BMP Fact Sheet
Infiltration
Below Grade

StormChamber™

Description:

StormChamber™ is a subsurface plastic leaching system used for retention or detention stormwater management. StormChamber™ provides an open bottom interface. The stormwater is leached into the surrounding backfill or directly absorbed into the soil. High flow bypasses can be incorparated for flood flow conveyance.

Constituent Removal:

Constituent Group	Removal Efficiency	Level-of-Confidence
Total Suspended Solids	●	●
Total Nitrogen	●	●
Total Phosphorus	●	●
Pesticides	●	●
Total Metals	●	●
Dissolved Metals	●	●
Microbiological	●	●
Litter	●	●
BOD	●	●
TDS	●	●

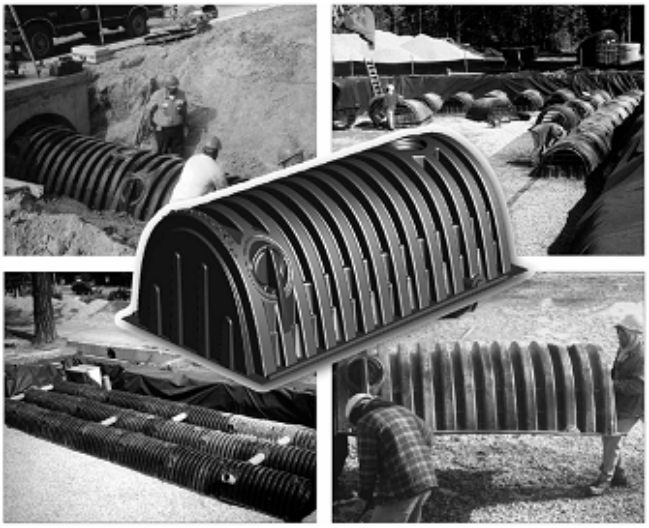
Notes:

Removal efficiency for infiltration is assumed to be 100% for the design water quality volume since no water is discharged to surface waters.

Caltrans Evaluation Status:

Under evaluation for pilot study

Schematic:



Source: www.hydrologicsolutions.com

Key Design Elements:

Minimum cover.
Permeability of soils.
Distance to groundwater.
Load bearing capacity.
Class V injection well determination.

Cost Effectiveness Relative to Detention Basins:

Cost Effectiveness:	Level-of-Confidence
◪	○

Notes:

Cost effectiveness determination pending further evaluation.

Rating Key for Cost Effectiveness Relative to Detention Basins

Benifit ↑ Cost ↓	Benefit ↑ Cost ↑
Benefit ↓ Cost ↓	Benefit ↓ Cost ↑

Rating Key for Constituent Removal Efficiency and Level-of-Confidence

● High ◒ Medium ○ Low

StormChamber™

Maintenance Issues:

Requirements:

Likely vactor equipment with the ability to clean horizontal lines.
Sediment removal pretreatment.

Training:

Training needed for confined space entry.

Project Development Issues:

Right-of-Way-Requirements:

Large area requirements, but area above grade can be used if constructed properly.

Siting Constraints:

Permeable soils, adequate separation to groundwater.

Construction:

Must avoid clogging the filter by compaction from vehicles or by fines introduced during or after construction. Bypass water until drainage is stabilized.

Advantages:

These BMPs prevent the design surface runoff from reaching receiving water (i.e., they are “no surface discharge BMPs”).
Total drainage interface averages more than 60% higher than conventional PVC pipe and stone system of comparable size.
Infiltration addresses all pollutants.

Constraints:

Vulnerable to clogging.
Must be placed on permeable soil.
Must avoid high groundwater.
Must avoid areas prone to spills of groundwater contaminants.
Must address EPA class V injection well regulations.
May have higher construction costs per capture volume than infiltration basins.
Maintenance of underground systems is difficult.
Water percolation may impact structural integrity and stability.
Proprietary device.

Design, Construction, Maintenance and Cost Sources

HydroLogic Solutions, www.hydrologicsolutions.com

Contech® Stormwater Solutions, Inc., www.contech-cpi.com

U.S. Environmental Protection Agency, "When Are Storm Water Discharges regulated As Class V Wells?", www.epa.gov/safewater/uic/pdfs/fact_class5_stormwater.pdf

ASCE/WEF, 1998, Urban Runoff Quality Management, ASCE No. 87., WEF No. 23 1998.

"Young, G. Kenneth, Stuart Stein, Pamela Cole, Traci Kammer, Frank Graziano, Fred Bank, 1996, "Evaluation and Management of Highway Runoff Water Quality," Federal Highway Administration, June 1996

U.S. Environmental Protection Agency, "When Are Storm Water Discharges regulated As Class V Wells?", www.epa.gov/safewater/uic/pdfs/fact_class5_stormwater.pdf

Literature Sources of Performance Demonstrations:

None identified.

Certifications, Verifications, or Designations:

None identified.

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