ECO-MESH

Low Impact Development – Stormwater Management

Green Infrastructure Program

Trees In Bioswale

Street Trees In Bioswale

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Low Impact Development – Stormwater Management

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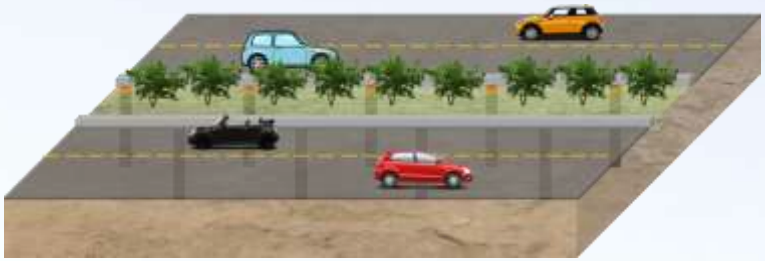
Trees In Bioswale



Road Central separation island
Trees In Bioswale

Sidewalk Trees In Bioswale

Sidewalk Trees In Bioswale

Trees In Bioswale

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Rain Garden – Street Trees In Bioswale

The main purpose of the Trees In Bioswale

1. Collect stormwater from the road and store temporarily in the catchment tree swale to slow road runoff.
2. Place the Anti-Clog Mesh Pipes vertically to promote stormwater infiltration and retention.
3. Collect garbage from road runoff into the tree hole. It is easy to clean and able to avoid blocking the sewer.
4. The tree roots filter stormwater and reduce groundwater contamination.
5. The tree hole is easy to clean.
6. Anti-Clog Mesh Pipe provides soil ventilation and deep root irrigation to create a comfortable space for the plant growth.
7. Only partial excavation needed during construction. This is suitable for the old trees and new construction.
8. The construction is simple, easy, and cost-effective.

Anti-Clog Mesh Pipe provides the most simple and economical way to slow road runoff

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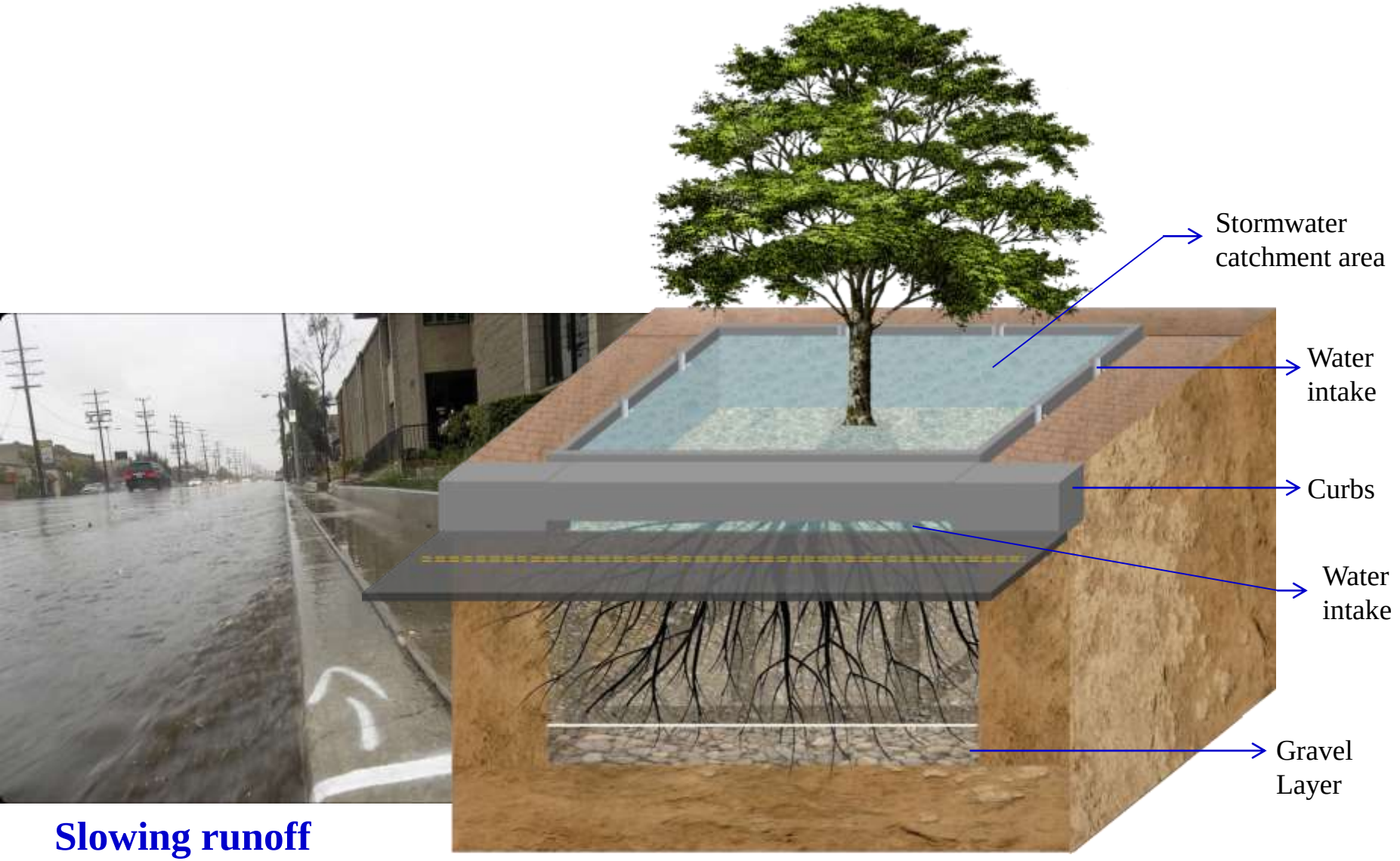
Trees In Bioswale Structure



Slowing runoff

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Trees In Bioswale Structure

Existing trees

Street Trees In Bioswale-Retention Type

Anti-Clog Mesh Tube to promote Stormwater infiltration, water retention and slow the runoff

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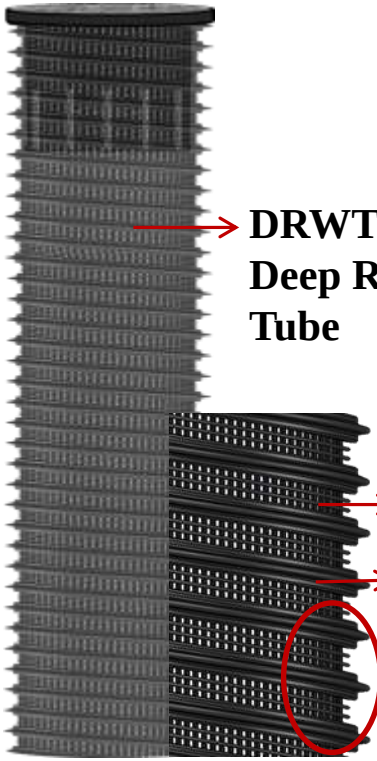
Trees In Bioswale Structure

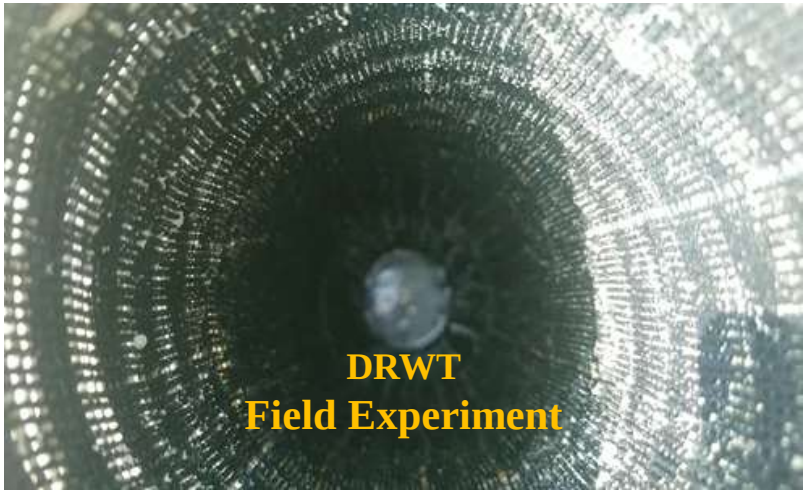
Gravel

Tube

Cap



DRWT
Deep Root Watering
Tube



The sidewall openings are fine mesh design.

The sidewall has T-type thread design and high compressive resistance.

Mesh Tube sidewall is Anti-Clog and minimizes soil entry without extra filter material, such as non-woven fabric.

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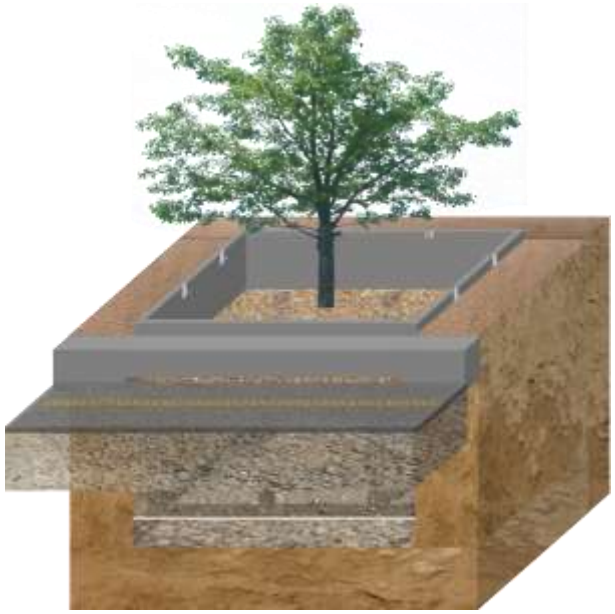
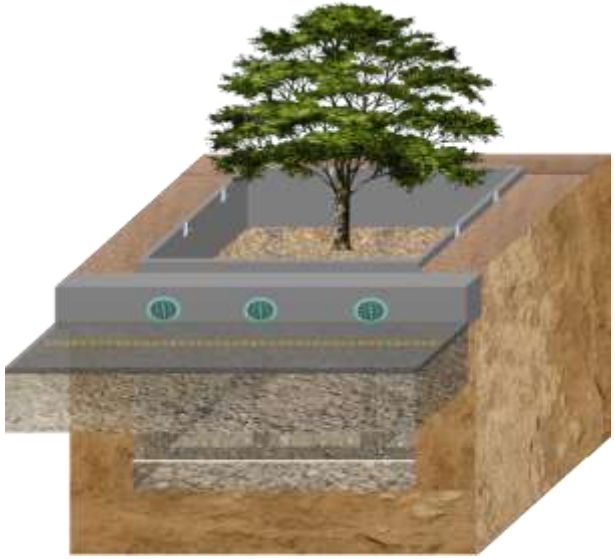
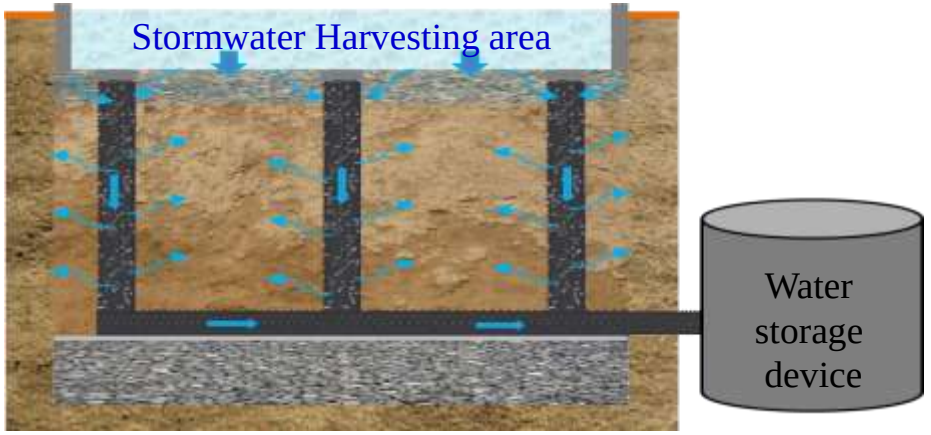
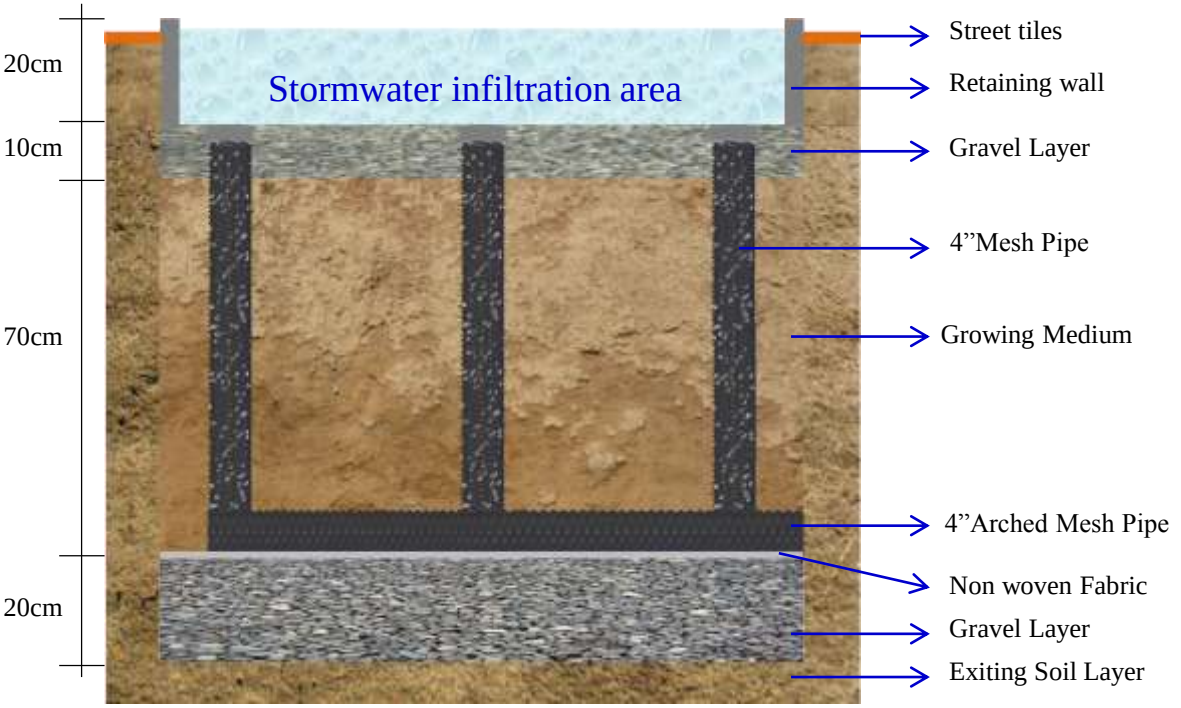
Trees In Bioswale Design









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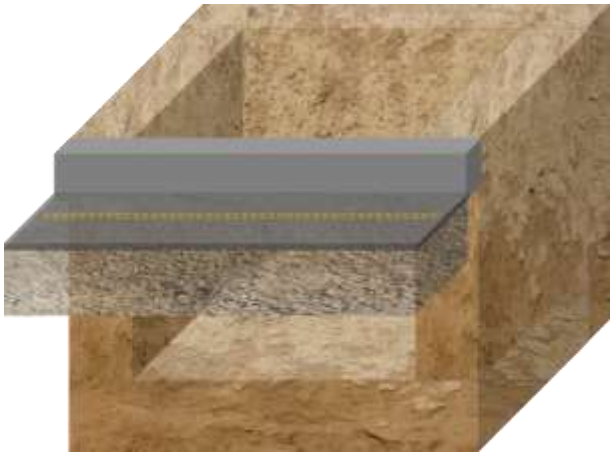
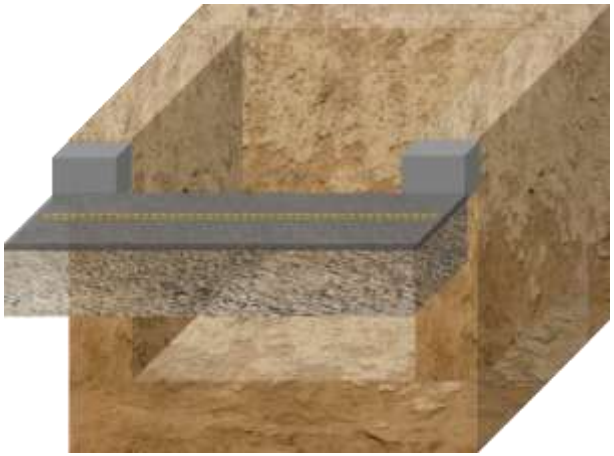
Trees In Bioswale Installation Steps

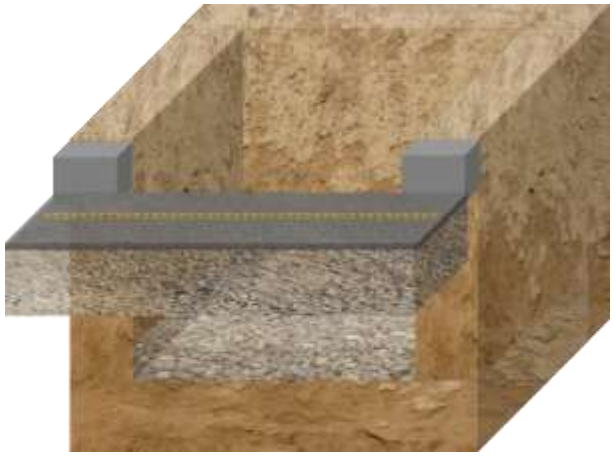


1. Excavate the Tree hole

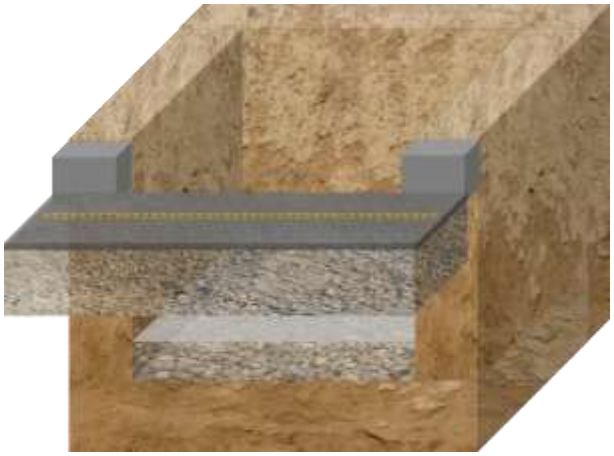
120cm(L)*120cm(W)*120cm(D)



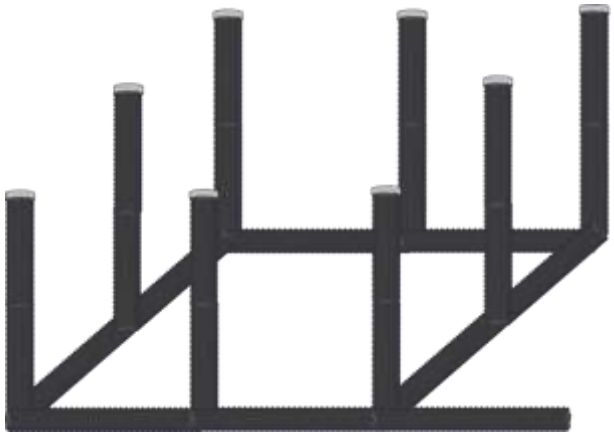
2. Cut the curbs



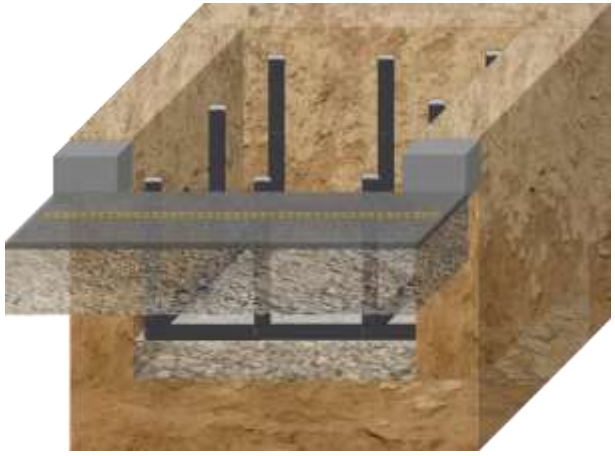
3. Flatten and tamp the bottom of the tree hole. Lay 1” clear gravel for 20cm thick.



4. Cover clean gravel on the geotextile



5. Assemble Arched Mesh Pipe



6. Place Arched Mesh Pipe into tree hole on the geotextile

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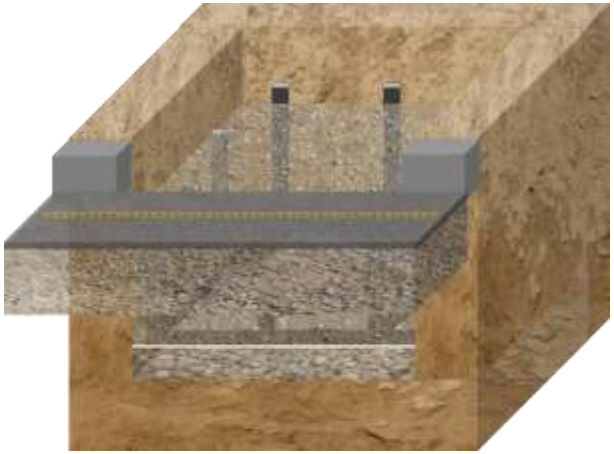
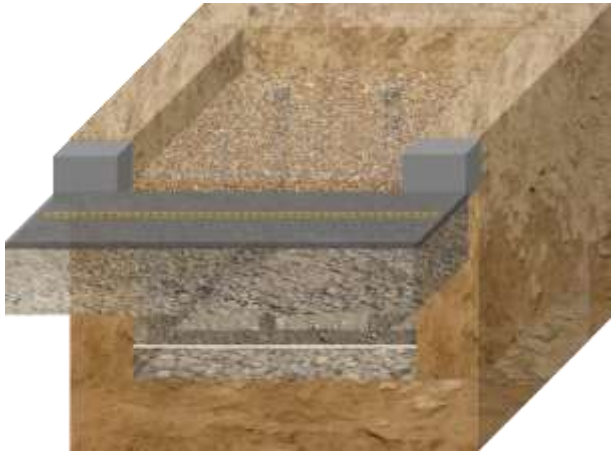
Trees In Bioswale Installation Steps

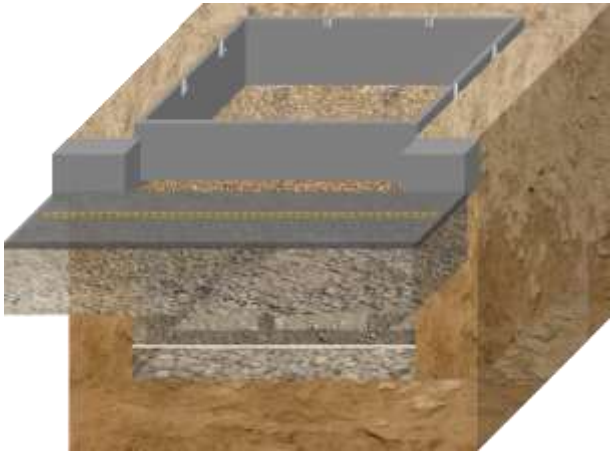


7. Lay soil to 10 cm below the top of Mesh Pipe

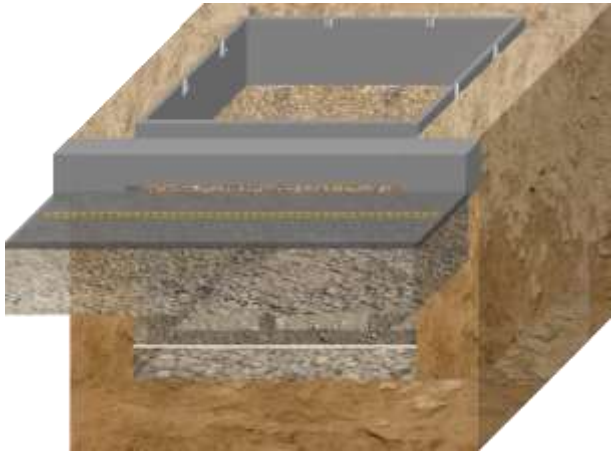


8. Lay 1/2 "clean gravel to the top of Mesh Pipe

11. Plant



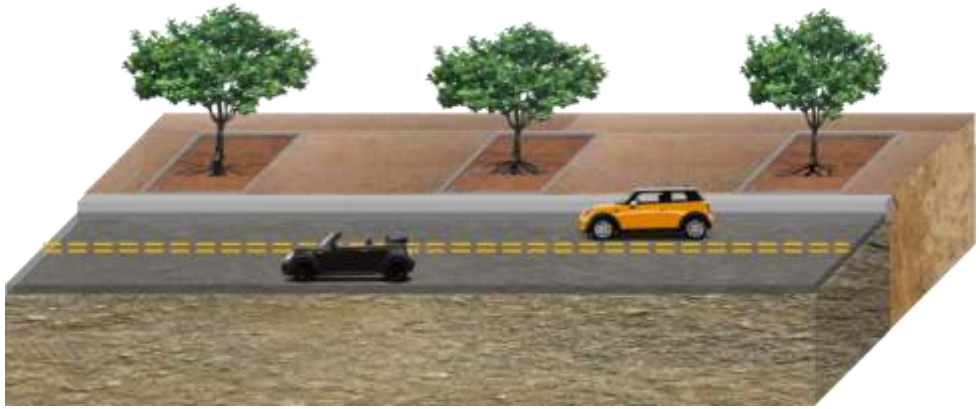
9. Lay partitions



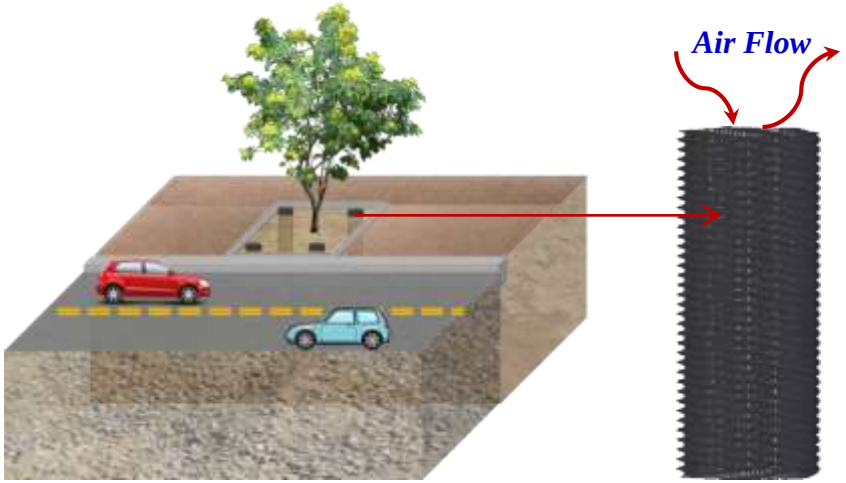
10. Install road water entrance to the curbs

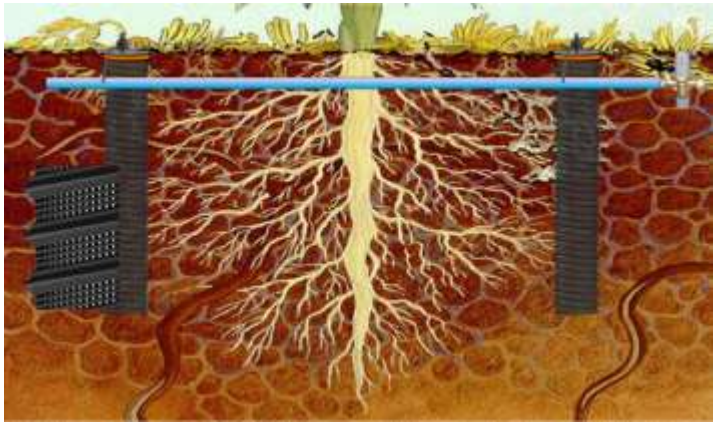
Trees In Bioswale

Existing trees pockets ways to improve



DRWS - Deep Root Watering System enables vital water, oxygen, and nutrients to bypass compacted soil and directly reach tree and shrub root zones to improve tree and shrub investment protection, watering efficiency and landscape aesthetics through deep root growth and tree development.





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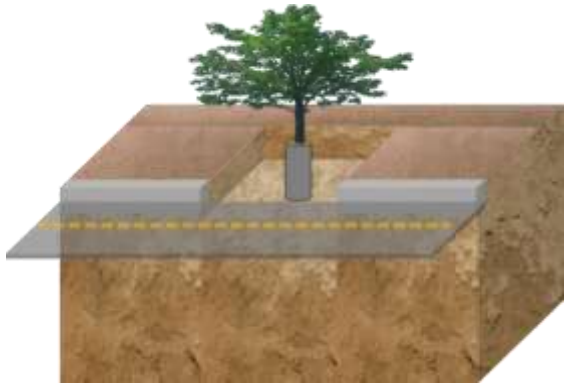
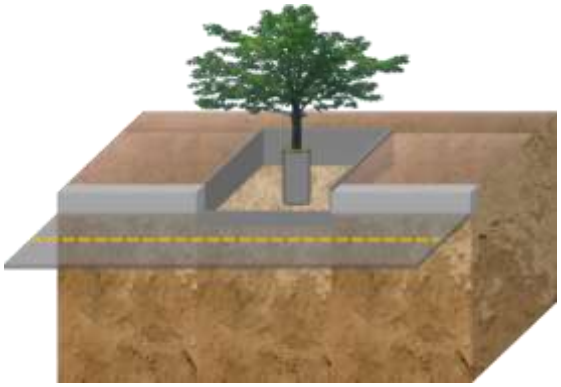
Trees In Bioswale Installation Steps

Existing trees pockets ways to improve

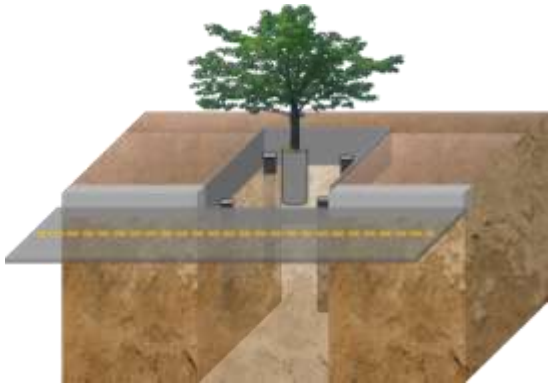
The depth of the tree hole, the size and quantity of mesh pipe must be determined by the permeability of the soil. Water in the catchment area must be penetrated within 2 days to avoid mosquito breeding.



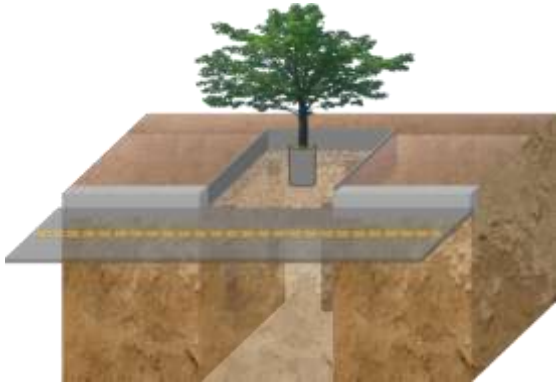
1. **Reduce the soil height of the tree hole**
   - **A. Cut the curb**
   - **B. Eliminate soil of the tree hole to be lower than the road level a certain height**
   - **C. The roots of the trees are protected by sheath**



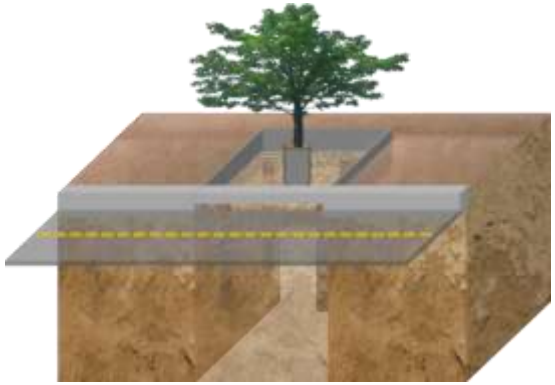
2. Place cement clapboard or brick to surround the tree hole



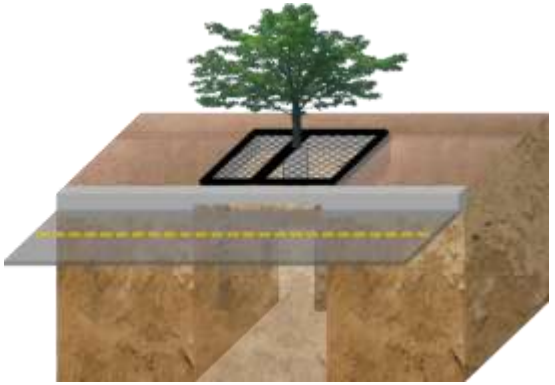
3. Drill around the tree hole and place Mesh Pipe vertically
- **A. Mesh Pipe must be higher than soil surface 5~10cm**
- **B. Install Mesh pipe upper sleeve pot cap**



4. Lay 1/2 "clean gravel to the top of Mesh Pipe



5. Install the inlet curbs



6. Place protection over the tree hole. It must be open-able to remove the garbage inside.

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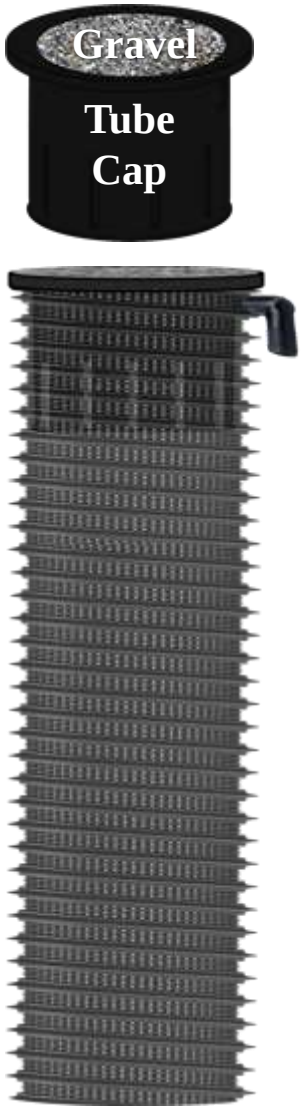
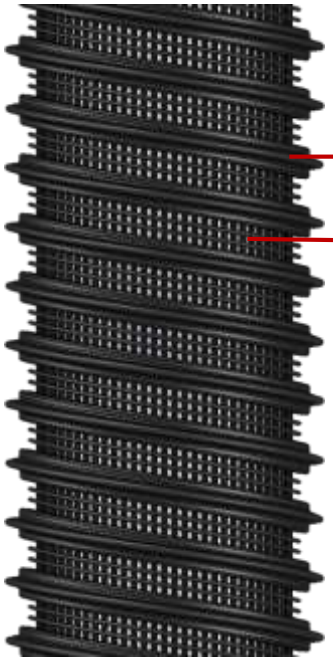
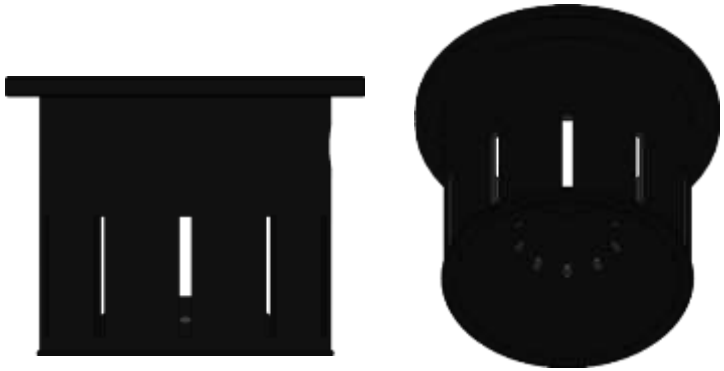
Anti-Clog Mesh Tube Specifications



DRWT-(*MSO*)Specifications

DRWT		ID*OD	Pitch	Length	Cut Length
Size	Code	±3.0%mm	±3.0%mm	m	cm
2"	MSO-50A	48.5*61	11.5mm	5m	25cm, 36cm, 46cm, 60cm
3"	MSO-75A	77*89	12.5mm	5m	36cm, 46cm, 60cm, 90cm,120cm
4"	MSO-100A	98*114	12.5mm	5m	46cm, 60cm, 90cm, 120cm





DRWT Mesh Tube Cap

Trees In Bioswale

Comparison of Trees In Bioswale and trees in box

Tree box plant cultivation is limited to a certain space so plants are limited to certain species. It is a major drawback. The plants need irrigation can only absorb the moisture inside the box especially in dry seasons. The continuous irrigation wastes too much manpower. (Regular trees can survive around 2 to 3 years of planting. Tree box plants need permanent care.) Evapotranspiration accounts for 46 to 72% of rainfall and irrigation water. It can also reduce heat island effect.

The advantages of Trees In Bioswale instead of Trees in Box

1. **Plant roots are not limited so plants are not limited.**
2. **Expansion of the base area for water conservation.**
3. **Only partial excavation is needed.**
4. **Anti-clog mesh pipes are installed vertically around the plants. Installation is easy and cost-effective.**
5. **It does not only provide water infiltration, reduce surface runoff, but also enhances soil permeability, offers deep root irrigation and creates a comfortable plant growth environment.**