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Silva Cell
Installation Guidelines

Silva Cell

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Silva Cell Base (Bottom Piece)

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Silva Cell Post Sizes

1X

2X

3X
(1X + 2X)

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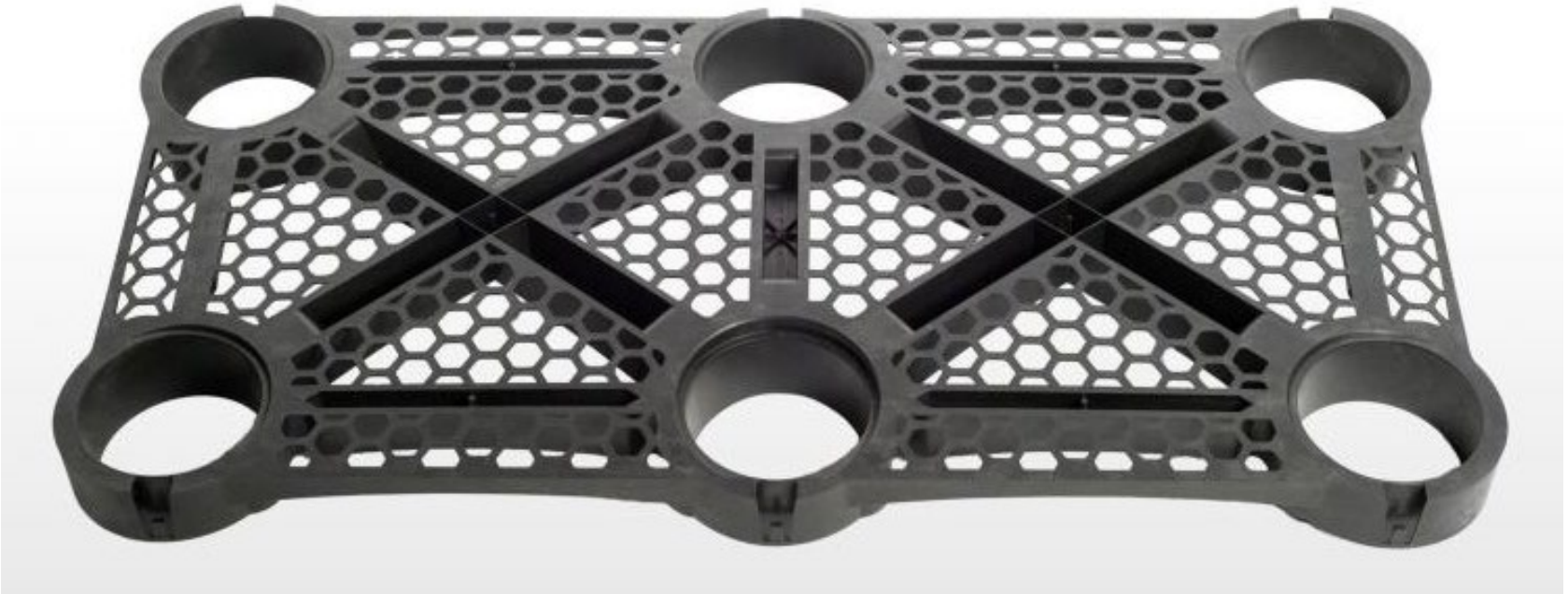
Silva Cell Deck (Top Piece)



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1X Silva Cell - Complete

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2X Silva Cell - Complete

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3X Silva Cell - Complete

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Silva Cell Strongback

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Anchoring Spike

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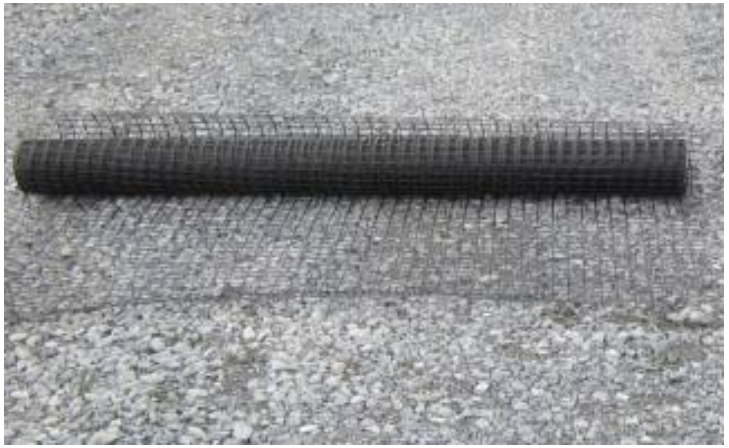
Geogrid, Geotextile Fabric, and Cable Ties



Geogrid

Geotextile Fabric

Plastic Cable Ties

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DeepRoot Root Barrier

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Materials needed to Install Silva Cell Systems

Materials Supplied by DeepRoot

- Silva Cell Bases
- Silva Cell Decks
- Silva Cell Posts
- Silva Cell Anchoring Spikes
- Strongbacks
- Root Barrier

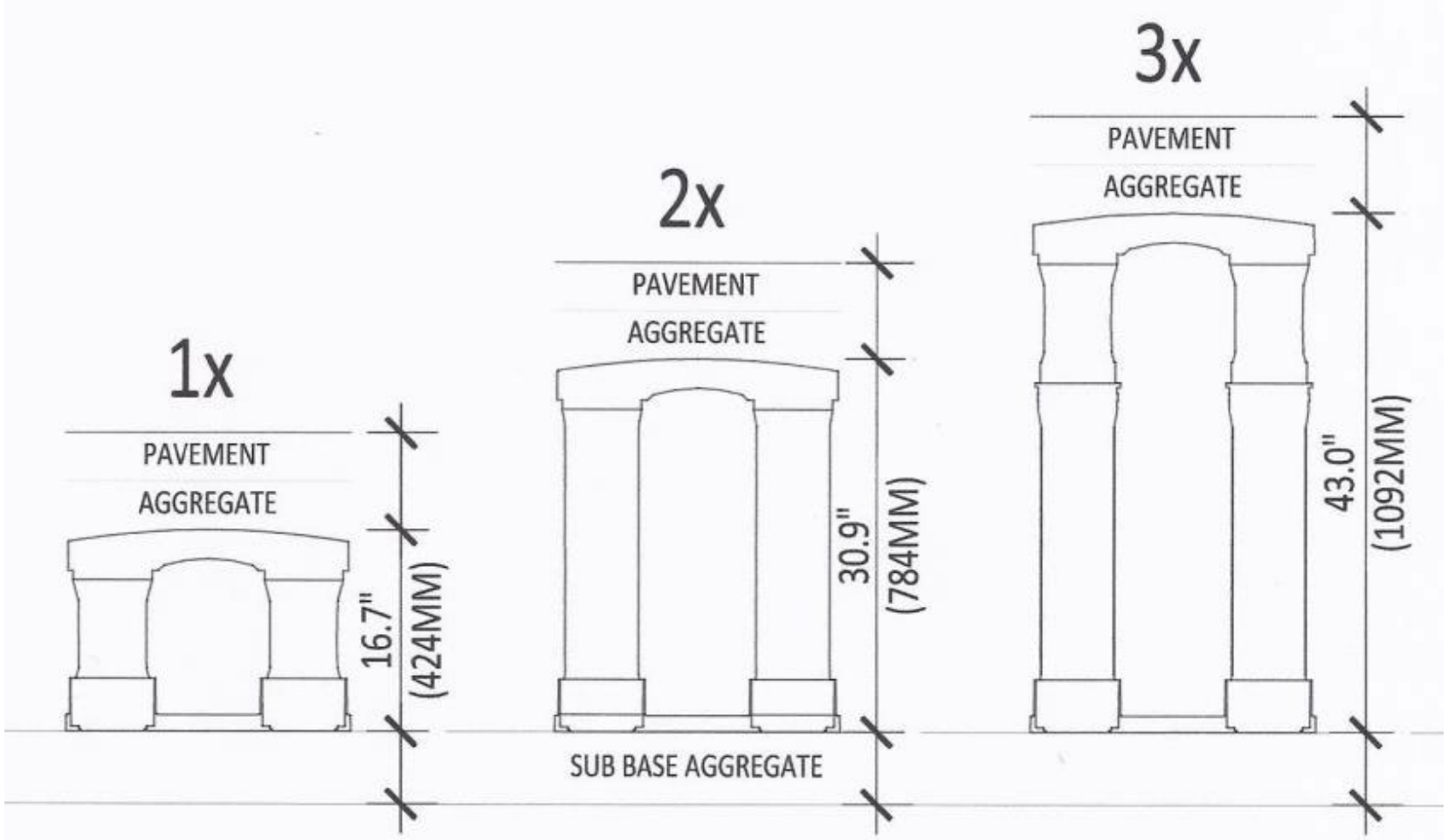
Other Material Needed

- Geogrid
- Geotextile
- Plastic Cable Ties
- Compactable Fill
  - Outside Silva Cells
- Aggregate Base
  - Below Silva Cells
  - Above Silva Cells
- Planting Soil
  - Inside Silva Cells

Suggested Equipment

- Plate Compactor
- Jumping Jack Compactor
- Excavating Equipment
  - Sufficient Reach
  - 360° Swing Radius

Calculating Excavation Depths



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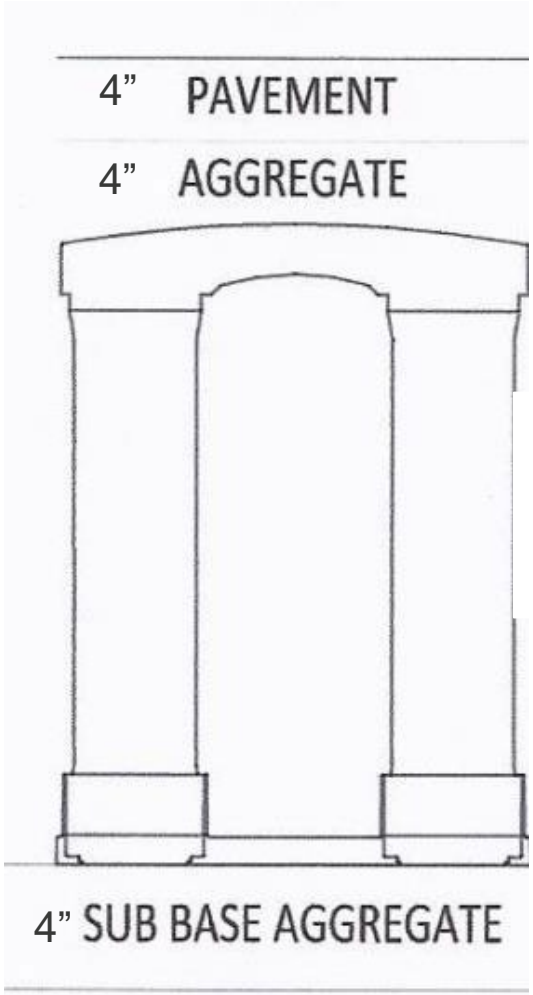
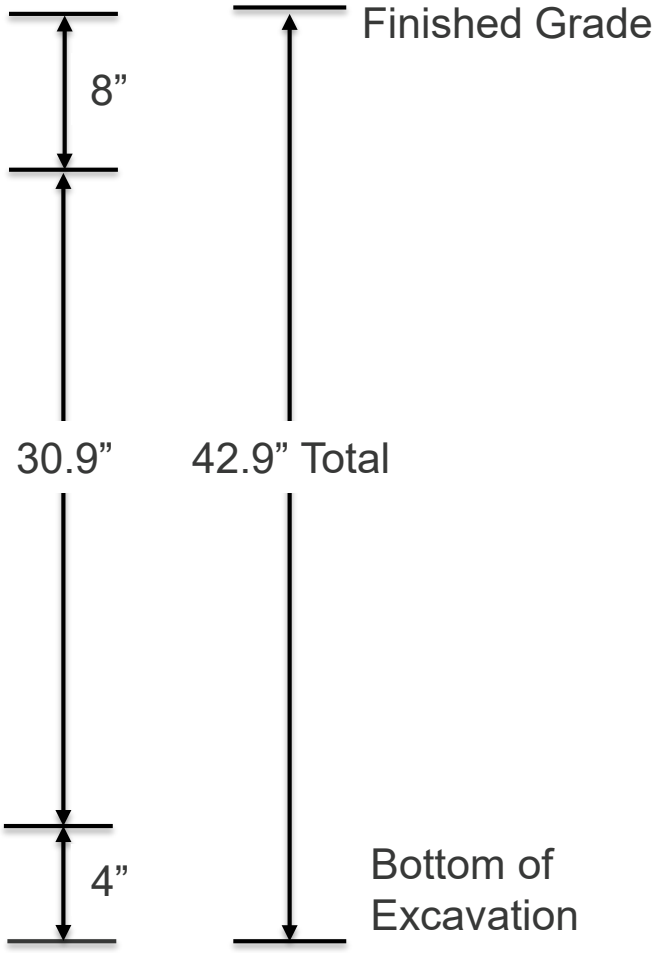
Example: 2X Silva Cell + Standard Concrete Pavement Section





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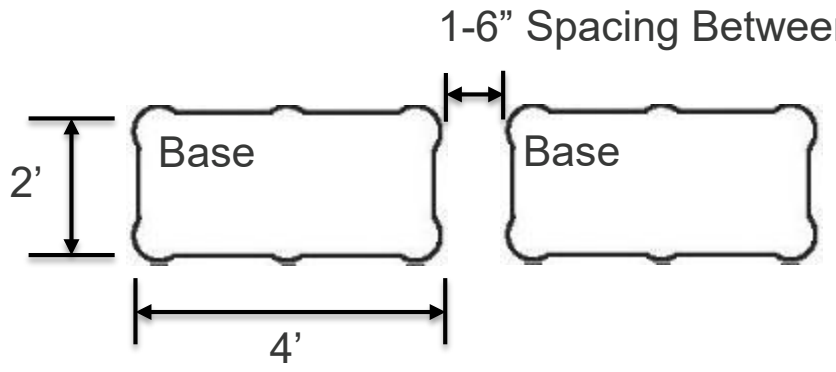
Determine the Dimensions of the Silva Cell Area

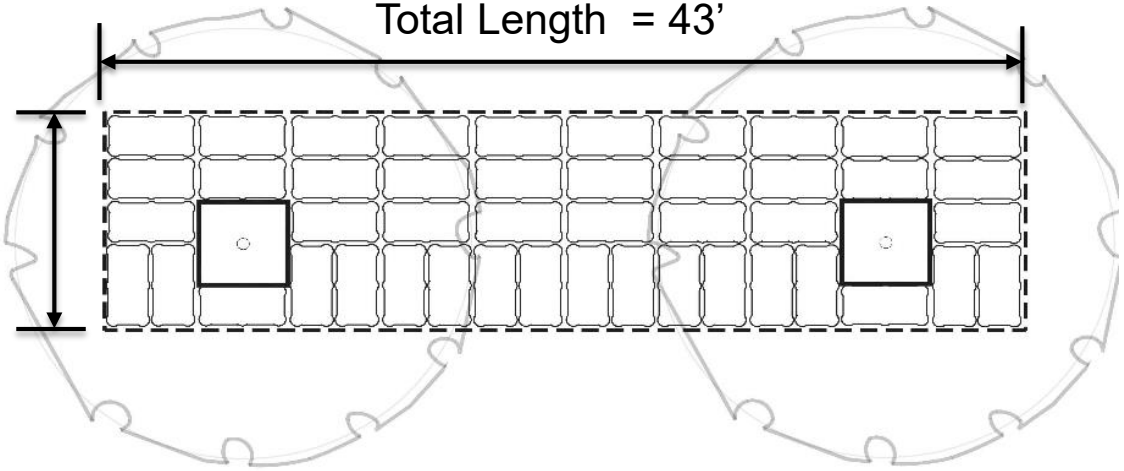


3 Bases x 2’ = 6’
1 Base x 4’ = 4’
3 Spaces x 4” = 1’

Total Length = 11’

10 Bases x 4’ = 40’
9 Spaces x 4” = 3’

Total Length = 43’



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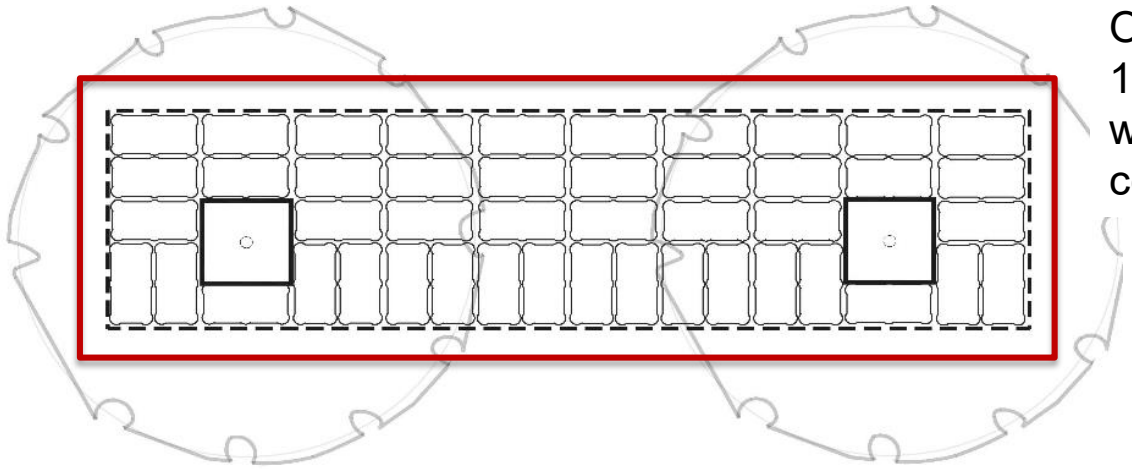
Over Excavate Silva Cell Area – 12” On All Sides



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

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Excavate Silva Cell Area – Including 12” Beyond

Excavation depth must accommodate:

- Sub Base Aggregate
- Silva Cells
- Pavement Section

Compact bottom of excavation (sub grade) before placing fabric and sub base aggregate.

Install Geotextile Fabric

Place a layer of geotextile fabric over the compacted subgrade before placing the sub base aggregate.

Geotextile fabric is an important component of the overall Silva Cell System. It is essential for establishing a uniformly stable sub base.

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Place + Prepare Sub Base Aggregate

Fine grade the aggregate sub base to a uniform elevation or slope.

Properly preparing the sub base aggregate is a critical step in the installation.

If the Silva Cell Bases do not sit level the Posts will become misaligned making it difficult or impossible to attach the decks.

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Place + Compact Aggregate Sub Base

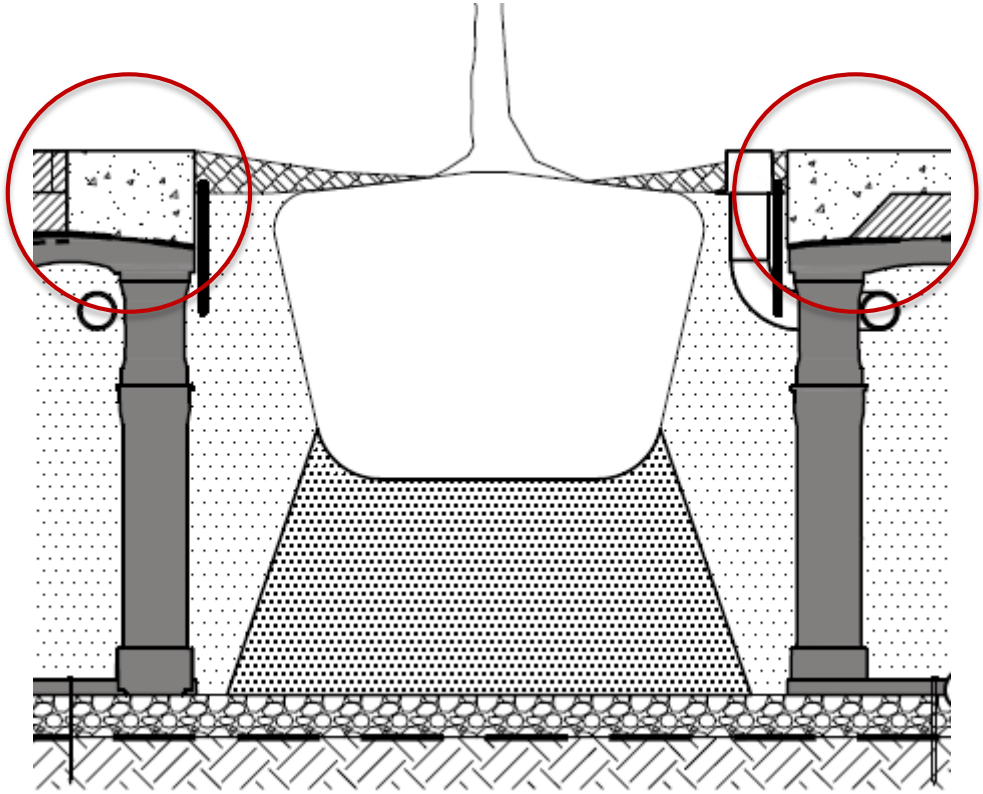
Place the required thickness of sub base aggregate over the geotextile fabric.

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

Lay Out the Silva Cell Bases

Mark inner dimensions of the tree opening.

Lay Out Silva Cell Bases



Fully-support curb or thickened pavement edge at tree opening with Silva Cells.

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Lay Out Silva Cell Bases

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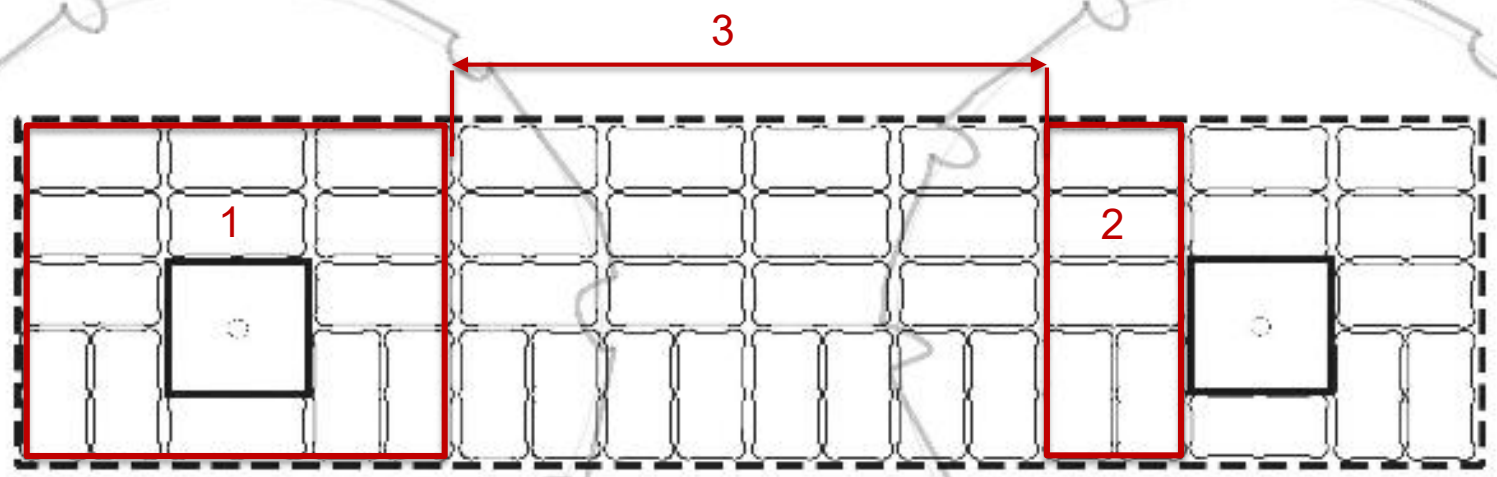
Lay Out Silva Cell Bases



1 Place Silva Cell Bases around the perimeter of the tree opening.

Leave a 1-6” gap between the Silva Cell Bases.

3 Place Silva Cell Bases to fill the remaining area and space 1-6” as the layout allows.

2 Place Silva Cell Bases at the perimeter of the next tree opening.

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Lay Out Silva Cell Bases

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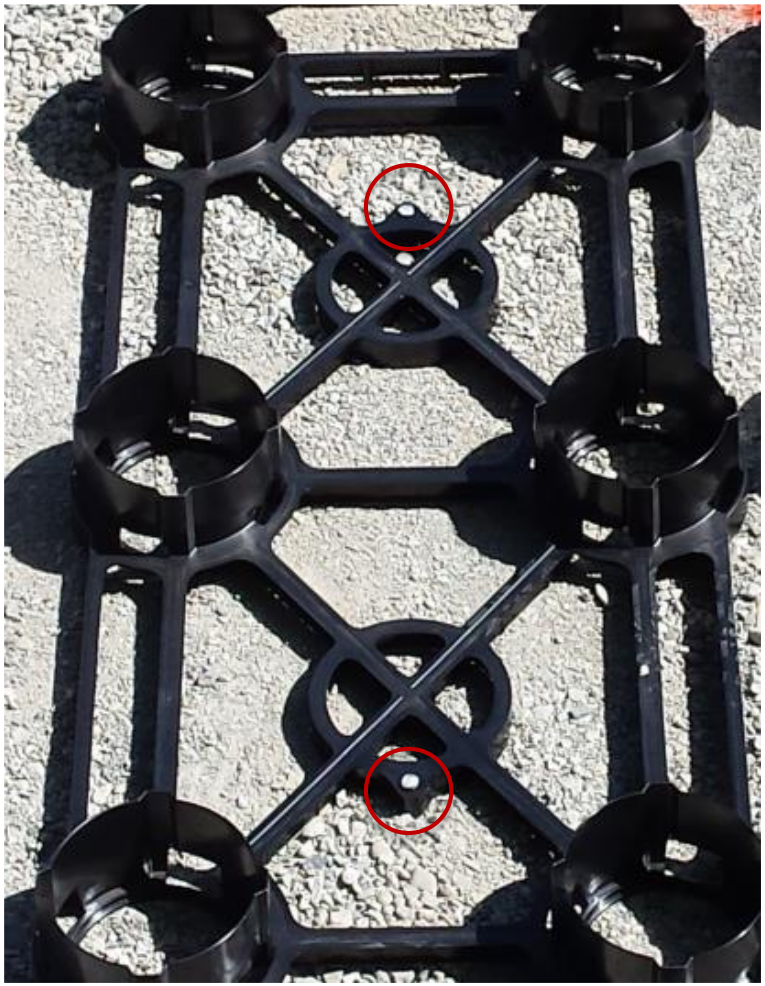
Anchor Silva Cell Bases



Anchor Silva Cell in place with 2 anchoring spikes per Base.

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Attach Silva Cell Posts

Insert Silva Cell Posts into Base and twist into place

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Attach Silva Cell Posts

Locking mechanism snaps Silva Cell Post into place.

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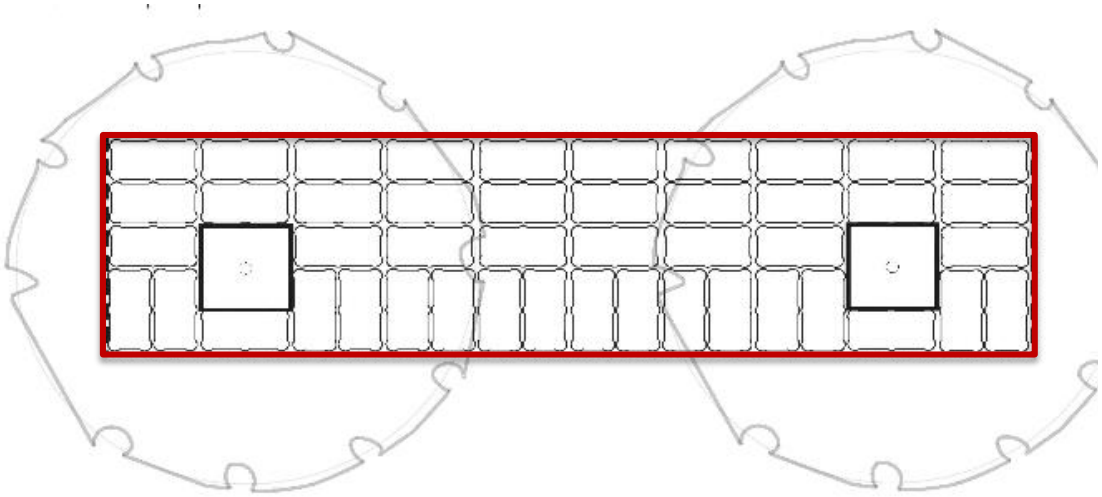
Install Strongbacks

Strongbacks keep the posts aligned during the installation process

Install Geogrid around Perimeter of Silva Cell Layout



Wrap the geogrid around the outside perimeter of the Silva Cell System like a fence.

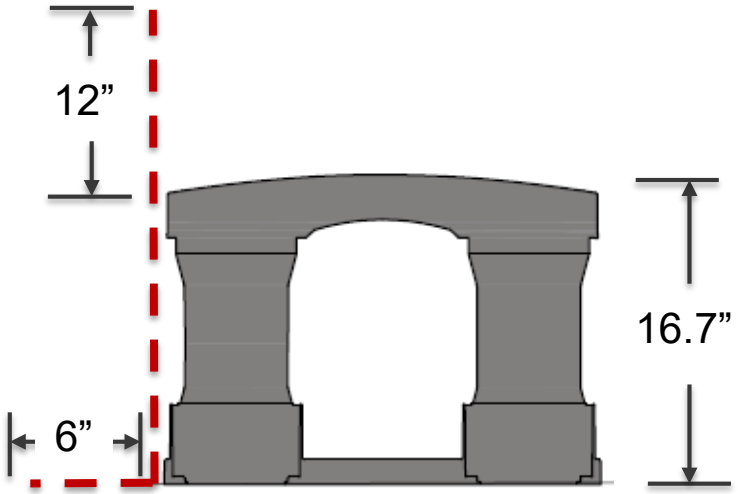
The geogrid keeps the soil contained within the Silva Cell System as it is filled.

Install Geogrid on a 1X Silva Cell System

Allow for a 6” extension at the bottom and a 12” extension at the top of the Silva Cell System.

12”
16.7”
6”

34.7” Total Depth (minimum)



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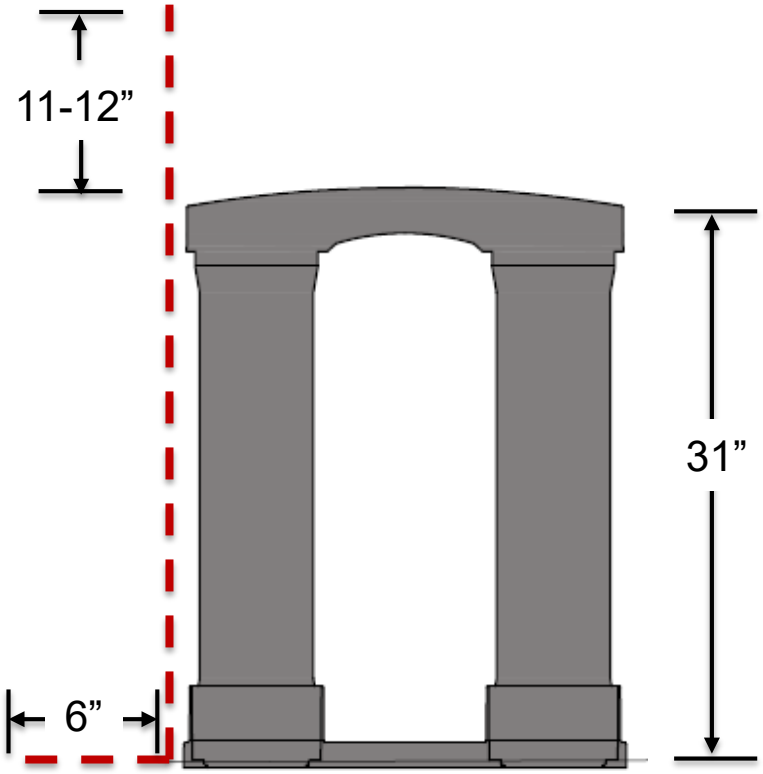
Install Geogrid on a 2X Silva Cell System



Allow for a 6” extension of geogrid at the bottom and 11-12” extension at the top of the Silva Cell System.

31”
11”
6”

48” Total Depth (minimum)

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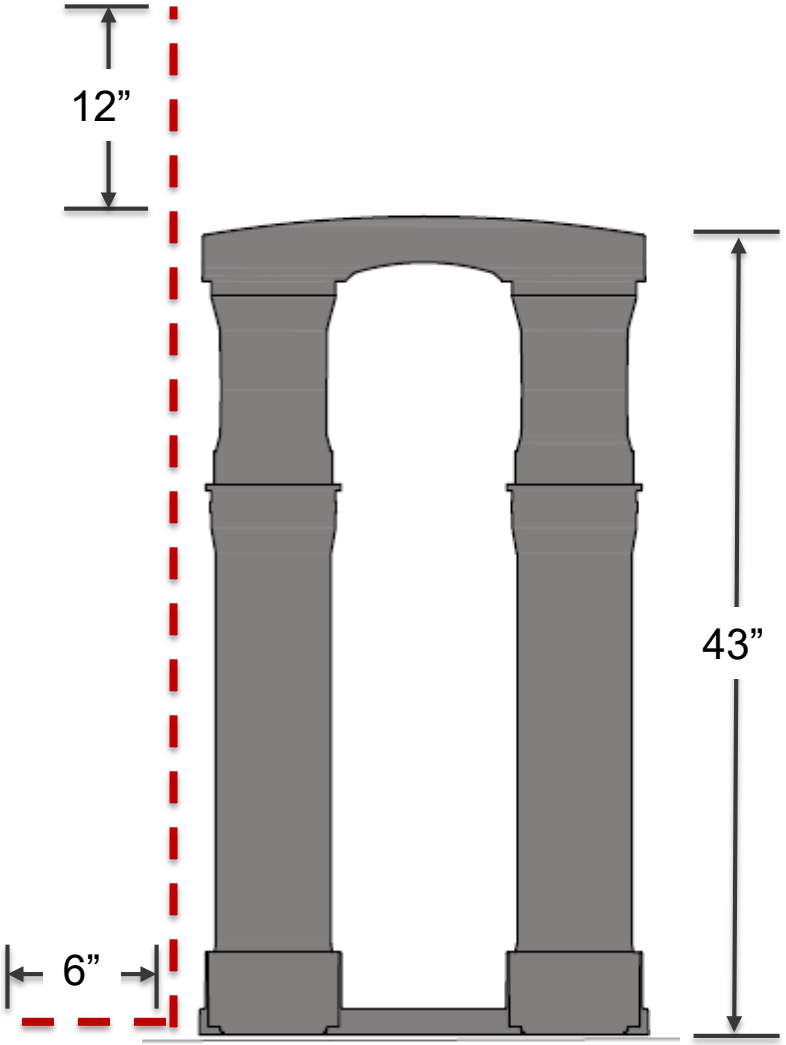
Install Geogrid on a 3X Silva Cell System



Allow for a 6” extension of geogrid at the bottom and 12” extension at the top of the Silva Cell System.

12”
43”
6”

61” Total Depth (minimum)

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Install Geogrid

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Attach Geogrid

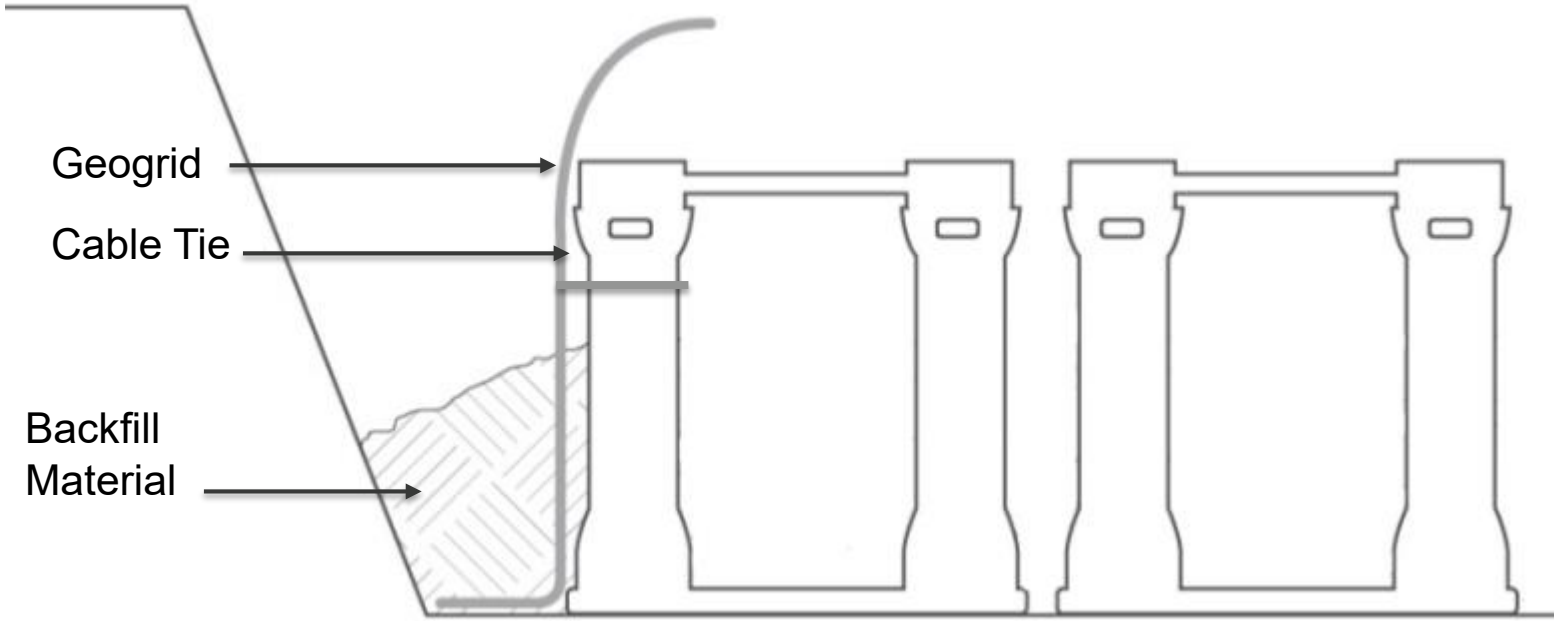
Attach geogrid with a cable tie at the top of each Silva Cell Post.

This keeps the geogrid in place while backfilling around the Silva Cell System.

Install First Lift of Backfill Material

Anchor the toe of the geogrid by placing backfill material to approximately the mid-point of the Silva Cell Post.

Do not compact.



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Install First Lift of Backfill Material

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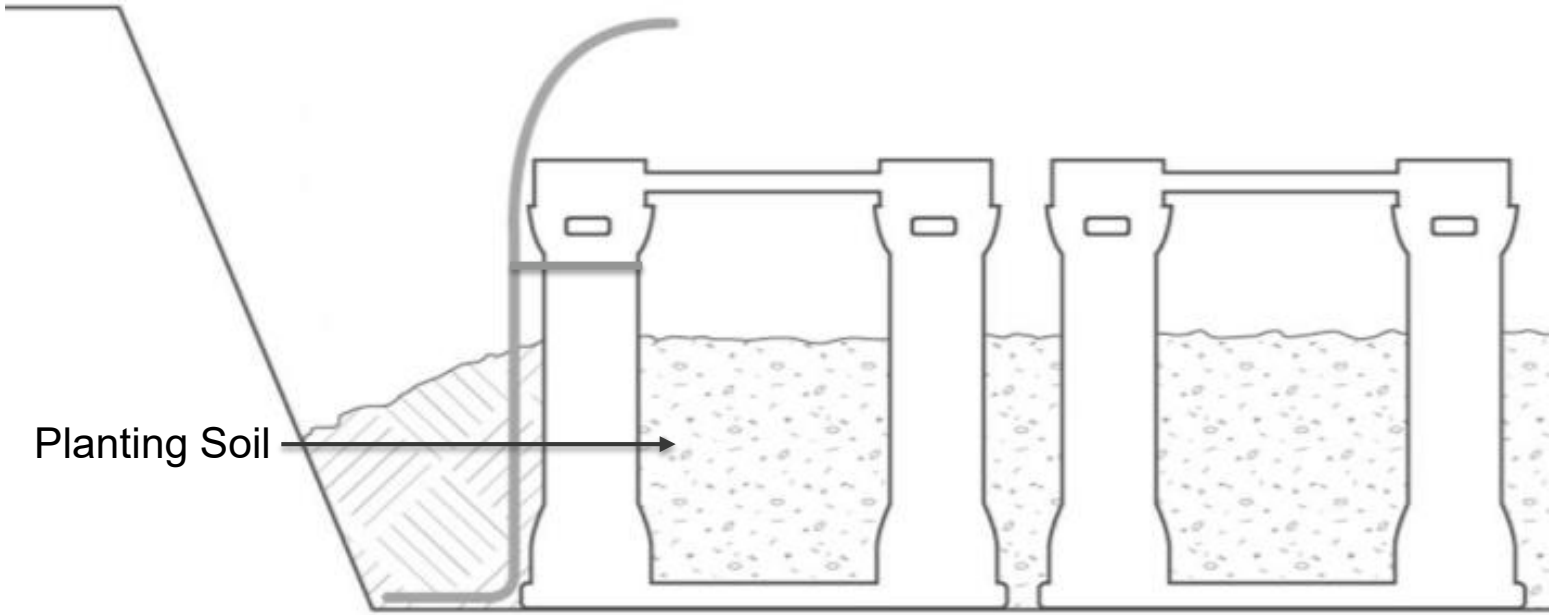
Install First Lift of Planting Soil

Install planting soil mix to approximately mid point of the Silva Cell Posts.

Level the planting soil and walk-through compact.



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Install First Lift of Planting Soil

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Walk-Through Compact Planting Soil

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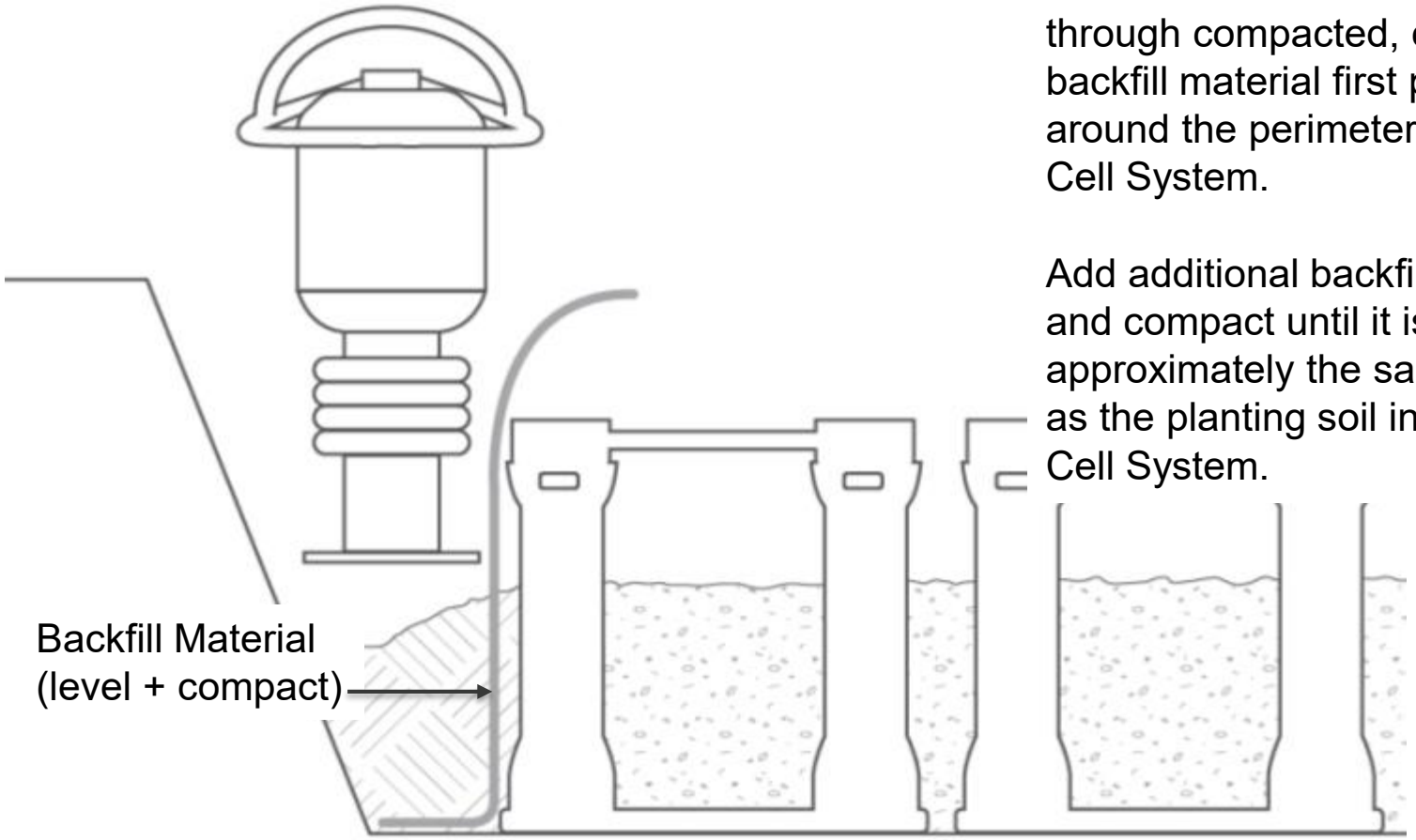
Compact First Lift of Backfill Material



After the first lift of planting soil has been installed and walk-through compacted, compact the backfill material first placed around the perimeter of the Silva Cell System.

Add additional backfill material and compact until it is approximately the same height as the planting soil in the Silva Cell System.

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Compact First Lift of Backfill Material

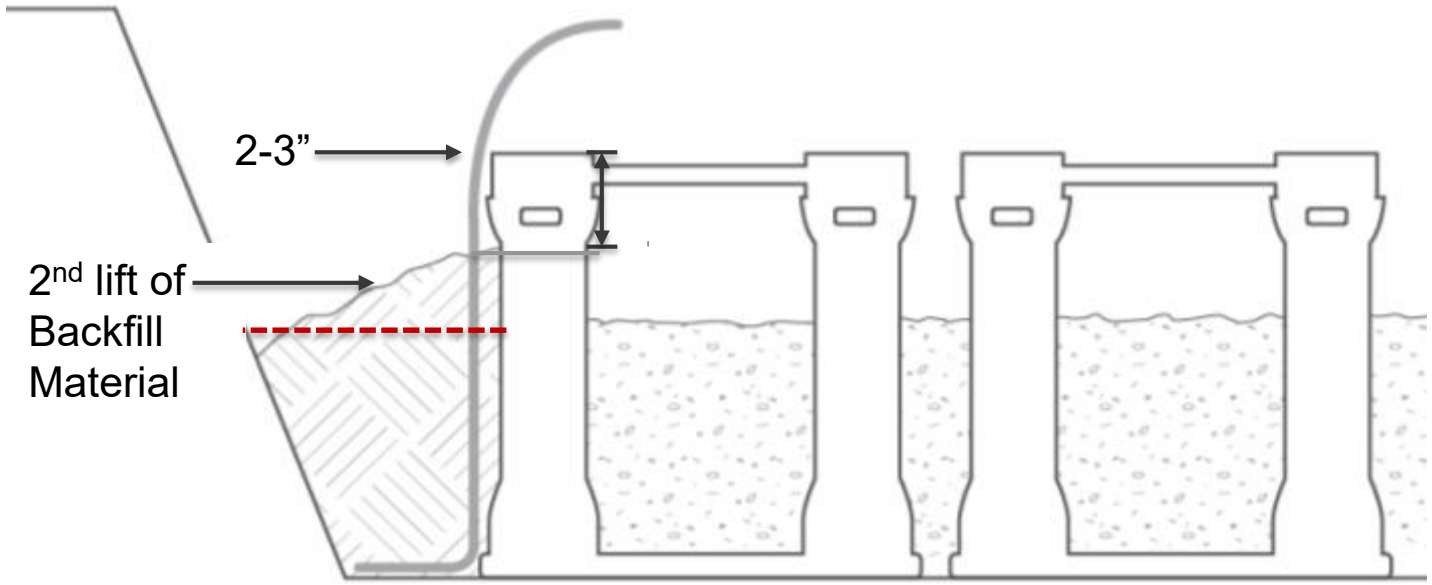
Prevent compaction equipment from coming into direct contact with Silva Cell Posts to avoid potential damage.

Repeat Process-Install Additional Lose Backfill Around Perimeter

After backfill material has been placed and compacted to the height of the planting soil inside the Silva Cell System, repeat the process of adding backfill material around perimeter and planting soil within the Silva Cell System.

Leave the backfill material 2-3 inches down from the top of the Posts.

Do not compact.



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Repeat Process-Install Additional Lose Backfill Around Perimeter

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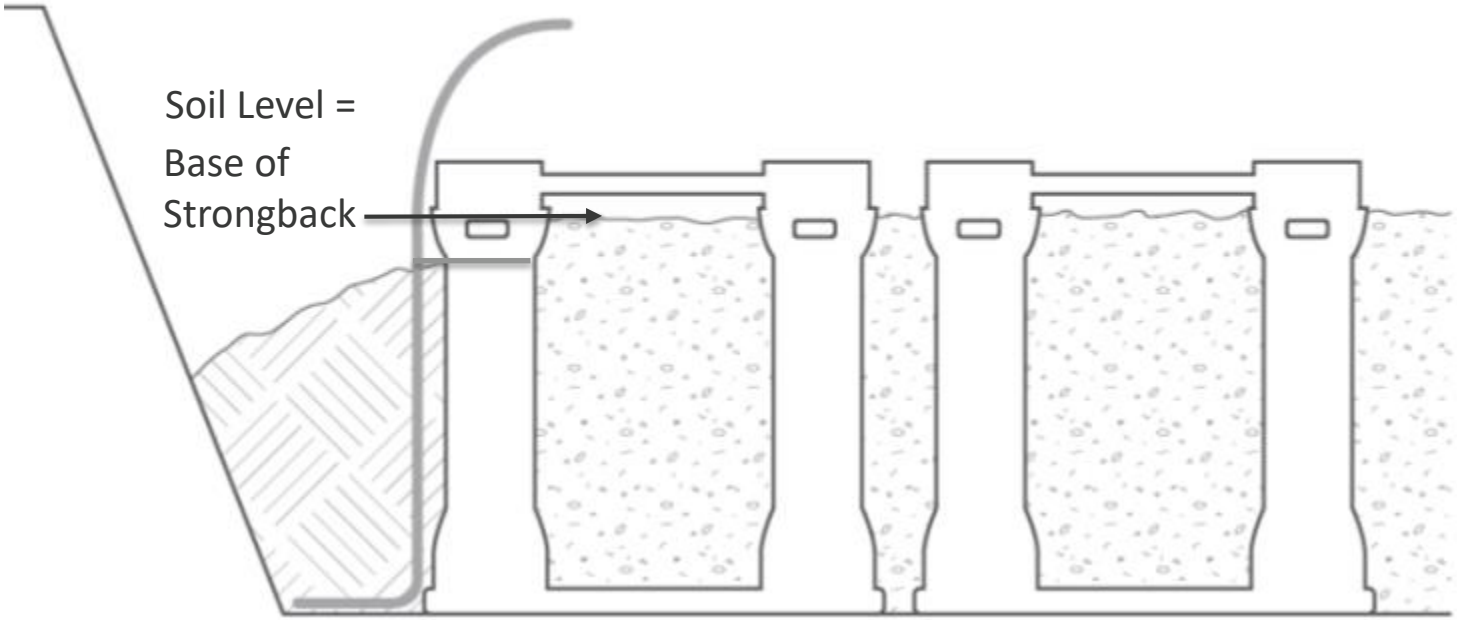
Place Second Lift of Planting Soil

Place second lift of planting soil within the Silva Cell System and walk-through compact until the planting soil inside the System is level with the base of the Strongbacks.



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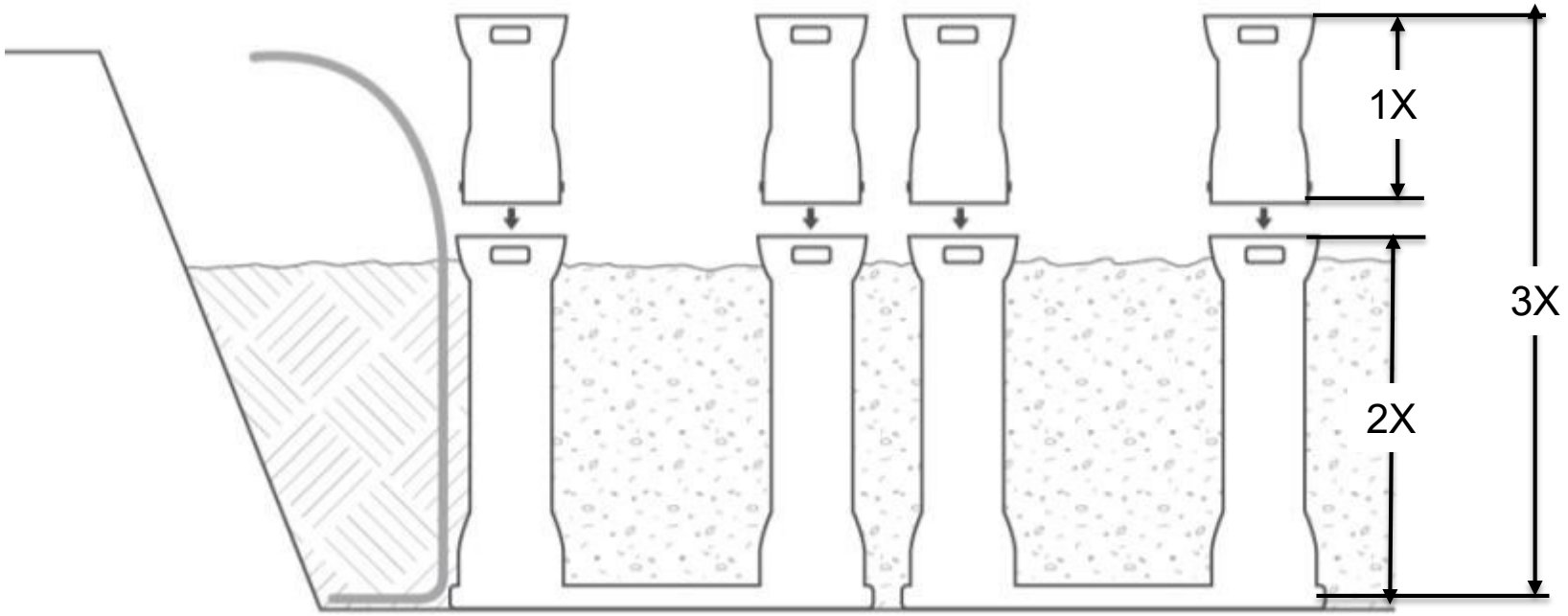
3X Silva Cell System-Add 1x Post Extensions

For a 3X Silva Cell System, carefully remove the Strongbacks and add 1X Post extensions.

Repeat the process of placing backfill material around the perimeter and then filling the Silva Cell System with planting soil one additional time.



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3X Silva Cell System-Add 1x Post Extensions

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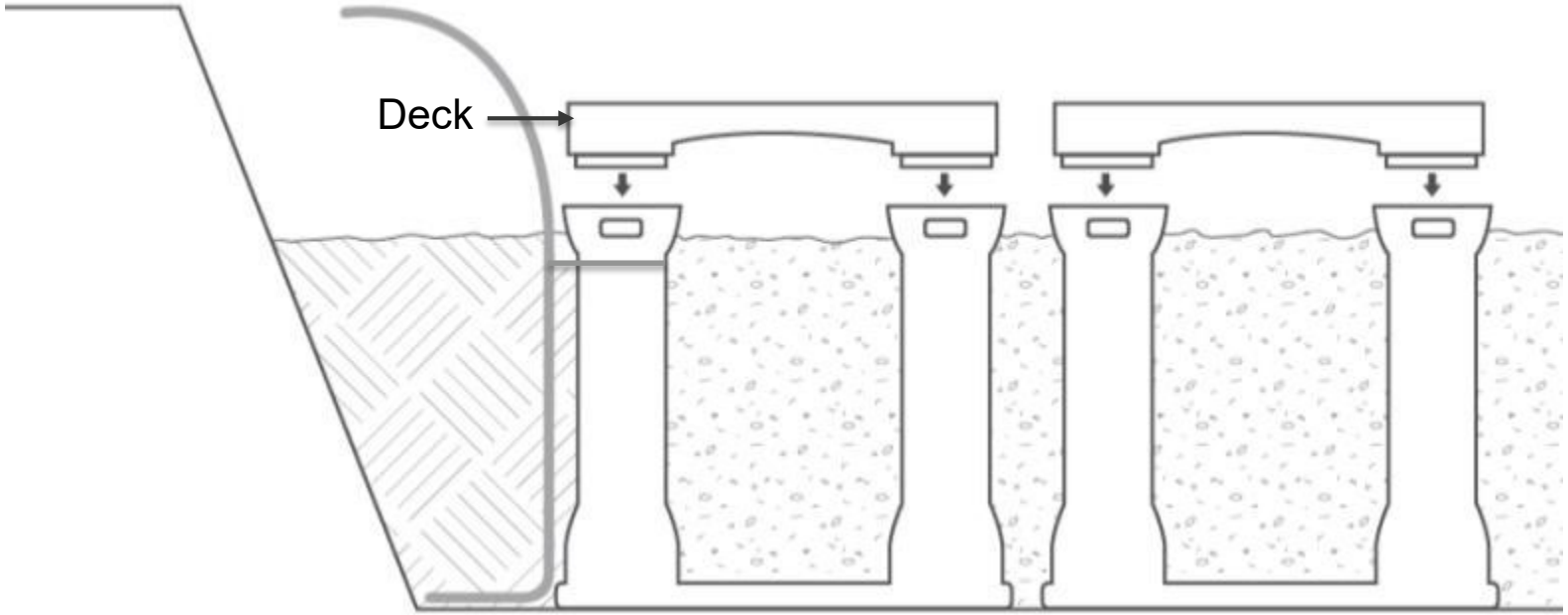
Remove Strongbacks + Install Silva Cell Decks

When finished installing and walk-through compacting the planting soil, carefully remove the Strongbacks, level the soil, and attach the Silva Cell Decks.



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Install Silva Cell Decks

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Install Silva Cell Decks

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Install Silva Cell Decks

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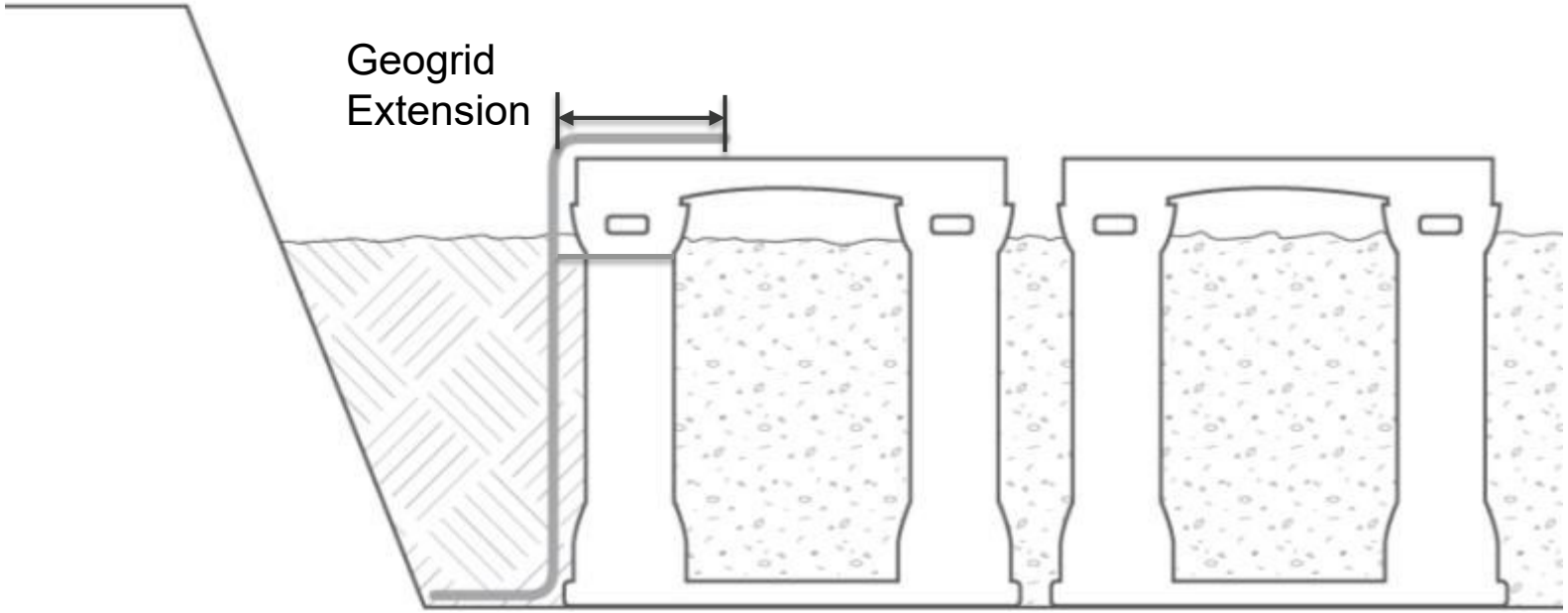
Fold Over Geogrid Extension

After installation of the Silva Cell Decks, fold the geogrid extension over onto the top of the Decks.

Hold down with cable ties as needed.



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Fold Over Geogrid Extension

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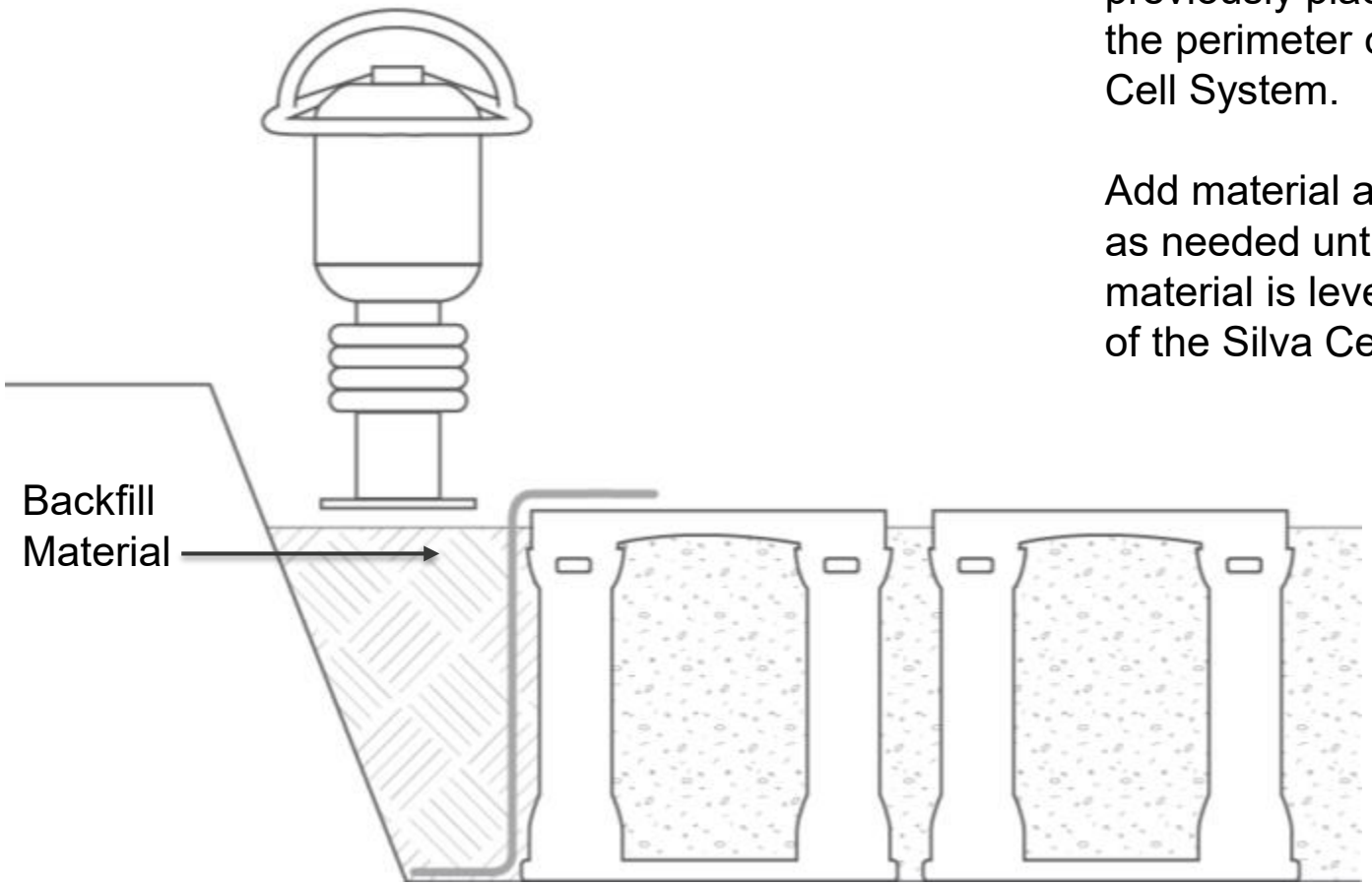
Compact Backfill Around Perimeter of Silva Cell System

Compact backfill material previously placed around the perimeter of the Silva Cell System.

Add material and compact as needed until the backfill material is level with the top of the Silva Cell Decks.



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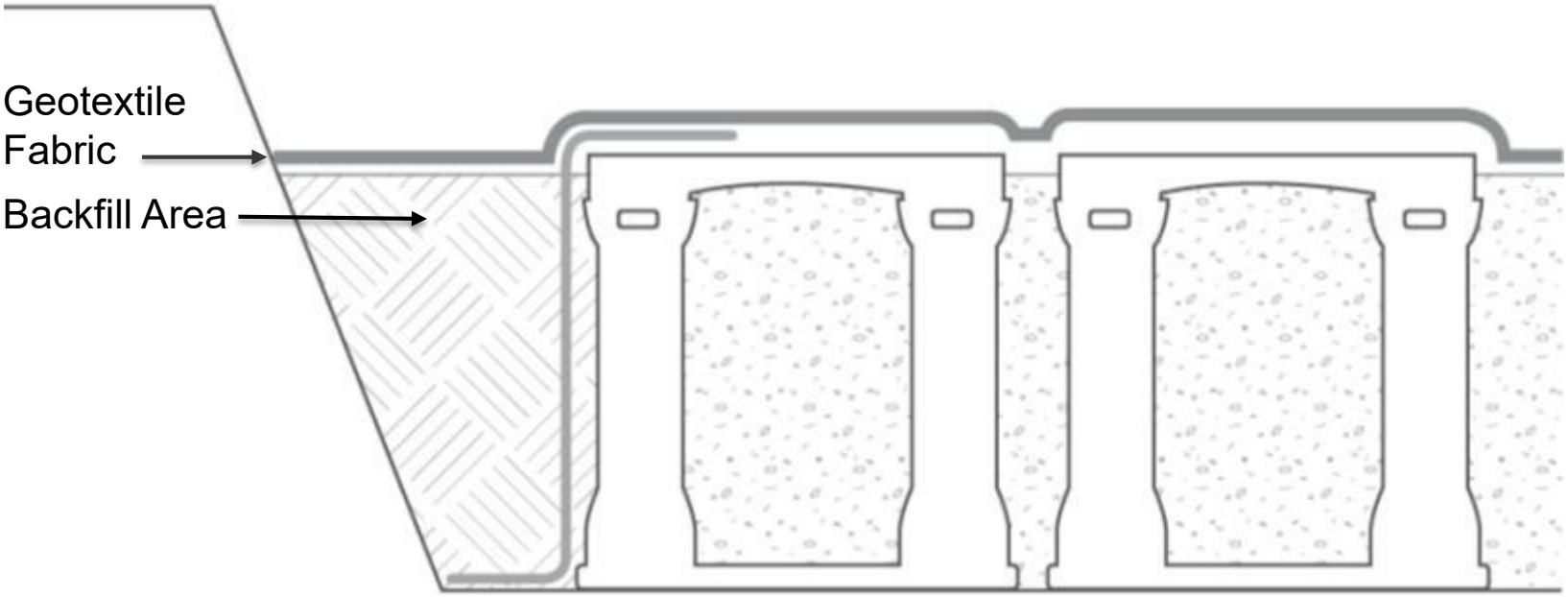
Install Geotextile Fabric Over Silva Cell System

Cover the Silva Cell System with geotextile fabric. Extend geotextile fabric to cover the backfill area.



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Install Geotextile Fabric Over Silva Cell System

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Install Aggregate Base Course Over Silva Cell System

Do not operate machinery over the Silva Cell System.

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

Place aggregate from outside of Silva Cell System.

Start placing aggregate at one end of the Silva Cell System 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 Silva Cell Decks.

Compact Aggregate Base Course

Compact the aggregate base course, as specified.

Equipment must weigh less than 1,000 lbs (453 kg).

Install Concrete Curbing

Install Final Paved Surface

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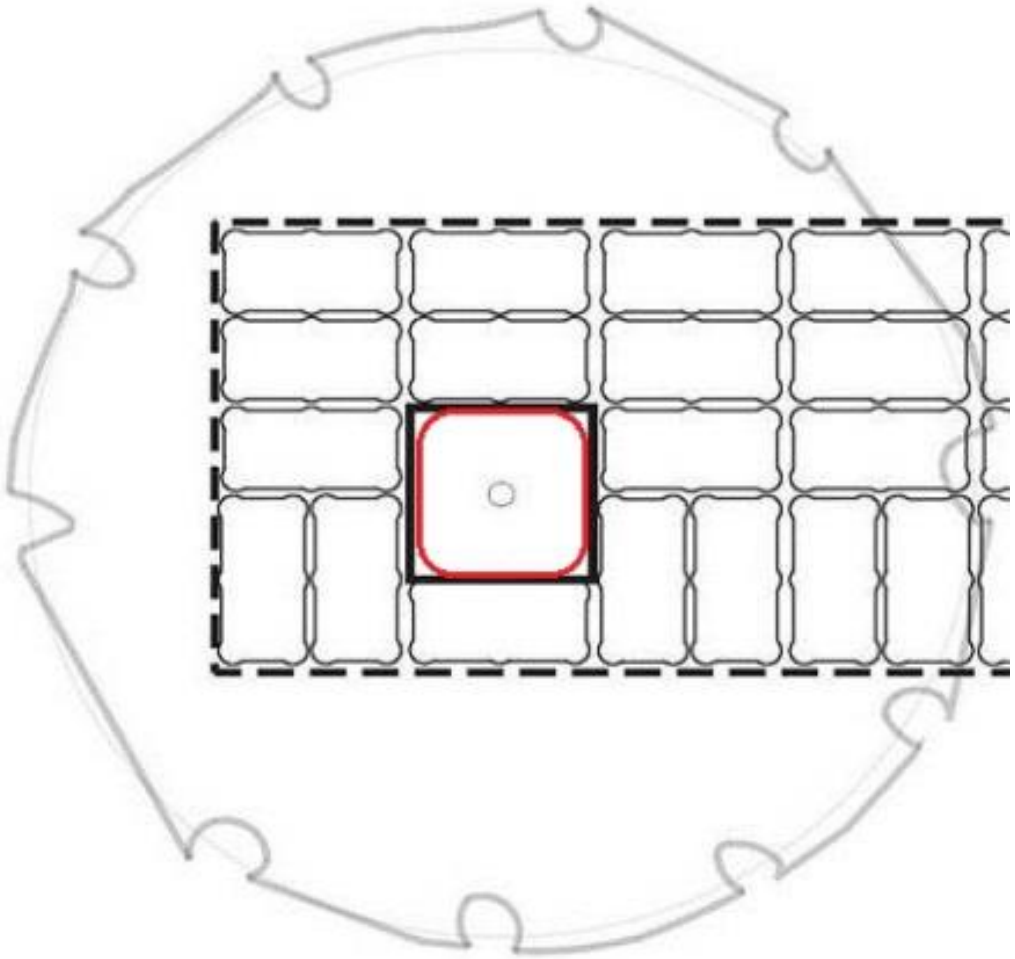
Install Root Barrier



Install Root Barrier inside the tree opening to help guide tree roots into the Silva Cell System.

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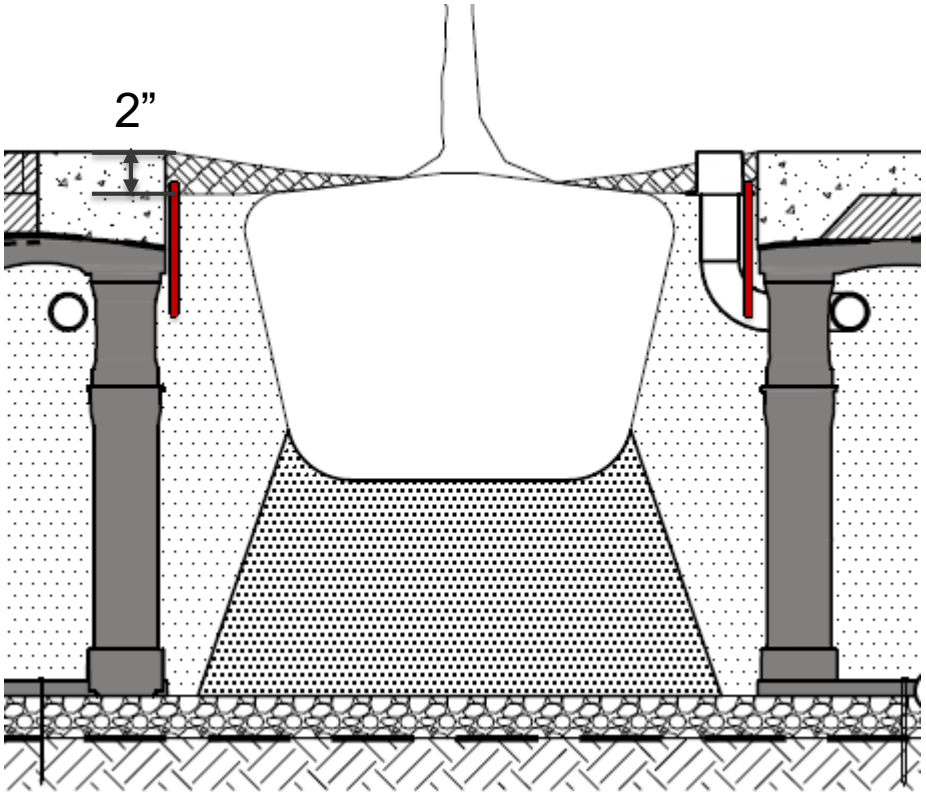
Install Root Barrier



Install root barrier so that the top is roughly 2” below the elevation of the finished pavement or curb.

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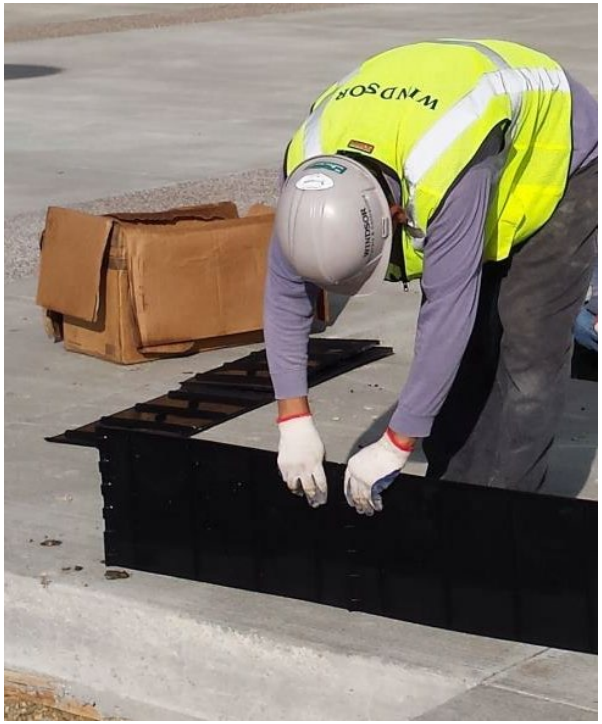
Install Root Barrier



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DeepRoot Contact Information

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Thank You