UCCGROUP INC.
Builders of Dreamscapes®

SUBMITTAL

TO: VIA Consulting Services, Inc.	DATE: 8/23/24	JOB: 2024015
10250 Normandy Boulevard, Suite 304	Submittal Package: Silva Cell	
Jacksonville, Fl 32221	Submittal Number: 30	
Attn Corey Chascin	Submittal Revision:	
	Spec. Reference: 32 00 00	

SIR / MADAME:

PLEASE SEND ALL REVIEWS BACK TO UCC GROUP WITHIN 10 WORKING DAYS OF THE SUBMITTAL DATE. (EXCLUDES HOLIDAYS)

☑ Tech/SDS ☐ Shop Drawings ☐ Other: _____

DESCRIPTION
Silva cells- modular suspended pavement system to hold large quantities of lightly compacted soil

THESE ARE TRANSMITTED as checked below:

☑ For approval	☐ Approved as submitted	☐ Resubmit____copies for approval
☐ For your use	☐ Approved as noted	☐ Submit ____ copies for approval
☐ As requested	☐ Returned for corrections	☐ Return ____ corrected prints
☐ Review and comment	☐ _____	
☐ FOR BIDS DUE (M/D/Y)	_____	☐ PRINTS RETURNED

REMARKS

Location CRA- See RFI #4

Orlando ▪ 7380 Sand Lake Road, Suite 500 ▪ Orlando, FL ▪ 32819 ▪ **P**:407-248-0989 ▪ **F**:407-939-0730
Toronto ▪ Vancouver ▪ Orlando
www.uccgroup.com

SILVA CELLS

AN INTEGRATED GREEN SOLUTION: TREES, SOIL, AND STORMWATER

HOW IT WORKS

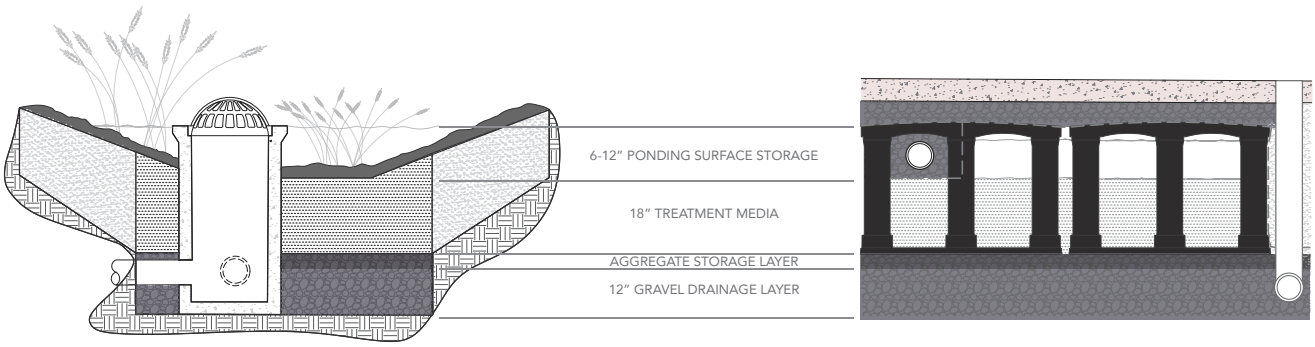
Silva Cells are a modular suspended-pavement system that holds vast quantities of lightly compacted soil while supporting traffic loads beneath paving. That soil serves two important functions: growing large trees and treating stormwater on-site.

TREES AND SOIL

The Silva Cell system has revolutionized how trees are planted in our urban environment. Cities around the world are recognizing the crucial importance of soil volume in growing big, mature trees – which help mitigate the effects of climate change while increasing shade and beauty. Many cities have instituted soil-volume minimums for new street trees and are utilizing Silva Cells to meet these requirements and ensure the trees' ongoing health and vitality.

STORMWATER

Silva Cells serve as a low-impact development (LID) solution for green, at-source stormwater control. The Silva Cells suspend the pavement, creating a void beneath the surface to allow for bioretention, slowing and treating stormwater on-location without utilizing buildable urban real estate. Silva Cells use the natural environment for absorption, evapotranspiration, and interception.



TYPICAL BIORETENTION

SILVA CELL BIORETENTION

DeepRoot Green Infrastructure, LLC
www.deeproot.com
info@deeproot.com
Toll Free: 800 458 7668

Updated: February 2024

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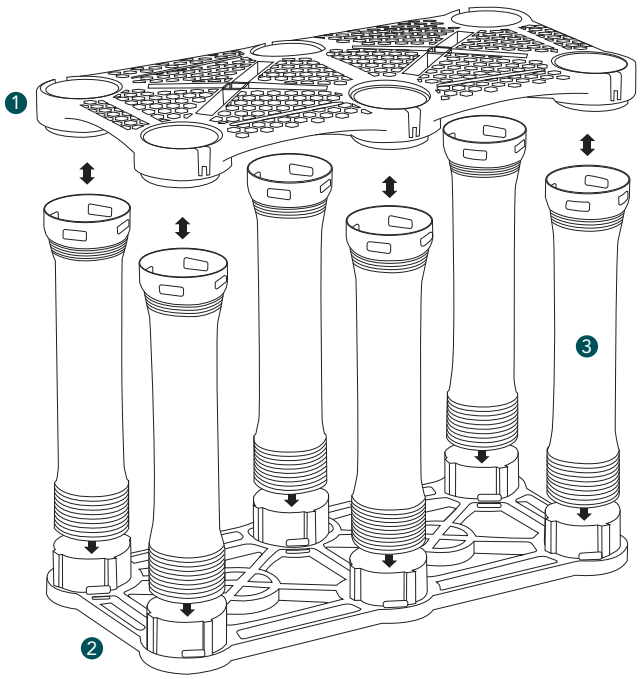
SILVA CELLS: HIGH-PERFORMANCE GREEN INFRASTRUCTURE



SILVA CELL COMPONENTS

1. Deck
2. Base
3. Posts

THE DIFFERENCE IS DESIGN

-Structural Independence: No lateral connections

-Flexibility: Utility accommodation

-Modularity: Easy scalability

-Meets Vehicular Loading: Minimal cover required

-Large Openings: Simple soil deposits and walk-through compaction

PROJECT APPLICATIONS

Silva Cells have been installed in 3,500+ projects in over 20 countries around the world. The system's versatility allows for numerous applications, including:

-Streetscapes

-Plazas

-Courtyards

-Parking Lots

-Parks

-Green Roofs/On-Structure

-"Break Out" Zones

LOCAL MANUFACTURING

DeepRoot is committed to reducing our carbon footprint and supporting manufacturing in our communities – this is why our Silva Cells are built locally in the regions in which we operate. By embracing a domestic manufacturing and shipping strategy, we are able to provide our customers with quality products and shorter fulfillment times.

SILVA CELL TECHNICAL DETAILS

Utilities: Easily accommodates new or existing utilities with 14" apertures.

Spacing: Up to 6" spacing between units delivers soil as efficiently as possible.

Structural independence: Each stack stands alone; affected area of system easily isolated if utility or service repairs are necessary.

Materials: Deck: fiberglass reinforced polypropylene. Post and base: polypropylene.

Loading: Silva Cells support vehicle loading, including those used for emergency, delivery, and maintenance. Generally meets AASHTO HS-20 (USA), CSA-S6, B7.5, and OBC 54KN (Canada) when used with standard paving profiles (see table below).

MINIMUM PAVEMENT PROFILE OPTIONS TO MEET H-20 LOADING

PAVEMENT	+AGGREGATE BASE COURSE
4" Concrete	+4" Aggregate
3" Paver	+12" Aggregate
4" Asphalt	+12" Aggregate
2.6" Paver	+5" Concrete

BASE DIMENSIONS

	in
Length	47.25
Width	23.6

DECK DIMENSIONS

	in
Length	47.25
Width	23.6

SYSTEM HEIGHTS

size	in
.5x	12.9
1x	16.7
1.5x	21.0
2x	30.9
2.5x	35.1
3x	43.0
3.5x	47.3
4x	57.2

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Silva Cell Installation Guide

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Parts of the Silva Cell

Top to Bottom:

Deck

1X Post

2X Post

Base

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Base

Post Sizes

0.5X

1X

2X

3X
(1x + 2X)

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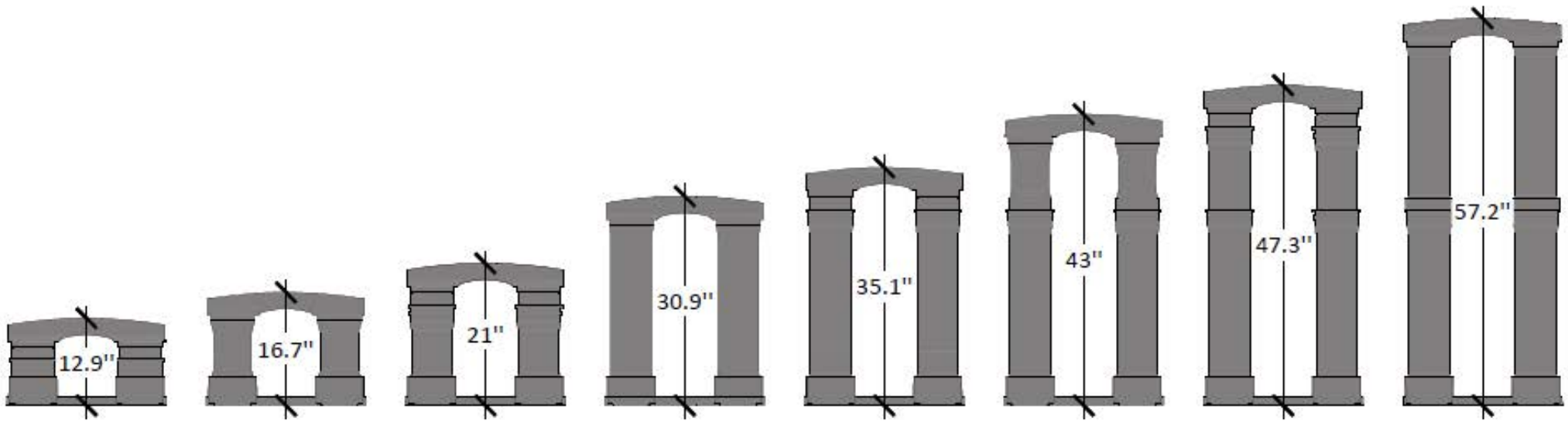

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Deck
(permanent top)

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Strongback
(temporary top)

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Geotextile Fabric

Geogrid

Plastic Cable Ties

Anchoring Spike

Root Barrier (Guide)

Materials needed to install Silva Cell

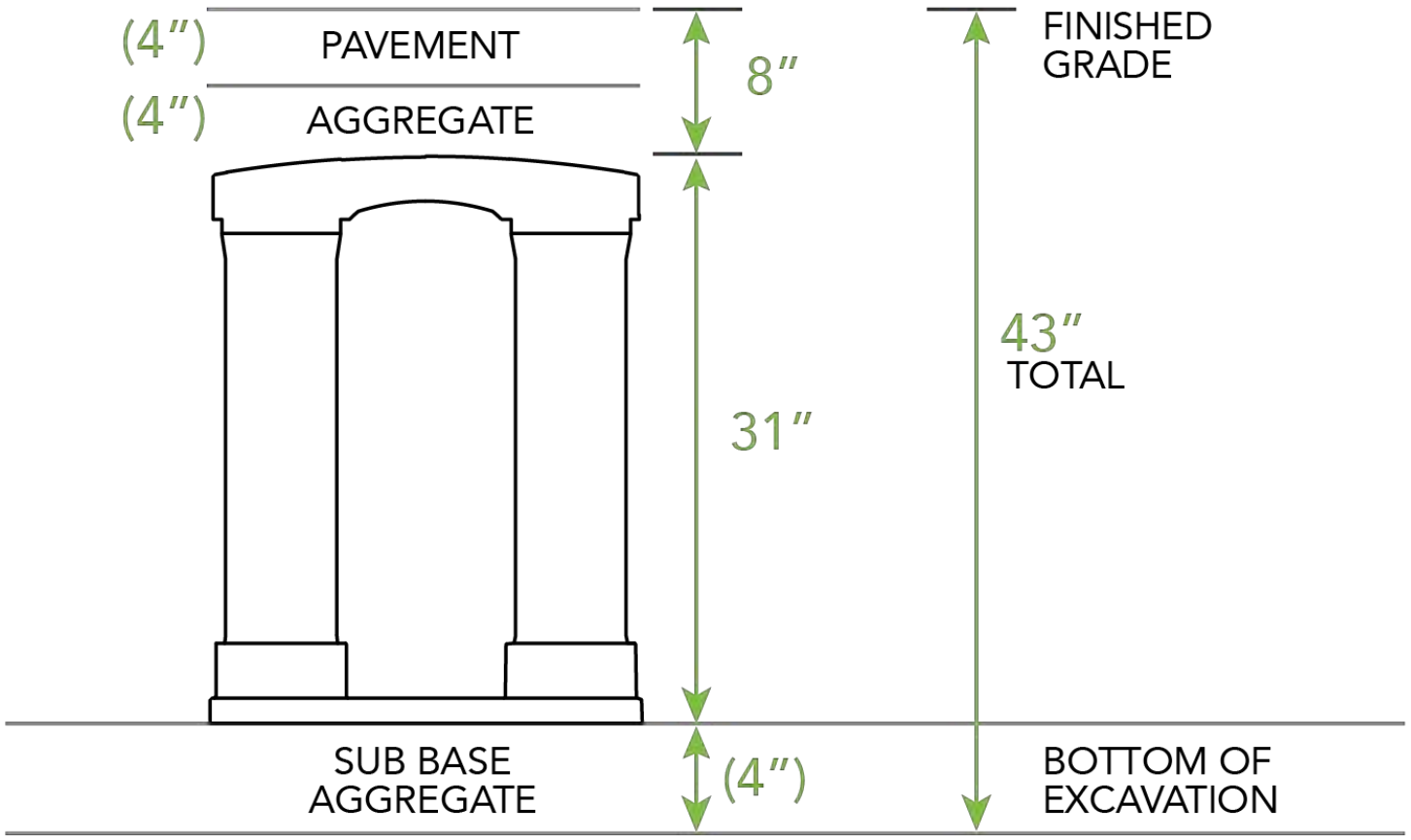
Materials Supplied by DeepRoot

- Silva Cell bases
- Silva Cell decks
- Silva Cells posts
- Silva Cell anchoring spikes
- Strongbacks
- Root Barrier

Other Material Needed

- Geogrid
- Geotextile
- Plastic cable ties
- Compactable fill for outside Silva Cells
- Aggregate base
  - Below Silva Cells
  - Above Silva Cells
- Planting soils
  - For inside Silva Cells

Example – 2X + standard concrete pavement section



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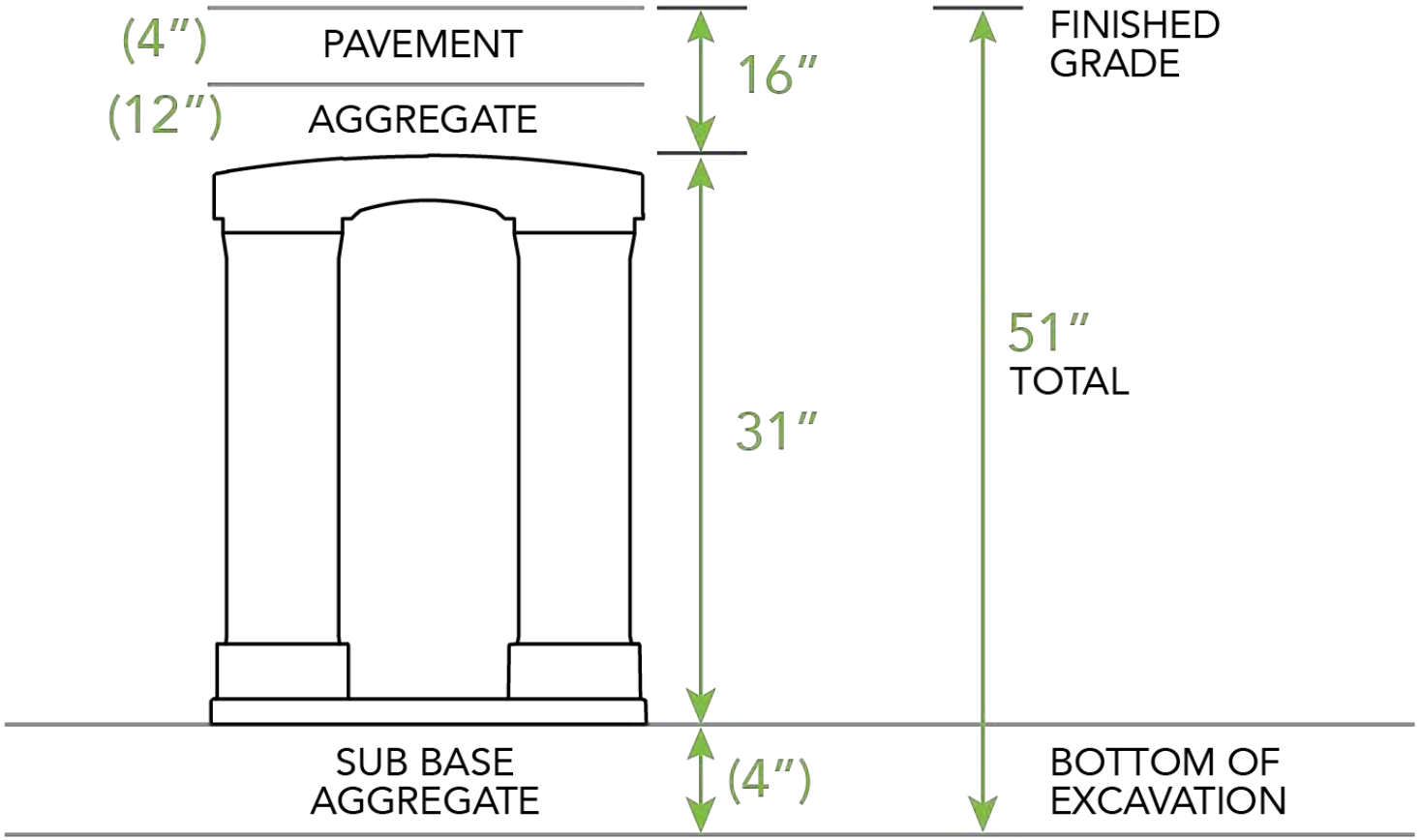
Example – 2X + standard paver section



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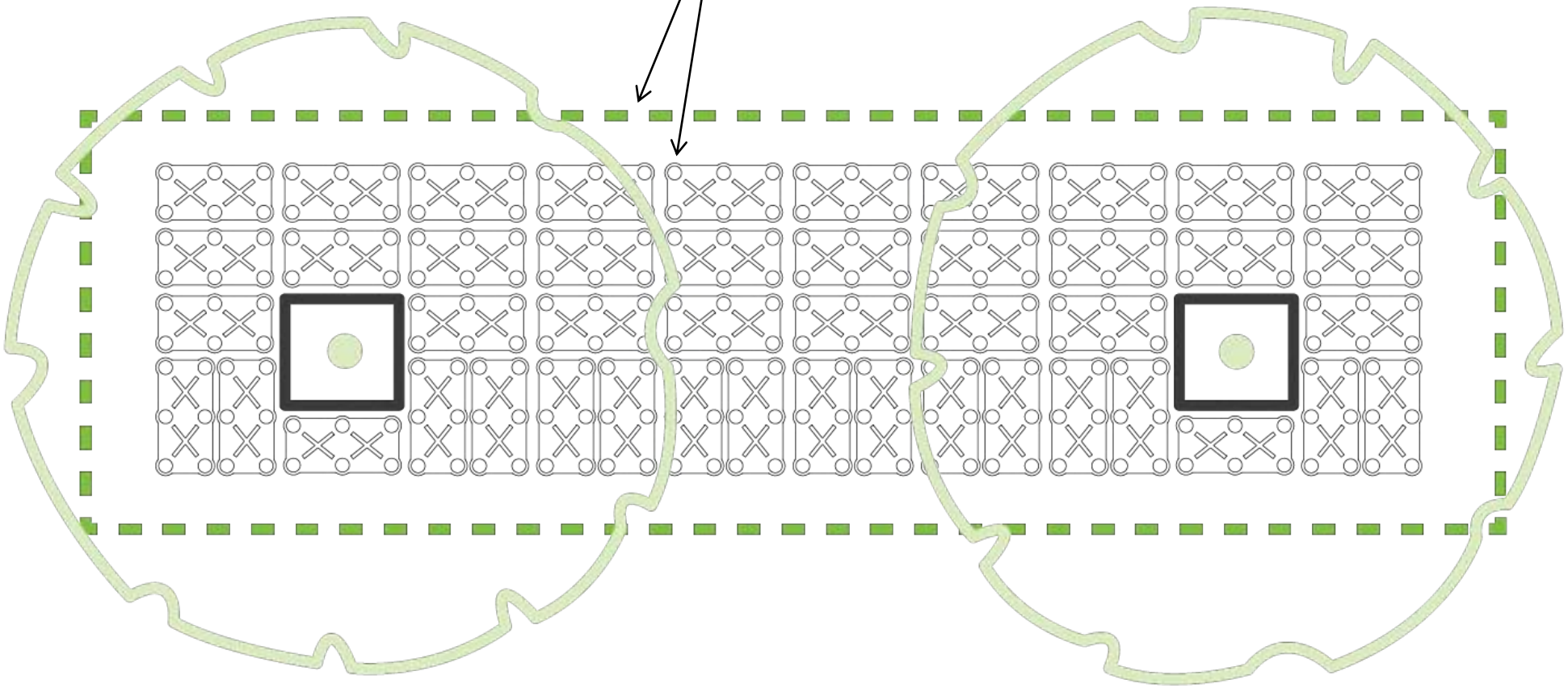
Excavate the Silva Cell area

Make sure excavation is deep enough to accommodate subbase aggregate + Silva Cells + pavement section

Compact bottom of excavation (subgrade) before placing fabric and subbase aggregate

Over excavate a minimum of 12″ on all sides to allow for working room and proper compaction



Install the geotextile fabric

Place a layer of geotextile fabric over the compacted subgrade before placing the subbase aggregate

The geotextile fabric is an important component of the overall Silva Cell system and it is essential for establishing a uniformly stable subbase

Fine grade the subbase aggregate to a uniform elevation or slope.

Properly preparing the subbase is a critical step in the installation. If the Silva Cell frames do not sit level the legs will become misaligned making it difficult or impossible to attach the decks.

Place and compact the sub base aggregate layer

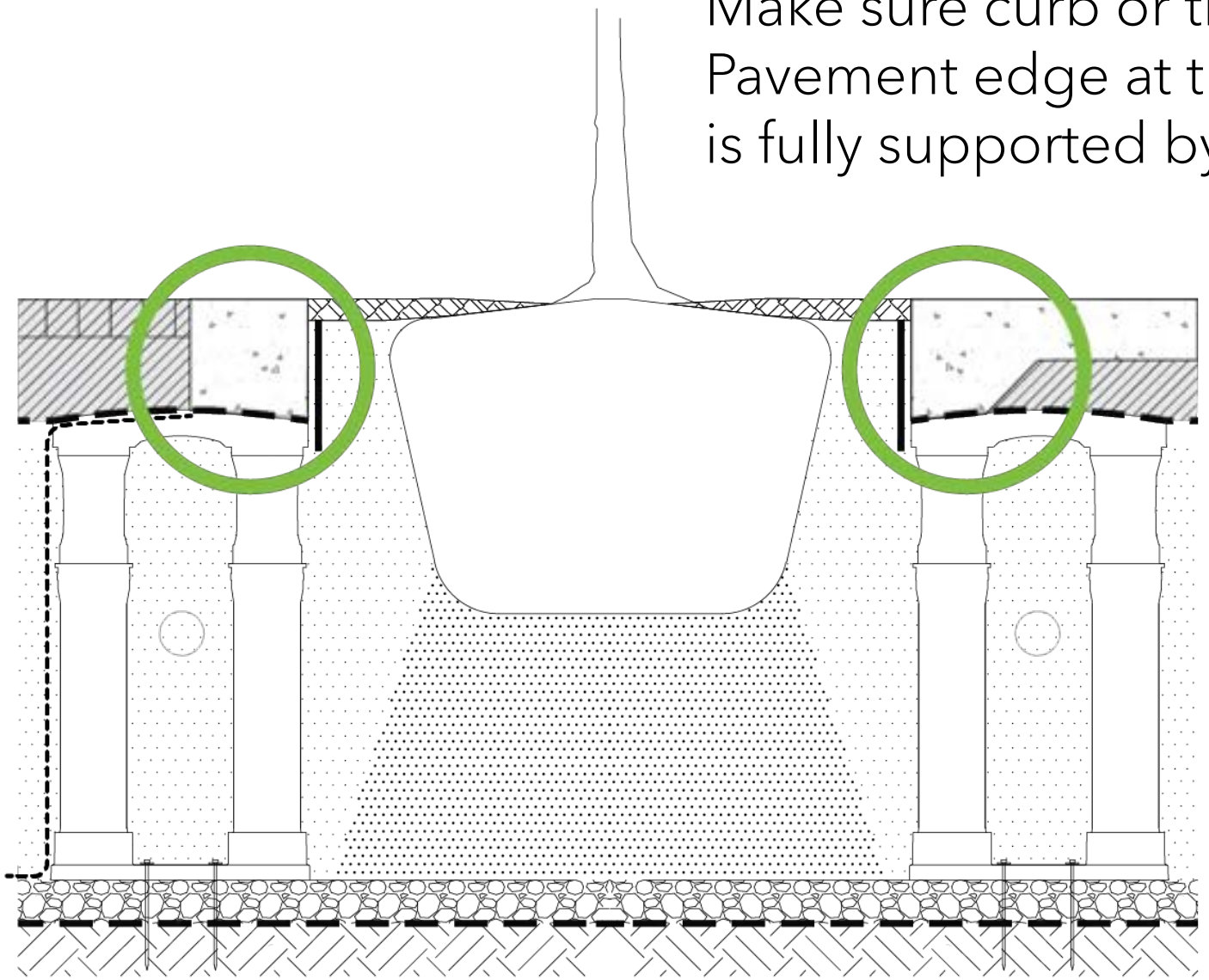
Place the required thickness of subbase aggregate over the geotextile fabric

Water and compact the subbase aggregate to 95% standard proctor density or as specified.

Lay out the bases

Mark out the
inner dimensions
of the tree opening

Make sure curb or thickened Pavement edge at tree opening is fully supported by Silva Cells



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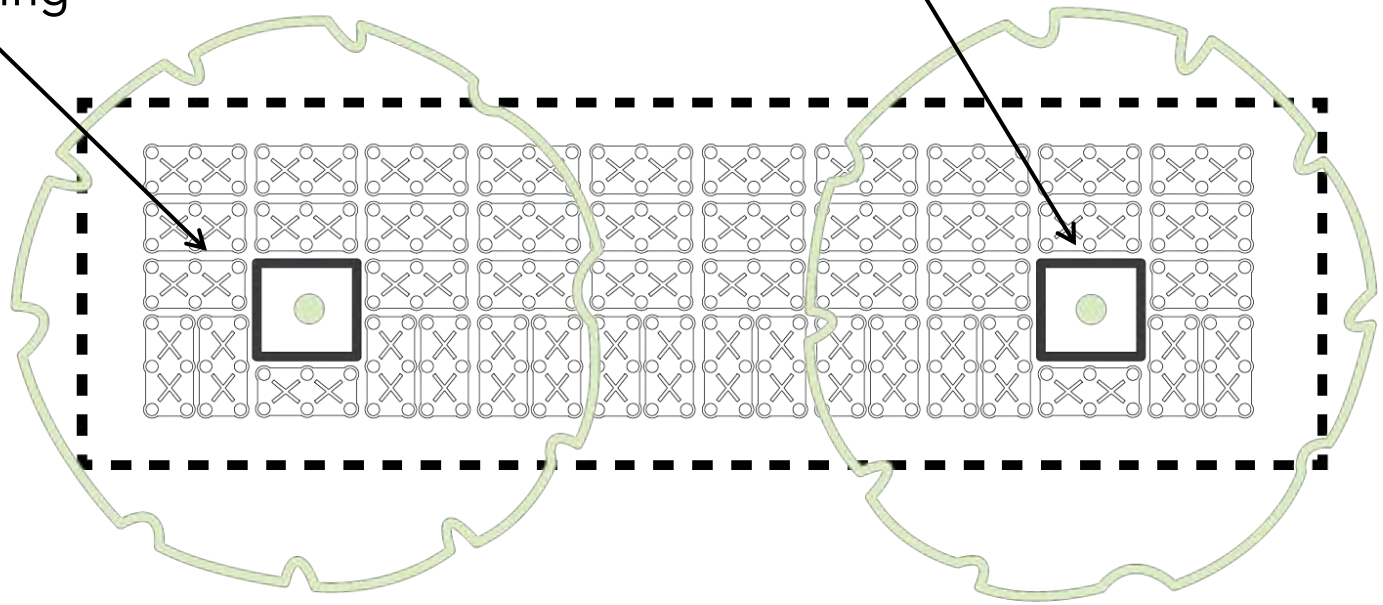
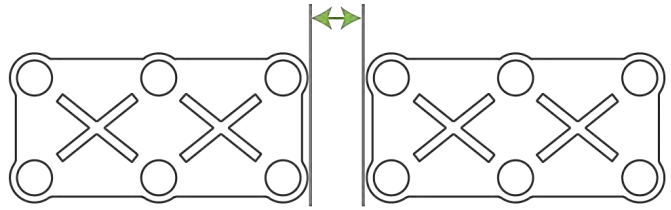
1.Start by placing frames around the perimeter of the tree opening where starting

2.Next place frames at the perimeter of the next tree opening



3.Then fill in-between using the quantity of Silva Cells shown in the drawings and space accordingly. The minimum space is 1". The maximum space should not exceed 6"



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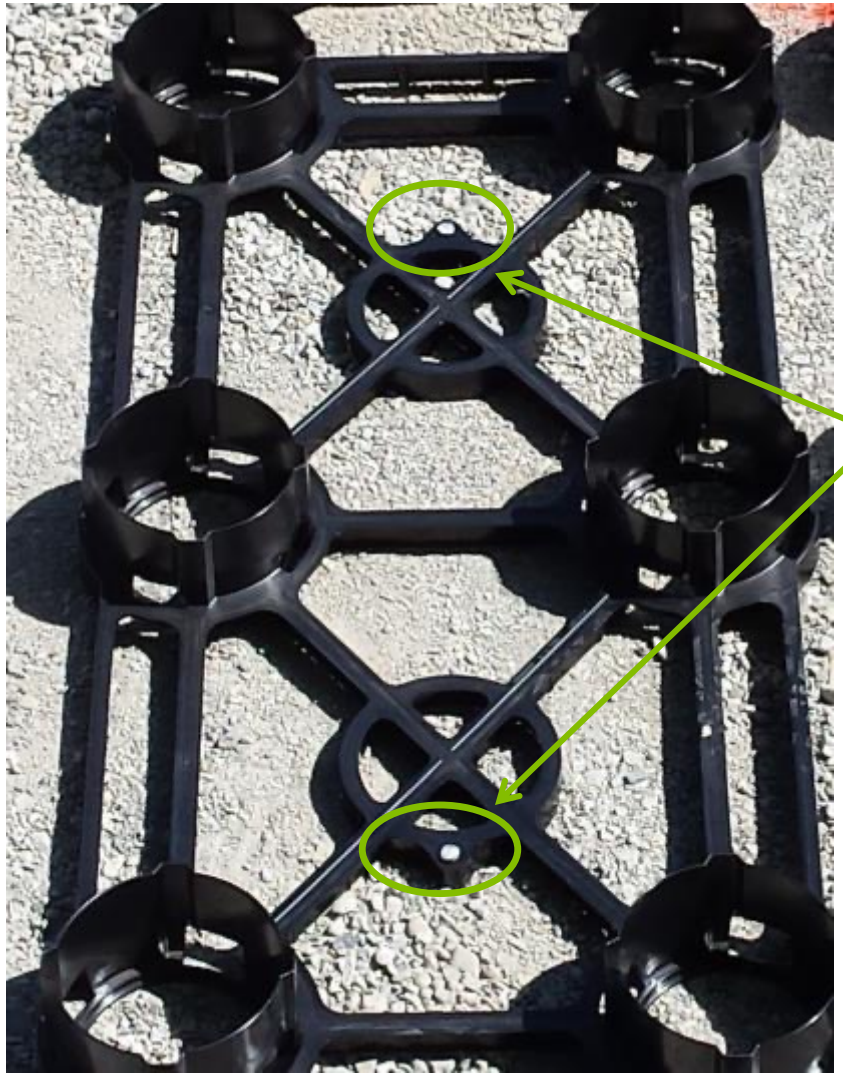
Anchor the bases



Anchor bases in place with 2 spikes per base

Install the sub drain

(When applicable)

Attach the legs

Insert leg into base and twist into place

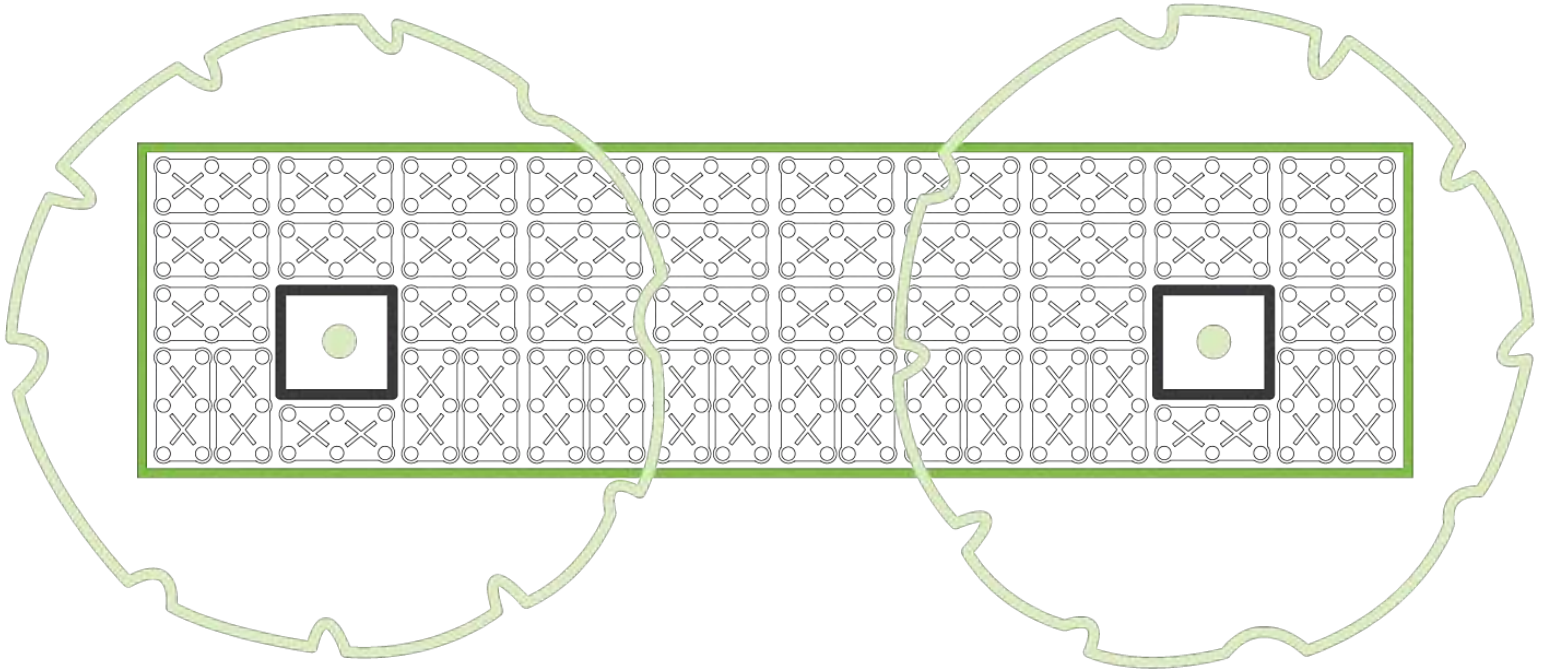
Locking mechanism snaps into place

Install the Strongbacks

Install Geogrid Around the Perimeter

The geogrid keeps the soil contained within the Silva Cell system as you fill it.

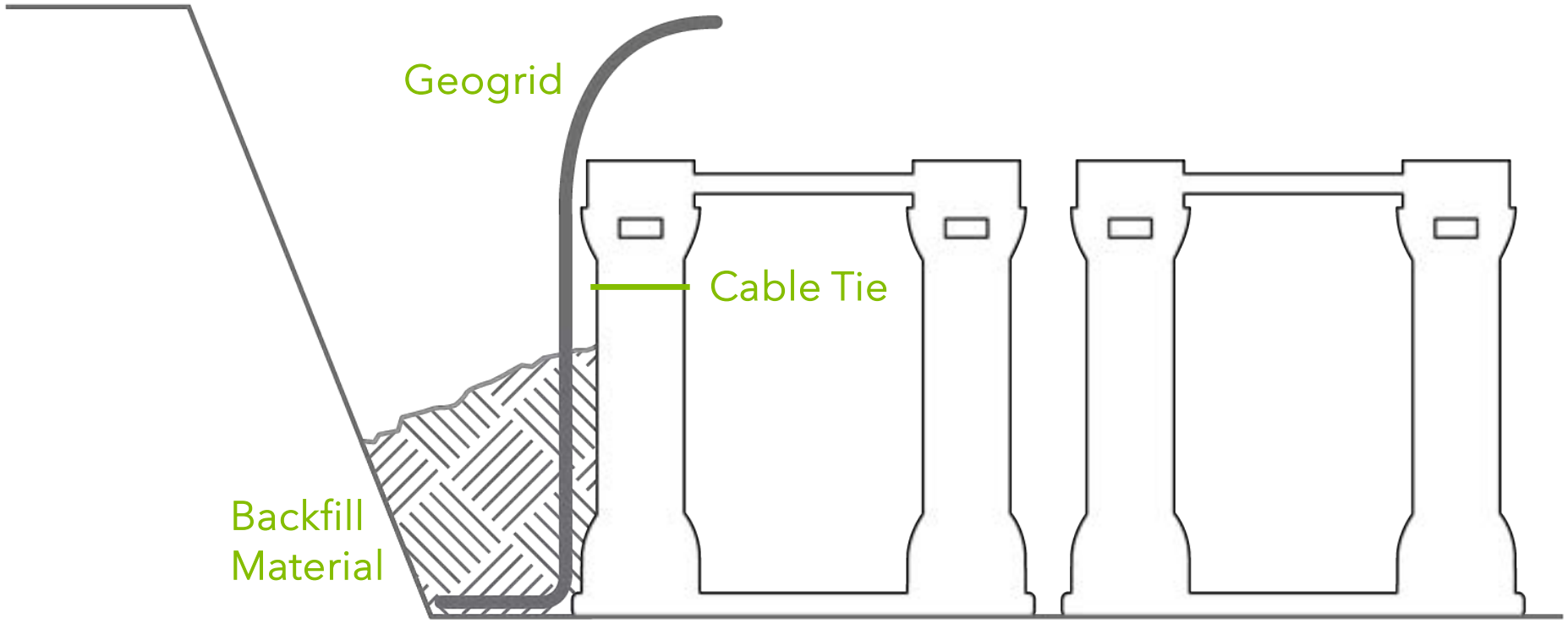
Wrap the geogrid around the outside perimeter like a fence



Attach geogrid with a cable tie at the top of each post to keep geogrid in place during backfilling

Install the first lift of Backfill Material

Anchor down the toe of the geogrid by placing backfill material to approximately the mid point of the leg but do not compact yet



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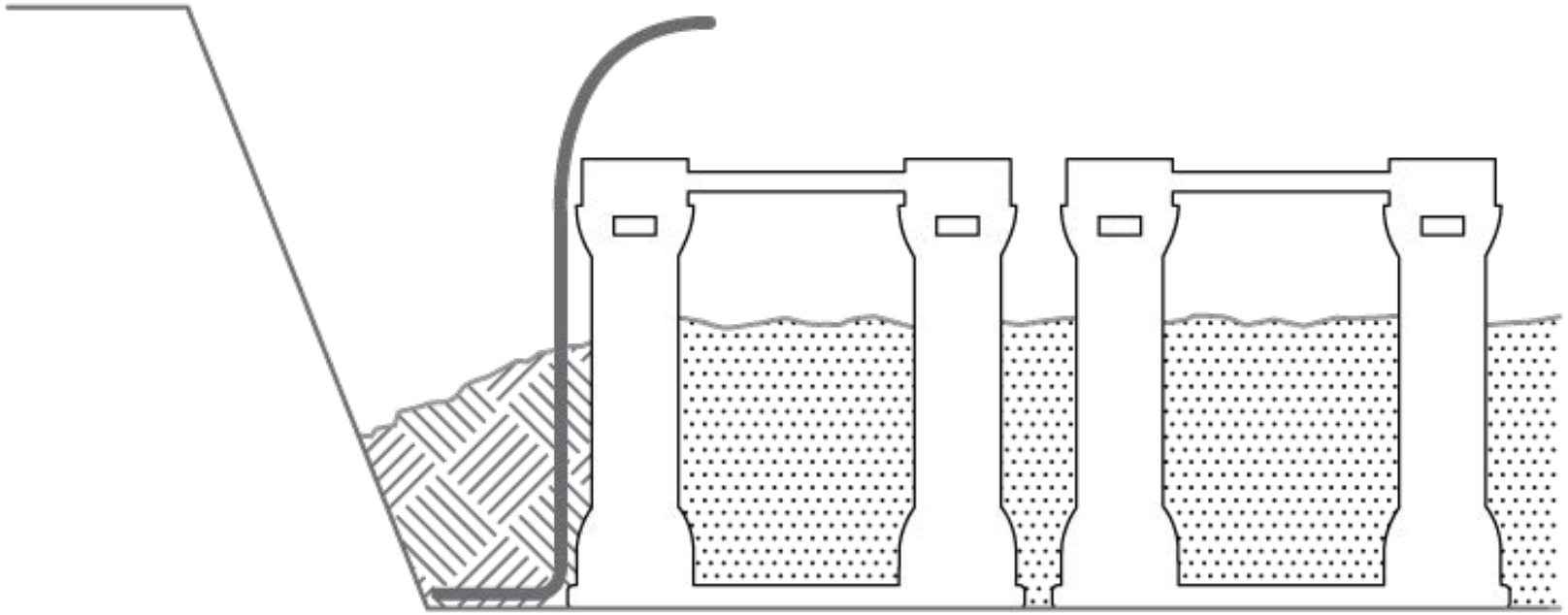
Install the first lift of planting soil

Install planting soil mix to approximately mid point of legs. Level out and compact by walking over.



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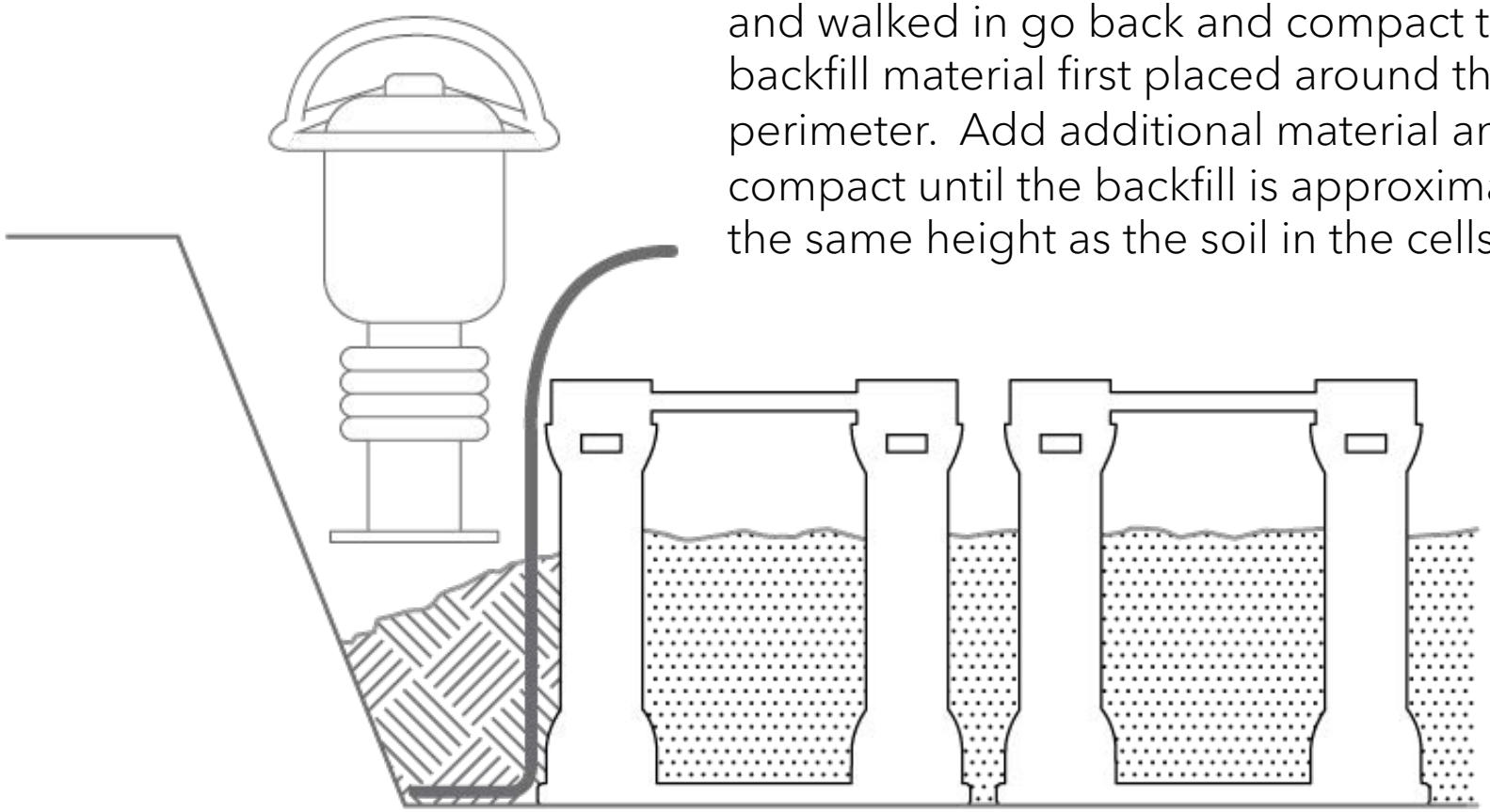
Compact the first lift of Backfill Material



After the first lift of soil has been installed and walked in go back and compact the backfill material first placed around the perimeter. Add additional material and compact until the backfill is approximately the same height as the soil in the cells

Keep compaction equipment from coming into direct contact with the legs to avoid potential damage.

Install the distribution pipe

(When applicable)

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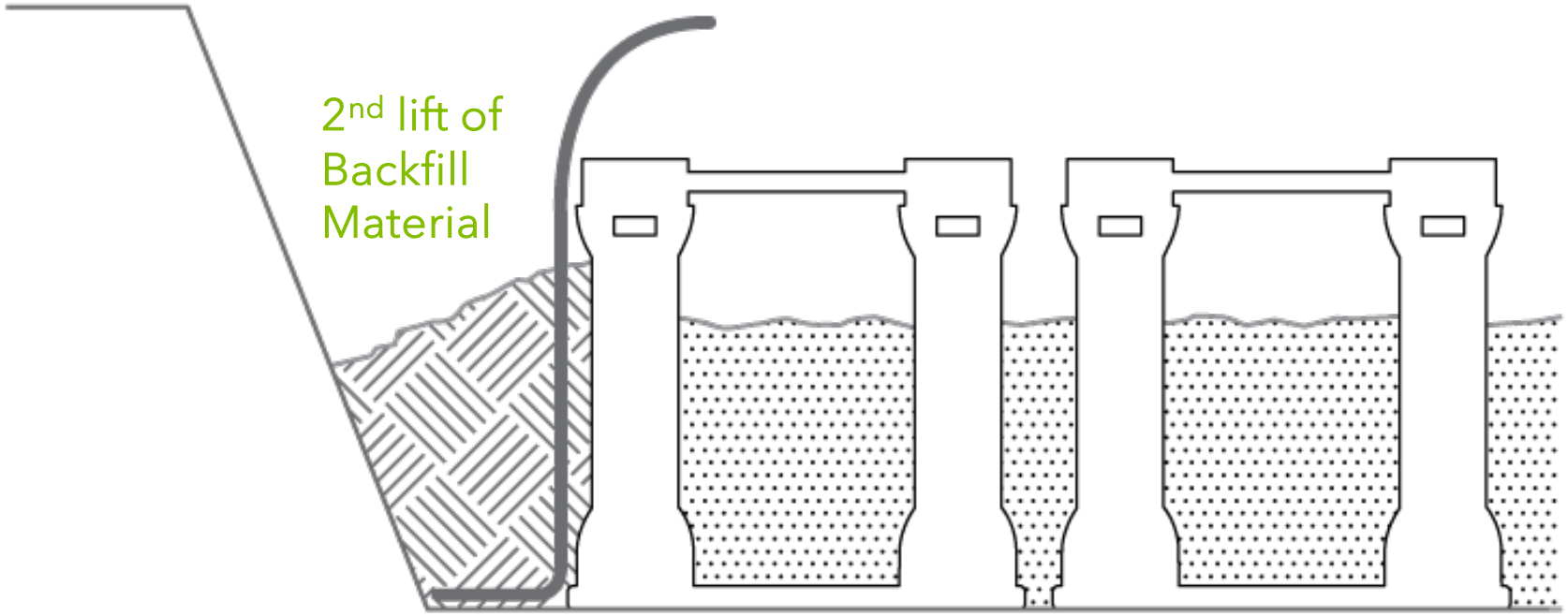
Start the process over by Installing more loose backfill material around the perimeter

After backfill material has been placed and compacted to the height of the soil inside the cells the process of adding backfill material around perimeter and soil in the cells repeats itself. This time leaving the backfill material ~3″ down from the top of the legs. Don’t compact.



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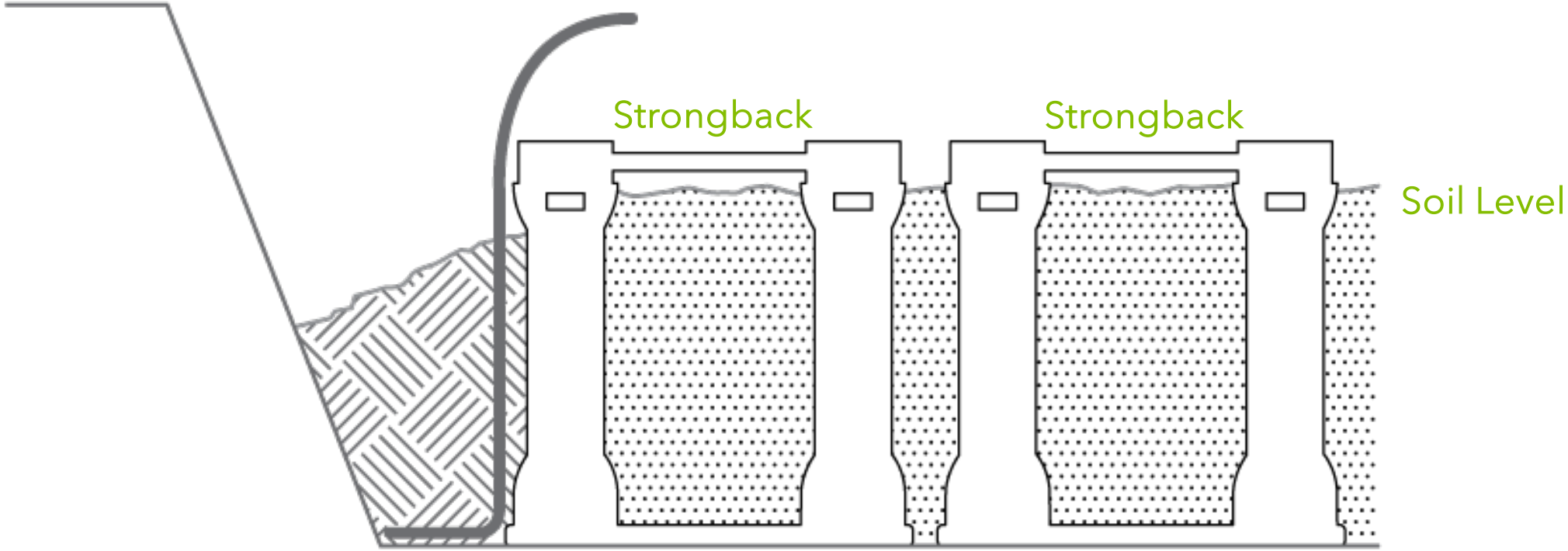
Place second lift of soil mix inside

Place 2nd lift of soil mix and walk in until the soil inside is level with the bottom of the strongbacks.



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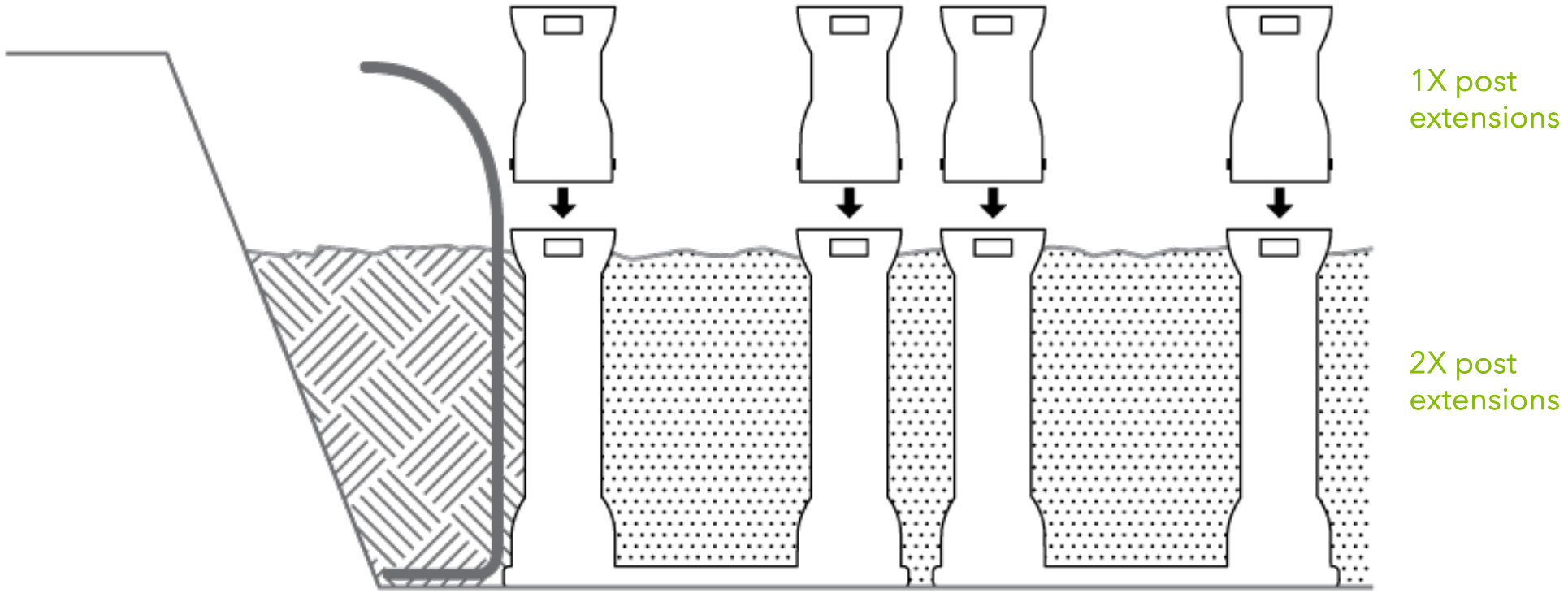
Add the post (for 3X systems)

For a 3X system carefully remove the strongbacks and add 1X post extensions. Then repeat the process of placing backfill material around the perimeter and then filling the cells with soil one additional time.



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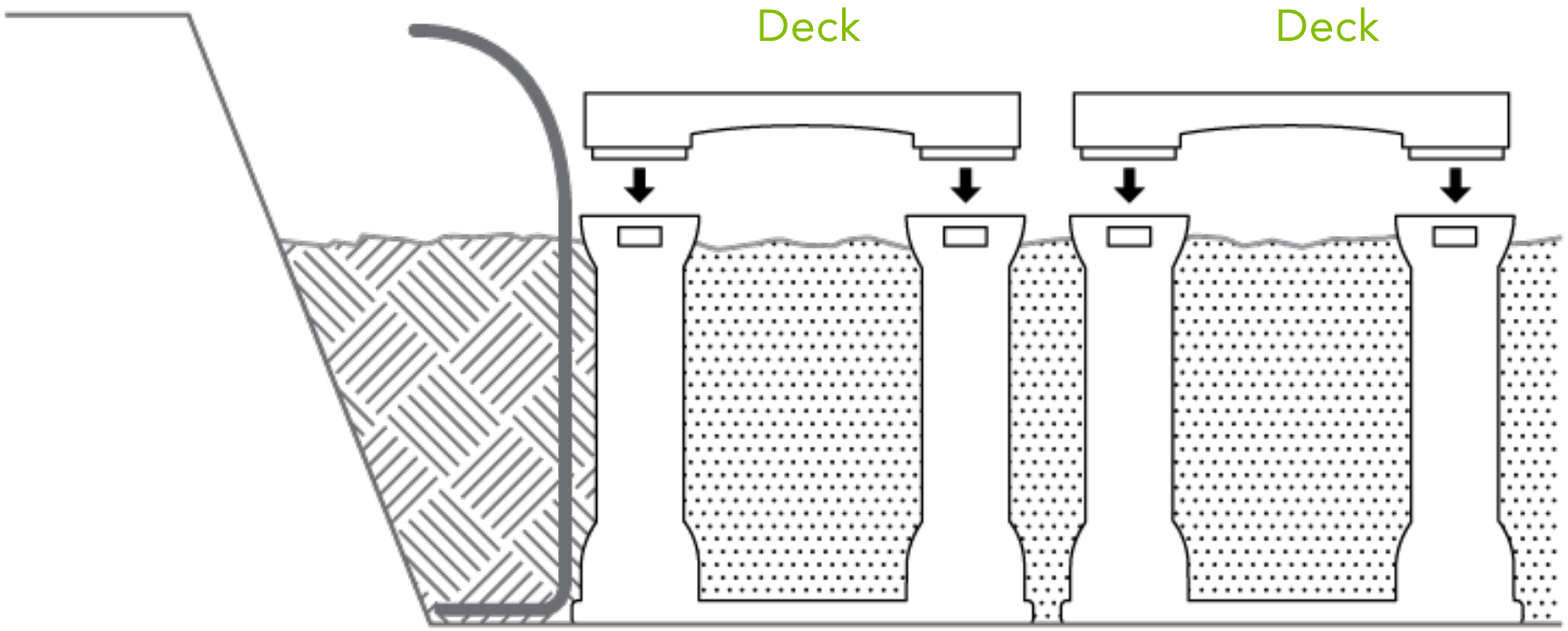
Remove the strongbacks and install the decks

When finished installing and walking in the soil carefully remove the strongbacks, level out the soil, and attach the decks



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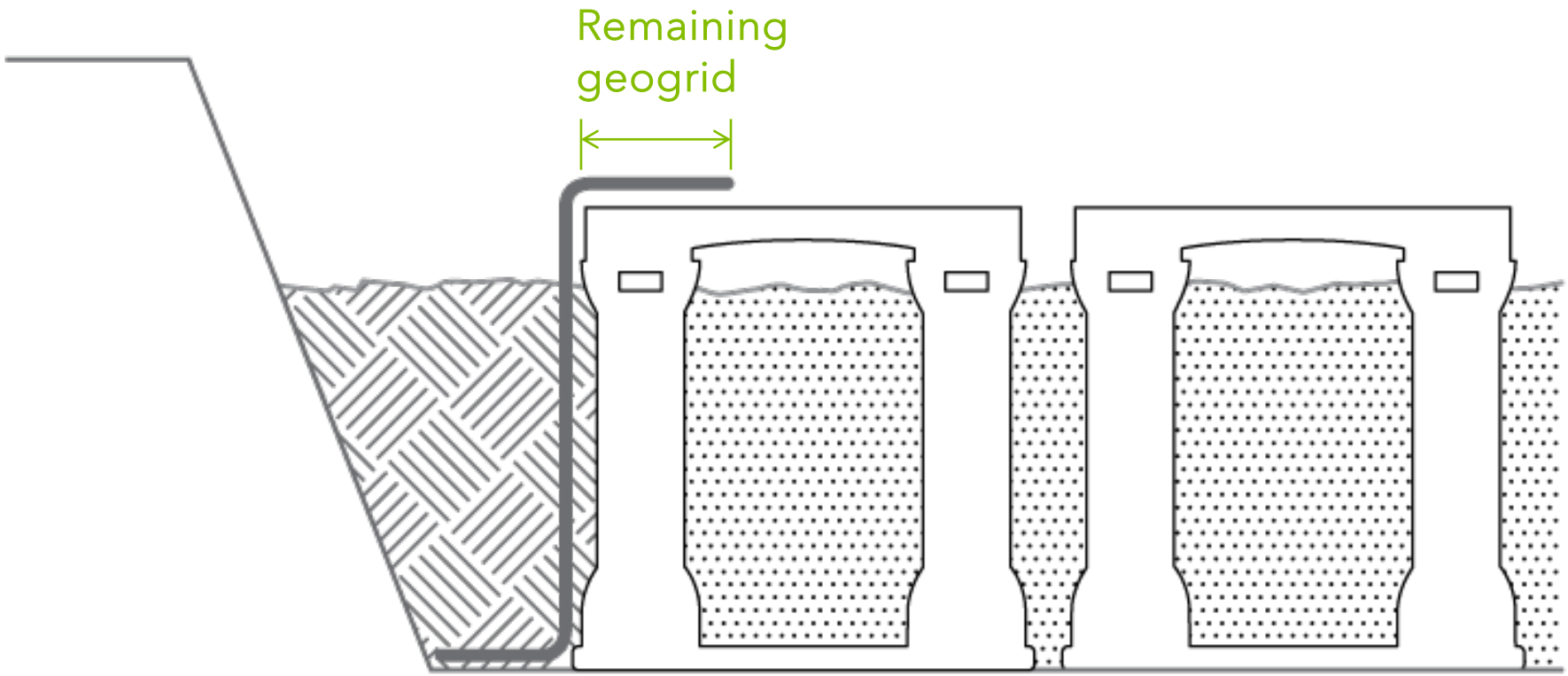
Fold over the excess geogrid

After installation of the decks fold the excess geogrid at the top over onto the decks and hold down with cable ties as needed.



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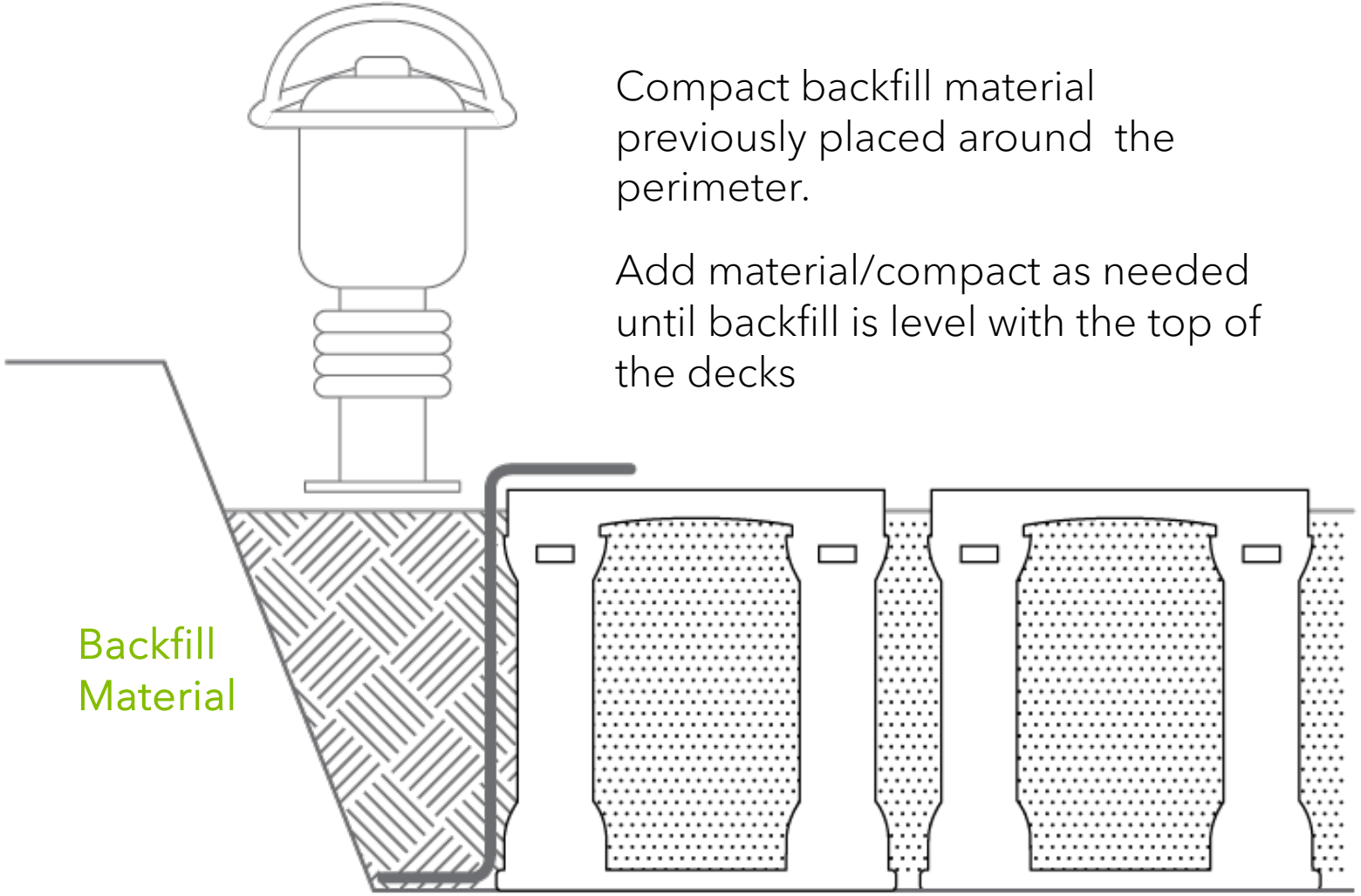
Compact around the perimeter



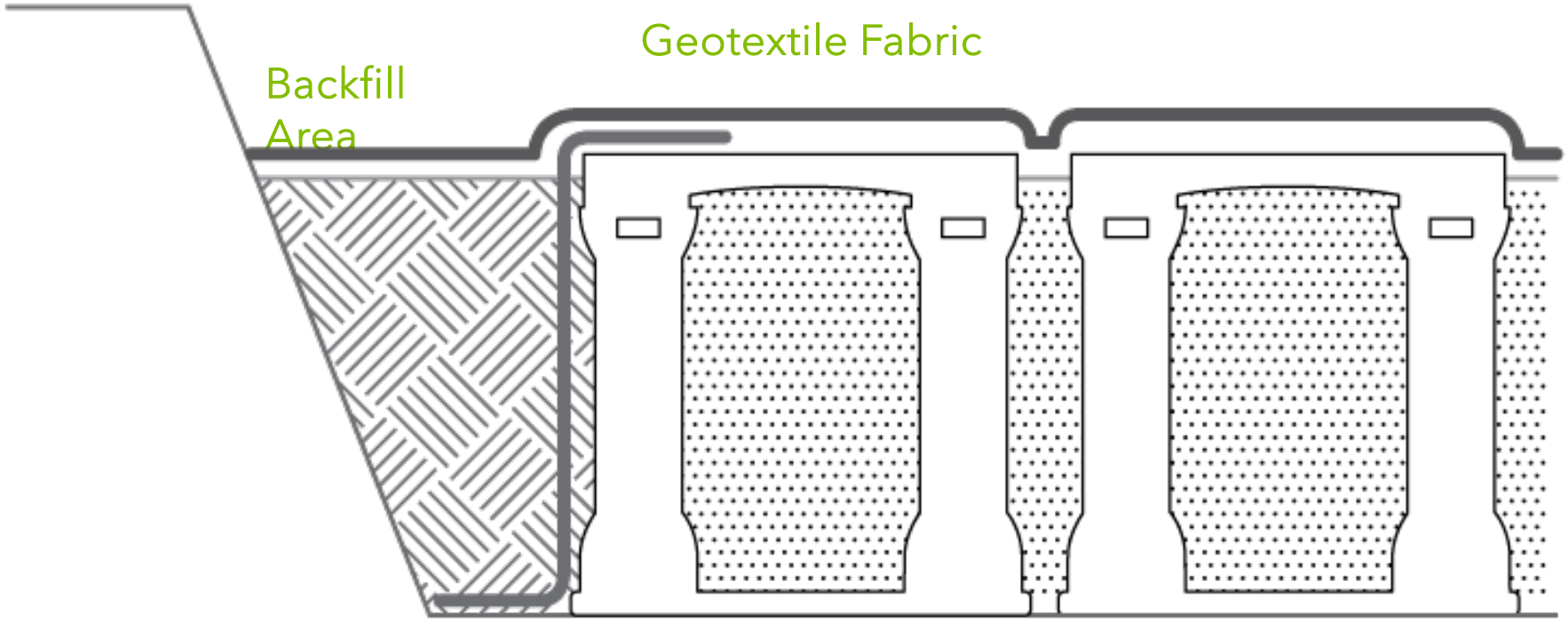
Compact backfill material previously placed around the perimeter.

Add material/compact as needed until backfill is level with the top of the decks

Install geotextile fabric over the Silva Cells

Cover Silva Cells with Geotextile Fabric

Extend geotextile fabric to also cover the backfill area



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Install the Aggregate Base Course Over the Silva Cells

Do not operate machinery over the Silva Cell System.

The Silva Cell system does not attain its load bearing capacity until the final pavement surface is in place.

Place the aggregate from outside of the perimeter of the system.

Start at one end and work continuously toward the other end. This keeps the geotextile fabric loose and allows it to be pulled down into the openings in the decks.

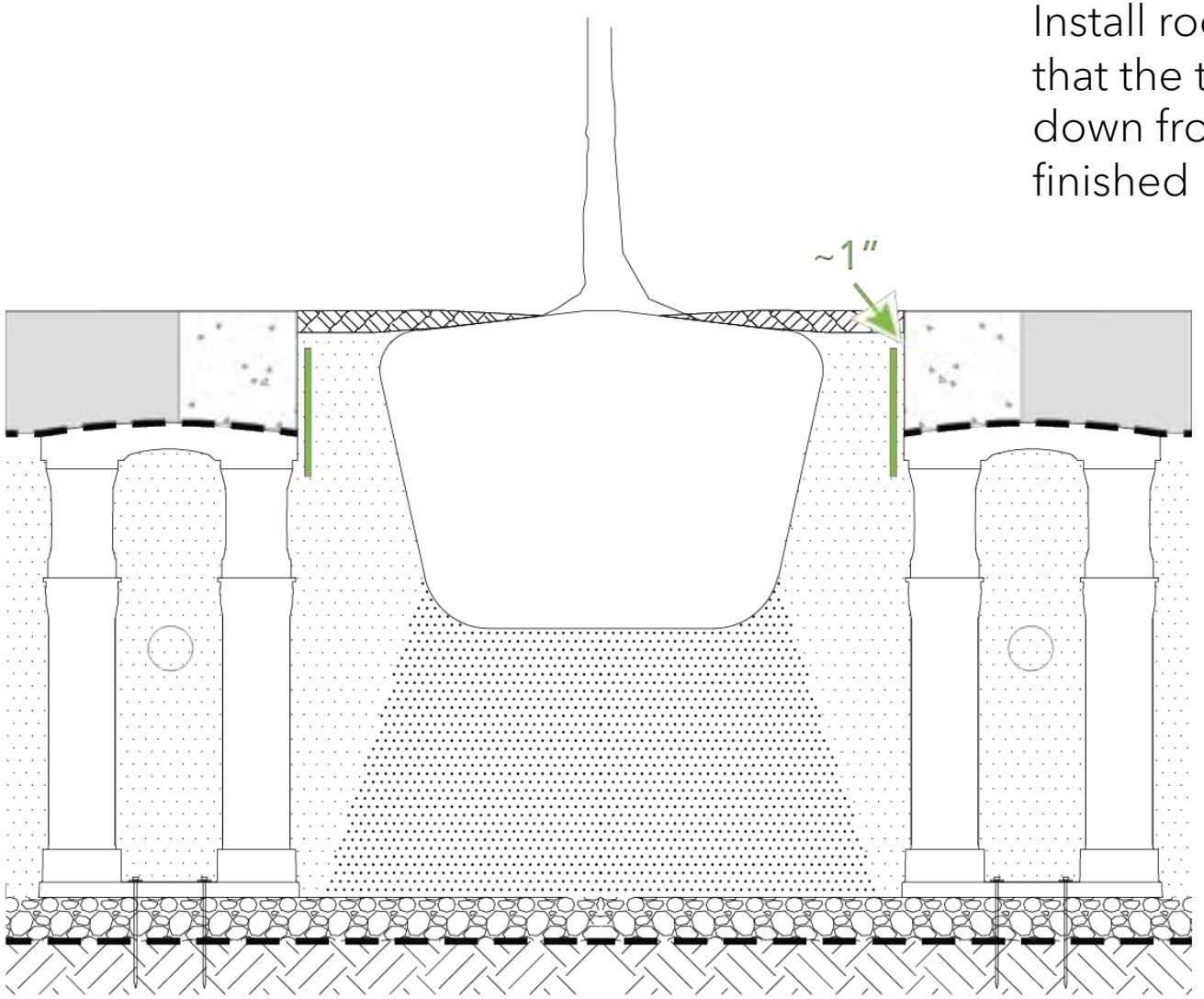
Compact the Aggregate Base

Compact the base aggregate as specified with equipment weighting 1,000 Lbs. or less

Install Permanent Pavement

Install Root Barrier

Install root barrier so that the top is ~1" down from top of finished pavement



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THANK YOU!

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