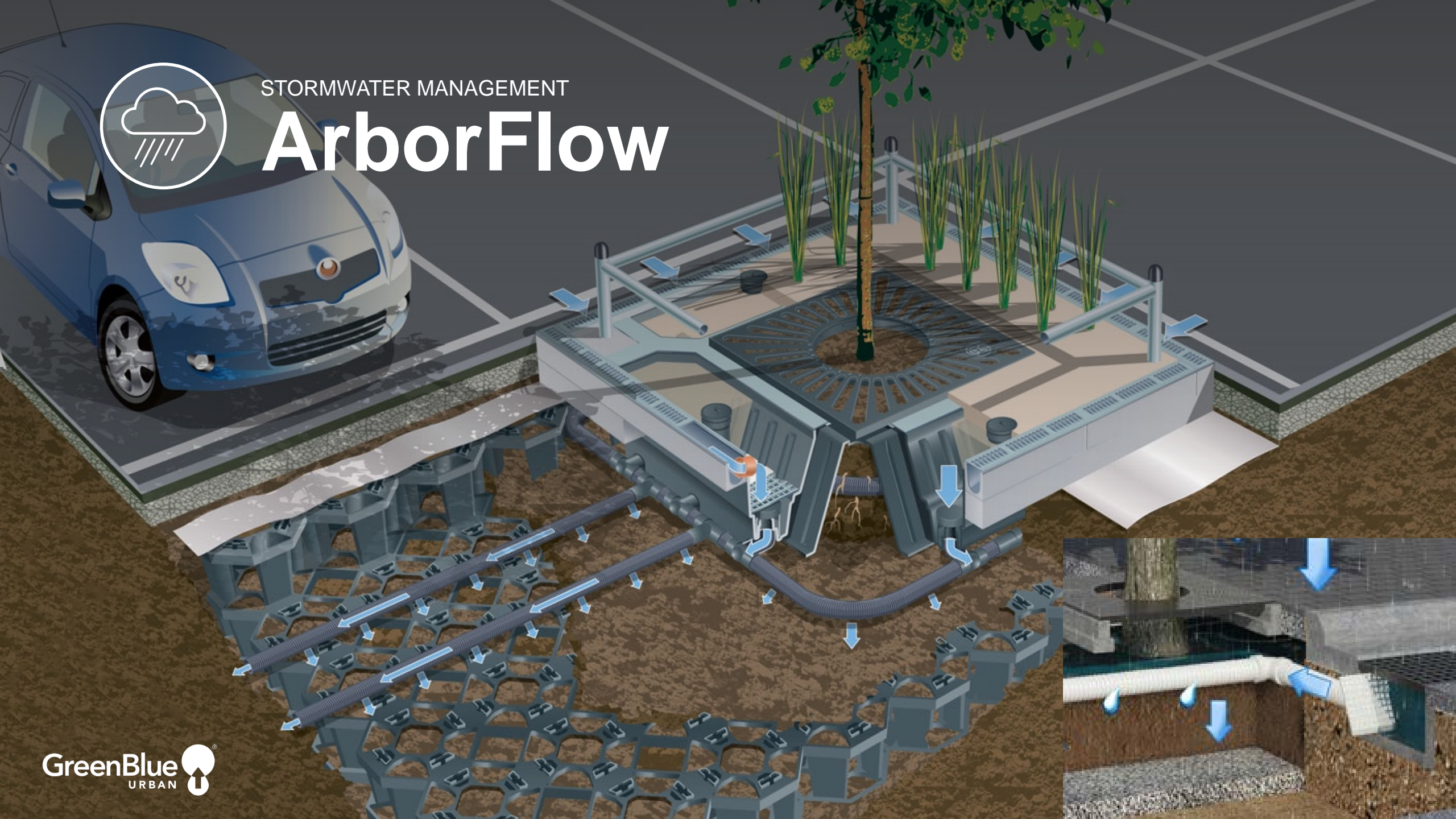
STORMWATER MANAGEMENT

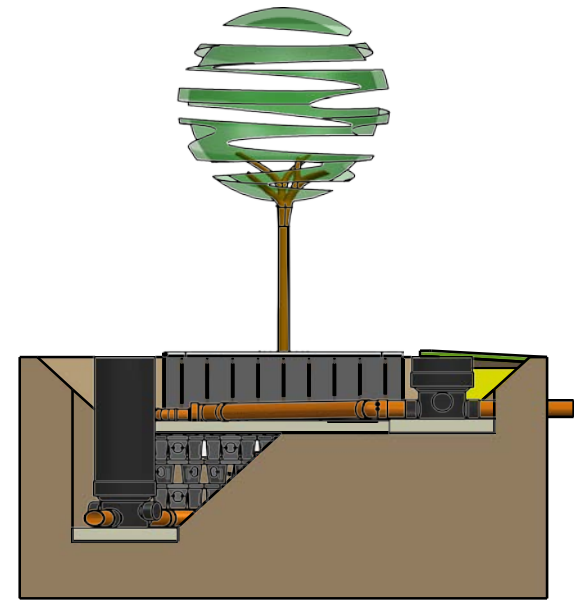
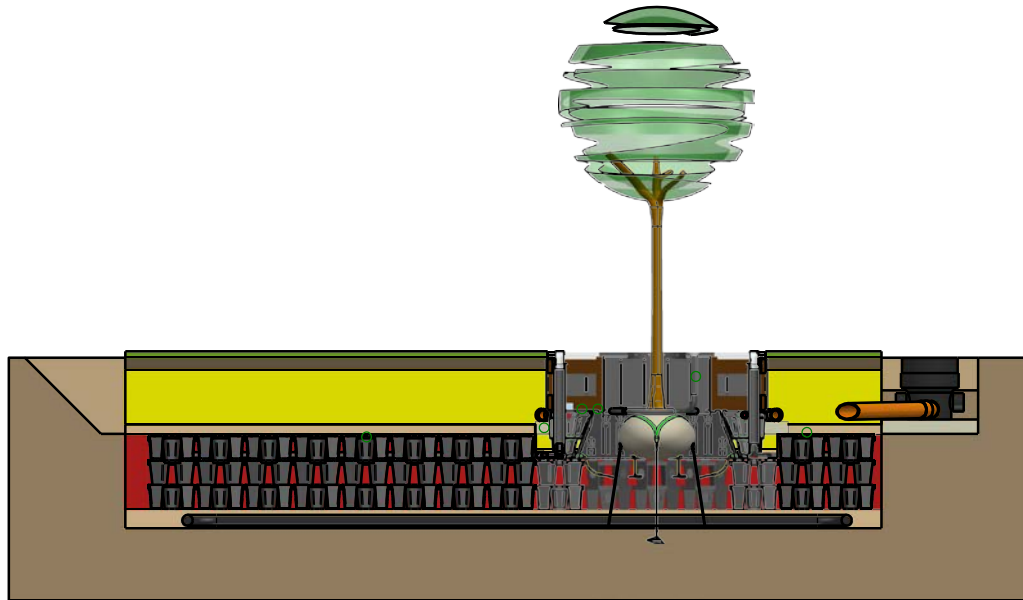
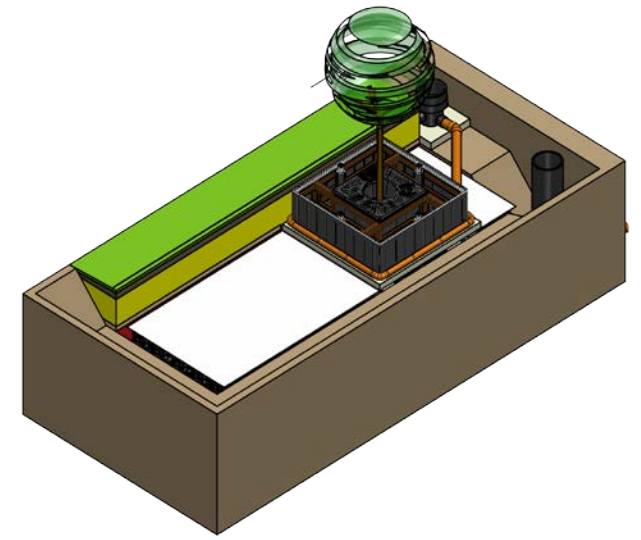
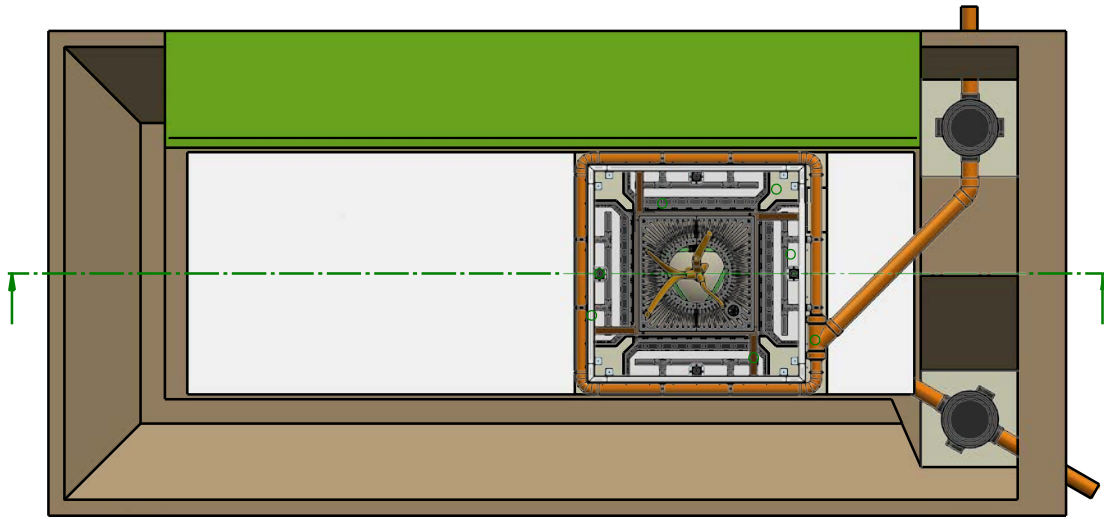
ArborFlow



STORMWATER MANAGEMENT

ArborFlow





ArborFlow Installation Dundee



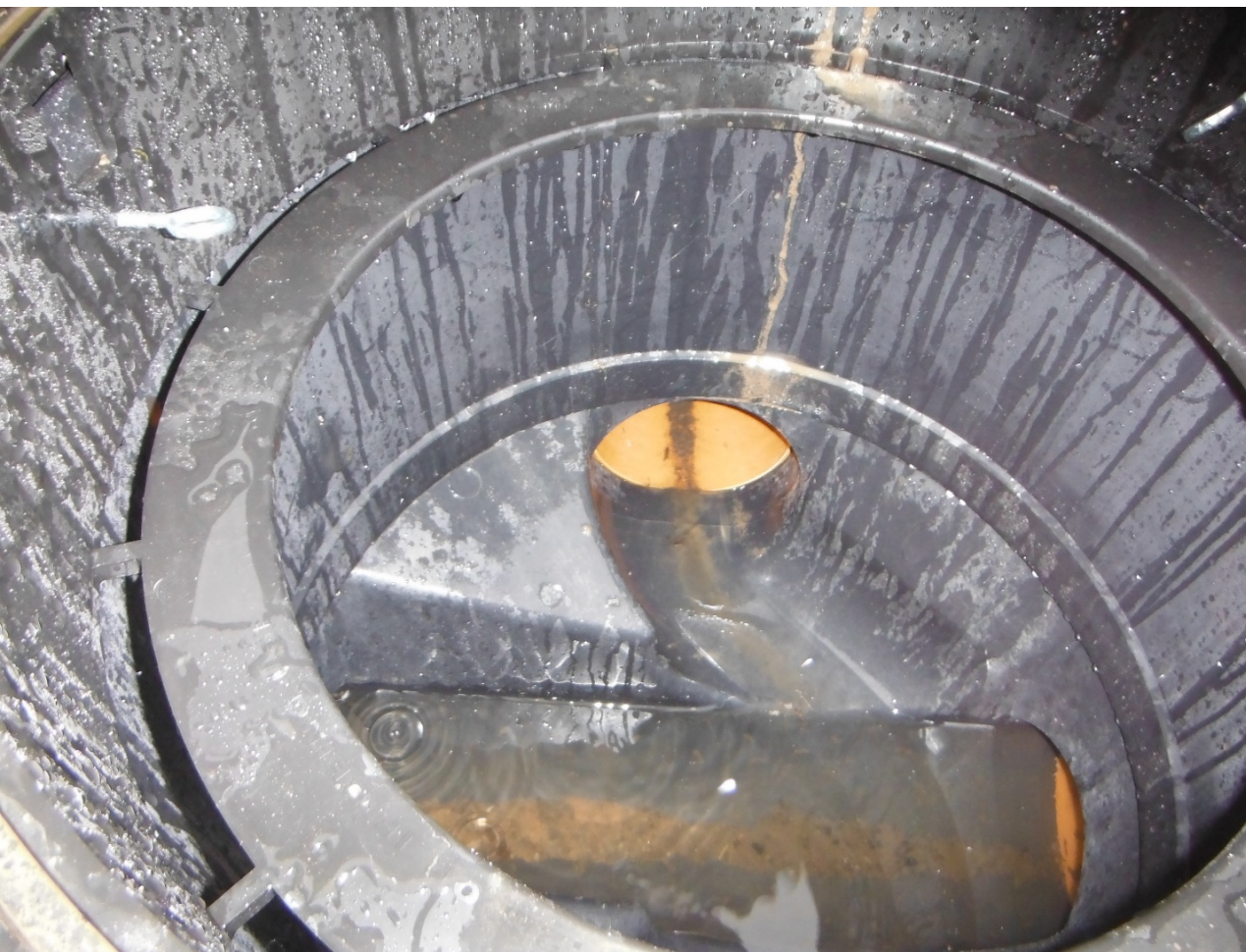
ArborFlow Installation Dundee



ArborFlow Installation Dundee







Water flowing into the system from parking lot strip drain.

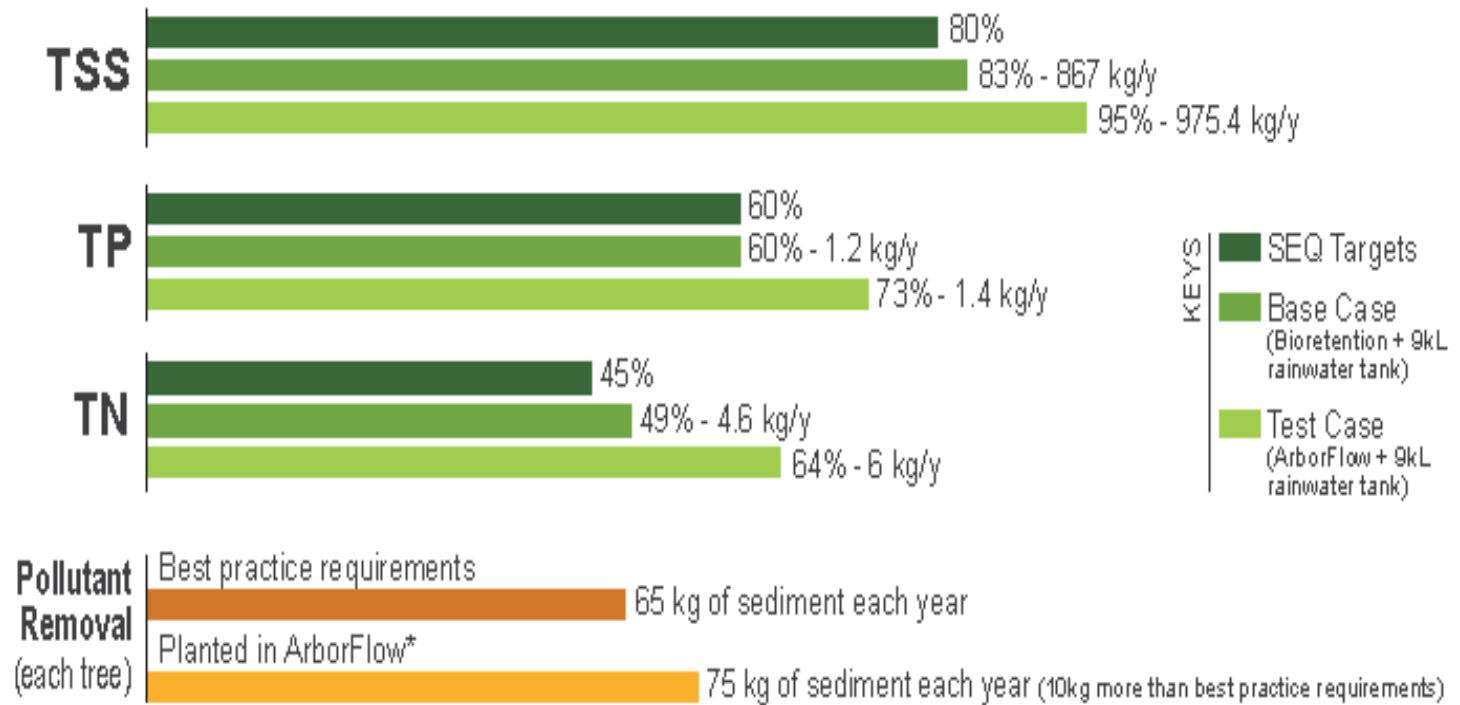


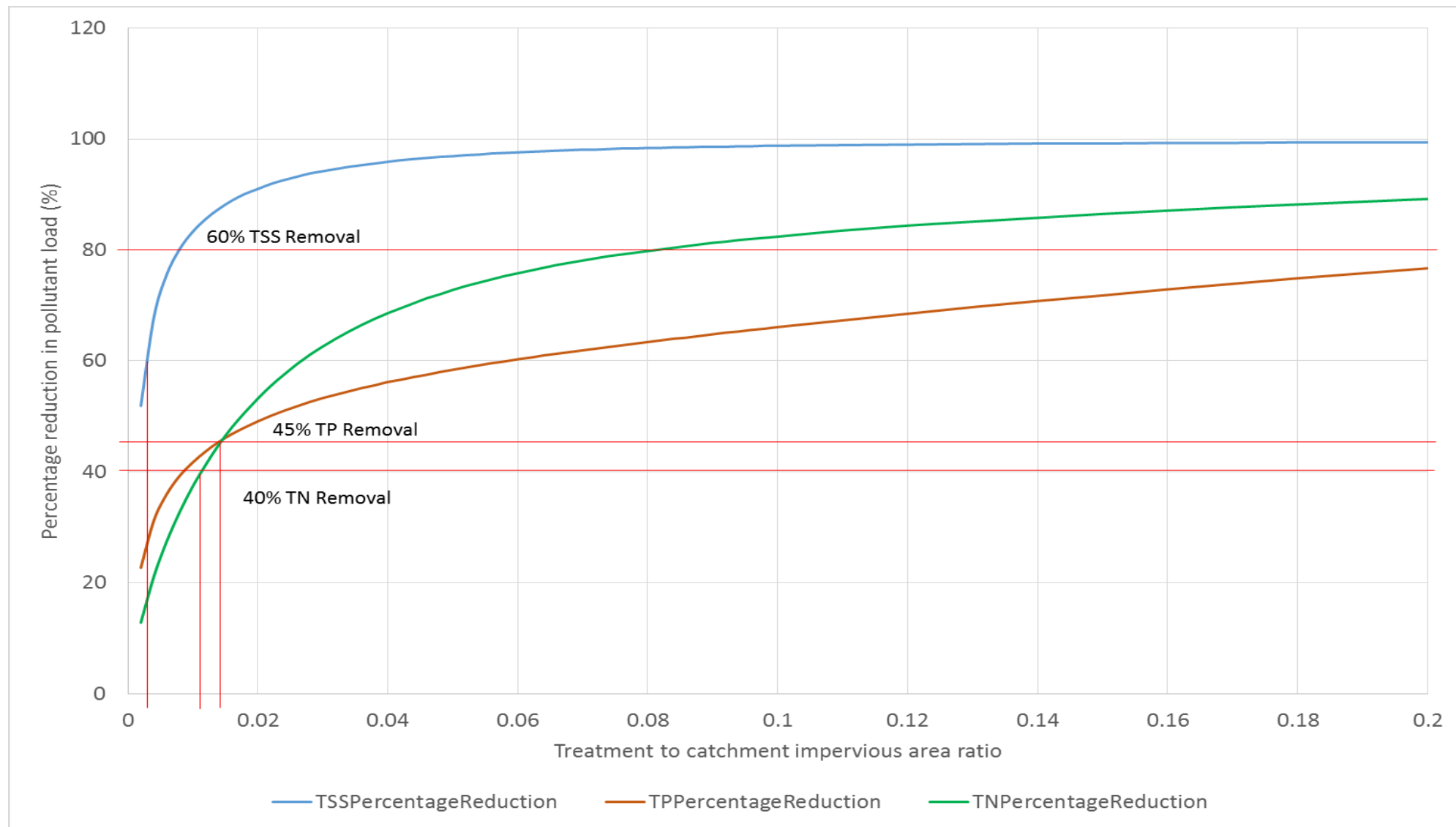
Shows outlet drain - no water flow outwards after 2 hours of rain fall, demonstrating attenuation in action. Some post installation debris visible. This is 80" (2m) down.

STORMWATER MANAGEMENT

DEVELOPMENT TYPE: Small scale commercial with carpark

SITE AREA: 0.42 ha - 98% Impervious

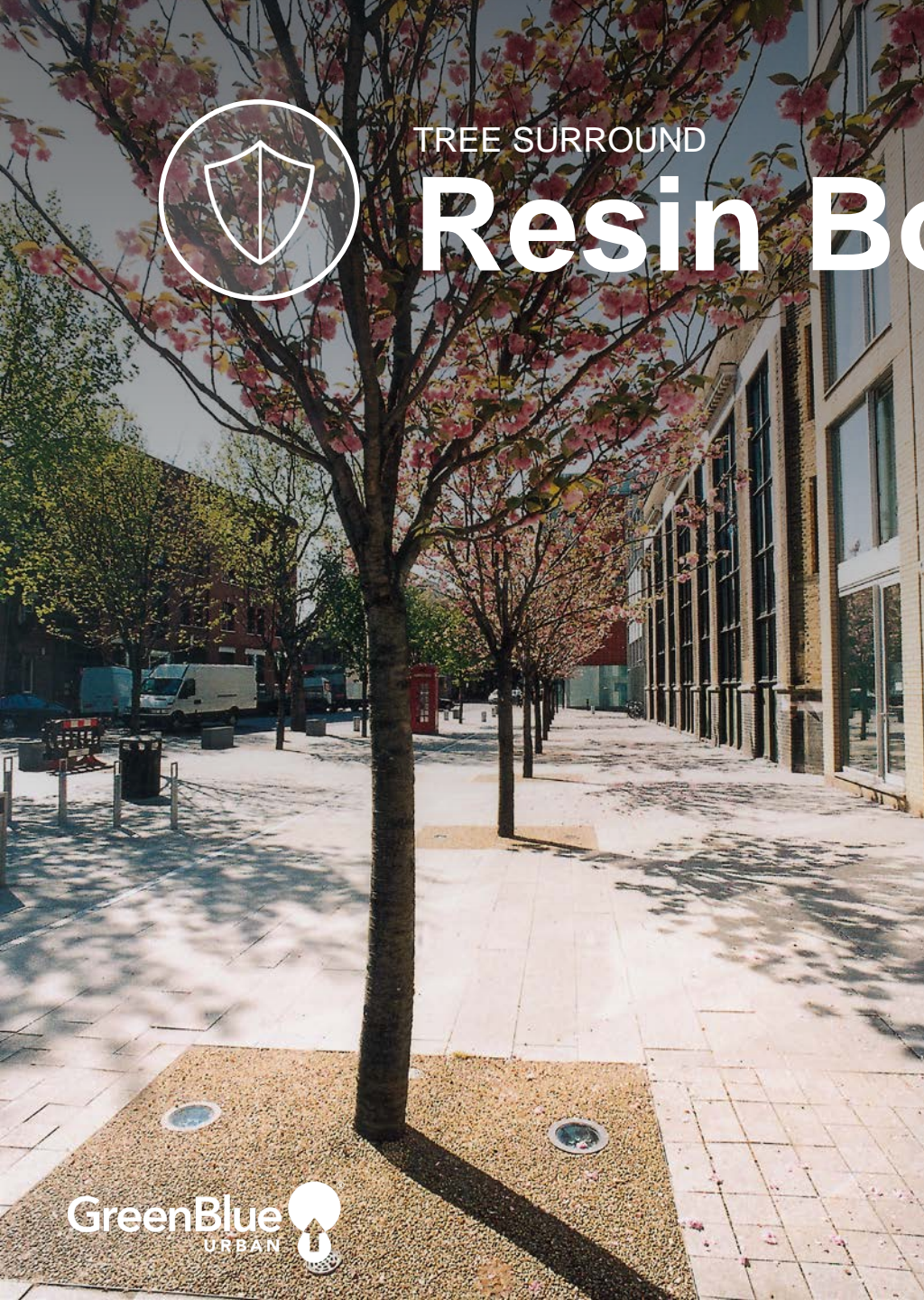






TREE SURROUND

Resin Bonded Aggregate





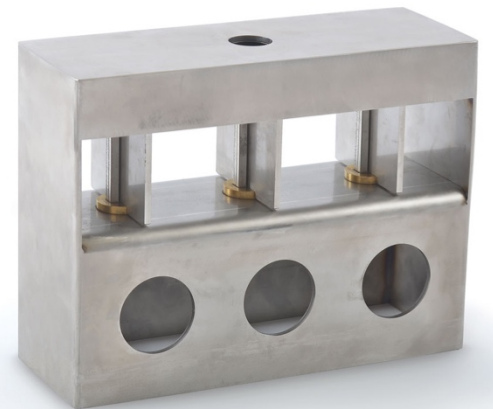
STORMWATER MANAGEMENT

Linear Drain



STORMWATER MANAGEMENT

CurbFlow





STORMWATER MANAGEMENT

Water Channel

Applications

Streetscapes & Parking Lots



Case Study

Before

Riverwalk, Chicago

Case Study

During

Riverwalk, Chicago



Case Study

Riverwalk

Chicago, IL

Case Study

Portland Slip

Toronto, ON



Case Study

Before

Navy Pier, Chicago

During

Navy Pier, Chicago



After

Navy Pier, Chicago



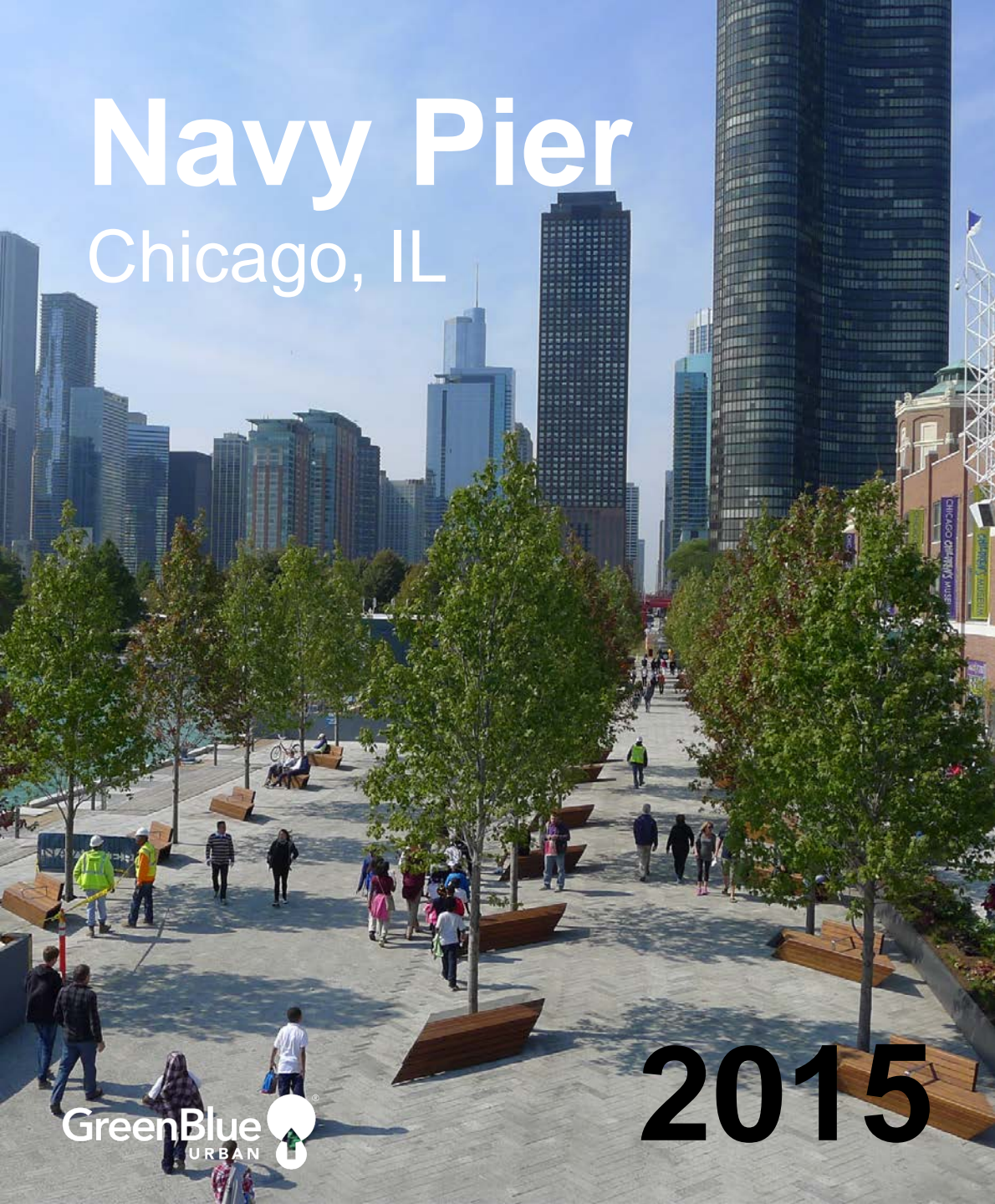
2017

Navy Pier, Chicago



Navy Pier

Chicago, IL



2015



2017

Case Study

Pace University

New York City, NY



Case Study

Hatcher Road

Phoenix, AZ

Case Study

Emmen Center Square

Emmen, Netherlands

Case Study

Thunder Bay Regional Hospital

Thunder Bay, ON



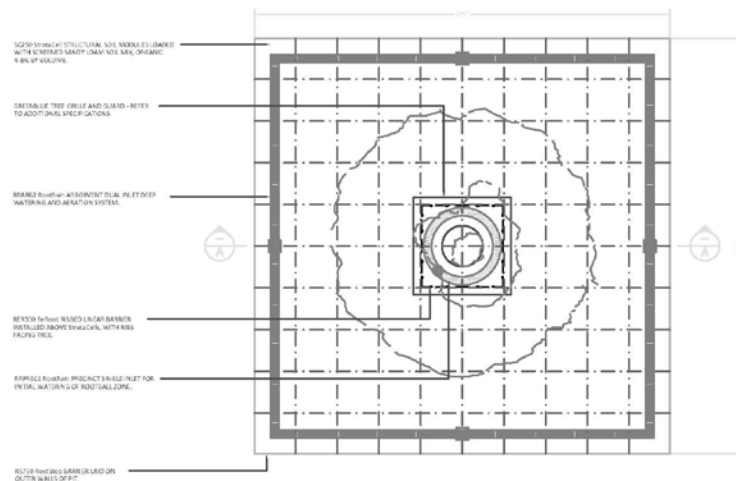
Installation



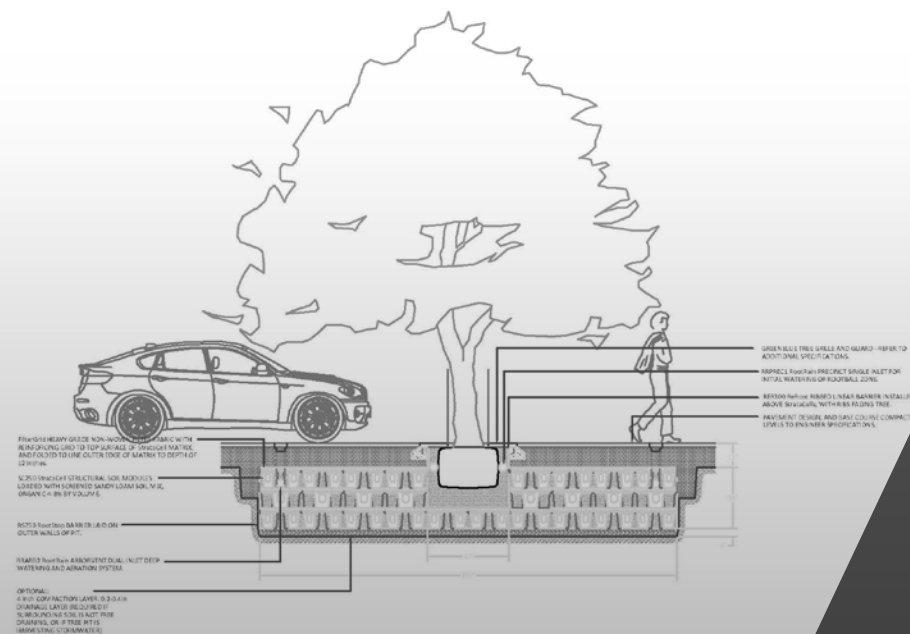


Sustainable Infrastructure Starts in Design!!





SQUARE TREEPIT - PLAN



SQUARE TREEPIT - SECTION AA

COMPONENT LIST	
PRODUCT	QTY
SC250 StrataCell STRUCTURAL SOIL CELL	292
FG3030 FilterGrid BI-AXIAL FILTER LAYER	38.3yd ²
RRPRECI RootRain PRECINCT SINGLE INLET	1
RRARR2 RootRain ARBORVENT DUAL INLET	2
RER300 RefRoot LINEAR BARBED R/BARRIER	38'
RS750 RootStop BARRIER	68'

SOIL VOLUME GUIDE: APPROX 701.5Y³ OF SOIL (±5%), DEPENDING ON SOIL TYPE AND EXCAVATION VARIATIONS

Design Services

Our FREE design services and best-practice consulting make it easy to incorporate high quality tree pit layouts into your design.

NOTE: ENSURE THE PIT BASE IS SKEEDED AND LEVELLED PROPERLY BEFORE PLACING CELLS ON BASE. VERIFY FOR EASE OF INSTALLATION OF OVERALL MATERIALS.

NOTE: ADEQUATE DRAINAGE FROM BASE OF TREE PIT TO BE PROVIDED IF DESIGN INCORPORATES WSUD PRINCIPLES, OR IF SITE CONDITIONS REQUIRE.

GreenBlue
URBAN

No.	Revisions	Date

Designed:	Checked:
Date:	Approved:
Scale:	
Title: SQUARE TREEPIT w/TREE GRATE 701.5 cu ft DETAIL PLANS	
Drawing No:	Rev: A

1. ADD 5% TO OUTER PLAN DIMENSIONS WHEN EXCAVATING PIT.
2. ALWAYS CHECK PIT DIMENSIONS AT BASE OF PIT, ENSURING SIDES ARE CLEAN AND SQUARE
3. LEVEL AT 1" SLOPE DRAINAGE LAYER TO PLACE MATERIALS


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THANK YOU