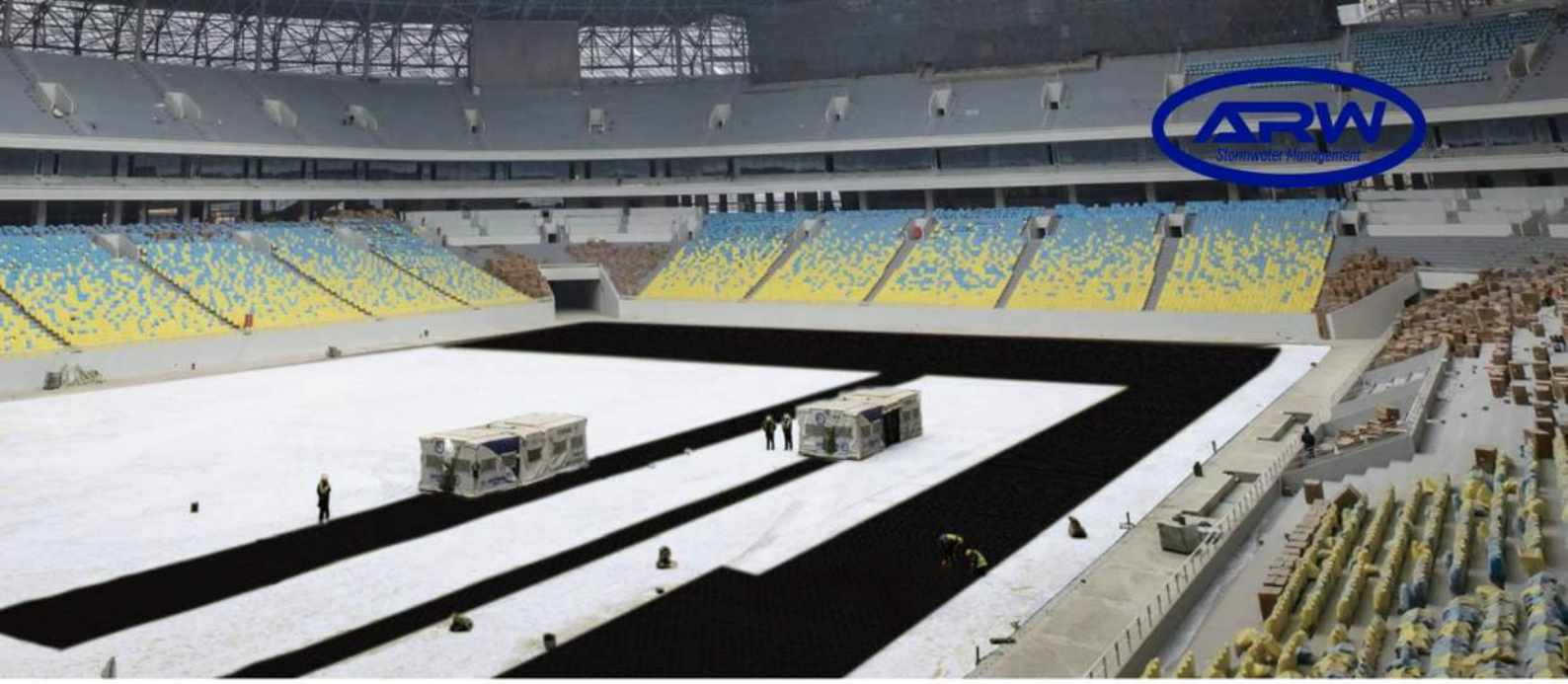
Shallow Attenuation Tank

PRODUCT PROFILE

Attenuation Tank is a shallow, high-strength geocellular module for stormwater storage, attenuation and infiltration that replaces traditional granular sub-base. Interlocking cells (1000 x 500 x 85/150/200/250 mm) form a rigid raft with a high void ratio, managing runoff at source beneath pavements, roofs, podium decks, sports fields and landscaped areas.

BENEFITS & FEATURES

- Shallow sub-base replacement – Replaces traditional granular sub-base, reducing excavation depth, haulage of spoil and imported stone, ideal for tight urban and retrofit projects.
- High void ratio for storage – Approx. 95% void ratio delivers high stormwater storage volume within a minimal construction depth, helping to control peak flows at source.
- Structural load-spreading raft – Interlocking cells form a stiff, continuous raft that distributes loads from pavements, car parks and podium decks into the supporting layers below.
- Multiple depths and build-ups – 85, 150, 200 and 250 mm depths can be used singly or combined, allowing shallow build-ups or deeper tanks without changing the plan layout.
- Flexible modular footprint – 1000 × 500 mm modules suit regular grids, narrow strips and stepped layouts, fitting easily around foundations, services and irregular site geometry.
- Fast, lightweight installation – Lightweight PP units are easy to cut, carry and place by hand, speeding installation and reducing reliance on heavy machinery and large crews.
- Infiltration or attenuation modes – Used with geotextile wrap for infiltration or with an impermeable liner for sealed attenuation, depending on soil, groundwater and regulations.
- SuDS / LID and blue–green ready – Enables blue-green roofs, podium landscapes, sports fields and tree pits that detain, re-use or infiltrate stormwater within the built footprint.
- Low-maintenance internal voids – Stable internal geometry maintains flow paths and storage; access via header pipes or inspection points supports periodic flushing and checks.
- Sustainable material option – Manufactured from durable PP with potential recycled content, fully recyclable at end of life to help reduce the overall environmental footprint.



Attenuation Tank SPECIFICATION & TECHNICAL DATA SHEET

Item	Specification
Product type	Shallow geocellular sub-base replacement for stormwater management
Plan size	1000 × 500 mm per unit (≈ 39.4" × 19.7")
Available heights	85, 150, 200, 250 mm (≈ 3.3", 5.9", 7.9", 9.8")
Plan area	0.50 m^2 per unit (≈ 5.4 ft^2)
Nominal void ratio	≈ 95%
Material	High-strength PP, UV-stabilised, recycled content option
Colour	Black (other colours on request)
Connections	Interlocking edges; interfaces to inlet / outlet / overflow pipes
Typical wraps	Geotextile for infiltration; liner + protection for sealed tanks
Typical uses	Roofs, podiums, plazas, car parks, sports fields, tree pits (SuDS)
Design life	Typically ≥ 50 years, subject to project design and local codes

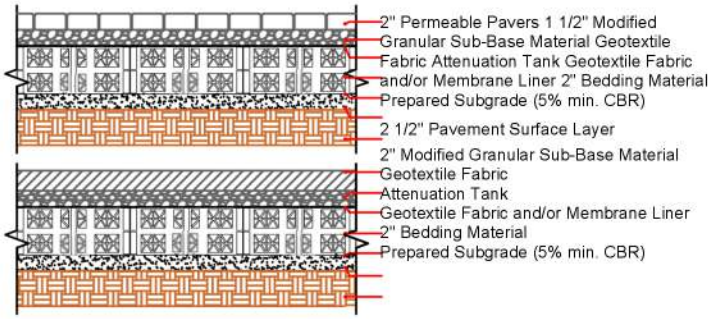
Note:

The information and values given in this Data Sheet are indicative and based on typical design assumptions. They do not replace a project-specific structural and hydraulic design. Actual performance depends on site conditions, loading, soil parameters, groundwater regime and local regulations. System layout, cover depth and any geotextiles or liners must be selected and verified by a qualified engineer. Attenuation reserves the right to change product design and specifications without prior notice.

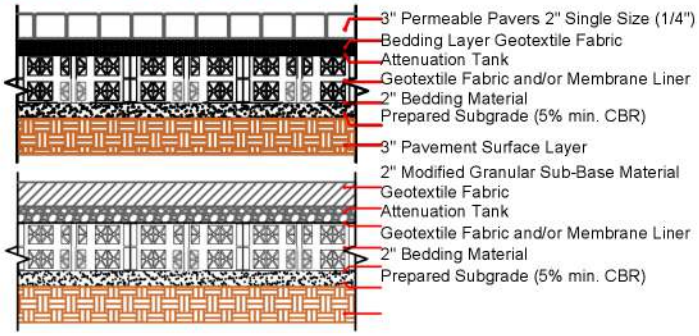
Typical Attenuation Tank Cross-Sections

Indicative build-ups for pedestrian areas, car parks and service traffic.

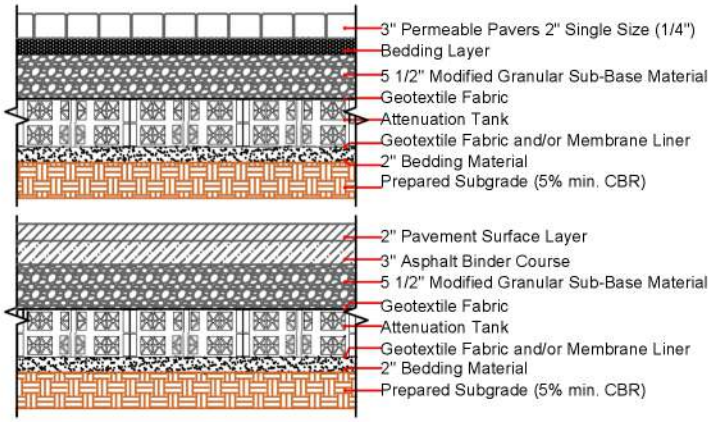
PEDESTRIAN
Typical sidewalks



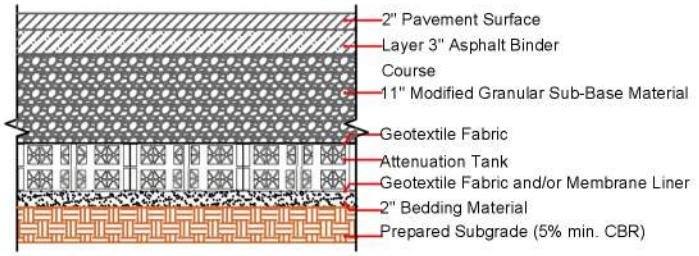
CARS ONLY
Typical Parking Areas



OCCASIONAL H-20
Typical Commercial Deliveries



REGULAR H-20
Typical Loading Docks



Note:
The cross-sections are indicative only. Layer thicknesses, materials and loading capacities for Attenuation Tank must be verified by a qualified pavement and drainage designer in accordance with local codes and site conditions.

Permeable Pavements & Sub-Base System

Shallow geocellular raft that replaces stone sub-base and controls stormwater beneath paved surfaces.

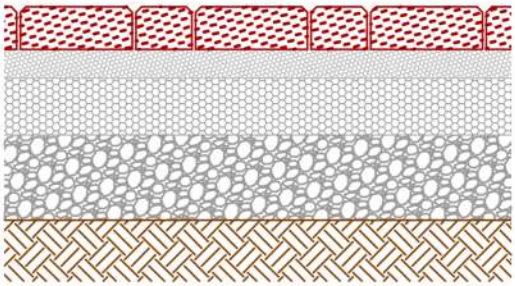
As cities adopt Low Impact Development (LID) principles, four preferred approaches to stormwater are widely recognised:

- **Infiltration** – returning clean water to the soil where possible.
- **Capture & reuse** – harvesting rainwater for irrigation or non-potable use.
- **Biofiltration / detention** – cleaning and buffering runoff in landscaped systems.
- **Slow release (attenuation)** – controlling discharge to protect downstream sewers and waterways.

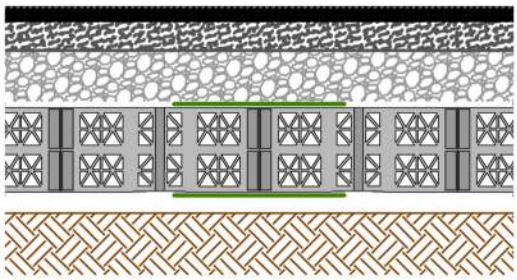
Attenuation Tank is a shallow geocellular sub-base that supports all four strategies within a single system beneath permeable pavements, plazas and rooftops.

Stone Replacement

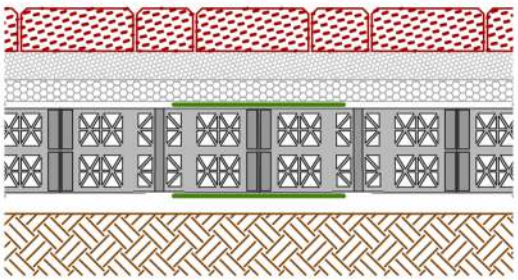
Stone-free structural sub-base
Replacing conventional reservoir stone with Attenuation Tank creates a lightweight, high-void structural raft. The modular cells minimise differential settlement, reduce excavation depth and eliminate the need for large volumes of imported aggregate.



Traditional permeable pavement and stone base



Pavement with Attenuation Tank sub-base



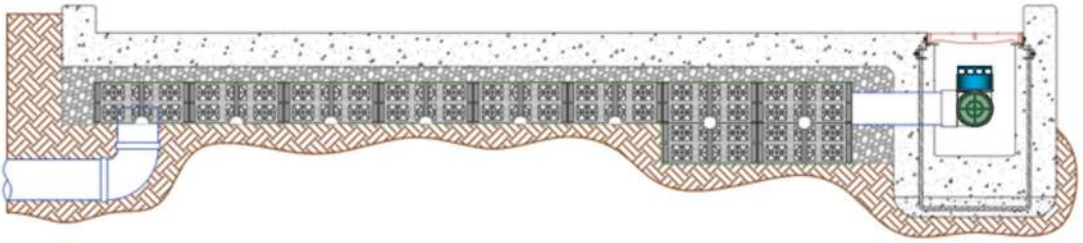
AQUA RainWater-enhanced permeable pavement

Store & Use More Stormwater

Maximize storage in minimal depth
The high void ratio and integrated flow paths within HydraCell provide up to several times more usable storage than an equivalent depth of open-graded stone. This allows shallower construction over rock or high groundwater and makes more of each millimetre of build-up count for stormwater control and reuse.

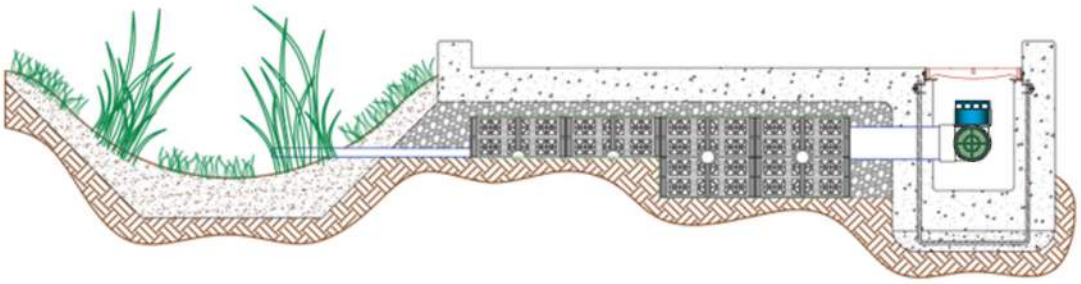
Attenuation Tank for Green Infrastructure

Enhancing bio-swales, rain gardens and tree pits with shallow storage, treatment and passive irrigation.



1. Contaminant filtration & nutrient removal

Clean storage boundaries for treatment
HydraCell sub-bases create defined shallow reservoirs that separate stored stormwater from surrounding soils. Combined with engineered filter media, this allows fine sediments, hydrocarbons and nutrients to be captured and treated within the system before infiltration or controlled discharge, improving overall outlet water quality.



2. Bio-swale & rain garden performance

Boost the capacity of bio-swales
Connecting bio-swales or rain gardens directly to a HydraCell layer increases both storage volume and detention time for nutrient-rich runoff. Plants benefit from a more stable moisture regime, while the extended contact time with the rooting zone improves natural nutrient uptake and reduces pollutant loads to downstream receivers.

3. Passive capillary irrigation

Passive irrigation from below
Where required, HydraCell can be combined with capillary wicks and wicking fabrics to lift stored water back into the root zone. This passive irrigation option harvests, stores and reuses stormwater without pumps or energy, reducing potable water use and supporting resilient planting during dry periods.

Note:
The layouts shown are schematic and not to scale. Final sizing of storage, filter media and any capillary components must be sized and specified by a qualified engineer to suit local rainfall, soil conditions, water quality targets and planting requirements.